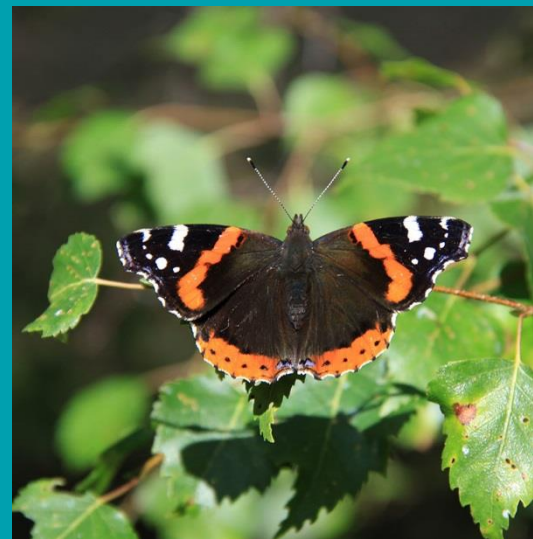


Pennant Walters Ltd.

Mynydd Carn y Cefn Wind Farm

Draft Environmental Statement

Appendix 9A: Baseline
Ornithology Report



Report for

Pennant Walters

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Document revisions

No.	Details	Date
1	Draft for client review	April 2022
2	Final	May 2022



Executive summary

Purpose of this report

This report documents the methodology and results of bird surveys undertaken from March 2020 to February 2022 inclusive at the site of a potential wind farm development at Mynydd Carn y Cefn (the Site) which lies within the Blaenau Gwent County Borough Council administrative area and is located approximately 500m west of Abertillery (Grid Reference: SO 20347 0433). These results will be used to inform an Environmental Impact Assessment (EIA) for the Proposed Development at the Site.

Introduction

The Site is dominated by poor semi-improved grassland used for livestock grazing which forms the southern end of a forked upland ridge between the Ebbw Fawr and Ebbw Fach valley. The site is split by a forestry haul road, woodland and operational solar farm. The access track runs through forestry plantation and open pasture following existing farm tracks.

Survey work during 2020-22 survey period comprised of:

- Vantage point surveys from March 2020 – February 2022.
- Common breeding bird census of Proposed Development area, plus a 100m buffer.
- Winter walkover surveys of the Site, plus 500m buffer (where appropriate).
- Breeding bird survey – undertaken in 2021 to assess the breeding status of goshawk (within 1km of the Site), peregrine (within 2km of the Site) and red kite (within 2km of the Site).
- Nightjar surveys – undertaken during the breeding season in 2020 and 2021 of all suitable habitat within 500m of the Site.

Results

Eleven 'target' species were recorded during the vantage point watches with regular flights of red kite (all seasons), goshawk (all seasons) and peregrine (all seasons). During passage and non-breeding periods infrequent (<10) flights of greenshank, green sandpiper, hobby, honey buzzard golden plover, merlin, hen harrier and teal were also recorded.

The breeding bird survey focused on frequently occurring Schedule 1 raptor species, goshawk, peregrine and red kite. Goshawk had previously been identified as a breeding species occurring within the forestry adjacent to the Proposed Development site and monitoring recorded one confirmed nest and one possible nesting attempt within 1km of the red line boundary. Suitable habitat for nesting peregrine was not present on site but was identified within 2km on nearby crags to the north of the Proposed Development. Monitoring did not confirm a successful breeding

attempt but did record frequent territorial behaviour that suggests the presence of at least one pair of peregrine within 2km of the red line boundary. Red kite were recorded most frequently but the majority of observations were of single birds, often immature/sub adult individuals. Searches of nearby suitable habitat did not identify any active or potential nest locations and it has been concluded that no red kite territories are located within 2km of the red line boundary. However, red kite occur frequently as a non-breeding bird with individuals foraging repeatedly along the hill tops and roosting within the Proposed Development. A single barn owl nest was also discovered during bat surveys completed in July 2021. This is located within the Proposed Development.

The breeding bird surveys identified two distinct assemblages. One associated with the grassland/moorland habitats and the second associated with woodland habitats that dominate the margins and buffer areas around the Proposed Development. The grassland/moorland assemblage includes notable species including skylark, linnet and reed bunting. The woodland assemblage includes notable species including common crossbill, lesser redpoll, wood warbler, long-eared owl, mistle thrush, cuckoo and bullfinch.

Nightjar surveys targeted areas of clear-fell and immature plantation woodland with surveys completed in 2020 and 2021. A peak of three churring males were recorded in 2021 with individuals using areas outside of the red line boundary.

Non-breeding bird surveys did not record any significant use of the site by over wintering or passage migrants with the majority of records consisting of residential species such as common crossbill, goshawk, reed bunting, dunnock and song thrush. Waders or waterfowl were recorded in very small numbers with small flocks (up to 10) of wigeon and teal recorded and seven individual snipe flushed from wetland areas.

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1. Introduction

1.1 Background

Pennant Walters is seeking planning permission for the construction and operation of a wind farm of up to eight turbines on land at Mynydd Carn y Cefn, Abertillery ('the Site').

The Mynydd Carn y Cefn Wind Farm ('the Proposed Development') consists of the following elements and is described in full in **Chapter 4** of the Draft Environmental Statement:

- up to eight wind turbines;
- turbine foundations, laydown and storage areas;
- substation and transformer housing;
- temporary construction compound;
- temporary site offices;
- crane pads at each turbine location
- underground power cabling;
- internal windfarm access track construction; and
- grid connection infrastructure.

Discussions with Western Power Distribution (WPD) indicate that the most likely grid connection will be at 33kv depending upon the final design chosen. The connection between the on-site substation and the electricity grid at Crumlin will be the subject of a separate consenting process under Section 37 of the Electricity Act 1989.

The Site location is shown on **Figure 1.1**.

This baseline report has been prepared on behalf of Pennant Walters (hereafter referred to as 'the Applicant') by Wood Group UK Limited (hereafter referred to as 'Wood')

Pennant Walters is a Walters Group company with a focus on renewable energy having obtained consent for and/or developed a wide variety scheme including onshore wind, solar, small-scale hydro and battery storage.

Wood is registered with the Institute of Environmental Management and Assessment (IEMA)'s Environmental Impact Assessment (EIA) Quality Mark scheme. The scheme allows organisations that lead the co-ordination of EIAs in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed.

Wood has been commissioned by the developer to undertake a range of ornithology surveys at the Site to provide information for the EIA.

1.2 Purpose of this report

This report details the results of the desk study (completed as part of the Preliminary Environmental Assessment (PEA) (Wood, 2021)) and the field surveys undertaken during the survey period. These results will be used, along with the results from other ecological studies, to inform the EIA for the Proposed Development.

For the purposes of this report, nomenclature follows that of the British Ornithologist's Union (BOU, 2017). Scientific names for all species mentioned in the text and tables are included in **Annex A** and details of the legislation pertaining to birds are provided in **Annex B**.

1.3 Site description

The Proposed Development Site comprises a mix of semi-improved and unimproved grassland which forms the southern end of a forked upland ridge between the Ebbw Fawr valley and the Ebbw Fach valley. The Site is split by a forestry haul road and features areas of plantation forestry (predominantly on the flanks of the hill side) and an operational solar farm. (**Figure 1.1**).

The Site lies within the Blaenau Gwent County Borough Council administrative area and its boundary is located approximately 500m from the western edge of Abertillery (Grid Reference: SO 20347 04330). The eastern section of the Site is separated from the town's western boundary by a 200-300m buffer of mature trees. The Site is accessed from a forestry haul road which is taken off the A4046 Aberbeeg Road.

1.4 Background and Scope

The key issues relating to birds and wind farms are as follows:

- The effects of direct habitat loss due to land take by wind turbine bases, tracks and other supporting infrastructure;
- The effects of disturbance and displacement of birds from the proximity of the wind turbines. Such disturbance may occur as a consequence of construction work, or due to the presence of the wind farm close to nest or feeding sites or on habitual flight routes; and
- The effects of collision with rotating turbine blades (i.e., killing or injury of birds), which is of particular relevance for sites located in areas with high raptor activity or which support large concentrations of waterfowl.

The ornithological work carried out at Mynydd Carn y Cefn was based on NatureScot (previously Scottish Natural Heritage (SNH)) guidance for vantage point surveys, and an adapted method based on the British Trust for Ornithology's (BTO's) Common Bird Census (CBC) methodology (Gilbert *et al.*, 1998). A range of guidance documents have been produced relating to the assessment of bird/wind farm interactions and the following publications and guidelines in particular, have been influential in determining the scope of works at Mynydd Carn y Cefn:

- Scottish Natural Heritage (2017). *Recommended bird survey methods to inform impact assessment of onshore wind farms*. <https://www.nature.scot/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms>;

- Scottish Natural Heritage (2018). *Assessing significance of impacts from onshore windfarms outwith designated areas*. <https://www.nature.scot/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected>

The survey methods were based upon that provided within the SNH guidance (as above), though Natural England (NE) guidance was also consulted. SNH and NE guidance recommends that field surveys should be focussed on those species of high nature conservation value for which there is potential for an impact which may be deemed significant and adverse. In most circumstances these “target species” are limited to those protected species and other species of conservation concern which may be subject to impact from wind farms.

SNH (2017) guidance states that there are three overarching species lists which describe protected species and species of conservation concern from which target species may be drawn:

- Special Protection Areas (SPA) designated species and those listed under Annex 1 within the *Directive 2009/147/ec on the conservation of wild birds*, commonly referred to as the Birds Directive;
- Species listed under Schedule 1 of the *Wildlife & Countryside Act 1981* (as amended);
- Species listed under the red list of Birds of Conservation Concern 5 (BoCC) (Stanbury *et al.*, 2021)¹; and
- Species listed under the red list of Birds of Conservation Concern Wales (BoCCW) (Johnstone *et al.*, 2016).

A full description of the methods adopted for survey are provided in **Section 2**. In addition to the species lists detailed above additional consideration has also been given to species listed on Section 7 of the Environment (Wales) Act 2016 and those list on the Welsh BoCC Red List (Johnstone *et al.*, 2016).

¹ The PEA data has been updated to reflect the recently published Birds of Conservation Concern 5. Surveys completed in 2020 and early 2021 used the previous iteration (Birds of Conservation Concern 4, Eaton *et al* 2014). A review of the differences between these documents has shown that no changes to target species recorded would have occurred had the 2021 version been adopted.

2. Methodology

2.1 Desk study

A Preliminary Ecology Appraisal (PEA) (Wood 2021) was undertaken to obtain information regarding statutory and non-statutory sites within the following parameters:

- Statutory designated biodiversity sites of international importance within 10km of the Site.
- Statutory designated biodiversity sites of national/ local importance within 2km of the Site.
- Non-statutory designated biodiversity sites areas within 2km of the Site.
- Records of legally protected/important birds within 2km of the Site.

The presence of Special Protection Areas (SPAs) and Ramsar sites within 10km and Sites of Special Scientific Interest (SSSI) with ornithological interest features were determined using Multi-Agency Geographical Information for the Countryside (MAGIC) website. An additional check for cited ornithological features took place using the Natural Resources Wales (NRW) website².

2.2 Vantage point surveys

Vantage Point (VP) watches were conducted in accordance with SNH (2017) guidance and were undertaken over two consecutive years (2020-21 and 2021-22) with a minimum of 36 hours of monitoring from each identified VP per survey season. The SNH methodology states that VPs should be chosen parsimoniously to achieve maximum visibility from the minimum number of locations, such that all parts of the survey area are within 2km of a VP location.

Two VPs were identified (the VP locations and view-sheds are shown in **Figure 2.1**):

- VP1 – 320375, 203537 – view bearing 105°; and
- VP2 – 320014, 205003 – view bearing 180°.

During 2020-2021 additional survey effort above the minimum requirements was conducted. This additional effort was included to capture post-dispersal flights of goshawk (identified as a breeding species on Site) and to capture any migratory flights of other target species (such as honey buzzard or osprey) which had potential to pass through the Site.

The survey programme was defined as follows:

- April – June 2020 – Core breeding season (target 12 hours of survey per VP each month);
- July – October 2020 - Post-breeding/migration (target 9 hour of survey per VP each month); and

² <https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/find-protected-areas-of-land-and-sea/?lang=en>

- November 2020 – February 2021 - Non-breeding (target 9 hours of survey per VP each month).

Following assessment of initial results, the survey programme in 2021-2022 was revised such that the survey programmes were defined as follows:

- March 2021 – August 2021 – Core breeding and post-breeding (6 hours of survey per VP each month); and
- September 2021 – February/March 2022³ - Non-breeding period (6 hours of survey per VP each month).

This method focuses on identifying the flight paths of target species and allows any regularly used flight lines to be identified, allowing turbine locations to be altered where necessary to reduce collision risk to birds. The data generated can also be used to estimate the theoretical risk of collision with turbines by incorporation into a suitable model.

Flights were classified using the following five height bands, of which Height Band B (10m-50m), Height Band C (50 – 150m) and Height Band D (150-200m) include flights at Potential Collision Height:

- Band A: 0-10m;
- Band B: 10-50m;
- Band C: 50-150m;
- Band D: 150 -200m;
- Band E: >200m.

Full survey details, including dates, times and weather conditions are provided in **Table C1-C4** in **Annex C**.

For the purposes of Collision Risk Modelling the analysis has used the standard breeding and non-breeding periods (following SNH 2017):

- Breeding Season – (March – August).
- Non-Breeding Season – (September – February).

This has required the combination of results from monitoring periods from the first year of observation when additional effort, above minimum requirements, was completed during the post-breeding season (August – October 2020).

Target species

The following key species of conservation concern (target species) and secondary species were identified from information within the desk study and those species considered likely to occur on the Site:

³ These surveys are ongoing and results from this period are not included as part of this report but will be updated and included as part of the final planning submission.

Target species:

- Protected raptors and owls: honey buzzard, hen harrier, red kite, goshawk, barn owl, short-eared owl, merlin, hobby and peregrine; and
- Waterfowl and waders: all wildfowl species (except feral species, mute swan, canada goose, greylag goose and mallard) and Annex I species such as wintering golden plover.

Secondary species:

- All non-Annex I wader species (e.g., oystercatcher, snipe, woodcock, curlew, and lapwing); all non-Annex I/Schedule 1 raptor species (e.g., common buzzard, sparrowhawk, long-eared owl, tawny owl, and kestrel); and raven.
- All Schedule 1 species not considered within target species criteria (e.g., crossbill, kingfisher)
- Priority species listed on Section 7 of the Environment (Wales) Act 2016.
- BoCC red-listed species (UK and Wales lists).

Secondary species were recorded in each 5-minute slot during the VP surveys. Notes were made regarding the approximate location and distribution; however accurate mapping was not carried out.

Incidental Records

Birds seen outside formalised timed surveys were also recorded (i.e., those observed whilst following different survey methodologies, during walks on and off the Site, during walks between VPs and during other breaks in survey work). Detailed notes on the activity of any target species were made and target species flights mapped.

Limitations

Where prolonged periods of poor weather impacted the ability to complete requisite hours at each VP, each month, additional hours of survey were undertaken at the next opportunity to fulfil survey schedules within each period. A summary of the total number of hours completed at each VP is provided in **Section 3.2**.

2.3 Breeding bird surveys

A breeding bird survey was carried out following an adapted method based on the BTO's CBC methodology (Gilbert *et al.*, 1998). A total of six visits were undertaken over the survey area during the 2020 breeding season: one in March [at the end of the month], two in April [at broadly two-week intervals], two in May [at broadly two-week intervals from late April visit], and one in June [at broadly two-week intervals from the May visits]. Two surveyors were used for all visits. For the purposes of defining specific coverage for each field surveyor, the survey area was split into four areas roughly divided into north, west and south by easily identifiable landscape features (see **Figure 2.2**). The two surveyors both surveyed along the line dividing the survey areas and the territory mapping factored this potential duplication of effort.

All surveys avoided heavy rain, or strong or cold winds, therefore minimising variation in bird activity levels due to weather conditions. All habitat within 100 m of the red line boundary were thoroughly surveyed over the course of a single morning, during all six visits. All visits started at least an hour after dawn and were completed no later than midday. A different route and or starting point was used by surveyors on each survey visit to ensure that certain parts of the survey area did not receive systematically better coverage as a result of possible decline in bird activity or song output later in the morning. The location of each bird detected (visually and/or aurally) was mapped using standard two-letter BTO codes, and bird activity was recorded using standard behaviour codes (Marchant, 1983).

Full survey visits information, including dates, times and weather conditions are presented in **Annex C Table C5**.

Territory mapping

On completion of the field survey, results were collated and analysed and provided as maps of indicative territory centre-points, made across all visits. Territory mapping analysis was based on criteria adapted from Amar *et al.* (2006) (See **Annex D**) and involved an experienced ornithologist looking for spatial groupings of song registrations. No temporal restrictions have been applied, such that any grouping with more than one visit represented, or consisting of at least one registration of song, has been assessed as a territory. These data have been used to determine the number and distribution of species and overall breeding assemblage within the survey area.

As territory locations were derived from a combination of each visit map (as per CBC methodology); it should be noted that the locations do not necessarily represent specific nest locations (identifying these locations was not the aim of this survey method, which is designed to estimate the number and distribution of breeding birds within the site, identifying areas of high density and habitats used by notable species).

Limitations

Breeding bird surveys avoid as far as practicable inclement weather, including strong and or cold winds; as this is known to reduce bird activity within an area.

The breeding bird survey was completed in 2020 and based on an earlier iteration of the red line boundary. This has meant that a portion of the site, located on the western edge of the central valley has only been subject to coverage during survey as part of the 100m buffer. However, this portion of the site has been visited regularly during surveys and incidental sightings or confirmed breeding occurrences (observed during other surveys) have been added to this area.

2.4 Breeding Raptor Survey

Based on the findings from the desk study and other baseline surveys, three species of raptor listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) were identified using the Site and surrounding area with confirmed occurrence of breeding for goshawk and suitable habitat for red kite and peregrine. Surveys for Wildlife and Countryside Act, Schedule 1 Species was undertaken by Natural Resources Wales (NRW) licenced staff (License number S089175/1) between 29 March 2021 and 8 July 2021.

Schedule 1 surveys followed the species-specific methods detailed in Hardey *et al.* (2013). Following this methodology requires data to be collected from specific distances within the boundary of a proposed development site:

- Within 2km of site for red kite and peregrine..
- Up to 1km for goshawk.

The survey area for Schedule 1 breeding bird survey is shown in **Figure 2.3**.

A six-visit survey was undertaken aiming to identify nest sites and monitor progress of any identified nesting attempts. Surveys initially looked for birds displaying in the survey area, before refining the search based on any such observations, including from VP surveys, any other flights detected (e.g., birds carrying prey or territorial activity) and habitat suitability (e.g., areas of mature timber for goshawk). Thereafter, surveys focused on looking for specific nest locations and subsequent monitoring of breeding success.

Full details of survey visits, including dates, times and weather conditions can be found in **Annex C, Table C6**. To optimise the chances of confirming breeding, the survey visits were timed to coincide with the likely timings of the different, breeding cycle stages of each species.

Limitations

As with breeding bird surveys, all schedule 1 breeding surveys were undertaken to avoid as far as practicable inclement weather, including strong and or cold winds; as this is known to reduce bird activity within an area.

2.5 Non-breeding bird surveys

Non-breeding walkover surveys were undertaken between 30 October 2020 and 9 March 2021 to record over-wintering and resident species present on the Site and within a 500m buffer (where appropriate). Surveys focussed on open areas, including all areas of moorland, grassland, pasture, and woodland plantations. The non-breeding bird survey followed two transects of similar length covering within 100m of all areas/habitats of interest. **Figure 2.4** shows the non-breeding bird survey transects.

The aim of these surveys was to determine whether any notable species, as defined below, regularly feed or rest/roost within the proposed areas for development (plus additional buffer).

Notable species are defined as:

- All waders and wildfowl (excluding feral/domestic birds, mallard, canada goose and greylag goose);
- Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
- Species listed on Annex 1 of the Birds Directive;
- Species listed on Section 7 priority species, following Part 1 of the Environment (Wales) Act 2016;
- Birds of Conservation Concern (BoCC) red list species (Eaton *et al.*, 2015);

- Birds of Conservation Concern Wales (BoCCW) red list species (Johnstone *et al*, 2016); and
- Assemblages of 20+ birds of all other species (e.g., winter thrushes, finches, gulls or corvids).

Using survey maps and the defined transect routes, surveyors recorded the approximate location of these species directly onto survey maps recording the following details:

- Species (using standard BTO 2-letter codes);
- numbers of individuals;
- locations of records; and
- activity (foraging, loafing, roosting etc.).

The presence of species that did not qualify as notable using the criteria were also noted. However, information on numbers, distribution and behaviour was not recorded such that a species list was recorded for each transect/transect section.

Each survey visit was completed on a single day allowing a snapshot record of the number and distribution of wintering birds present each month. All areas were crossed by transects focused on areas most likely to support wintering birds.

All surveys avoided heavy rain, or strong or cold winds, minimising variation in bird activity levels due to weather conditions, wherever possible. All visits will start at least an hour after dawn and would be completed by 15:00 hours. Full survey details, including dates, times and weather conditions can be found in **Annex C, Table C7**.

Limitations

Non-breeding bird surveys were carried out throughout winter 2020/21. The nature of the site meant that during winter months sub-optimal conditions were difficult to avoid. Surveys completed in January and February took place after a period of light snow fall meaning that the ground conditions including a shallow covering of snow which may have limited the availability of suitable habitat. However, given the low number of records and the management of the site (grazing) it is not felt that this has significantly altered the viability of the results.

Mapping and analysis

The results of each survey visit were combined for each notable species and mapped to identify any locations with repeated use throughout the course of the winter and any changes of abundance over time.

2.6 Nightjar surveys

Based on the findings from the desk study and incidental observations made by surveyors, nightjar were identified using the Site and surrounding area. Nightjar are listed on Annex 1 of the Birds Directive and are also listed on Section 7 of the Environment (Wales) Act (2006). Nightjar surveys were therefore carried out in June and July 2020 and July 2021. A second year of surveying was

completed following feedback from statutory consultees based on Scoping Report submitted in May 2021.

The methodology followed that in Gilbert *et al.*, (1998). Following walkover surveys of the Site (including a 100m buffer), two transects were identified, targeting the most suitable habitat on site (areas of clear fell woodland or plantation). **Figure 2.5** outlines the location and direction of each transect. Transects were walked for a 90-minute period starting from 20 minutes after sunset.

A two-visit survey was completed, with two surveyors starting and finishing at the same time on both transects. The dates and times and weather conditions of which are provided in **Annex C, Table C8**.

Positions of churring nightjars and other territorial behaviour were recorded on base maps and used to identify indicative territorial behaviour.

Limitations

All surveys were carried out under optimal conditions in both seasons.

3. Results

3.1 Desk Study

Statutory designated sites

There are no SPAs or RAMSAR sites within 10km of the Proposed Development. There were no statutory designated or non-statutory designated sites within 10km of the Site for which ornithology was a notified feature.

Ornithological records of legally protected/important conservation species within 2km of the Site were obtained from the Southeast Wales Biodiversity Record Centre (SEWBREC). Recent records (i.e. those occurring within the past ten years) are summarised in **Table 3.1**, below.

Table 3.1 Recent ornithological records within 2km of the Site, provided by SEWBREC.

Species	Status	Number of records	Date of most recent record	Distance (m) and direction of nearest record from the Site
Barn owl	Sch1, BoCC Green, BoCCW Green	2	2012	1,650 N
Black-head gull	S7, BoCC Amber, BoCCW Red	4	2016	833 SW
Brambling	Sch1, BoCC Green, BoCCW Amber	11	2016	925 W
Bullfinch	S7, BoCC Amber, BoCCW Red	10	2017	Within site
Common crossbill	Sch1, BoCC Green, BoCCW Green	2	2010	88 S
Cuckoo	S7, BoCC Red, BoCCW Red	27	2017	Within site
Curlew	S7, BoCC Red, BoCCW Red	2	2011	1,763 SE
Dunnock	S7, BoCC Amber, BoCCW Green	18	2016	495 SE
Fieldfare	Sch1, BoCC Red, BoCCW Amber	7	2016	88 S
Goshawk	Sch1, BoCC Green, BoCCW Green	10	2016	Within site
Green sandpiper	Sch1, BoCC Amber,	2	2016	1,664 W
Grey wagtail	BoCC Red, BoCCW Amber	18	2016	Within site

Species	Status	Number of records	Date of most recent record	Distance (m) and direction of nearest record from the Site
Hen harrier	Annex 1, Sch1, S7, BoCC Red, BoCCW Red	1	2016	2,000 SE
Herring gull	S7, BoCC Red, BoCCW Red	9	2016	847 SW
Hobby	Sch1, BoCC Green, BoCCW Green	2	2015	132 S
House sparrow	S7, BoCC Red, BoCCW Amber	10	2016	487 SE
Kestrel	S7, BoCC Amber, BoCCW Red	9	2016	Within site
Kingfisher	Sch1, BoCC Green, BoCCW Amber	3	2016	349 SE
Lapwing	S7, BoCC Red, BoCCW Red	6	2018	882 W
Lesser redpoll	S7, BoCC Red, BoCCW Amber	4	2011	88 S
Linnet	S7, BoCC Red, BoCCW Red	13	2016	Within site
Marsh tit	S7, BoCC Red, BoCCW Red	1	2016	923 NW
Merlin	Annex 1, Sch1, BoCC Red, BoCCW Red	3	2014	1,005 S
Mistle thrush	BoCC Red, BoCCW Amber	22	2016	132 S
Nightjar	Annex 1, BoCC Amber, BoCCW Amber	2	2016	1,718 W
Peregrine	Sch1, BoCC Green, BoCCW Green	7	2015	703 W
Pied flycatcher	S7, BoCC Red, BoCCW Red	4	2014	1,030 S
Pochard	BoCC Red, BoCCW Red	3	2010	1,907 SW
Red kite	Sch1, S7, BoCC Green, BoCCW Amber	12	2018	954 E
Redwing	Sch1, BoCC Red, BoCCW Amber	7	2017	923 NW
Reed bunting	S7, BoCC Amber, BoCCW Amber	5	2016	820 SW
Skylark	S7, BoCC Red, BoCCW Amber	16	2017	Within site

Species	Status	Number of records	Date of most recent record	Distance (m) and direction of nearest record from the Site
Song thrush	S7, BoCC Red, BoCCW Amber	19	2016	Within site
Spotted flycatcher	S7, BoCC Red, BoCCW Red	3	2016	88 S
Starling	S7, BoCC Red, BoCCW Red	7	2016	Within site
Tree pipit	S7, BoCC Red, BoCCW Amber	11	2016	57 E
Wood warbler	S7, BoCC Red, BoCCW Red	11	2017	88 S
Woodcock	BoCC Red, BoCCW Red	6	2014	Within site
Yellowhammer	S7, BoCC Red, BoCCW Red	6	2015	Within site

Key to 'Status' abbreviations:

Annex 1 = Annex 1 of the Birds Directive lists species and sub-species which are: in danger of extinction; vulnerable to specific changes to their habitat; considered rare because of small populations or restricted local distribution; requiring particular attention for reasons of specific nature of habitat.

S7 = Environment Act (Wales) Section 7 Appendix 2 Species: living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales.

Sch1 = It is an offence to disturb any wild bird listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) while it is nest building, or is at a nest containing eggs or young, or to disturb the dependent young of any such bird.

BoCC Red list= the background to the establishment of a 'traffic light system' of conservation concern for UK birds is discussed in Gregory *et al.* (2002). The updated criteria and lists are detailed in Stanbury *et al.* (2021). Broadly, 'Red-listed' species include those that are globally threatened, have suffered a historical population decline in the UK (between 1800 and 1995) or which have experienced rapid declines in their UK breeding population or contractions in their UK range of more than 50% over the past twenty-five years.

BoCC Wales Red list = Using the well-established approach, based on quantitative assessments against standardised criteria, birds are placed on 'Red', 'Amber' or 'Green' lists to indicate the level of 'conservation concern'. The process for individual species assessments is consistent with those undertaken in the UK assessment. The updated criteria and lists for BoCCW3 are detailed in Johnstone *et al.* (2016). Broadly, 'Red-listed' species include those that are globally threatened, have suffered severe historic decline in Wales and/or have suffered recent population or range contractions of more than 50% in breeding or wintering populations in Wales.

3.2 Vantage Point Surveys

Vantage point surveys have been undertaken at the site as defined in Section 2. **Table 3.2 and Table 3.3** provides a summary of the hourly coverage at each VP location per month for the 2020 and 2021 season respectively.

The following sections provide a summary of the flight activity recorded in each season covering April 2020 – August 2021. Each VP received coverage during all parts of the day each month where practicable. This follows the survey guidance and ensures that the results represent a realistic sample of all parts of the day resulting in an unbiased dataset.

Each VP received the same coverage throughout the survey period. Following poor weather in August 2020, three hours were caught up at each VP in September 2020. Following poor weather in December 2020, three hours were caught up at each VP January 2021.

Table 3.2 Summary of hourly coverage at each VP location per month 2020/2021

	Core Breeding Season				Post-breeding Season				Non-breeding Season			
	March	April	May	June	July	August	September	October	November	December	January	February
VP 1	0	9	15	12	9	7	12	6	9	6	15	9
VP 2	0	9	15	12	8	7	12	6	9	6	12	12

Table 3.3 Summary of hourly coverage at each VP location per month 2021/2022

	Breeding Season						Non-breeding Season					
	March	April	May	June	July	August	September	October	November	December	January	February
VP 1	6	6	0	12	6	6	6	6	6	6	6	6
VP 2	6	6	6	3	9	6	6	6	6	6	6	6

Core breeding season 2020

A total of 36 hours of observation were undertaken at each VP between 15 April 2020 and 26 June 2020; 12 hours per month, split into four three-hour watches. Survey could not be completed during March due to delays with site access and poor weather conditions, additional effort was completed in April and May to achieve the required hours.

Target Species

Three target species (as defined in **Section 2.2**) were recorded during the VP surveys undertaken within the breeding season: red kite, peregrine and goshawk. Details of all target species flights are provided in **Table E1** in **Annex E**. The flight lines (recorded during the formal VP surveys, and any incidental flight records) for red kite, peregrine and goshawk are shown in **Figure 3.1a-c** and **Figure 3.2** respectively.

Table 3.4 presents a summary of the flights of target species recorded during the breeding season VP surveys, including the number of flights recorded within the core survey area (within the 2km view-sheds plus) and the duration of flights which were at Potential Collision Height (PCH) (i.e. between 30-180m height) within the Collision Risk Zone (the turbine locations, plus a 500m buffer) as defined by SNH (2017).

Table 3.4 Summary of flights by target species: Core Breeding season 2020

Species	Number of flights in core survey area (i.e. 2km viewsheds)	Number of flights per hour of survey (i.e. 36 hours per VP)	Total flight duration at PCH in core survey area	Number of flights at PCH in Collision Risk Zone	Total flight duration at PCH in Collision Risk Zone
Red kite	51	0.70	4,515	46	3,911
Peregrine	1	0.01	0	0	0
Goshawk	5	0.069	15	0	0

Notable and other Secondary Species

In addition to the secondary species, a single Schedule 1 species, as listed on Wildlife and Countryside Act 1981 (as amended) and further 13 species listed on Section 7 of the Environment (Wales) Act 2016 were recorded during the breeding season VP surveys:

- Common crossbill – Sch. 1 (23 records with a flock of 22 on 26 June 2020).
- Bullfinch – Section 7 (3 records with a pair on two occasions).
- Dunnock – Section 7 (8 records).
- Common cuckoo – Section 7, BoCC Red (30 records of mostly single birds with 4 birds on 26 May 2020).

- Herring gull – Section 7, BoCC Red (10 records, peak count of 5 individuals 5 May 2020).
- Lesser redpoll – Section 7, BoCC Red (11 records, peak count of 3 birds on 15 April 2020).
- Linnet – Section 7, BoCC Red (19 records).
- Reed bunting – Section 7 (2 records).
- Skylark – Section 7, BoCC Red (27 records).
- Starling – Section 7, BoCC Red (1 record).
- Song thrush – Section 7, BoCC Red (16 records).
- Tree pipit – Section 7, BoCC Red (25 records).
- Wood warbler – Section 7, BoCC Red (4 records).
- Yellowhammer – Section 7, BoCC Red (18 records).

Details of these records are provided in **Table E4** in **Annex E**. Common crossbill were recorded in moderate numbers (flocks of up to 22 individuals) during the breeding season with a notable number of juveniles recorded in the later part of the period. Of the other Section 7 or BoCC red species, none were recorded occurring in significant abundance, with most records related to single birds. Tree pipit and yellowhammer were noted successfully breeding in front of VP1 and wood warbler were only recorded in the buffer zone of the Site.

Other species potentially vulnerable to collision with turbines from the Proposed Development due to their size and flight characteristics recorded during the breeding season VP surveys were: buzzard, kestrel, raven, sparrowhawk, mallard, lesser black-backed gull, herring gull, canada goose and lapwing.

Buzzard and raven were recorded during most of the surveys, foraging widely across the Site and adjacent forestry, with a peak count at one time of four buzzard and 22 raven (each on 15 April 2020). Kestrel were recorded throughout the breeding season. A pair of lapwing was recorded 19 May 2020 seen defending territory from a red kite; off site and below PCH. Individual records of grey heron were recorded on two occasions (both on 16 April 2020) one of which was at PCH. Mallard and canada goose were recorded during the early part of the season, with peak counts of four birds (19 May 2020) and two birds (16 April 2020) respectively, with both recorded below PCH. Sparrowhawk was recorded on four occasions with one record of a pair (20 May 2020), all but one of these records (15 April) was at PCH. Both lesser black-backed gull and herring gull were recorded throughout the breeding season with the majority records recorded at PCH.

Post-breeding dispersal and migratory period 2020

36 hours of observation were undertaken at each VP between 10 July 2020 and 6 November 2020; 9 hours per month, split into three three-hour watches. The final surveys from October were undertaken in early November following a period of inclement weather.

Target Species

Six target species (as defined in **Section 2.2**) were recorded during the VP surveys undertaken within the post-breeding dispersal and migratory period: red kite, goshawk, peregrine, hobby, greenshank and green sandpiper. Details of all target species flights are provided in **Table E2** in **Annex E**. The flight lines (recorded during the formal VP surveys) for red kite, goshawk, hobby, greenshank and green sandpiper are shown in **Figure 3.3a-d - Figure 3.6**.

Table 3.5 presents a summary of the flights of target species recorded during the post-breeding dispersal and migratory period VP surveys, including the number of flights recorded within the core survey area (within the 2km view-sheds plus) and the duration of flights which were at PCH (i.e. between 30-180m height) within the Collision Risk Zone (the Red line boundary, plus a 500m buffer) as defined by SNH (2017).

Table 3.5 Summary of flights by target species: post-breeding dispersal and migratory period 2020

Species	Number of flights in core survey area (i.e. 2km viewsheds)	Number of flights per hour of survey (i.e. 36 hours per VP)	Total flight duration at PCH in core survey area	Number of flights at PCH in Collision Risk Zone	Total flight duration at PCH in Collision Risk Zone
Red kite	29	0.40	10,440	28	8,102
Goshawk	15	0.21	495	4	360
Hobby	3	0.04	135	2	135
Peregrine	13	0.18	630	4	371
Greenshank	5	0.07	90	3	90
Green sandpiper	3	0.04	60	2	44

Notable and secondary species

In addition to the secondary species, three Schedule 1 species, as listed on Wildlife and Countryside Act 1981 (as amended) and further eleven species listed on Section 7 of the Environment (Wales) Act 2016 were recorded during the breeding season VP surveys:

- Common crossbill – Sch.1 (17 records, with a peak count of 6 birds 04 August 2020).
- Fieldfare – Sch.1 (3 records all from 22 October 2020 with a peak count of 26 birds).
- Redwing – Sch.1 (Single record of one bird from 22 October 2020).
- Bullfinch – Section 7 (6 records of mostly pairs, with a peak of 4 birds on 11 September 2020).
- Common cuckoo – Section 7, BoCC red (Single record of one bird 16 September 2020).

- Dunnock – Section 7 (25 records with a peak count of 4 birds 10 August 2020).
- Herring gull – Section 7, BoCC red (7 records, peak count of 3 birds 11 August 2020).
- Lesser redpoll – Section 7, BoCC red (3 records, all single birds).
- Linnet – Section 7, BoCC red (39 records, peak count of 60 birds 11 September 2020).
- Reed bunting – Section 7 (2 records, both of which relate to single birds).
- Skylark – Section 7, BoCC red (15 records, peak count of 6 birds 11 September 2020).
- Starling – Section 7, BoCC red (4 records, peak count 5 birds 28 August 2020).
- Song thrush – Section 7, BoCC red (7 records, peak count of 2 birds 10 July 2020).
- Tree pipit – Section 7, BoCC red (16 records, peak count of 2 birds 24 July 2020).

Details of these records are provided in **Table E5** in **Annex E**. Common crossbill was recorded in moderate numbers during the post-breeding season (flocks of up to 6 birds). None of these Section 7 or BoCC red species were recorded in significant abundance, with most records related to single birds. Tree pipit and yellowhammer were noted successfully breeding in front of VP1 and a peak of four tree pipit were recorded on 11 August 2020.

Other species potentially vulnerable to collision with turbines from the Proposed Development due to their size and flight characteristics recorded during the post-breeding season VP surveys were: buzzard, raven, lesser black-backed gull, herring gull, kestrel, mallard, Canada goose, cormorant, grey heron, tawny owl, curlew and sparrowhawk.

Buzzard kestrel and raven were recorded during most of the surveys, foraging widely across the Site and adjacent forestry, with a peak count at one time of four buzzard and 24 raven (on 11 August 2020 and 21 July 2020 respectively). Kestrel records relate only to single birds, with half of the records of kestrel at PCH. There were three records of sparrowhawk, all single birds recorded 07 September 2020 and 11 September 2020, with one at PCH. Lesser-black backed gull and herring gull were recorded throughout the period, with mostly single birds observed almost exclusively out of the site and at PCH. Mallard was recorded on seven occasions, with two records of six and nine birds at PCH on 28 August 2020 and 07 September 2020 respectively. Canada goose was recorded six times with only one record at PCH, 20 birds on 09 September 2020. Cormorant and grey heron were recorded on two occasions, with cormorant recorded at PCH on 16 September 2020 and grey heron at PCH on both occasions (11 September 2020 and 22 October 2020). A single curlew was observed flying a PCH on 10 July 2020. Tawny owl was recorded on one occasion (22 October 2020) and recorded below the PCH.

Non-breeding season 2020

A total of 36 hours of observation were undertaken at each VP between 12 November 2020 and 18 February 2021; nine hours per month, split into three three-hour watches.

Target Species

Six target species (as defined in **Section 2.2**) were recorded during the VP surveys undertaken within the non-breeding season: red kite, goshawk, hen harrier, peregrine, merlin, and golden plover. Details of all target species flights are provided in **Table E3** in **Annex E**. The flight lines

(recorded during the formal VP surveys) for red kite, goshawk and golden plover are shown in **Figure 3.7a-d – Figure 3.10**.

Table 3.6 presents a summary of the flights of target species recorded during the non-breeding season VP surveys, including the number of flights recorded within the core survey area (within the 2km view-sheds plus) and the duration of flights which were at PCH (i.e. between 30-180m height) within the Collision Risk Zone (the red line boundary, plus a 500m buffer) as defined by SNH (2017).

Table 3.6 Summary of flights by target species: non-breeding season 2020 (November 2020 – February 2021)

Species	Number of flights in core survey area (i.e. 2km viewsheds)	Number of flights per hour of survey (i.e. 36 hours per VP)	Total flight duration at PCH in core survey area	Number of flights at PCH in Collision Risk Zone	Total flight duration at PCH in Collision Risk Zone
Red kite	59	0.90	8,925	37	6,172
Goshawk	9	0.14	1,815	7	1,476
Hen harrier	5	0.07	0	0	0
Peregrine	7	0.19	315	4	188
Merlin	2	0.028	15	1	15
Golden plover	1	0.014	60	1	42

Notable and secondary species

In addition to the secondary species, three Schedule 1 species, as listed on Wildlife and Countryside Act 1981 (as amended) and further nine species listed on Section 7 of the Environment (Wales) Act 2016 were recorded during the breeding season VP surveys:

- Brambling – Sch.1 (1 record of a single bird with chaffinch flock on 06 November 2020).
- Common crossbill – Sch.1 (1 record of 3 birds on 12 November 2020).
- Fieldfare – Sch.1, BoCC red (11 records of mostly flocks with a peak count of 31 birds on 26 November 2020).
- Redwing – Sch.1, BoCC red (9 records of mostly flocks with a peak count of 30 birds on 12 January 2021).
- Woodlark – Sch.1, Section 7 (1 record of singing bird on 15 February 2021).
- Bullfinch – Section 7 (6 records with pairs recorded on 2 occasions 12 January and 22 January 2021).
- Dunnock – Section 7 (9 records of mostly single birds with pairs recorded on 3 occasions).

- Herring gull – Section 7, BoCC red (5 records, peak count of 6 birds on 26 November 2020).
- Lesser redpoll – Section 7, BoCC red (6 records, peak count of 7 birds on 06 November 2020).
- Linnet – Section 7, BoCC red (2 records, peak count of 3 birds on 22 January 2021).
- Reed bunting – Section 7 (3 records, peak count of two birds on 06 November 2020).
- Skylark – Section 7, BoCC red (13 records, peak count of 7 birds on 28 January 2021).
- Starling – Section 7, BoCC red (20 records, peak count of 75 birds on 12 January 2021).
- Yellowhammer – Section 7, BoCC red (1 record of single bird on 22 January 2021).

Details of these records are provided in **Table E6** in **Annex E**. Some large flocks of two Sch.1 species were noted during the winter period, namely fieldfare and redwing as would be expected at this time of year. Woodlark was noted on one occasion, a single singing bird thought to be moving through the site rather than establishing a true territory. None of these Section 7 or BoCC red species were recorded in significant abundance, with most records related to single birds.

Other species potentially vulnerable to collision with turbines from the Proposed Development due to their size and flight characteristics recorded during the breeding season VP surveys were: buzzard, kestrel, sparrowhawk, raven, lapwing, lesser black-backed gull, herring gull, wigeon, cormorant, long-eared owl, grey heron and teal.

Buzzard and raven were recorded during most of the surveys, foraging widely across the Site and adjacent forestry, with a peak count at one time of five buzzard (26 November 2020) and 16 raven (18 February 2021). The peak count for kestrel was one bird, recorded November to January, there are three records of kestrel at PCH. A single sparrowhawk was recorded 17 February 2021, below PCH. A flock of 250 lapwing was recorded on 22 January 2021 beyond the red line boundary but at PCH and a single bird recorded on 11 January 2021 below PCH. There were three records of sparrowhawk, all single birds below the PCH. Lesser-black backed gull and herring gull were recorded throughout the period, with peak counts of three (6 November 2020) and six (26 November 2020) respectively, these records were almost exclusively out of the site and at PCH. Wigeon were recorded on four occasions with a peak of eight recorded on 18 February 2021 below PCH, whilst a single record of teal was also recorded with two birds below PCH on 26 November 2020. Grey heron was recorded on five occasions, with single birds commuting between onsite ponds usually at PCH height whilst a single record of a lone cormorant was recorded on 04 December 2020 at PCH. There was a single record of long-eared owl during the VP surveys, a calling male from the plantation west of VP2.

Incidental Records of Target Species

Incidental records of target species were recorded throughout the survey period. Three target species were recorded during the breeding bird surveys as fly-over records: red kite, goshawk and peregrine. Five target species were recorded during non-breeding bird surveys throughout the winter of 2020/21: red kite, hen harrier, goshawk, wigeon and teal. One target species was recorded during the 2020 breeding nightjar surveys: hobby. Target species were recorded incidentally during

survey breaks or during access or egress from the Site. All incidental records of target species are provided in **Table E7, Annex E**.

Breeding season 2021

A total of 36 hours of observation were undertaken at each VP between 5 March 2021 and 24 August 2021; 6 hours per month, split into 2 three-hour watches. Each VP received coverage during early, mid and late counting periods each month, resulting in an unbiased and varied dataset. Due to inclement weather 6 hours from June was not completed and caught up in August 2021.

Target Species

Four target species (as defined in **Section 2.2**) were recorded during the VP surveys undertaken within the breeding season: red kite, peregrine, merlin and goshawk. Details of all target species flights are provided in **Table E8 in Annex E**. The flight lines (recorded during the formal VP surveys, and any incidental flight records) for red kite, goshawk, peregrine and merlin are shown in **Figure 3.11a-e⁴**, **Figure 3.12** and **Figure 3.13** respectively.

Table 3.7 presents a summary of the flights of target species recorded during the breeding season VP surveys, including the number of flights recorded within the core survey area (within the 2km view-sheds plus) and the duration of flights which were at PCH (i.e. between 30-180m height) within the Collision Risk Zone (the Red line boundary, plus a 500m buffer) as defined by SNH (2017).

Table 3.7 Summary of flights by target species: March – August 2021

Species	Number of flights in core survey area (i.e. 2km viewsheds)	Number of flights per hour of survey (i.e. 36 hours per VP)	Total flight duration at PCH in core survey area	Number of flights at PCH in Collision Risk Zone	Total flight duration at PCH in Collision Risk Zone
Red kite	37	0.51	8,625	31	7,151
Goshawk	10	0.14	1,890	4	277
Peregrine	1	0.01	0	1	10
Merlin	2	0.03	0	0	0

Notable and secondary species

In addition to the secondary species, a single Schedule 1 species, as listed on Wildlife and Countryside Act 1981 (as amended), one annex 1 species and further thirteen species listed on Section 7 of the Environment (Wales) Act 2016 were recorded during the breeding season VP surveys:

- Common crossbill – Sch. 1 (2 records with a peak count of 4 birds on 08 March 2021).

⁴ Note that no records of red kite were recorded during May 2021

- Dunnock – Section 7 (2 records).
- Common cuckoo – Section 7, BoCC Red (4 records all single birds).
- Herring gull – Section 7, BoCC Red (3 records).
- Lesser redpoll – Section 7, BoCC Red (1 record of two individuals).
- Linnet – Section 7, BoCC Red (1 record).
- Nightjar – Annex 1, Section 7 – (1 record).
- Skylark – Section 7, BoCC Red (7 records with a peak of 5 birds on 05 March 2021).
- Song thrush – Section 7, BoCC Red (11 records).
- Tree pipit – Section 7, BoCC Red (4 records).

Details of these records are provided in **Table E11** in **Annex E**. None of these Sch1, Annex 1, Section 7 or BoCC red species were recorded in significant abundance, with most records related to single birds.

Other species potentially vulnerable to collision with turbines from the Proposed Development due to their size and flight characteristics recorded during the breeding season VP surveys were: buzzard, sparrowhawk, raven, lesser black-backed gull, herring gull and grey heron.

Buzzard and raven were recorded during most of the surveys, foraging widely across the Site and adjacent forestry, with a peak count at one time of six buzzard (08 March 2021) and 36 raven (05 March 2021). A single sparrowhawk was recorded 05 March 2021, below PCH. Lesser-black backed gull and herring gull were recorded on two records each with peak counts of two for both on 25 May 2021 and 05 June 2021 respectively; these records were exclusively out of the Site and at PCH. Grey heron was recorded on three occasions, with single birds commuting between onsite ponds usually at PCH height.

Non-breeding season 2021

A total of 36 hours of observation were undertaken at each VP between 22 September 2021 and 08 March 2022; 6 hours per month, split into 2 three-hour watches. Each VP received coverage during early, mid and late counting periods each month, resulting in an unbiased and varied dataset. Due to inclement weather 3 hours from February was not completed and caught up in March 2022.

Target Species

Five target species (as defined in **Section 2.2**) were recorded during the VP surveys undertaken within the non-breeding season: red kite, peregrine, goshawk, honey-buzzard and teal. Details of all target species flights are provided in **Table E8** in **Annex E**. The flight lines (recorded during the formal VP surveys, and any incidental flight records) for red kite, goshawk, peregrine, honey-buzzard and teal are shown in **Figure 3.14a-e**, **Figure 3.15** and **Figure 3.16** respectively.

Table 3.8 presents a summary of the flights of target species recorded during the breeding season VP surveys, including the number of flights recorded within the core survey area (within the 2km view-sheds plus) and the duration of flights which were at PCH (i.e. between 30-180m height) within the Collision Risk Zone (the red line boundary, plus a 500m buffer) as defined by SNH (2017).

Table 3.8 Summary of flights by target species: September 2021-February 2022

Species	Number of flights in core survey area (i.e. 2km viewsheds)	Number of flights per hour of survey (i.e. 36 hours per VP)	Total flight duration at PCH in core survey area	Number of flights at PCH in Collision Risk Zone	Total flight duration at PCH in Collision Risk Zone
Red kite	36	0.5	3,285	16	2,760
Goshawk	11	0.15	835	8	805
Peregrine	5	0.069	90	3	45
Honey-buzzard	1	0.014	255	1	255
Teal	3	0.042	180	1	180

Notable and secondary species

In addition to the secondary species, a five Schedule 1 species, as listed on Wildlife and Countryside Act 1981 (as amended) and further twelve species listed on Section 7 of the Environment (Wales) Act 2016 were recorded during the breeding season VP surveys:

- Brambling – Sch.1 (2 records of single birds on 16 November 2021).
- Bullfinch – Section 7 (5 records with a maximum of 2 on 29 October 2021).
- Common crossbill – Sch. 1 (28 records with a peak count of 22 birds on 17 November 2021).
- Curlew – Section 7, BoCC Red (1 record on 29 September 2021).
- Dunnock – Section 7 (8 records with maximum count of 2 on 16 November 2021).
- Fieldfare – Sch.1, BoCC Red (8 records with a peak count of 20 on 16 November 2021).
- Firecrest – Sch.1 (1 record of single bird on 16 November 2021).
- Herring gull – Section 7, BoCC Red (4 records with a peak count of 6 birds on 20 January 2022).
- Lesser redpoll – Section 7, BoCC Red (11 records with a peak count of 4 birds on 16 November 2021).
- Linnet – Section 7, BoCC Red (12 records with a peak count of 45 on 29 September 2021).
- Skylark – Section 7, BoCC Red (23 records with a peak count of 24 on 22 September 2021).
- Song thrush – Section 7, BoCC Red (12 records with a maximum count of 4 on 16 November 2021).
- Starling - Section 7, BoCC Red (8 records with a peak count of 100 on 16 November 2021).

- Reed bunting – Section 7, BoCC Red (2 records of 3 and 2 birds).
- Redwing – Sch1, BoCC Red (18 records with a peak count of 75 on 02 February 2022).
- Yellowhammer - Section 7, BoCC Red (5 records with a maximum count of 3 birds on 02 December 2021).

Details of these records are provided in **Table E12** in **Annex E**. None of these Sch1, Section 7 or BoCC red species were recorded in significant abundance, with most records related to single birds.

Other species potentially vulnerable to collision with turbines from the Proposed Development due to their size and flight characteristics recorded during the breeding season VP surveys were: buzzard, sparrowhawk, raven, lesser black-backed gull, herring gull, mallard, kestrel and grey heron.

Buzzard and raven were recorded during most of the surveys, foraging widely across the Site and adjacent forestry, with a peak count at one time of seven buzzard (22 September 2021) and 36 raven (16 September 2021). Two records of sparrowhawk were recorded both below PCH. Lesser-black backed gull was recorded on one occasion, 16 November 2021 and were exclusively out of the site and above PCH. Grey heron was recorded on two occasions, with single birds commuting between onsite ponds at PCH height. Mallard were recorded on three occasions with a peak count of five on 29 October 2021 and at PCH. Kestrel was recorded once, with one bird below PCH.

3.3 Breeding bird survey – Territory Mapping

Six survey visits were completed within the Study Area (the Site, plus 100m buffer) from March 2020 to June 2020 inclusive, with each visit taking two days complete by two surveyors working in tandem.

A total of 51 species were recorded breeding or holding territory within the breeding bird survey area in 2020, of which:

- Two species listed on Schedule 1 of the *Wildlife & Countryside Act* (1981) were recorded as breeding or holding territory: Common crossbill and goshawk.
- One species listed on Annex 1 of the *Birds Directive* (2009): nightjar (identified through species specific surveys described in Section 3.4 and 3.5)
- Thirteen species listed on Section 7 of the *Environment (Wales) Act* (2006) were recorded breeding or holding territory: skylark, tree pipit, lesser redpoll, linnet, cuckoo, yellowhammer, reed bunting, spotted flycatcher, wood warbler, bullfinch, dunnock, song thrush and lapwing.
- Eight species listed on the *Birds of Conservation Concern in Wales 3 Red list* (2016) were recorded breeding or holding territory: linnet, cuckoo, yellowhammer, spotted flycatcher, wood warbler, bullfinch, lapwing and willow warbler. With an additional three species also listed on the *Birds of conservation of Concern 4* (UK wide) Red list also recorded as breeding or holding territory: mistle thrush, song thrush and tree pipit.

Table 3.9 summarises the number of identified territories and conservation status of species recorded and **Figure 3.17** shows the indicative centre point of each territory, with notable species highlighted in red.

Table 3.9 Summary of the number of identified breeding bird territories within the breeding bird survey area and the proposed development area

BTO code	Species	Number of territories within breeding bird survey area (100m buffer included)	Number of territories within proposed development area	Schedule 1 or Annex I	Section 7	BoCC 5 (UK wide)	BoCC 3 (Wales)
B.	Blackbird	52	10			Green	Green
BC	Blackcap	15	0			Green	Green
BF	Bullfinch	4	0		✓	Amber	Red
BT	Blue tit	20	9			Green	Green
BZ	Buzzard	2	0			Green	Green
C.	Carrion crow	5	2			Green	Green
CC	Chiffchaff	11	0			Green	Green
CG	Canada goose	1	1			Green	Green
CH	Chaffinch	86	27			Green	Green
CK	Cuckoo	4	3		✓	Red	Red
CR	Crossbill	6	0	✓		Green	Green
CT	Coal tit	31	7			Green	Green
D.	Dunnock	27	10		✓	Amber	Green
G.	Green woodpecker	3	1			Green	Green
GC	Goldcrest	16	5			Green	Amber
GO	Goldfinch	6	3			Green	Green
GI	Goshawk	1	0	✓		Green	Green
GS	Great spotted woodpecker	2	1			Green	Green
GT	Great tit	24	6			Green	Green
GW	Garden warbler	8	1			Green	Green
J.	Jay	4	0			Green	Green
L.	Lapwing	1	1		✓	Red	Red
LE	Long-eared owl	1	0			Green	Amber

BTO code	Species	Number of territories within breeding bird survey area (100m buffer included)	Number of territories within proposed development area	Schedule 1 or Annex I	Section 7	BoCC 5 (UK wide)	BoCC 3 (Wales)
LI	Linnet	12	9		✓	Red	Red
LR	Lesser redpoll	12	1		✓	Red	Amber
LT	Long-tailed tit	6	1			Green	Green
M.	Mistle thrush	13	3			Red	Amber
MA	Mallard	2	2			Green	Green
MH	Moorhen	1	1			Green	Green
MP	Meadow pipit	47	40			Amber	Amber
NH	Nuthatch	17	7			Green	Green
NJ	Nightjar	2	0	✓		Amber	Amber
PW	Pied Wagtail	11	7			Green	Green
R.	Robin	67	12			Green	Green
RB	Reed bunting	9	9		✓	Amber	Amber
RT	Redstart	18	9			Amber	Green
RN	Raven	3	1			Green	Green
S.	Skylark	65	29		✓	Red	Amber
SC	Stonechat	18	16			Green	Green
SF	Spotted flycatcher	2	0		✓	Red	Red
SK	Siskin	25	1			Green	Green
SL	Swallow	3	0			Green	Green
ST	Song thrush	35	5		✓	Amber	Amber
TC	Treecreeper	6	1			Green	Green
TO	Tawny owl	1	1			Amber	Green
TP	Tree pipit	23	10		✓	Red	Amber
WO	Wood warbler	1	0		✓	Red	Red

BTO code	Species	Number of territories within breeding bird survey area (100m buffer included)	Number of territories within proposed development area	Schedule 1 or Annex I	Section 7	BoCC 5 (UK wide)	BoCC 3 (Wales)
WP	Woodpigeon	3	1			Amber	Green
WR	Wren	143	20			Amber	Green
WW	Willow warbler	108	9			Amber	Red
Y.	Yellowhammer	2	2		✓	Red	Red

The greatest diversity of species recorded as holding territory or breeding within the survey area were found in areas of forestry and other habitats that are found adjacent to the proposed location of the windfarm. These areas support the majority of notable bird species including both Schedule 1 species (crossbill and goshawk) and nightjar which is listed on Annex 1 of the EU Birds Directive. Section 7 and Red listed species (including lesser redpoll, willow warbler, tree pipit and wood warbler) were also recorded within these habitats largely occurring outside of the areas to be impacted the most by the development. Species typical of the moorland/grassland habitat found within the red line boundary, such as skylark and meadow pipit were found in abundance in areas that are more likely to be impacted by direct land take associated with the Proposed Development given the location of their territories. Skylark are listed on Section 7 of the Environment Act (2006) and are also BoCC Red listed (UK wide) and BoCC Amber listed in Wales.

Incidental records

A further 14 species were recorded within the Site during the breeding bird surveys (and other ecology surveys carried out) in 2021 for which no evidence of breeding / holding territory was obtained, a full list of which is provided in **Table E14** in **Annex E**, together with their conservation status. Of these, there is potentially suitable breeding habitat within the Site and 100m buffer area for the following species:

- Buildings and other manmade structures: swift and house martin.
- Forestry plantations/mixed deciduous woodland: sparrowhawk, stock dove, jackdaw, magpie, heron, red kite.
- Areas with built up scrub: lesser whitethroat and whitethroat.
- Moorland/uplands habitat: wheatear.

3.4 Breeding bird survey

Two of the three target species identified as having the potential to be breeding either on site or within a set radius of the red line boundary were found to have either of successfully bred or had held territory during the Breeding bird survey.

A summary of behaviours observed, survey techniques employed and duration is provided in **Table E15** in **Annex E**.

Goshawk

Confidential Figure 3.18 shows all observations of goshawk from March 2021 – July 2021 including nesting and territorial behaviours recorded during dedicated surveys. Supporting evidence from previous incidental sightings from other surveys is also included from 2020.

A nesting goshawk was found during Visit 6 of the breeding bird surveys in June 2020, four chicks, recorded as being close to fledging age were also observed. Both male and female birds had been recorded as present throughout VP surveys and breeding bird surveys completed in 2020. Juveniles were observed on subsequent VP surveys, and it is assumed that these were young which had successfully fledged from the nest observed.

A summary of the observations and results of dedicated goshawk surveys completed in 2021 can be found in **Table 3.10** below.

Table 3.10 Results of Breeding bird survey: goshawk

Species	Survey type	Date	Observations
Goshawk	Cold search	29/03/2021	Cold search of plantation on western end of site, potential nest site found, nest had fresh material and a female goshawk flushed from nearby.
Goshawk	Cold search	29/03/2021	Cold search of plantation on Eastern end of site. Goshawk heard calling.
Goshawk	Vantage Point	30/03/2021	Vantage point survey looking over two possible nest locations. Male and female observed several times returning to and from one location. Displaying and territorial behaviours observed.
Goshawk	Vantage point	12/04/2021	Vantage point conducted overlooking woodland that hosting nest previously identified in 2020. No signs of occupancy.
Goshawk	Nest check	12/04/2021	Nest check carried out after VP survey to check for signs of occupancy. Female goshawk observed sat on nest (same location as 2020).
Goshawk	Cold search	12/04/2021	Cold search of woodland previously identified to have potential 2 nd nest on 29/03 and 30/03. No goshawk or other sch1 observed
Goshawk	Vantage point	12/05/2021	Vantage point conducted overlooking eastern plantation viewed from Abertillery. No goshawk observed throughout the survey.
Goshawk	Nest check	13/05/2021	Nest check carried out on previously identified occupied nest. Female observed to be still incubating. One freshly hatched eggs was observed removed from nest, confirming hatching date
Goshawk	Cold search	13/05/2021	Cold search of plantations west and east of site in locations previously identified as having potential for goshawk. No goshawk recorded.

Species	Survey type	Date	Observations
Goshawk	Nest check	24/06/2021	Nest check carried out on previously identified occupied nest. One fledged juvenile present in tree adjacent to nest. One chick dead in nest. Adults heard calling.

Desk study data, conversations with NRW and observations made by surveyors suggested the possibility of more than one pair of goshawk utilising and potentially breeding on site. Searches were therefore carried out in suitable habitat and areas that had previously seen potential territorial behaviour observed.

It is possible that the pair observed on 30 March could be the same pair that had successfully bred further south in both 2020 and 2021. It is also possible this is a second pair that either did not nest this year or nested elsewhere from the first observation. Hardey *et al.* (2013) describes goshawk refurbishing old nests and then moving onto build a new nest early in the season and vice versa, home ranges are also described as ranging between 1-3.7km with different pairs nests as close as 750m where a line of sight doesn't exist as is the case between these two nest sites.

These observations suggest that the site and surrounding area (up to 1km) support a maximum of two goshawk territories with one confirmed, successful nest occurring within the survey area.

Peregrine

Confidential Figure 3.19 shows all observations of peregrine from March 2021 – July 2021, including any nesting and territorial behaviours recorded during dedicated Schedule 1 raptor surveys (includes VP location). Supporting evidence from previous incidental sightings from other surveys is also included from 2020.

Peregrine were observed infrequently during VP watches in the first year of survey work. A male and female have been observed on several occasions, on their own and together. A single juvenile was observed on 24 July 2020 hunting in front of VP1 but no evidence suggested this was a result of successful breeding within the wider area. No suitable breeding habitat for peregrine exists within the red line boundary, but large crags are present within 1.5km to the northeast of the site and can be found elsewhere further afield. This area therefore became the focus of subsequent peregrine specific surveys in 2021.

A summary of observations made during peregrine specific surveys is found in **Table 3.11** below.

Table 3.11 Results of Breeding bird survey: peregrine

Species	Survey type	Date	Observations
Peregrine	Cold search	29/03/2021	Cold search above crags northeast of the red line boundary. Weather and viewshed from this location were suboptimal and no observations were recorded.
Peregrine	Vantage point	30/03/2021	Vantage point survey conducted from below crags. Both male and female observed displaying some territorial behaviours. Frequently used roost located and possible nest location observed.

Species	Survey type	Date	Observations
Peregrine	Vantage point	12/04/2021	Vantage point survey conducted at same location. No breeding or territorial behaviour observed. Adult male peregrine seen in flight above ridge line.
Peregrine	Vantage point	12/05/2021	Vantage point survey conducted at same location. Female observed roosting in the same location identified previously. Possible nest location with prey items observed. No sign of male. Male was observed next day on different survey.
Peregrine	Vantage point	08/07/2021	Vantage point survey conducted at same location. No peregrine observed throughout survey period.

VP watches were conducted from a VP below the crags approximately 500m from the suitable habitat to minimise disturbance and were for a minimum of three hours, in line with survey techniques outlined in *Hardey et al., (2013)*.

The literature suggests peregrine nesting at higher altitudes tend on average to breed later in the year than those breeding at lower altitudes, with the suitable habitat been at least 400m above sea level it is possible this explains any lack of specific breeding behaviour observed during the first survey. Spring 2021 was unusually cold and wet, with this bad weather continuing May 2021. Peregrine are known to occasionally not lay following on from cold, wet springs but still may display breeding behaviour such as alarm calling around a territory.

These observations suggest that the habitats in the wider area have the potential to support one peregrine territory within 2km of the red line boundary, however, observations from 2021 suggest that the pair observed had a failed breeding attempt, potentially caused by poor weather in April and May 2021.

Red kite

Figure 3.20 shows all observations of red kite from March 2021 – July 2021, including any territorial behaviours recorded during dedicated breeding raptor surveys (includes VP locations). Any supporting evidence from previous incidental sightings from other surveys is also included from 2020.

Suitable habitat exists in relative abundance within 2km of site and a process of prioritising habitat that had seen the highest red kite activity was needed to find the most likely site of any breeding attempt.

Red kite have been observed all year-round during VP watches and other surveys carried out on site, although a noticeable decline/absence of red kite has been observed in the late spring and summer months. Gwent ornithological society describes red kite as a rare breeding resident within the county, although it is noted that four breeding attempts occurred in Blaenau Gwent in 2017 (*Coleman et al, 2018*).

A summary of observations made during peregrine specific surveys is found in **Table 3.12** below.

Table 3.12 Results of breeding bird survey: red kite

Species	Survey type	Date	Observations
Red kite	Cold search	29/03/2021	Cold search conducted of plantations east and west of site. No red kite were recorded during these searches.
Red kite	Vantage point	29/03/2021	Vantage point survey conducted Northwest of red line boundary overlooking habitat most suitable for red kite (approx. 1.5km from red line boundary). Red kites observed but no indication of nesting or territorial behaviour.
Red kite	Cold search	12/04/2021	Cold search of eastern and western plantations for possible nesting red kite. No red kite observed or any obvious nests found.
Red kite	Cold search	13/05/2021	Cold search of eastern and western plantations for possible nesting red kite. No red kite observed or any obvious nests found.

These observations suggest there is no red kite territory within 2km of the Site, with the likelihood that the observations made of red kite related to non-breeding birds, juvenile or sub-adult birds (i.e. those still within their first year following fledging) and birds breeding elsewhere outside of the search area (Pfeiffer & Meyburg 2015). Whilst red kite were not identified as breeding within 2km of the Site, suitable habitat does exist in a number of areas and it is likely that red kite could occur as a breeding species in future or in very low numbers (i.e., one pair) that were undetected due to the expansion of the red kite population in Wales and the UK as a whole (Eaton *et al*, 2015, Hughes *et al*, 2017).

Incidental records

Several records of Schedule 1 raptor species were observed on an incidental basis or during other surveys throughout 2020 and into 2021. Some of these have the potential for breeding within or nearby to the red line boundary.

Merlin

A pair of merlin were observed during a VP survey on 12 January 2021, in line with the expected influx of the species during the winter period in the south of the UK. An adult male was then observed 25 May 2021 on two occasions from VP2, well into the breeding season. Suitable moorland/upland breeding habitat exists directly north of VP2 and extends for several kilometres from there, however this area is regularly disturbed by recreational users and livestock and it is considered unlikely that merlin occur as breeding species within 2km of the Proposed Development.

Merlin is listed in the latest Gwent bird report as a scarce breeder within the county (Coleman *et al*, 2018)

Hobby

Hobby was observed on three occasions during the summer 2020 period in three separate months (July, August and September) from VP1. On all occasions birds were observed to be hunting with

no territorial or breeding behaviour observed. Hobby favour heath, open woodlands and mixed farmland with woods and grassland a mixture of these habitats exist within the red line boundary and the surrounding area.

During other surveys no hobby were observed in or away from the red line boundary and therefore it is assumed hobby do not breed within or close to the red line boundary. According to the latest Gwent bird report (Coleman *et al*, 2018) breeding has been confirmed from five nests in the Usk valley (approximately 12km from the Site).

Barn owl

Barn owl were discovered in the derelict farmhouse, which is adjacent to the solar farm and current access track, on 20 July 2021. Three birds were observed during a bat roost survey of the farmhouse, with at least one of them thought to be a recently fledged juvenile. One adult barn owl was subsequently observed during a nightjar survey on 22 July 2021 on multiple occasions.

Confidential Figure 3.21 shows the location of the suspected barn owl nesting location.

An internal inspection of the farmhouse was not possible due its unsafe and derelict nature; however, a search of the immediate area did not reveal any field signs or indication of barn owls using the location (i.e., no pellets, feathers).

The site does not support significant areas of optimal habitat to support barn owl with much of the site dominated by sheep/cow grazed improved grassland and plantation woodland.

Habitat has been classified based on the CIEEM "Barn Owl Survey Methodologies and Techniques for use in Ecological Assessment". This approach considers the nature of habitats and categorises them into three different types:

- Type 1 Habitat – Optimum habitat for field voles. Typically, permanent unimproved or semi-improved grassland usually with limited management;
- Type 2 Habitat – Sub-optimal habitat for field voles. Typically, semi-improved grassland with regular but infrequent management (annual cutting or light grazing); and
- Type 3 Habitat – Very poor habitat for field voles. Improved grasslands with short swards. Heavily grazed by sheep or cows.

Based on this guidance, no Type 1 habitat exists on site. The most beneficial habitat for small mammals is contained within the boundary of the solar farm present on site and directly opposite the farm building which contains the suspected breeding site.

Breeding features (buildings or trees) were also assessed for potential use within the red line boundary, with the current nesting location assessed to be the most suitable feature on site. Other opportunities for nesting or roosting also exists in the form of farm buildings on the eastern side of site. Several buildings on site were deemed to have a low suitability for barn owl, including stables and outbuildings adjacent to the current nesting location. Trees were also assessed for suitability as barn owl nesting habitat, with some 300 trees included in the assessment (assessed as part of bat roost surveys). Of these, 14 trees were identified as having potential roost features suitable for barn owl nesting based on descriptions provided from Shawyer, (2011).

Figure 3.22 provides a classification of habitat suitability for barn owl and shows the locations of potential roost/nest features.

It is possible barn owl have used this barn in previous years but has not been detected. The landowner believes they have been around for "several years" (*pers. comms*).

Based on these observations, it is assumed that the site supports a single pair of barn owls. The absence of large areas of optimal foraging habitat make it unlikely that the site would support additional breeding pairs, however, the presence of mature trees and other farm buildings offer potential sites for roosting or breeding locations.

3.5 Nightjar surveys

Nightjar surveys were carried out in both 2020 and 2021 during the breeding season (two surveys each). Two separate transects were used, targeting suitable habitat for this species (areas of clear fell or immature forestry re-growth). Given the distance over which nightjar can be detected, transects were devised such that they had no overlap so to avoid double counting (**Figure 2.5** outlines the location of each transect).

Nightjar were recorded on both transects in 2020 and in 2021. Nightjar were restricted to areas of clear fell forestry and immature plantation away from the main area of potential development, with the most activity coming from the north-western plantation block. The indicative centre points of territories are shown on **Figure 3.23**.

In 2020 two territories were identified. One was in the north-western plantation block and identified from Transect 1, with the second territory found in the valley which runs through the middle of the site separating the West and East of site and was identified from Transect 2. In 2021 two territories were also identified, both of which were identified from Transect 1. One was again found in the north-western plantation block, with an abundance of activity seen on the first visit coming from several birds, the second was also found in this same block but further south close to the red line boundary.

Incidental records

One territory was identified during the CBC surveys in 2020. This territory was located in the same block of forestry plantation that subsequent nightjar surveys in 2020 and 2021 confirmed as being held, it is therefore safe to assume that both of these identified territories relate to the same bird.

A nightjar was heard churring during an early morning VP survey from VP1 on 9 July 2021. It was heard churring briefly from the plantation on the other side valley, in roughly the same location as a previous territory had been identified in 2020. It could therefore constitute a third territory within the red line boundary.

Based on the findings of both surveys, it is considered that the site has the potential to support a maximum of three nightjar territories with two confirmed territories recorded in each survey season and a possible territory also identified.

Nightjar observations were restricted to areas of clear fell and plantation woodland where nests are most likely to occur, however nightjar have the potential to forage more widely across the Site.

3.6 Winter non-breeding surveys

Non-breeding surveys were carried out during the winter period of 2020-2021, October – March inclusive with one visit per month. The non-breeding bird survey followed two transects of similar length covering within 100m of all areas/habitats of interest. **Figure 2.6** shows the non-breeding bird survey transects.

A total of 52 species were recorded during the winter period of October 2020 to March 2021, including 19 target species were recorded of including:

- Seven species listed on Schedule 1 of the *Wildlife & Countryside Act* (1981): Brambling, common crossbill, fieldfare, goshawk, hen harrier, red kite and redwing.
- Six species listed on Section 7 of the *Environment (Wales) Act* (2006): Skylark, lesser redpoll, reed bunting, bullfinch, dunnock, song thrush.
- One species listed on the *Birds of Conservation Concern in Wales 3* Red list (2016): Bullfinch. With an additional four species also listed on the *Birds of conservation of Concern 4* (UK wide) Red list also recorded as a wintering/residential species: mistle thrush, lesser redpoll, starling and song thrush.

The additional target species recorded were wigeon, teal, snipe and moorhen.

The majority of records were of passerines and were dominated by species that occur at the site year-round and can be considered resident species (such as crossbill, lesser redpoll, bullfinch and dunnock).

Transient wintering species such as fieldfare, redwing and brambling were recorded on site in small numbers, although fieldfare and redwing remained on site until 09 March 2021.

No large congregations of target species were recorded during the wintering non-breeding surveys, which was confirmed during vantage point surveys conducted during the non-breeding season with comparable densities of species recorded throughout.

Peak counts for notable species included:

- Common crossbill – Flock of five recorded on 11 December 2020.
- Fieldfare – Flock of 25 with redwing on 11 December 2020.
- Redwing – Flock of 42 on 27 November 2020.
- Starling – Flock of 35 on 11 December 2020.
- Wigeon – Flock of four on 30 October 2020.
- Teal – Flock of 18 on 30 October 2020.
- Snipe – Seven were flushed from wetland area on 27 November 2020.

Red kite were observed on most surveys all as single records with possibly two present throughout the winter, whilst a single female goshawk was observed 09 March 2021. A male hen harrier was observed on 11 December 2020 having previously been observed during several vantage point survey and appeared to have wintered on site for up to one month.

4. Key Species Summary

Thirteen key species (i.e., species identified as “target species” for specific survey types or protected / notable species occurring within the Site) were recorded during the surveys carried out between March 2020 and August 2021; red kite, goshawk, peregrine, hen harrier, merlin, hobby, golden plover, green sandpiper, greenshank during VP and raptor surveys, crossbill during breeding bird surveys and nightjar and barn owl during nocturnal surveys. A summary of the records for these species is provided below.

4.1 Red kite

Red kite is listed on Annex I of the Birds Directive and Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**). In 2016, the UK population of red kite was estimated to be close to 4,400 pairs (Woodward *et al* 2020), although as recently as 2019 the red kite trust estimated the population Wales to be in excess of 2,500 pairs (Welsh Kite Trust 2021).

During VP surveys red kite were regularly recorded in all months with 0.32-0.9 flights recorded per hour of observation within the core survey area (2km viewshed). Up to five birds were recorded at any one time, although the vast majority of records relate to single birds. Most records relate to birds foraging over farmland / upland habitat directly south of VP2 and east of VP1 (**Figures 3.1, 3.3, 3.7, 3.11 and Figure 3.14**) Flights of red kite were also regularly recorded offsite around a wind turbine approximately 3km south-west of VP2.

Little evidence of breeding or territorial behaviour was observed during VP or Schedule 1 nesting surveys, with no nests found or any territory established. Most birds appeared to be young birds or birds not breeding in the immediate vicinity the reduction in sightings of red kite during the summer months in 2020 appears to support this as well as the status of red kite in Gwent County according to the latest report (Coleman, 2018).

4.2 Goshawk

Goshawk is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In 2017 there was thought to be up to 620 pairs nesting throughout the UK (Woodward *et al* 2020), although it is widely believed this doesn't reflect the true status of the species and represents a large underestimate of the true figures. In Wales it is a breeding resident in every county, with Gwent representing a large proportion of nesting records (Coleman, 2018).

During VP surveys, goshawk were recorded infrequently within the core survey area (2km viewshed) with 0.069 - 0.19 flights per hour of observation. Up to two birds were recorded at any one time, although the vast majority of records relate to single birds. Most records relate to adults with flights typically brief and within the buffer zone opposite VP1, juveniles were observed on several occasions and coincided with the fledging of chicks from the known nest. (See **Figure 3.2, 3.4, 3.8, 3.12 and 3.15**).

Goshawk were confirmed to have successfully bred in both 2020 and 2021, both from the same nest location and fledging four chicks in 2020 and one chick in 2021. The nest (**Confidential Figure**

3.18) was located outside of the red line boundary, although is potentially close enough to the access track and likely working areas and therefore has potential to be disturbed by increased use. A displaying pair observed during breeding raptor surveys up to 1.5km away from the know nesting location, potentially relate to a second territory within 2km of the red line boundary though a second nest site was not confirmed.

4.3 Peregrine

Peregrine is listed on Annex I of the Birds Directive and Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**). The UK breeding population for peregrine is estimated to be 1,769 pairs (Willson *et al* 2018) with an estimated 283 pairs in Wales. While numbers of peregrine have increased markedly in England, comparison of the number of pairs between 2002 and 2014 suggest stable populations in Wales.

During VP surveys peregrine were recorded infrequently with 0.01- 0.19 birds recorded per hour of observation. Up to two birds were recorded at any one time, although the vast majority of records relate to single birds. Most records relate to adults with flights typically brief and either within the buffer zone opposite VP1 or over the valley to the west of VP2, a single juvenile was observed on several occasions and are thought to relate to a possible territory on crags to the northeast of VP2 (see **Figure 3.16**).

The presence of juvenile could indicate local breeding, with suitable habitat abundant northeast of site and a pair observed behaving territorially. During the Breeding bird survey in 2021, peregrine were observed holding territory around crags to the northeast of the red line boundary. No nest was observed nor any signs of successful breeding (adults returning with food etc), so it is assumed that the pair observed didn't breed in 2021, potentially due to poor weather in spring 2021.

4.4 Barn owl

Barn owl is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**). The UK population is estimated to be 9,000 pairs and increasing, it is a breeding resident in all Welsh counties although some areas have seen reduced numbers in recent years due to poor winters.

Barn owl were discovered in the old farmhouse, which is adjacent to the solar farm and current access track, on 20 July 2021 (see **Confidential Figure 3.18**). It is possible barn owl has used this barn in previous years but has not been detected and barn owls were not recorded earlier in the programme of surveys despite the regular presence of staff at both dawn and dusk for vantage point and other breeding bird surveys. The landowner believes they have been around for "several years" (*pers. comms*).

Based on these observations, it is assumed that the site supports a single pair of barn owls. The absence of large areas of optimal foraging habitat make it unlikely that the site would support additional breeding pairs, however, the presence of mature trees and other farm buildings offer potential sites for roosting or breeding locations.

4.5 Nightjar

Nightjar is listed on Annex I of the Birds Directive and is also listed on Section 7 of the Environment (Wales) Act (2016) (see **Annex B**). The UK population is estimated to be 4,600 males (Woodward *et al* 2020), with the estimated population of 220 males in Wales thought to be an underestimate.

Nightjar specific surveys in 2020 and 2021 identified two confirmed territories and a third possible territory, all were located within clear fell or immature plantation habitats (see **Figure 3.20**). Up to three individual males were heard at any one time with females also heard calling simultaneously. A single territory located during the CBC surveys corresponds with the location of the most north-western territory and therefore probably relate to the same bird. A single nightjar heard churring during a VP survey potentially relates to a possible third territory given males are known to stay close to nest/territory locations.

All known territories are outside the Proposed Development boundary; however, nightjars have the potential to forage over a wider area and in other habitats away from nesting locations in clear fell/plantation woodland.

4.6 Common Crossbill

Common crossbill is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**). It is estimated that the UK population is 26,000 pairs, but as an irruptive species, numbers can vary dramatically from year to year (Woodward *et al* 2020).

Six territories were identified during breeding bird surveys in 2020, all of which were located in forestry plantation and therefore outside of the Proposed Development boundary. Crossbill were also observed during VP surveys in 2020 and 2021, with flocks of mixed ages and sex throughout the year. A maximum count of 22 on 26 June 2020 made up of mixed ages confirmed likely breeding within the survey area.

4.7 Non-breeding birds

Hobby

Hobby is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**). The UK population is estimated at around 2,050 pairs with the majority of these breeding in southern England (Woodward *et al* 2020), although the population is expanding its range. Around 50 pairs were estimated breeding in Wales in 2016 (Hughes 2017), with the south continuing to be their stronghold.

During VP surveys, Hobby were recorded within the core survey area on only three occasions (2km viewshed), with single birds making up all records. All records relate to adults with flights typically brief and hunting over VP1.

No evidence was observed of any breeding/territorial behaviour throughout VP surveys during 2020 and Breeding bird surveys did not locate any nests or likely habitat with potential to support breeding hobby. The observed records related to passage birds passing through the site.

Merlin

Merlin is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**). Merlin is also BoCC red listed, and the UK population is estimated 1100 pairs, with the vast majority breeding in Scotland and northern England (a maximum of 21 pairs bred in Wales in 2016) (Hughes 2017).

During VP surveys merlin were recorded within the core survey area (2km viewshed) on four occasions, with single birds making up all records, although a male and female were seen on the same day. All records relate to adults with flights typically brief.

No evidence was observed of any breeding/territorial behaviour throughout VP surveys during 2020 and 2021. Two records of merlin came from the winter period and were not unexpected given the winter influx of merlin from the north into the south. A male was observed in May 2021, outside of the expected timings for wintering birds however no further evidence of merlin as a breeding species was recorded and these records likely relate to a non-breeding bird passing through the Site.

Hen harrier

Hen harrier is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**). Hen harrier is also BoCC red listed, and the UK population is estimated 545 pairs, with the vast majority breeding in Scotland and northern England (35 pairs bred on the uplands of north and mid-Wales in 2017) (Hughes 2017).

Hen harrier winter in the lowlands of the UK, with individuals from the continent augmenting the resident breeding population.

During VP surveys, hen harrier were recorded on five occasions within the core survey area (2km viewshed). All records relate to a single adult male with flights typically brief.

A single male hen harrier was recorded on two occasions during VP surveys on 27 November and 4 December 2020. It is presumed the same male was also recorded during a winter non-breeding survey on 11 December 2020. In Gwent, hen harrier is a scarce passage migrant and winter visitor with numbers varying year to year (Coleman *et al* 2018).

4.8 Passage waders

Three species of waders were recorded during vantage point surveys:

- Golden plover - listed on Annex I of the Birds Directive and is also listed on Section 7 of the Environment (Wales) Act (2006) (see **Annex B**).
- Greenshank - is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**).

- Green sandpiper - is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**).

All these species were recorded during the passage / migratory season and therefore could be reasonably expected to occur occasionally anywhere. All were only recorded on single occasion with golden plover heard flying over site without stopping on 15 February 2021. Golden plover winter in moderate to large numbers in the south of Wales, although none were observed wintering on site or nearby throughout the survey period. Greenshank and green sandpiper were both recorded on the same day on 11 August 2020, both were observed feeding in a small pond and occasionally seen and mapped in flight. Both species were not recorded on any other survey.

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Annex A

Scientific names of species referred to in this report

BTO species code	Common/English name	Scientific name
B.	Blackbird	<i>Turdus merula</i>
BC	Blackcap	<i>Sylvia atricapilla</i>
BF	Bullfinch	<i>Pyrrhula pyrrhula</i>
BO	Barn owl	<i>Tyto alba</i>
BT	Blue tit	<i>Cyanistes caeruleus</i>
BZ	Buzzard	<i>Buteo buteo</i>
C.	Carrion crow	<i>Corvus corone</i>
CC	Chiffchaff	<i>Phylloscopus collybita</i>
CG	Canada goose	<i>Branta canadensis</i>
CH	Chaffinch	<i>Fringilla coelebs</i>
CK	Cuckoo	<i>Cuculus canorus</i>
CR	Crossbill	<i>Loxia curvirostra</i>
CT	Coal tit	<i>Periparus ater</i>
CU	Curlew	<i>Numenius arquata</i>
D.	Dunnock	<i>Prunella modularis</i>
FF	Fieldfare	<i>Turdus pilaris</i>
G.	Green woodpecker	<i>Picus viridis</i>
GC	Goldcrest	<i>Regulus regulus</i>
GE	Green sandpiper	<i>Tringa ochropus</i>
GO	Goldfinch	<i>Carduelis carduelis</i>
GI	Goshawk	<i>Accipiter gentilis</i>
GK	Greenshank	<i>Tringa nebularia</i>
GP	Golden plover	<i>Pluvialis apricaria</i>

BTO species code	Common/English name	Scientific name
GS	Great spotted woodpecker	Dendrocopos major
GT	Great tit	Parus major
GW	Garden warbler	Sylvia borin
H.	Grey heron	Ardea cinerea
HG	Herring gull	Larus argentatus
HH	Hen harrier	Circus cyaneus
HM	House martin	Delichon urbicum
HY	Hobby	Falco subbuteo
J.	Jay	Garrulus glandarius
JD	Jackdaw	Corvus monedula
L.	Lapwing	Vanellus vanellus
LB	Lesser black-backed gull	Larus fuscus
LE	Long-eared owl	Asio otus
LI	Linnet	Linaria cannabina
LR	Lesser redpoll	Acanthis cabaret
LT	Long-tailed tit	Aegithalos caudatus
LW	Lesser whitethroat	Sylvia curruca
KT	Red kite	Milvus milvus
M.	Mistle thrush	Turdus viscivorus
MA	Mallard	Anas platyrhynchos
MG	Magpie	Picus picus
MH	Moorhen	Gallinula chloropus
ML	Merlin	Falco columbarius
MP	Meadow pipit	Anthus pratensis
NH	Nuthatch	Sitta europaea
NJ	Nightjar	Caprimulgus europaeus
PF	Pied flycatcher	Ficedula hypoleuca
PW	Pied Wagtail	Motacilla alba

BTO species code	Common/English name	Scientific name
R.	Robin	<i>Erithacus rubecula</i>
RB	Reed bunting	<i>Emberiza schoeniclus</i>
RE	Redwing	<i>Turdus iliacus</i>
RT	Redstart	<i>Phoenicurus phoenicurus</i>
RN	Raven	<i>Corvus corax</i>
S.	Skylark	<i>Alauda arvensis</i>
SC	Stonechat	<i>Saxicola rubicola</i>
SD	Stock dove	<i>Columba oenas</i>
SF	Spotted flycatcher	<i>Muscicapa striata</i>
SH	Sparrowhawk	<i>Accipiter nisus</i>
SI	Swift	<i>Apus apus</i>
SK	Siskin	<i>Spinus spinus</i>
SL	Swallow	<i>Hirundo rustica</i>
ST	Song thrush	<i>Turdus philomelos</i>
T.	Teal	<i>Anas crecca</i>
TC	Treecreeper	<i>Certhia familiaris</i>
TO	Tawny owl	<i>Strix aluco</i>
TP	Tree pipit	<i>Anthus trivialis</i>
W.	Wheatear	<i>Oenanthe oenanthe</i>
WH	Whitethroat	<i>Sylvia communis</i>
WO	Wood warbler	<i>Phylloscopus sibilatrix</i>
WN	Wigeon	<i>Anas penelope</i>
WP	Woodpigeon	<i>Columba palumbus</i>
WR	Wren	<i>Troglodytes troglodytes</i>
WW	Willow warbler	<i>Phylloscopus trochilus</i>
Y.	Yellowhammer	<i>Emberiza citrinella</i>

Annex B

Legislation and species designations

Wildlife and Countryside Act 1981 (as amended)

With certain exceptions, all wild birds, their nests and eggs are protected by Section 1 of the *Wildlife and Countryside Act 1981* (as amended). Therefore, it is an offence, *inter alia*, to:

- Intentionally kill, injure or take a wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- Intentionally take or destroy the egg of any wild bird.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- Intentionally or recklessly disturb the dependent young of any such bird.

For golden eagle, white-tailed eagle and osprey, it is also an offence to:

- Take, damage or destroy the nest of these species (this applies at any time, not only when the nest is in use or being built).

The Environment (Wales) Act 2016

As part of the Welsh Government's commitment to reversing the decline in biodiversity in Wales and increasing the resilience of our ecosystem, the Environment (Wales) Act introduces a new biodiversity duty, which highlights biodiversity as an essential component of ecosystem resilience. In relation to Wales, this new duty replaces the biodiversity duty in the Natural Environment and Rural Communities Act 2006 (referred to as the NERC Act) which required that public authorities must have regard to conserving biodiversity.

Section 7 of the Act, states that, in relation to Biodiversity lists and duty to take steps to maintain and enhance biodiversity:

- (1) The Welsh Ministers must prepare and publish a list of the living organisms and types of habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales.
- (2) Before publishing a list under this section, the Welsh Ministers must consult Natural Resources Body for Wales ("NRW") as to the living organisms or types of habitat to be included in the list.
- (3) Without prejudice to section 6, the Welsh Ministers must:

- (a) Take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and
 - (b) Encourage others to take such steps.
- (4) The Welsh Ministers must, in consultation with NRW:
- (a) Keep under review any list published by them under this section,
 - (b) Make such revisions of any such lists as appear to them appropriate, and
 - (c) Publish any list so revised as soon as is reasonably practicable after revising it.
- (5) In exercising their functions under this section, the Welsh Ministers must apply the principles of sustainable management of natural resources.

Directive 2009/147/EC (The Wild Birds Directive), 2009

Certain bird species receive protection at a European level as listed on Annex I of the Directive 2009/147/EC of The European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version).

The *Wild Birds Directive* recognises that habitat loss and degradation are the most serious threats to the conservation of wild birds. It therefore places great emphasis on the protection of habitats for endangered as well as migratory species (listed on Annex I), especially through the establishment of a coherent network of Special Protection Areas (SPAs) comprising all the most suitable territories for these species. Together with Special Areas of Conservation (SACs) designated under *Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ('Habitats Directive')*, SPAs form a network of Pan-European protected areas known as Natura 2000.

Ramsar Sites

Ramsar sites are wetlands of international importance designated under the Ramsar Convention. Sites proposed for selection are advised by the UK statutory nature conservation agencies, or the relevant administration in the case of Overseas Territories and Crown Dependencies, co-ordinated through JNCC. In selecting sites, the relevant authorities are guided by the Criteria set out in the Convention. The Criteria pertaining specifically to birds are as follows:

- Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds; and
- Criterion 6: a wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

In the UK, the first Ramsar sites were designated in 1976 since which, many more have been designated. The initial emphasis was on selected sites of importance to waterbirds within the UK, and consequently many Ramsar sites are also Special Protection Areas (SPAs) classified under the Birds Directive. However, greater attention is now being directed towards non-bird features which are increasingly being considered, both in the selection of new sites and when reviewing existing sites.

Birds of Conservation Concern: Red List birds

Red and Amber list birds are those listed as being of high or medium conservation concern (respectively) in Birds of Conservation Concern (BoCC) 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man (Eaton *et al.*, 2015). Red list species are those that are Globally Threatened according to the IUCN criteria; and/or those whose population or range has declined rapidly in recent years; and/or those that have declined historically and not shown a substantial recent recovery. This list was recently updated with Birds of Conservation Concern (BoCC) 5 published in later 2021 (Stanbury *et al* 2021). A review of changes in classification was undertaken and no significant changes to target species was required.

Annex C

Survey visit details

Table C1 Vantage Point Survey: Survey visit details; breeding season 15 April – 26 June 2020

Survey date	VP	Start time	End time	Survey duration	Weather conditions
15/04/2020	1	12:00	15:00	3	Dry, Wind E F3, Cloud Cover 1/8, Visibility >3km, Temp 9-14c
15/04/2020	2	16:00	19:00	3	Dry, Wind E F1-4, Cloud Cover 0/8, Visibility >3km, Temp 14-17c
16/04/2020	2	12:00	15:00	3	Dry, Wind E F3, Cloud Cover 4/8, Visibility >3km, Temp 7-12c
16/04/2020	1	16:00	19:00	3	Dry, Wind E F3, Cloud Cover 5/8, Visibility >3km, Temp 12 -14c
30/04/2020	1	13:50	16:50	3	Dry, Wind W F3, Cloud Cover 5/8, Visibility >3km, Temp 10 -11c
30/04/2020	2	17:15	20:15	3	Moderate Rain, Wind SW F3, Cloud Cover 8/8, Visibility >3km, Temp 8 -12c
05/05/2020	1	07:15	10:15	3	Dry, Wind E F4 G6, Cloud Cover 8/8, Visibility >3km, Temp 6 -7c
05/05/2020	2	10:50	14:00	3	Dry, Wind E F3 G5, Cloud Cover 4/8, Visibility >3km, Temp 11-12c
19/05/2020	2	07:35	10:35	3	Dry, Wind F2 W, 8/8 Oktas cloud, visibility >3km, Temp 10-14c
19/05/2020	1	11:15	14:15	3	Dry, Wind F1 W, 2/8 Oktas cloud, visibility >3km, Temp 18-20c



Survey date	VP	Start time	End time	Survey duration	Weather conditions
20/05/2020	1	06:40	09:40	3	Dry, Wind F1 SW, 1/8 Oktas cloud, visibility >3km, Temp 10-18c
20/05/2020	2	10:10	13:10	3	Dry, Wind F2 SW, 0/8 Oktas cloud, visibility >3km, Temp 18-22c
21/05/2020	2	14:15	17:15	3	Dry, Wind F1 W, 3/8 Oktas cloud, visibility >3km, Temp 18-22c
21/05/2020	1	18:00	21:00	3	Dry, Wind F1 SE, 8/8 Oktas cloud, visibility >3km, Temp 15-17c
26/05/2020	1	14:00	17:00	3	Dry, Wind - SE - SW F1-2, Cloud Cover - 2-6/8, Cloud Height - >500m, Visibility - >3km, Temp - 20-21c
26/05/2020	2	17:40	20:40	3	Dry, Wind - SW F2-4, Cloud Cover - 1-4/8, Cloud Height - >500m, Visibility - >3km, Temp - 18-20c
05/06/2020	2	07:30	10:30	3	Dry, Wind F2 Gust4 NW, 6/8 Oktas cloud, visibility >3km, Temp 11-13c
05/06/2020	1	11:10	14:10	3	Dry, Wind F2 Gust4 NW, 6/8 Oktas cloud, visibility >3km, Temp 15-17°c
08/06/2020	2	14:10	17:10	3	Light Rain, Wind F2 NW, 8/8 Oktas cloud, visibility >3km, Temp 14°c
08/06/2020	1	17:50	20:50	3	Dry, Wind F1 NW, 6/8 Oktas cloud, visibility >3km, Temp 14°c
24/06/2020	1	06:10	09:10	3	Dry, Wind S F1, 0/8 Oktas cloud, visibility >3km, Temp 17°c
24/06/2020	2	09:40	14:20	3 (included pauses for surveyor due to other commitments)	Dry, Wind SE F2, 0/8 Oktas cloud, visibility >3km, Temp 21-25°c

Survey date	VP	Start time	End time	Survey duration	Weather conditions
26/06/2020	1	14:30	17:30	3	Dry, Wind SW F3, 6/8 Oktas cloud, visibility >3km, Temp 19-21°C
26/06/2020	2	18:05	21:05	3	Dry, Wind SW F3, 6/8 Oktas cloud, visibility >3km, Temp 16-19°C

Table C2 Vantage Point Survey: Survey visit details; post-breeding dispersal and Migratory period 10 July 2020 to 22 October 2020

Survey date	VP	Start time	End time	Survey duration	Weather conditions
10/07/2020	1	07:00	10:00	3	Dry, Wind - NNW-NW F2-4, Cloud Cover 1-7/8, Cloud Height - >500m, Visibility - >3km, Temp - 9-13c
10/07/2020	2	10:30	13:30	3	Drizzle/Mist, Wind - NW F1-2, Cloud Cover 8/8, Cloud Height - >500m, Visibility - >3km, Temp - 14-15c
21/07/2020	2	07:00	10:00	3	Dry, Wind - NNE - SSW F1, Cloud Cover 0-1/8, Cloud Height - >500m, Visibility - >3km, Temp - 9-15c
21/07/2020	1	10:25	13:25	3	Dry, Wind - SE - SSW F1-2, Cloud Cover 1-4/8, Cloud Height - >500m, Visibility - >3km, Temp - 16-19c
24/07/2020	1	14:25	17:25	3	Drizzle/Mist - Light Showers, Wind - WSW - SW F3-5, Cloud Cover - 6-8/8, Cloud Height - >500m, Visibility - >3km, Temp - 18c
24/07/2020	2	17:55	20:06	2 (Abandoned due to bad weather)	Drizzle/Mist - Light Showers, Wind - WSW - SW F4-5, Cloud Cover - 8/8, Cloud Height - <150m - >500m, Visibility - <1km - >3km, Temp - 15-17c
04/08/2020	2	14:15	17:45	3	Drizzle/Mist, Wind - SW F4-6, Cloud Cover - 8/8, Cloud Height - 150 - >500m, Visibility 1- >3km, Temp - 16-17c
04/08/2020	1	18:05	19:05	1 (Abandoned due to bad weather)	Drizzle/Mist, Wind - SW F4, Cloud Cover - 8/8, Cloud Height - <150m - <500m, Visibility - >1km - >3km, Temp - 15c

Survey date	VP	Start time	End time	Survey duration	Weather conditions
11/08/2020	1	06:00	09:00	3	Dry, Wind - NNE F1-2, Cloud Cover - 1/8, Cloud Height - >500m, Visibility - >3km, Temp - 17-22c
11/08/2020	2	09:33	13:03	3 (half hour pause during survey)	Dry, Wind - NE F1-2, Cloud Cover - 2-4/8, Cloud Height - >500m, Visibility - >3km, Temp - 22-26c
28/08/2020	1	08:00	11:00	3	Drizzle/Mist, Wind - WNW-NW F2-3, Cloud Cover - 6-8/8, Cloud Height - 150 - >500m, Visibility - >3km, Temp - 12-14c
07/09/2020	1	11:45	14:45	3	Dry with Drizzle/Mist briefly, Wind - W-WNW F3-4, Cloud Cover - 8/8, Cloud Height - >500m, Visibility - >3km, Temp - 13-15c
09/09/2020	2	12:45	15:45	3	Dry, Wind - WNW - NW F2-3, Cloud Cover - 0-6/8, Cloud Height - >500m, Visibility - >3km, Temp - 17-19c
09/09/2020	1	16:15	19:15	3	Dry, Wind - NNW F3, Cloud Cover - 0/8, Cloud Height - >500m, Visibility - >3km, Temp 16-19c
11/09/2020	2	07:10	10:10	3	Dry, Wind - SSW-SW F2-5, Cloud Cover - 8/8, Cloud Height - >500m, Visibility - >3km, Temp 10-12c
11/09/2020	1	10:35	12:35	3	Dry with Drizzle/Mist briefly - Wind - SW F3-6, Cloud Cover - 8/8, Cloud Height - >500m, Visibility - >3km, Temp 12-13c
16/09/2020	1	08:15	11:15	3	Dry, Wind - SW F2, Cloud cover 0/8, Cloud height - >500m, Visibility - >3km, Temp 20-24c
16/09/2020	2	12:00	15:00	3	Dry, Wind - SW F2, Cloud cover 0/8, Cloud height - >500m, Visibility - >3km, Temp 20-24c
13/10/2020	1	08:45	11:45	3	Dry, Wind - NW F2-3, Cloud cover 4-5/8, Cloud height - 150 - >500m, Visibility - >3km, Temp 7c
13/10/2020	2	12:10	15:10	3	Dry, Wind - N F3, Cloud cover 3-5/8, Cloud height - >500m, Visibility - >3km, Temp 8-11c
22/10/2020	2	11:40	14:40	3	Dry, Wind - N-NW F2-3, Cloud cover 1-3/8, Cloud height - >500m, Visibility - >3km, Temp 11-12c

Table C3 Vantage Point Survey: Survey visit details; non-breeding season 06 November 2020 to 26 February 2021

Survey date	VP	Start time	End time	Survey duration	Weather conditions
06/11/2020	2	07:05	10:05	3	Dry, E F3, Cloud cover - 1-2/8, Cloud height - 150 - >500m, Visibility - 1 - >3km, Temp 3-5c
06/11/2020	1	10:21	13:21	3	Dry, ENE, F3, Cloud cover - 1/8, Cloud height - >500m, Visibility - >3km, Temp 5-8c
12/11/2020	1	09:00	12:00	3	Dry, SW F1-F4, Cloud cover - 4-8/8, Cloud height - >500m, Visibility - >3km, Temp 12c
12/11/2020	2	12:45	15:45	3	Dry, W F4-5, Cloud cover - 7-8/8, Cloud height - >500m, Visibility - >3km, Temp 10-13c
26/11/2020	2	07:40	11:45	4 (1hour catch up)	Dry, Ground frost, SSW-NNE F1-2 Cloud cover - 1-3/8, Cloud height - >500m, Visibility - >3km, Temp 0-5c
26/11/2020	1	12:15	15:15	3	Dry, N-NNE F1, Cloud cover - 1-3/8, Cloud height - >500m, Visibility - >3km, Temp 6-7c
04/12/2020	1	08:00	11:00	3	Dry, NW F3-4, Cloud cover - 2-5/8, Cloud height - >500m, Visibility - >3km, Temp 2-3c
04/12/2020	2	11:30	14:30	3	Dry, NW F3, Cloud cover - 2-6/8, Cloud height - >500m, Visibility - >3km, Temp 3-4c
09/12/2020	2	09:30	11:30	2 (catch up hours)	Dry, W F1-2, Cloud cover - 4-8/8, Cloud height - >500m, Visibility - >3km, Temp 1c
09/12/2020	1	12:00	15:00	3	Dry, W F0, Cloud cover - 8/8, Cloud height - >500m, Visibility - >3km, Temp 2c



Survey date	VP	Start time	End time	Survey duration	Weather conditions
06/01/2021	1	08:40	11:40	3 (survey abandoned due to heavy snow)	Light - Heavy snow, Frost, NW F3-4, Cloud cover - 5-8/8, Cloud height - 150 - >500m, Visibility - 1 - >3km, Temp -1c-0c
11/01/2021	2	08:15	11:15	3	Drizzle, Ground snow, W F5-7, Cloud cover - 7-8/8, Cloud height - >500m, Visibility - >3km, Temp 5-7c
11/01/2021	1	11:45	14:45	3	Drizzle - Light showers, Ground snow, W F5, Cloud cover - 5-8/8, Cloud height - 150 - >500m, Visibility 1 - >3km, Temp 7c
12/01/2021	1	09:30	12:30	3	Drizzle, WNW - NW F2-4, Cloud cover - 7-8/8, Cloud height - >500m, Visibility - >3km Temp 8-9c
12/01/2021	2	13:00	16:00	3	Drizzle, NW - WNW F2, Cloud cover - 5-8/8, Cloud height - 150 - >500m, Visibility - 1 - >3km, Temp 9c
22/01/2021	1	08:10	11:10	3	Dry, NW-SW F1-2, Cloud cover - 0-1/8, Cloud height - >500m, Visibility - >3km, Temp -1c - 2c
22/01/2021	2	11:30	14:30	3	Drizzle - Light showers (Sleet), SW F3-4, Cloud cover 8/8, Cloud height - 150 - >500m, Visibility - 1 - >3km, Temp 3-5c
28/01/2021	1	09:00	12:00	3	Drizzle, SW F4, Cloud cover 8/8, Cloud height - >500m, Visibility - >3km, Temp 10c
28/01/2021	2	12:30	15:30	3	Drizzle - Light showers, SW F4, Cloud cover 7-8/8, Cloud height - >500m, Visibility - 1 - >3km, Temp 10c
15/02/2021	1	08:20	11:20	3	Drizzle, SW F4, Cloud cover 8/8, Cloud height - >500m, Visibility - >3km, Temp 10c

Survey date	VP	Start time	End time	Survey duration	Weather conditions
15/02/2021	2	11:35	14:35	3	Drizzle/Mist, SW F4, Cloud cover 8/8, Cloud height - >500m, Visibility - >3km, Temp 9-10c
18/02/2021	2	10:00	13:00	3	Heavy showers, SW F4, Cloud cover 3-8/8, Cloud height - >500m, Visibility - >3km, Temp 7-9c
18/02/2021	1	13:15	16:15	3	Dry, SW F4, Cloud cover 3-6/8, Cloud height - >500m, Visibility - >3km, Temp 6-7c
25/02/2021	1	10:10	13:10	3	Dry, WNW F3, Cloud cover 2-4/8, Cloud height - >500m, Visibility - >3km, Temp 6-9c
25/02/2021	2	13:25	15:25	3	Dry, WNW F3, Cloud cover 2-3/8, Cloud height - >500m, Visibility - >3km, Temp 10-11c
26/02/2021	2	08:15	11:15	3 (Catch up hours)	Dry, WNW-SSW F1-2, Cloud cover 0-3/8, Cloud height - >500m, Visibility - >3km, Temp 1-6c

Table C4 Vantage Point Survey: Survey visit details; breeding season 05 March – 24 August 2021

Survey date	VP	Start time	End time	Survey duration	Weather conditions
05/03/2021	1	09:00	12:00	3	Dry, F2 NE, Cloud cover - 5-6/8, Cloud height - 2, Visibility - 2, Temp 2-3c
05/03/2021	2	12:20	15:20	3	Dry, F2 NE, Cloud cover - 3-5/8, Cloud height - 2, Visibility - 2, Temp 3-4c
08/03/2021	2	09:15	12:15	3	Dry, F2 NW, Cloud cover - 1-2/8, Cloud height - 2, Visibility - 2, Temp 2-6c

Survey date	VP	Start time	End time	Survey duration	Weather conditions
08/03/2021	1	12:45	15:45	3	Dry, F2 W-SW, Cloud cover - 3-4/8, Cloud height - 2, Visibility - 2, Temp 7-8c
14/04/2021	1	06:50	09:50	3	Dry, Wind F2 W, Cloud cover 2/8, Cloud height - 2, Visibility - 2, Temp 5-12c
14/04/2021	2	10:25	13:25	3	Dry, Wind F2 W, Cloud cover 0/8, Cloud height - 2, Visibility - 2, Temp 13-18c
27/04/2021	2	13:15	16:15	3	Dry, F1 W, Cloud cover - 8/8, Cloud height - 2, Visibility - 2, Tempo 12 -13c
27/04/2021	1	16:45	19:45	3	Dry, F1-3 W-WNW, Cloud cover - 8/8, Cloud height - 2, Visibility - 2, Temp 10-11c
25/05/2021	2	14:00	17:00	3	Dry, F3 W, Cloud cover - 8/8, Cloud height - 2, Visibility - 2, Temp 10 - 12c
25/05/2021	2	17:30	20:30	3	Dry, F2 W-WNW, Cloud cover - 3-7/8, Cloud height - 2, Visibility - 2, Temp 7 - 10c
05/06/2021	1	14:00	17:00	3	Dry, F2-3 SW, Cloud cover - 6-7/8, Cloud height - 2, Visibility - 2, Temp 18c
05/06/2021	1	17:30	20:30	3	Dry, F2 SW, Cloud cover- 7-8/8, Cloud height - 2, Visibility - 2, Temp 15-17c
07/06/2021	1	05:30	08:30	3	Dry, F1-2 W-SSW, Cloud cover - 1-3/8, Cloud height - 2, Visibility - 2, Temp 11-13c
07/06/2021	1	09:00	12:00	3	Dry, F1-3 W-WSW, Cloud cover - 5-7/8, Cloud height - 2, Visibility - 2, Temp 15-16c
28/06/2021	2	08:30	11:30	3	Drizzle, F3-4 NE, Cloud cover - 8/8, Cloud height - 1-2, Visibility - 0-1, Temp 13-15c



Survey date	VP	Start time	End time	Survey duration	Weather conditions
01/07/2021	2	09:30	12:30	3	Dry, F1-2 W-WNW, Cloud cover - 5-6/8, Cloud height - 2, Visibility 2, Temp 17-18c
09/07/2021	1	06:30	09:30	3	Dry, F1-2 WNW-SW, Cloud cover - 6-8/8, Cloud height - 2, Visibility - 2, Temp - 13-15c
09/07/2021	2	09:45	12:45	3	Dry, F1-3 SW-SSW, Cloud cover - 6-8/8, Cloud height - 2, Visibility - 2, Temp - 15-17c
23/07/2021	2	09:30	09:30	3	Dry, F1 E, Cloud Cover 1-4/8, Cloud height - 2, Visibility >3k, Temp 17- 21c
23/07/2021	1	12:45	12:45	3	Dry, F1-4 E, Cloud Cover 1-5/8, Cloud height - 2, Visibility >3k, Temp 21- 25c
19/08/2021	2	09:30	12:30	3	Drizzle-dry, Wind S-SW F1-2 , Cloud Cover 6-8/8, Visibility 1-3km, Temp 15-16c (heavy fog between 11:30 and 12:15)
19/08/2021	1	13:00	16:00	3	Dry, Wind S-SW F2-3, Cloud Cover 7-8/8, Visibility 1-3km, Temp 16-17c
24/08/2021	1	06:35	09:35	3	Dry, Wind F3-5 NE-ESE, Cloud cover 3-8/8, Visibility >3km, Temp 12-15c
24/08/2021	2	09:50	12:50	3	Dry, Wind F3-5 NE-ESE, Cloud cover 3-8/8, Visibility >3km, Temp 12-15c

Table C5 Vantage survey: Survey visit details September 2021 to March 2022.

Survey date	VP	Start time	End time	Survey duration	Weather conditions
22/09/2021	2	07:40	10:40	3 hours	Dry, Wind W-WNW F1-3, Cloud cover 2-4/8, Visibility >3km, Temp 11-16c

Survey date	VP	Start time	End time	Survey duration	Weather conditions
22/09/2021	1	10:50	13:50	3 hours	Dry, Wind W-WNW F1-3, Cloud cover 2-7/8, Visibility >3km, Temp 16-19c
29/09/2021	1	07:15	10:50	3 hours (30-minute pause)	Dry, Wind WNW F3-5, Cloud cover 1-4/8, Visibility >3km, Temp 4-9c
29/09/2021	2	11:10	14:10	3 hours	Light rain infrequently, Wind NW-WNW F3-5, Cloud cover 3-7/8 Visibility >3km, Temp 9-14c
01/10/2021	1	07:15	10:15	3 hours	Showers, Wind WNW F3-5, Cloud cover 1-4/8, Visibility 1- >3km, Temp 10-15c
01/10/2021	1	10:15	13:15	3 hours	Showers, Wind WNW F3-5, Cloud cover 1-4/8, Visibility 1- >3km, Temp 15-17c
29/10/2021	2	09:00	12:00	3 hours	Dry, Wind SW F5-6, Cloud Cover 6/8, Visibility >3km, Temp 11c
29/10/2021	2	12:00	15:00	3 hours	Dry, Wind W F5-6, Cloud Cover 4/8, Visibility >3km, Temp 12c
16/11/2021	1	07:30	10:30	3 hours	Dry, Wind WNW F2-4, Cloud cover 5-8/8, Visibility <1 - >3km, Temp 6-10c
16/11/2021	1	11:00	14:00	3 hours	Drizzle, Wind W F2-4, Cloud cover 6-8/8, Visibility <1 - 3km, Temp 10-11c
17/11/2021	2	08:30	11:30	3 hours	Drizzle, Wind NW F2-5, Cloud cover 7-8/8, Visibility <1 - 3km, Temp 4-6c
17/11/2021	2	11:30	14:30	3 hours	Drizzle, Wind NW F2-4, Cloud cover 7-8/8, Visibility <1 - 3km, Temp 6-8c
02/12/2021	2	09:00	12:00	3	Dry, Wind NW F3, Cloud Cover 1/8, Visibility >3km, Temp 0-3c

Survey date	VP	Start time	End time	Survey duration	Weather conditions
02/12/2021	2	12:00	15:00	3	Dry, Wind NW F3, Cloud Cover 1/8, Visibility >3km, Temp 3c
03/12/2021	1	07:45	10:45	3	Dry, Wind NW F2, Cloud Cover 6/8, Visibility >3km (mist first half hour, 1-3km visibility), Temp 6c
03/12/2021	1	10:45	13:45	3	Dry, Wind NW F2, Cloud Cover 7/8, Visibility >3km, Temp 8c
05/01/2022	1	08:20	11:20	3 hours	Dry - snow on ground, Wind NW-W F2-4, Cloud cover 2-8/8, Visibility >3km, Temp 0-3c
05/01/2022	1	11:20	14:20	3 hours	Dry, Wind NW-W F2-4, Cloud cover 5-8/8, Visibility >3km, Temp 3-5c
20/01/2022	2	09:30	12:30	3 hours	Dry, Wind N-NNE, F1, Cloud cover 0-1/8, Visibility >3km, Temp 0-3c
20/01/2022	2	12:30	15:30	3 hours	Dry, Wind N-NNE, F1-2, Cloud cover 1-7/8, Visibility >3km, Temp 3c
02/02/2022	1	07:50	10:50	3 hours	Dry, Wind F2-4, Cloud cover 1-8/8, Visibility >3km, Temp 4-7c
02/02/2022	1	10:50	13:50	3 hours	Dry, Wind F2-4, Cloud cover 1-8/8, Visibility >3km, Temp 4-7c
01/03/2022	2	08:00	11:00	3 hours	Dry, Wind NW F3-5, Cloud cover 8/8, Visibility >3km, Temp 4-7c
01/03/2022	2	11:00	14:00	3 hours	Dry, Wind NW F3-5, Cloud cover 8/8, Visibility >3km, Temp 7-9c

Table C6 Breeding bird survey: Survey visit details 26 March to 10 June 2020

Survey date	Start time	End time	Weather conditions
26/03/2020	09:00	12:15	Dry, Wind W F1, Cloud Cover 0/8, Visibility >3km, Temp 15c
26/03/2020	09:00	13:00	Dry, Wind W F1, Cloud Cover 0/8, Visibility >3km, Temp 15c
27/03/2020	08:00	11:45	Dry, Wind NE F1, Cloud Cover 0/8, Visibility >3km, Temp 8-11c
27/03/2020	08:15	12:30	Dry, Wind S F1, Cloud Cover 0/8, Visibility >3km, Temp 15c
08/04/2020	08:15	12:05	Dry, Wind NE F1, Cloud Cover 4/8, Visibility >3km, Temp 8-15c
08/04/2020	08:30	11:55	Dry, Wind cyclonic F1, 3/8 Oktas cloud, Visibility > 3km, Temp 8-15c
09/04/2020	07:40	12:00	Dry, Wind S F1, Cloud Cover 6/8, Visibility >3km, Temp 10-16c
09/04/2020	08:00	11:45	Dry, Windstill, 0/8 Oktas cloud, Visibility > 3km, Temp 11c -16c
20/04/2020	07:00	11:25	Dry, Wind E F3, 2/8 Oktas cloud, Visibility > 3km, Temp 6-14c
20/04/2020	07:05	10:45	Dry, Wind E F2 G3, Cloud Cover 2/8, Visibility >3km, Temp 8 -14c
21/04/2020	07:00	11:45	Dry, Wind E F4, 0/8 Oktas cloud, Visibility > 3km, Temp 10 - 17c
21/04/2020	07:30	11:35	Dry, Wind E F2 G4, Cloud Cover 0/8, Visibility >3km, Temp 10 -17c

Survey date	Start time	End time	Weather conditions
11/05/2020	07:15	12:00	Dry, Wind NE F5 G7, 0/8 Oktas cloud, visibility > 3km, Temp 5c - 11c
12/05/2020	07:05	12:00	Dry, Wind N F1, 0/8 Oktas cloud, visibility > 3km, Temp 1c-11c
12/05/2020	07:20	11:55	Dry, Wind F0, 0/8 Oktas cloud, visibility > 3km, Temp 2c-11c
14/05/2020	07:00	11:00	Dry, Wind F1 N, 0/8 Oktas cloud, visibility > 3km, Temp 1c-8c
28/05/2020	06:50	11:40	Dry, Wind F1 S, 0/8 Oktas cloud, visibility > 3km, Temp 13 - 22c
28/05/2020	06:55	11:10	Dry, Wind F0 -, 0/8 Oktas cloud, visibility >3km, Temp 13-22c
29/05/2020	06:35	11:35	Dry, Wind F1 S -, 0/8 Oktas cloud, visibility >3km, Temp 11-22c
29/05/2020	06:50	11:30	Dry, Wind F1 S -, 0/8 Oktas cloud, visibility >3km, Temp 13-20c
10/06/2020	07:00	11:35	Light showers clearing by 08:00, Wind W F1-2, 8/8 Oktas cloud, visibility > 3km, Temp 13-17°c
09/06/2020	06:40	11:35	Dry, Wind NE F1, 0/8 Oktas cloud, visibility > 3km, Temp 9-17°c
09/06/2020	07:00	11:35	Dry, Wind NE F1, 0/8 Oktas cloud, visibility > 3km, Temp 9-17°c
10/06/2020	06:40	11:35	Light showers clearing by 08:00, Wind W F1-2, 8/8 Oktas cloud, visibility > 3km, Temp 13-17°c

Table C7 Schedule 1 breeding bird survey: Survey visit details 26 March to 10 June 2020.

Survey date	Start time	Survey type	Weather conditions
29/03/2021	09:00	Cold search	Dry, Wind - SW F3-5, Cloud cover - 8/8, Visibility - <1km ->3km, Cloud height - 150-500m, Temp - 8-11c
29/03/2021	11:30	Cold search	Dry, Wind - SW F3-5, Cloud cover - 8/8, Visibility - <1km ->3km, Cloud height - 150-500m, Temp - 8-11c
29/03/2021	13:00	Cold search	Dry, Wind - SW F3-5, Cloud cover - 8/8, Visibility - <1km ->3km, Cloud height - 150-500m, Temp - 8-11c
29/03/2021	13:30	VP	Dry, Wind - SW F3-5, Cloud cover - 8/8, Visibility - <1km ->3km, Cloud height - 150-500m, Temp - 8-11c
30/03/2021	08:00	VP	Dry, Wind - S-SSE F2, Cloud cover - 0-2/8, Visibility - >3km, Cloud height - >500m, Temp - 10-19c
30/03/2021	12:20	VP	Dry, Wind - S-SSE F2, Cloud cover - 0-2/8, Visibility - >3km, Cloud height - >500m, Temp - 10-19c
12/04/2021	09:40	VP	Dry, wind - SW F2, cloud 4/8 Oktas, visibility > 3km, cloud > 500m, Temp 7°C
12/04/2021	12:45	Nest check	Dry, wind - SW F2, cloud 4/8 Oktas, visibility > 3km, cloud > 500m, Temp 9°C
12/04/2021	13:00	Cold search	Dry, wind - SW F2, cloud 4/8 Oktas, visibility > 3km, cloud > 500m, Temp 9°C
12/04/2021	09:30	VP	Dry, wind - SW F2, cloud 4/8 Oktas, visibility > 3km, cloud > 500m, Temp 7°C
29/04/2021	09:00	Cold search	Dry, Wind - N F2, cloud 5/8 Oktas, visibility > 3km, cloud > 500m, Temp 8°C
29/04/2021	12:30	Cold search	Dry, Wind - N F2, cloud 5/8 Oktas, visibility > 3km, cloud > 500m, Temp 8°C

Survey date	Start time	Survey type	Weather conditions
12/05/2021	07:15	VP	Light showers, Wind - SW F3-5, Cloud cover - 8/8, Visibility - <1km - 3km, Cloud height - >150m - 500m, Temp - 6-9c
12/05/2021	10:00	VP	Light showers, Wind - SW F3-5, Cloud cover - 8/8, Visibility - <1km - 3km, Cloud height - >150m - 500m, Temp - 9-11c
13/05/2021	09:00	Nest check	Light to Heavy showers, Wind - NNE F2-3, Cloud cover 7-8/8, Visibility - <1km - 3km, Cloud height - >150m - 500m, Temp - 8-11c
13/05/2021	09:30	Cold search	Light to Heavy showers, Wind - NNE F2-3, Cloud cover 7-8/8, Visibility - <1km - 3km, Cloud height - >150m - 500m, Temp - 8-11c
08/07/2021	11:00	VP	Light showers, Wind - SW F2, Cloud cover - 6/8 Oktas, visibility > 3km, cloud > 500m, Temp 17°C

Table C8 Winter non-breeding surveys: 30 October 2020 to 09 March 2021

Survey date	Start time	End time	Weather conditions
30/10/2020	08:30	12:15	Light - Heavy rain, SW F3-F6, Cloud cover 8/8, Cloud height - 150 - 500m, Visibility - <1km, Temp 13-14c
27/11/2020	09:00	12:15	Dry, Ground frost, N F1-2, Cloud cover - 0-3/8, Cloud height - >500m, Visibility - >3km, Temp 0-3c
11/12/2020	09:10	11:40	Drizzle, W F2, Cloud cover 8/8, Cloud height - 150 - 500m, Visibility - 1-3km, Temp 9c

Survey date	Start time	End time	Weather conditions
27/01/2021	09:00	12:00	Drizzle - Light showers, W F2, Cloud cover 8/8, Cloud height - <150m, Visibility < 1km, Temp 8-9c
01/02/2021	11:00	14:00	Dry, ENE F3, Cloud cover 8/8, Cloud height - <150m, Visibility - <1km, Temp 2-3c
09/03/2021	09:30	12:30	Dry, SW F2, Cloud cover 1/8 , Cloud height - >500m, Visibility - >3km, Temp 8°C

Table C9 Nightjar transects: Survey visit details for 2020 and 2021.

Survey date	Start time	End time	Weather conditions
22/06/2020	21:30	23:30	Dry, Wind – W F4, Cloud cover – 3/8, Visibility - >3km, Cloud height - >500m, Temp 13c
16/07/2020	21:20	23:20	Dry, Wind – W F1, Cloud cover – 0/8, Visibility - >3km, Cloud height - >500m, Temp – 20c
08/07/2021	21:40	23:00	Dry, Wind – NW F2, Cloud cover – 0/8, Visibility - >3km, Cloud cover - >500m, Temp – 15 c
21/07/2021	21:20	23:20	Dry, Wind – N F0, Cloud cover – 0/8, Visibility - >3km, Cloud cover - >500m, Temp 16c

Annex D

Territory-mapping principles

The number of territorial clusters have been defined from maps based on a six visit survey programme and adapted from criteria outlined in Amar *et al.* (2006):

- The minimum number of visit registrations used to form a territory would be two.
- Where the species is a songbird, alone and in song, two registrations can stand as a territory. Two singing individuals recorded simultaneously would be treated as two territories.
- A lone bird alarm calling or other vocalisations thought to have strong territorial significance would require two registrations to be accepted as a territory.
- The presence of an occupied nest or very recently fledged, or branched young, with no other registrations, would be acceptable as a territory.
- A lone songbird not in song would not count as a territory, regardless of whether it is located toward the middle of the survey area or near the edges.
- A territory would not be counted where there is just a single registration of a bird in mid-flight.
- The presence of a family (fully winged) on a single visit (juvenile birds with attendant parents) would not be permitted as a territory, as they may have moved into the area from outside the survey area.
- Two registrations of a lone pair would be permitted as a territory, provided that the birds were not in mid-flight. In instances involving pairs of birds in flights, territories would only be permitted when the pair were recorded taking off from a fixed point within the plot, e.g. a tree or the ground (but excluded when they have been seen in mid-flight).
- For certain species that are colonial, or occur in large groups where it may be hard to define separate individual territories e.g. woodpigeon, feral pigeon, rook and jackdaw, such species will be recorded as 'present' or 'not recorded'.
- Low density species seen just once, and not in song would not be permitted as a territory (e.g. barn owl, kestrel and sparrowhawk), regardless of whether the bird is in flight or perched. There needs to be a minimum of two visit registrations for these species to count.
- Once territory circles have been identified and drawn around groups of registrations, there is the issue of registrations straddling the survey area boundary. Where a territory crosses the survey area boundary, the number of registrations either side of the boundary would be counted: where there are more within the area than outwith, the territory would be included in the total count for the survey area. Where there are

fewer the territory would be excluded. In cases where the registrations are equal either side of the boundary, the territory will be counted as within the survey area.

Annex E

Survey results

Table E1 Breeding season 2020 – Target Species Flight data

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP1_04_M_001	KT	15/04/20	12:04	1	1	C	30	30	Flying close to farm before been lost to view quickly
VP2_04_L_002	KT	15/04/20	16:00	2	1	A	0	0	Flying low over moor before landing next to pond to take a drink
VP2_04_L_003A	KT	15/04/20	16:10	2	1	A	0	0	Same bird as above flew from pond/moor to over solar farm before heading to moor and quartering. Gained height more and more before leaving viewshed
VP2_04_L_003B	KT	15/04/20	16:10	2	1	B	30	30	
VP2_04_L_003C	KT	15/04/20	16:10	2	1	C	45	45	

⁵ Flight height band refers to the height at which the bird was recorded: A = 0-10m; B = 10-50m; C = 50-150m; D = 150m- 200m; E =>200m.

⁶ Total flight time is calculated by multiplying time at PCH by number of individual birds involved in the flight. E.g., 10 GP for 15 seconds would equal 150 seconds Total flight time.



Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP2_04_L_003D	KT	15/04/20	16:10	2	1	D	0	75	
VP2_04_L_003E	KT	15/04/20	16:10	2	1	C	30	30	
VP2_04_L_003F	KT	15/04/20	16:10	2	1	B	45	45	
VP2_04_L_003G	KT	15/04/20	16:10	2	1	A	0	0	
VP2_04_L_003H	KT	15/04/20	16:10	2	1	B	45	45	
VP2_04_L_003I	KT	15/04/20	16:10	2	1	C	60	60	
VP2_04_L_003J	KT	15/04/20	16:10	2	1	D	90	90	
VP2_04_L_004A	KT	15/04/20	16:35	2	1	D	60	60	Same bird as above flew back into viewshed and circled high before flying low over moor and then quickly regaining height on the other side of the moor
VP2_04_L_004B	KT	15/04/20	16:36	2	1	C	120	120	



Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP2_04_L_004C	KT	15/04/20	16:38	2	1	B	90	90	
VP2_04_L_004D	KT	15/04/20	16:40	2	1	C	75	75	
VP2_04_L_004E	KT	15/04/20	16:42	2	1	D	15	15	
VP2_04_L_005A	KT	15/04/20	17:06	2	1	C	90	90	Circling pasture before dropping into valley
VP2_04_L_005B	KT	15/04/20	17:06	2	1	B	45	45	
VP2_04_L_006	KT	15/04/20	18:30	2	1	B	60	60	Floating low over pasture
VP1_04_L_007A	KT	16/04/20	16:30	1	1	D	345	345	Flying high after 5 minutes 2nd red kite in scope landed both in same woodland behind cemetery
VP1_04_L_007B	KT	16/04/20	16:35	1	1	C	15	15	
VP1_04_L_007C	KT	16/04/20	16:36	1	1	B	15	15	
VP1_04_L_007D	KT	16/04/20	16:36	1	1	A	0	0	

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP1_04_L_008A	KT	16/04/20	16:35	1	1	D	30	30	Landed in wood same as other red kite (Flight 7)
VP1_04_L_008B	KT	16/04/20	16:35	1	1	A	0	0	
VP1_04_L_009	KT	16/04/20	17:27	1	1	C	225	225	LTV
VP1_04_M_010	KT	29/04/20	15:34	1	1	A	0	0	Flew along ridge line with BZ
VP1_04_M_011A	KT	29/04/20	16:08	1	1	A	0	0	Flew along ridge then mobbed by C. and flew se into valley on other side - lost to view
VP1_04_M_011B	KT	29/04/20	16:09	1	1	B	30	30	Flew along ridge then mobbed by C. and flew se into valley on other side - lost to view
VP2_04_L_012	KT	29/04/20	17:53	2	1	A	0	0	Stayed low - lost to view behind trees
VP2_04_L_013A	KT	29/04/20	18:04	2	1	A	0	0	Likely same bird as flight 1
VP2_04_L_013B	KT	29/04/20	18:04	2	1	B	15	15	Likely same bird as flight 1
VP2_04_L_013C	KT	29/04/20	18:04	2	1	A	0	0	Likely same bird as flight 1



Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP2_04_L_014	KT	29/04/20	19:20	2	1	A	0	0	Bird flew low, foraging- picking up food from floor landed in tree to the ne of the solar farm
VP2_04_L_015	KT	29/04/20	19:30	2	1	A	0	0	Same bird - flushed from tree looped round- lost from sight in valley- refund- bird then flew short time then back into tree
VP2_05_M_016A	KT	05/05/20	10:55	2	1	A	0	45	Bird 1 appeared over solar farm went low over hill
VP2_05_M_016B	KT	05/05/20	10:55	2	1	B	45	45	Bird 1 appeared over solar farm went low over hill
VP2_05_M_017	KT	05/05/20	10:56	2	1	B	45	45	Bird 2 appeared as both climbed out of valley - some parallel flying/interaction
VP2_05_M_018A	KT	05/05/20	11:25	2	1	A	0	15	KT flew to sw of vp lost to view
VP2_05_M_018B	KT	05/05/20	11:25	2	1	B	15	15	KT flew to sw of vp lost to view
VP2_05_M_018C	KT	05/05/20	11:25	2	1	A	0	15	KT flew to sw of vp lost to view
VP2_05_M_019	KT	05/05/20	11:27	2	1	A	0	0	KT further down valley - may have been same bird as 3

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP2_05_M_020	KT	05/05/20	12:54	2	1	A	0	0	Lost to view behind hill
VP2_05_M_021A	KT	05/05/20	12:55	2	1	B	15	15	Probably same bird as above went higher with bz then dropped into valley
VP2_05_M_021B	KT	05/05/20	12:55	2	1	A	0	15	Probably same bird as above went higher with bz then dropped into valley
VP2_05_E_022	GI	19/05/20	08:41	2	1	B	15	15	
VP2_05_E_023A	KT	19/05/20	09:32	2	1	C	15	15	Distant kite flying along valley
VP2_05_E_023B	KT	19/05/20	09:32	2	1	B	15	15	Distant kite flying along valley
VP2_05_E_023C	KT	19/05/20	09:32	2	1	C	60	60	Distant kite flying along valley
VP2_05_E_024	KT	19/05/20	09:34	2	1	A	0	0	Kite returning to roost/perch in tree near solar farm
VP2_05_E_025	KT	19/05/20	10:36	2	1	B	30	30	Kite over moor/hill
VP2_05_E_026A	KT	19/05/20	10:40	2	2	C	30	30	KT x2 spiralling on the thermals, one bird may have been same as flight 4



Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP2_05_E_026B	KT	19/05/20	10:40	2	2	D	0	60	KT x2 spiralling on the thermals, one bird may have been same as flight 4
VP1_05_M_027A	KT	19/05/20	11:25	1	1	C	30	30	Lost to view behind hill
VP1_05_M_027B	KT	19/05/20	11:25	1	1	B	15	15	Lost to view behind hill
VP1_05_M_027C	KT	19/05/20	11:25	1	1	A	0	0	Lost to view behind hill
VP1_05_M_028A	KT	19/05/20	11:27	1	1	A	0	0	
VP1_05_M_028B	KT	19/05/20	11:27	1	1	B	30	30	
VP1_05_M_028C	KT	19/05/20	11:27	1	1	C	15	15	
VP1_05_M_028D	KT	19/05/20	11:28	1	1	B	15	15	
VP1_05_M_028E	KT	19/05/20	11:28	1	1	A	0	0	
VP1_05_M_028F	KT	19/05/20	11:28	1	1	B	15	15	



Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP1_05_M_029A	KT	19/05/20	12:01	1	1	A	0	15	
VP1_05_M_029B	KT	19/05/20	12:01	1	1	B	30	30	
VP1_05_M_030	PE	19/05/20	13:10	1	1	A	0	0	1st year bird - brown plummage
VP1_05_E_031	KT	20/05/20	08:14	1	1	A	0	0	Low short flight went behind hill crest
VP1_05_E_032A	KT	20/05/20	09:02	1	1	B	30	30	Mobbed by c. lost to view in valley to se
VP1_05_E_032B	KT	20/05/20	09:02	1	1	C	15	15	Mobbed by c. lost to view in valley to se
VP1_05_E_032C	KT	20/05/20	09:02	1	1	B	45	45	Mobbed by c. lost to view in valley to se
VP1_05_E_033A	KT	20/05/20	09:03	1	1	A	0	0	Likely same bird as before lost to view behind hill
VP1_05_E_033B	KT	20/05/20	09:07	1	1	B	15	15	Likely same bird as before lost to view behind hill
VP2_05_M_034A	KT	20/05/20	10:25	2	1	B	15	15	Spiralled up over solar farm and drifted nw



Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP2_05_M_034B	KT	20/05/20	10:25	2	1	C	15	15	Spiralled up over solar farm and drifted nw
VP2_05_M_034C	KT	20/05/20	10:25	2	1	D	0	15	Spiralled up over solar farm and drifted nw
VP2_05_M_034D	KT	20/05/20	10:25	2	1	E	0	0	Spiralled up over solar famr and drifted nw
VP2_05_M_034E	KT	20/05/20	10:26	2	1	D	0	15	Spiralled up over solar farm and drifted nw
VP2_05_M_035A	KT	21/05/20	15:13	2	1	A	0	0	Lost to view
VP2_05_M_035B	KT	21/05/20	15:13	2	1	B	60	60	Lost to view
VP2_05_M_035C	KT	21/05/20	15:14	2	1	C	30	30	Lost to view
VP2_05_M_036	KT	21/05/20	15:24	2	1	E	0	0	Very distant +high potentially same birds as 1
VP2_05_M_037A	KT	21/05/20	15:44	2	1	A	0	0	Lost to view behind trees only 30 sec flight
VP2_05_M_037B	KT	21/05/20	15:44	2	1	B	15	15	Lost to view behind trees only 30 sec flight

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP2_05_M_038	KT	21/05/20	17:02	2	1	A	0	0	Bird landed - picked up close to ground
VP2_05_M_039	KT	21/05/20	17:04	2	1	A	0	0	Foraging
VP1_05_L_040	KT	21/05/20	18:00	1	1	A	0	0	Chased off by crow
VP1_05_M_041A	KT	26/05/20	14:55	1	1	B	60	60	Gliding over moor before ltv over horizon
VP1_05_M_041B	KT	26/05/20	14:55	1	1	A	0	0	Gliding over moor before ltv over horizon
VP1_05_M_042	KT	26/05/20	15:05	1	1	B	150	150	Circling above pasture before ltv
VP1_05_M_043A	KT	26/05/20	16:01	1	1	B	360	360	Floating over moor for 17+ minutes covering lots of ground repeating movements and going over same ground again and again. came low over moor quartering/foraging before gaining height over valley and returning to moor before ltv over top
VP1_05_M_043B	KT	26/05/20	16:01	1	1	A	0	0	Floating over moor for 17+ minutes covering lots of ground repeating movements and going over same ground again and again. came low over moor quartering/foraging before gaining height over valley and returning to moor before ltv over top

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP1_05_M_043C	KT	26/05/20	16:01	1	1	B	195	195	Floating over moor for 17+ minutes covering lots of ground repeating movements and going over same ground again and again. came low over moor quartering/foraging before gaining height over valley and returning to moor before ltv over top
VP1_05_M_043D	KT	26/05/20	16:01	1	1	C	90	90	Floating over moor for 17+ minutes covering lots of ground repeating movements and going over same ground again and again. came low over moor quartering/foraging before gaining height over valley and returning to moor before ltv over top
VP1_05_M_043E	KT	26/05/20	16:01	1	1	B	330	330	Floating over moor for 17+ minutes covering lots of ground repeating movements and going over same ground again and again. came low over moor quartering/foraging before gaining height over valley and returning to moor before ltv over top
VP2_05_L_044	KT	26/05/20	17:50	2	1	A	0	0	Came in from valley and landed by pool for a drink
VP2_05_L_045A	KT	26/05/20	18:00	2	1	A	0	0	Off from pool and over solar before leaving viewshed to turbine
VP2_05_L_045B	KT	26/05/20	18:00	2	1	B	75	75	Off from pool and over solar before leaving viewshed to turbine
VP2_05_L_045C	KT	26/05/20	18:00	2	1	C	165	165	Off from pool and over solar before leaving viewshed to turbine

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP2_05_L_045D	KT	26/05/20	18:00	2	1	D	150	150	Off from pool and over solar before leaving viewshed to turbine
VP2_05_L_046A	KT	26/05/20	18:34	2	1	B	60	60	
VP2_05_L_046B	KT	26/05/20	18:35	2	1	C	60	60	
VP2_05_L_046C	KT	26/05/20	18:36	2	1	B	15	15	
VP2_05_L_046D	KT	26/05/20	18:36	2	1	A	0	0	
VP2_05_L_047	KT	26/05/20	19:40	2	1	A	0	0	Flying low over solar farm - presumed to of landed in tree
VP2_06_E_048	GI	05/06/20	10:05	2	1	A	0	0	Female flew low to ground may have come from central valley
VP1_06_M_049A	KT	05/06/20	11:44	1	1	A	0	0	
VP1_06_M_049B	KT	05/06/20	11:44	1	1	B	15	15	
VP1_06_M_049C	KT	05/06/20	11:44	1	1	A	0	0	

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP1_06_M_049D	KT	05/06/20	11:45	1	1	B	15	15	
VP1_06_M_050	GI	05/06/20	12:50	1	1	A	0	0	Male bird - flew low being mobbed by 3 crows
VP2_06_M_051A	KT	24/06/20	09:53	2	1	A	0	105	
VP2_06_M_051B	KT	24/06/20	09:53	2	1	B	15	15	
VP2_06_M_051C	KT	24/06/20	09:53	2	1	A	0	15	
VP2_06_M_051D	KT	24/06/20	09:53	2	1	B	255	255	
VP2_06_M_051E	KT	24/06/20	09:53	2	1	C	120	120	
VP2_06_M_052	KT	24/06/20	10:35	2	1	A	0	0	Bird eventually landed by pool
VP2_06_M_053	KT	24/06/20	10:48	2	1	A	0	0	Flushed by crows - short flight before returning to pond
VP2_06_M_054	KT	24/06/20	10:51	2	1	A	0	0	Flushed again - perched in tree

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁵	Time at PCH (10-150m) for flight seconds	Total flight time ⁶ at PCH in seconds	Notes
VP1_06_M_055	GI	26/06/20	15:37	1	1	A	0	0	Very brief view low over wood - probably a female
VP1_06_M_056	GI	26/06/20	17:25	1	1	A	0	0	Low across woodland seen to land in conifer and stayed perched until end of survey
VP2_06_L_057	KT	26/06/20	20:35	2	1	A	0	0	KT slowly drifted over treeline west of vp before ltv below treeline

Table E2 Post breeding dispersal and migratory season 2020 – Target Species Flight data

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
VP1_07_E_060	GI	10/07/20	09:25	1	1	B	15	15	Brief view of adult circling then dipping below tree line
VP1_07_E_061	GI	10/07/20	09:40	1	1	B	15	15	Southern tip of valley along treeline and landed
VP1_07_E_062	GI	10/07/20	09:43	1	1	B	15	15	Different bird followed after 4 ltv treeline

⁷ Flight height band refers to the height at which the bird was recorded: A = 0-10m; B = 10-50m; C = 50-150m; D = 150m- 200m; E =>200m.

⁸ Total flight time is calculated by multiplying time at PCH by number of individual birds involved in the flight. E.g., 10 GP for 15 seconds would equal 150 seconds Total flight time.

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
VP2_07_M_063B	KT	10/07/20	10:25	2	1	B	435	435	KT was seen at 10:25 whilst walking to vp2 and continued flying whilst survey set up. flying low initially before gaining height over valley and back to moorland south of vp. flew out fight at 10:33
VP1_07_E_065	GI	10/07/20	09:47	1	1	B	15	15	4 took off from tree. ltv treeline
VP1_07_M_066A	GI	21/07/20	10:44	1	1	C	165	165	Juv gi circling high above solar farm/valley mobbed by rn. eventually flew west and dipped below horizon very quickly. appeared to be stooping
VP1_07_M_066B	GI	21/07/20	10:44	1	1	B	15	15	Juv gi circling high above solar farm/valley mobbed by rn. eventually flew west and dipped below horizon very quickly. appeared to be stooping
VP1_07_M_067A	GI	21/07/20	11:20	1	1	C	105	105	Juv circling high above valley mobbin rn and being mobbed by rn before ltv east
VP1_07_M_067B	GI	21/07/20	11:20	1	1	B	45	45	Juv circling high above valley mobbin rn and being mobbed by rn before ltv east
VP1_07_M_068	HY	21/07/20	11:54	1	1	B	105	105	Hy hawking dragonflies over solar before ltv
VP1_07_M_069A	PE	24/07/20	15:31	1	1	C	90	90	Juv pe circling over moor, occasionally attempting to take hm. stooped at a pair of rn which gave chase. clashing occasionally with rn over moor + valley ltv below brow of hill

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
VP1_07_M_069B	PE	24/07/20	15:31	1	1	B	150	150	Juv pe circling over moor, occasionally attempting to take hm. stooped at a pair of rn which gave chase. clashing occasionally with rn over moor + valley ltv below brow of hill
VP1_07_M_069D	PE	24/07/20	15:31	1	1	B	60	60	Juv pe circling over moor, occasionally attempting to take hm. stooped at a pair of rn which gave chase. clashing occasionally with rn over moor + valley ltv below brow of hill
VP1_07_M_070B	GI	24/07/20	17:16	1	1	B	15	15	Juv gi flew eye level past vp before heading east across valley into woodland
VP2_08_M_074	PE	04/08/20	15:39	2	1	B	30	30	Flew from west low but above 10m flushing 50+ li. flew to tree line east of vp and ltv in valley
VP2_08_M_075	PE	04/08/20	16:04	2	1	B	30	30	Flying sw of vp over valeyy briefly before ltv
VP2_08_M_077	PE	04/08/20	16:42	2	1	B	45	45	Adult male calling loudly over woodland behind vp. looped back before ltv behind trees
VP1_08_E_078A	KT	11/08/20	06:19	1	1	B	45	45	Flying ne just otherside of hill seemingly came from roost site on farm. continued flying before ltv on hill crest
VP1_08_E_079	GI	11/08/20	06:38	1	1	B	15	15	Flying over valley before turnig back heading ne. probable female.
VP1_08_E_080	GK	11/08/20	08:42	1	1	B	30	30	Heard calling intially. flew from presumably ponds on farm east of vp and over solar farm heading se ltv once below treeline

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
VP2_08_M_083A	KT	11/08/20	09:49	2	1	B	420	420	Picked up in front of vp. intially mobbed by bz. circling frequently over moor occasionally gaining height and descending on thermals. eventually gained height and then stooped below hill crest. bird in moult missing inner primaries in both wings.
VP2_08_M_083B	KT	11/08/20	09:56	2	1	C	15	15	Picked up in front of vp. intially mobbed by bz. circling frequently over moor occasionally gaining height and descending on thermals. eventually gained height and then stooped below hill crest. bird in moult missing inner primaries in both wings.
VP2_08_M_083C	KT	11/08/20	09:56	2	1	B	15	15	Picked up in front of vp. intially mobbed by bz. circling frequently over moor occasionally gaining height and descending on thermals. eventually gained height and then stooped below hill crest. bird in moult missing inner primaries in both wings.
VP2_08_M_083D	KT	11/08/20	09:56	2	1	C	15	15	Picked up in front of vp. intially mobbed by bz. circling frequently over moor occasionally gaining height and descending on thermals. eventually gained height and then stooped below hill crest. bird in moult missing inner primaries in both wings.
VP2_08_M_083E	KT	11/08/20	09:56	2	1	B	150	150	Picked up in front of vp. intially mobbed by bz. circling frequently over moor occasionally gaining height and descending on thermals. eventually gained height and then stooped below hill crest. bird in moult missing inner primaries in both wings.
VP2_08_M_083F	KT	11/08/20	09:59	2	1	C	90	90	Picked up in front of vp. intially mobbed by bz. circling Frequently over moor occasionally gaining height and descending on thermals. eventually gained height and then

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
									stooped below hill crest. bird in moult missing inner primaries in both wings.
VP2_08_M_083G	KT	11/08/20	10:00	2	1	B	15	15	Picked up in front of vp. intially mobbed by bz. circling frequently over moor occasionally gaining height and descending on thermals. eventually gained height and then stooped below hill crest. bird in moult missing inner primaries in both wings.
VP2_08_M_085A	KT	11/08/20	10:52	2	1	B	225	225	Rose out of valley se of vp. circled over moor for a while gaining height and heading south. tracked back over moor before heading into valley se of vp. seemed to be landing. flushed 3 rn and 2c
VP2_08_M_085B	KT	11/08/20	10:55	2	1	C	180	180	Rose out of valley se of vp. circled over moor for a while gaining height and heading south. tracked back over moor before heading into valley se of vp. seemed to be landing. flushed 3 rn and 2c
VP2_08_M_085C	KT	11/08/20	10:58	2	1	B	90	90	Rose out of valley se of vp. circled over moor for a while gaining height and heading south. tracked back over moor before heading into valley se of vp. seemed to be landing. flushed 3 rn and 2c
VP2_08_M_088	KT	11/08/20	11:19	2	1	B	135	135	Circling above valley sw of vp close (west) vp1 before ltv below hill
VP2_08_M_089B	GE	11/08/20	11:23	2	1	B	15	15	Both flushed gk and ge off pool by rn flew sw gaining height quickly circled briefly before ltv due to heat haze. both calling frequently.

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
VP2_08_M_089C	GE	11/08/20	11:23	2	1	C	15	15	Both flushed gk and ge off pool by rn flew sw gaining height quickly circled briefly before ltv due to heat haze. both calling frequently.
VP2_08_M_090B	GK	11/08/20	11:23	2	1	B	15	15	Both flushed gk and ge off pool by rn flew sw gaining height quickly circled briefly before ltv due to heat haze. both calling frequently.
VP2_08_M_090C	GK	11/08/20	11:23	2	1	C	15	15	Both flushed gk and ge off pool by rn flew sw gaining height quickly circled briefly before ltv due to heat haze. both calling frequently.
VP2_08_M_091A	KT	11/08/20	11:24	2	1	B	210	210	KT (8) rose from valley again. gaining height over valley/woodland. flew n over farm and solar farm occasionally flying low over pasture. then flew across valley and circled moor before landing by pool to drink
VP2_08_M_091B	KT	11/08/20	11:27	2	1	C	225	225	KT (8) rose from valley again. gaining height over valley/woodland. flew n over farm and solar farm occasionally flying low over pasture. then flew across valley and circled moor before landing by pool to drink
VP2_08_M_091C	KT	11/08/20	11:31	2	1	B	255	255	KT (8) rose from valley again. gaining height over valley/woodland. flew n over farm and solar farm occasionally flying low over pasture. then flew across valley and circled moor before landing by pool to drink
VP2_08_M_091E	KT	11/08/20	11:35	2	1	B	120	120	KT (8) rose from valley again. gaining height over valley/woodland. flew n over farm and solar farm occasionally flying low over pasture. then flew across valley and circled moor before landing by pool to drink

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
VP2_08_M_091G	KT	11/08/20	11:38	2	1	B	210	210	KT (8) rose from valley again. gaining height over valley/woodland. flew n over farm and solar farm occasionally flying low over pasture. then flew across valley and circled moor before landing by pool to drink
VP2_08_M_092B	KT	11/08/20	12:02	2	1	B	60	60	KT flew off pool and gained height over moor before circling some more and heading down valley ltv from there
VP2_08_M_093A	GK	11/08/20	12:26	2	1	B	30	30	Intially gk heard calling sw of vp picked up in flight with ge in tow. ge called also flying high intially before flying steep and low into valley. not entirely sure where they landed.
VP2_08_M_094A	GE	11/08/20	12:26	2	1	B	30	30	Intially gk heard calling sw of vp picked up in flight with ge in tow. ge called also flying high intially before flying steep and low into valley. not entirely sure where they landed.
VP2_08_M_095	HY	11/08/20	12:41	2	1	B	30	30	Very briefly flying fast from south over vp heading ne over woodland
VP2_08_M_096B	KT	11/08/20	12:43	2	1	B	645	645	Came from behind vp circling over moor and flying low briefly. continued over to main moor constantly circling before ltv over by woodland
VP1_09_M_097A	KT	07/09/20	11:45	1	1	D	135	135	KT came from s of vp high above valley circling. joined by number 2 at 1147 before dipping below horizon. number 1 bird is same bird from previous surveys. told by heavy moult in inner primaries
VP1_09_M_097B	KT	07/09/20	11:47	1	1	C	60	60	KT came from s of vp high above valley circling. joined by number 2 at 1147 before dipping below horizon. number 1 bird is same bird from previous surveys. told by heavy moult in inner primaries

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
VP1_09_M_098	KT	07/09/20	11:47	1	1	D	75	75	Joined 1 high above valley from south of vp before ltv nw of vp
VP1_09_M_099A	KT	07/09/20	12:05	1	1	C	135	135	Flew in from the east. circled moor before ltv ne appearing to be dropping low. probably number 2 flight
VP1_09_M_099B	KT	07/09/20	12:07	1	1	B	15	15	Flew in from the east. circled moor before ltv ne appearing to be dropping low. probably number 2 flight
VP2_09_L_100B	KT	07/09/20	15:19	2	2	B	315	630	2 kt circling low over field west over solar farm. before gaining height over valley sw of solar farm. constant circling + following one another before both ltv below ridgeline
VP2_09_L_101A	KT	07/09/20	16:27	2	1	B	15	15	Appeared out of valley then ltv below treeline
VP2_09_L_103A	KT	07/09/20	17:49	2	2	B	105	210	2 kt rose from valley sw of vp circled pasture south of solar farm . one bird ltv as birds went low below treeline + not seen again. 2nd bird continued circling over pasture + solar farm before ltv below treeline
VP2_09_L_103C	KT	07/09/20	17:53	2	2	B	195	390	2 kt rose from valley sw of vp circled pasture south of solar farm . one bird ltv as birds went low below treeline + not seen again. 2nd bird continued circling over pasture + solar farm before ltv below treeline
VP2_09_M_104	KT	09/09/20	15:22	2	2	D	195	390	2 kt drifted into viewshed high,seen beyond 1st then into viewshed. circled farmland/solar farm together. before drifting off west of vp + viewshed +lost due to sun glare. presumably continued out of viewshed high

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
VP1_09_L_105A	KT	09/09/20	16:57	1	1	B	30	30	KT arrived from sw of vp over farmland. flew over valley + circled x4 before heading low over woodland. gained height over edge of valley above wood and circled over moor _ farm pasture before heaving back to where it came from
VP1_09_L_105B	KT	09/09/20	16:57	1	1	C	60	60	KT arrived from sw of vp over farmland. flew over valley + circled x4 before heading low over woodland. gained height over edge of valley above wood and circled over moor _ farm pasture before heaving back to where it came from
VP1_09_L_105C	KT	09/09/20	16:58	1	1	B	15	15	KT arrived from sw of vp over farmland. flew over valley + circled x4 before heading low over woodland. gained height over edge of valley above wood and circled over moor _ farm pasture before heaving back to where it came from
VP1_09_L_105E	KT	09/09/20	16:59	1	1	B	180	180	KT arrived from sw of vp over farmland. flew over valley + circled x4 before heading low over woodland. gained height over edge of valley above wood and circled over moor _ farm pasture before heaving back to where it came from
VP1_09_L_105F	KT	09/09/20	17:02	1	1	C	15	15	KT arrived from sw of vp over farmland. flew over valley + circled x4 before heading low over woodland. gained height over edge of valley above wood and circled over moor _ farm pasture before heaving back to where it came from
VP1_09_L_105G	KT	09/09/20	17:02	1	1	B	15	15	KT arrived from sw of vp over farmland. flew over valley + circled x4 before heading low over woodland. gained height over edge of valley above wood and circled over moor _ farm pasture before heaving back to where it came from
VP1_09_M_106A	KT	11/09/20	11:06	1	2	B	150	300	2 kt arrived from east. flying together for most of observation, circled pasture/moor before coming low for brief period. then gained height, circling and being mobbed by rn.

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
									eventually went high and 1kt chased off by rn 11 minutes and 30 seconds in. 2nd bird followed 1.5 minutes later
VP1_09_M_106C	KT	11/09/20	11:10	1	2	B	120	240	2 kt arrived from east. flying together for most of observation, circled pasture/moor before coming low for brief period. then gained height, circling and being mobbed by rn. eventually went high and 1kt chased off by rn 11 minutes and 30 seconds in. 2nd bi
VP1_09_M_106D	KT	11/09/20	11:12	1	2	C	180	360	3 kt arrived from east. flying together for most of observation, circled pasture/moor before coming low for brief period. then gained height, circling and being mobbed by rn. eventually went high and 1kt chased off by rn 11 minutes and 30 seconds in. 2nd bi
VP1_09_M_106E	KT	11/09/20	11:15	1	2	D	75	150	2 kt arrived from east. flying together for most of observation, circled pasture/moor before coming low for brief period. then gained height, circling and being mobbed by rn. eventually went high and 1kt chased off by rn 11 minutes and 30 seconds in. 2nd bi
VP1_09_M_106F	KT	11/09/20	11:15	1	2	C	165	330	2 kt arrived from east. flying together for most of observation, circled pasture/moor before coming low for brief period. then gained height, circling and being mobbed by rn. eventually went high and 1kt chased off by rn 11 minutes and 30 seconds in. 2nd bi
VP1_09_M_107	KT	11/09/20	11:10	1	1	D	45	45	3rd bird picked up at distance. not observed for very long but general direction and height observed

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁷	Time at PCH (10-150m) for flight seconds	Total flight time ⁸ at PCH in seconds	Notes
VP2_09_M_108A	KT	16/09/20	12:40	2	1	B	120	120	Lost from view low
VP2_09_M_109B	KT	16/09/20	13:19	2	1	B	30	30	Lost from view
VP2_09_M_109C	KT	16/09/20	13:19	2	1	C	15	15	Lost from view
VP2_09_M_109D	KT	16/09/20	13:20	2	1	B	150	150	Lost from view
VP2_09_M_110A	PE	16/09/20	14:45	2	2	B	30	60	n/a
VP2_10_M_111A	KT	13/10/20	14:05	2	1	B	45	45	Passage flight
VP2_10_M_111B	KT	13/10/20	14:05	2	1	C	15	15	Passage flight
VP2_10_M_111C	KT	13/10/20	14:06	2	1	B	15	15	Passage flight

Table E3 Non-breeding season 2020 – Target Species Flight data

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP2_11_E_112A	KT	06/11/20	07:35	2	1	B	105	105	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_112B	KT	06/11/20	07:36	2	1	A	0	0	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_112C	KT	06/11/20	07:38	2	1	B	210	210	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_112D	KT	06/11/20	07:41	2	1	C	105	105	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_112E	KT	06/11/20	07:43	2	1	B	90	90	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_112F	KT	06/11/20	07:45	2	1	C	75	75	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly

⁹ Flight height band refers to the height at which the bird was recorded: A = 0-10m; B = 10-50m; C = 50-150m; D = 150m- 200m; E =>200m.

¹⁰ Total flight time is calculated by multiplying time at PCH by number of individual birds involved in the flight. E.g., 10 GP for 15 seconds would equal 150 seconds Total flight time.

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
									before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_112G	KT	06/11/20	07:46	2	1	D	45	45	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_112H	KT	06/11/20	07:47	2	1	C	75	75	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_112I	KT	06/11/20	07:48	2	1	B	195	195	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_113A	KT	06/11/20	07:40	2	1	A	0	0	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_113B	KT	06/11/20	07:41	2	1	B	105	105	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_113C	KT	06/11/20	07:43	2	1	A	0	0	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP2_11_E_113D	KT	06/11/20	07:44	2	1	B	465	465	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_113E	KT	06/11/20	07:52	2	1	C	120	120	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_113F	KT	06/11/20	07:54	2	1	B	90	90	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_113G	KT	06/11/20	07:54	2	1	A	0	0	Appeared from below hill sw of solar farm circled/foraging frequently over pasture farmland. flew low/very low briefly before continuing foraging behaviour. Itv hill otherside of farm/solar farm
VP2_11_E_114A	KT	06/11/20	08:26	2	1	B	90	90	Flew from beyond farm and flew to other side of valley briefly low before Itv below moor
VP2_11_E_114B	KT	06/11/20	08:27	2	1	A	0	0	Flew from beyond farm and flew to other side of valley briefly low before Itv below moor
VP2_11_E_115A	KT	06/11/20	08:41	2	1	A	0	0	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115B	KT	06/11/20	08:42	2	1	B	15	15	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP2_11_E_115C	KT	06/11/20	08:42	2	1	A	0	0	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115D	KT	06/11/20	08:43	2	1	B	15	15	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115E	KT	06/11/20	08:43	2	1	A	0	0	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115F	KT	06/11/20	08:45	2	1	B	30	30	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115G	KT	06/11/20	08:45	2	1	A	0	0	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115H	KT	06/11/20	08:47	2	1	B	180	180	from west of vp low over pasture and circling pools continually. Then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115I	KT	06/11/20	08:50	2	1	C	60	60	from west of vp low over pasture and circling pools continually. Then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115J	KT	06/11/20	08:51	2	1	B	15	15	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP2_11_E_115K	KT	06/11/20	08:51	2	1	A	0	0	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115L	KT	06/11/20	08:53	2	1	B	15	15	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115M	KT	06/11/20	08:53	2	1	C	60	60	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_115N	KT	06/11/20	08:54	2	1	D	60	60	From west of vp low over pasture and circling pools continually. then over to solar farm before flying over valley to moor.gained height flew se of viewshed very high
VP2_11_E_116	PE	06/11/20	08:43	2	1	A	0	0	Flew in from nw landed on pool - male
VP2_11_E_117	PE	06/11/20	08:47	2	1	A	0	0	Female flew in from nw and joined male on pool
VP2_11_E_118A	PE	06/11/20	08:52	2	1	A	0	0	Male took off from pool. chasing sg flock briefly before ltv
VP2_11_E_118B	PE	06/11/20	08:52	2	1	B	15	15	Male took off from pool. chasing sg flock briefly before ltv
VP2_11_E_118C	PE	06/11/20	08:52	2	1	A	0	0	Male took off from pool. chasing sg flock briefly before ltv
VP2_11_E_119A	PE	06/11/20	08:52	2	1	A	0	0	Female followed male
VP2_11_E_119B	PE	06/11/20	08:52	2	1	B	15	15	Female followed male
VP2_11_E_119C	PE	06/11/20	08:52	2	1	A	0	0	Female followed male

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_11_M_120A	KT	06/11/20	11:06	1	1	B	60	60	Across moor slowly heading se over farm then ltv beyond viewshed
VP1_11_M_120B	KT	06/11/20	11:07	1	1	C	60	60	Across moor slowly heading se over farm then ltv beyond viewshed
VP1_11_M_120C	KT	06/11/20	11:08	1	1	B	15	15	Across moor slowly heading se over farm then ltv beyond viewshed
VP1_11_M_121	KT	06/11/20	12:01	1	1	A	0	0	Over moor low foraging
VP1_11_M_122A	PE	06/11/20	12:16	1	1	A	0	0	Flew low past vp before gaining height over solar farm
VP1_11_M_122B	PE	06/11/20	12:16	1	1	B	30	30	Flew low past vp before gaining height over solar farm
VP1_11_M_123	PE	06/11/20	12:20	1	1	B	105	105	Circling
VP1_11_M_124	GI	06/11/20	12:40	1	1	B	75	75	Female over woodland then circling moor beofe heading low below hill
VP1_11_M_125	PE	06/11/20	13:05	1	1	A	0	0	Flying low up/down valley/ frequently mobbed by sh then ltv below ridge
VP1_11_E_126	GI	12/11/20	09:23	1	1	A	0	0	Female mobbed by c. lost behind hill
VP1_11_E_127	KT	12/11/20	10:01	1	1	B	135	135	2 distant kt outside viewshed over hills
VP1_11_E_128	KT	12/11/20	10:01	1	1	B	45	45	2 distant kt outside viewshed over hills
VP1_11_E_129	KT	12/11/20	11:18	1	2	B	150	300	2 birds along distant hillside

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_11_E_130A	KT	12/11/20	11:35	1	1	B	30	30	n/a
VP1_11_E_130B	KT	12/11/20	11:35	1	1	A	0	0	n/a
VP1_11_E_130C	KT	12/11/20	11:35	1	1	B	105	105	n/a
VP1_11_E_130D	KT	12/11/20	11:37	1	1	C	135	135	n/a
VP1_11_E_130E	KT	12/11/20	11:39	1	1	D	30	30	n/a
VP1_11_E_130F	KT	12/11/20	11:40	1	1	E	0	0	n/a
VP1_11_E_131A	KT	12/11/20	11:54	1	1	B	45	45	Bird landed near ponds
VP1_11_E_131B	KT	12/11/20	11:54	1	1	A	0	0	Bird landed near ponds
VP1_11_E_132A	KT	12/11/20	11:56	1	1	A	0	0	n/a
VP1_11_E_132B	KT	12/11/20	11:57	1	1	B	60	60	n/a
VP1_11_E_132C	KT	12/11/20	11:58	1	1	C	45	45	n/a
VP2_11_L_133	HH	12/11/20	13:26	2	1	A	0	0	Male low along edge of plantation then ltv over top of plantation
VP2_11_L_134A	KT	12/11/20	14:14	2	1	A	0	0	n/a
VP2_11_L_134B	KT	12/11/20	14:14	2	1	B	45	45	n/a
VP2_11_L_134C	KT	12/11/20	14:15	2	1	C	255	255	n/a

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP2_11_L_134D	KT	12/11/20	14:19	2	1	B	210	210	n/a
VP2_11_L_134E	KT	12/11/20	14:23	2	1	C	30	30	n/a
VP2_11_L_135	HH	12/11/20	15:28	2	1	A	0	0	Male hh lost to view low near wall, not clear if landed
VP2_11_M_136	PE	26/11/20	09:58	2	1	A	0	0	Male low over pond then plantation
VP1_11_L_137A	GI	26/11/20	12:45	1	1	B	60	60	Male ove plantation circling before heading to moor and mobbed 2rn before heading west
VP1_11_L_137B	GI	26/11/20	12:46	1	1	C	120	120	Male ove plantation circling before heading to moor and mobbed 2rn before heading west
VP1_11_L_137C	GI	26/11/20	12:48	1	1	D	630	630	Male ove plantation circling before heading to moor and mobbed 2rn before heading west
VP1_11_L_138	GI	26/11/20	12:56	1	1	D	180	180	Female picked up in flight joining male corcled over valley before following male west
VP1_11_L_139	KT	26/11/20	14:30	1	2	B	540	1080	Circling approx 3km away over pasture before ltv
VP1_11_L_140A	KT	26/11/20	14:47	1	1	B	195	195	From over hill seen circling over farm then pasture. eventually low and then landed
VP1_11_L_140B	KT	26/11/20	14:50	1	1	A	0	0	From over hill seen circling over farm then pasture. eventually low and then landed
VP1_11_L_141A	KT	26/11/20	15:01	1	1	A	0	0	KT took off circled briefly then appeared to land again out of view
VP1_11_L_141B	KT	26/11/20	15:01	1	1	B	30	30	kt took off circled briefly then appeared to land again out of view

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_11_L_141C	KT	26/11/20	15:01	1	1	A	0	0	KT took off circled briefly then appeared to land again out of view
VP1_12_E_142A	KT	04/12/20	09:26	1	1	B	15	15	LTV dropped to the ground
VP1_12_E_142B	KT	04/12/20	09:26	1	1	A	0	0	LTV dropped to the ground
VP1_12_E_143	KT	04/12/20	09:38	1	1	B	15	15	LTV
VP1_12_E_144	KT	04/12/20	10:15	1	1	A	0	0	LTV
VP2_12_M_145	HH	04/12/20	13:19	2	1	A	0	0	The same male hh during survey
VP2_12_M_146	HH	04/12/20	13:27	2	1	A	0	0	Same bird
VP2_12_M_147	HH	04/12/20	13:39	2	1	A	0	0	Same bird
VP2_12_E_148	PE	09/12/20	09:39	2	1	B	90	90	PE flying slowly over plantation mobbed by corvids + bz
VP1_12_M_149A	KT	09/12/20	13:49	1	1	B	30	30	KT flew from s and landed near ponds harassed by rn
VP1_12_M_149B	KT	09/12/20	13:49	1	1	A	0	0	KT flew from s and landed near ponds harassed by rn
VP1_12_M_150	KT	09/12/20	13:51	1	1	A	0	0	Took slow flight down into farm + landed in a tree
VP1_12_M_151A	KT	09/12/20	13:58	1	1	A	0	0	Different kt flew slowly over hillside
VP1_12_M_151B	KT	09/12/20	14:04	1	1	B	45	45	Different kt flew slowly over hillside
VP1_12_M_152A	KT	09/12/20	14:22	1	1	A	0	0	

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_12_M_152B	KT	09/12/20	14:22	1	1	B	255	255	
VP1_12_M_153A	KT	09/12/20	14:24	1	1	B	75	75	Probably same bird as flight 4
VP1_12_M_153B	KT	09/12/20	14:25	1	1	A	0	0	Probably same bird as flight 4
VP1_12_M_154	KT	09/12/20	14:25	1	1	A	0	0	Second bird appeared flying low to hillside
VP1_12_M_155	KT	09/12/20	14:36	1	2	B	135	270	Two kt together split after 2 mins
VP1_12_M_156	KT	09/12/20	14:39	1	1	A	0	0	1 kt stayed low around farm
VP1_12_M_157A	KT	09/12/20	14:39	1	1	B	150	150	2nd kt flew s along ridge before heading toward graveyard
VP1_12_M_157B	KT	09/12/20	14:40	1	1	C	120	120	2nd kt flew s along ridge before heading toward graveyard
VP1_01_E_158A	KT	06/01/21	10:02	1	1	B	60	60	
VP1_01_E_158B	KT	06/01/21	10:03	1	1	A	0	0	
VP1_01_E_159A	KT	06/01/21	10:41	1	1	C	90	90	Lost from view at distance being chased by c.
VP1_01_E_159B	KT	06/01/21	10:42	1	1	B	60	60	Lost from view at distance being chased by c.
VP1_01_E_159C	KT	06/01/21	10:43	1	1	C	120	120	LOST from view at distance being chased by c.
VP1_01_E_159D	KT	06/01/21	10:45	1	1	B	30	30	Lost from view at distance being chased by c.
VP1_01_E_159E	KT	06/01/21	10:46	1	1	A	0	0	Lost from view at distance being chased by c.

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_01_M_160A	PE	11/01/21	13:24	1	1	B	15	15	Above hill crest from other side then stooped low and fast down into valley. male
VP1_01_M_160B	PE	11/01/21	13:24	1	1	A	0	0	Above hill crest from other side then stooped low and fast down into valley. male
VP1_01_M_161	KT	11/01/21	14:02	1	1	A	0	0	KT flew in from south and joined other roosting kt in tree
VP1_01_M_162	ML	12/01/21	09:30	1	1	A	0	0	Flushed from fence post close to vp1 during set up. flew low along valley scrub ltv quickly. female
VP1_01_M_163A	ML	12/01/21	11:38	1	1	B	15	15	Male over vp diving into valley + over to line of trees on other side attempted to take a thrush sp. + landed briefly
VP1_01_M_163B	ML	12/01/21	11:38	1	1	A	0	0	Male over vp diving into valley + over to line of trees on other side attempted to take a thrush sp. + landed briefly
VP1_01_M_164	ML	12/01/21	11:39	1	1	A	0	0	Male took off + ltv low over pasture
VP2_01_L_165A	KT	12/01/21	13:28	2	1	B	75	75	Circling close to wind turbine before floating down valley + ltv
VP2_01_L_165B	KT	12/01/21	13:29	2	1	A	0	0	Circling close to wind turbine before floating down valley + ltv
VP1_01_E_166A	KT	22/01/21	08:57	1	1	A	0	0	KT flew across valley and slowly flew low up valley to north of site
VP1_01_E_166B	KT	22/01/21	08:57	1	1	B	15	15	KT flew across valley and slowly flew low up valley to north of site
VP1_01_E_166C	KT	22/01/21	08:57	1	1	A	0	0	KT flew across valley and slowly flew low up valley to north of site

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_01_E_167A	KT	22/01/21	10:57	1	1	B	720	720	KT rose up from behind hill crest and circling repeatedly before heading to hill on other side of valley still circling as i left vp
VP1_01_E_167B	KT	22/01/21	11:09	1	1	C	60	60	KT rose up from behind hill crest and circling repeatedly before heading to hill on other side of valley still circling as i left vp
VP1_01_E_168A	KT	22/01/21	10:57	1	1	B	210	210	With kt above for a while before dipping below hill and ltv
VP1_01_E_168B	KT	22/01/21	11:00	1	1	A	0	0	With kt above for a while before dipping below hill and ltv
VP1_01_E_169	KT	22/01/21	11:04	1	1	B	360	360	KT above reappeared with 1st kt on otherside of valley. still circling as left vp
VP2_01_M_170A	KT	22/01/21	12:23	2	1	B	135	135	Circling wind turbine then above turbine before heading south losing height. returned n. and flew low + ltv
VP2_01_M_170B	KT	22/01/21	12:25	2	1	C	60	60	Circling wind turbine then above turbine before heading south losing height. returned n. and flew low + ltv
VP2_01_M_170C	KT	22/01/21	12:26	2	1	B	60	60	Circling wind turbine then above turbine before heading south losing height. returned n. and flew low + ltv
VP2_01_M_170D	KT	22/01/21	12:27	2	1	A	0	0	Circling wind turbine then above turbine before heading south losing height. returned n. and flew low + ltv
VP2_01_M_171A	KT	22/01/21	12:23	2	1	B	75	75	2nd kt circling lower than 1 then flew fast + ltv below hill crest
VP2_01_M_171B	KT	22/01/21	12:24	2	1	A	0	0	2nd kt circling lower than 1 then flew fast + ltv below hill crest
VP2_01_M_172	KT	22/01/21	12:26	2	1	B	30	30	Presumed 3rd kt came from north + ltv below valley
VP2_01_M_173	KT	22/01/21	12:57	2	1	A	0	0	Low over by turbine. ltv below hill

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP2_01_M_174	KT	22/01/21	13:30	2	1	A	0	0	KT circling near turbine again ltv below hill
VP2_01_M_175A	KT	28/01/21	11:46	2	1	B	195	195	
VP2_01_M_175B	KT	28/01/21	11:49	2	1	C	105	105	
VP2_01_M_175C	KT	28/01/21	11:51	2	1	D	45	45	
VP2_01_M_175D	KT	28/01/21	11:51	2	1	C	60	60	
VP2_01_M_175E	KT	28/01/21	11:52	2	1	B	105	105	
VP2_01_M_175F	KT	28/01/21	11:54	2	1	A	0	0	
VP1_01_L_176A	KT	28/01/21	12:38	1	1	C	90	90	LTV TREES
VP1_01_L_176B	KT	28/01/21	12:39	1	1	B	15	15	LTV trees
VP1_01_L_177A	KT	28/01/21	13:09	1	1	A	0	0	LTV
VP1_01_L_177B	KT	28/01/21	13:09	1	1	B	45	45	LTV
VP1_01_L_177C	KT	28/01/21	13:10	1	1	C	60	60	LTV
VP1_01_L_178A	KT	28/01/21	13:26	1	1	B	210	210	Landed in tree next to another kt
VP1_01_L_178B	KT	28/01/21	13:29	1	1	A	0	0	Landed in tree next to another kt
VP1_01_L_179	KT	28/01/21	13:36	1	1	A	0	0	Same bird as flight 3 ltv

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_01_L_180A	KT	28/01/21	13:41	1	1	B	15	15	LTV
VP1_01_L_180B	KT	28/01/21	13:41	1	1	C	30	30	LTV
VP1_01_L_181A	KT	28/01/21	14:48	1	2	B	75	150	LTV behind hill
VP1_01_L_181B	KT	28/01/21	14:49	1	2	A	0	0	LTV behind hill
VP1_01_L_182A	KT	28/01/21	15:03	1	1	B	30	30	LTV trees
VP1_01_L_182B	KT	28/01/21	15:03	1	1	A	0	0	LTV trees
VP1_01_L_182C	KT	28/01/21	15:03	1	1	B	15	15	LTV trees
VP1_01_L_182D	KT	28/01/21	15:04	1	1	A	0	0	LTV trees
VP1_01_L_182E	KT	28/01/21	15:04	1	1	B	180	180	LTV trees
VP1_01_L_183	KT	28/01/21	15:08	1	2	C	75	150	LTV
VP1_01_L_184	KT	28/01/21	15:17	1	1	B	60	60	Possible same bird as flight 3
VP1_01_L_185	KT	28/01/21	15:17	1	1	B	60	60	Joined flight at end of the vp and lost out of view
VP1_02_E_186	GP	15/02/21	09:35	1	2	B	30	60	Heard only flying at least at this height and minimum 2 birds heard flying over moor from south to north. heard calling several times
VP1_02_E_187	KT	15/02/21	10:41	1	1	B	30	30	KT From n circling over valley before ltv over hill

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_02_E_188	KT	15/02/21	10:42	1	1	A	0	0	Different kt flew over over moor before heading fast up the valley low
VP1_02_E_189	KT	15/02/21	11:07	1	1	A	0	0	KT slowly flying low over fields/farm before ltv
VP2_02_M_190	KT	15/02/21	11:35	2	1	A	0	0	Over solar farm before ltv
VP2_02_M_191	KT	15/02/21	11:47	2	1	A	0	0	Over by wind farm
VP2_02_M_192	GI	15/02/21	13:29	2	1	A	0	0	Flushed by c. + mobbed and flew down into valley. female
VP2_02_M_193	KT	18/02/21	10:44	2	1	A	0	0	Landed in tree
VP2_02_M_194	KT	18/02/21	10:54	2	2	B	270	540	Displaying birds followed the same flight line
VP2_02_M_195	KT	18/02/21	11:06	2	1	A	0	0	Dropped out of sight
VP2_02_M_196A	PE	18/02/21	11:25	2	1	B	120	120	Dropped out of sight
VP2_02_M_196B	PE	18/02/21	11:25	2	1	A	0	0	Dropped out of sight
VP2_02_M_197A	KT	18/02/21	11:58	2	1	B	75	75	
VP2_02_M_197B	KT	18/02/21	11:58	2	1	A	0	0	
VP2_02_M_198A	KT	18/02/21	12:05	2	1	A	0	0	
VP2_02_M_198B	KT	18/02/21	12:08	2	1	B	120	120	
VP2_02_M_198C	KT	18/02/21	12:10	2	1	C	90	90	

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP2_02_M_198D	KT	18/02/21	12:11	2	1	B	150	150	
VP2_02_M_198E	KT	18/02/21	12:13	2	1	A	0	0	
VP2_02_M_199	PE	18/02/21	12:08	2	1	B	15	15	Tracking flight 6 so not fully recorded
VP1_02_L_201	KT	18/02/21	13:51	1	1	B	30	30	Dropped out of view
VP1_02_L_202A	GI	18/02/21	14:17	1	1	B	30	30	
VP1_02_L_202B	GI	18/02/21	14:17	1	1	C	45	45	
VP1_02_L_202C	GI	18/02/21	14:18	1	1	B	30	30	
VP1_02_L_202D	GI	18/02/21	14:18	1	1	C	30	30	
VP1_02_L_202E	GI	18/02/21	14:19	1	1	D	120	120	
VP1_02_L_202F	GI	18/02/21	14:21	1	1	C	30	30	
VP1_02_L_202G	GI	18/02/21	14:21	1	1	B	135	135	
VP1_02_L_202H	GI	18/02/21	14:23	1	1	C	45	45	
VP1_02_L_202I	GI	18/02/21	14:24	1	1	B	45	45	
VP1_02_L_202J	GI	18/02/21	14:25	1	1	C	30	30	
VP1_02_L_202K	GI	18/02/21	14:25	1	1	B	60	60	

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_02_L_202L	GI	18/02/21	14:26	1	1	A	0	0	
VP1_02_L_203A	KT	18/02/21	14:58	1	1	B	90	90	
VP1_02_L_203B	KT	18/02/21	14:59	1	1	A	0	0	
VP1_02_L_204A	KT	18/02/21	15:08	1	1	B	30	30	
VP1_02_L_204B	KT	18/02/21	15:08	1	1	A	0	0	
VP1_02_M_205A	KT	25/02/21	10:10	1	1	B	90	90	LTV after mobbed by rn
VP1_02_M_205B	KT	25/02/21	10:10	1	1	A	0	0	LTV after mobbed by rn
VP1_02_M_206A	KT	25/02/21	11:49	1	1	B	390	390	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. Itv behind valley farm
VP1_02_M_206B	KT	25/02/21	11:49	1	1	A	0	0	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. Itv behind valley farm
VP1_02_M_206C	KT	25/02/21	11:49	1	1	B	75	75	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. Itv behind valley farm
VP1_02_M_206D	KT	25/02/21	11:49	1	1	A	0	0	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. Itv behind valley farm
VP1_02_M_206E	KT	25/02/21	11:49	1	1	B	75	75	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. Itv behind valley farm
VP1_02_M_206F	KT	25/02/21	11:49	1	1	C	75	75	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. Itv behind valley farm

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_02_M_206G	KT	25/02/21	11:49	1	1	B	30	30	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. ltv behind valley farm
VP1_02_M_206H	KT	25/02/21	11:49	1	1	A	0	0	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. ltv behind valley farm
VP1_02_M_206I	KT	25/02/21	11:49	1	1	B	90	90	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. ltv behind valley farm
VP1_02_M_206J	KT	25/02/21	11:49	1	1	A	0	0	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. ltv behind valley farm
VP1_02_M_206K	KT	25/02/21	11:49	1	1	B	105	105	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. ltv behind valley farm
VP1_02_M_206L	KT	25/02/21	11:49	1	1	A	0	0	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. ltv behind valley farm
VP1_02_M_206M	KT	25/02/21	11:49	1	1	B	240	240	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. ltv behind valley farm
VP1_02_M_206N	KT	25/02/21	11:49	1	1	C	105	105	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. ltv behind valley farm
VP1_02_M_206O	KT	25/02/21	11:49	1	1	B	60	60	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. ltv behind valley farm
VP1_02_M_206P	KT	25/02/21	11:49	1	1	A	0	0	Constant circling moor occasionally trying to land to feed with rn flock but mobbed and chased off. ltv behind valley farm
VP1_02_M_207	KT	25/02/21	12:20	1	2	B	45	90	Viewed distantly circling then ltv
VP1_02_M_208	GI	25/02/21	12:20	1	1	C	30	30	Seen high above valley ltv behind sun glare. female

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP1_02_M_209	GI	25/02/21	12:24	1	1	C	15	15	Male. Itv
VP1_02_M_210	PE	25/02/21	12:30	1	2	C	30	60	Pair seen distantly chasing one another before Itv
VP1_02_M_211A	GI	25/02/21	12:41	1	2	C	30	60	Male and female display flight over woodland below farm. male chasing female behind hill before Itv
VP1_02_M_211B	GI	25/02/21	12:41	1	2	B	45	90	Male and female display flight over woodland below farm. male chasing female behind hill before Itv
VP2_02_L_212A	KT	25/02/21	14:28	2	1	D	150	150	Flyingextrodary high. Itv behind clouds and sun glare
VP2_02_L_212B	KT	25/02/21	14:28	2	1	E	0	0	Flyingextrodary high. Itv behind clouds and sun glare
VP2_02_L_213A	KT	25/02/21	14:35	2	1	A	0	0	Rose out of valley and circled moor. Itv over hill
VP2_02_L_213B	KT	25/02/21	14:35	2	1	B	105	105	Rose out of valley and circled moor. Itv over hill
VP2_02_L_213C	KT	25/02/21	14:35	2	1	B	0	15	Rose out of valley and circled moor. Itv over hill
VP2_02_L_214	KT	25/02/21	14:45	2	1	B	195	195	LTV over intra.. with other kt parallel glying etc
VP2_02_L_215	KT	25/02/21	14:45	2	1	C	45	45	Seen distantly
VP2_02_L_216	KT	25/02/21	14:45	2	2	B	135	270	Picked up two more kt at same time as flight 214. all flew together occasionally chasing one another and parallel flying when both flew towards wind turbine
VP2_02_L_217	KT	25/02/21	15:22	2	1	A	0	0	Briefly seen over by turbine
VP2_02_L_218	KT	25/02/21	16:15	2	1	A	0	0	Briefly seen before Itv

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP2_02_E_219	KT	26/02/21	08:53	2	1	A	0	0	KT in field seeing from 830. flew briefly + landed
VP2_02_E_220	KT	26/02/21	08:53	2	1	A	0	0	Same kt as flight 219 took off and mobbed by rn, flew low ltv behind wood
VP2_02_E_221	KT	26/02/21	09:18	2	1	A	0	0	Presumed bird from flight 219 and 220 seen briefly coming down from wood and bird roosting nearby
VP2_02_E_222	PE	26/02/21	09:34	2	1	B	15	15	PE chased overpassing wp flock behind plantation.
VP2_02_E_223	KT	26/02/21	10:11	2	1	B	495	495	Circling constantly over .. and ltv. occasionally joined by 2nd bird. 3rd bird shown in tree west of vp
VP2_02_E_224	KT	26/02/21	10:11	2	1	B	360	360	
VP2_02_E_225	KT	26/02/21	10:24	2	1	A	0	0	Above plantation seen distantly whilst observing flight 226. not seen later
VP2_02_E_226A	KT	26/02/21	10:28	2	1	A	0	0	
VP2_02_E_226B	KT	26/02/21	10:28	2	1	B	90	90	
VP2_02_E_226C	KT	26/02/21	10:28	2	1	A	0	0	
VP2_02_E_227	KT	26/02/21	10:29	2	1	C	15	15	
VP2_02_E_228A	GI	26/02/21	10:36	2	1	B	30	30	Male gi circling valley then bombing over moor towards plantation on other side
VP2_02_E_228B	GI	26/02/21	10:36	2	1	A	0	0	Male gi circling valley then bombing over moor towards plantation on other side

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ⁹	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁰ at PCH in seconds	Notes
VP2_02_E_229	KT	26/02/21	11:07	2	2	B	375	750	2KT circling over vally still circling when survey ended

Table E5 Breeding season 2020 – Secondary species records

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
11:40	KT	15/04/2020	1	1	B	BUFFER	Seen before survey started flying in valley then ltv
12:00	BZ	15/04/2020	1	1	A	ON SITE	Mobbed by raven over moor
12:00	TP	15/04/2020	1	1	A	BUFFER	Singing
12:00	RN	15/04/2020	22	1	AB	ON SITE	Feeding on carrion on moor
12:05	BZ	15/04/2020	1	1	B	ON SITE	Hovering above moor
12:05	RN	15/04/2020	2	1	B	ON SITE	Soaring above moor
12:25	BZ	15/04/2020	4	1	ABC	ON SITE	Soaring above moor
12:25	LR	15/04/2020	3	1	A	ON SITE	Over vp
12:25	BZ	15/04/2020	1	1	A	BUFFER	In valley
12:30	BZ	15/04/2020	1	1	AB	ON SITE	Circling above woodland

¹¹ Flight height band refers to the height at which the bird was recorded: A = 0-10m; B = 10-50m; C = 50-150m; D = 150m- 200m; E =>200m.

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
12:30	RN	15/04/2020	10	1	C	ON SITE	Flew high above valley
12:30	BZ	15/04/2020	2	1	A	BUFFER	Calling from woodland constantly
12:35	BZ	15/04/2020	1	1	BC	ON SITE	Hovering above moor
12:45	BZ	15/04/2020	1	1	BC	ON SITE	Above woodland
12:55	LI	15/04/2020	2	1	A	ON SITE	Over vp
13:15	RN	15/04/2020	4	1	C	BUFFER	Over valley
13:15	RN	15/04/2020	15	1	A	ON SITE	Feeding on carrion on moor
13:20	BZ	15/04/2020	1	1	AB	ON SITE	Stooping over moor and woodland
13:30	BZ	15/04/2020	1	1	BCD	ON SITE	Over woodland, moor then farm gaining height
13:35	TP	15/04/2020	1	1	A	BUFFER	Singing
13:35	BZ	15/04/2020	3	1	ABCD	ON SITE	Over moor then woodland
14:00	BZ	15/04/2020	1	1	B	BUFFER	Circling above woodland then landed on rock in valley
14:00	RN	15/04/2020	20	1	A	ON SITE	On moor
14:10	SH	15/04/2020	1	1	B	ON SITE	Male perched in tree by vp1 then over valley
14:10	RN	15/04/2020	4	1	D	ON SITE	High above vp/valley
14:20	TP	15/04/2020	1	1	A	BUFFER	Singing
14:20	BZ	15/04/2020	1	1	D	ON SITE	Over moor then woodland

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
14:30	BZ	15/04/2020	1	1	A	ON SITE	Low over solar farm
14:30	BZ	15/04/2020	2	1	CD	ON SITE	Together over woodland, 1 landed in tree, other flew over valley then moor
14:30	LI	15/04/2020	6	1	A	ON SITE	On solar farm pasture
14:50	RN	15/04/2020	2	1	B	ON SITE	Over solar farm
14:50	TP	15/04/2020	1	1	A	BUFFER	Singing
14:50	RN	15/04/2020	2	1	B	ON SITE	Over vp
14:55	BZ	15/04/2020	1	1	B	BUFFER	Over woodland
14:55	RN	15/04/2020	4	1	C	ON SITE	Over vp
14:55	TP	15/04/2020	1	1	A	BUFFER	Singing
14:55	RN	15/04/2020	6	1	A	ON SITE	On moor
16:00	RN	15/04/2020	7	2	AB	ON SITE	2 flying over vp 5 on moor in front
16:00	SH	15/04/2020	1	2	A	ON SITE	Female flying in fron of vp chasing mp
16:00	S.	15/04/2020	1	2	ABC	ON SITE	Singing
16:25	BZ	15/04/2020	4	2	D	ON SITE	Flying high above moor
16:25	K.	15/04/2020	1	2	D	ON SITE	Flying high above moor
16:30	S.	15/04/2020	1	2	BC	ON SITE	Singing
16:40	RN	15/04/2020	4	2	C	ON SITE	Over VP

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
16:40	BZ	15/04/2020	3	2	D	ON SITE	Flying high above moor
16:40	S.	15/04/2020	2	2	C	ON SITE	Singing
16:50	BZ	15/04/2020	1	2	A	ON SITE	Flew across fenceline along vp
16:50	D.	15/04/2020	1	2	A	ON SITE	Singing
17:10	D.	15/04/2020	1	2	A	ON SITE	Singing
17:10	BZ	15/04/2020	4	2	D	BEYOND	All flying beyond the moor
17:45	BZ	15/04/2020	2	2	C	ON SITE	Flying high above moor
17:50	MA	15/04/2020	3	2	A	ON SITE	All on pond
17:50	RN	15/04/2020	1	2	C	ON SITE	Flying west
18:00	MA	15/04/2020	3	2	B	ON SITE	Took off from pond
18:05	S.	15/04/2020	1	2	B	ON SITE	Singing
18:10	BZ	15/04/2020	1	2	B	ON SITE	Flying over solar farm
18:15	LI	15/04/2020	3	2	A	ON SITE	Over vp
18:20	S.	15/04/2020	1	2	B	ON SITE	Singing
18:25	BZ	15/04/2020	1	2	B	ON SITE	Flying over solar farm
18:45	ST	15/04/2020	1	2	A	ON SITE	Singing
18:50	BZ	15/04/2020	1	2	C	ON SITE	Above moor

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
18:55	BZ	15/04/2020	2	2	C	ON SITE	Above moor
18:55	LI	15/04/2020	3	2	A	ON SITE	Over vp
18:55	ST	15/04/2020	1	2	A	ON SITE	Singing
18:55	RN	15/04/2020	1	2	C	BUFFER	Over valley
12:00	BZ	16/04/2020	1	2	B	ON SITE	Flying over me for few sconds and back towards over trees
12:05	BZ	16/04/2020	1	2	A	ON SITE	Sitting on fence
12:05	H.	16/04/2020	1	2	A	ON SITE	Flying low to pond
12:10	BZ	16/04/2020	1	2	C	ON SITE	
12:15	LR	16/04/2020	1	2	A	ON SITE	Flying low to east over trees behind vp point
12:20	RN	16/04/2020	1	2	A	ON SITE	Flying west over low tress
12:20	RN	16/04/2020	1	2	A	ON SITE	Flying south west of vp 2
12:45	RN	16/04/2020	1	2	C	BUFFER	In valley
12:45	K.	16/04/2020	1	2	C	ON SITE	Above solar farm
12:50	BZ	16/04/2020	1	2	B	BUFFER	Above valley
12:50	S.	16/04/2020	2	2	B	ON SITE	Flying east
13:00	RN	16/04/2020	2	2	B	ON SITE	Falling down 500m in front of vp2
13:30	BZ	16/04/2020	1	2	C	BUFFER	Behind vp2

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
13:35	S.	16/04/2020	1	2	C	ON SITE	
13:35	TP	16/04/2020	1	2	A	ON SITE	Flying south west of vp 2
13:40	BZ	16/04/2020	1	2	B	ON SITE	Over field west of vp2
13:45	BZ	16/04/2020	2	2	D	BEYOND	Flying above valley east of vp2
13:50	BZ	16/04/2020	2	2	C	ON SITE	Flying over field sout east of vp2
14:00	S.	16/04/2020	2	2	B	ON SITE	Flying north west
14:00	BZ	16/04/2020	1	2	D	ON SITE	Flying abobe field south west of vp2
14:10	BZ	16/04/2020	1	2	B	ON SITE	Flying abobe field south west of vp2
14:20	S.	16/04/2020	2	2	B	ON SITE	Flying south
14:40	RN	16/04/2020	2	2	B	ON SITE	Flying north
14:40	S.	16/04/2020	1	2	C	ON SITE	Flying west
14:50	RN	16/04/2020	1	2	B	ON SITE	Flying west
14:50	RN	16/04/2020	1	2	B	ON SITE	Flying south
16:05	BZ	16/04/2020	1	1	C	BEYOND	In valley far vp1
16:05	RN	16/04/2020	1	1	B	ON SITE	Flying south over hill in front of vp1
16:10	BZ	16/04/2020	2	1	B	ON SITE	Flying above hill in front of vp1
16:10	BZ	16/04/2020	1	1	B	ON SITE	South of vp1

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
16:15	RN	16/04/2020	1	1	B	ON SITE	Flying above hill in front of vp1
16:15	RN	16/04/2020	1	1	B	ON SITE	South of vp1
16:40	RN	16/04/2020	2	1	C	BEYOND	Flying south in valley
17:00	RN	16/04/2020	1	1	B	ON SITE	Flying north of vp1 over site
17:00	BZ	16/04/2020	1	1	A	ON SITE	Landed behind vp1
17:10	BZ	16/04/2020	2	1	C	BUFFER	Flying above valley south of vp1
17:25	LB	16/04/2020	3	1	C	ON SITE	Flying east with red kite
17:55	RN	16/04/2020	2	1	B	ON SITE	Flying south over hill in front of vp1
18:00	BZ	16/04/2020	1	1	B	ON SITE	South of vp1
18:05	H.	16/04/2020	1	1	B	ON SITE	Flying west
18:05	BZ	16/04/2020	1	1	B	ON SITE	Flying east
18:05	LI	16/04/2020	5	1	B	ON SITE	Flying east over vp1
18:20	RN	16/04/2020	1	1	A	ON SITE	Landed on hill in front of vp1
18:30	CG	16/04/2020	2	1	A	ON SITE	Flying south over hill in front of vp1
18:30	BZ	16/04/2020	1	1	A	ON SITE	Flying above hill in front of vp1
18:30	BZ	16/04/2020	1	1	A	ON SITE	South of vp1
18:35	LB	16/04/2020	1	1	B	ON SITE	Above hill south of vp1

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
18:45	LI	16/04/2020	3	1	B	ON SITE	Flying east over vp1
18:45	RN	16/04/2020	1	1	B	BUFFER	South of vp1
14:00	BZ	30/04/2020	2	1	AB	ON SITE	2 birds seen- 2 in valley in front of vp, 1 over high
14:10	BZ	30/04/2020	1	1	B	ON SITE	1 bird in valley (same as previous)
14:10	TP	30/04/2020	2	1	A	BUFFER	2 singing from clearfell in front of vp - singing throughout survey
14:20	BZ	30/04/2020	1	1	A	ON SITE	1 flying between two hill tops and 1 displaying south of vp
14:30	BZ	30/04/2020	1	1	AB	ON SITE	Display flying over hillside
14:35	BZ	30/04/2020	2	1	B	BUFFER	Circling high se of vp
14:40	Y.	30/04/2020	1	1	A	BUFFER	Singing to n of vp
14:45	LI	30/04/2020	2	1	A	BUFFER	Overhead vp
14:50	BZ	30/04/2020	1	1	A	BUFFER	1 bird circling se of bp over farm
15:05	BZ	30/04/2020	1	1	A	ON SITE	Flew out of tree opposite vp in response to h, overhead
15:10	BZ	30/04/2020	2	1	A	ON SITE	Foraging/hunting opposite vp, bz also s out vp in trees
15:20	BZ	30/04/2020	1	1	A	ON SITE	Foraging north of vp
15:30	BZ	30/04/2020	3	1	A	ON SITE	2 birds foraging over hillside e of vp 1 south of vp over wooded area
15:45	BZ	30/04/2020	1	1	A	BUFFER	BZ opposite vp very vocal
15:45	MA	30/04/2020	2	1	A	BUFFER	Flew out of valley to south of vp

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
15:50	BZ	30/04/2020	2	1	A	BUFFER	2 birds calling on south of vp one east of vp
16:05	BZ	30/04/2020	3	1	A	BUFFER	circling/calling in woodland opposite vp
16:25	BF	30/04/2020	2	1	A	BUFFER	pair flew past vp
16:30	BZ	30/04/2020	2	1	A	BUFFER	pair calling plus circling s of vp
16:45	BZ	30/04/2020	1	1	AB	ON SITE	foraging /circling over hillside
17:05	CK	30/04/2020	1	2	-	ON SITE	ck heard before observations started - 1705
17:15	BZ	30/04/2020	1	2	A	ON SITE	bz over central vally
17:15	S.	30/04/2020	1	2	AB	BUFFER	present throughout - see cbc for distribution
17:25	CK	30/04/2020	1	2	-	ON SITE	heard calling from plantation to west ov vp
17:40	CK	30/04/2020	1	2	A	BUFFER	flyinf south and east of vp behind treeline
17:45	BZ	30/04/2020	1	2	BC	ON SITE	aling valley to west of vp - rising high on opposite hill
17:55	BZ	30/04/2020	1	2	A	ON SITE	to west of vp
18:10	BZ	30/04/2020	1	2	A	BUFFER	foraging over moorland s of vp
18:15	BZ	30/04/2020	1	2	B	BUFFER	high above valley to west of site
19:35	BZ	30/04/2020	1	2	A	ON SITE	over woodland in buffer to west of vp
20:00	CK	30/04/2020	1	2	-	ON SITE	calling behind vp2
20:00	MA	30/04/2020	3	2	-	ON SITE	flying over woodland buffer to west

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
07:30	BZ	05/05/2020	1	1	A	BUFFER	befor survey y next to vp. bz calling from valley east of vp
08:00	BZ	05/05/2020	1	1	A	BUFFER	calling from woodland valley e of vp
08:05	BZ	05/05/2020	1	1	A	BUFFER	calling from woodland valley e of vp
08:05	Y.	05/05/2020	1	1	A	ON SITE	singing close to vp1
08:10	CG	05/05/2020	1	1	A	ON SITE	flying w to e across valey south of vp
08:25	CG	05/05/2020	1	1	A	ON SITE	flying around ponds on hillside opposite vp
08:25	TP	05/05/2020	1	1	A	BUFFER	flyinf from area directly next to vp
08:25	BZ	05/05/2020	1	1	A	BUFFER	calling from wooded valley
09:00	BZ	05/05/2020	1	1	A	BUFFER	flyinf w down vally
09:15	HG	05/05/2020	5	1	AB	BUFFER	flying up valley heading n directly overhead vp
09:50	BZ	05/05/2020	1	1	A	ON SITE	hovering over hillside to e of ponds
09:55	BZ	05/05/2020	2	1	AB	ON SITE	display flight on east side of pnty park estate
10:05	BZ	05/05/2020	2	1	AB	ON SITE	two birds are in valley beside vp - other as above
11:00	S.	05/05/2020	1	2	A	ON SITE	s. singing infront of vp present on site - see cbc
12:55	BZ	05/05/2020	1	2	AB	ON SITE	over vally to east of ponty park estate
13:30	CR	05/05/2020	2	2	A	ON SITE	male/female flew overhead vp into conifer plantation
13:50	BZ	05/05/2020	1	2	AB	BUFFER	distant - 2km +south of vp

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
07:35	S.	19/05/2020	1	2	-	ON SITE	s. and st all on site see cbc for reference to locations
07:35	ST	19/05/2020	1	2	-	ON SITE	habitat. st flyinf to/from trees with food throughout survey
07:45	M.	19/05/2020	1	2	A	ON SITE	flyinf s along edge of plantation west of vp
07:50	BZ	19/05/2020	1	2	AB	ON SITE	hovering/foraging over plantation west of vp
07:50	BZ	19/05/2020	1	2	CD	BEYOND	circling >3km to sw of vp different bird to above
07:55	CK	19/05/2020	1	2	A	BUFFER	calling from plantation
07:55	BF	19/05/2020	1	2	A	ON SITE	calling from conifers behind vp
08:50	CR	19/05/2020	2	2	A	ON SITE	overhead vp flying toward plantations w/sw
09:00	LR	19/05/2020	1	2	-	ON SITE	calling from confier behind vp
09:10	CK	19/05/2020	1	2	-	ON SITE	calling from plantation w of vp
09:30	L.	19/05/2020	2	2	A	BEYOND	offsite seen defending territory as kt flight 2 west overhead
09:35	BZ	19/05/2020	1	2	A	ON SITE	flew s 20m from vp landed near pond sw of vp
09:45	MA	19/05/2020	4	2	A	ON SITE	flew to pond flushed bz above
10:20	CK	19/05/2020	1	2	A	BUFFER	calling from plantation
10:20	BZ	19/05/2020	1	2	A	ON SITE	flying w in front ov bp
10:20	CK	19/05/2020	1	2	A	ON SITE	flew close to vp in conifers likley different bird to plantation
11:15	SI	19/05/2020	6	1	A	ON SITE	hunting over hillside - likely present throughout

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
11:15	TP	19/05/2020	1	1	-	BUFFER	singing just below vp location
11:15	BZ	19/05/2020	1	1	-	BUFFER	calling from woodland opposite vp
11:20	BZ	19/05/2020	2	1	A	BUFFER	2 birds flying low over woodland in valley
11:50	BZ	19/05/2020	1	1	A	BUFFER	flying low over woodland in valley - calling
12:05	BZ	19/05/2020	2	1	A	BUFFER	fly over woodland valley
12:55	BZ	19/05/2020	1	1	A	BUFFER	fly over woodland valley
13:00	BZ	19/05/2020	2	1	A	BUFFER	fly over woodland valley
13:05	BZ	19/05/2020	1	1	A	BUFFER	fly over woodland valley
13:40	Y.	19/05/2020	2	1	A	ON SITE	
13:50	BZ	19/05/2020	1	1	B	BUFFER	flying over woodland - circling
14:10	BZ	19/05/2020	1	1	A	BUFFER	calling from woodland
06:40	TP	20/05/2020	1	1	-	BUFFER	below vp likely present throughout
06:40	WO	20/05/2020	1	1	-	BUFFER	singing in woodland opposite vp
06:40	S.	20/05/2020	1	1	A	ON SITE	singing over hill top - see cbc for location present throughout
06:50	BZ	20/05/2020	1	1	A	BUFFER	flying along woodland edge - mobbed by 2c
06:55	Y.	20/05/2020	3	1	-	BUFFER	sing close to vp 1 female 2 male present throughout
07:00	LR	20/05/2020	1	1	A	BUFFER	flew across valley over solar farm calling

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
07:10	CR	20/05/2020	1	1	-	BUFFER	hard calling in flight not seen
07:20	CK	20/05/2020	2	1	-	BUFFER	calling se of vp sounded beyond the farm 2nd bird n of vp
07:30	BZ	20/05/2020	1	1	-	BUFFER	calling from woodland opposite vp
07:45	SI	20/05/2020	1	1	A	BUFFER	flying n over solar farm behind vp
08:10	CG	20/05/2020	2	1	A	BUFFER	flew from behind vp along top of valley
08:10	CK	20/05/2020	1	1	A	BUFFER	calling from bottom of valley in front of vp
08:20	ST	20/05/2020	2	1	A	BUFFER	flyinf along walls of farm on opposite hillside
08:45	SH	20/05/2020	2	1	AB	BUFFER	male and female next to the vp female soared over solar farm male flew e
08:45	BZ	20/05/2020	1	1	B	BUFFER	flew in over vp
08:45	MA	20/05/2020	1	1	A	BUFFER	flew in over vp
08:55	BZ	20/05/2020	2	1	AB	BUFFER	flyinf s of vp - appear to be defending territory
09:00	BZ	20/05/2020	3	1	AB	BUFFER	flying s of vp - aling from wooded valley plus one north of vp
09:15	CK	20/05/2020	1	1	A	BUFFER	calling n of vp
09:15	BZ	20/05/2020	1	1	AB	ON SITE	foraging over hillside approx 1km e of vp
09:20	BZ	20/05/2020	1	1	BC	BUFFER	soaring se of vp approx 1.5 - 2km from vp
09:55	CK	20/05/2020	2	2	A	ON SITE	before obs start ck male seen flying along tree line being mobbed. 2nd ck calling from plantation

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
09:55	ST	20/05/2020	2	2	A	ON SITE	commuting between trees and grassland with food seen throughout
09:55	S.	20/05/2020	-	2	A	ON SITE	multiple birds sing/displaying throughout - see cbc
10:05	HG	20/05/2020	4	2	CD	BEYOND	hg with lb circling on thermals 2km sw of vp
10:15	CK	20/05/2020	1	2	-	ON SITE	calling directly behind vp
10:35	CK	20/05/2020	1	2	A	ON SITE	flew between conifers and plantation to west of vp
10:55	CK	20/05/2020	1	2	A	ON SITE	flew south west from trees behind vp
10:55	BZ	20/05/2020	1	2	CD	BUFFER	circling over woodland to w of vp
11:00	K.	20/05/2020	1	2	BC	ON SITE	flew from e of vp over hill side female
11:15	BZ	20/05/2020	1	2	BC	BUFFER	circling over woodland to w of vp then towards vp
11:40	BZ	20/05/2020	1	2	A	ON SITE	hovering/hunting on hillside 1.5km se of vp
11:50	HG	20/05/2020	1	2	CD	BUFFER	flyinf s along w edge of site
12:10	BZ	20/05/2020	1	2	CD	ON SITE	circling sw of vp along woodland edge
12:30	BZ	20/05/2020	2	2	AB	BEYOND	2 birds circling/chasing on opposite hillside 2km s of vp
14:15	ST	21/05/2020	1	2	A	ON SITE	st carrying food to tree behind vp see cbc present throughout
14:15	CK	21/05/2020	1	2	-	BUFFER	calling directly s of vp
14:15	S.	21/05/2020	-	2	A	ON SITE	multiple birds on site - see cbc present throughout
14:30	BZ	21/05/2020	1	2	CD	BUFFER	circling over woodland to w of vp - 1 - 1.5km away

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
14:35	BZ	21/05/2020	2	2	E	BUFFER	circling 2km w of vp
14:50	BZ	21/05/2020	1	2	A	BUFFER	distant in valley
15:20	CK	21/05/2020	1	2	-	BUFFER	calling from plantation to w of vp
15:45	CK	21/05/2020	1	2	-	BUFFER	calling from plantation to w of vp
15:45	SI	21/05/2020	3	2	A	ON SITE	screaming group of 3 birds
15:55	CK	21/05/2020	2	2	-	BUFFER	one calling from plantation
16:45	CK	21/05/2020	1	2	-	BUFFER	calling from plantation
16:55	SH	21/05/2020	1	2	AB	ON SITE	female bird to e of vp flew over woodland behind vp
16:55	CK	21/05/2020	1	2	-	BUFFER	calling from valley
16:55	BZ	21/05/2020	1	2	CD	BEYOND	bird circling w of vp 2km away
18:00	S.	21/05/2020	-	1	-	ON SITE	s. present on hillside - see cbc for detail
18:00	TP	21/05/2020	1	1	A	BUFFER	singing below vp
18:00	Y.	21/05/2020	2	1	-	BUFFER	behind vp in solar farm
18:15	BZ	21/05/2020	1	1	E	BEYOND	bird circling 3km south of vp
18:25	ST	21/05/2020	4	1	A	ON SITE	feeding over hillside plus over valley
18:30	L.	21/05/2020	2	1	A	ON SITE	behind vp over farm
18:45	MA	21/05/2020	3	1	A	ON SITE	flying around ponds

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
18:50	BZ	21/05/2020	1	1	BC	BUFFER	circling se of vp over eastern side of hill
18:50	TP	21/05/2020	1	1	A	BUFFER	singing below vp
18:55	SI	21/05/2020	1	1	A	BUFFER	flew over vp heading south
19:00	BZ	21/05/2020	1	1	A	BUFFER	flying low around farm/fields
19:05	SI	21/05/2020	2	1	AB	BUFFER	flying/feeding over valley
19:10	Y.	21/05/2020	1	1	A	BUFFER	perched next to vp
19:10	BZ	21/05/2020	1	1	-	BUFFER	calling from woodland valley opposite vp
19:15	HG	21/05/2020	1	1	D	BUFFER	heading se along valley on other side of hill
19:35	TP	21/05/2020	1	1	-	BUFFER	calling below vp
19:35	MA	21/05/2020	4	1	AB	ON SITE	flew around ponds near farm
20:10	TP	21/05/2020	1	1	A	BUFFER	singing below vp
20:15	TP	21/05/2020	1	1	A	BUFFER	as above
20:15	Y.	21/05/2020	1	1	-	BUFFER	calling next to vp
20:40	TP	21/05/2020	1	1	A	BUFFER	as above
20:50	Y.	21/05/2020	1	1	A	BUFFER	landed on brash pile 20m e of vp - possible nest
14:00	TP	26/05/2020	2	1	A	BUFFER	two singing + display nearby to vp - throughout survey
14:00	BZ	26/05/2020	1	1	D	ON SITE	above moor

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
14:05	WO	26/05/2020	1	1	A	BUFFER	signing in valley woodland - throughout survey
14:20	RN	26/05/2020	1	1	C	ON SITE	over moor
14:35	LI	26/05/2020	3	1	A	ON SITE	flew over vp
14:40	Y.	26/05/2020	1	1	A	ON SITE	signing gorse next to vp
15:30	BZ	26/05/2020	2	1	B	BUFFER	soaring in valley above woodland
15:35	RN	26/05/2020	5	1	A	ON SITE	above moor
15:35	BZ	26/05/2020	1	1	B	BUFFER	above woodland/farmland
15:40	BZ	26/05/2020	2	1	C	BUFFER	above farmland
15:55	RN	26/05/2020	1	1	B	BUFFER	above valley
16:30	LI	26/05/2020	4	1	A	ON SITE	over vp
16:45	RB	26/05/2020	2	1	B	ON SITE	2 over moor
16:55	BZ	26/05/2020	1	1	B	ON SITE	over moor
17:30	KT	26/05/2020	1	2	A	ON SITE	kt low over pasture before disappearing over solar farm before survey started
17:35	CR	26/05/2020	2	2	A	ON SITE	in woodland behind vp before survey started
17:40	CK	26/05/2020	2	2	A	ON SITE	1 in nearby woodland another distant
17:40	CK	26/05/2020	4	2	A	ON SITE	2 males in woodland behind vp (dispute/territory defence) 1 towards solar farm
18:20	RN	26/05/2020	1	2	B	ON SITE	over moor

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
18:25	S.	26/05/2020	2	2	AB	ON SITE	present throughout
18:30	RN	26/05/2020	4	2	A	ON SITE	on moor
18:30	RN	26/05/2020	2	2	B	ON SITE	flying over moor
19:00	RN	26/05/2020	2	2	B	ON SITE	over moor
19:00	RN	26/05/2020	3	2	A	ON SITE	on moor
19:00	CK	26/05/2020	4	2	A	ON SITE	same as before - present throughout
19:15	BZ	26/05/2020	1	2	B	ON SITE	in front of vp
19:45	RN	26/05/2020	1	2	B	ON SITE	calling over moor
20:10	RN	26/05/2020	6	2	A	ON SITE	on moor
20:10	BF	26/05/2020	2	2	A	ON SITE	in woodland behind vp
17:40	ST	26/05/2020	2	2	A	ON SITE	present throughout survey
20:20	SG	26/05/2020	2	2	A	ON SITE	on pasture
20:50	KT	26/05/2020	1	2	A	ON SITE	flight 4 was in tree by solar farm roosting flew briefly before landing in tree again.
07:30	ST	05/06/2020	2	2	A	ON SITE	two birds singing in the woodland behind vp - present throughout
07:35	LR	05/06/2020	1	2	A	ON SITE	calling/singing behind vp
07:35	BZ	05/06/2020	1	2	BC	BUFFER	flying over woodland 1km sw of vp
07:50	CK	05/06/2020	1	2	A	ON SITE	flew from behind vp toward the vally

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
08:00	S.	05/06/2020	1	2	AB	ON SITE	present in fron of vp + beyond - see cbc for distribution
08:10	HG	05/06/2020	1	2	A	ON SITE	flying low/landed in nw part of site
08:10	CR	05/06/2020	2	2	A	BUFFER	hard flying/calling behind vp
08:10	MA	05/06/2020	1	2	A	ON SITE	flew to pond sw of vp
08:15	BZ	05/06/2020	1	2	A	ON SITE	hunting on e flank of hillside
08:30	BZ	05/06/2020	1	2	A	ON SITE	flew low over trees to pasture from w into central valley
08:30	LR	05/06/2020	1	2	A	ON SITE	flew on to conifers behind vp - started singing
08:50	BZ	05/06/2020	2	2	BC	BUFFER	2 birds display/courtship flying approx 1 - 1.5km w of vp
09:15	BZ	05/06/2020	1	2	BC	BUFFER	1 bird hovering over w flank/woodlad 1km w of vp
09:15	LR	05/06/2020	1	2	A	ON SITE	flyinf behind vp
09:45	HG	05/06/2020	2	2	A	ON SITE	flew across central vally e-w
09:50	BZ	05/06/2020	1	2	A	ON SITE	low over conifer plantation e of vp
11:10	TP	05/06/2020	4	1	A	BUFFER	bird calling and displaying next to vp present throughout
11:20	BZ	05/06/2020	1	1	A	ON SITE	hovering/hunting over site
12:15	Y.	05/06/2020	1	1	A	BUFFER	flyinf down to probable nest site se of vp
12:45	BZ	05/06/2020	1	1	A	BUFFER	calling from woodland opposite vp
12:45	BZ	05/06/2020	1	1	A	ON SITE	foraging/hunting on w flank of hill, beyond ponds

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
12:50	BZ	05/06/2020	2	1	A	ON SITE	2 bird foraging on hillside opposite vp
12:55	BZ	05/06/2020	1	1	AB	ON SITE	foraging close to ponds
13:05	BZ	05/06/2020	1	1	AC	ON SITE	low over ponds and along central valley
13:15	BZ	05/06/2020	2	1	A	BUFFER	flyinf in centrall opposite vp
13:20	Y.	05/06/2020	1	1	A	BUFFER	male seen next to vp
13:20	CR	05/06/2020	1	1	A	BUFFER	heard overhead
13:30	BZ	05/06/2020	1	1	A	BUFFER	flying in central valley/calling
13:30	KT	08/06/2020	1	2	A	BUFFER	over farm whilst walking to vp
14:35	KT	08/06/2020	1	2	B	BEYOND	beyond view hunting/foraging over by wind turbine on distant hill
14:10	BZ	08/06/2020	2	2	B	ON SITE	over woodland west of vp
14:10	RN	08/06/2020	5	2	A	ON SITE	over woodland west of vp
14:10	S.	08/06/2020	2	2	AB	ON SITE	singing in front of vp
14:10	LI	08/06/2020	2	2	A	ON SITE	singing west of vp
14:30	BZ	08/06/2020	1	2	A	ON SITE	behind vp flying low
14:30	ST	08/06/2020	1	2	A	ON SITE	present/singing throuhgout
15:10	CR	08/06/2020	1	2	A	ON SITE	over woodland behind vp
15:10	BZ	08/06/2020	1	2	B	BUFFER	over valley beyond viewshed

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
15:10	BZ	08/06/2020	2	2	C	ON SITE	over moor
15:15	RN	08/06/2020	2	2	B	ON SITE	over moor
15:15	RN	08/06/2020	2	2	C	ON SITE	over moor
15:20	BZ	08/06/2020	1	2	A	ON SITE	flew low past vp with frog
15:20	RN	08/06/2020	1	2	B	ON SITE	flew e-w cronking
15:40	RN	08/06/2020	2	2	A	ON SITE	over vp
15:40	RN	08/06/2020	3	2	B	ON SITE	w-e over moor
15:40	BZ	08/06/2020	1	2	C	ON SITE	over moor
16:10	ST	08/06/2020	3	2	A	ON SITE	2 males singing throughout survey period
16:15	RN	08/06/2020	2	2	B	ON SITE	over vp
16:20	BZ	08/06/2020	1	2	B	ON SITE	west of vp above woodland
16:30	BZ	08/06/2020	1	2	B	ON SITE	mobbed by 2c. over moor
16:35	BZ	08/06/2020	2	2	AB	ON SITE	one flew in from w and stooped at one on the ground, chased off to s of vp
16:45	BZ	08/06/2020	1	2	A	ON SITE	west of vp over woodland
16:45	CK	08/06/2020	1	2	A	ON SITE	singing close to solar farm
16:50	S.	08/06/2020	2	2	AB	ON SITE	singing on/off throughout survey
17:00	LR	08/06/2020	1	2	A	ON SITE	over vp

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
17:30	CR	08/06/2020	9	2	A	ON SITE	over solar farm
17:50	TP	08/06/2020	1	2	A	ON SITE	singing next to vp
17:55	D.	08/06/2020	1	2	A	ON SITE	singing next to vp
18:00	RN	08/06/2020	2	2	B	ON SITE	over vp
18:00	BZ	08/06/2020	1	2	B	BUFFER	woodland in valley
18:20	MA	08/06/2020	3	2	C	ON SITE	high above woodland valley from north
18:20	Y.	08/06/2020	1	2	A	ON SITE	male with food into presumed nest (brash pile)
18:30	LI	08/06/2020	1	2	A	ON SITE	over vp
18:30	BZ	08/06/2020	1	2	C	BUFFER	over valley
19:00	Y.	08/06/2020	2	2	A	ON SITE	pair present throughout
19:00	TP	08/06/2020	2	2	A	ON SITE	pair occasionally with food present throughout
19:30	LI	08/06/2020	1	2	A	ON SITE	over vp
19:45	CK	08/06/2020	1	2	A	ON SITE	singing to north of vp
20:10	HG	08/06/2020	2	2	C	ON SITE	over vp
20:15	RN	08/06/2020	1	2	A	BUFFER	perched in tree south of vp
20:20	LB	08/06/2020	4	2	C	BUFFER	over moor
20:30	LI	08/06/2020	3	2	A	ON SITE	over vp

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
20:40	LI	08/06/2020	5	2	A	ON SITE	over vp
06:10	CR	24/06/2020	3	1	B	BUFFER	3 birds over vally
06:10	S.	24/06/2020	1	1	A	ON SITE	singing on opposite hillside - see cbc for detail
06:10	TP	24/06/2020	1	1	A	BUFFER	singing in front of vp - present throughout
06:10	Y.	24/06/2020	1	1	A	BUFFER	male - close to vp - 1-2 birds present throughout
06:25	WO	24/06/2020	1	1	AB	BUFFER	heard singing from woodland opposite vp
06:50	BZ	24/06/2020	1	1	A	BUFFER	flyinf along top of valley s. of vp calling close to nest
06:55	BZ	24/06/2020	1	1	A	BUFFER	flew over valley into wooldand opposite vp
06:55	WO	24/06/2020	1	1	A	BUFFER	as above (last wo rec) present throughout
07:15	CR	24/06/2020	15	1	A	ON SITE	flying over solar from behind vp
07:20	ST	24/06/2020	1	1	A	BUFFER	singing from woodland opposite vp
07:25	CK	24/06/2020	1	1	A	ON SITE	flew along fence solar farm behind vp (heading s) male
07:40	CR	24/06/2020	3	1	AB	ON SITE	flew e-w over valley solar farm
08:20	BZ	24/06/2020	1	1	A	BUFFER	flying low in valley
08:20	BZ	24/06/2020	1	1	A	BUFFER	different bird calling from w side of valley s of vp
08:40	CR	24/06/2020	3	1	A	ON SITE	flying s over solar farm
08:50	BZ	24/06/2020	1	1	AB	ON SITE	flying along w side of valley s of vp

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
08:55	CR	24/06/2020	3	1	A	BUFFER	flying s overhead vp
09:00	BZ	24/06/2020	1	1	A	BUFFER	flying/callinf low in valley
09:00	CR	24/06/2020	9	1	A	BUFFER	flying e overhead vp
09:45	LR	24/06/2020	1	2	A	ON SITE	singing in trees behind vp
09:55	ST	24/06/2020	1	2	A	ON SITE	flew from trees behind vp
09:55	S.	24/06/2020	1	2	A	ON SITE	birds singing from main site - see cbc for details
10:15	CR	24/06/2020	5	2	A	ON SITE	flying w over head vp
10:20	CR	24/06/2020	1	2	A	ON SITE	flying w in front of vp
10:30	ST	24/06/2020	1	2	A	ON SITE	singing behind vp
10:30	HG	24/06/2020	1	2	A	ON SITE	flyinf along edge of hillside
12:40	CR	24/06/2020	8	2	A	ON SITE	flyinf s over vp
12:50	CR	24/06/2020	2	2	A	ON SITE	flying se close to vp
13:00	BZ	24/06/2020	1	2	A	BUFFER	flyinf over central valley 1km s of vp
13:10	BZ	24/06/2020	1	2	B	ON SITE	hovering - 600m w of vp
13:20	CR	24/06/2020	2	2	A	BUFFER	behind vp flying w
13:55	CR	24/06/2020	3	2	A	ON SITE	flying w - e
14:30	CK	26/06/2020	1	1	A	ON SITE	on fence post of solar

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
14:30	S.	26/06/2020	1	1	B	ON SITE	on moor singing
14:30	BZ	26/06/2020	2	1	B	ON SITE	over moor and woodland
14:40	LR	26/06/2020	2	1	A	BUFFER	heard calling in valley
14:50	LI	26/06/2020	1	1	A	BUFFER	singing
14:50	TP	26/06/2020	1	1	A	BUFFER	singing usual spot by vp
14:55	Y.	26/06/2020	1	1	A	ON SITE	singing in solar farm
15:00	BZ	26/06/2020	1	1	B	ON SITE	over moor
15:00	D.	26/06/2020	1	1	A	ON SITE	singing close to vp
15:10	D.	26/06/2020	2	1	A	ON SITE	dispute between two males
15:10	LI	26/06/2020	2	1	A	ON SITE	male singing female close by
15:10	BZ	26/06/2020	1	1	B	BUFFER	stooping fast over pasture/woodland
15:20	RN	26/06/2020	4	1	A	ON SITE	at least 4 on the moor
15:25	TP	26/06/2020	1	1	A	BUFFER	singing throughout
15:25	LI	26/06/2020	2	1	A	ON SITE	at least two singing
15:30	BZ	26/06/2020	4	1	AB	ON SITE	over woodland calling loudly before dispersing over moor
15:40	Y.	26/06/2020	1	1	A	ON SITE	singing on solar still
15:40	TP	26/06/2020	2	1	A	ON SITE	2 singing in front of vp

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
15:55	BZ	26/06/2020	2	1	B	ON SITE	over moor
16:10	BZ	26/06/2020	1	1	C	BUFFER	over valley
16:20	BZ	26/06/2020	3	1	B	ON SITE	one flying over valley wood. two calling nearby
16:20	CR	26/06/2020	7	1	B	BUFFER	flying through valley calling
16:30	CR	26/06/2020	4	1	A	ON SITE	over vp w - e
17:00	SC	26/06/2020	2	1	A	BUFFER	in front of vp female and juv
17:20	RT	26/06/2020	1	1	A	BUFFER	juv rt in front of vp
18:05	S.	26/06/2020	3	2	A	ON SITE	singing around vp area + beyond
18:05	CR	26/06/2020	22	2	A	ON SITE	in conifer plantation behind vp
18:05	RN	26/06/2020	2	2	A	ON SITE	2 on posts west of vp
18:20	LB	26/06/2020	1	2	B	ON SITE	over moor west
18:20	RB	26/06/2020	1	2	A	ON SITE	singing near to vp
18:20	LB	26/06/2020	1	2	B	ON SITE	over vp
18:35	D.	26/06/2020	1	2	A	ON SITE	singing near to vp
18:35	BZ	26/06/2020	1	2	C	ON SITE	over moor
18:40	ST	26/06/2020	1	2	A	ON SITE	carrying food to wood behind vp
18:45	K.	26/06/2020	1	2	C	ON SITE	hovering over moor male

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
18:55	CK	26/06/2020	1	2	A	ON SITE	female pursued relentlessly by mp for 200m
19:05	KT	26/06/2020	1	2	A	BEYOND	one flying low around wind turbine 3km away
19:20	ST	26/06/2020	2	2	A	ON SITE	one singing, another bringing food to woodland
19:20	D.	26/06/2020	1	2	A	ON SITE	occasionally singing close to vp
19:25	RN	26/06/2020	1	2	B	ON SITE	cronking over moor
19:35	KT	26/06/2020	2	2	AB	BEYOND	2kt at wind turbine from 19:35 -19:38 one low (a) and one mid (b)
19:40	S.	26/06/2020	1	2	AB	ON SITE	both circling over pasture grassland
19:45	LB	26/06/2020	1	2	B	ON SITE	singing by vp
20:15	CR	26/06/2020	4	2	A	ON SITE	over vp west
20:15	S.	26/06/2020	1	2	A	ON SITE	over vp west
20:20	D.	26/06/2020	1	2	A	ON SITE	singing in front of vp
20:20	LR	26/06/2020	2	2	A	ON SITE	singing
20:20	HG	26/06/2020	1	2	B	ON SITE	over vp east
20:20	HG	26/06/2020	1	2	B	ON SITE	over moor west
20:25	BZ	26/06/2020	2	2	B	ON SITE	over vp west
21:30	LE	26/06/2020	2		A	BEYOND	chicks begging call heard, at least two, on way down from vp in woodland - 51.72265, - 3.163149

Time	Species	Date	Count	VP	Flight Height band ¹¹	Location	Notes
21:30	NJ	26/06/2020	1		A	BEYOND	churring male heard from rough location as above. appeared to be coming from woodland but possibly further afield

Table E6 Post-breeding dispersal and migratory season 2020 – Secondary species records

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
07:00	BZ	10/07/2020	4	1	AB	BUFFER	2 calling from woodland in valley. 2 calling s of vp beyond solar farm
07:00	RN	10/07/2020	6	1	AB	ON SITE	5 over moor cronking 1 over valley
07:00	LI	10/07/2020	4	1	A	ON SITE	over vp
07:00	Y.	10/07/2020	1	1	A	ON SITE	singing south of vp
07:20	RT	10/07/2020	1	1	A	BUFFER	juv feeding around bracken below vp
07:25	LI	10/07/2020	5	1	A	ON SITE	over vp
07:45	CR	10/07/2020	2	1	A	ON SITE	over vp h/o probably more
07:50	RN	10/07/2020	3	1	A	ON SITE	3 present throughout
08:00	D.	10/07/2020	1	1	A	BUFFER	singing in the bracken below vp

¹² Flight height band refers to the height at which the bird was recorded: A = 0-10m; B = 10-50m; C = 50-150m; D = 150m- 200m; E = >200m.

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
08:00	Y.	10/07/2020	2	1	A	ON SITE	present throughout
08:00	LI	10/07/2020	4	1	A	ON SITE	over vp
08:20	BZ	10/07/2020	2	1	B	BUFFER	over valley
08:25	RN	10/07/2020	7	1	A	ON SITE	spread out over moor
08:40	CU	10/07/2020	1	1	B	ON SITE	heading east over moor
08:50	LI	10/07/2020	7	1	A	ON SITE	south of vp 3 juv
08:50	SC	10/07/2020	1	1	A	ON SITE	one juv south of vp
09:00	Y.	10/07/2020	1	1	A	BUFFER	singing throughout
09:10	CR	10/07/2020	5	1	B	BUFFER	over valley - south
09:10	LB	10/07/2020	2	1	C	BEYOND	heading east
09:10	RN	10/07/2020	10	1	AB	ON SITE	upto 10 rn on moor scattered around
09:15	TP	10/07/2020	2	1	A	ON SITE	flew over vp into bracken
09:25	TP	10/07/2020	1	1	A	BUFFER	one on bracken below vp
09:30	BZ	10/07/2020	2	1	AB	BUFFER	present throughout+h471:h472
09:50	Y.	10/07/2020	1	1	A	BUFFER	present throughout
10:30	CR	10/07/2020	3	2	A	ON SITE	east of vp
10:30	ST	10/07/2020	2	2	A	ON SITE	behind vp returning with food

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
10:35	D.	10/07/2020	1	2	A	ON SITE	behind vp singing
10:35	LI	10/07/2020	6	2	A	ON SITE	over vp south
10:40	BZ	10/07/2020	1	2	B	ON SITE	east of vp circling
10:45	RN	10/07/2020	6	2	BA	ON SITE	3 in fron of vp flyinf east 3 west of vp cronking
10:45	BF	10/07/2020	2	2	A	ON SITE	pair calling behind vp
11:00	S.	10/07/2020	1	2	A	ON SITE	flying over vp
11:10	LI	10/07/2020	7	2	A	ON SITE	flying west
11:10	D.	10/07/2020	3	2	A	ON SITE	present throughout
11:10	RN	10/07/2020	7	2	A	ON SITE	all perched in trees west of vp
11:30	D.	10/07/2020	4	2	A	ON SITE	pair +2 juv
11:30	ST	10/07/2020	1	2	A	ON SITE	returning with food frequently
11:35	CR	10/07/2020	3	2	AB	ON SITE	in trees possibly more at least 1 juv
12:05	S.	10/07/2020	4	2	AB	ON SITE	1 singing 3 flying west
12:10	LI	10/07/2020	6	2	AB	ON SITE	flying east
12:10	LI	10/07/2020	27	2	A	ON SITE	large flock off bracken then north behind vp
12:15	CR	10/07/2020	2	2	A	ON SITE	flying east in front of vp
12:30	CR	10/07/2020	4	2	A	ON SITE	flying east in front of vp

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
12:35	LI	10/07/2020	17	2	A	ON SITE	around in bracken in front of vp
12:40	BZ	10/07/2020	2	2	AB	ON SITE	1 perched in tree south of vp 1 circling west of vp
13:00	RN	10/07/2020	8	2	A	ON SITE	spread out along moorland
13:10	BZ	10/07/2020	2	2	B	ON SITE	over woodland west of vp
13:10	D.	10/07/2020	4	2	A	ON SITE	present throughout
13:15	S.	10/07/2020	2	2	A	ON SITE	present throughout
13:15	ST	10/07/2020	2	2	A	ON SITE	present throughout. bringing food back to wood frequently
13:20	BZ	10/07/2020	1	2	B	ON SITE	flying east of vp heading sout. calling loudly
07:10	LI	21/07/2020	5	2	A	ON SITE	over vp
07:25	LI	21/07/2020	2	2	A	ON SITE	over vp
07:30	S.	21/07/2020	3	2	B	ON SITE	flying over vp
07:35	D.	21/07/2020	1	2	A	ON SITE	calling behind vp
07:35	D.	21/07/2020	3	2	A	ON SITE	family group feeding in bracken
07:45	BZ	21/07/2020	1	2	A	ON SITE	flying over moor
07:45	RN	21/07/2020	5	2	A	ON SITE	spread along moor
08:10	RN	21/07/2020	3	2	A	ON SITE	acroos moor/pasture
08:20	BZ	21/07/2020	1	2	B	ON SITE	over moor

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
08:40	ST	21/07/2020	1	2	A	ON SITE	in woodland behind vp
09:10	BZ	21/07/2020	2	2	B	ON SITE	one over moor one beyond viewshed
09:20	LI	21/07/2020	2	2	A	ON SITE	over vp w -e
09:30	D.	21/07/2020	3	2	A	ON SITE	family in woodland present throughout
09:30	RN	21/07/2020	6	2	A	ON SITE	upto 6 present throughout survey. spread across viewshed
09:45	RN	21/07/2020	11	2	ABC	ON SITE	upto 11 raven, most on moor. some soaring high above vp
09:50	BZ	21/07/2020	3	2	B	ON SITE	3 flying over moor + solar farm
10:25	RN	21/07/2020	5	1	B	BUFFER	flying over vally then moor
10:25	BZ	21/07/2020	2	1	B	ON SITE	one over moor , one over valley
10:35	Y.	21/07/2020	1	1	A	ON SITE	singing north of vp
11:10	RN	21/07/2020	9	1	B	ON SITE	upto 9 flying over moor
11:10	Y.	21/07/2020	1	1	A	ON SITE	singing throughout
11:15	BZ	21/07/2020	2	1	B	ON SITE	over moor
11:20	RN	21/07/2020	24	1	BC	ON SITE	min count above moor
11:25	BZ	21/07/2020	2	1	B	ON SITE	over moor
11:45	Y.	21/07/2020	1	1	A	ON SITE	in tree s of vp
12:00	RN	21/07/2020	12	1	B	ON SITE	upto 12 present across viewshed

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
12:00	BZ	21/07/2020	3	1	AB	ON SITE	upto 3 present 1 in wood calling 2 over moor
12:20	TP	21/07/2020	1	1	A	BUFFER	1 with food in tree nw of vp in valley
12:50	Y.	21/07/2020	1	1	A	BUFFER	returning to tree south of vp throughout survey
12:55	ST	21/07/2020	1	1	A	BUFFER	returning to bracken with food
14:25	BZ	24/07/2020	4	1	AB	ON SITE	upto 3 bz calling (1 in wooded valley, 2 from trees south of vp)
14:25	RN	24/07/2020	6	1	B	ON SITE	6 over moor
14:25	Y.	24/07/2020	1	1	A	ON SITE	y in usual tree south of vp
15:10	Y.	24/07/2020	1	1	A	ON SITE	present throughout survey
15:10	RN	24/07/2020	7	1	AB	ON SITE	present throughout survey
15:15	LB	24/07/2020	1	1	C	BEYOND	flew east
15:15	BZ	24/07/2020	1	1	B	ON SITE	hunting over moor
15:15	LB	24/07/2020	1	1	C	BUFFER	flew west
15:20	LI	24/07/2020	2	1	A	ON SITE	flew west over vp
16:00	LI	24/07/2020	3	1	A	ON SITE	flew east over vp
16:10	RN	24/07/2020	7	1	A	ON SITE	upto 7 on moor present throughout
16:30	TP	24/07/2020	2	1	A	ON SITE	1 with food on fence post calling below in valley
16:45	Y.	24/07/2020	1	1	A	ON SITE	perched in tree present throughout on/off

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
17:00	Y.	24/07/2020	2	1	A	ON SITE	pair flew from bracken and onto posts by solar farm
17:10	BZ	24/07/2020	1	1	B	ON SITE	hunting over moor
17:15	RN	24/07/2020	4	1	B	ON SITE	4 rn over solar farm
17:20	Y.	24/07/2020	1	1	A	ON SITE	singing male south of vp present throughout
17:55	RN	24/07/2020	3	2	A	ON SITE	on moor south of vp
17:55	CR	24/07/2020	2	2	A	ON SITE	over vp (west)
18:05	LI	24/07/2020	2	2	A	ON SITE	in front of vp (west)
18:10	LI	24/07/2020	24	2	A	ON SITE	flyinf west past vp large flock
18:30	BZ	24/07/2020	1	2	B	ON SITE	over moor
18:35	D.	24/07/2020	2	2	A	ON SITE	calling bracken by vp
19:10	BZ	24/07/2020	1	2	B	ON SITE	hunting west of vp
19:15	LI	24/07/2020	6	2	A	ON SITE	over vp heading west
19:15	D.	24/07/2020	2	2	A	ON SITE	calling in bracken present throughout
19:45	BZ	24/07/2020	1	2	B	ON SITE	over moor
19:50	RN	24/07/2020	5	2	A	ON SITE	spread around viewshed
14:15	D.	04/08/2020	2	2	A	ON SITE	calling from bracken
14:30	LI	04/08/2020	27	2	A	ON SITE	flyinf west in front of vp

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
14:35	BZ	04/08/2020	1	2	B	ON SITE	hovering over moorland
14:40	RN	04/08/2020	4	2	A	ON SITE	to west of vp
14:45	CR	04/08/2020	2	2	A	ON SITE	at least 2 heard in flight
15:00	RN	04/08/2020	5	2	B	ON SITE	flying se close to vp
15:05	RN	04/08/2020	2	2	A	ON SITE	flew ne
15:10	CR	04/08/2020	6	2	A	ON SITE	flew west in front of vp
15:10	LI	04/08/2020	15	2	A	ON SITE	flew west
15:10	D.	04/08/2020	2	2	A	ON SITE	present throughout
15:15	BZ	04/08/2020	1	2	B	ON SITE	over moor occasionally
15:20	BZ	04/08/2020	2	2	C	BEYOND	
15:20	RN	04/08/2020	6	2	C	BEYOND	
15:35	LI	04/08/2020	50	2	A	ON SITE	flushed by pe
15:45	BZ	04/08/2020	2	2	B	ON SITE	over moor
15:50	RN	04/08/2020	5	2	C	BEYOND	
15:50	RN	04/08/2020	7	2	B	ON SITE	over moor
17:00	D.	04/08/2020	2	2	A	ON SITE	present throughout
18:05	BZ	04/08/2020	1	1	B	BUFFER	flew over valley into woodland

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
18:05	RN	04/08/2020	4	1	B	ON SITE	over moor
18:25	D.	04/08/2020	1	1	A	BUFFER	calling in bracken
06:00	BZ	11/08/2020	1	1	AB	BUFFER	heard callig in valley below vp then in flight over valley
06:00	D.	11/08/2020	2	1	A	BUFFER	in bracken w of vp 1 juv
06:00	RN	11/08/2020	5	1	AB	ON SITE	2 in flight w over valley. 3 calling in woodland n of vp
06:00	LU	11/08/2020	2	1	A	ON SITE	over vp e-w
06:00	RT	11/08/2020	1	1	A	BUFFER	calling in bracken below vp
06:10	CR	11/08/2020	1	1	AB	BUFFER	heard to sw of vp in flight over valley. unsure of numbers
06:10	LI	11/08/2020	1	1	A	ON SITE	over vp heading west
06:20	LI	11/08/2020	7	1	A	ON SITE	nw over vp
06:30	TP	11/08/2020	4	1	B	ON SITE	heading ne then e over vp quite high. passage bird possibly
06:30	HG	11/08/2020	3	1	B	BUFFER	w-e high over hill + valley
06:40	LI	11/08/2020	1	1	A	ON SITE	w-e over vp
06:40	RN	11/08/2020	5	1	A	ON SITE	on moor present throughout
07:10	RN	11/08/2020	2	1	BC	ON SITE	w-e over vp/valley
09:30	LI	11/08/2020	42	2	A	ON SITE	in front of vp feeding in bracken
09:30	RN	11/08/2020	6	2	AB	ON SITE	across moor occasionally in flight

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
09:40	LB	11/08/2020	1	2	C	ON SITE	heading ne over vp
09:40	D.	11/08/2020	1	2	A	ON SITE	calling behind vp
09:45	CR	11/08/2020	4	2	A	ON SITE	in woodland behind vp calling
09:45	BZ	11/08/2020	2	2	B	ON SITE	1 mobbing kt one distant over moor
10:15	GE	11/08/2020	1	2	A	ON SITE	feeding in pond close to vp2 with gk
10:15	GK	11/08/2020	1	2	A	ON SITE	feeding in pond close to vp2 with ge
10:30	D.	11/08/2020	2	2	A	ON SITE	2 preent in bracken throughout
10:40	TP	11/08/2020	1	2	B	ON SITE	flew west over vp
10:50	BZ	11/08/2020	4	2	BC	ON SITE	all circling together over moor/woodland se of vp
10:55	CR	11/08/2020	2	2	A	ON SITE	cr heard whilst observing kt flight at least 2 probably more
12:05	TP	11/08/2020	1	2	A	ON SITE	over vp heading e-w
12:05	HG	11/08/2020	2	2	D	BEYOND	circling very high approx 3km west of vp 1 adult 1 immature
12:15	K.	11/08/2020	1	2	BC	ON SITE	hovering over pool/pasture just west of vp
08:00	RN	28/08/2020	4	1	B	ON SITE	4 cronking over hill
08:00	HM	28/08/2020	15	1	B	BUFFER	over valley hawking flies
08:00	SM	28/08/2020	6	1	B	BUFFER	over valley hawking flies
08:00	BZ	28/08/2020	2	1	AB	ON SITE	one s of vp in tree. one over moor

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
08:00	TP	28/08/2020	2	1	B	ON SITE	over vp into valley calling
08:05	RN	28/08/2020	2	1	B	ON SITE	over solar famr and then east of vp
08:05	SG	28/08/2020	2	1	B	ON SITE	west over vp
08:15	TP	28/08/2020	2	1	B	ON SITE	west over vp
08:15	SG	28/08/2020	5	1	A	ON SITE	west over vp to solar farm
08:15	RN	28/08/2020	6	1	B	ON SITE	over moor chasing one another
08:25	MA	28/08/2020	6	1	A	ON SITE	flew onto ponds opposite vp
09:00	RN	28/08/2020	7	1	AB	ON SITE	present throughout
09:00	CC	28/08/2020	1	1	A	ON SITE	singing behind vp
09:00	BZ	28/08/2020	1	1	B	ON SITE	present throughout
09:05	MA	28/08/2020	6	1	AB	ON SITE	off ponds and over vp towards farm
09:15	HG	28/08/2020	1	1	D	BEYOND	flying east 2km se of vp
09:30	D.	28/08/2020	2	1	A	ON SITE	on fence post south of vp
09:30	Y.	28/08/2020	1	1	A	ON SITE	on fence post south of vp
10:00	MA	28/08/2020	2	1	A	ON SITE	alarm calling then flew over solar farm
10:00	BZ	28/08/2020	1	1	B	ON SITE	over valley then towards solar farm
10:15	HG	28/08/2020	3	1	C	BUFFER	over valley heading south

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
10:15	CC	28/08/2020	7	1	A	ON SITE	all in shrubs + bracken feeding
10:20	SC	28/08/2020	5	1	A	BUFFER	family group of 2 adults and 3 juv
10:45	BZ	28/08/2020	2	1	B	ON SITE	came from behind vp. one attacking the other over valley
10:45	SI	28/08/2020	1	1	C	ON SITE	1 high above vp
11:15	KT	07/09/2020	1	1	D	BUFFER	kt flew above valley as i walked up to vp 1 before survey started
11:45	RN	07/09/2020	17	1	CD	ON SITE	flying over moor all together - high at times
11:45	BZ	07/09/2020	2	1	C	ON SITE	flew from west over valley intoo woodland/valley
11:45	SH	07/09/2020	1	1	A	BUFFER	flew low across bracken below vp female
11:55	MA	07/09/2020	9	1	B	ON SITE	flock flew low over vp
12:05	SH	07/09/2020	1	1	A	ON SITE	flying low across bracken below vp female
12:20	BZ	07/09/2020	1	1	B	ON SITE	n-s across moor in woodland/valley
12:25	RN	07/09/2020	4	1	B	ON SITE	over moor
13:00	TP	07/09/2020	1	1	B	ON SITE	over vp south
13:15	RN	07/09/2020	9	1	B	ON SITE	over vp
13:25	BZ	07/09/2020	1	1	A	BEYOND	calling from woodland in valley
14:00	HG	07/09/2020	1	1	C	BEYOND	high over valley heading south

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
14:25	K.	07/09/2020	1	1	B	ON SITE	hovering over moor male mobbed by 6 rn
14:25	RN	07/09/2020	6	1	B	ON SITE	mobbing k, over moor
14:35	BZ	07/09/2020	2	1	AB	ON SITE	one still calling from woodland. 1 flying south of vp over valley
15:15	CG	07/09/2020	11	2	A	ON SITE	11 cg feeding in field just south of ponds near to vp2
15:20	BZ	07/09/2020	1	2	B	ON SITE	over valley west of vp
15:50	K.	07/09/2020	1	2	A	ON SITE	female roosting in tree by solar farm
16:10	RN	07/09/2020	9	2	B	BEYOND	over valley beyond vp1
16:50	BZ	07/09/2020	2	2	B	ON SITE	west from vp over valley
17:00	LI	07/09/2020	7	2	A	ON SITE	over vp heading west
17:20	LI	07/09/2020	14	2	A	ON SITE	heading east in front of vp
17:35	SH	07/09/2020	1	2	C	ON SITE	high above wooded area west of vp male
12:45	LI	09/09/2020	12	2	A	ON SITE	in bracken feeding with 7 go
12:45	RN	09/09/2020	3	2	B	ON SITE	flyibg west in front of vp
12:45	MA	09/09/2020	6	2	B	ON SITE	flying s in front of vp towards solar farm
13:05	CG	09/09/2020	20	2	A	ON SITE	feeding close to pond sw of vp
13:15	GO	09/09/2020	39	2	A	ON SITE	flushed off bracken into woodland by bz
13:15	BZ	09/09/2020	1	2	V	ON SITE	flying east of vp heading north

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
13:25	CG	09/09/2020	20	2	V	ON SITE	flushed/flew off from pasture heading east ltv
13:30	D.	09/09/2020	2	2	A	ON SITE	two calling west of vp in bracken
13:40	RT	09/09/2020	1	2	A	ON SITE	femlae in woodland behind vp
13:40	BZ	09/09/2020	1	2	C	ON SITE	over moor hovering occasionally
14:05	BZ	09/09/2020	2	2	AB	ON SITE	2 bz together in from south over solar and ltv behind trees
14:20	BZ	09/09/2020	2	2	C	ON SITE	in from south together se of vp and over moor
14:25	CR	09/09/2020	3	2	B	ON SITE	flying w-e 150m in front of vp
14:45	CR	09/09/2020	5	2	B	ON SITE	heading north 150m east of vp over woodland
15:00	BZ	09/09/2020	4	2	C	ON SITE	1 above moor and two beyond valley sw 1 above valley south
16:15	RN	09/09/2020	4	1	B	BUFFER	over valley and vp onto moor
16:30	RN	09/09/2020	6	1	B	BUFFER	over valley heading north
16:50	BZ	09/09/2020	2	1	C	BUFFER	behind vp over solar farm
17:05	LI	09/09/2020	4	1	A	BUFFER	over valley heading north
17:30	RN	09/09/2020	2	1	B	BUFFER	behind vp over solar farm
17:45	RN	09/09/2020	3	1	C	ON SITE	over moor high
18:05	RN	09/09/2020	2	1	C	ON SITE	over moor high heading north
18:20	TP	09/09/2020	1	1	A	ON SITE	over vp down into valley valling

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
18:40	BZ	09/09/2020	1	1	A	BUFFER	calling in woodInad in valley
18:45	BZ	09/09/2020	4	1	BC	BUFFER	4 circling over woodland in valley below vp
18:45	CA	09/09/2020	1	1	D	BEYOND	circling hgih circa 4km viewshed
19:10	D.	09/09/2020	1	1	A	BUFFER	calling south of vp
19:10	LI	09/09/2020	4	1	A	BUFFER	heading south over valley
06:40	KT	11/09/2020	1	2	AB	BUFFER	kt flushed on edge of plantation west of farm. presumed roosting bird. beofre survey started on walk upto vp. flew west and ltv
07:00	CR	11/09/2020	3	2	A	ON SITE	in plantation calling on route to vp min 4
06:30	BF	11/09/2020	4	2	A	BEYOND	calling in bracken west of vp
07:10	D.	11/09/2020	2	2	A	ON SITE	low over bracken west-east
07:10	BZ	11/09/2020	1	2	A	ON SITE	2 roosting on pasture close to pool sw of vp
07:20	CG	11/09/2020	2	2	A	ON SITE	flying north, west of vp over bracken
07:30	LI	11/09/2020	5	2	A	ON SITE	flying e-w beyond solar farm
07:35	BZ	11/09/2020	1	2	B	BUFFER	in front of vp calling
08:00	S.	11/09/2020	1	2	A	ON SITE	in front of vp feeding in bracken
08:00	D.	11/09/2020	1	2	A	ON SITE	flew off after been flsuhed by sheep flew sw
08:30	CG	11/09/2020	2	2	AB	ON SITE	flushed from scrub/bracken sw of vp min 60 possibly more

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
08:35	LI	11/09/2020	60	2	A	ON SITE	w-e over bracken in front of vp
08:55	S.	11/09/2020	6	2	B	ON SITE	across moor + over solar farm. present throughout
09:00	RN	11/09/2020	6	2	B	ON SITE	north over vp into woodland
09:05	CR	11/09/2020	1	2	A	ON SITE	in front of vp calling
09:10	SH	11/09/2020	1	2	A	ON SITE	low across bracken towards solar farm
09:20	H.	11/09/2020	1	2	C	BEYOND	flying north high 2km sw of vp
10:35	RN	11/09/2020	7	1	AB	BUFFER	2 over valley + 5 over moorland opposite vp
10:35	BZ	11/09/2020	1	1	B	BUFFER	circling over valley calling
10:50	S.	11/09/2020	1	1	A	BUFFER	heard calling north of vp not seen
11:00	BZ	11/09/2020	5	1	AB	BUFFER	3 overhead and over valley plus woodland and 2 in wood
11:30	RN	11/09/2020	11	1	C	ON SITE	put up by kt previously over viewshed present throughout
12:25	HG	11/09/2020	1	1	C	BUFFER	over valley heading east
08:15	RN	16/09/2020	1	1	A	ON SITE	
08:20	RN	16/09/2020	1	1	A	ON SITE	
08:25	RN	16/09/2020	1	1	A	ON SITE	
08:30	RN	16/09/2020	1	1	A	ON SITE	
08:35	TP	16/09/2020	1	1	B	ON SITE	f/o calling

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
08:40	BZ	16/09/2020	1	1	B	ON SITE	thermaling - then moved south
08:45	RN	16/09/2020	1	1	A	ON SITE	
08:50	RN	16/09/2020	1	1	A	ON SITE	
08:55	RN	16/09/2020	1	1	A	ON SITE	
09:00	CK	16/09/2020	1	1	B	ON SITE	flying east
09:00	BZ	16/09/2020	2	1	B	ON SITE	flying north
09:05	RN	16/09/2020	1	1	A	ON SITE	
09:05	BZ	16/09/2020	2	1	B	ON SITE	flying north
09:05	M.	16/09/2020	4	1	A	ON SITE	flying north
09:10	HM	16/09/2020	5	1	B	ON SITE	flying north
09:10	RN	16/09/2020	2	1	B	ON SITE	flying west
09:15	BZ	16/09/2020	1	1	B	ON SITE	flying north
09:20	RN	16/09/2020	4	1	A	ON SITE	circling calling
09:20	RN	16/09/2020	4	1	A	ON SITE	flying west
09:25	RN	16/09/2020	2	1	B	ON SITE	circling
09:30	RN	16/09/2020	1	1	B	ON SITE	east
09:30	BZ	16/09/2020	2	1	C	ON SITE	circling calling

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
09:35	BZ	16/09/2020	1	1	A	ON SITE	northwest
09:35	RN	16/09/2020	2	1	B	ON SITE	circling
09:40	RN	16/09/2020	2	1	B	BUFFER	south
09:45	HG	16/09/2020	1	1	C	BUFFER	south
09:50	BZ	16/09/2020	2	1	C	BUFFER	circling
10:00	BZ	16/09/2020	4	1	C	ON SITE	circling
10:00	RN	16/09/2020	12	1	C	ON SITE	circling
10:05	RN	16/09/2020	6	1	C	ON SITE	circling
10:05	BZ	16/09/2020	3	1	C	ON SITE	circling
10:10	BZ	16/09/2020	10	1	C	ON SITE	circling
10:10	RN	16/09/2020	3	1	C	ON SITE	circling
10:10	HM	16/09/2020	200	1	B	ON SITE	feeding and moving north
10:20	RN	16/09/2020	7	1	B	ON SITE	
10:30	BZ	16/09/2020	3	1	B	ON SITE	
10:30	RN	16/09/2020	4	1	B	ON SITE	
10:35	BZ	16/09/2020	1	1	C	ON SITE	
10:35	RN	16/09/2020	3	1	B	ON SITE	



Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
10:45	BZ	16/09/2020	1	1	B	ON SITE	circling
10:50	KT	16/09/2020	1	1	B	ON SITE	hovering
10:55	BZ	16/09/2020	1	1	C	ON SITE	
10:55	RN	16/09/2020	1	1	C	ON SITE	
11:00	RN	16/09/2020	2	1	B	ON SITE	
11:05	BZ	16/09/2020	1	1	B	ON SITE	circling
11:15	CA	16/09/2020	1	1	B	ON SITE	northeast
12:15	BZ	16/09/2020	1	2	A	ON SITE	
12:20	YW	16/09/2020	1	2	A	ON SITE	
12:20	K.	16/09/2020	1	2	A	ON SITE	
12:35	BZ	16/09/2020	1	2	B	ON SITE	
12:45	RN	16/09/2020	2	2	B	ON SITE	
12:50	K.	16/09/2020	1	2	A	ON SITE	
13:05	K.	16/09/2020	1	2	A	ON SITE	
13:05	BZ	16/09/2020	1	2	B	ON SITE	
13:05	RN	16/09/2020	2	2	B	ON SITE	
13:30	RN	16/09/2020	3	2	B	ON SITE	

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
13:35	RN	16/09/2020	2	2	B	ON SITE	
13:55	K.	16/09/2020	1	2	B	ON SITE	
14:00	RN	16/09/2020	2	2	B	ON SITE	
14:10	RN	16/09/2020	2	2	A	ON SITE	
14:10	BZ	16/09/2020	1	2	B	ON SITE	
14:25	BZ	16/09/2020	1	2	C	ON SITE	
14:45	BZ	16/09/2020	1	2	E	ON SITE	
08:45	RN	13/10/2020	4	1	ABC	ON SITE	moving around site calling
09:05	S.	13/10/2020	2	1	B	ON SITE	flying over calling mainly west
09:15	RN	13/10/2020	4	1	ABC	ON SITE	as above
09:40	K.	13/10/2020	1	1	AB	ON SITE	flyinf south across site
09:40	RN	13/10/2020	6	1	AB	ON SITE	flying over calling mainly west
09:55	RN	13/10/2020	6	1	AB	ON SITE	as above
10:30	BZ	13/10/2020	1	1	C	ON SITE	circling on thermals
10:30	RN	13/10/2020	6	1	ABC	ON SITE	circling on thermals
10:45	LI	13/10/2020	2	1	AB	ON SITE	flying over calling mainly west
10:45	RN	13/10/2020	6	1	ABC	ON SITE	flying over calling mainly west

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
10:55	BZ	13/10/2020	1	1	ABC	ON SITE	circling, hunting, calling
11:30	RN	13/10/2020	2	1	A	ON SITE	
12:10	S.	13/10/2020	4	2	A	ON SITE	calling and ground movement
12:10	MP	13/10/2020	2	2	A	ON SITE	calling and ground movement
12:15	K.	13/10/2020	1	2	AB	ON SITE	female hunting
12:30	RN	13/10/2020	4	2	AB	ON SITE	flying, communicating
12:50	K.	13/10/2020	1	2	AB	ON SITE	female hunting andf perched
13:00	RN	13/10/2020	4	2	AB	ON SITE	flying calling
13:10	LI	13/10/2020	2	2	B	ON SITE	glided in from next valley
13:15	BZ	13/10/2020	1	2	BC	ON SITE	glided in from next valley
13:15	RN	13/10/2020	4	2	ABC	ON SITE	group of sg flew over heading east
13:30	SG	13/10/2020	4	2	CC	ON SITE	k hunting
14:00	K.	13/10/2020	1	2	AB	ON SITE	k hunting
14:05	RN	13/10/2020	6	2	ABC	ON SITE	calling and short flight
14:20	S.	13/10/2020	2	2	AB	ON SITE	calling and short flight
14:35	RN	13/10/2020	2	2	A	ON SITE	calling
14:50	S.	13/10/2020	2	2	AB	ON SITE	calling

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
08:15	RN	22/10/2020	2	1	B	ON SITE	flew east
08:25	FF	22/10/2020	3	1	B	ON SITE	flew south
08:30	K.	22/10/2020	1	1	A	ON SITE	foraging over valley
08:35	FF	22/10/2020	1	1	A	ON SITE	flew north
08:35	BZ	22/10/2020	1	1	A	ON SITE	in valley foraging
08:35	SG	22/10/2020	1	1	A	ON SITE	flew northwest
08:35	RN	22/10/2020	1	1	A	ON SITE	flew north
08:35	RN	22/10/2020	1	1	C	ON SITE	flew north
08:40	LR	22/10/2020	1	1	A	ON SITE	in valley
08:40	Y.	22/10/2020	1	1	A	ON SITE	foraging in scrub calling
08:40	K.	22/10/2020	1	1	A	ON SITE	foraging over valley
08:50	M.	22/10/2020	4	1	A	ON SITE	foraging in valley
08:50	BF	22/10/2020	1	1	A	ON SITE	foraging in scrub
08:55	RN	22/10/2020	3	1	A	ON SITE	flew north
09:10	RB	22/10/2020	1	1	A	ON SITE	foraging
09:10	BF	22/10/2020	2	1	A	ON SITE	foraging
09:15	RE	22/10/2020	1	1	A	ON SITE	foraging

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
09:15	FF	22/10/2020	26	1	B	ON SITE	foraging
09:15	ST	22/10/2020	1	1	A	ON SITE	flew south
09:20	S.	22/10/2020	2	1	A	ON SITE	foraging in scrub
09:20	D.	22/10/2020	2	1	A	ON SITE	foraging
09:25	ST	22/10/2020	7	1	A	ON SITE	calling from scrub
09:40	BF	22/10/2020	2	1	A	ON SITE	landed in scrub
09:35	RN	22/10/2020	3	1	A	ON SITE	foraging
09:40	LI	22/10/2020	3	1	A	ON SITE	foraging
09:45	S.	22/10/2020	2	1	A	ON SITE	flew south
09:50	RN	22/10/2020	3	1	B	ON SITE	flew west
10:05	H.	22/10/2020	1	1	B	ON SITE	foraging
10:10	RN	22/10/2020	3	1	B	ON SITE	flew east
10:20	D.	22/10/2020	2	1	A	BUFFER	foraging
10:35	LR	22/10/2020	1	1	B	ON SITE	foraging
10:35	RN	22/10/2020	2	1	C	ON SITE	flew northwest
10:45	LI	22/10/2020	2	1	B	ON SITE	foraging
10:50	BF	22/10/2020	2	1	A	ON SITE	flew west

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
10:50	RN	22/10/2020	3	1	B	ON SITE	foraging
10:55	CR	22/10/2020	2	1	B	ON SITE	flew south
10:55	LI	22/10/2020	2	1	B	ON SITE	flew north
11:00	K.	22/10/2020	1	1	A	ON SITE	flew south
11:05	RN	22/10/2020	2	1	C	ON SITE	foraging
11:10	RN	22/10/2020	6	1	B	ON SITE	aerial display
11:10	S.	22/10/2020	1	1	B	ON SITE	foraging
11:40	Y.	22/10/2020	1	2	A	ON SITE	flew west
11:45	BZ	22/10/2020	1	2	A	ON SITE	flew west
11:45	K.	22/10/2020	1	2	A	ON SITE	foraging
11:55	K.	22/10/2020	1	2	B	ON SITE	foraging
11:55	BF	22/10/2020	1	2	A	ON SITE	foraging
12:00	LI	22/10/2020	1	2	B	ON SITE	landed in plantation
12:00	RN	22/10/2020	3	2	B	ON SITE	flew south
12:10	LI	22/10/2020	3	2	B	ON SITE	foraging
12:10	S.	22/10/2020	1	2	A	ON SITE	flew south
12:15	RB	22/10/2020	1	2	A	ON SITE	flew south

Time	Species	Date	Count	VP	Flight Height band ¹²	Location	Notes
12:20	S.	22/10/2020	3	2	A	ON SITE	flew west
12:20	K.	22/10/2020	1	2	A	ON SITE	flew west
12:20	RN	22/10/2020	3	2	A	ON SITE	foraging
12:35	BZ	22/10/2020	2	2	B	ON SITE	foraging
12:35	BZ	22/10/2020	1	2	C	ON SITE	flew west
12:45	M.	22/10/2020	3	2	A	ON SITE	foraging
12:45	TO	22/10/2020	1	2	A	ON SITE	flew south
13:00	RN	22/10/2020	2	2	B	ON SITE	in plantation
13:15	K.	22/10/2020	1	2	A	ON SITE	foraging
13:40	BZ	22/10/2020	2	2	A	ON SITE	foragng
14:05	LR	22/10/2020	2	2	A	ON SITE	foraging
14:00	K.	22/10/2020	1	2	A	ON SITE	flew southeast
14:15	RN	22/10/2020	1	2	B	ON SITE	flew south

Table E7 Non-breeding season 2020 – Secondary species records

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
07:05	K.	06/11/2020	1	2	A	ON SITE	male
07:05	D.	06/11/2020	2	2	A	ON SITE	calling
07:10	M.	06/11/2020	3	2	A	ON SITE	calling
07:10	MP	06/11/2020	2	2	A	ON SITE	calling
07:15	W.	06/11/2020	42	2	B	ON SITE	flock heading east
07:40	W.	06/11/2020	56	2	B	ON SITE	another big flock heading se
07:50	FF	06/11/2020	27	2	A	ON SITE	flock behind vp2
07:55	RN	06/11/2020	3	2	B	ON SITE	over moor/valley
08:10	FF	06/11/2020	15	2	S	ON SITE	behind vp
08:20	RB	06/11/2020	2	2	S	ON SITE	
08:20	K.	06/11/2020	2	2	BA	ON SITE	2k male and female fighting mid air before landing by pond
08:25	RE	06/11/2020	7	2	A	ON SITE	behind vp
08:50	LR	06/11/2020	2	2	A	ON SITE	over vp
09:00	LR	06/11/2020	7	2	A	ON SITE	

¹³ Flight height band refers to the height at which the bird was recorded: A = 0-10m; B = 10-50m; C = 50-150m; D = 150m- 200m; E =>200m.

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
09:00	SK	06/11/2020	5	2	A	ON SITE	
09:00	RE	06/11/2020	12	2	A	ON SITE	
09:00	SG	06/11/2020	22	2	A	ON SITE	
09:00	BL	06/11/2020	1	2	A	ON SITE	
09:40	BZ	06/11/2020	2	2	B	ON SITE	present throughout
10:20	RN	06/11/2020	4	1	AB	ON SITE	over moor
10:30	ST	06/11/2020	1	1	B	ON SITE	
10:40	RN	06/11/2020	5	1	B	ON SITE	
10:50	SG	06/11/2020	4	1	B	ON SITE	
11:00	RE	06/11/2020	6	1	B	ON SITE	
11:00	K.	06/11/2020	1	1	B	ON SITE	
11:00	BZ	06/11/2020	2	1	B	ON SITE	
11:00	HG	06/11/2020	4	1	D	BEYOND	
11:00	LB	06/11/2020	2	1	D	BEYOND	
11:10	RE	06/11/2020	7	1	B	ON SITE	
11:30	GS	06/11/2020	1	1	B	ON SITE	
11:50	J.	06/11/2020	1	1	B	ON SITE	

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
11:55	BZ	06/11/2020	1	1	B	ON SITE	
09:00	BZ	12/11/2020	1	1	A	BUFFER	flying opposite vp calling
09:35	FF	12/11/2020	1	1	A	ON SITE	heard not seen close to vp
11:00	BZ	12/11/2020	3	1	A	ON SITE	one opposite vp - two calling/circling to south of vp
11:10	BZ	12/11/2020	1	1	A	BUFFER	circling over farm opposite vp
11:10	CR	12/11/2020	3	1	A	BUFFER	heard in valley
12:45	M.	12/11/2020	1	2	A	ON SITE	flew se across site
13:20	FF	12/11/2020	14	2	A	ON SITE	birds flying around solar farm
13:30	BZ	12/11/2020	1	2	A	ON SITE	south of farmhouse skirting over trees
13:35	BZ	12/11/2020	1	2	A	BUFFER	flying over plantation to w of vp
13:45	SH	12/11/2020	1	2	A	ON SITE	flew close to vp heading n female
13:50	BZ	12/11/2020	1	2	AB	BUFFER	hovering over plantation w of vp
14:05	M.	12/11/2020	1	2	A	BUFFER	along wall to s of vp
14:40	BZ	12/11/2020	1	2	A	ON SITE	close to vp over conifers
14:40	FF	12/11/2020	23	2	A	ON SITE	
14:40	SG	12/11/2020	5	2	A	ON SITE	mixed flock of ff near pond s of vp
15:20	BZ	12/11/2020	1	2	A	ON SITE	landed 200m w of vp

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
15:25	BZ	12/11/2020	2	2	AB	ON SITE	two birds west side of vp
07:40	BZ	26/11/2020	1	2	A	ON SITE	flying
07:40	FF	26/11/2020	9	2	B	ON SITE	heading west
07:40	RM	26/11/2020	2	2	A	ON SITE	flying
07:40	CH	26/11/2020	26	2	A	ON SITE	plantation
07:55	RN	26/11/2020	7	2	C	ON SITE	heading from west over moor
08:05	SK	26/11/2020	2	2	A	ON SITE	
08:10	RN	26/11/2020	6	2	B	ON SITE	
08:20	SG	26/11/2020	12	2	B	ON SITE	
08:25	WN	26/11/2020	4	2	A	ON SITE	2 males 2 females on pond
08:50	K.	26/11/2020	1	2	A	ON SITE	male perched in tree . flew hunting west
11:00	T.	26/11/2020	2	2	A	ON SITE	male and female on pond with wn
11:00	J.	26/11/2020	3	2	A	ON SITE	plantation
11:00	SG	26/11/2020	27	2	A	ON SITE	on pasture west
11:10	SK	26/11/2020	7	2	A	ON SITE	
11:15	LR	26/11/2020	5	2	A	ON SITE	
11:20	WP	26/11/2020	122	2	C	BEYOND	flying north in one flock

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
11:25	FF	26/11/2020	31	2	C	ON SITE	over moor east
11:25	WP	26/11/2020	60	2	C	ON SITE	heading east one flock
11:30	S.	26/11/2020	2	2	A	ON SITE	
11:30	D.	26/11/2020	1	2	A	ON SITE	
11:30	SK	26/11/2020	2	2	A	ON SITE	
12:15	RN	26/11/2020	9	1	B	ON SITE	over moor
12:30	WP	26/11/2020	139	1	D	BEYOND	2 flocks heading ne beyond viewshed
12:40	BZ	26/11/2020	5	1	C	BEYOND	flying over farm 3+km beyond vp
12:50	SG	26/11/2020	2	1	A	ON SITE	in tree south of vp
12:55	SK	26/11/2020	3	1	A	ON SITE	over vp
13:20	RN	26/11/2020	7	1	B	ON SITE	
14:15	ST	26/11/2020	1	1	A	ON SITE	n of vp
14:30	SG	26/11/2020	9	1	B	ON SITE	
15:00	HG	26/11/2020	6	1	AB	ON SITE	flushed by kt over farm
08:20	CA	04/12/2020	1	1	C	ON SITE	flying south
08:20	LR	04/12/2020	1	1	A	ON SITE	flew over vp1 to west
09:40	BZ	04/12/2020	1	1	B	ON SITE	flew further eas ltv in trees

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
10:30	BF	04/12/2020	1	1	A	ON SITE	flew north over vp1, male
11:30	SG	04/12/2020	21	2	A	ON SITE	next to pond flying towards solar park
11:55	BZ	04/12/2020	1	2	B	ON SITE	east of vp 2 flew south
12:00	SG	04/12/2020	50	2	A	ON SITE	landed next to pond
12:00	BZ	04/12/2020	1	2	A	ON SITE	flying east
12:00	SG	04/12/2020	35	2	A	ON SITE	landed east of vp2
12:50	SG	04/12/2020	30	2	A	ON SITE	landed east of vp2
13:15	SG	04/12/2020	30	2	A	ON SITE	disturbed by hh male
08:35	BZ	09/12/2020	1	2	A	ON SITE	bz sat on fence post at top of solar farm
08:45	SG	09/12/2020	6	2	A	ON SITE	small flock in trees on n end of solar farm
08:55	SG	09/12/2020	25	2	A	ON SITE	more starlings joined flock on trees as above
09:05	M.	09/12/2020	1	2	A	ON SITE	flew from e-w
09:10	BZ	09/12/2020	1	2	AB	BUFFER	circling over plantation to w of vp >1km away
11:05	SG	09/12/2020	1	2	A	ON SITE	flying along fence heading n to west of vp
12:05	D.	09/12/2020	1	1	A	BUFFER	d in front of vp bracken
12:25	BZ	09/12/2020	1	1	A	ON SITE	bz in valley in front n of vp
12:45	BZ	09/12/2020	1	1	A	BUFFER	flying across valley from e-w

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
13:20	D.	09/12/2020	1	1	A	BUFFER	as above
13:55	BZ	09/12/2020	1	1	A	BUFFER	calling from valley
14:15	SH	09/12/2020	1	1	A	ON SITE	flew along e side of valley along tree tops female
14:50	BZ	09/12/2020	1	1	A	ON SITE	flying along hedge tree line immediately s of vp
09:05	BZ	06/01/2021	1	1	B	ON SITE	circling se of vp
10:40	BZ	06/01/2021	2	1	B	ON SITE	
11:00	BZ	06/01/2021	2	1	B	ON SITE	
11:35	BZ	06/01/2021	3	1	B	ON SITE	
08:20	SK	11/01/2021	3	2	A	ON SITE	plantation calling
08:20	LR	11/01/2021	2	2	A	ON SITE	over vp calling
08:30	SH	11/01/2021	1	2	A	ON SITE	female hunting along plantation heading west
08:45	RN	11/01/2021	2	2	B	ON SITE	
08:45	SG	11/01/2021	34	2	A	ON SITE	feeding on pasture west of vp
08:50	L.	11/01/2021	1	2	A	BUFFER	heard behind vp. not sure on numbers
09:10	K.	11/01/2021	1	2	B	ON SITE	dived from high above vp and hovered briefly in front of vp
09:55	H.	11/01/2021	1	2	A	ON SITE	across moor landing on ponds probably
10:10	RN	11/01/2021	3	2	A	BUFFER	behind vp cronking

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
10:30	HG	11/01/2021	4	2	C	BEYOND	in valley se of vp circling
10:30	LB	11/01/2021	1	2	C	BEYOND	in valley se of vp circling
11:00	HG	11/01/2021	5	2	C	BEYOND	circling in valley s sw of vp
11:45	RN	11/01/2021	2	1	B	ON SITE	over valley circling
12:00	RN	11/01/2021	7	1	AB	ON SITE	3 flying over valley 4 from over hill crest
12:20	KT	11/01/2021	1	1	A	ON SITE	roosting in tree by farm buildings. see * on field map
13:05	RE	11/01/2021	1	1	A	ON SITE	over vp calling
13:40	LB	11/01/2021	2	1	B	BEYOND	over cemetery heading west
09:30	M.	12/01/2021	1	1	A	BUFFER	singing in plantation
09:35	HG	12/01/2021	4	1	C	BEYOND	circling high above radio tower
09:35	LB	12/01/2021	3	1	C	BEYOND	circling high above radio tower
09:50	RN	12/01/2021	2	1	A	ON SITE	2 cronking on other side of valley
09:55	RN	12/01/2021	2	1	B	BUFFER	displaying/chasing over valley
09:55	BZ	12/01/2021	1	1	A	BUFFER	calling in valley/plantation
10:10	RE	12/01/2021	7	1	A	ON SITE	feeding south of vp
10:10	SG	12/01/2021	6	1	A	ON SITE	feeding south of vp
10:15	BZ	12/01/2021	2	1	A	BUFFER	one perched in plantation. one calling + flyinbg low along plantation

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
10:15	J.	12/01/2021	1	1	A	BUFFER	calling from plantation
10:15	G.	12/01/2021	1	1	A	BUFFER	calling from solar farm
11:05	SK	12/01/2021	2	1	A	ON SITE	over vp
11:15	D.	12/01/2021	2	1	A	ON SITE	calling close to vp
11:35	RB	12/01/2021	1	1	A	ON SITE	over vp
12:00	D.	12/01/2021	1	1	A	ON SITE	calling below vp
12:00	LB	12/01/2021	1	1	C	BEYOND	flying nw
12:10	BF	12/01/2021	2	1	A	ON SITE	min 2 sounded like more in flight south of vp
13:00	FF	12/01/2021	7	2	A	ON SITE	feeding on pasture west of vp
13:00	RE	12/01/2021	12	2	A	ON SITE	feeding on pasture west of vp
13:15	SK	12/01/2021	1	2	A	ON SITE	flying n west of vp
15:00	SG	12/01/2021	75	2	A	ON SITE	feeding on pasture west of vp
15:00	RE	12/01/2021	30	2	A	ON SITE	feeding on pasture west of vp
15:00	FF	12/01/2021	17	2	A	ON SITE	feeding on pasture west of vp
15:15	M.	12/01/2021	1	2	A	ON SITE	singing close to solar farm
15:15	SK	12/01/2021	1	2	A	ON SITE	heard calling west of vp
15:35	LE	12/01/2021	1	2	A	BUFFER	calling west of vp in plantation heard 3 times faintly. see * on field maps

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
15:40	FF	12/01/2021	22	2	A	ON SITE	ff flew in from n different to ones @1500
08:10	RN	22/01/2021	3	1	B	ON SITE	flying over valley calling
08:10	BF	22/01/2021	1	1	A	ON SITE	calling south of vp
08:10	GS	22/01/2021	1	1	A	BUFFER	calling from valley
08:15	SK	22/01/2021	1	1	A	BUFFER	calling behind vp
08:20	RN	22/01/2021	5	1	A	ON SITE	4 over moor calling. one in tree south over vp
08:35	RN	22/01/2021	1	1	A	BUFFER	displaying + cronking in valley
08:35	BZ	22/01/2021	1	1	A	BUFFER	calling behind vp
08:45	RE	22/01/2021	1	1	A	BUFFER	in tree by solar farm
08:50	SK	22/01/2021	2	1	A	ON SITE	over vp
08:55	M.	22/01/2021	2	1	A	ON SITE	1 rattling over vp 1 singing below in valley
09:00	S.	22/01/2021	2	1	A	ON SITE	over vp calling
09:00	M.	22/01/2021	2	1	A	BUFFER	over valley
09:05	KT	22/01/2021	1	1	A	ON SITE	calling on otherside of valley unsure of location
09:05	S.	22/01/2021	4	1	A	ON SITE	on moor flying
09:05	RN	22/01/2021	6	1	A	ON SITE	all across moor pair chasing one another
09:10	BZ	22/01/2021	1	1	A	ON SITE	calling north vp

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
09:10	LI	22/01/2021	3	1	A	ON SITE	over vp
10:10	S.	22/01/2021	2	1	A	BUFFER	over valley
10:10	RN	22/01/2021	7	1	B	ON SITE	flying over valley throughout
10:30	Y.	22/01/2021	1	1	A	ON SITE	over vp calling 1 since autumn
10:35	S.	22/01/2021	1	1	B	BUFFER	heading n. over valley
10:40	ST	22/01/2021	1	1	A	ON SITE	n of vp
10:40	M.	22/01/2021	2	1	A	ON SITE	flying over moor
11:35	RN	22/01/2021	3	2	A	ON SITE	w. of vp
11:35	BF	22/01/2021	1	2	A	ON SITE	calling south of vp
11:35	S.	22/01/2021	1	2	A	ON SITE	calling south of vp
11:45	BF	22/01/2021	1	2	A	ON SITE	calling west of vp
11:45	SC	22/01/2021	1	2	A	ON SITE	calling south of vp
11:45	BZ	22/01/2021	2	2	C	BEYOND	2 bz circling where kt were previous survey
12:00	BZ	22/01/2021	1	2	A	ON SITE	soaring low and then landed in tree
12:00	S.	22/01/2021	1	2	A	ON SITE	e-w past vp
12:30	L.	22/01/2021	250	2	C	BEYOND	large flock around 3.5km w from vp
12:35	BZ	22/01/2021	1	2	A	ON SITE	low e-w past vp

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
13:00	BF	22/01/2021	2	2	A	ON SITE	at least two calling behind vp
13:25	BZ	22/01/2021	1	2	A	ON SITE	pechred on post w of vp
10:05	S.	28/01/2021	1	2	A	ON SITE	flew to plantation
10:10	S.	28/01/2021	7	2	A	ON SITE	flew to plantation
10:40	BZ	28/01/2021	1	2	C	ON SITE	height b at start abd dropped down after 3 minutes
10:45	BZ	28/01/2021	1	2	A	ON SITE	on stone wall
10:55	BZ	28/01/2021	1	2	B	ON SITE	flew west over solar farm
12:30	BZ	28/01/2021	1	1	C	ON SITE	dropped into wood then hill opposite vp1 after
12:35	BZ	28/01/2021	1	1	C	ON SITE	ltv after 5 minutes
12:45	BZ	28/01/2021	1	1	A	ON SITE	flew over trees woodland
13:00	H.	28/01/2021	1	1	B	ON SITE	flew nw over woodland and ridge
08:20	RN	15/02/2021	4	1	B	ON SITE	calling
08:20	S.	15/02/2021	2	1	B	ON SITE	over vp
08:25	BZ	15/02/2021	1	1	A	BUFFER	calling in valley
08:25	SK	15/02/2021	2	1	A	ON SITE	over vp flock
08:45	RN	15/02/2021	3	1	B	ON SITE	over vp
09:15	S.	15/02/2021	3	1	B	ON SITE	w over vp

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
09:15	FF	15/02/2021	5	1	B	ON SITE	south
09:30	M.	15/02/2021	1	1	A	BUFFER	singing in valley
10:00	M.	15/02/2021	1	1	A	ON SITE	alarm calling next to vp
10:05	RN	15/02/2021	6	1	A	ON SITE	on moor
10:10	S.	15/02/2021	5	1	B	ON SITE	over moor
10:15	H.	15/02/2021	1	1	A	ON SITE	flushed off ponds on moor
10:20	J.	15/02/2021	1	1	A	BUFFER	alarm calling from woodland
10:25	D.	15/02/2021	2	1	A	ON SITE	one calling and one singing
10:30	H.	15/02/2021	3	1	B	ON SITE	3 landed on ponds
10:45	RB	15/02/2021	1	1	A	ON SITE	calling behind vp
11:00	GS	15/02/2021	1	1	A	ON SITE	calling in tree n of vp
11:35	S	15/02/2021	30	2	A	ON SITE	feeding +fluing around fields in front of vp
11:35	SG	15/02/2021	17	2	B	ON SITE	over vp
11:35	M.	15/02/2021	1	2	A	ON SITE	singing
11:35	D.	15/02/2021	1	2	A	ON SITE	calling
11:35	RN	15/02/2021	4	2	B	ON SITE	flying over moor
11:45	ST	15/02/2021	1	2	B	ON SITE	

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
11:45	WL	15/02/2021	1	2	A	ON SITE	briefly hard in song. not seen
12:10	S.	15/02/2021	3	2	B	ON SITE	singing
12:15	ST	15/02/2021	1	2	A	ON SITE	
12:20	HG	15/02/2021	2	2	B	BUFFER	
12:30	H.	15/02/2021	1	2	B	ON SITE	
12:35	SG	15/02/2021	15	2	A	ON SITE	
12:40	LI	15/02/2021	2	2	A	ON SITE	
12:40	HG	15/02/2021	1	2	B	ON SITE	
13:00	BZ	15/02/2021	1	2	A	ON SITE	flew + landed in tree
13:20	RN	15/02/2021	4	2	A	ON SITE	
13:30	S	15/02/2021	5	2	A	ON SITE	
13:30	LR	15/02/2021	2	2	B	ON SITE	
13:30	D.	15/02/2021	1	2	A	ON SITE	
13:40	M	15/02/2021	1	2	A	ON SITE	
13:40	BZ	15/02/2021	3	2	C	BEYOND	circling togther beyond moor
10:05	RN	18/02/2021	12	2	A	ON SITE	
10:10	RN	18/02/2021	12	2	A	ON SITE	

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
10:15	RN	18/02/2021	12	2	A	ON SITE	
10:20	RN	18/02/2021	12	2	A	ON SITE	
10:25	RN	18/02/2021	12	2	A	ON SITE	
10:30	RN	18/02/2021	12	2	A	ON SITE	
10:35	RN	18/02/2021	12	2	A	ON SITE	
10:35	M.	18/02/2021	1	2	A	ON SITE	
10:35	S	18/02/2021	6	2	A	ON SITE	
10:40	S	18/02/2021	10	2	A	ON SITE	
10:40	RN	18/02/2021	6	2	A	ON SITE	
10:40	BZ	18/02/2021	1	2	A	ON SITE	
10:45	RN	18/02/2021	6	2	A	ON SITE	
10:45	S	18/02/2021	10	2	A	ON SITE	
10:50	RN	18/02/2021	5	2	A	ON SITE	
10:50	S	18/02/2021	5	2	A	ON SITE	
10:55	RN	18/02/2021	5	2	A	ON SITE	
10:55	S	18/02/2021	5	2	A	ON SITE	
11:00	RN	18/02/2021	4	2	A	ON SITE	

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
11:05	S	18/02/2021	5	2	A	ON SITE	
11:05	RN	18/02/2021	3	2	A	ON SITE	
11:10	S	18/02/2021	3	2	A	ON SITE	
11:15	RN	18/02/2021	4	2	A	ON SITE	
11:15	RN	18/02/2021	6	2	A	ON SITE	
11:20	S	18/02/2021	40	2	A	ON SITE	
11:20	RN	18/02/2021	6	2	A	ON SITE	
11:25	S	18/02/2021	12	2	A	ON SITE	
11:25	RN	18/02/2021	15	2	A	ON SITE	
11:25	C.	18/02/2021	43	2	A	ON SITE	
11:40	BZ	18/02/2021	1	2	A	ON SITE	
11:45	BZ	18/02/2021	1	2	C	ON SITE	
11:50	BZ	18/02/2021	1	2	B	ON SITE	
11:55	BZ	18/02/2021	1	2	B	ON SITE	
11:55	RN	18/02/2021	8	2	A	ON SITE	
12:00	BZ	18/02/2021	1	2	A	ON SITE	
12:00	RN	18/02/2021	8	2	A	ON SITE	

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
12:10	BZ	18/02/2021	1	2	B	ON SITE	
12:15	RN	18/02/2021	6	2	A	ON SITE	
12:15	BZ	18/02/2021	1	2	B	ON SITE	
12:25	RN	18/02/2021	8	2	A	ON SITE	
12:25	BZ	18/02/2021	1	2	B	ON SITE	
12:35	WN	18/02/2021	8	2	A	ON SITE	
12:35	RN	18/02/2021	5	2	A	ON SITE	
12:40	WN	18/02/2021	8	2	A	ON SITE	
12:45	WN	18/02/2021	8	2	A	ON SITE	
13:30	RN	18/02/2021	3	1	A	ON SITE	
13:45	BZ	18/02/2021	1	1	B	ON SITE	
13:45	BZ	18/02/2021	1	1	A	ON SITE	
14:00	RN	18/02/2021	8	1	A	ON SITE	
14:00	S	18/02/2021	15	1	A	ON SITE	
14:00	M	18/02/2021	1	1	A	ON SITE	
14:15	RN	18/02/2021	16	1	A	ON SITE	
14:15	C.	18/02/2021	48	1	A	ON SITE	

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
14:15	S	18/02/2021	15	1	A	ON SITE	
14:30	BZ	18/02/2021	1	1	B	ON SITE	
14:35	BZ	18/02/2021	1	1	B	ON SITE	
14:35	RN	18/02/2021	3	1	A	ON SITE	
14:50	RN	18/02/2021	6	1	A	ON SITE	
15:10	BZ	18/02/2021	1	1	B	ON SITE	
15:10	RN	18/02/2021	6	1	A	ON SITE	
15:25	BZ	18/02/2021	1	1	A	ON SITE	
15:25	RN	18/02/2021	4	1	A	ON SITE	
15:30	RN	18/02/2021	4	1	A	ON SITE	
15:45	RN	18/02/2021	5	1	A	ON SITE	
15:50	BZ	18/02/2021	1	1	B	ON SITE	
15:50	RN	18/02/2021	6	1	A	ON SITE	
16:00	BZ	18/02/2021	1	1	B	ON SITE	
16:10	BZ	18/02/2021	1	1	B	ON SITE	
10:10	RN	25/02/2021	12	1	B	ON SITE	circling valley
10:20	ST	25/02/2021	1	1	A	ON SITE	singing

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
10:25	BZ	25/02/2021	1	1	B	BUFFER	over valley into woodland
10:30	SG	25/02/2021	21	1	A	ON SITE	on moor feeding
10:35	S.	25/02/2021	7	1	A	ON SITE	on moor 3 singing
10:50	RN	25/02/2021	34	1	AB	ON SITE/BUFFER	all flying over moor
10:55	LI	25/02/2021	3	1	AB	ON SITE	over vp
11:00	BZ	25/02/2021	1	1	B	ON SITE	over moor
11:20	BZ	25/02/2021	3	1	B	ON SITE	over moor
11:25	RN	25/02/2021	36	1	B	ON SITE	over moor
11:30	M.	25/02/2021	1	1	B	ON SITE	over vp
11:35	SH	25/02/2021	1	1	A	ON SITE	male over vp low and into solar farm
13:25	RN	25/02/2021	21	2	AB	ON SITE	on moor or flying
13:30	S.	25/02/2021	23	2	A	ON SITE	flock on recently cleared scrub
13:30	SC	25/02/2021	4	2	A	ON SITE	calling/singing
13:30	SK	25/02/2021	2	2	A	ON SITE	calling
14:00	CR	25/02/2021	1	2	A	ON SITE	calling west of vp
14:00	BZ	25/02/2021	2	2	B	ON SITE	over moor

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
14:30	HG	25/02/2021	3	2	C	BEYOND	
14:35	BZ	25/02/2021	5	2	C	BEYOND	circling over valley
15:00	SC	25/02/2021	2	2	A	ON SITE	
15:10	ST	25/02/2021	1	2	A	ON SITE	
15:10	LI	25/02/2021	3	2	A	ON SITE	over vp
15:40	SG	25/02/2021	12	2	A	ON SITE	feeding by pools
08:15	S.	26/02/2021	7	2	A	ON SITE	4 singing
08:15	SC	26/02/2021	2	2	A	ON SITE	singing
08:15	RN	26/02/2021	8	2	A	ON SITE	on moor
08:15	LI	26/02/2021	2	2	A	ON SITE	over vp
08:15	SK	26/02/2021	2	2	A	ON SITE	singing
08:15	ST	26/02/2021	1	2	A	ON SITE	singing
09:00	LI	26/02/2021	2	2	A	ON SITE	over vp
09:10	HG	26/02/2021	1	2	B	ON SITE	
09:10	LB	26/02/2021	2	2	B	ON SITE	
09:10	S.	26/02/2021	14	2	A	ON SITE	feeding on recently ploughed field
09:15	SK	26/02/2021	4	2	A	ON SITE	chasing each other in plantation

Time	Species	Date	Count	VP	Flight Height band ¹³	Location	Notes
09:15	BF	26/02/2021	2	2	A	ON SITE	two calling in plantation
09:15	KT	26/02/2021	1	2	A	ON SITE	2nd bird roosting in tree
09:45	M.	26/02/2021	1	2	A	ON SITE	alarm calling behind vp
09:45	D.	26/02/2021	1	2	A	ON SITE	feeding on plantation
09:50	LR	26/02/2021	2	2	A	ON SITE	over vp west
09:55	LI	26/02/2021	1	2	A	ON SITE	over vp
10:00	BZ	26/02/2021	3	2	C	ON SITE	circling valley west of vp

Table E8 Incidental records of target species 2020

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band	Time at PCH (10-150m) for flight seconds	Total flight time at PCH in seconds	Notes
Inci_CBC_001	GI	26/03/20			1				Female
Inci_CBC_004	GI	08/04/20	09:36		2	B			Pair
Inci_CBC_005	GI	08/04/20	09:38		1				Female, food
Inci_CBC_006	GI	08/04/20	10:08		1				Female, LTV

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band	Time at PCH (10-150m) for flight seconds	Total flight time at PCH in seconds	Notes
Inci_CBC_002	KT	12/04/20							
Inci_CBC_003	KT	12/04/20							
Inci_CBC_007	GI	20/04/20	10:45		1				Female
Inci_CBC_008	GI	20/04/20	11:30		1				Male
Inci_CBC_009	GI	20/04/20			1				Male
Inci_CBC_010	KT	20/04/20			1				
Inci_CBC_011	GI	21/04/20			1				Female
Inci_CBC_012	KT	21/04/20			1	A			
Inci_CBC_014	KT	12/05/20			1				Flew over hilltop then down E flank of hill
Inci_CBC_015	KT	12/05/20			1				Kite interacted with other kite and flew fast (hunting) and flew away to perch, carrying food, landed in same area as kite seen on VP survey
Inci_CBC_016	KT	12/05/20			1				
Inci_CBC_017	KT	12/05/20			1				Mobbed by C.
Inci_CBC_018	KT	12/05/20			1				
Inci_CBC_019	KT	12/05/20			1				

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band	Time at PCH (10-150m) for flight seconds	Total flight time at PCH in seconds	Notes
Inci_CBC_013	KT	14/05/20			1				Flew along treetops along valley
Inci_CBC_025	KT	28/05/20	10:50		1				Along edge of hill
Inci_CBC_026	PE	28/05/20			2	B			Pair, male flew northwest
Inci_CBC_020	KT	29/05/20	08:36		1				Circling behind conifer plantation
Inci_CBC_021	KT	29/05/20	08:59		1				Circling approx. 20m over ground level - headed S
Inci_CBC_022	KT	29/05/20	09:44		1				Low over trees
Inci_CBC_023	KT	29/05/20			1	B			
Inci_CBC_024	KT	29/05/20			1	D			
Inci_CBC_027	KT	09/06/20	10:14		1				Flying low over southern tip of site
Inci_CBC_028	GI	10/06/20			1				Female
Inci_CBC_029	KT	10/06/20	01:38		1				Flying low over valley
Inci_NJ_001	HY	16/07/20	20:56		1				Male

Table E9 Breeding season 2021-2022 – Target species flight data

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁴	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁵ at PCH in seconds	Notes
CF_VP1_0001	GI	05/03/21	09:16	1	1	B	90	90	male ltv
CF_VP1_0002A	KT	05/03/21	10:03	1	1	B	30	30	foraging
CF_VP1_0002B	KT	05/03/21	10:03	1	1	A	0	0	foraging
CF_VP1_0003	KT	05/03/21	10:09	1	2	B	285	570	
CF_VP1_0004A	KT	05/03/21	10:14	1	1	B	30	30	bird from flight 3
CF_VP1_0004B	KT	05/03/21	10:14	1	1	C	120	120	bird from flight 3
CF_VP1_0004C	KT	05/03/21	10:16	1	1	B	30	30	bird from flight 3
CF_VP1_0004D	KT	05/03/21	10:17	1	1	A	0	0	bird from flight 3
CF_VP1_0005A	KT	05/03/21	10:14	1	1	B	45	45	other bird flight 3
CF_VP1_0005B	KT	05/03/21	10:14	1	1	A	0	0	other bird flight 3
CF_VP1_0006	KT	05/03/21	10:22	1	4	B	105	420	foraging
CF_VP1_0007A	KT	05/03/21	10:58	1	1	B	45	45	foraging

¹⁴ Flight height band refers to the height at which the bird was recorded: A = 0-10m; B = 10-50m; C = 50-150m; D = 150m- 200m; E =>200m.

¹⁵ Total flight time is calculated by multiplying time at PCH by number of individual birds involved in the flight. E.g., 10 GP for 15 seconds would equal 150 seconds Total flight time.

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁴	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁵ at PCH in seconds	Notes
CF_VP1_0007B	KT	05/03/21	10:58	1	1	C	60	60	foraging
CF_VP1_0007C	KT	05/03/21	10:59	1	1	B	30	30	foraging
CF_VP1_0008	KT	05/03/21	11:04	1	1	B	60	60	foraging
CF_VP1_0009A	KT	05/03/21	11:23	1	1	B	45	45	joined by other kt
CF_VP1_0009B	KT	05/03/21	11:23	1	1	C	45	45	joined by other kt
CF_VP1_0009C	KT	05/03/21	11:24	1	1	B	60	60	joined by other kt
CF_VP1_0010	KT	05/03/21	11:25	1	2	B	90	180	ltv landscape
CF_VP1_0011	KT	05/03/21	11:27	1	1	B	120	120	ltv landscape
CF_VP2_0012A	KT	05/03/21	12:26	2	1	B	1050	1050	foraging
CF_VP2_0012B	KT	05/03/21	12:43	2	1	A	0	0	foraging
CF_VP2_0013A	KT	05/03/21	12:53	2	2	A	0	0	foraging
CF_VP2_0013B	KT	05/03/21	12:53	2	2	B	555	1110	foraging
CF_VP2_0013C	KT	05/03/21	13:02	2	2	A	0	0	foraging
CF_VP2_0014	KT	05/03/21	13:22	2	1	A	0	0	foraging
CF_VP2_0015A	KT	05/03/21	13:41	2	1	A	0	0	foraging

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁴	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁵ at PCH in seconds	Notes
CF_VP2_0015B	KT	05/03/21	13:41	2	1	B	645	645	foraging
CF_VP2_0015C	KT	05/03/21	13:52	2	1	A	0	0	landed
CF_VP2_0016A	KT	05/03/21	14:33	2	1	A	0	0	ltv
CF_VP2_0016B	KT	05/03/21	14:33	2	1	B	690	690	ltv
CF_VP2_0017A	KT	08/03/21	09:35	2	2	D	165	330	ltv
CF_VP2_0017B	KT	08/03/21	09:37	2	2	C	30	60	ltv
CF_VP2_0017C	KT	08/03/21	09:38	2	2	B	30	60	ltv
CF_VP2_0018	KT	08/03/21	09:47	2	1	B	30	30	ltv
CF_VP2_0019A	KT	08/03/21	10:04	2	1	B	45	45	ltv
CF_VP2_0019B	KT	08/03/21	10:04	2	1	C	30	30	ltv
CF_VP2_0019C	KT	08/03/21	10:05	2	1	D	60	60	ltv
CF_VP2_0019D	KT	08/03/21	10:06	2	1	C	90	90	ltv
CF_VP2_0021A	KT	08/03/21	10:54	2	1	B	15	15	ltv
CF_VP2_0021B	KT	08/03/21	10:54	2	1	C	195	195	ltv
CF_VP2_0021C	KT	08/03/21	10:57	2	1	B	75	75	ltv

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁴	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁵ at PCH in seconds	Notes
CF_VP2_0021D	KT	08/03/21	10:58	2	1	A	0	0	ltv
CF_VP2_0022A	KT	08/03/21	11:32	2	1	B	90	90	ltv
CF_VP2_0022B	KT	08/03/21	11:33	2	1	A	0	0	ltv
CF_VP2_0023A	KT	08/03/21	11:50	2	1	B	30	30	ltv
CF_VP2_0023b	KT	08/03/21	11:50	2	1	A	0	0	ltv
CF_VP2_0024A	KT	08/03/21	12:00	2	1	B	30	30	ltv
CF_VP2_0024B	KT	08/03/21	12:00	2	1	C	75	75	ltv
CF_VP2_0024C	KT	08/03/21	12:01	2	1	B	15	15	ltv
CF_VP2_0024D	KT	08/03/21	12:02	2	1	A	0	0	ltv
CF_VP1_0025	KT	08/03/21	12:46	1	1	A	0	0	ltv
CF_VP1_0026A	KT	08/03/21	12:10	1	1	B	75	75	ltv
CF_VP1_0026B	KT	08/03/21	12:11	1	1	C	135	135	ltv
CF_VP1_0026C	KT	08/03/21	12:13	1	1	B	30	30	ltv
CF_VP1_0027	PE	08/03/21	13:56	1	2	D	58	116	ltv
CF_VP1_0028A	KT	08/03/21	14:11	1	1	B	30	30	ltv

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁴	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁵ at PCH in seconds	Notes
CF_VP1_0028B	KT	08/03/21	14:11	1	1	A	0	0	ltv
CF_VP1_0028C	KT	08/03/21	14:12	1	1	B	15	15	ltv
CF_VP1_0028D	KT	08/03/21	14:12	1	1	C	75	75	ltv
CF_VP1_0028E	KT	08/03/21	14:13	1	1	B	15	15	ltv
CF_VP1_0029A	KT	08/03/21	14:21	1	1	B	30	30	ltv
CF_VP1_0029B	KT	08/03/21	14:21	1	1	A	0	0	ltv
CF_VP1_0030	KT	08/03/21	14:34	1	1	B	30	30	ltv
CF_VP1_0079B	GI	08/03/21	14:34	1	1	B	45	45	male ltv
CF_VP1_0079A	GI	08/03/21	14:34	1	1	A	0	0	male ltv
CF_VP1_0031A	KT	08/03/21	14:42	1	1	A	0	0	ltv
CF_VP1_0031B	KT	08/03/21	14:42	1	1	B	45	45	ltv
CF_VP1_0031C	KT	08/03/21	14:43	1	1	A	0	0	ltv
CF_VP1_0032A	KT	08/03/21	15:14	1	1	B	30	30	with bz
CF_VP1_0032B	KT	08/03/21	15:14	1	1	C	75	75	with bz

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁴	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁵ at PCH in seconds	Notes
CF_VP2_0033	KT	1504202 1	1050	2	1	B	135	135	moving slowly
CF_VP2_0034	KT	1504202 1	1134	2	1	B	60	60	circled woodland
CF_VP2_0035	GI	1504202 1	1152	2	1	A	0	0	hunting male
CF_VP2_0036	ML	25/05/21	14:15	2	1	A	0	0	flew ne-sw
CF_VP2_0037	ML	25/05/21	18:09	2	1	A	0	0	flew low over field
CF_VP2_0040A	KT	09/07/21	11:52	2	1	A	0	0	foraging
CF_VP2_0040B	KT	09/07/21	11:55	2	1	B	75	75	foraging
CF_VP2_0040C	KT	09/07/21	11:56	2	1	A	0	0	foraging
CF_VP2_0040D	KT	09/07/21	11:58	2	1	B	210	210	foraging
CF_VP2_0040E	KT	09/07/21	1201	2	1	A	0	0	foraging
CF_VP1_0041	GI	23/07/21	1120	1	1	B	135	135	female with kill
CF_VP1_0042	KT	28/06/21	925	2	1	B	45	45	flew from the west
CF_VP2_0045C	GI	24/08/21	1241	2	1	A	0	0	fem ltv
CF_VP1_0032C	KT	08/03/21	1515	1	1	B	1	1	with bz

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁴	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁵ at PCH in seconds	Notes
CF_VP2_0045B	GI	24/08/21	1239	2	1	B	37	37	fem flew over farm

Table E10 Non-breeding season 2021-2022 – Target species flight data

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁶	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁷ at PCH in seconds	Notes
CF_VP2_0044	KT	22/09/21	07:45	2	1	A	30	0	0
CF_VP2_0045A	PE	22/09/21	09:35	0	1	B	15	15	15
CF_VP2_0045B	PE	22/09/21	09:35	2	1	A	15	0	0
CF_VP2_0046A	HZ	22/09/21	09:51	2	1	C	210	210	210
CF_VP2_0046B	HZ	22/09/21	09:54	2	1	B	45	45	45
CF_VP2_0047	GI	22/09/21	09:53	2	1	B	15	15	15
CF_VP2_0049	KT	22/09/21	10:20	2	1	B	30	30	30
CF_VP1_0050A	KT	22/09/21	12:46	1	1	B	135	135	135
CF_VP1_0050B	KT	22/09/21	12:48	1	1	C	120	120	120

¹⁶ Flight height band refers to the height at which the bird was recorded: A = 0-10m; B = 10-50m; C = 50-150m; D = 150m- 200m; E =>200m.

¹⁷ Total flight time is calculated by multiplying time at PCH by number of individual birds involved in the flight. E.g., 10 GP for 15 seconds would equal 150 seconds Total flight time.

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band¹⁶	Time at PCH (10-150m) for flight seconds	Total flight time¹⁷ at PCH in seconds	Notes
CF_VP1_0050C	KT	22/09/21	12:50	1	1	D	180	0	0
CF_VP1_0050D	KT	22/09/21	12:53	1	1	C	45	45	45
CF_VP1_0051	KT	29/09/21	10:01	1	1	B	75	75	75
CF_VP1_0052A	KT	29/09/21	10:03	1	1	B	45	45	45
CF_VP1_0053	KT	29/09/21	10:08	1	1	A	45	0	0
CF_VP1_0054	KT	29/09/21	10:40	1	1	B	15	15	15
CF_VP2_0055	KT	29/09/21	12:28	2	1	C	30	30	30
CF_VP2_0056	PE	29/09/21	12:44	2	1	B	15	15	15
CF_VP2_0057	PE	29/09/21	12:44	2	1	B	15	15	15
CF_VP1_0058A	GI	01/10/21	10:11	1	1	B	45	45	45
CF_VP1_0058B	GI	01/10/21	10:11	1	1	A	15	0	0
CF_VP1_0060	GI	01/10/21	10:45	1	1	B	15	15	15
CF_VP1_0059	GI	01/10/21	10:40	1	1	B	15	15	15
CF_VP1_0061A	KT	01/10/21	11:20	1	1	B	90	90	90
CF_VP1_0061B	KT	01/10/21	11:21	1	1	C	30	30	30

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁶	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁷ at PCH in seconds	Notes
CF_VP1_0061C	KT	01/10/21	11:22	1	1	B	180	180	180
CF_VP1_0062	KT	16/11/21	07:30	1	1	A	15	0	0
CF_VP1_0063	KT	16/11/21	07:53	1	1	A	15	0	0
CF_VP1_0064	KT	16/11/21	07:54	1	1	A	15	0	0
CF_VP1_0065	KT	16/11/21	08:15	1	1	B	45	45	45
CF_VP2_0067	GP	17/11/21	08:40	2	1	B	15	15	15
CF_VP2_0068	T.	17/11/21	08:28	2	12	A	15	0	0
CF_VP2_0069	T.	17/11/21	11:20	2	12	A	15	0	0
CF_VP2_0070	KT	17/11/21	12:54	2	1	A	60	0	0
CF_VP2_0071	KT	17/11/21	13:21	2	1	A	75	0	0
CF_VP2_0072A	T.	17/11/21	13:22	2	12	A	15	0	0
CF_VP2_0072B	T.	17/11/21	13:22	2	12	B	15	15	180
CF_VP1_0072C	T.	17/11/21	13:22	2	12	A	15	0	0
CF_VP1_0073A	GI	03/12/21	10:11	1	1	B	30	30	30
CF_VP2_0073B	GI	03/12/21	10:11	1	1	A	75	0	0

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁶	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁷ at PCH in seconds	Notes
CF_VP1_0074	KT	05/01/22	11:26	1	1	B	240	240	240
CF_VP1_0075	KT	05/01/22	11:26	1	1	B	180	180	180
CF_VP1_0076A	KT	05/01/22	13:19	1	1	B	45	45	45
CF_VP1_0076B	KT	05/01/22	13:19	1	1	C	15	15	15
CF_VP1_0076C	KT	05/01/22	13:20	1	1	B	15	15	15
CF_VP1_0076D	KT	05/01/22	13:20	1	1	A	15	0	0
CF_VP2_0077	KT	20/01/22	10:46	2	1	A	360	0	0
CF_VP2_0078A	PE	20/01/22	12:20	2	1	D	150	0	0
CF_VP2_0078B	PE	20/01/22	12:22	2	1	C	15	15	15
CF_VP2_0078C	PE	20/01/22	12:22	2	1	B	15	15	15
CF_VP2_0080A	PE	20/01/22	12:41	2	1	D	135	0	0
CF_VP2_0080B	PE	20/01/22	12:43	2	1	C	15	15	15
CF_VP2_0081A	GI	20/01/22	12:58	2	1	D	360	0	0
CF_VP2_0081B	GI	20/01/22	13:04	2	1	C	15	15	15
CF_VP2_0082	KT	20/01/22	15:20	2	1	A	15	0	0

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band¹⁶	Time at PCH (10-150m) for flight seconds	Total flight time¹⁷ at PCH in seconds	Notes
CF_VP2_0083	KT	20/01/22	15:26	2	1	A	240	0	0
CF_VP2_0083	KT	20/01/22	15:26	2	1	A	240	0	0
CF_VP1_0084	GI	02/02/22	11:52	1	1	B	460	460	460
CF_VP1_0085	GI	02/02/22	12:09	1	1	B	120	120	120
CF_VP1_0086A	KT	02/02/22	12:41	1	1	A	120	0	0
CF_VP1_0086B	KT	02/02/22	12:41	1	1	B	180	180	180
CF_VP1_0086C	KT	02/02/22	12:45	1	1	A	150	0	0
CF_VP1_0052B	KT	29/09/21	10:03	1	1	A	60	0	0
CF_VP1_0050B	KT	22/09/21	12:48	1	1	C	120	120	120
CF_VP2_0048A	KT	22/09/21	09:59	2	1	B	360	360	360
CF_VP2_0048B	KT	22/09/21	10:03	2	1	A	60	0	0
CF_VP1_066	GI	16/11/21	11:09	1	1	A	30	0	0
CF_VP2_0087	GI	01/03/22	08:40	2	1	B	75	75	75
CF_VP2_0088	KT	01/03/22	09:15	2	1	A	30	0	0
CF_VP2_0089	KT	01/03/22	09:35	2	1	A	45	0	0

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁶	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁷ at PCH in seconds	Notes
CF_VP2_0090	KT	01/03/22	10:07	2	1	B	15	15	15
CF_VP2_0091	KT	01/03/22	10:27	2	1	B	600	600	600
CF_VP2_0092A	KT	01/03/22	10:52	2	1	A	30	0	0
CF_VP2_0092B	KT	01/03/22	10:53	2	1	B	195	195	195
CF_VP2_0092C	KT	01/03/22	10:55	2	1	A	30	0	0
CF_VP2_0093	KT	01/03/22	11:01	2	1	A	120	0	0
CF_VP2_0094A	KT	01/03/22	11:06	2	1	A	15	0	0
CF_VP2_0094B	KT	01/03/22	11:06	2	1	B	75	75	75
CF_VP2_0095A	GI	01/03/22	11:18	2	1	A	15	0	0
CF_VP2_0095B	GI	01/03/22	11:18	2	1	B	45	45	45
CF_VP2_0096	KT	01/03/22	11:38	2	1	A	15	0	0
CF_VP2_0097	KT	01/03/22	11:52	2	3	B	15	15	45
CF_VP2_0098	KT	01/03/22	12:40	2	1	A	15	0	0
CF_VP2_0099	KT	01/03/22	12:48	2	1	C	135	135	135
CF_VP2_0100	KT	01/03/22	12:48	2	1	B	75	75	75

Flight reference number	Species	Date	Time	VP	No. birds	Flight Height band ¹⁶	Time at PCH (10-150m) for flight seconds	Total flight time ¹⁷ at PCH in seconds	Notes
CF_VP2_0101A	KT	01/03/22	13:26	2	1	B	90	90	90
CF_VP2_0101B	KT	01/03/22	13:27	2	1	C	60	60	60

Table E11 Breeding season 2021 – Secondary species

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
09:00	RN	05/03/2021	26	1	B	ON SITE	thermallling
09:10	RN	05/03/2021	36	1	B	ON SITE	thermallling
09:15	BZ	05/03/2021	2	1	B	ON SITE	foraging
09:40	BZ	05/03/2021	2	1	B	ON SITE	foraging
09:40	BZ	05/03/2021	1	1	C	BUFFER	foraging
10:15	LB	05/03/2021	1	1	C	BUFFER	
10:20	LI	05/03/2021	1	1	C	ON SITE	flew west
10:15	BZ	05/03/2021	3	1	B	ON SITE	foraging
09:55	RN	05/03/2021	34	1	B	ON SITE	foraging

¹⁸ Flight height band refers to the height at which the bird was recorded: A = 0-10m; B = 10-50m; C = 50-150m; D = 150m- 200m; E =>200m.

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
11:00	RN	05/03/2021	26	1	B	ON SITE	
13:00	S.	05/03/2021	5	2	A	ON SITE	foraging
13:30	SH	05/03/2021	1	2	A	ON SITE	foraging female
13:30	RN	05/03/2021	6	2	A	ON SITE	foraging
14:45	RN	05/03/2021	1	2	B	ON SITE	flew west
15:00	BZ	05/03/2021	2	2	C	ON SITE	foraging
09:15	S.	08/03/2021	2	2	BC	ON SITE	singing
09:25	S.	08/03/2021	1	2	BC	ON SITE	singing
09:25	ST	08/03/2021	1	2		ON SITE	singing
09:35	ST	08/03/2021	1	2		ON SITE	singing
09:35	S	08/03/2021	2	2	BC	ON SITE	singing
09:35	CR	08/03/2021	4	2	B	ON SITE	flying
09:40	S	08/03/2021	1	2	B	ON SITE	singing
09:45	CR	08/03/2021	4	2	B	ON SITE	flying
09:45	S	08/03/2021	1	2	B	ON SITE	singing
09:55	ST	08/03/2021	1	2		ON SITE	foraging
10:00	BZ	08/03/2021	1	2	C	BUFFER	flying

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
10:05	BZ	08/03/2021	1	2	B	ON SITE	flying
10:15	H.	08/03/2021	1	2	B	ON SITE	flying
10:20	S	08/03/2021	1	2	B	ON SITE	singing
10:35	BZ	08/03/2021	1	2	B	ON SITE	flying
10:35	BZ	08/03/2021	1	2	C	BUFFER	flying
10:45	S	08/03/2021	1	2	C	ON SITE	singing
10:50	BZ	08/03/2021	1	2	C	BUFFER	flying
11:20	BZ	08/03/2021	1	2	C	BUFFER	flying
11:40	M.	08/03/2021	1	2		ON SITE	foraging
11:45	BZ	08/03/2021	1	2	D	ON SITE	flying
11:50	BZ	08/03/2021	1	2	C	BUFFER	flying
12:00	BZ	08/03/2021	3	2	C	BUFFER	flying
12:00	RN	08/03/2021	24	2	C	ON SITE	flying
12:05	BZ	08/03/2021	3	2	C	BUFFER	flying
12:45	BZ	08/03/2021	1	1	A	ON SITE	flying
12:50	BZ	08/03/2021	1	1	A	ON SITE	flying
12:55	BZ	08/03/2021	2	1	AB	ON SITE	flying

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
13:15	BZ	08/03/2021	1	1	A	BUFFER	flying
13:30	BZ	08/03/2021	1	1	B	BEYOND	flying
13:50	BZ	08/03/2021	2	1	D	BEYOND	flying
14:20	BZ	08/03/2021	1	1	C	BUFFER	flying
14:30	BZ	08/03/2021	2	1	C	BUFFER	flying
14:35	BZ	08/03/2021	6	1	D	ON SITE	flying
14:45	BZ	08/03/2021	2	1	AB	ON SITE	flying
14:55	BZ	08/03/2021	1	1	BC	ON SITE	flying
15:00	BZ	08/03/2021	1	1	B	ON SITE	flying
15:10	BZ	08/03/2021	1	1	BC	BUFFER	flying
15:30	LR	08/03/2021	2	1	A	ON SITE	flying
15:35	BZ	08/03/2021	1	1	B	ON SITE	flying
08:45	BZ	14/04/2021	2	1	B	ON SITE	
09:55	BZ	14/04/2021	1	1	B	ON SITE	
08:25	BZ	14/04/2021	1	1	B	ON SITE	
10:25	BZ	14/04/2021	1	2	B	ON SITE	
11:05	RN	14/04/2021	34	2	B	ON SITE	

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
11:10	BZ	14/04/2021	1	2	B	ON SITE	
11:20	BZ	14/04/2021	1	2	B	ON SITE	
11:45	BZ	14/04/2021	1	2	B	ON SITE	
12:00	BZ	14/04/2021	1	2	B	ON SITE	
12:05	BZ	14/04/2021	1	2	B	ON SITE	
12:05	BZ	14/04/2021	1	2	B	ON SITE	
12:05	BZ	14/04/2021	1	2	C	BUFFER	
12:20	BZ	14/04/2021	2	2	C	ON SITE	
12:25	BZ	14/04/2021	6	2	B	ON SITE	
12:45	BZ	14/04/2021	2	2	B	ON SITE	
13:50	BZ	14/04/2021	4	2	B	ON SITE	
14:20	CK	27/04/2021	1	2	A	ON SITE	singing
14:30	ST	27/04/2021	1	2	A	ON SITE	flying
14:40	BZ	27/04/2021	1	2	B	ON SITE	flying
15:25	ST	27/04/2021	1	2	A	ON SITE	singing
15:30	ST	27/04/2021	1	2	A	ON SITE	singing
15:35	ST	27/04/2021	1	2	A	ON SITE	singing

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
16:05	MA	27/04/2021	2	2	A	ON SITE	flying
17:40	CK	27/04/2021	1	1	A	ON SITE	singing
17:45	ST	27/04/2021	1	1	A	ON SITE	flying
18:10	CK	27/04/2021	1	1	A	ON SITE	singing
18:30	CK	27/04/2021	1	1	A	ON SITE	singing
18:45	ST	27/04/2021	1	1	A	ON SITE	singing
19:25	MA	27/04/2021	1	1	A	ON SITE	flying
19:30	CK	27/04/2021	1	1	A	BUFFER	singing
14:45	S	25/05/2021	1	2	A	ON SITE	flight display
15:20	CK	25/05/2021	1	2	A	ON SITE	singing
15:25	ST	25/05/2021	1	2	A	BUFFER	singing
15:35	CK	25/05/2021	1	2	A	ON SITE	singing
15:45	RN	25/05/2021	1	2	A	ON SITE	flying
16:25	HG	25/05/2021	1	2	B	ON SITE	flying
16:50	RN	25/05/2021	1	2	A	ON SITE	flying
17:30	S	25/05/2021	1	2	B	BUFFER	singing
17:45	CK	25/05/2021	1	2	A	ON SITE	singing

Time	Species	Date	Count	VP	Flight Height band¹⁸	Location	Notes
17:45	RN	25/05/2021	1	2	A	ON SITE	flying
17:50	CK	25/05/2021	1	2	A	ON SITE	singing
18:00	CK	25/05/2021	1	2	A	ON SITE	singing
19:00	MA	25/05/2021	3	2	A	ON SITE	flying
20:00	LB	25/05/2021	2	2	B	ON SITE	flying
20:15	CK	25/05/2021	1	2	A	ON SITE	singing
14:10	BZ	05/06/2021	1	1	B	ON SITE	flying
14:25	RN	05/06/2021	1	1	B	ON SITE	flying
14:55	BZ	05/06/2021	1	1	B	ON SITE	flying
15:00	BZ	05/06/2021	2	1	D	ON SITE	flying
15:15	BZ	05/06/2021	1	1	A	ON SITE	flying
15:30	BZ	05/06/2021	1	1	B	ON SITE	flying
17:55	MA	05/06/2021	1	1	B	ON SITE	flying
18:10	BZ	05/06/2021	1	1	BC	ON SITE	flying
18:55	HG	05/06/2021	2	1	CD	ON SITE	flying
18:55	MA	05/06/2021	3	1	C	ON SITE	flying
19:50	HG	05/06/2021	1	1	B	ON SITE	flying

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
19:55	H.	05/06/2021	1	1	C	ON SITE	flying
05:30	RN	07/06/2021	1	1	A	ON SITE	in valley
05:30	BZ	07/06/2021	1	1	A	ON SITE	flying
06:15	TP	07/06/2021	1	1	A	ON SITE	singing by vp
06:30	RN	07/06/2021	1	1	A	ON SITE	calling
06:55	TP	07/06/2021	1	1	A	ON SITE	singing
07:30	RN	07/06/2021	2	1	A	ON SITE	calling
07:40	RN	07/06/2021	2	1	A	ON SITE	calling
07:55	RN	07/06/2021	1	1	A	ON SITE	calling
08:00	TP	07/06/2021	1	1	A	ON SITE	singing
08:20	RN	07/06/2021	1	1	A	ON SITE	calling
09:00	RN	07/06/2021	1	1	A	ON SITE	calling
09:20	H.	07/06/2021	1	1	B	ON SITE	flying
09:45	TP	07/06/2021	1	1	A	ON SITE	singing
10:00	BZ	07/06/2021	1	1	A	ON SITE	flying
10:00	BZ	07/06/2021	1	1	C	ON SITE	flying
10:55	BZ	07/06/2021	1	1	A	ON SITE	flying

Time	Species	Date	Count	VP	Flight Height band¹⁸	Location	Notes
11:05	BZ	07/06/2021	1	1	A	ON SITE	flying
11:05	BZ	07/06/2021	2	1	A	ON SITE	flying
11:20	BZ	07/06/2021	1	1	B	ON SITE	flying
08:40	D	28/06/2021	1	2	A	ON SITE	flying
08:55	ST	28/06/2021	1	2	A	ON SITE	flying
09:25	D.	28/06/2021	1	2	A	ON SITE	flying
09:30	S.	28/06/2021	1	2	B	ON SITE	singing
10:05	S.	28/06/2021	1	2	B	ON SITE	flying
10:10	D.	28/06/2021	1	2	A	ON SITE	singing
10:50	S.	28/06/2021	1	2	A	ON SITE	flying
09:00	RN	05/03/2021	26	1	B	ON SITE	thermalling
09:10	RN	05/03/2021	36	1	B	ON SITE	thermalling
09:15	BZ	05/03/2021	2	1	B	ON SITE	foraging
09:40	BZ	05/03/2021	2	1	B	ON SITE	foraging
09:40	BZ	05/03/2021	1	1	C	BUFFER	foraging
10:15	LB	05/03/2021	1	1	C	BUFFER	
10:20	LI	05/03/2021	1	1	C	ON SITE	flew west

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
10:15	BZ	05/03/2021	3	1	B	ON SITE	foraging
09:55	RN	05/03/2021	34	1	B	ON SITE	foraging
11:00	RN	05/03/2021	26	1	B	ON SITE	
13:00	S.	05/03/2021	5	2	A	ON SITE	foraging
13:30	SH	05/03/2021	1	2	A	ON SITE	foraging female
13:30	RN	05/03/2021	6	2	A	ON SITE	foraging
14:45	RN	05/03/2021	1	2	B	ON SITE	flew west
15:00	BZ	05/03/2021	2	2	C	ON SITE	foraging
09:15	S.	08/03/2021	2	2	BC	ON SITE	singing
09:25	S.	08/03/2021	1	2	BC	ON SITE	singing
09:25	ST	08/03/2021	1	2		ON SITE	singing
09:35	ST	08/03/2021	1	2		ON SITE	singing
09:35	S	08/03/2021	2	2	BC	ON SITE	singing
09:35	CR	08/03/2021	4	2	B	ON SITE	flying
09:40	S	08/03/2021	1	2	B	ON SITE	singing
09:45	CR	08/03/2021	4	2	B	ON SITE	flying
09:45	S	08/03/2021	1	2	B	ON SITE	singing

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
09:55	ST	08/03/2021	1	2		ON SITE	foraging
10:00	BZ	08/03/2021	1	2	C	BUFFER	flying
10:05	BZ	08/03/2021	1	2	B	ON SITE	flying
10:15	H.	08/03/2021	1	2	B	ON SITE	flying
10:20	S	08/03/2021	1	2	B	ON SITE	singing
10:35	BZ	08/03/2021	1	2	B	ON SITE	flying
10:35	BZ	08/03/2021	1	2	C	BUFFER	flying
10:45	S	08/03/2021	1	2	C	ON SITE	singing
10:50	BZ	08/03/2021	1	2	C	BUFFER	flying
11:20	BZ	08/03/2021	1	2	C	BUFFER	flying
11:40	M.	08/03/2021	1	2		ON SITE	foraging
11:45	BZ	08/03/2021	1	2	D	ON SITE	flying
11:50	BZ	08/03/2021	1	2	C	BUFFER	flying
12:00	BZ	08/03/2021	3	2	C	BUFFER	flying
12:00	RN	08/03/2021	24	2	C	ON SITE	flying
12:05	BZ	08/03/2021	3	2	C	BUFFER	flying
12:45	BZ	08/03/2021	1	1	A	ON SITE	flying

Time	Species	Date	Count	VP	Flight Height band¹⁸	Location	Notes
12:50	BZ	08/03/2021	1	1	A	ON SITE	flying
12:55	BZ	08/03/2021	2	1	AB	ON SITE	flying
13:15	BZ	08/03/2021	1	1	A	BUFFER	flying
13:30	BZ	08/03/2021	1	1	B	BEYOND	flying
13:50	BZ	08/03/2021	2	1	D	BEYOND	flying
14:20	BZ	08/03/2021	1	1	C	BUFFER	flying
14:30	BZ	08/03/2021	2	1	C	BUFFER	flying
14:35	BZ	08/03/2021	6	1	D	ON SITE	flying
14:45	BZ	08/03/2021	2	1	AB	ON SITE	flying
14:55	BZ	08/03/2021	1	1	BC	ON SITE	flying
15:00	BZ	08/03/2021	1	1	B	ON SITE	flying
15:10	BZ	08/03/2021	1	1	BC	BUFFER	flying
15:30	LR	08/03/2021	2	1	A	ON SITE	flying
15:35	BZ	08/03/2021	1	1	B	ON SITE	flying
08:45	BZ	14/04/2021	2	1	B	ON SITE	
09:55	BZ	14/04/2021	1	1	B	ON SITE	
08:25	BZ	14/04/2021	1	1	B	ON SITE	

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
10:25	BZ	14/04/2021	1	2	B	ON SITE	
11:05	RN	14/04/2021	34	2	B	ON SITE	
11:10	BZ	14/04/2021	1	2	B	ON SITE	
11:20	BZ	14/04/2021	1	2	B	ON SITE	
11:45	BZ	14/04/2021	1	2	B	ON SITE	
12:00	BZ	14/04/2021	1	2	B	ON SITE	
12:05	BZ	14/04/2021	1	2	B	ON SITE	
12:05	BZ	14/04/2021	1	2	B	ON SITE	
12:05	BZ	14/04/2021	1	2	C	BUFFER	
12:20	BZ	14/04/2021	2	2	C	ON SITE	
12:25	BZ	14/04/2021	6	2	B	ON SITE	
12:45	BZ	14/04/2021	2	2	B	ON SITE	
13:50	BZ	14/04/2021	4	2	B	ON SITE	
14:20	CK	27/04/2021	1	2	A	ON SITE	singing
14:30	ST	27/04/2021	1	2	A	ON SITE	flying
14:40	BZ	27/04/2021	1	2	B	ON SITE	flying
15:25	ST	27/04/2021	1	2	A	ON SITE	singing

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
15:30	ST	27/04/2021	1	2	A	ON SITE	singing
15:35	ST	27/04/2021	1	2	A	ON SITE	singing
16:05	MA	27/04/2021	2	2	A	ON SITE	flying
17:40	CK	27/04/2021	1	1	A	ON SITE	singing
17:45	ST	27/04/2021	1	1	A	ON SITE	flying
18:10	CK	27/04/2021	1	1	A	ON SITE	singing
18:30	CK	27/04/2021	1	1	A	ON SITE	singing
18:45	ST	27/04/2021	1	1	A	ON SITE	singing
19:25	MA	27/04/2021	1	1	A	ON SITE	flying
19:30	CK	27/04/2021	1	1	A	BUFFER	singing
14:45	S	25/05/2021	1	2	A	ON SITE	flight display
15:20	CK	25/05/2021	1	2	A	ON SITE	singing
15:25	ST	25/05/2021	1	2	A	BUFFER	singing
15:35	CK	25/05/2021	1	2	A	ON SITE	singing
15:45	RN	25/05/2021	1	2	A	ON SITE	flying
16:25	HG	25/05/2021	1	2	B	ON SITE	flying
16:50	RN	25/05/2021	1	2	A	ON SITE	flying

Time	Species	Date	Count	VP	Flight Height band¹⁸	Location	Notes
17:30	S	25/05/2021	1	2	B	BUFFER	singing
17:45	CK	25/05/2021	1	2	A	ON SITE	singing
17:45	RN	25/05/2021	1	2	A	ON SITE	flying
17:50	CK	25/05/2021	1	2	A	ON SITE	singing
18:00	CK	25/05/2021	1	2	A	ON SITE	singing
19:00	MA	25/05/2021	3	2	A	ON SITE	flying
20:00	LB	25/05/2021	2	2	B	ON SITE	flying
20:15	CK	25/05/2021	1	2	A	ON SITE	singing
14:10	BZ	05/06/2021	1	1	B	ON SITE	flying
14:25	RN	05/06/2021	1	1	B	ON SITE	flying
14:55	BZ	05/06/2021	1	1	B	ON SITE	flying
15:00	BZ	05/06/2021	2	1	D	ON SITE	flying
15:15	BZ	05/06/2021	1	1	A	ON SITE	flying
15:30	BZ	05/06/2021	1	1	B	ON SITE	flying
17:55	MA	05/06/2021	1	1	B	ON SITE	flying
18:10	BZ	05/06/2021	1	1	BC	ON SITE	flying
18:55	HG	05/06/2021	2	1	CD	ON SITE	flying

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
18:55	MA	05/06/2021	3	1	C	ON SITE	flying
19:50	HG	05/06/2021	1	1	B	ON SITE	flying
19:55	H.	05/06/2021	1	1	C	ON SITE	flying
05:30	RN	07/06/2021	1	1	A	ON SITE	in valley
05:30	BZ	07/06/2021	1	1	A	ON SITE	flying
06:15	TP	07/06/2021	1	1	A	ON SITE	singing by vp
06:30	RN	07/06/2021	1	1	A	ON SITE	calling
06:55	TP	07/06/2021	1	1	A	ON SITE	singing
07:30	RN	07/06/2021	2	1	A	ON SITE	calling
07:40	RN	07/06/2021	2	1	A	ON SITE	calling
07:55	RN	07/06/2021	1	1	A	ON SITE	calling
08:00	TP	07/06/2021	1	1	A	ON SITE	singing
08:20	RN	07/06/2021	1	1	A	ON SITE	calling
09:00	RN	07/06/2021	1	1	A	ON SITE	calling
09:20	H.	07/06/2021	1	1	B	ON SITE	flying
09:45	TP	07/06/2021	1	1	A	ON SITE	singing
10:00	BZ	07/06/2021	1	1	A	ON SITE	flying

Time	Species	Date	Count	VP	Flight Height band ¹⁸	Location	Notes
10:00	BZ	07/06/2021	1	1	C	ON SITE	flying
10:55	BZ	07/06/2021	1	1	A	ON SITE	flying
11:05	BZ	07/06/2021	1	1	A	ON SITE	flying
11:05	BZ	07/06/2021	2	1	A	ON SITE	flying
11:20	BZ	07/06/2021	1	1	B	ON SITE	flying
08:40	D	28/06/2021	1	2	A	ON SITE	flying
08:55	ST	28/06/2021	1	2	A	ON SITE	flying
09:25	D.	28/06/2021	1	2	A	ON SITE	flying
09:30	S.	28/06/2021	1	2	B	ON SITE	singing
10:05	S.	28/06/2021	1	2	B	ON SITE	flying
10:10	D.	28/06/2021	1	2	A	ON SITE	singing
10:50	S.	28/06/2021	1	2	A	ON SITE	flying

Table E12 Post-breeding and migratory season 2021 – Secondary species

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
09:55	D.	01/07/2021	1	2	A	ON SITE	flying

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
10:20	S.	01/07/2021	1	2	A	ON SITE	singing
10:20	ST	01/07/2021	1	2	A	ON SITE	singing
11:50	S.	01/07/2021	1	2	A	ON SITE	singing
06:30	HM	09/07/2021	4	1	B	ON SITE	hawking
06:30	TP	09/07/2021	2	1	A	ON SITE	singing
06:30	ST	09/07/2021	1	1	A	ON SITE	calling
06:30	S.	09/07/2021	3	1	B	ON SITE	singing
06:30	BZ	09/07/2021	2	1	A	ON SITE	flying
06:45	LB	09/07/2021	1	1	C	ON SITE	flying
06:50	NJ	09/07/2021	1	1	A	BUFFER	churring briefly in valley
06:50	LB	09/07/2021	1	1	D	BEYOND	flying
07:00	RN	09/07/2021	4	1	B	ON SITE	flying
07:10	ST	09/07/2021	2	1	A	ON SITE	adult +juv
07:10	SC	09/07/2021	1	1	A	ON SITE	juv
07:10	SM	09/07/2021	2	1	C	ON SITE	flying

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
07:15	SG	09/07/2021	3	1	B	ON SITE	flying
07:40	SC	09/07/2021	3	1	A	ON SITE	all juv
08:00	BZ	09/07/2021	1	1	A	ON SITE	roosting
08:00	SI	09/07/2021	4	1	B	ON SITE	hawking
08:10	M.	09/07/2021	6	1	A	ON SITE	family group including 4 juv
08:10	LB	09/07/2021	1	1	B	ON SITE	flying
08:15	Y.	09/07/2021	1	1	A	ON SITE	nesting in usual spot below vp
08:20	ST	09/07/2021	2	1	A	ON SITE	adult +juv
08:20	RT	09/07/2021	1	1	A	ON SITE	juv
08:20	SL	09/07/2021	2	1	A	ON SITE	adult +juv
08:25	RN	09/07/2021	2	1	B	ON SITE	flying
08:25	HG	09/07/2021	4	1	C	BUFFER	flying
08:25	TP	09/07/2021	1	1	A	ON SITE	flying
08:45	HM	09/07/2021	16	1	C	ON SITE	flying
08:45	BZ	09/07/2021	2	1	C	BEYOND	flying

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
08:45	WO	09/07/2021	1	1	A	BUFFER	feeding
08:45	SM	09/07/2021	10	1	C	ON SITE	feeding
09:00	LB	09/07/2021	1	1	C	BUFFER	flying
09:15	LI	09/07/2021	2	1	A	ON SITE	flying
09:15	LI	09/07/2021	2	1	A	ON SITE	flying
09:15	LI	09/07/2021	2	1	A	ON SITE	flying
09:45	M.	09/07/2021	4	2	A	ON SITE	family group including 3 juv
09:45	ST	09/07/2021	1	2	A	ON SITE	singing
09:45	S.	09/07/2021	3	2	B	ON SITE	singing
09:45	RN	09/07/2021	4	2	B	ON SITE	flying
09:45	SC	09/07/2021	5	2	A	ON SITE	family group including 3 juv
10:30	RN	09/07/2021	4	2	A	ON SITE	flying
10:30	BZ	09/07/2021	1	2	B	ON SITE	calling
12:30	LB	09/07/2021	1	2	A	ON SITE	flying
06:30	M.	23/07/2021	15	2	A	ON SITE	2x family groups

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
06:30	RN	23/07/2021	6	2	A	ON SITE	perched on fence
06:30	SC	23/07/2021	3	2	A	ON SITE	family group 2 juv
06:30	LI	23/07/2021	1	2	A	ON SITE	singing
06:30	ST	23/07/2021	1	2	A	ON SITE	calling
07:35	S.	23/07/2021	12	2	A	ON SITE	large group feeding
08:00	HM	23/07/2021	4	2	B	Buffer	feeding in valley
08:20	HM	23/07/2021	2	2	B	ON SITE	feeding
08:20	SL	23/07/2021	1	2	B	ON SITE	feeding
08:35	PF	23/07/2021	1	2	A	ON SITE	female in plantation
08:35	SI	23/07/2021	1	2	B	ON SITE	flying
08:40	SL	23/07/2021	9	2	B	ON SITE	feeding in valley
08:40	HM	23/07/2021	6	2		ON SITE	feeding in valley
09:15	D.	23/07/2021	1	2		ON SITE	in plantation

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
09:15	WW	23/07/2021	1	2		ON SITE	in plantation
09:30	LB	23/07/2021	1	2	D	BUFFER	flying
09:45	BZ	23/07/2021	2	1	B	BUFFER	in valley
09:45	HM	23/07/2021	20	1	C	BUFFER	in valley
10:00	SI	23/07/2021	2	1	c	BUFFER	in valley
10:05	RN	23/07/2021	4	1	B	BUFFER	in valley
10:10	TP	23/07/2021	2	1	A	BUFFER	in valley
10:30	RN	23/07/2021	8	1	A	BUFFER	on moor
10:30	HM	23/07/2021	25	1	C	BUFFER	in valley
10:30	SL	23/07/2021	12	1	c	BUFFER	in valley
10:30	SI	23/07/2021	6	1	D	BUFFER	flying
10:40	TP	23/07/2021	1	1	A	BUFFER	with food
11:34	Y.	23/07/2021	1	1	A	BUFFER	with food
11:44	BZ	23/07/2021	2	1	B	BUFFER	in valley
12:19	LB	23/07/2021	1	1	C	BUFFER	flying
09:30	ST	19/08/2021	2	2	A	On site	

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
09:40	S.	19/08/2021	2	2	A	On site	
09:45	RN	19/08/2021	2	2	B	On site	flying over moor
09:50	RN	19/08/2021	1	2	B	On site	flying over moor, 3rd bird
09:55	RN	19/08/2021	4	2	B	On site	flying around
10:10	RN	19/08/2021	24	2	A	On site	feeding on dead sheep
10:15	BZ	19/08/2021	1	2	B	On site	circling and calling
10:15	RN	19/08/2021	2	2	B	On site	flying towards moor
10:40	S.	19/08/2021	2	2	A	On site	
11:10	RN	19/08/2021	2	2	B	On site	flying over vp towards moor
11:15	S.	19/08/2021	1	2	A	On site	calling
11:35	BZ	19/08/2021	1	2	B	On site	calling
12:20	RN	19/08/2021	2	2	B	On site	flying towards moor
13:00	RN	19/08/2021	36	1	A	On site	17 on the ground and 19 flying low over hill. rn on site during whole survey
13:05	BZ	19/08/2021	1	1	B	On site	circling and calling

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
13:15	LR	19/08/2021	1	1	A	On site	flying over vp to w,calling
13:25	SG	19/08/2021	14	1	B	On site	flying over to e
13:40	BZ	19/08/2021	1	1	A	On site	low over hill
13:45	RN	19/08/2021	21	1	AB	On site	circling in belt
13:45	BZ	19/08/2021	1	1	B	On site	circling, 2nd bird
13:50	RN	19/08/2021	28	1	AB	On site	circling in belt
14:20	LR	19/08/2021	2	1	A	On site	flying over vp to w,calling
14:35	BZ	19/08/2021	1	1	A	On site	calling from valley
15:15	RN	19/08/2021	44	1	AB	On site	37circling in belt and 7 on ground
15:30	LB	19/08/2021	2	1	C	On site	flying w
14:40	BZ	19/08/2021	1	1	A	On site	calling from valley
14:45	BZ	19/08/2021	1	1	A	On site	calling from valley
06:35	RN	24/08/2021	29	1	B	ON SITE	on moor
07:15	BZ	24/08/2021	2	1	A	BUFFER	in valley calling

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
07:25	SG	24/08/2021	15	1	A	BUFFER	over vp
07:25	TP	24/08/2021	1	1		BUFFER	in valley calling
08:20	TP	24/08/2021	1	1	A	ON SITE	above vp
08:30	Y.	24/08/2021	1	1	A	ON SITE	over vp
08:55	HG	24/08/2021	1	1	C	Buffer	juv over valley
09:50	SC	24/08/2021	16	2	A	on site	several family groups
09:50	TP	24/08/2021	2	2	A	on site	
09:50	RN	24/08/2021	18	2	A	on site	on moor
10:05	BZ	24/08/2021	1	2	A	on site	over eastern plantation
10:05	LI	24/08/2021	11	2	A	on site	
10:15	HG	24/08/2021	2	2	D	beyond	circling near turbine
10:15	LB	24/08/2021	3	2	D	beyond	
11:05	RN	24/08/2021	1	2	B	on site	by vp
11:05	RN	24/08/2021	16	2	C	beyond	east of vp

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
11:45	SH	24/08/2021	1	2	B	on site	over farm
07:40	S.	22/09/2021	14	2	A	on site	feeding in turnip field
07:40	W.	22/09/2021	2	2	A	on site	on dry stone wall
08:15	S.	22/09/2021	24	2	A	on site	more joined the flock, total count
08:15	RN	22/09/2021	5	2	B	on site	flying over site present throughout
08:45	HG	22/09/2021	1	2	C	beyond	flying beyond eastern side of site
08:45	M.	22/09/2021	2	2	A	on site	alarm calling
08:50	RN	22/09/2021	10	2	C	on site	additional birds on site present throughout
09:40	LI	22/09/2021	5	2	A	on site	feeding in turnip field
10:00	BZ	22/09/2021	4	2	C	beyond	all thermalling together east of vp
10:40	LI	22/09/2021	30	2	A	on site	feeding in turnip field
10:50	BZ	22/09/2021	7	1	B	buffer	thermallling in valley in front of vp. probably different birds at vp2 very vocal and lots of fighting
10:50	RN	22/09/2021	16	1	B	buffer	thermallling present throughout

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
11:20	LI	22/09/2021	10	1	A	on site	over vp into solar farm
13:36	SG	22/09/2021	16	1	A	on site	roosting in tree on other side of valley
07:15	BZ	29/09/2021	4	1	B	Buffer	in valley calling
07:15	RN	29/09/2021	11	1	B	on site	on moor calling
07:15	S.	29/09/2021	4	1	A	on site	over moor
07:20	M.	29/09/2021	1	1	A	on site	over vp
07:25	LI	29/09/2021	3	1	A	on site	over vp
08:20	D.	29/09/2021	2	1	A	on site	calling by vp
08:20	S.	29/09/2021	2	1	A	on site	over vp
09:00	S.	29/09/2021	6	1	A	on site	over moor
09:00	RN	29/09/2021	9	1	A	on site	on moor calling
09:30	LI	29/09/2021	5	1	A	on site	over vp
09:30	CU	29/09/2021	1	1	C	on site	high east over vp
09:45	Y.	29/09/2021	1	1	A	on site	next to vp

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
11:00	S.	29/09/2021	3	2	A	on site	over vp
11:00	LI	29/09/2021	4	2	A	on site	over vp
11:15	BZ	29/09/2021	1	2	A	on site	foraging
11:15	LI	29/09/2021	45	2	A	on site	foraging
11:15	S.	29/09/2021	2	2	A	on site	over vp
12:00	BZ	29/09/2021	2	2	B	on site	foraging
12:30	K.	29/09/2021	1	2	C	beyond	over valley
13:45	SH	29/09/2021	1	2	A	on site	hunting low
07:15	RN	01/10/2021	6	1	A	on site	calling over moor
07:15	BZ	01/10/2021	1	1	A	on site	calling over moor
08:30	BZ	01/10/2021	2	1	A	on site	calling behind vp
08:30	RN	01/10/2021	11	1	B	on site	over moor
08:35	S.	01/10/2021	4	1	A	on site	calling over moor
08:45	S.	01/10/2021	2	1	A	on site	over moor
08:50	LI	01/10/2021	5	1	A	on site	over vp
08:50	H.	01/10/2021	1	1	B	on site	over vp

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
08:50	MA	01/10/2021	3	1	B	on site	over vp
09:00	HG	01/10/2021	1	1	C	beyond	over farmland
09:45	Y.	01/10/2021	3	1	A	on site	in solar farm
10:00	LI	01/10/2021	2	1	A	on site	in solar farm
10:00	D.	01/10/2021	1	1	A	on site	in solar farm
10:00	SC	01/10/2021	6	1	A	on site	in solar farm
10:00	S.	01/10/2021	4	1	A	on site	over vp
09:00	RN	29/10/2021	2	2	A	Onsite	2 rn on ground in front of vp
09:05	RN	29/10/2021	2	2	A	Onsite	2 rn on ground in front of vp
09:15	RN	29/10/2021	2	2	A	Onsite	2 rn on ground in front of vp
09:25	BZ	29/10/2021	1	2	B	Onsite	circling e of vp
09:30	RE	29/10/2021	1	2	B	Onsite	flew over vp to s
09:45	RN	29/10/2021	1	2	B	Onsite	flew w
09:45	RN	29/10/2021	1	2	C	Onsite	flew high to e

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
09:50	RN	29/10/2021	3	2	A	Onsite	e of vp
09:55	RE	29/10/2021	6	2	B	Onsite	flying over vp
10:35	RN	29/10/2021	2	2	A	Onsite	next to solar farm
10:40	S	29/10/2021	5	2	B	Onsite	flying n over plantation
10:50	CR	29/10/2021	1	2	A	Onsite	flew e over vp
11:05	RN	29/10/2021	2	2	B	Onsite	circling and calling
11:20	RN	29/10/2021	3	2	A	Onsite	in tree next to solar farm
11:25	G.	29/10/2021	1	2	A	Onsite	flew low to w in front of vp
11:25	BF	29/10/2021	1	2	A	Onsite	calling from plantation
11:25	RN	29/10/2021	2	2	B	Onsite	flew n over vp
11:40	CR	29/10/2021	4	2	A	Onsite	flew s over vp
11:45	MA	29/10/2021	5	2	B	Onsite	next to solar farm
11:50	MA	29/10/2021	5	2	B	Onsite	next to solar farm
12:00	RN	29/10/2021	1	2	A	Onsite	in tree

Time	Species	Date	Count	VP	Flight Height band	Location	Notes
12:20	RN	29/10/2021	3	2	B/C	Onsite	west of vp to south
12:20	SG	29/10/2021	3	2	A	Onsite	flew s over vp
12:55	BF	29/10/2021	1	2	A	Onsite	flew n over vp, male
13:00	RN	29/10/2021	2	2	B	Onsite	flew n over vp
14:05	RN	29/10/2021	1	2	B	Onsite	over solar farm
14:20	RN	29/10/2021	1	2	B	Onsite	over plantation
14:45	RN	29/10/2021	2	2	B	Onsite	circling over plantation

Table E13 Non-breeding 2021/2022 – Secondary species

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
07:30	RE	16/11/2021	34	1	A	On site	over valley
07:30	FF	16/11/2021	18	1	A	On site	
07:30	BL	16/11/2021	1	1	A	On site	calling in trees
07:30	D.	16/11/2021	1	1	A	On site	calling in bracken

¹⁹ Flight height band refers to the height at which the bird was recorded: A = 0-10m; B = 10-50m; C = 50-150m; D = 150m- 200m; E =>200m.

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
07:30	RN	16/11/2021	11	1	A	On site	on moor
07:45	SG	16/11/2021	40	1	A	On site	over farm
07:45	RN	16/11/2021	5	1	A	On site	on moor
07:45	BZ	16/11/2021	1	1	A	On site	
07:45	ST	16/11/2021	4	1	A	On site	over valley
08:00	S.	16/11/2021	5	1	A	On site	over moor
08:00	LR	16/11/2021	4	1	A	On site	in trees calling
08:00	D.	16/11/2021	1	1	A	On site	in bracken calling
08:30	M.	16/11/2021	3	1	A	On site	over valley
09:00	LB	16/11/2021	4	1	C	beyond	beyond viewshed
09:15	SG	16/11/2021	100	1	A	On site	over farmland
09:30	RE	16/11/2021	24	1	A	On site	in trees calling
09:30	FF	16/11/2021	20	1	A	On site	over valley
09:30	ST	16/11/2021	2	1	A	On site	in trees calling
10:00	S.	16/11/2021	6	1	A	On site	over moor
10:15	BZ	16/11/2021	2	1	A	On site	in trees calling

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
11:00	Y.	16/11/2021	1	1	A	On site	in trees calling
11:00	D.	16/11/2021	2	1	A	On site	in bracken calling
11:00	RE	16/11/2021	12	1	A	On site	over valley
11:00	ST	16/11/2021	2	1	A	On site	over valley
11:00	FF	16/11/2021	4	1	A	On site	over valley
11:05	LI	16/11/2021	2	1	A	On site	solar farm
11:15	FC	16/11/2021	1	1	A	On site	with tit flock in bracken
11:30	BZ	16/11/2021	4	1	B	On site	over valley in front of vp
11:30	RN	16/11/2021	8	1	B	On site	over valley
11:45	S.	16/11/2021	4	1	B	On site	over moor
11:45	SG	16/11/2021	16	1	B	On site	over moor
11:55	BL	16/11/2021	1	1	B	On site	calling in trees
12:30	Y.	16/11/2021	1	1	B	On site	calling in trees
13:00	D.	16/11/2021	1	1	B	On site	in solar farm
13:00	ST	16/11/2021	1	1	B	On site	in solar farm

Time	Species	Date	Count	VP	Flight Height band¹⁹	Location	Notes
13:00	RE	16/11/2021	6	1	B	On site	in solar farm
13:30	BZ	16/11/2021	1	1	B	On site	in trees calling
13:30	RN	16/11/2021	4	1	B	On site	over moor
08:20	CR	17/11/2021	4	2	A	On site	over vp
08:25	L.	17/11/2021	2	2	B	On site	over moor
08:30	RN	17/11/2021	12	2	B	On site	over valley
08:30	S.	17/11/2021	2	2	B	On site	over vp
08:30	LR	17/11/2021	1	2	B	On site	over vp
08:30	ST	17/11/2021	2	2	B	On site	over vp
09:00	D.	17/11/2021	1	2	B	On site	calling in bracken
09:00	S.	17/11/2021	2	2	B	On site	over vp
09:30	ST	17/11/2021	1	2	B	On site	in plantation
10:00	CR	17/11/2021	6	2	B	On site	over vp
11:20	CR	17/11/2021	5	2	B	On site	in plantation
11:20	S.	17/11/2021	2	2	B	On site	over vp
11:25	CR	17/11/2021	8	2	B	On site	in plantation

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
12:05	CR	17/11/2021	5	2	B	On site	in plantation
12:30	CR	17/11/2021	22	2	B	On site	in plantation
13:30	D.	17/11/2021	1	2	B	On site	in bracken calling
13:40	FF	17/11/2021	12	2	B	On site	over vp
13:45	S.	17/11/2021	8	2	A	On site	on moor
14:00	S.	17/11/2021	1	2	A	On site	over vp
09:00	ST	02/12/2021	4	2	A	On site	in fields on way up to VP
09:00	FF	02/12/2021	7	2	A	On site	in fields on way up to VP
09:00	RB	02/12/2021	3	2	A	On site	in fields on way up to VP
09:00	S.	02/12/2021	3	2	A	On site	in fields on way up to VP
09:20	CR	02/12/2021	5	2	A	On site	Group flew from plantation to SE
09:35	RN	02/12/2021	2	2	B	On site	Flying N over fields
09:40	RN	02/12/2021	1	2	A	On site	W of VP
09:40	BZ	02/12/2021	1	2	A	On site	mobbed by RN
09:45	CR	02/12/2021	1	2	A	On site	Flew south
09:55	BF	02/12/2021	1	2	A	On site	Flew into plantation

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
10:05	CR	02/12/2021	4	2	A	On site	Flew into plantation
10:05	LR	02/12/2021	2	2	A	On site	Flew into plantation
10:25	CR	02/12/2021	3	2	A	On site	Flew E with BF
10:25	BF	02/12/2021	2	2	A	On site	2 males, Flew E with CR
10:50	RN	02/12/2021	1	2	B	buffer	N of vp2
11:10	CA	02/12/2021	1	2	B	On site	Flew N over VP
11:35	RN	02/12/2021	5	2	C/D	Beyond	Circling above valley E of VP
11:40	RN	02/12/2021	5	2	C/D	Beyond	Circling above valley E of VP
11:40	BZ	02/12/2021	1	2	B	On site	Flew N over VP
12:15	RN	02/12/2021	1	2	C	Beyond	Circling above valley E of VP
12:25	CR	02/12/2021	5	2	A	On site	Flew W
12:40	RN	02/12/2021	2	2	A	On site	Low over ground to N
12:55	RN	02/12/2021	5	2	A	On site	Low over ground chasing each other
13:05	CR	02/12/2021	2	2	A	On site	To S
13:40	CR	02/12/2021	8	2	B	On site	Over VP to N
14:10	LR	02/12/2021	3	2	A	On site	Over VP to E

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
14:45	S.	02/12/2021	6	2	A	On site	Flew up near pond
07:45	SH	03/12/2021	1	1	A	On site	Male hunting next to farm
08:20	RN	03/12/2021	1	1	A	On site	Flew low over hill
08:40	RN	03/12/2021	2	1	A	On site	Flew low over hill
08:45	CR	03/12/2021	1	1	B	On site	Flew SE towards plantation
09:00	RN	03/12/2021	2	1	B	On site	South over solar farm
09:10	BZ	03/12/2021	1	1	A	Buffer	Calling from woodland
09:30	RN	03/12/2021	1	1	A	Buffer	circling low over woodland
09:55	RN	03/12/2021	2	1	A	On site	Flew low over hill
10:15	RE	03/12/2021	29	1	B	On site	Flying E over VP
10:20	RE	03/12/2021	41	1	A	On site	Landed in tree next to VP
10:40	RN	03/12/2021	3	1	A	On site	Flew low over hill
11:00	CR	03/12/2021	7	1	B	Buffer	Over valley and landed in plantation
11:10	FF	03/12/2021	2	1	B	On site	Flying E over VP
11:25	CR	03/12/2021	2	1	A	Buffer	Low over plantation
11:35	RE	03/12/2021	4	1	A	On site	Over hill in front of VP

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
11:35	RN	03/12/2021	1	1	A	On site	Flew low over hill
11:40	RN	03/12/2021	3	1	A	On site	Flew low over hill
11:45	RN	03/12/2021	2	1	B	On site	Over valley to N
12:00	RE	03/12/2021	46	1	B	On site	Flying E over VP
12:50	RN	03/12/2021	2	1	B/C	On site	over valley and VP to W
13:15	RN	03/12/2021	1	1	A	On site	Flew low over hill
13:30	RE	03/12/2021	1	1	B	On site	Flew E over VP
13:35	CR	03/12/2021	3	1	A	Buffer	Low over plantation
13:40	RN	03/12/2021	2	1	A	On site	Flew low over hill
08:30	CR	05/01/2022	2	1	A	On site	over vp
08:30	CR	05/01/2022	1	1	A	On site	over vp
08:40	RN	05/01/2022	9	1	B	On site	over moor
09:05	RN	05/01/2022	2	1	B	On site	over moor
09:05	BZ	05/01/2022	1	1	A	On site	calling in tree
09:15	RN	05/01/2022	8	1	A	On site	over moor
09:30	SG	05/01/2022	12	1	A	On site	over farm

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
10:00	RE	05/01/2022	9	1	A	On site	over vp
10:00	RB	05/01/2022	1	1	A	On site	over vp
10:05	ST	05/01/2022	1	1	A	On site	over vp
10:10	RN	05/01/2022	12	1	A	On site	over moor
10:30	BZ	05/01/2022	1	1	A	On site	calling in tree
10:45	S.	05/01/2022	4	1	A	On site	over moor
11:15	LI	05/01/2022	3	1	A	On site	over vp
11:30	LR	05/01/2022	2	1	A	On site	over vp
11:40	RN	05/01/2022	3	1	B	On site	over moor
11:55	RN	05/01/2022	4	1	B	On site	over moor
11:55	BZ	05/01/2022	1	1	B	On site	over valley
12:15	ST	05/01/2022	1	1	A	On site	over vp
12:20	ST	05/01/2022	2	1	A	On site	over vp
12:45	SG	05/01/2022	6	1	B	On site	over farm
13:00	RE	05/01/2022	11	1	B	On site	over vp
13:30	RE	05/01/2022	8	1	B	On site	over vp

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
14:00	FF	05/01/2022	9	1	B	On site	over vp
14:00	RN	05/01/2022	5	1	A	On site	over moor
14:20	BZ	05/01/2022	1	1	A	On site	calling in tree
09:30	ST	20/01/2022	1	2	A	on site	singing in plantation
09:30	RN	20/01/2022	4	2	C	on site	calling over vp
09:30	LR	20/01/2022	2	2	A	on site	calling in plantation
10:00	M.	20/01/2022	1	2	A	on site	singing in plantation
10:00	RN	20/01/2022	2	2	B	on site	over moor
10:55	S.	20/01/2022	19	2	A	on site	feeding in field
10:55	BZ	20/01/2022	1	2	A	on site	sat on telegraph pole
11:05	LR	20/01/2022	1	2	A	on site	over vp
11:25	LR	20/01/2022	1	2	A	on site	over vp
11:30	RN	20/01/2022	4	2	B	on site	over moor
11:30	RN	20/01/2022	2	2	A	on site	in tree
11:40	CR	20/01/2022	3	2	A	on site	in plantation
12:05	CR	20/01/2022	1	2	A	on site	singing in plantation

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
12:30	CR	20/01/2022	2	2	A	on site	over vp
12:30	LR	20/01/2022	1	2	A	on site	over vp
12:40	BZ	20/01/2022	1	2	A	on site	in tree
12:45	BZ	20/01/2022	2	2	C	beyond	foraging
12:45	RN	20/01/2022	3	2	A	on site	foraging
12:45	RN	20/01/2022	5	2	C	beyond	foraging
13:15	BZ	20/01/2022	3	2	C	beyond	soaring
13:20	RN	20/01/2022	7	2	B	on site	over vp
13:45	CR	20/01/2022	4	2	A	on site	in plantation
14:00	CR	20/01/2022	2	2	A	on site	in plantation
14:05	LR	20/01/2022	2	2	A	on site	in plantation
14:10	RN	20/01/2022	8	2	B	on site	over moor
14:10	S.	20/01/2022	6	2	A	on site	over vp
14:50	LR	20/01/2022	4	2	A	on site	in plantation
15:00	HG	20/01/2022	6	2	C	beyond	over valley
15:15	T.	20/01/2022	1	2	A	on site	on pond

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
07:50	M.	02/02/2022	2	1	A	Buffer	singing males
07:50	RN	02/02/2022	4	1	A	On site	over vp
08:10	Y.	02/02/2022	1	1	A	On site	calling in solar farm
08:45	M.	02/02/2022	3	1	A	On site	by vp different birds
09:30	BZ	02/02/2022	1	1	B	Buffer	in valley
09:45	RN	02/02/2022	8	1	A	On site	over moor
09:50	LI	02/02/2022	1	1	A	On site	in tree next to vp
10:00	HG	02/02/2022	1	1	C	Buffer	over valley
10:15	S.	02/02/2022	2	1	A	On site	over moor
10:40	RE	02/02/2022	15	1	A	On site	feeding on pasture fields
10:40	FF	02/02/2022	4	1	A	On site	feeding on pasture fields
11:10	CR	02/02/2022	2	1	A	On site	over vp
11:10	M.	02/02/2022	2	1	A	On site	still singing
11:20	RE	02/02/2022	75	1	A	On site	in solar farm
11:20	SG	02/02/2022	10	1	A	On site	in solar farm
12:00	RN	02/02/2022	5	1	B	On site	over moor

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
12:15	M.	02/02/2022	2	1	A	On site	feeding on pasture fields
12:20	ST	02/02/2022	1	1	A	On site	feeding on pasture fields
12:25	CR	02/02/2022	1	1	A	On site	over vp
08:15	S.	01/03/2022	16	2	A	ON SITE	Singing
08:20	M.	01/03/2022	1	2	A	ON SITE	Singing
09:00	CR	01/03/2022	2	2	A	ON SITE	over vp
09:10	RN	01/03/2022	5	2	A	ON SITE	over moor
09:15	BZ	01/03/2022	2	2	C	ON SITE	over moor
09:20	RN	01/03/2022	8	2	A	ON SITE	over vp
09:25	M.	01/03/2022	2	2	A	ON SITE	over vp
09:35	CR	01/03/2022	4	2	A	ON SITE	over vp
09:45	LI	01/03/2022	6	2	A	ON SITE	over vp
09:55	ST	01/03/2022	2	2	A	ON SITE	Singing
10:00	S.	01/03/2022	18	2	A	ON SITE	Singing
10:00	FF	01/03/2022	31	2	A	ON SITE	over moor
10:30	RN	01/03/2022	9	2	C	ON SITE	over moor

Time	Species	Date	Count	VP	Flight Height band ¹⁹	Location	Notes
10:35	HG	01/03/2022	2	2	C	beyond	circling in valley
10:50	CR	01/03/2022	2	2	A	ON SITE	over vp
11:00	CR	01/03/2022	1	2	A	ON SITE	over vp
11:30	S.	01/03/2022	16	2	A	ON SITE	Singing
11:30	M.	01/03/2022	1	2	A	ON SITE	Singing
11:30	M.	01/03/2022	5	2	A	ON SITE	foraging
11:50	ST	01/03/2022	11	2	A	ON SITE	feeding
12:00	BZ	01/03/2022	4	2	B	ON SITE	circling in valley
12:05	CR	01/03/2022	1	2	B	ON SITE	over vp
12:25	S.	01/03/2022	38	2	A	ON SITE	feeding flock

Table E14 Additional species recorded during breeding bird surveys

BTO code	Species	Schedule 1 or Annex I	Section 7	BoCC 5 (UK wide)	BoCC 3 (Wales)
FF	Fieldfare	✓		Red	Amber
H.	Grey heron			Green	Green

BTO code	Species	Schedule 1 or Annex I	Section 7	BoCC 5 (UK wide)	BoCC 3 (Wales)
HM	House martin			Amber	Green
JD	Jackdaw			Green	Green
KT	Red kite	✓		Green	Amber
LW	Lesser whitethroat			Green	Green
MG	Magpie			Green	Green
RE	Redwing	✓		Red	Amber
SD	Stock dove			Amber	Green
SH	Sparrowhawk			Green	Green
SI	Swift			Amber	Amber
SN	Snipe			Amber	Green
W.	Wheatear			Green	Green
WH	Whitethroat			Green	Red

Table E15 Survey details of schedule 1 breeding bird surveys

Survey type	Target species	Start time	End time	Date	Observations
Cold search	Goshawk	09:00	11:00	29/03/2021	<p>CM and SR - Cold search of plantation on the western side of site (North of forestry track used to access site). Searches carried out in areas of interest, flagged up by previous surveys including large nest platform at SO 19292 04217. Large nest observed at this location along with many other old C. nest but no sign of fresh activity. Nest of unknown species found at 51.726293, -3.170669 with young heard calling. Worth checking back for potential LE.</p> <p>Female GI flushed from tree next to large nest with fresh material lining the nest at 51.725156, -3.168998. 2nd visit needed to confirm whether nest is in use.</p>
Cold search	Peregrine	11:30	13:00	29/03/2021	<p>CM and SR – Recce of crags and search for potential PE nesting sites. Spent a couple hours divided between searching along ledges and then watching from OP. Weather not suitable so abandoned after an hour of conducting watch. Due to safety concerns and restricted viewshed, decided future watches should be conducted below the Craggs close to Abertillery.</p>
Cold search	Goshawk	13:00	15:00	29/03/2021	<p>SR - checked out previous nest site flagged up by desk study (SO214037) and recorded the below notes: SO 221 034. Had GI calling south of this point. Saw no bird and the woodland over there looked not suitable for Goshawk to make a nest. Couldn't find a nest in the woodland north of this point which was said as maybe suitable for GI but had only a good views of the trees downhill from the path and not the trees uphill. Even from above was it not possible to have a good look down into the woodland. Worth a 2nd look potentially with GI calling and previous nest location?</p>
Vantage point	Red kite	13:30	15:30	29/03/2021	<p>CM - VP conducted from 51.745787, -3.171514 overlooking Silent valley nature reserve (NW of site close to the town of Cwm) which has a medium area of suitable habitat for breeding KT and apart from woodland above Aberbeeg offers the best potential for breeding KT within the 2km survey area. Several KT observed as expected from previous VP. No breeding/behaviour observed. 2 hours of surveying.</p>
Vantage point	Peregrine	08:00	12:00	30/03/2021	<p>CM – VP survey conducted for 4hours of Craggs (51.7503525, -3.1565178) with potential for nesting PE. The following notes taken during the survey:</p>

Survey type	Target species	Start time	End time	Date	Observations
					A high degree of certainty that this pair of PE are holding territory centred around these Craggs. Further survey required to confirm if breeding later. Juvs were observed last year, suggesting young fledged from this pair previously.
Vantage point	Goshawk	12:20	14:20	30/03/2021	CM – VP survey conducted for 2 hours close to potential nest site found previous day, VP location (51.722554, -3.166940). The following notes were taken during the survey: Behaviour clearly shows a territorial pair/displaying birds closely associating with area of potential nest site located on 29/03/21. A further visit is required to go back to potential nest site to confirm whether breeding or not.
Vantage point	Goshawk	09:40	11:40	12/04/2021	CB - watched previously known woodland nesting site from SO 19490 03292. Watch conducted from 09:40-11:40 with no signs of occupancy. Watch concluded and followed immediately by nest check.
Nest check	Goshawk	12:45	12:50	12/04/2021	RW and CB - Nest check was undertaken from a distance of approx. 100m. Female goshawk observed sat on nest, tucked into trunk of Scots pine tree. Fresh material present also. Unsure what female was incubating and left the area soon after confirming presence to reduce the risk of disturbance. Female did not leave the nest during the check.
Cold search	Goshawk, red kite and long-eared owl	13:00	15:00	12/04/2021	CB and RW - undertook a partial cold search of the western plantation and the northwestern plantations, nothing noted/heard from these paths. Plantation/shelter belt by VP2 also cold searched with no Schedule 1 raptors present. Only a single nest at the eastern edge of shelter belt to be revisited (SO 20097 05085) potential for LE, but unlikely given preferable habitat elsewhere.
Vantage point	Peregrine	09:30	11:30	12/04/2021	RW - Vantage point survey of craggs for PE territory/nesting. Male observed flying high over ridgeline, no nesting behaviours recorded
Cold search	Goshawk	09:00	12:00	29/04/2021	RW - Walked eastern woodland looking for GI, found what's probably an old nest at location 51.7340360, -3.1472400. No sign of fresh material, nest watched for 45 minutes

Survey type	Target species	Start time	End time	Date	Observations
Cold search	Goshawk/long-eared owl	12:30	14:00	29/04/2021	RW - Searched locations that CM had flagged having GI pair and potential LE. No sign of birds at either site, both watched for 45 mins
Vantage point	Peregrine	07:15	09:45	12/05/2021	CM - VP survey conducted for 3hours of Craggs (51.7503525, -3.1565178) with potential for nesting PE. The following notes taken during the survey: 715 - 745 fog low and thick visibility low on crags 0802 female PE viewed on ledge of crag. Possibly nest site, looks like a scrape with additional material but hard to tell at distance. Plus remains of prey items 0830 female appears to be attending to something and then hunkering down. Confident of a potential nest site. 0930-1000 female remained in same place. Occasionally seemingly attending to something in the scrape. Unlikely to be eggs so either young or just nest building etc. No sign of male.
Vantage point	Goshawk	10:00	13:00	12/05/2021	CM - VP survey conducted for 3hours of eastern plantation, from observation point in Abertillery (51.731176, -3.131040), with potential for nesting GI. Based on desk study and previous observations of GI within the area. The survey produced no sightings of GI over the plantation.
Nest check	Goshawk	09:00	09:30	13/05/2021	CM & CB - Nest check was undertaken from approximate distance of 100m. Female goshawk observed sat on nest, tucked into trunk of Scots pine tree. Fresh material present also. Female appeared to be incubating and was in the process of removing a recently hatched egg from the nest, giving us an almost exact hatching date. We both left the area soon after confirming presence to reduce the risk of disturbance. Female did not leave the nest during the check.
Cold search	Goshawk/red kite/long-eared owl	09:30	12:30	13/05/2021	CB and CM undertook a partial cold search of the western plantation and the northwestern plantations, nothing noted/heard from these paths. Plantation on eastern side also cold searched with no Schedule 1 raptors present within the woodland. Both male and female PE observed circling together over plantation, reconfirms presence of pair after failing to observe male previous day.

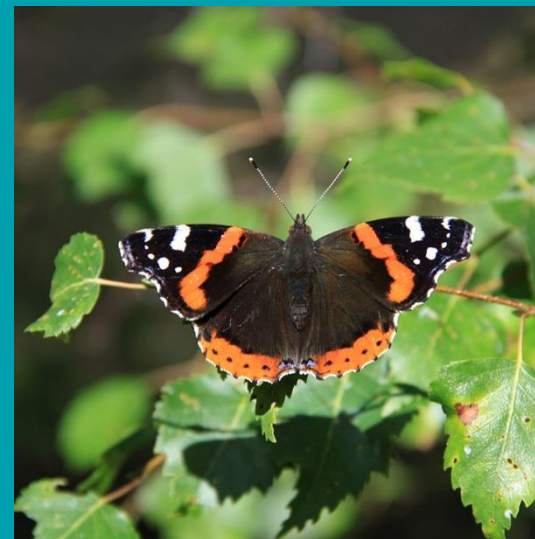
Survey type	Target species	Start time	End time	Date	Observations
Nest check	Goshawk	15:30	16:00	24/06/2021	CB - Check of active nest. One fledged (branched) young observed outside of nest. One chick dead in nest. Adults heard calling in distance.
Cold search	Merlin	15:45	17:45	24/06/2021	CB - Transect lines walked over northern fields following observations of ML during VP work. No sign of ML or ML habitat as landowner has now ploughed grassland to farm.
Vantage point	Peregrine	11:00	14:00	08/07/2021	SR - Vantage point survey of craggs for PE nest. No PE activity during survey. Only BZ and RN flying over cracks and landing on ridge.
Bat survey	Barn owl	21:00	23:30	25/07/2021	KW - Three barn owls observed within loft space of old farmhouse. One bird seen leaving farmhouse under complete darkness

Pennant Walters Ltd.

Mynydd Carn y Cefn Wind Farm

Draft Environmental Statement

Appendix 9B: Collision Risk
Modelling Report



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Document revisions

No.	Details	Date
1	Issue for client review	April 2022
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1. Introduction

- 1.1.1 This Appendix documents the methodology and results of collision risk modelling (CRM) based on flight activity data collected from Vantage Point (VP) surveys undertaken from March 2020 to February 2022. Data obtained during VP surveys was used to determine the theoretical collision risk for a range of species by incorporation into a CRM (Band et al. 2007)¹ and herein referred to as 'the Band model'.
- 1.1.2 From March 2020 to February 2022, two VP locations (VP 1-2) were used for the Proposed Development.
- 1.1.3 **Annex A** presents figures of flight activity of species included in the CRM.
- 1.1.4 **Annex B** contains tables presenting the clipped flight data recorded from VPs 1-2 used for the provisional CRM analysis.
- 1.1.5 **Annex C** presents the CRM calculations for year 1 and year 2 for the Proposed Development, based on data collected from VP 1-2.

¹ Band, W., Madders, M. & Whitfield, D.P. 2007. Developing field and analytical methods to assess avian collision risk at wind farms. In *Birds and Wind Farms: Risk Assessment and Mitigation*. de Lucas, M., Janss, G., and Ferrer, M. (eds). Lynx Edicions, Barcelona.

2. CRM Methodology

2.1 Introduction

- 2.1.1 The risk of birds colliding with the turbine rotors has been assessed using a model developed by Band, which estimates the number of bird collisions with the turbine rotors during a specified time period (Band et al. 2007¹; SNH 2000²). The model requires input data based on species biometrics and flight characteristics, turbine specification and data on flights observed at the site. The amount of time that a species may be active within the survey area in any given season is also required for the model and must therefore be estimated.
- 2.1.2 The 'Band model' uses a two-stage approach, whereby the number of birds or flights passing through the air space swept by the rotors is determined at Stage 1 and the probability of a bird strike occurring is calculated at Stage 2. The product of Stage 1 and Stage 2 gives a theoretical annual collision mortality rate on the assumption that birds make no attempt to avoid collision.
- 2.1.3 However, it is widely accepted that many species are able to avoid turbine blades in a number of ways. Birds may exercise avoidance by detecting the wind farm or turbine and modifying their flight lines to avoid the structures or at close proximity, birds may see an oncoming blade and emergency avoidance action can be taken (SNH, 2000²). As such, species specific avoidance rates were applied to the model to estimate the collision risk (SNH, 2017a³).
- 2.1.4 The results of the model provides an estimate of the number of collisions that can be expected over a specific season, year, or for the lifetime of the wind farm.

2.2 Choice of Random or Regular Model

- 2.2.1 The Stage 1 calculation varies depending on whether flight activity follows a regular predictable pattern, or is random. The second stage is identical for both methods.
- 2.2.2 The modelling method for birds with predictable (Regular) flight activity, such as geese following a regular migration route or travelling from a winter roost to a regular feeding area, or divers travelling from breeding lochans to feed at sea or on larger water bodies requires the calculation of the number of birds flying through the turbine rotor swept area each year.
- 2.2.3 The modelling method with irregular (or Random) flight activity, such as raptors and waders, or divers at breeding lochans, requires the calculation of the amount of time birds were observed flying per unit of area surveyed. This level of flight activity is then applied to the Proposed Development in subsequent calculations of the collision risk.

² Scottish Natural Heritage. (2000). Windfarms and Birds: Calculating a theoretical collision risk assuming no avoiding action. SNH Guidance Note. Scottish Natural Heritage

³ Scottish Natural Heritage. (2017a). Avoidance Rates for the onshore SNH Wind Farm Collision Risk Model. SNH guidance. July 2017

- 2.2.4 Species that have been identified as requiring CRM (i.e. those recorded regularly during VP surveys) is limited to goshawk and red kite, therefore the Random Flight Model has been selected.

2.3 Model Parameters

Turbines

- 2.3.1 The preferred turbine model selected for the Proposed Development have not been finalised at this stage, however the applicant has identified likely models and provided anticipated design parameters for use at this stage. It is assumed that the chosen turbine model will have a hub height of 105m and rotor diameter of 150m, with the potential collision risk height (PCH) of 30 – 180m.
- 2.3.2 For the purposes of CRM, it has been assumed that turbines will be non-operational for 15% of the time, e.g. during periods when wind speed is too low or too high to operate, or during maintenance.

Table 2.1 Turbine Technical Parameters

Parameter	Proposed Specification 180m Tip Height
Number of turbines	8
Number of blades	3
Approximate hub height (m)	105
Approximate rotor radius (m)	75
Maximum height to blade tip (m)	180
Minimum height to blade tip (m)	30
PCH (m)	30-180
Pitch (Degrees)	12
Chord (m)	4.2
Rotation period (rpm)	4.7

Available Active Hours Per Season, Survey Effort and Observation Time

- 2.3.3 Available active hours are defined as the number of hours that a bird species may be potentially active in any given season, these seasons being defined by SNH (2017b⁴), and those seasons and hours for the period March 2020 – August 2020, September 2020 –

⁴ Scottish Natural Heritage. (2017b). Recommended bird survey methods to inform impact assessment of onshore wind farms Version 2. SNH guidance. July 2017

February 2021, March 2021 – August 2021 and September 2021 – February 2021, are presented in **Table 2.2**.

- 2.3.4 Available hours for flight activity were calculated to include daylight, one hour before sunrise and one hour after sunset.

Table 2.2 Available Active Hours April 2020 – August 2021

Species Group	Season	Available Hours
Goshawk and Red Kite	Breeding (March 2020 – end August 2020)	3,080.12
	Non-Breeding (September 2020 – end February 2021)	2,114.6
	Breeding 2021 (March 2021 – August 2021)	3,079.45
	Non-Breeding (September 2020 – end February 2021)	2,115.25

- 2.3.5 Based on VP survey effort presented in **Appendix 9A** for the period March 2020 to February 2022 **Table 2.3** presents the total observation effort from VPs 1 and 2. Observation effort relates to the total number of survey hours undertaken at VP locations within the seasons in question.

Table 2.3 Observation Time

Season	Period	1	2
Breeding (2020)	March 2020 – end August 2020	52	51
Non-Breeding (2020-21)	September 2020 – end February 2021	57	57
Breeding (2021)	March 2021 – August 2021	39	39
Non-Breeding (2021-21)	September 2020 – end February 2021	36	36

- 2.3.6 Guidance (SNH 2017b) requires a minimum of 36 hours per season at each individual VP location, and for all seasons this was met or exceeded

2.4 Random Model

Definition of Terms

- 2.4.1 The **CRZ** is defined as the wind farm polygon (WFP). This was taken as the perimeter of the location of each turbine location (allowing for a 50m limits of deviation) plus a 500m

buffer. SNH guidance currently recommends a 500m buffer to allow for observer inaccuracies when mapping flights during surveys (SNH, 2017b).

- 2.4.2 The **Vantage Point View-Shed** is the survey area associated with each VP, calculated as a 180° arc of a 2km-radius applied around each VP location.
- 2.4.3 The **area of visibility** of each viewshed at minimum collision-risk height, in this instance at 30m, was calculated in QGIS.
- 2.4.4 The **Flight risk area (FRA)** is defined as the **area of visibility** that falls within the CRZ, and was also calculated using GIS (**Annex A, Figure 2.1**).
- 2.4.5 **FRAw** is an adjustment calculation that accounts for the difference between the height bands used for recording collision risk height flights and the PCH of the turbine blades. The flight activity surveys were carried out prior to turbine model selection and used five height bands:
- A: <10m;
 - B: 10-50m;
 - C: 50-150m;
 - D:150-200m; and
 - E: >200m .
- 2.4.6 The PCH of the turbines fall within height bands B, C and D, which collectively cover a greater area (190m) than the rotor swept volume area (150m), and therefore the overall bird activity is weighted to reflect that the swept area is smaller than the recording area, decreasing the overall bird activity.
- 2.4.7 The **collision risk volume** is defined as the volume of the airspace between the minimum and maximum risk height band (150m) and is used in random models (SNH 2000).
- 2.4.8 The **rotor-swept volume** is defined as the volume of air that would be swept by all of the rotors in the wind farm. For an individual rotor this is determined by the area swept (πr^2) multiplied by the thickness of the rotor blades plus the length of the focal species (SNH 2000).

Selection of Flights

- 2.4.9 All flights that were observed at PCH (within height bands B, C and D for the Proposed Development) falling within the CRZ were included. Those flights that extended beyond the CRZ were clipped to the CRZ boundary (i.e. only the time spent within the CRZ was included in the CRM). Where flights at PCH originated or ended outside of the CRZ, the amount of time for the clipped flight at PCH within CRZ was calculated as a proportion of the clipped flight length to the total flight length at PCH. Where a flight represented the activity of more than one bird, total flight time was calculated based on number of birds multiplied by the time at PCH within the CRZ.
- 2.4.10 **Table 2.4** summarises the flight times at PCH from VPs 1 and 2 for April 2020 – February 2022 within the CRZ devised for the Proposed Development.

- 2.4.11 Only those species listed below were included in CRM, additional target species recorded on site (including hen harrier, merlin, honey buzzard, green sandpiper and greenshank) were considered to have insufficient flight activity levels to make the CRM results meaningful or were scoped out for assessment purposes in the draft environmental statement, and so were excluded from CRM.
- 2.4.12 **Annex A Figures 2.2 – A2.9** shows the flights at PCH within the CRZ included in the modelling for goshawk and red kite
- 2.4.13 **Annex B** provides details of flights included in the CRM calculations.

Table 2.3 Species Flight Time in Seconds

	Season	Year	Total Number Flights	CRZ Total Seconds at PCH
Red Kite	Breeding	2020	56	6,635
	Non-Breeding	2020-2021	69	10,732
	Breeding	2021	31	7,151
	Non-Breeding	2021-2022	28	2,760
Goshawk	Breeding	2020	12	360
	Non-Breeding	2020-2021	10	1,551
	Breeding	2021	5	277
	Non-Breeding	2021-2022	9	805

Bird Parameters

- 2.4.14 Morphometric measurements for bird species were taken from the BTO⁵ with flight speeds from Alerstam et al. (2007)⁶ or alternatively from Bruderer and Boldt (2001)⁷ (**Table 2.5**). Avoidance rates were taken from current guidance (SNH, 2017a).

⁵ British Trust for Ornithology (2022). Birdfacts. (Online) Available at: <https://www.bto.org/about-birds/birdfacts> (Accessed April 2022).

⁶ Alerstam T., Rosén M., Bäckman J., Ericson P.G.P., Hellgren, O. (2007). Flight Speeds among Bird Species: Allometric and Phylogenetic Effects. PLoS Biol 5(8): e197. DOI:10.1371/journal.pbio.0050197.

⁷ Bruderer, B. & Boldt, A. 2001. Flight characteristics of birds 1: radar measurement of speeds. Ibis 143 (2): 178 – 204.

Table 2.4 Bird Biometric Parameters

Species	Avoidance Rate %	Length (m)	Wing Span (m)	Flight Speed (m/s)	Flight Style
Red Kite	99	0.63	1.85	12	Flapping
Goshawk	98	0.55	1.10	13.9	Flapping

3. Results

3.1.1 A summary of the CRM results for year one and year two are shown in **Table 3.1** below, whilst details of model calculations are presented in **Annex C**.

Table 3.1 Predicted collision rates

Species	Season	Predicted Potential collisions	Year 1	Year 2	Average	
Red Kite (99% Avoidance)	Breeding	Per year	0.618	0.95	0.784	
		Over 30 years	18.54	28.51	23.525	
	Non-Breeding	Per year	0.619	0.252	0.435	
		Over 30 years	18.56	7.56	13.06	
	Annual Total		Per year	1.237	1.202	1.2195
			Over 30 years	37.1	36.07	36.585
Goshawk (98% Avoidance)	Breeding	Per year	0.065	0.072	0.068	
		Over 30 years	1.95	2.15	2.05	
	Non-Breeding	Per year	0.174	0.143	0.159	
		Over 30 years	5.21	4.28	4.745	
	Annual Total		Per year	0.239	0.215	0.227
			Over 30 years	7.16	6.43	6.795



Annex A

Figures



Annex B

Flight Data used for CRM

Table B1 Raw flight data used in CRM modelling for red kite and goshawk – March 2020 – August 2020

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_04_L_002	2	4	KT	15/04/2020	16:00:00	2	1	A	30	0	0
VP2_04_L_003A	2	4	KT	15/04/2020	16:10:00	2	1	A	30	0	0
VP2_04_L_003B	2	4	KT	15/04/2020	16:10:00	2	1	B	30	30	30
VP2_04_L_003C	2	4	KT	15/04/2020	16:10:00	2	1	C	34	34	34
VP2_04_L_003D	2	4	KT	15/04/2020	16:10:00	2	1	D	54	54	54
VP2_04_L_003E	2	4	KT	15/04/2020	16:10:00	2	1	C	30	30	30
VP2_04_L_003F	2	4	KT	15/04/2020	16:10:00	2	1	B	45	45	45
VP2_04_L_003G	2	4	KT	15/04/2020	16:10:00	2	1	A	60	0	0
VP2_04_L_003H	2	4	KT	15/04/2020	16:10:00	2	1	C	195	195	60
VP2_04_L_003I	2	4	KT	15/04/2020	16:10:00	2	1	D	90	90	90
VP2_04_L_004A	2	4	KT	15/04/2020	16:35:00	2	1	D	54	54	54
VP2_04_L_004B	2	4	KT	15/04/2020	16:36:00	2	1	C	120	120	120
VP2_04_L_004C	2	4	KT	15/04/2020	16:38:00	2	1	B	90	90	90
VP2_04_L_004D	2	4	KT	15/04/2020	16:40:00	2	1	C	75	75	75

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_04_L_004E	2	4	KT	15/04/2020	16:42:00	2	1	D	15	15	15
VP2_04_L_005A	2	4	KT	15/04/2020	17:06:00	2	1	C	90	90	90
VP2_04_L_005B	2	4	KT	15/04/2020	17:06:00	2	1	B	45	45	45
VP1_04_L_007A	1	4	KT	16/04/2020	16:30:00	1	1	D	158	158	158
VP2_04_L_006	2	4	KT	16/04/2020	18:30:00	2	1	B	7	7	7
VP1_04_M_010	1	4	KT	29/04/2020	15:34:00	1	1	A	30	0	0
VP1_04_M_011A	1	4	KT	29/04/2020	16:08:00	1	1	A	52	0	0
VP2_04_L_012	1	4	KT	29/04/2020	17:53:00	2	1	A	19	0	0
VP2_04_L_013A	1	4	KT	29/04/2020	18:04:00	2	1	A	2	0	0
VP2_04_L_013B	1	4	KT	29/04/2020	18:04:00	2	1	B	15	15	15
VP2_04_L_013C	1	4	KT	29/04/2020	18:04:00	2	1	A	10	0	0
VP2_04_L_014	1	4	KT	29/04/2020	19:20:00	2	1	A	390	0	0
VP2_04_L_015	2	4	KT	29/04/2020	19:30:00	2	1	A	225	0	0
VP2_05_M_016A	2	5	KT	05/05/2020	10:55:00	2	1	A	45	0	0
VP2_05_M_016B	2	5	KT	05/05/2020	10:55:00	2	1	B	42	42	42
VP2_05_M_017	2	5	KT	05/05/2020	10:56:00	2	1	B	21	21	21

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_05_M_018A	2	5	KT	05/05/2020	11:25:00	2	1	A	15	0	0
VP2_05_M_018B	2	5	KT	05/05/2020	11:25:00	2	1	B	14	14	14
VP2_05_M_019	2	5	KT	05/05/2020	11:27:00	2	1	A	15	0	0
VP2_05_M_020	2	5	KT	05/05/2020	12:54:00	2	1	A	15	0	0
VP2_05_M_021A	2	5	KT	05/05/2020	12:55:00	2	1	B	15	15	15
VP2_05_M_021B	2	5	KT	05/05/2020	12:55:00	2	1	A	15	0	0
VP1_05_E_031	1	5	KT	19/05/2020	08:14:00	1	1	A	15	0	0
VP2_05_E_024	2	5	KT	19/05/2020	09:34:00	2	1	A	30	0	0
VP2_05_E_025	2	5	KT	19/05/2020	10:36:00	2	1	B	30	30	30
VP1_05_M_027A	1	5	KT	19/05/2020	11:25:00	1	1	C	30	30	30
VP1_05_M_027B	1	5	KT	19/05/2020	11:25:00	1	1	B	15	15	15
VP1_05_M_027C	1	5	KT	19/05/2020	11:25:00	1	1	A	15	0	0
VP1_05_M_028A	1	5	KT	19/05/2020	11:27:00	1	1	A	15	0	0
VP1_05_M_028B	1	5	KT	19/05/2020	11:27:00	1	1	B	30	30	30
VP1_05_M_028C	1	5	KT	19/05/2020	11:27:00	1	1	C	15	15	15
VP1_05_M_028D	1	5	KT	19/05/2020	11:28:00	1	1	B	13	13	13

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_05_M_028E	1	5	KT	19/05/2020	11:28:00	1	1	A	15	0	0
VP1_05_M_028F	1	5	KT	19/05/2020	11:28:00	1	1	B	15	15	15
VP1_05_M_029A	1	5	KT	19/05/2020	12:01:00	1	1	A	11	0	0
VP1_05_M_029B	1	5	KT	19/05/2020	12:01:00	1	1	B	30	30	30
VP1_05_M_030	1	5	PE	19/05/2020	13:10:00	1	1	A	15	0	0
VP1_05_E_032A	1	5	KT	20/05/2020	09:02:00	1	1	B	30	30	30
VP1_05_E_032B	1	5	KT	20/05/2020	09:02:00	1	1	C	15	15	15
VP1_05_E_032C	1	5	KT	20/05/2020	09:02:00	1	1	B	23	23	23
VP1_05_E_033B	1	5	KT	20/05/2020	09:07:00	1	1	B	4	4	4
VP2_05_M_034A	2	5	KT	20/05/2020	10:25:00	2	1	B	15	15	15
VP2_05_M_034B	2	5	KT	20/05/2020	10:25:00	2	1	C	15	15	15
VP2_05_M_034C	2	5	KT	20/05/2020	10:25:00	2	1	D	15	0	15
VP2_05_M_034D	2	5	KT	20/05/2020	10:25:00	2	1	E	30	0	30
VP2_05_M_034E	2	5	KT	20/05/2020	10:26:00	2	1	D	4	0	4
VP2_05_M_035A	2	5	KT	21/05/2020	15:13:00	2	1	A	30	0	0
VP2_05_M_035B	2	5	KT	21/05/2020	15:13:00	2	1	B	45	45	45

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_05_M_035C	2	5	KT	21/05/2020	15:14:00	2	1	C	30	30	30
VP2_05_M_037A	2	5	KT	21/05/2020	15:44:00	2	1	A	15	0	0
VP2_05_M_037B	2	5	KT	21/05/2020	15:44:00	2	1	B	15	15	15
VP2_05_M_038	2	5	KT	21/05/2020	17:02:00	2	1	A	15	0	0
VP2_05_M_039	2	5	KT	21/05/2020	17:04:00	2	1	A	60	0	0
VP1_05_L_040	1	5	KT	21/05/2020	18:00:00	1	1	A	30	0	0
VP1_05_M_041A	1	5	KT	26/05/2020	14:55:00	1	1	B	60	60	60
VP1_05_M_041B	1	5	KT	26/05/2020	14:55:00	1	1	A	60	0	0
VP1_05_M_043A	1	5	KT	26/05/2020	16:01:00	1	1	B	219	219	219
VP1_05_M_043B	1	5	KT	26/05/2020	16:01:00	1	1	A	75	0	0
VP1_05_M_043C	1	5	KT	26/05/2020	16:01:00	1	1	B	195	195	195
VP1_05_M_043D	1	5	KT	26/05/2020	16:01:00	1	1	C	90	90	90
VP1_05_M_043E	1	5	KT	26/05/2020	16:01:00	1	1	B	330	330	330
VP2_05_L_044	2	5	KT	26/05/2020	17:50:00	2	1	A	15	0	0
VP2_05_L_045A	2	5	KT	26/05/2020	18:00:00	2	1	A	45	0	0
VP2_05_L_045B	2	5	KT	26/05/2020	18:00:00	2	1	B	32	32	32

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_05_L_045C	2	5	KT	26/05/2020	18:00:00	2	1	C	150	150	150
VP2_05_L_045D	2	5	KT	26/05/2020	18:00:00	2	1	D	123	123	123
VP2_05_L_046B	2	5	KT	26/05/2020	18:35:00	2	1	C	2	2	2
VP2_05_L_047	2	5	KT	26/05/2020	19:40:00	2	1	A	30	0	0
VP2_06_E_048	2	6	GI	05/06/2020	10:05:00	2	1	A	15	0	0
VP1_06_M_049A	1	6	KT	05/06/2020	11:44:00	1	1	A	15	0	0
VP1_06_M_049B	1	6	KT	05/06/2020	11:44:00	1	1	B	9	9	9
VP1_06_M_050	1	6	GI	05/06/2020	12:50:00	1	1	A	15	0	0
VP2_06_M_051A	2	6	KT	24/06/2020	09:53:00	2	1	A	105	0	0
VP2_06_M_051B	2	6	KT	24/06/2020	09:53:00	2	1	B	15	15	15
VP2_06_M_051C	2	6	KT	24/06/2020	09:53:00	2	1	A	15	0	0
VP2_06_M_051D	2	6	KT	24/06/2020	09:53:00	2	1	B	255	255	255
VP2_06_M_051E	2	6	KT	24/06/2020	09:53:00	2	1	C	120	120	120
VP2_06_M_052	2	6	KT	24/06/2020	10:35:00	2	1	A	780	0	0
VP2_06_M_053	2	6	KT	24/06/2020	10:48:00	2	1	A	30	0	0
VP2_06_M_054	2	6	KT	24/06/2020	10:51:00	2	1	A	15	0	0

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_06_L_057	2	6	KT	24/06/2020	20:35:00	2	1	A	30	0	0
VP1_07_E_058	1	7	KT	10/07/2020	08:23:00	1	1	A	45	0	0
VP1_07_E_059	1	7	KT	10/07/2020	08:26:00	1	1	A	60	0	0
VP2_07_M_063A	2	7	KT	10/07/2020	10:25:00	2	1	A	30	0	0
VP2_07_M_063B	2	7	KT	10/07/2020	10:25:00	2	1	B	435	435	435
VP2_07_M_064	2	7	GI	10/07/2020	13:20:00	2	1	A	15	0	0
VP1_07_M_066A	1	7	GI	21/07/2020	10:44:00	1	1	C	165	165	165
VP1_07_M_066B	1	7	GI	21/07/2020	10:44:00	1	1	B	15	15	15
VP1_07_M_067A	1	7	GI	21/07/2020	11:20:00	1	1	C	105	105	105
VP1_07_M_067B	1	7	GI	21/07/2020	11:20:00	1	1	B	45	45	45
VP1_07_M_068	1	7	HY	21/07/2020	11:54:00	1	1	B	105	105	105
VP1_07_M_069A	1	7	PE	24/07/2020	15:31:00	1	1	C	90	90	90
VP1_07_M_069B	1	7	PE	24/07/2020	15:31:00	1	1	B	150	150	150
VP1_07_M_069C	1	7	PE	24/07/2020	15:31:00	1	1	A	30	0	0
VP1_07_M_069D	1	7	PE	24/07/2020	15:31:00	1	1	B	40	40	40
VP1_07_M_070A	1	7	GI	24/07/2020	17:16:00	1	1	A	15	0	0

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_07_M_070B	1	7	GI	24/07/2020	17:16:00	1	1	B	15	15	15
VP2_07_L_071	2	7	GI	24/07/2020	18:17:00	2	1	A	84	0	0
VP2_07_L_072	2	7	GI	24/07/2020	18:27:00	2	1	A	45	0	0
VP2_07_L_073	2	7	GI	24/07/2020	19:05:00	2	1	A	15	0	0
VP2_08_M_074	2	8	PE	04/08/2020	15:39:00	2	1	B	30	30	30
VP2_08_M_075	2	8	PE	04/08/2020	16:04:00	2	1	B	16	16	16
VP2_08_M_076	2	8	PE	04/08/2020	16:32:00	2	1	A	15	0	0
VP2_08_M_077	2	8	PE	04/08/2020	16:42:00	2	1	B	45	45	45
VP1_08_E_078A	1	8	KT	11/08/2020	06:19:00	1	1	B	45	45	45
VP1_08_E_078B	1	8	KT	11/08/2020	06:19:00	1	1	A	15	0	0
VP1_08_E_079	1	8	GI	11/08/2020	06:38:00	1	1	B	15	15	15
VP1_08_E_080	1	8	GK	11/08/2020	08:42:00	1	1	B	30	30	30
VP2_08_M_081	2	8	GI	11/08/2020	09:40:00	2	1	A	15	0	0
VP2_08_M_082	2	8	GI	11/08/2020	09:42:00	2	1	A	15	0	0
VP2_08_M_083A	2	8	KT	11/08/2020	09:49:00	2	1	B	420	420	420
VP2_08_M_083B	2	8	KT	11/08/2020	09:56:00	2	1	C	15	15	15

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_08_M_083C	2	8	KT	11/08/2020	09:56:00	2	1	B	15	15	15
VP2_08_M_083D	2	8	KT	11/08/2020	09:56:00	2	1	C	15	15	15
VP2_08_M_083E	2	8	KT	11/08/2020	09:56:00	2	1	B	150	150	150
VP2_08_M_083F	2	8	KT	11/08/2020	09:59:00	2	1	C	90	90	90
VP2_08_M_083G	2	8	KT	11/08/2020	10:00:00	2	1	B	15	15	15
VP2_08_M_083H	2	8	KT	11/08/2020	10:01:00	2	1	A	30	0	0
VP2_08_M_084	2	8	GK	11/08/2020	10:19:00	2	1	A	30	0	0
VP2_08_M_085A	2	8	KT	11/08/2020	10:52:00	2	1	B	225	225	225
VP2_08_M_085B	2	8	KT	11/08/2020	10:55:00	2	1	C	180	180	180
VP2_08_M_085C	2	8	KT	11/08/2020	10:58:00	2	1	B	90	90	90
VP2_08_M_085D	2	8	KT	11/08/2020	11:00:00	2	1	A	15	0	0
VP2_08_M_086	2	8	GK	11/08/2020	11:10:00	2	1	A	30	0	0
VP2_08_M_087	2	8	GE	11/08/2020	11:10:00	2	1	A	30	0	0
VP2_08_M_088	2	8	KT	11/08/2020	11:19:00	2	1	B	135	135	135
VP2_08_M_089A	2	8	GE	11/08/2020	11:23:00	2	1	A	7.5	0	0
VP2_08_M_089B	2	8	GE	11/08/2020	11:23:00	2	1	B	10	10	10

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_08_M_089C	2	8	GE	11/08/2020	11:23:00	2	1	C	12	12	12
VP2_08_M_090A	2	8	GK	11/08/2020	11:23:00	2	1	A	7.5	0	0
VP2_08_M_090B	2	8	GK	11/08/2020	11:23:00	2	1	B	8	8	8
VP2_08_M_090C	2	8	GK	11/08/2020	11:23:00	2	1	C	10	10	10
VP2_08_M_091A	2	8	KT	11/08/2020	11:24:00	2	1	B	210	210	210
VP2_08_M_091B	2	8	KT	11/08/2020	11:27:00	2	1	C	225	225	225
VP2_08_M_091C	2	8	KT	11/08/2020	11:31:00	2	1	B	242	242	242
VP2_08_M_091D	2	8	KT	11/08/2020	11:35:00	2	1	A	30	0	0
VP2_08_M_091E	2	8	KT	11/08/2020	11:35:00	2	1	B	120	120	120
VP2_08_M_091F	2	8	KT	11/08/2020	11:37:00	2	1	A	30	0	0
VP2_08_M_091G	2	8	KT	11/08/2020	11:38:00	2	1	B	210	210	210
VP2_08_M_091H	2	8	KT	11/08/2020	11:40:00	2	1	A	15	0	0
VP2_08_M_092A	2	8	KT	11/08/2020	12:01:00	2	1	A	60	0	0
VP2_08_M_092B	2	8	KT	11/08/2020	12:02:00	2	1	B	60	60	60
VP2_08_M_093A	2	8	GK	11/08/2020	12:26:00	2	1	B	30	30	30
VP2_08_M_093B	2	8	GK	11/08/2020	12:26:00	2	1	A	15	0	0

Flight ID	VP	Month	Species	Date	Time	VP	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_08_M_094A	2	8	GE	11/08/2020	12:26:00	2	1	B	22	22	22
VP2_08_M_094B	2	8	GE	11/08/2020	12:26:00	2	1	A	15	0	0
VP2_08_M_095	2	8	HY	11/08/2020	12:41:00	2	1	B	30	30	30
VP2_08_M_096A	2	8	KT	11/08/2020	12:43:00	2	1	A	45	0	0
VP2_08_M_096B	2	8	KT	11/08/2020	12:43:00	2	1	B	645	645	645

Table B2 Raw flight data used in CRM modelling for red kite and goshawk – September 2020 – February 2020

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_09_M_097A	1	9	KT	07/09/2020	11:45	M	1	1	D	135	135
VP1_09_M_097B	1	9	KT	07/09/2020	11:47	M	1	1	C	60	60
VP1_09_M_098	1	9	KT	07/09/2020	11:47	M	1	1	D	75	75
VP1_09_M_099A	1	9	KT	07/09/2020	12:05	M	1	1	C	135	135
VP1_09_M_099B	1	9	KT	07/09/2020	12:07	M	1	1	B	15	15
VP2_09_L_100A	2	9	KT	07/09/2020	15:15	L	2	2	A	200	0
VP2_09_L_101B	2	9	KT	07/09/2020	16:27	L	2	1	A	15	0
VP2_09_L_101A	2	9	KT	07/09/2020	16:27	L	2	1	B	6	6

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_09_L_102	2	9	HY	07/09/2020	16:39	L	2	1	A	30	0
VP2_09_L_103A	2	9	KT	07/09/2020	17:49	L	2	2	B	80	80
VP2_09_L_103B	2	9	KT	07/09/2020	17:50	L	2	2	A	64	0
VP2_09_M_104	2	9	KT	09/09/2020	15:22	M	2	2	D	91	91
VP1_09_L_105A	1	9	KT	09/09/2020	16:57	L	1	1	B	30	30
VP1_09_L_105B	1	9	KT	09/09/2020	16:57	L	1	1	C	60	60
VP1_09_L_105C	1	9	KT	09/09/2020	16:58	L	1	1	B	15	15
VP1_09_L_105D	1	9	KT	09/09/2020	16:58	L	1	1	A	30	0
VP1_09_L_105E	1	9	KT	09/09/2020	16:59	L	1	1	B	175	175
VP1_09_L_105F	2	9	KT	09/09/2020	17:02	L	1	1	C	15	15
VP1_09_L_105G	1	9	KT	09/09/2020	17:02	L	1	1	B	15	15
VP1_09_M_106A	1	9	KT	11/09/2020	11:06	M	1	2	B	75	75
VP1_09_M_106B	1	9	KT	11/09/2020	11:08	M	1	2	A	90	0
VP1_09_M_106C	1	9	KT	11/09/2020	11:10	M	1	2	B	120	120
VP1_09_M_106D	1	9	KT	11/09/2020	11:12	M	1	2	C	180	180
VP1_09_M_106E	1	9	KT	11/09/2020	11:15	M	1	2	D	75	75

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_09_M_106F	1	9	KT	11/09/2020	11:15	M	1	2	C	165	165
VP2_09_M_108A	2	9	KT	16/09/2020	12:40	M	2	1	B	93	93
VP2_09_M_108B	2	9	KT	16/09/2020	12:42	M	2	1	A	60	0
VP2_09_M_109A	2	9	KT	16/09/2020	13:19	M	2	1	A	15	0
VP2_09_M_109B	2	9	KT	16/09/2020	13:19	M	2	1	B	30	30
VP2_09_M_109C	2	9	KT	16/09/2020	13:19	M	2	1	C	15	15
VP2_09_M_109D	2	9	KT	16/09/2020	13:20	M	2	1	B	135	135
VP2_09_M_110B	2	9	PE	16/09/2020	14:45	M	2	2	A	15	0
VP2_09_M_110A	2	9	PE	16/09/2020	14:45	M	2	2	B	14	14
VP2_10_M_111A	2	10	KT	13/10/2020	14:05	M	2	1	B	44	44
VP2_10_M_111B	2	10	KT	13/10/2020	14:05	M	2	1	C	15	15
VP2_10_M_111C	2	10	KT	13/10/2020	14:06	M	2	1	B	15	15
VP2_11_E_112A	2	11	KT	06/11/2020	07:35	E	2	1	B	104	104
VP2_11_E_112B	2	11	KT	06/11/2020	07:36	E	2	1	A	90	0
VP2_11_E_112C	2	11	KT	06/11/2020	07:38	E	2	1	B	192	192
VP2_11_E_113A	2	11	KT	06/11/2020	07:40	E	2	1	A	11	0

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_11_E_112D	2	11	KT	06/11/2020	07:41	E	2	1	C	105	105
VP2_11_E_113B	2	11	KT	06/11/2020	07:41	E	2	1	B	86	86
VP2_11_E_112E	2	11	KT	06/11/2020	07:43	E	2	1	B	90	90
VP2_11_E_113C	2	11	KT	06/11/2020	07:43	E	2	1	A	75	0
VP2_11_E_113D	2	11	KT	06/11/2020	07:44	E	2	1	B	447	447
VP2_11_E_112F	2	11	KT	06/11/2020	07:45	E	2	1	C	75	75
VP2_11_E_112G	2	11	KT	06/11/2020	07:46	E	2	1	D	45	45
VP2_11_E_112H	2	11	KT	06/11/2020	07:47	E	2	1	C	46	46
VP2_11_E_112I	2	11	KT	06/11/2020	07:48	E	2	1	B	195	195
VP2_11_E_113F	2	11	KT	06/11/2020	07:54	E	2	1	B	90	90
VP2_11_E_113G	2	11	KT	06/11/2020	07:54	E	2	1	A	45	0
VP2_11_E_114A	2	11	KT	06/11/2020	08:26	E	2	1	B	81	81
VP2_11_E_114B	2	11	KT	06/11/2020	08:27	E	2	1	A	42	0
VP2_11_E_115A	2	11	KT	06/11/2020	08:41	E	2	1	A	75	0
VP2_11_E_115B	2	11	KT	06/11/2020	08:42	E	2	1	B	15	15
VP2_11_E_115C	2	11	KT	06/11/2020	08:42	E	2	1	A	60	0

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_11_E_115D	2	11	KT	06/11/2020	08:43	E	2	1	B	15	15
VP2_11_E_115E	2	11	KT	06/11/2020	08:43	E	2	1	A	75	0
VP2_11_E_116	2	11	PE	06/11/2020	08:43	E	2	1	A	15	0
VP2_11_E_115F	2	11	KT	06/11/2020	08:45	E	2	1	B	30	30
VP2_11_E_115G	2	11	KT	06/11/2020	08:45	E	2	1	A	90	0
VP2_11_E_115G	2	11	KT	06/11/2020	08:45	E	2	1	A	90	0
VP2_11_E_117	2	11	PE	06/11/2020	08:47	E	2	1	A	15	0
VP2_11_E_115H	2	11	KT	06/11/2020	08:47	E	2	1	B	93	93
VP2_11_E_115I	2	11	KT	06/11/2020	08:50	E	2	1	C	60	60
VP2_11_E_115J	2	11	KT	06/11/2020	08:51	E	2	1	B	15	15
VP2_11_E_115K	2	11	KT	06/11/2020	08:51	E	2	1	A	135	0
VP2_11_E_118A	2	11	PE	06/11/2020	08:52	E	2	1	A	30	0
VP2_11_E_118B	2	11	PE	06/11/2020	08:52	E	2	1	B	15	15
VP2_11_E_118C	2	11	PE	06/11/2020	08:52	E	2	1	A	15	0
VP2_11_E_119A	2	11	PE	06/11/2020	08:52	E	2	1	A	30	0
VP2_11_E_119B	2	11	PE	06/11/2020	08:52	E	2	1	B	15	15

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_11_E_119C	2	11	PE	06/11/2020	08:52	E	2	1	A	15	0
VP2_11_E_115L	2	11	KT	06/11/2020	08:53	E	2	1	B	15	15
VP2_11_E_115M	2	11	KT	06/11/2020	08:53	E	2	1	C	47	47
VP1_11_M_120A	1	11	KT	06/11/2020	11:06	M	1	1	B	59	59
VP1_11_M_121	1	11	KT	06/11/2020	12:01	M	1	1	A	75	0
VP1_11_M_122A	1	11	PE	06/11/2020	12:16	M	1	1	A	30	0
VP1_11_M_122B	1	11	PE	06/11/2020	12:16	M	1	1	B	30	30
VP1_11_M_123	1	11	PE	06/11/2020	12:20	M	1	1	B	102	102
VP1_11_M_124	1	11	GI	06/11/2020	12:40	M	1	1	B	75	75
VP1_11_M_125	1	11	PE	06/11/2020	13:05	M	1	1	A	90	0
VP1_11_E_126	1	11	GI	12/11/2020	09:23	E	1	1	A	30	0
VP1_11_E_130A	1	11	KT	12/11/2020	11:35	E	1	1	B	21	21
VP1_11_E_130B	1	11	KT	12/11/2020	11:35	E	1	1	A	15	0
VP1_11_E_130C	1	11	KT	12/11/2020	11:35	E	1	1	B	105	105
VP1_11_E_130D	1	11	KT	12/11/2020	11:37	E	1	1	C	135	135
VP1_11_E_130E	1	11	KT	12/11/2020	11:39	E	1	1	D	30	30

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_11_E_130F	1	11	KT	12/11/2020	11:40	E	1	1	E	15	0
VP1_11_E_131A	1	11	KT	12/11/2020	11:54	E	1	1	B	45	45
VP1_11_E_131B	1	11	KT	12/11/2020	11:54	E	1	1	A	15	0
VP1_11_E_132A	1	11	KT	12/11/2020	11:56	E	1	1	A	59	0
VP2_11_L_133	2	11	HH	12/11/2020	13:26	L	2	1	A	30	0
VP2_11_L_134A	2	11	KT	12/11/2020	14:14	L	2	1	A	30	0
VP2_11_L_134B	2	11	KT	12/11/2020	14:14	L	2	1	B	45	45
VP2_11_L_134C	2	11	KT	12/11/2020	14:15	L	2	1	C	245	245
VP2_11_L_134D	2	11	KT	12/11/2020	14:19	L	2	1	B	200	200
VP2_11_L_134E	2	11	KT	12/11/2020	14:23	L	2	1	C	11	11
VP2_11_L_135	2	11	HH	12/11/2020	15:28	L	2	1	A	45	0
VP2_11_M_136	2	11	PE	26/11/2020	09:58	M	2	1	A	29	0
VP1_11_L_137A	1	11	GI	26/11/2020	12:45	L	1	1	B	60	60
VP1_11_L_137B	1	11	GI	26/11/2020	12:46	L	1	1	C	120	120
VP1_11_L_137C	1	11	GI	26/11/2020	12:48	L	1	1	D	630	630
VP1_11_L_138	1	11	GI	26/11/2020	12:56	L	1	1	D	180	180

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_11_L_140A	1	11	KT	26/11/2020	14:47	L	1	1	B	120	120
VP1_11_L_140B	1	11	KT	26/11/2020	14:50	L	1	1	A	2	0
VP1_11_L_141A	1	11	KT	26/11/2020	15:01	L	1	1	A	5	0
VP1_11_L_141B	1	11	KT	26/11/2020	15:01	L	1	1	B	2	2
VP1_12_E_142A	1	12	KT	04/12/2020	09:26	E	1	1	B	12	12
VP1_12_E_142B	1	12	KT	04/12/2020	09:26	E	1	1	A	15	0
VP1_12_E_144	1	12	KT	04/12/2020	10:15	E	1	1	A	45	0
VP2_12_M_145	2	12	HH	04/12/2020	13:19	M	2	1	A	225	0
VP2_12_M_146	2	12	HH	04/12/2020	13:27	M	2	1	A	75	0
VP2_12_M_147	2	12	HH	04/12/2020	13:39	M	2	1	A	30	0
VP2_12_E_148	2	12	PE	09/12/2020	09:39	E	2	1	B	38	38
VP1_12_M_149B	1	12	KT	09/12/2020	13:49	M	1	1	A	28	0
VP1_12_M_150	1	12	KT	09/12/2020	13:51	M	1	1	A	180	0
VP1_12_M_151A	1	12	KT	09/12/2020	13:58	M	1	1	A	375	0
VP1_12_M_151B	1	12	KT	09/12/2020	14:04	M	1	1	B	5	5
VP1_12_M_152A	1	12	KT	09/12/2020	14:22	M	1	1	A	45	0

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_12_M_152B	1	12	KT	09/12/2020	14:22	M	1	1	B	255	255
VP1_12_M_153A	1	12	KT	09/12/2020	14:24	M	1	1	B	75	75
VP1_12_M_153B	1	12	KT	09/12/2020	14:25	M	1	1	A	90	0
VP1_12_M_154	1	12	KT	09/12/2020	14:25	M	1	1	A	60	0
VP1_12_M_155	1	12	KT	09/12/2020	14:36	M	1	2	B	108	108
VP1_12_M_156	1	12	KT	09/12/2020	14:39	M	1	1	A	169	0
VP1_01_E_158A	1	1	KT	06/01/2021	10:02	E	1	1	B	60	60
VP1_01_E_158B	1	1	KT	06/01/2021	10:03	E	1	1	A	30	0
VP1_01_E_159A	1	1	KT	06/01/2021	10:41	E	1	1	C	52	52
VP1_01_E_159B	1	1	KT	06/01/2021	10:42	E	1	1	B	60	60
VP1_01_E_159C	1	1	KT	06/01/2021	10:43	E	1	1	C	70	70
VP1_01_E_159D	1	1	KT	06/01/2021	10:45	E	1	1	B	18	18
VP1_01_M_160A	1	1	PE	11/01/2021	13:24	M	1	1	B	15	15
VP1_01_M_160B	1	1	PE	11/01/2021	13:24	M	1	1	A	15	0
VP1_01_M_162	1	1	ML	12/01/2021	09:30	M	1	1	A	15	0
VP1_01_M_163A	1	1	ML	12/01/2021	11:38	M	1	1	B	15	15

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_01_M_163B	1	1	ML	12/01/2021	11:38	M	1	1	A	30	0
VP1_01_M_164	1	1	ML	12/01/2021	11:39	M	1	1	A	15	0
VP1_01_E_166A	1	1	KT	22/01/2021	08:57	E	1	1	A	15	0
VP1_01_E_166B	1	1	KT	22/01/2021	08:57	E	1	1	B	15	15
VP1_01_E_166C	1	1	KT	22/01/2021	08:57	E	1	1	A	15	0
VP1_01_E_167A	1	1	KT	22/01/2021	10:57	E	1	1	B	439	439
VP1_01_E_168A	1	1	KT	22/01/2021	10:57	E	1	1	B	131	131
VP2_01_M_175A	2	1	KT	28/01/2021	11:46	M	2	1	B	195	195
VP2_01_M_175B	2	1	KT	28/01/2021	11:49	M	2	1	C	105	105
VP2_01_M_175C	2	1	KT	28/01/2021	11:51	M	2	1	D	30	30
VP2_01_M_175D	2	1	KT	28/01/2021	11:51	M	2	1	C	60	60
VP2_01_M_175E	2	1	KT	28/01/2021	11:52	M	2	1	B	105	105
VP2_01_M_175F	2	1	KT	28/01/2021	11:54	M	2	1	A	15	0
VP1_01_L_176A	1	1	KT	28/01/2021	12:38	L	1	1	C	90	90
VP1_01_L_176B	1	1	KT	28/01/2021	12:39	L	1	1	B	14	14
VP1_01_L_177A	1	1	KT	28/01/2021	13:09	L	1	1	A	30	0

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_01_L_177B	1	1	KT	28/01/2021	13:09	L	1	1	B	45	45
VP1_01_L_177C	1	1	KT	28/01/2021	13:10	L	1	1	C	60	60
VP1_01_L_178A	1	1	KT	28/01/2021	13:26	L	1	1	B	210	210
VP1_01_L_178B	1	1	KT	28/01/2021	13:29	L	1	1	A	15	0
VP1_01_L_179	1	1	KT	28/01/2021	13:36	L	1	1	A	30	0
VP1_01_L_180A	1	1	KT	28/01/2021	13:41	L	1	1	B	15	15
VP1_01_L_180B	1	1	KT	28/01/2021	13:41	L	1	1	C	30	30
VP1_01_L_181A	1	1	KT	28/01/2021	14:48	L	1	2	B	75	75
VP1_01_L_181B	1	1	KT	28/01/2021	14:49	L	1	2	A	15	0
VP1_01_L_182A	1	1	KT	28/01/2021	15:03	L	1	1	B	30	30
VP1_01_L_182B	1	1	KT	28/01/2021	15:03	L	1	1	A	15	0
VP1_01_L_182C	1	1	KT	28/01/2021	15:03	L	1	1	B	15	15
VP1_01_L_182D	1	1	KT	28/01/2021	15:04	L	1	1	A	15	0
VP1_01_L_182E	1	1	KT	28/01/2021	15:04	L	1	1	B	171	171
VP1_01_L_183	1	1	KT	28/01/2021	15:08	L	1	2	C	73	73
VP1_01_L_184	1	1	KT	28/01/2021	15:17	L	1	1	B	60	60

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_01_L_185	1	1	KT	28/01/2021	15:17	L	1	1	B	60	60
VP1_02_E_186	1	2	GP	15/02/2021	09:35	E	1	2	B	21	21
VP1_02_E_187	1	2	KT	15/02/2021	10:41	E	1	1	B	30	30
VP1_02_E_188	1	2	KT	15/02/2021	10:42	E	1	1	A	15	0
VP1_02_E_189	1	2	KT	15/02/2021	11:07	E	1	1	A	141	0
VP2_02_M_190	2	2	KT	15/02/2021	11:35	M	2	1	A	45	0
VP2_02_M_192	2	2	GI	15/02/2021	13:29	M	2	1	A	15	0
VP2_02_M_193	2	2	KT	18/02/2021	10:44	M	2	1	A	3	0
VP2_02_M_194	2	2	KT	18/02/2021	10:54	M	2	2	B	264	264
VP2_02_M_196A	2	2	PE	18/02/2021	11:25	M	2	1	B	120	120
VP2_02_M_196B	2	2	PE	18/02/2021	11:25	M	2	1	A	15	0
VP2_02_M_197A	2	2	KT	18/02/2021	11:58	M	2	1	B	75	75
VP2_02_M_197B	2	2	KT	18/02/2021	11:58	M	2	1	A	15	0
VP2_02_M_198B	2	2	KT	18/02/2021	12:08	M	2	1	B	10	10
VP1_02_L_201	1	2	KT	18/02/2021	13:51	L	1	1	B	30	30
VP1_02_L_202A	1	2	GI	18/02/2021	14:17	L	1	1	B	30	30

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_02_L_202B	1	2	GI	18/02/2021	14:17	L	1	1	C	45	45
VP1_02_L_202C	1	2	GI	18/02/2021	14:18	L	1	1	B	30	30
VP1_02_L_202D	1	2	GI	18/02/2021	14:18	L	1	1	C	30	30
VP1_02_L_202E	1	2	GI	18/02/2021	14:19	L	1	1	D	1	1
VP1_02_L_202F	1	2	GI	18/02/2021	14:21	L	1	1	C	19	19
VP1_02_L_202G	1	2	GI	18/02/2021	14:21	L	1	1	B	135	135
VP1_02_L_202H	1	2	GI	18/02/2021	14:23	L	1	1	C	45	45
VP1_02_L_202I	1	2	GI	18/02/2021	14:24	L	1	1	B	45	45
VP1_02_L_202J	1	2	GI	18/02/2021	14:25	L	1	1	C	26	26
VP1_02_L_203A	1	2	KT	18/02/2021	14:58	L	1	1	B	43	43
VP1_02_L_204A	1	2	KT	18/02/2021	15:08	L	1	1	B	22	22
VP1_02_L_204B	1	2	KT	18/02/2021	15:08	L	1	1	A	15	0
VP1_02_M_205A	1	2	KT	25/02/2021	10:10	M	1	1	B	90	90
VP1_02_M_205B	1	2	KT	25/02/2021	10:10	M	1	1	A	30	0
VP1_02_M_206A	1	2	KT	25/02/2021	11:49	M	1	1	B	390	390
VP1_02_M_206B	1	2	KT	25/02/2021	11:49	M	1	1	A	90	0

Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP1_02_M_206C	1	2	KT	25/02/2021	11:49	M	1	1	B	75	75
VP1_02_M_206D	1	2	KT	25/02/2021	11:49	M	1	1	A	90	0
VP1_02_M_206G	1	2	KT	25/02/2021	11:49	M	1	1	B	30	30
VP1_02_M_206J	1	2	KT	25/02/2021	11:49	M	1	1	A	15	0
VP1_02_M_206K	1	2	KT	25/02/2021	11:49	M	1	1	B	105	105
VP1_02_M_206L	1	2	KT	25/02/2021	11:49	M	1	1	A	6	0
VP1_02_M_206M	1	2	KT	25/02/2021	11:49	M	1	1	B	240	240
VP1_02_M_206N	1	2	KT	25/02/2021	11:49	M	1	1	C	70	70
VP1_02_M_206H	1	2	KT	25/02/2021	11:49	M	1	1	A	45	0
VP1_02_M_206I	1	2	KT	25/02/2021	11:49	M	1	1	B	90	90
VP1_02_M_206E	1	2	KT	25/02/2021	11:49	M	1	1	B	75	75
VP1_02_M_206F	1	2	KT	25/02/2021	11:49	M	1	1	C	75	75
VP1_02_M_208	1	2	GI	25/02/2021	12:20	M	1	1	C	25	25
VP1_02_M_209	1	2	GI	25/02/2021	12:24	M	1	1	C	3	3
VP1_02_M_211B	1	2	GI	25/02/2021	12:41	M	1	2	B	16	16
VP2_02_L_213A	2	2	KT	25/02/2021	14:35	L	2	1	A	30	0



Flight ID	VP	Month	Species	Date	Time	VP	No_Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
VP2_02_L_213B	2	2	KT	25/02/2021	14:35	L	2	1	B	105	105
VP2_02_L_213C	2	2	KT	25/02/2021	14:35	L	2	1	B	15	15
VP2_02_L_214	2	2	KT	25/02/2021	14:45	L	2	1	B	26	26
VP2_02_E_220	2	2	KT	26/02/2021	08:53	E	2	1	A	13	0
VP2_02_E_221	2	2	KT	26/02/2021	09:18	E	2	1	A	15	0
VP2_02_E_222	2	2	PE	26/02/2021	09:34	E	2	1	B	15	15
VP2_02_E_225	2	2	KT	26/02/2021	10:24	E	2	1	A	11	0
VP2_02_E_226A	2	2	KT	26/02/2021	10:28	E	2	1	A	42	0
VP2_02_E_226B	2	2	KT	26/02/2021	10:28	E	2	1	B	90	90
VP2_02_E_226C	2	2	KT	26/02/2021	10:28	E	2	1	A	30	0
VP2_02_E_228A	2	2	GI	26/02/2021	10:36	E	2	1	B	20	20
VP2_02_E_228B	2	2	GI	26/02/2021	10:36	E	2	1	A	0	0

Table B3 Raw flight data used in CRM modelling for red kite and goshawk – March 2021 – August 2021

Flight ID	VP	Month	Species	Date	Time	No Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
CF_VP1_0001	1	3	GI	05/03/2021	1	09:16	1	B	80	80

Flight ID	VP	Month	Species	Date	Time	No Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
CF_VP1_0002A	1	3	KT	05/03/2021	1	10:03	1	B	30	30
CF_VP1_0002B	1	3	KT	05/03/2021	1	10:03	1	A	15	0
CF_VP1_0003	1	3	KT	05/03/2021	1	10:09	2	B	285	285
CF_VP1_0004A	1	3	KT	05/03/2021	1	10:14	1	B	30	30
CF_VP1_0004B	1	3	KT	05/03/2021	1	10:14	1	C	120	120
CF_VP1_0004C	1	3	KT	05/03/2021	1	10:16	1	B	30	30
CF_VP1_0004D	1	3	KT	05/03/2021	1	10:17	1	A	15	0
CF_VP1_0005A	1	3	KT	05/03/2021	1	10:14	1	B	45	45
CF_VP1_0005B	1	3	KT	05/03/2021	1	10:14	1	A	15	0
CF_VP1_0006	1	3	KT	05/03/2021	1	10:22	4	B	105	105
CF_VP1_0007A	1	3	KT	05/03/2021	1	10:58	1	B	45	45
CF_VP1_0007B	1	3	KT	05/03/2021	1	10:58	1	C	60	60
CF_VP1_0007C	1	3	KT	05/03/2021	1	10:59	1	B	30	30
CF_VP1_0008	1	3	KT	05/03/2021	1	11:04	1	B	60	60
CF_VP1_0009A	1	3	KT	05/03/2021	1	11:23	1	B	45	45
CF_VP1_0009B	1	3	KT	05/03/2021	1	11:23	1	C	45	45

Flight ID	VP	Month	Species	Date	Time	No Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
CF_VP1_0009C	1	3	KT	05/03/2021	1	11:24	1	B	60	60
CF_VP1_0010	1	3	KT	05/03/2021	1	11:25	2	B	90	90
CF_VP1_0011	1	3	KT	05/03/2021	1	11:27	1	B	120	120
CF_VP2_0012A	2	3	KT	05/03/2021	2	12:26	1	B	1050	1050
CF_VP2_0012B	2	3	KT	05/03/2021	2	12:43	1	A	15	0
CF_VP2_0013A	2	3	KT	05/03/2021	2	12:53	2	A	30	0
CF_VP2_0013B	2	3	KT	05/03/2021	2	12:53	2	B	555	555
CF_VP2_0013C	2	3	KT	05/03/2021	2	13:02	2	A	15	0
CF_VP2_0014	2	3	KT	05/03/2021	2	13:22	1	A	75	0
CF_VP2_0015A	2	3	KT	05/03/2021	2	13:41	1	A	15	0
CF_VP2_0015B	2	3	KT	05/03/2021	2	13:41	1	B	645	645
CF_VP2_0015C	2	3	KT	05/03/2021	2	13:52	1	A	15	0
CF_VP2_0016A	2	3	KT	05/03/2021	2	14:33	1	A	15	0
CF_VP2_0016B	2	3	KT	05/03/2021	2	14:33	1	B	659	659
CF_VP1_0025	1	3	KT	08/03/2021	1	12:46	1	A	45	0
CF_VP1_0026A	1	3	KT	08/03/2021	1	12:10	1	B	5	5

Flight ID	VP	Month	Species	Date	Time	No Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
CF_VP1_0026B	1	3	KT	08/03/2021	1	12:11	1	C	82	82
CF_VP1_0026C	1	3	KT	08/03/2021	1	12:13	1	B	30	30
CF_VP1_0027	1	3	PE	08/03/2021	1	13:56	2	D	5	5
CF_VP1_0028A	1	3	KT	08/03/2021	1	14:11	1	B	30	30
CF_VP1_0028B	1	3	KT	08/03/2021	1	14:11	1	A	30	0
CF_VP1_0028C	1	3	KT	08/03/2021	1	14:12	1	B	15	15
CF_VP1_0028D	1	3	KT	08/03/2021	1	14:12	1	C	75	75
CF_VP1_0028E	1	3	KT	08/03/2021	1	14:13	1	B	15	15
CF_VP1_0029A	1	3	KT	08/03/2021	1	14:21	1	B	30	30
CF_VP1_0029B	1	3	KT	08/03/2021	1	14:21	1	A	30	0
CF_VP1_0030	1	3	KT	08/03/2021	1	14:34	1	B	7	7
CF_VP1_0079B	1	3	GI	08/03/2021	1	14:34	1	B	28	28
CF_VP1_0079A	1	3	GI	08/03/2021	1	14:34	1	A	30	0
CF_VP1_0031A	1	3	KT	08/03/2021	1	14:42	1	A	45	0
CF_VP1_0031B	1	3	KT	08/03/2021	1	14:42	1	B	45	45
CF_VP1_0031C	1	3	KT	08/03/2021	1	14:43	1	A	15	0

Flight ID	VP	Month	Species	Date	Time	No Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
CF_VP2_0017A	2	3	KT	08/03/2021	2	09:35	2	D	152	152
CF_VP2_0019A	2	3	KT	08/03/2021	2	10:04	1	B	45	45
CF_VP2_0019B	2	3	KT	08/03/2021	2	10:04	1	C	30	30
CF_VP2_0019C	2	3	KT	08/03/2021	2	10:05	1	D	60	60
CF_VP2_0019D	2	3	KT	08/03/2021	2	10:06	1	C	90	90
CF_VP2_0021A	2	3	KT	08/03/2021	2	10:54	1	B	7	7
CF_VP2_0021B	2	3	KT	08/03/2021	2	10:54	1	C	143	143
CF_VP2_0021C	2	3	KT	08/03/2021	2	10:57	1	B	75	75
CF_VP2_0021D	2	3	KT	08/03/2021	2	10:58	1	A	15	0
CF_VP2_0022A	2	3	KT	08/03/2021	2	11:32	1	B	56	56
CF_VP2_0022B	2	3	KT	08/03/2021	2	11:33	1	A	15	0
CF_VP2_0023A	2	3	KT	08/03/2021	2	11:50	1	B	30	30
CF_VP2_0023b	2	3	KT	08/03/2021	2	11:50	1	A	15	0
CF_VP2_0024A	2	3	KT	08/03/2021	2	12:00	1	B	30	30
CF_VP2_0024B	2	3	KT	08/03/2021	2	12:00	1	C	75	75
CF_VP2_0024C	2	3	KT	08/03/2021	2	12:01	1	B	15	15

Flight ID	VP	Month	Species	Date	Time	No Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight Time
CF_VP2_0024D	2	3	KT	08/03/2021	2	12:02	1	A	15	0
CF_VP2_0033	2	4	KT	15/04/2021	2	10:50	1	B	117	117
CF_VP2_0034	2	4	KT	15/04/2021	2	11:34	1	B	59	59
CF_VP2_0035	2	4	GI	15/04/2021	2	11:52	1	A	15	0
CF_VP2_0036	2	5	ML	25/05/2021	2	14::15	1	A	45	0
CF_VP2_0037	2	5	ML	25/05/2021	2	18:09	1	A	30	0
CF_VP1_0042	2	6	KT	28/06/2021	2	09:25	1	B	42	42
CF_VP2_0040A	2	7	KT	09/07/2021	2	11:52	1	A	195	0
CF_VP2_0040B	2	7	KT	09/07/2021	2	11:55	1	B	75	75
CF_VP2_0040C	2	7	KT	09/07/2021	2	11:56	1	A	150	0
CF_VP2_0040D	2	7	KT	09/07/2021	2	11:58	1	B	210	210
CF_VP2_0040E	2	7	KT	09/07/2021	2	12:01	1	A	193	0
CF_VP1_0041	1	7	GI	23/07/2021	1	11:20	1	B	135	135
CF_VP2_0045C	2	8	GI	24/08/2021	2	12:41	1	A	15	0
CF_VP2_0045B	2	8	GI	24/08/2021	2	12:39	1	B	34	34

Table B4 Raw flight data used in CRM modelling for red kite and goshawk – September 2021 – February 2022

Flight ID	VP	Month	Species	Date	Time	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight time
CF_VP2_0044	2	9	KT	22/09/2021	07:45	1	A	30	0	0
CF_VP2_0045A	2	9	PE	22/09/2021	09:35	1	B	15	15	15
CF_VP2_0045B	2	9	PE	22/09/2021	09:35	1	A	11	0	0
CF_VP2_0046A	2	9	HZ	22/09/2021	09:51	1	C	13	13	210
CF_VP2_0046B	2	9	HZ	22/09/2021	09:54	1	B	22	22	45
CF_VP1_0050A	1	9	KT	22/09/2021	12:46	1	B	135	135	135
CF_VP1_0050B	1	9	KT	22/09/2021	12:48	1	C	120	120	120
CF_VP1_0050C	1	9	KT	22/09/2021	12:50	1	D	125	125	0
CF_VP1_0050D	1	9	KT	22/09/2021	12:53	1	C	45	45	45
CF_VP1_0051	1	9	KT	29/09/2021	10:01	1	B	75	75	75
CF_VP1_0052A	1	9	KT	29/09/2021	10:03	1	B	45	45	45
CF_VP1_0053	1	9	KT	29/09/2021	10:08	1	A	45	0	0
CF_VP1_0054	1	9	KT	29/09/2021	10:40	1	B	15	15	15
CF_VP2_0056	2	9	PE	29/09/2021	12:44	1	B	12	12	15
CF_VP2_0057	2	9	PE	29/09/2021	12:44	1	B	12	12	15

Flight ID	VP	Month	Species	Date	Time	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight time
CF_VP1_0058A	1	10	GI	11/02/2021	10:11	1	B	45	45	45
CF_VP1_0058B	1	10	GI	11/02/2021	10:11	1	A	15	0	0
CF_VP1_0060	1	10	GI	11/02/2021	10:45	1	B	15	15	15
CF_VP1_0059	1	10	GI	11/02/2021	10:40	1	B	15	15	15
CF_VP1_0061A	1	10	KT	11/02/2021	11:20	1	B	90	90	90
CF_VP1_0061B	1	10	KT	11/02/2021	11:21	1	C	30	30	30
CF_VP1_0061C	1	10	KT	11/02/2021	11:22	1	B	171	171	180
CF_VP1_0062	1	11	KT	16/11/2021	07:30	1	A	15	0	0
CF_VP1_0063	1	11	KT	16/11/2021	07:53	1	A	15	0	0
CF_VP1_0064	1	11	KT	16/11/2021	07:54	1	A	15	0	0
CF_VP1_0065	1	11	KT	16/11/2021	08:15	1	B	28	28	45
CF_VP2_0067	2	11	GP	17/11/2021	08:40	1	B	15	15	15
CF_VP2_0068	2	11	T.	17/11/2021	08:28	12	A	14	0	0
CF_VP2_0069	2	11	T.	17/11/2021	11:20	12	A	15	0	0
CF_VP2_0070	2	11	KT	17/11/2021	12:54	1	A	60	0	0
CF_VP2_0071	2	11	KT	17/11/2021	13:21	1	A	75	0	0

Flight ID	VP	Month	Species	Date	Time	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight time
CF_VP2_0072A	2	11	T.	17/11/2021	13:22	12	A	15	0	0
CF_VP2_0072B	2	11	T.	17/11/2021	13:22	12	B	14	14	180
CF_VP1_0072C	2	11	T.	17/11/2021	13:22	12	A	15	0	0
CF_VP1_0073A	1	12	GI	03/12/2021	10:11	1	B	30	30	30
CF_VP2_0073B	1	12	GI	03/12/2021	10:11	1	A	75	0	0
CF_VP1_0076A	1	1	KT	05/01/2022	13:19	1	B	31	31	45
CF_VP1_0076B	1	1	KT	05/01/2022	13:19	1	C	9	9	15
CF_VP1_0076C	1	1	KT	05/01/2022	13:20	1	B	15	15	15
CF_VP1_0076D	1	1	KT	05/01/2022	13:20	1	A	15	0	0
CF_VP1_0084	1	2	GI	02/02/2022	11:52	1	B	449	449	460
CF_VP1_0085	1	2	GI	02/02/2022	12:09	1	B	119	119	120
CF_VP1_0086A	1	2	KT	02/02/2022	12:41	1	A	120	0	0
CF_VP1_0086B	1	2	KT	02/02/2022	12:41	1	B	173	173	180
CF_VP1_0086C	1	2	KT	02/02/2022	12:45	1	A	150	0	0
CF_VP1_0052B	1	9	KT	29/09/2021	10:03	1	A	60	0	0
CF_VP1_0050B	1	9	KT	29/09/2021	12:48	1	C	120	120	120

Flight ID	VP	Month	Species	Date	Time	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight time
CF_VP2_0048A	2	9	KT	29/09/2021	09:59	1	B	100	100	360
CF_VP1_066	1	11	GI	16/11/2021	11:09	1	A	30	0	0
CF_VP2_0087	2	3	GI	10/03/2022	08:40	1	B	29	29	75
CF_VP2_0088	2	3	KT	10/03/2022	09:15	1	A	29	0	0
CF_VP2_0089	2	3	KT	10/03/2022	09:35	1	A	32	0	0
CF_VP2_0090	2	3	KT	10/03/2022	10:07	1	B	11	11	15
CF_VP2_0091	2	3	KT	10/03/2022	10:27	1	B	430	430	600
CF_VP2_0092A	2	3	KT	10/03/2022	10:52	1	A	30	0	0
CF_VP2_0092B	2	3	KT	10/03/2022	10:53	1	B	195	195	195
CF_VP2_0092C	2	3	KT	10/03/2022	10:55	1	A	30	0	0
CF_VP2_0093	2	3	KT	10/03/2022	11:01	1	A	41	0	0
CF_VP2_0094A	2	3	KT	10/03/2022	11:06	1	A	14	0	0
CF_VP2_0094B	2	3	KT	10/03/2022	11:06	1	B	36	36	75
CF_VP2_0095A	2	3	GI	10/03/2022	11:18	1	A	15	0	0
CF_VP2_0095B	2	3	GI	10/03/2022	11:18	1	B	35	35	45
CF_VP2_0096	2	3	KT	10/03/2022	11:38	1	A	15	0	0

Flight ID	VP	Month	Species	Date	Time	No. Birds	Height Band	Flight Time	Time at PCH	No. Birds x Flight time
CF_VP2_0098	2	3	KT	10/03/2022	12:40	1	A	15	0	0
CF_VP2_0099	2	3	KT	10/03/2022	12:48	1	C	135	135	135
CF_VP2_0100	2	3	KT	10/03/2022	12:48	1	B	75	75	75
CF_VP2_0101A	2	3	KT	10/03/2022	13:26	1	B	87	87	90
CF_VP2_0101B	2	3	KT	10/03/2022	13:27	1	C	48	48	60

Annex C

CRM Calculations

wood.