

Bird Survey Report: March 2021 – March 2022

Cooler Wind Farm





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1. INTRODUCTION

McCarthy Keville O’Sullivan (MKO) was appointed to carry out bird survey works at Coole Wind Farm during the period from March 2021 to March 2022 inclusive. This report also includes discussion of the key observations from the 2022 breeding season. It is further noted that surveys will continue this winter 2022/23, this data was not available at the time of writing this response but can be collated and made available on request. The site is located north of Coole Village in County Westmeath (53.734193, -7.3807204). The dominant habitat onsite is cutover bog, conifer plantation and improved agricultural grassland with accompanying smaller areas of wet grassland. The wider surroundings are predominantly cutover bog, to the west and north, and improved agricultural grassland, to the east and south. The total area of the wind farm site is approximately 495ha.

This report describes the ornithological survey methods employed and survey data collected at Coole for the period from March 2021 to March 2022 inclusive. The key observations from the 2022 breeding season are included in Section 3.2.9. This report also contains information compiled during desktop studies. Particular attention has been paid to species of conservation importance and identified target species.

The report is supported by Technical Appendix 1 (Survey Effort), Appendix 2 (Survey Data) and Appendix 3 (Confidential Data) which contains the raw data from the breeding bird surveys undertaken during the survey period. This includes detail on survey times, weather conditions, surveyors, survey results and other additional information. Flight line figures from surveys are included in Appendix 4. Appendix 5 contains the collision risk assessment.

The report is structured as follows:

- An introduction providing a description of the background and statement of authority regarding ornithological works.
- An update to the desktop study that was carried out as part of the EIAR.
- A comprehensive description of the ornithological surveys carried out.
- A full description of results for all ornithological surveys carried out.
- An updated impact assessment incorporating the data contained within the EIAR and this report.
- Conclusion

The following defines terms used in this report:

- “Zones of Influence” (ZOI) for potential ornithological receptors refer to the zone within which potential effects are anticipated. ZOIs were assigned following the best available guidance (SNH 2016 and McGuinness et.al 2015).

1.1 Statement of Authority

This report has been prepared by Patrick Manley (B.Sc.) Project Ornithologist with MKO. The field surveys were undertaken by Andrew O’Donoghue, Conor Rowland, Niall McHugh, Niamh Scanlon, Patrick Manley, Tom Rae, Zak O’Conor and Zuzana Erosova, all of whom are experienced, competent bird surveyors.

2. DESK STUDY & CONSULTATION

2.1 Desk Study Methods

A comprehensive desk study was undertaken to search for any changes in the relevant information on species of conservation concern which may potentially make use of the study area since the EIAR was submitted. The assessment included a thorough review of the latest ornithological data not available at the time of EIAR submission. These include:

- Review of online web-mappers with more up to date available data: Irish Wetland Bird Survey (I-WeBS).
- Review of Birds of Conservation Concern (BoCCI) in Ireland 2020-2026 (Gilbert et al., 2021)
- Review of the 2020 International Swan Census data (Burke et al., 2021).

2.2 Desk Study Results

2.2.1 Bird of Conservation Concern (BoCCI) in Ireland 2020-2026

As per Bird of Conservation Concern (BoCCI) in Ireland 2020-2026, the following key ornithological receptors from the EIAR have been added to the BoCCI red-list:

- Kestrel
- Snipe

The following key ornithological receptors from the EIAR have been moved from the BoCCI red-list to the BoCCI Amber-list:

- Black-headed Gull
- Teal
- Wigeon

2.2.2 Irish Wetland Bird Surveys (I-WeBS)

The I-WeBS data presented in the EIAR was the county population estimate based on the five year mean from 2011/12 to 2015/16. The most up to date I-WeBS data currently available is the five year mean from 2015/16 to 2019/20. It is noted that this is an estimate, based on the best available information for water bird species. The table below shows the change in county population size for each species discussed in the EIAR, where I-WeBS data was used to evaluate county importance thresholds.

Table 1 I-WeBS updated county population sizes

Species	2011/12-2015/16 Mean	2015/16-2019/20 Mean
Greenland White-fronted Goose	291	235
Golden Plover	2,610	264
Wigeon	632	248
Teal	450	221

2.2.3 **2020 International Swan Census**

At the time of submission of the EIAR the Swan Census 2015 (Crowe et al., 2015) was the latest available data for whooper swan. In 2021, the 2020 International Swan Census data was published (Burke et al., 2021). The EIAR referenced the Westmeath county population to be 389 whooper swan. The 2020 Swan Census estimated the Westmeath whooper swan population to be 982 birds.

2.2.4 **EPA Guidelines**

The Environmental Protection Agency guidelines on the information to be contained in Environmental Impact Assessment Reports were updated in May 2022 (EPA, 2022). This document was reviewed for changes compared to the EPA (2017) guidelines and the new guidelines were adhered to in this report.

3. FIELD SURVEYS

3.1 Field Survey Methods

This section of the report describes the various field survey methods employed. Field surveys were undertaken from March 2021 to March 2022 inclusive¹. The data provided in this report is robust and allows clear, precise and definitive conclusions to be made with regard to the likely significant effects on avian receptors identified within the subject site. Field survey methodologies have been devised to survey for the bird species composition and assemblages that occur within the study area.

3.1.1 Initial Site Assessment

The likely importance of the study area for bird species was determined, based on the results of the previous surveys as reported in the EIAR, the desk study and reconnaissance site visits. Based on the collated information available from the above preliminary assessment and adopting a precautionary approach, a site-specific scope for the ornithological surveys was developed.

3.1.2 Vantage Point Surveys

Vantage point (VP) surveys were undertaken in accordance with SNH guidance (SNH, 2017) from two vantage point locations from March 2021 to September 2021 (VP4 & VP6) and from four vantage point locations from October 2021 to March 2022 (VP3, VP4, VP5 & VP6). Data on bird observations and flight activity was collected from a scanning arc of 180° and a two-kilometre radius by an observer at each fixed location for six hours per month. Surveys were timed to provide a spread over the full daylight period including at dawn and dusk to coincide with the highest peaks of bird activity.

Details on the vantage point watch survey effort are presented in Appendix 1 of this report. This appendix includes full details of dates, times, survey locations, survey duration and weather conditions for each survey. Appendix 4, Figure 1 shows the locations of vantage points and technical data is provided in Appendix 2.

Flight activity was assigned to distinct height bands. The flight bands were chosen with reference to the dimensions of likely turbine models for the site and the resulting potential collision height. Bands are split into 0-15m, 15-25m, 25m-200m and 200m+. Taking a precautionary approach 15-200m is considered potential collision height (PCH), i.e. the height of the rotating turbine blade.

3.1.2.1 Viewshed Analysis

Viewshed analysis was carried out to confirm the sufficiency of the selected fixed vantage point locations (VP3, VP4, VP5 & VP6) prior to the commencement of surveys in March 2021 (or September 2022 where relevant). Viewsheds were calculated using Resoft Wind Farm ZTV (Zone of Theoretical Visibility) software in combination with Mapinfo Professional (Version 10.0) using a notional and precautionary layer suspended at 20m, which represents the lowest swept height of the turbine blades. While the relevance of being able to view as much of the site to ground level is acknowledged, the SNH guidance emphasises the importance of visibility of the ‘collision risk volume’ when the data is to be used to estimate the risk of collision with turbines by birds.

The viewshed analysis involved testing each VP location for its visibility coverage by creating a view shed point two metres in height (to represent the height of the observer) on a map using 10 metre contours terrain data. Using the ZTV software, a viewshed of 360 degrees was produced calculating an area 20

¹ In addition, the key observations from the 2022 breeding season are included in Section 3.2.9 below.

metres from ground level up to a two-kilometre radius. The resulting viewshed image was then cropped to 180 degrees to give the viewshed from each VP location in line with SNH (2017). A 500m buffer was applied to the likely maximum viable area of the site for a wind energy development in line with SNH's recommendation to conduct surveys to 500m from the outermost turbines of a proposed wind farm site (2017). The viewshed analysis offers maximum views of the study area with adequate coverage of the proposed turbine layout. As described above, the predicted collision risk height band that was used in the current assessment is considered to be precautionary and in line with previous recommended height bands advocated in SNH (2005) guidance documents. Appendix 4, Figure 1a, 1b and 1c show the viewshed analysis of the four vantage point locations at 20m, 26m and 25m, respectively.

3.1.3 Breeding Walkover Surveys

Breeding walkover surveys were undertaken to determine the presence of bird species of high conservation concern and identify areas of possible, probable, or confirmed breeding territories for bird species observed within the study area. The survey methodology followed the O'Brien and Smith method for lowland sites as outlined in Gilbert et al. (1998). The study area for these surveys was the wind farm site and a 500m survey radius of the wind farm site.

Transects were selected in order to survey all areas of suitable breeding/ foraging habitat to within 100m, where access allowed. Target species included waders, raptors, waterbirds, gulls and other birds of conservation concern. Along with target species, all additional species observed were recorded to inform the evaluation of supporting habitat.

Walkover surveys were carried out during daylight hours, during the core breeding season months of April, May, June and July (2021), with the wind farm site being visited three days per month on each occasion. Following all survey visits, the field maps were analysed to determine the number and location of breeding territories. All non-breeding individuals and species encountered were also recorded.

Survey effort, including details of survey duration and weather conditions, is presented in Appendices 1 and 2. Figure 2 in Appendix 3 shows the survey area.

3.1.4 Breeding Raptor Surveys

Breeding raptor surveys (*i.e.*, birds of prey and owls) were undertaken within the study area and its immediate surroundings. These surveys aimed to identify occupied territories and ascertain whether breeding was successful. Methodology followed Hardey *et al.* (2013). Raptor surveys were undertaken onsite and to a 2km radius from the wind farm site every month during the core breeding season period (April to July 2021).

Survey effort, including details of survey duration and weather conditions, is presented in Appendices 1 and 2. Figure 3 in Appendix 4 shows the study area extending 2km from the wind farm site.

3.1.5 Woodcock Surveys

Breeding season surveys for woodcock were undertaken in accordance with Gilbert et. al (1998). The survey area extended 500m beyond the wind farm site. All surveys were undertaken in areas of suitable breeding habitat during May and June 2021. Surveys commenced one hour before sunset and continue for an hour after sunset/ until it was too dark to see. The survey aimed to record the presence of roding (displaying) male woodcock and thereby establish the distribution and abundance of the species in the study area. This survey method also allowed the observer to survey for owls, *i.e.*, barn owls and long-eared owls.

Survey effort undertaken for transect surveys is presented in Appendix 1, including details of survey duration and weather conditions. Figure 4 in Appendix 4 shows survey area and technical data is provided in Appendix 2.

3.1.6 Winter Walkover Surveys

Winter walkover surveys were undertaken to record the presence of bird species of high conservation concern within areas of potentially suitable habitat in the wind farm site and a 500m survey radius of the wind farm site.

Transect routes, devised to ensure coverage of different habitat complexes, were visited within the study area during the winter months. Methodology was broadly based on adapted Brown and Shepherd methods. Target species included raptors, waterbirds, gulls and ground birds of conservation interest. Along with target species, all additional species observed were recorded to inform the evaluation of supporting habitat.

Survey effort undertaken for transect surveys is presented in Appendix 1, including details of survey duration and weather conditions. Figure 5 in Appendix 4 shows the survey area and technical data is provided in Appendix 2.

3.1.7 Wildfowl Distribution Surveys

Significant wetland sites and waterbodies within eight kilometres of the study area were surveyed for waterbird populations between September 2021 and March 2022. The area surveyed exceeded the requirements of SNH (SNH, 2017), i.e., 500m for foraging wildfowl and one kilometre for roosting wildfowl. In addition, the Lough Iron waterbird population situated approximately 12.8km to the south-west of the wind farm site was monitored one day per month during the same period, with a particular focus on Greenland white-fronted goose. The count methodology was in line with survey guidelines issued by SNH (2017) and BirdWatch Ireland (2015). Counts were undertaken during daylight hours from suitable vantage points at the wetland sites.

Survey effort undertaken for transect surveys is presented in Appendix 1, including details of survey duration and weather conditions. Figure 6 in Appendix 4 shows the survey area and technical data is provided in Appendix 2.

3.1.8 Survey Justification

A comprehensive suite of bird surveys was undertaken at the site between March 2021 and March 2022, as detailed in this report. Results in this report are derived from a continuous thirteen months of surveying undertaken in accordance with SNH Guidance.

The surveys undertaken provide the information necessary to allow a complete, comprehensive and robust assessment of the potential impacts of the wind farm site on avian receptors. The survey duration and scope are considered entirely satisfactory.

3.2 Field survey results

3.2.1 Introduction

The following target species were recorded between March 2021 and March 2022 and observations are described in detail in subsequent sections below. The list is ordered in accordance with conservation significance: Annex I species, SCIs of designated sites, Red listed species and raptors:

- > Common Tern (Annex I)
- > Golden Plover (Annex I; SCI species of nearby SPA)
- > Greenland White-fronted Goose (Annex I; SCI species of nearby SPAs)
- > Hen harrier (Annex I)
- > Kingfisher (Annex I)
- > Little Egret (Annex I)
- > Merlin (Annex I; Schedule IV of the Wildlife Act; 1976)
- > Peregrine Falcon (Annex I; Schedule IV of the Wildlife Act; 1976)
- > Ruff (Annex I)
- > White-tailed Eagle (Annex I; Schedule IV of the Wildlife Act; 1976)
- > Whooper Swan (Annex I; SCI species of nearby SPA)
- > Coot (SCI species of nearby SPA)
- > Shoveler (SCI species of nearby SPAs)
- > Teal (SCI species of nearby SPA)
- > Tufted Duck (SCI species of nearby SPAs)
- > Wigeon (SCI species of nearby SPA)
- > Curlew (BoCCI Red listed)
- > Goldeneye (BoCCI Red listed)
- > Kestrel (BoCCI Red listed)
- > Lapwing (BoCCI Red listed)
- > Pochard (BoCCI Red listed)
- > Snipe (BoCCI Red listed)
- > Woodcock (BoCCI Red listed)
- > Buzzard
- > Long-eared Owl
- > Sparrowhawk

The following sections describe the observations of each target species under the individual survey headings. Raw data and maps are provided in Appendix 2 and Appendix 4, respectively.

3.2.2 Vantage Point Survey Results

Vantage point surveys were undertaken at the site between March 2021 and March 2022 inclusive. Summary results from vantage point surveys are presented below in Table 3-1 and discussed in further detail in Section 4 of this report.

Table 3-1 Vantage Point Survey Results

Conservation Status	Species	Total number of observations recorded during this survey type	Total Number of Bird Seconds at PCH	Number of observations on site/within 500m	Activity of note	Figure
Annex I; SCI of nearby SPA	Golden Plover	9	126,830	8	Flocks of between six and 175 birds commuting or circling over the wind farm site.	Appendix 4, Figure 1.1
Annex I; SCI of nearby SPAs	Greenland White-fronted Goose	1	1,400	1	One observation of a flock of 14 birds commuting.	Appendix 4, Figure 1.2
Annex I; BoCCI Red Listed	Hen Harrier	8	0	7	There were eight observations of hen harrier at the wind farm site. All of which were of birds commuting or landing in scrub near the River Inny.	Appendix 4, Figure 1.3
Annex I	Kingfisher	2	0	2	One observation of a bird flying from a drain and one of a bird heard calling.	Appendix 4, Figure 1.4
Annex I; Schedule IV of the Wildlife Act	Merlin	5	0	5	Four observations of an individual hunting and one observation of an individual commuting.	Appendix 4, Figure 1.5
Annex I; Schedule IV of the Wildlife Act	Peregrine	2	12	1	One observation of an individual hunting and one of an individual commuting.	Appendix 4, Figure 1.6
Annex I; SCI of nearby SPAs	Whooper Swan	25	13,704	19	All observations were of birds commuting. Flocks ranged from two to sixteen birds.	Appendix 4, Figure 1.7
SCI of nearby SPAs	Coot	4	317	4	All observations were of one or two birds commuting.	Appendix 4, Figure 1.8

Conservation Status	Species	Total number of observations recorded during this survey type	Total Number of Bird Seconds at PCH	Number of observations on site/within 500m	Activity of note	Figure
BoCCI Red Listed	Curlew	2	590	2	There were two observations of birds commuting/soaring, ranging from one to three birds.	Appendix 4, Figure 1.9
BoCCI Red Listed	Kestrel	30	5,655	25	Most observations were of birds hunting or commuting. There was one observation of a kestrel being chased by a buzzard. All observations were of individuals.	Appendix 4, Figure 1.10
BoCCI Red Listed	Lapwing	1	2,025	1	There was one observation of a flock of 25 birds commuting.	Appendix 4, Figure 1.11
BoCCI Red Listed	Snipe	18	130	15	There were four observations of one or two birds commuting. There was one observation of a bird being flushed. Additionally, there were four birds heard drumming and nine calling.	Appendix 4, Figure 1.12
BoCCI Red Listed	Woodcock	2	0	2	Two observations of birds roding in March.	Appendix 4, Figure 1.13
Schedule IV of the Wildlife Act	Buzzard	62	8,452	49	Most observations were of birds soaring, travelling or hunting. There was one observation of a buzzard chasing a kestrel in August. There were six observations of buzzards displaying between January and March 2022.	Appendix 4, Figure 1.14
Schedule IV of the Wildlife Act	Long-eared Owl	1	0	0	One observation of a bird perched in a tree and being mobbed by corvids.	Not Mapped
Schedule IV of the Wildlife Act	Sparrowhawk	7	166	7	There were three observations of sparrowhawk in April. Flying and perching at the known nest site. The remaining flights were of birds hunting or commuting.	Appendix 4, Figure 1.15

3.2.3 Breeding Walkover Survey Results

Breeding walkover surveys were carried out during the 2021 breeding season: April to July. Summary results from breeding walkover surveys are presented below in Table 3-2 and discussed in more detail in Section 4 of this report.

Table 3-2 Breeding Walkover Survey Results

Conservation Status	Species	Total number of observations recorded during survey type	Number of observations on site/ within 500m	Activity of note	Breeding Status	Figure
Annex I; SCI of nearby SPA	Golden Plover	1	1	One observation of three birds travelling at the beginning of April 2021. Likely remnant wintering birds on route north to summer breeding grounds.	Non-breeding	Appendix 4, Figure 2.1
BoCCI Red Listed	Lapwing	6	3	Four observations of territorial behaviour. There were three territories identified, two to the north of the wind farm site (one immediately adjacent to the wind farm site and one approx. 400m from the wind farm site). The third territory was at the historical territory, approximately 3.8km south of the wind farm site	Confirmed – Three breeding territories	Appendix 4, Figure 2.2
BoCCI Red Listed	Snipe	8	4	There were six observations of flushed birds, one of a bird flying and one of a bird displaying, approximately 3.8km south of the wind farm site	Probable – One breeding territory	Appendix 4, Figure 2.3
Schedule IV of the Wildlife Act	Buzzard	4	4	There were three observations of birds calling, and one observation of a bird flying from trees and circling	Non-breeding	Appendix 4, Figure 2.4
Schedule IV of the Wildlife Act	Sparrowhawk	1	1	One observation of a bird carrying nesting material to a nest site	Confirmed – One breeding territory	Appendix 4, Figure 2.5

3.2.4 Breeding Raptor Survey Results

Breeding raptor surveys were carried out during the 2021 breeding season: April to July. Summary results from breeding raptor surveys are presented in Table 3-3 below and discussed in more detail in Section 4 of this report.

Table 3-3 Breeding Raptor Survey Results

Conservation Status	Species	Total number of observations recorded during survey type	Number of observations on site/within 500m	Activity of note	Breeding Status	Figure
Annex I	Peregrine	2	0	Two observations of birds travelling/soaring	Non-breeding	Appendix 4, Figure 3.1
Annex I	White-tailed Eagle	1	0	One observation of a bird travelling, and being mobbed by buzzard	Non-breeding	Appendix 4, Figure 3.2
BoCCI Red Listed	Kestrel	8	1	All observations were of birds travelling or hunting	Non-breeding	Appendix 4, Figure 3.3
Schedule IV of the Wildlife Act	Buzzard	31	0	Most observations were of birds travelling, soaring or hunting. There was one observation of two buzzards mobbing a white-tailed eagle in July	Non-breeding	Appendix 4, Figure 3.4
Schedule IV of the Wildlife Act	Sparrowhawk	3	1	All observations were of birds travelling	Non-breeding	Appendix 4, Figure 3.5

3.2.5 Breeding Woodcock Survey Results

A number of woodcock observations were recorded during targeted breeding woodcock surveys. All observations are detailed in Table 3-4 below and discussed in further detail in Section 4 of this report.

Table 3-4 Breeding Woodcock Observations

Conservation Status	Species	Observations recorded during surveys	Number of birds within 500m of site	Activity of note	Breeding Status	Figure
BoCCI Red List (Breeding populations only)	Woodcock	30	30	All observations were of birds roding	Probable – Seven breeding territories	Appendix 4, Figure 4.1

3.2.6 Winter Walkover Survey Results

Winter walkover surveys were carried out during the 2021/2022 winter season: October to March. Summary results from winter walkover surveys are presented below in Table 3-5 and discussed in more detail in Section 4 of this report.

Table 3-5 Winter Walkover Survey Results

Conservation Status	Species	Total number of observations recorded during survey type	Number of observations on site/ within 500m	Activity of note	Figure
Annex I; SCI of nearby SPA	Golden Plover	4	4	Observations ranged from four to sixteen birds. There were two observations of birds commuting and two of birds roosting on the bog.	Appendix 4, Figure 5.1
Annex I; SCI of nearby SPAs	Greenland White-fronted Goose	1	1	One observation of five birds commuting over the wind farm site.	Appendix 4, Figure 5.2
Annex I	Kingfisher	1	1	One observation of an individual flying along the River Inny.	Appendix 4, Figure 5.3
SCI of nearby SPA	Teal	3	3	There was one observation of two birds commuting, one of two birds roosting and one of a flock of 22 birds foraging.	Appendix 4, Figure 5.4
SCI of nearby SPA	Wigeon	1	1	There was one observation of a flock of eight birds foraging.	Appendix 4, Figure 5.5
BoCCI Red Listed	Kestrel	1	1	One observation of an individual perched.	Appendix 4, Figure 5.6
BoCCI Red Listed	Lapwing	1	1	One observation of 4 pairs of lapwing nest building in mid-March.	Appendix 4, Figure 5.7
BoCCI Red Listed	Snipe	8	8	All observations were of birds being flushed by the observer. Numbers ranged from one to four birds.	Appendix 4, Figure 5.8



Conservation Status	Species	Total number of observations recorded during survey type	Number of observations on site/ within 500m	Activity of note	Figure
Schedule IV of the Wildlife Act	Buzzard	7	7	All observations were of one or two birds commuting.	Appendix 4, Figure 5.9

3.2.7 Wildfowl Distribution Surveys

Wildfowl distribution surveys were carried out during the 2021/22 winter season: September to March. Summary results from wildfowl distribution surveys are presented below in Table 3-6 and discussed in more detail in Section 4 of this report.

Table 3-6 Wildfowl Distribution Survey Results

Conservation Status	Species	Total number of observations recorded during survey type	Flock Size Range	Number of observations on site/ within 500m	Activity of note	Figure
Annex I	Common Tern	1	2	0	Two birds seen flying at Lough Derravaragh.	Appendix 4, Figure 6.1
Annex I; SCI of nearby SPA	Golden Plover	4	5 – 160	1	All observations were of birds commuting or circling.	Appendix 4, Figure 6.2
Annex I; SCI of nearby SPAs	Greenland White-fronted Goose	4	4 – 24	0	All observations were of birds foraging at Piercefield, near Lough Iron.	Appendix 4, Figure 6.3
Annex I	Kingfisher	1	1	0	One observation of a bird foraging along the River Inny.	Appendix 4, Figure 6.4
Annex I	Little Egret	16	1 – 2	2	All observations were of birds commuting, foraging or roosting. Birds were observed at Lough Iron, Lough Bane, Lough Sheelin, Derragh Lough and Brackragh Lough.	Appendix 4, Figure 6.5
Annex I	Ruff	1	2	1	One observation of two birds perched on peat at the wetland west of Lough Bane.	Appendix 4, Figure 6.6
Annex I	Whooper Swan	36	1 – 77	3	Birds observed at Lough Iron, Derragh Lough, River Inny, Lough Bane and Lough Sheelin.	Appendix 4, Figure 6.7

Conservation Status	Species	Total number of observations recorded during survey type	Flock Size Range	Number of observations on site/ within 500m	Activity of note	Figure
SCI of nearby SPA	Coot	167	1 – 890	0	Birds observed on Deragh Lough, Lough Iron Lough Kinale, Lough Sheelin, Lough Derravaragh, Bracklagh Lough and along the River Inny.	Appendix 4, Figure 6.8
SCI of nearby SPAs	Pochard	18	1 – 182	0	Birds observed on Lough Kinale, Lough Sheelin, Lough Derravaragh and Bracklagh Lough.	Appendix 4, Figure 6.9
SCI of nearby SPAs	Shoveler	11	5 – 36	0	Birds observed at Derragh Lough, Lough Iron, And Lough Sheelin.	Appendix 4, Figure 6.10
SCI of nearby SPA	Teal	41	3 – 240	7	Birds observed at wetland west of Lough Bane, Lough Iron, Lough Derravaragh, Lough Sheelin, Lough Kinale, Derragh Lough, and Robinstown.	Appendix 4, Figure 6.11
SCI of nearby SPAs	Tufted Duck	48	2 – 190	0	Birds observed at Lough Kinale, Bracklagh Lough, Lough Sheelin, Lough Derravaragh, Deragh Lough, Lough Iron and Robinstown.	Appendix 4, Figure 6.12
SCI of nearby SPA	Wigeon	37	2 – 263	8	Birds observed at Derragh Lough, Lough Derravaragh, Lough Sheelin, Lough Iron, Lough Kinale and Lough Bane.	Appendix 4, Figure 6.13
BoCCI Red Listed	Curlew	3	2 – 57	1	All observations were of birds commuting.	Appendix 4, Figure 6.14
BoCCI Red Listed	Goldeneye	9	5 – 24	0	Birds observed on Lough Derravaragh and Lough Sheelin.	Appendix 4, Figure 6.15
BoCCI Red Listed	Lapwing	28	1 – 245	6	All observations were of birds commuting, foraging or roosting.	Appendix 4, Figure 6.16

Conservation Status	Species	Total number of observations recorded during survey type	Flock Size Range	Number of observations on site/ within 500m	Activity of note	Figure
BoCCI Red Listed	Snipe	13	1 – 4	5	All observations were of birds being flushed by the observer.	Appendix 4, Figure 6.17

3.2.8 Incidentals

A number of incidental observations of target species were recorded during the survey period. The most significant of these observations are detailed in Table 3-7 below and discussed in further detail in Section 4 of this report.

Table 3-7 Incidental Observations

Conservation Status	Species	Survey Type	Observations recorded during surveys	Activity of note	Figure
Annex I	Kingfisher	Wildfowl distribution surveys	8	Birds observed along the River Inny.	Appendix 4, Figure 7.1
Annex I	Peregrine	Vantage point survey	1	One bird commuting at Doon.	Appendix 4, Figure 7.2
Annex I	White-tailed Eagle	Wildfowl distribution surveys	1	One observation of a birds soaring over Lough Derravaragh.	Appendix 4, Figure 7.3
BoCCI Red Listed	Kestrel	Wildfowl distribution surveys & winter walkover surveys	18	All observations were of birds commuting, hunting or perched.	Appendix 4, Figure 7.4
BoCCI Red Listed	Lapwing	Breeding raptor surveys	10	Two breeding territories identified to the north of the wind farm site.	Appendix 4, Figure 7.5
BoCCI Red Listed	Snipe	Breeding woodcock & vantage point surveys	10	Five observations of birds drumming and five observations of birds being flushed by the observer.	Appendix 4, Figure 7.6

Conservation Status	Species	Survey Type	Observations recorded during surveys	Activity of note	Figure
Schedule IV of the Wildlife Act	Buzzard	Vantage point surveys, wildfowl distribution surveys & winter walkover surveys	32	All observations were of birds commuting, soaring or perched.	Appendix 4, Figure 7.7
Schedule IV of the Wildlife Act	Sparrowhawk	Vantage point surveys, wildfowl distribution surveys & winter walkover surveys	6	All observations were of birds commuting.	Appendix 4, Figure 7.8

3.2.9 Target Species Status Summary

While breeding/roosting status is assigned according to the evidence obtained during individual breeding bird surveys as reported in Tables 3-1 to 3-7 above, Table 3-8 below provides the status of target species observed during surveys between March 2021 and March 2022 at Coole Wind Farm. In addition, the key observations from the 2022 breeding bird surveys are also summarised in the below table.

Table 3-8 Target Species Status Summary

Species	Overall breeding status	Overall roosting status
Greenland White-fronted Goose	Does not breed in Ireland	Lough Iron hosts a roost (c. 12.8km from the proposed development).
Golden Plover	No breeding site identified.	No regularly used roosts identified.
Hen Harrier	No breeding site identified.	No regularly used roosts identified.
Kingfisher	No breeding site identified.	No regularly used roosts identified.
Peregrine	March 2021 to March 2022: No breeding site identified. Summer 2022: Peregrine occupied the known breeding territory, approximately 1.3km from the wind farm site, during the 2022 breeding season. This site was last occupied in 2016. Please refer to Confidential Appendix 3 for location details.	No regularly used roosts identified.
White-tailed Eagle	No breeding site identified.	No regularly used roosts identified.
Whooper Swan	Does not breed in Ireland	Lough Iron hosts a roost (c. 12.8km from the proposed development).
Kestrel	March 2021 to March 2022: No breeding site identified. Summer 2022: One observation of a bird being agitated and one of a bird carrying prey, within the wind farm site. It is assumed both of these observations relate to one confirmed breeding territory, within the wind farm site.	No regularly used roosts identified.
Lapwing	Confirmed breeding March 2021 to March 2022: Three breeding territories, one presumed successful and two failed to fledge young. Two within 500m of the wind farm site, and one approximately 3.8km from the wind farm site. Please refer to Confidential Appendix 3 for location details. Summer 2022: There was an estimated 4 – 10 pairs of lapwing breeding in this area c. 441m from the nearest proposed infrastructure. This is discussed further in Section 4.4.7.	No regularly used roosts identified.

Species	Overall breeding status	Overall roosting status
Snipe	<p>Probable breeding – Nine breeding territories identified, six within, or partially within, the wind farm site, to the north. Two within 500m of the wind farm site to the north. One approximately 3.8km south of the wind farm site.</p> <p>Summer 2022 – Snipe were identified breeding within the wind farm site again in 2022.</p>	No regularly used roosts identified.
Woodcock	<p>Probable breeding – Seven breeding territories identified. Five within, or partially within, the wind farm site.</p> <p>Summer 2022 – Woodcock were identified breeding within the wind farm site again in 2022.</p>	No regularly used roosts identified.
Buzzard	No breeding site identified.	No regularly used roosts identified.
Sparrowhawk	<p>Confirmed breeding – One territory, within the wind farm site.</p> <p>Sparrowhawk were also confirmed to have bred successfully within the wind farm site during the 2022 breeding season.</p>	No regularly used roosts identified.

4. IMPACT ASSESSMENT

The ornithological evaluation criteria and impact assessment methods are outlined in Section 7.2.5 of the EIAR.

4.1 Identification of Key Ornithological Receptors

The identification of KOR species is outlined in Section 7.6 of the EIAR. Given the observations between March 2021 and March 2022 are in keeping with those outlined in the EIAR, the identified KOR species remains the same.

The following species were not discussed in the EIAR but were observed during surveys between March 2021 and March 2022:

- > Common Tern
- > Kingfisher
- > Little Egret
- > Ruff
- > White-tailed Eagle
- > Goldeneye

Of these, only kingfisher was observed at, or within 500m of, the wind farm site. This species was recorded infrequently and in low numbers. Therefore, kingfisher is not considered a KOR. The remaining species were only observed during the wildfowl distribution surveys, up to 8km from the wind farm site and are therefore not considered a KOR.

The following species have been moved from the BoCCCI red list to the BoCCCI amber list and were only recorded infrequently and in low numbers during surveys at, or near, the wind farm site between March 2021 and March 2022. Therefore, an updated impact assessment for these species is not required:

- > Black-headed gull
- > Teal
- > Wigeon

Furthermore, osprey, barn owl and red kite were not recorded during these surveys, therefore, an updated impact assessment for these species is not required.

Please refer to the EIAR as lodged for the impact assessment.

4.2 KOR Sensitivity Determination

Criteria developed by Percival (2003) is presented in **Error! Reference source not found.** (Section **Error! Reference source not found.**) of the EIAR for assessing bird sensitivity within the study area. The sensitivity of KOR as per Percival are listed below and includes the rationale for their respective sensitivity classification included in brackets.

Very High Sensitivity KORs include:

- > Greenland White-fronted Goose (Annex I; EU Birds Directive, SCI of nearby SPAs)

Medium Sensitivity KORs include:

- > Golden Plover (Annex I; EU Birds Directive)

- Merlin (Annex I; EU Birds Directive)
- Peregrine Falcon (Annex I; EU Birds Directive)
- Whooper Swan (Annex I; EU Birds Directive)
- Kestrel (BoCCI Red-listed)
- Lapwing (BoCCI Red-listed)
- Snipe (BoCCI Red-listed)
- Woodcock (BoCCI Red-listed)

The remaining KORs identified in the study area were classified as **Low Sensitivity**:

- Buzzard
- Long-eared Owl
- Sparrowhawk

Please note since the lodging of the planning application for the proposed development the conservation status of several species has changed due to the recent update of the BoCCI red-list (Gilbert et al. 2021), this change is reflected in the classification of sensitivity for those species. The following updates have been made:

- Kestrel was added to the BoCCI Red-list moving it from low sensitivity to medium sensitivity.
- Snipe was added to the BoCCI Red-list moving it from low sensitivity to medium sensitivity.

4.3

Potential Effects Associated with the Proposed Development

As per SNH Guidance, wind farms present three potential risks to birds (Drewitt & Langston 2006, 2008; Band et al. 2007):

- **Direct habitat loss** through construction of wind farm infrastructure;
- **Displacement** (sometimes called indirect habitat loss) if birds avoid the wind farm and its surrounding area due to turbine construction and operation. Displacement may also include barrier effects in which birds are deterred from using normal routes to feeding or roosting grounds;
- Death through **Collision** or interaction with turbine blades and other infrastructure.

4.4

Effects on Key Ornithological Receptors during Construction and Operation

4.4.1

Greenland White-fronted Goose (*Wintering*)

As outlined in Section 7.8.2.2 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.2 of the EIAR for further details on the impact assessment for Greenland white-fronted goose. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.2 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2022)
Construction Phase			
Direct Habitat Loss	<p>Similar to the data outlined in Section 7.8.2.2 of the EIAR, the vast majority of observations were of flocks recorded at Lough Iron, approximately 12.8km from the wind farm site. During surveys between March 2021 and March 2022, there was only one observation of a flock of fourteen birds commuting over the wind farm site. A similar rate of occurrence was reported in Section 7.8.2.2 of the EIAR (one observation every two years). There was no evidence of roosting or foraging within 1km of the wind farm site.</p> <p>Significant effects with regard to direct habitat loss are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.2 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of a <i>Very High</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Low effect significance.</p>	Long-term Imperceptible Negative Effect
Disturbance	<p>Similar to the data outlined in Section 7.8.2.2 of the EIAR, this species was not recorded utilising habitats on, or within 500m of, the wind farm site. The species was observed flying over the site on only one occasion between March 2021 and March 2022.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of a <i>Very High</i> sensitivity species and</p>	Short-term Imperceptible Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2022)
	<p>Given the low numbers recorded and the abundance of suitable habitats in the wider surroundings of the wind farm site, significant impacts are not predicted.</p> <p>Significant effects with regard to displacement are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.2 of the EIAR as lodged.</p>	<p><i>Negligible</i> Impact corresponds to a Low effect significance.</p>	
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated.	No Effect	No Effect
Displacement & Barrier Effect	<p>Similar to the data outlined in Section 7.8.2.2 of the EIAR, there was only one observation of birds commuting over the wind farm site between March 2021 and March 2022. Given this low rate of occurrence, it is reasonable to conclude that there was no regularly used commuting corridor or migratory route that crossed the wind farm site. There was no foraging birds recorded on, or within 500m of, the wind farm site. Similarly, there was no evidence of roosting birds on, or within 1km of, the wind farm site.</p> <p>No significant displacement or barrier effects are predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.2 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of a <i>Very High</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Low effect significance.</p>	Long-term Imperceptible Negative Effect
Collision	<p>The species was recorded flying within the potential collision risk zone during Vantage Point surveys. A “Random” collision risk analysis has been undertaken and full details are provided in Appendix 5.</p> <p>The collision risk has been calculated to be 0.04 collisions per year, or one bird every 25 years. The results of this analysis are not significantly different from the collision risk reported in the EIAR as lodged. No significant effects are predicted.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of a <i>Very High</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Low effect significance.</p>	Long-term Imperceptible Negative Effect

4.4.2 Golden Plover (*Wintering*)

As outlined in Section 7.8.2.3 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.3 of the EIAR for further details on the impact assessment for golden plover. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.3 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>In contrast to the data presented in Section 7.8.2.3 of the EIAR, there were no observations of golden plover utilizing habitats on, or within 500m of, the wind farm site between March 2021 and March 2022.</p> <p>Significant effects with regard to direct habitat loss are not predicted, given the development infrastructure is confined to a narrow corridor, therefore direct habitat loss will be minimal. Furthermore, the habitats within the Site are not of particularly high quality and there is an abundance of similar habitat in the surrounding area.</p> <p>This further corroborates the results of the impact assessment provided in Section 7.8.2.3 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Long-term Slight Negative Effect
Disturbance	<p>As per McGuinness et al. (2015) the zone of sensitivity for the species is 800m during the breeding season only. The species is not identified as being particularly sensitive to wind farm developments during the wintering period. This species was recorded commuting or circling over the bog on, or within 500m of, the wind farm site during the winter season.</p> <p>Numbers of county importance were observed on six occasions on, or within 500m of, the wind farm site.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Short-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	<p>This is a marked reduction in the use of the Site compared to the regular use of the Site as reported in the EIAR.</p> <p>Given the abundance of similar suitable habitats in the wider surroundings of the wind farm site, significant impacts are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.3 of the EIAR as lodged.</p>		
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated.	No Effect	No Effect
Displacement & Barrier Effect	<p>A review of 29 studies suggests golden plover will approach wind turbines to an average distance of 175m in non-breeding season (Hötker et al., 2006).</p> <p>There were 10 observations of golden plover within 200m of the proposed turbine layout during surveys between March 2021 and March 2022.</p> <p>In the event of displacement, there are sufficient areas of suitable habitat in the wider area to render such an effect inconsequential. Furthermore, habitats within the wind farm site (e.g. cutover bog) are not of particularly high quality.</p> <p>There is no evidence to suggest that the wind farm site lies on a migratory/regular commuting route for the species therefore barrier effect is not anticipated.</p> <p>Significant displacement or barrier effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.3 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Long-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Collision	<p>The species was recorded flying within the potential collision risk zone during Vantage Point surveys. A “Random” collision risk analysis has been undertaken and full details are provided in Appendix 5.</p> <p>The collision risk has been calculated to be 10.6 collisions per year. It is noted that this is a reduction in the number of predicted collisions (34) reported in the EIAR as lodged (EIAR Appendix 7-5). This change is a result of incorporating new research into the analysis that shows golden plover to avoid colliding with turbines a high proportion of the time. Please see Appendix 5 for further discussion.</p>	<p>Impact corresponds to a <i>Low</i> effect significance.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Long-term Slight Negative Effect

4.4.3 Merlin (All Seasons)

As outlined in Section 7.8.2.4 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.4 of the EIAR for further details on the impact assessment for merlin. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.4 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>A similar abundance and rate of occurrence was recorded between March 2021 and March 2022 as reported in Section 7.8.2.4 of the EIAR. This species was not recorded utilising habitats within the wind farm site for roosting or breeding. Significant effects are not anticipated particularly given the low levels of activity recorded. The species was recorded hunting onsite on only four occasions between March 2021 and March 2022. This is not significantly different from the seven observations over four years as outlined in Section 7.8.2.4 of the EIAR. Extensive areas of suitable foraging habitat will remain post-construction and there is an abundance of suitable habitats in the surrounding area.</p> <p>Significant effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.4 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Imperceptible Negative Effect
Disturbance	<p>Similar to the data outlined in Section 7.8.2.4 of the EIAR, there was no breeding activity recorded within the study area during the 2021 breeding season.</p> <p>Significant displacement effects are not anticipated, given how infrequently the wind farm site was visited by this species. In addition, the habitats that are present onsite are not considered to be of particularly high quality or unique to the wind farm site.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	Short-term Imperceptible Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	Significant displacement effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.4 of the EIAR as lodged.		
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated.	No Effect	No Effect
Displacement & Barrier Effect	<p>Significant effects are not anticipated particularly given the low levels of activity recorded throughout surveys. In addition, the habitats that are present onsite are not considered to be of particularly high quality or unique to the wind farm site.</p> <p>Significant displacement or barrier effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.4 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Imperceptible Negative Effect
Collision	<p>The species was infrequently recorded flying with the potential collision risk zone during Vantage Point surveys. A “Random” collision risk analysis has been undertaken on a precautionary basis and full details are provided in Appendix 5.</p> <p>The collision risk has been calculated to be 0.011 collisions per year, or approximately one bird every 92 years. The results of this analysis are not significantly different from the collision risk report in the EIAR as lodged. The predicted collision risk is insignificant.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Imperceptible Negative Effect

4.4.4 Peregrine (All Seasons)

As outlined in Section 7.8.2.5 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.5 of the EIAR for further details on the impact assessment for peregrine. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.5 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>Similar to the data presented in Section 7.8.2.5 of the EIAR, this species was only occasionally recorded commuting/hunting at the wind farm site. There is no significant difference in the rate of occurrence of peregrine between these surveys and those discussed in Section 7.8.2.5 of the EIAR. There is no suitable breeding habitat for this species within the wind farm site. Extensive areas of suitable foraging habitat will remain post-construction and there is an abundance of suitable habitats in the surrounding area.</p> <p>Significant effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.5 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a Low effect significance.</p>	Long-term Slight Negative Effect
Disturbance	<p>No breeding territories or roost sites were recorded within the wind farm site. Breeding activity was recorded at the historic nest site (please see Confidential Appendix 3 for further details), approximately 1.3km from the wind farm site, during the 2022 breeding season.</p> <p>Peregrine were recorded foraging on one occasion within the wind farm site between March 2021 and March 2022. However, the wind farm site does not contain habitats that are of particularly high quality or unique to the local area. Therefore, if displacement was to occur it would not result in the loss of a scarce resource for the local population.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a Low effect significance.</p>	Short-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	Significant displacement or barrier effects are not predicted, particularly given the separation distance between the wind farm site and the nest site. This further corroborates the results of the impact assessment provided in Section 7.8.2.5 of the EIAR as lodged.		
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated.	No Effect	No Effect
Displacement & Barrier Effect	<p>Disturbance impacts are not predicted for the nest, given the significant separation distance involved, i.e. 1.6km from the nearest proposed turbine. As previously discussed, this species was only recorded foraging within the wind farm site on one occasion between March 2021 and March 2022, which is less frequent than the data presented in the EIAR shows. Furthermore, the wind farm site does not contain habitats that are of particularly high quality for this species or unique to the local area. Therefore, if displacement were to occur it would not result in the loss of a scarce resource for the local population.</p> <p>Significant displacement effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.5 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Long-term Slight Negative Effect
Collision	<p>The species was recorded flying within the potential collision risk zone during VP surveys. A “Random” collision risk analysis has been undertaken and full details are provided in Appendix 5.</p> <p>The collision risk has been calculated at 0.196 collisions per year or one bird every 5 years. The results of this analysis are not significantly different from the collision risk reported in the EIAR as lodged. Significant effects are not predicted for a rate of one potential collision every eight years.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of a <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Long-term Slight Negative Effect

4.4.5 Whooper Swan (Wintering)

As outlined in Section 7.8.2.1 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.1 of the EIAR for further details on the impact assessment for whooper swan. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.1 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>The wind farm site is dominated by cutover bog, this is not considered suitable for wintering whooper swan. There were no whooper swans observed utilising the habitats within the wind farm site. The unfavourable nature of this habitat limits the potential for construction activities to result in ecologically significant habitat loss for whooper swan.</p> <p>Significant effects with regard to direct habitat loss are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.1 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of a <i>Medium</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Slight Negative Effect
Disturbance	<p>Similar to the data presented in Section 7.8.2.1 of the EIAR, most observations were of flocks recorded during the wildfowl distribution surveys, with the majority of these being at Lough Iron, approximately 12.8km from the wind farm site.</p> <p>In contrast to the data presented in Section 7.8.2.1 of the EIAR, the frequency of whooper swan commuting flights over the wind farm site increased during surveys between March 2021 and March 2022. There were 25 observations of whooper swan commuting during this period, compared to an average of three flights per winter presented in Section 7.4.1 of the EIAR (twelve flights total over a four-year period). The number of birds per flock remained similar to</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of a <i>Medium</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	Short-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	<p>those presented in Section 7.4.1 of the EIAR, with between two and sixteen birds being observed.</p> <p>However, the number of flights over the wind farm site remains low and given that the habitats on site are unlikely to attract whooper swan significant disturbance impacts are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.1 of the EIAR as lodged.</p>		
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated.	No Effect	No Effect
Displacement & Barrier Effect	<p>No foraging areas were recorded on, or within 500m of, the wind farm site and there was no evidence of roosting on, or within 1km of, the wind farm site.</p> <p>Whooper swan were rarely recorded flying over the wind farm site during surveys presented in the EIAR. The frequency of flights increased slightly between March 2021 and March 2022 compared to data presented in Section 7.4.2 of the EIAR, but whooper swans were still infrequently observed.</p> <p>Survey results indicate that the wind farm site does not lie on a migratory corridor for this species. Therefore, no barrier effect is predicted.</p> <p>Based on the complete dataset there is no potential for significant displacement effects given that whooper swans were not dependent on the habitats of the whooper swan for roosting or feeding. Furthermore, it is unlikely that any significant displacement impact will result during the operational phase, given the low level of flight activity and particularly the low numbers recorded per flight.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of a <i>Medium</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	No significant displacement or barrier effects are predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.1 of the ELAR as lodged.		
Collision	<p>The species was recorded flying within the potential collision risk zone during Vantage Point surveys. A “Random” collision risk analysis has been undertaken and full details are provided in Appendix 5.</p> <p>The collision risk has been calculated at a ratio of 0.79 collisions per year. The results of this analysis are not significantly different from the collision risk reported in the ELAR as lodged. No significant effects are predicted.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of a <i>Medium</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Imperceptible Negative Effect

4.4.6 Kestrel (All Seasons)

As outlined in Section 7.8.2.17 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.17 of the EIAR for further details on the impact assessment for Greenland white-fronted goose. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.17 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>Similar to the data presented Section 7.8.2.17 in the EIAR, this species was frequently recorded hunting, potentially breeding and commuting on, or within 500m of, the wind farm site. Direct loss of foraging habitat relative to its availability onsite and within the surrounding area, will be minimal.</p> <p>Substantial areas of undisturbed suitable breeding and foraging habitat will remain post construction.</p> <p>Significant effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.17 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of a <i>Medium</i>² sensitivity species and a <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Long-term Slight Negative Effect
Disturbance	<p>This species was frequently recorded on, or within 500m of, the wind farm site. The majority of observations involve hunting or commuting birds. The proposed development area does not contain habitats that are of particularly high quality for this species (e.g. cutover bog) or unique to the local area. Therefore, were displacement to occur it would not result in the loss of a scarce resource for the local kestrel population.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Short-term Slight Negative Effect

² Note that kestrel is a medium sensitivity species now (compared to a low sensitivity species as outlined in Section 7.8.2.17 of the EIAR) due to being added to the BoCCI Red List (Gilbert et al., 2021).

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	Significant displacement effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.17 of the EIAR as lodged.		
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated.	No Effect	No Effect
Displacement & Barrier Effect	<p>Studies on raptors have generally found only low levels of turbine avoidance (Hötter et al., 2006; Madders & Whitfield, 2006), with some species, such as kestrels, known to continue foraging activity close to turbines (Pearce Higgins et al., 2009). Significant effects are not anticipated, given that extensive areas of suitable foraging habitat exist and will remain in the wider area. In addition, onsite habitats are not considered of particularly high quality to this species (e.g. cutover bog) or unique to the wind farm site.</p> <p>Significant effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.17 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a Low effect significance.</p>	Long-term Slight Negative Effect
Collision	<p>The species was recorded flying within the potential collision risk zone during VP surveys. A “Random” collision risk analysis has been undertaken and full details are provided in Appendix 5.</p> <p>The collision risk has been calculated to be 2.5 collisions per year. The results of this analysis are not significantly different from the collision risk reported in the EIAR as lodged. The predicted collision risk is therefore negligible in the context of the county population.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Slight Negative Effect

4.4.7 Lapwing (All Seasons)

As outlined in Section 7.8.2.11 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.11 of the EIAR for further details on the impact assessment for lapwing. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.11 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>Similar to the data outlined in Section 7.8.2.11 of the EIAR, lapwing nested within 500m of the wind farm site (Please see Confidential Appendix 3 for details). In 2021, there were two breeding pairs in this area, with one nest fledging young and the second nest was presumed to have failed (furthermore, these breeding territories remained active in 2022 breeding season). Additionally, there was one breeding territory located approximately 3.8km from the wind farm site and adjacent to the grid connection. This pair was presumed to have hatched chicks but was predated before fledging.</p> <p>Lapwing were observed utilising habitats on, or within 500m of, the wind farm site on seven occasions during the winter season (October 2021 to March 2022). The majority of observations were near Lough Bane.</p> <p>No development infrastructure is proposed in the areas of bog where breeding was recorded and lapwing were recorded infrequently and in low numbers within the wind farm site.</p> <p>Significant effects with regard to direct habitat loss are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.11 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a Low effect significance.</p>	Long-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Disturbance	<p>Construction works can result in disturbance impacts within 350m of lapwing breeding habitat (Hotker et al. 2006). The species was rarely encountered within the wind farm site.</p> <p>This species was recorded breeding adjacent to the wind farm site. As reported in Section 7.8.2.11 of the EIAR birds were previously recorded breeding 380m from the nearest infrastructure. More recently, in 2021 and 2022, the closest breeding territories within this same approx. area were c. 441m from the nearest proposed infrastructure. Taking a highly precautionary approach, if it is assumed that construction works could occur anywhere within the EIAR Site boundary. In which case, construction works adjacent (within 350m) to this nesting area have the potential to cause disturbance of breeding lapwing.</p> <p>Additionally, breeding activity was recorded c. 3.8km from the wind farm site, adjacent to the grid connection route. There is little similar suitable habitat available locally (i.e. a mosaic of revegetating bog, with exposed shale and pools). Construction works adjacent to this nesting area associated with the grid connection route has the potential to cause disturbance of breeding lapwing.</p> <p>The majority of winter season (October 2021 to March 2022) observations were recorded at Lough Bane. Wintering birds are unlikely to be significantly impacted.</p>	<p>The magnitude of the effect is assessed as <i>Medium</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Medium</i> Impact corresponds to a Low effect significance.</p>	<p>Short-term Moderate Negative Effect</p> <p>Please see Section 4.6 below for proposed mitigation.</p>
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated.	No Effect	No Effect
Displacement & Barrier Effect	Hotker et al. (2006) undertook a meta-analysis of existing literature on disturbance distances from turbines. This review reported from the 13 studies examined the disturbance distance could occur up to 350m for breeding	The magnitude of the effect is assessed as <i>Low</i> .	Long-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	<p>lapwing. This species was recorded breeding: the nearest proposed infrastructure is between 380-441m from the closest territory to the wind farm site. Based on the separation distance, significant disturbance displacement of these breeding birds is not predicted.</p> <p>The majority of winter season (October 2021 to March 2022) observations were at Lough Bane.</p> <p>No significant operational phase displacement impacts are predicted for the identified nesting habitat along the grid connection route.</p> <p>As previously discussed, this species was infrequently recorded within the wind farm site. Significant effects are not predicted particularly given the low levels of activity recorded within the wind farm site.</p> <p>Significant displacement or barrier effects are not anticipated. This further corroborates the results of the impact assessment provided in Section 7.8.2.11 of the EIAR as lodged.</p>	<p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a Low effect significance.</p>	
Collision	<p>The species was recorded flying within the potential collision risk zone during VP surveys. A “Random” collision risk analysis has been undertaken and full details are provided in Appendix 5.</p> <p>The collision risk has been calculated to be 0.38 collisions per winter season and there were no collisions predicted for the breeding season³. The results of this analysis are not significantly different from the collision risk reported in the EIAR as lodged. The predicted collision risk is therefore insignificant.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a Low effect significance.</p>	Long-term Slight Negative Effect

³ There were no breeding season flights recorded at possible collision height.

4.4.8 Snipe (All Seasons)

As outlined in Section 7.8.2.18 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.18 of the EIAR for further details on the impact assessment for snipe. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.18 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>Similar to the data outlined in Section 7.8.2.18 of the EIAR, snipe were recorded regularly during surveys, during both the summer and winter months. Snipe favour open habitats for foraging and breeding. There will likely be the loss of some suitable habitat within the wind farm site as a result of construction works.</p> <p>However, the (direct) loss of breeding and foraging habitat will be minimal as the infrastructure is confined to a narrow corridor.</p> <p>Significant effects are not anticipated at the county, national or international scale. This further corroborates the results of the impact assessment provided in Section 7.8.2.18 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of a <i>Medium</i>⁴ sensitivity species and a <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Long-term Slight Negative Effect
Disturbance	<p>Snipe were regularly recorded during surveys between March 2021 and March 2022. Disturbance from construction activities could result in the loss of snipe breeding and wintering habitat locally. Pearce Higgins et. al (2009), found a c. 50% reduction in breeding density of snipe within 500m of turbines. The majority of the open habitat onsite is located within 500m of turbines. There is therefore potential for a measurable reduction in breeding density of snipe due</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i></p>	Short-term Slight Negative Effect

⁴ Note that snipe is a medium sensitivity species now (compared to a low sensitivity species as outlined in Section 7.8.2.17 of the EIAR) due to being added to the BoCCI Red List (Gilbert et al., 2021).

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	<p>to disturbance associated with construction works. However, the wind farm site does not contain habitats that are of particularly high quality to this species or unique to the local area. Therefore, were disturbance to occur it would not result in the loss of a scarce resource for the local snipe population.</p> <p>Significant displacement effects are not predicted to occur at the county, national and international scale. This further corroborates the results of the impact assessment provided in Section 7.8.2.18 of the EIAR as lodged.</p>	Impact corresponds to a <i>Low</i> effect significance.	
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated.	No Effect	No Effect
Displacement & Barrier Effect	<p>Snipe were regularly recorded during surveys between March 2021 and March 2022. As previously discussed, Pearce Higgins et. al (2009), found a 50% reduction in breeding density of snipe within 500m of turbines. A 500m buffer around the turbines would cover the majority of the open habitat onsite, therefore it is likely that there will be a measurable reduction in breeding density of snipe within the development and its immediate surroundings.</p> <p>However, the Proposed Development Site does not contain habitats that are unique to the local area nor are cutover bogs of particularly high-quality breeding habitat for this species. If displacement were to occur, it would not result in the loss of a scarce resource for the local snipe population</p> <p>Significant displacement or barrier effects are not predicted to occur at the county, national and international scale. This further corroborates the results of the impact assessment provided in Section 7.8.2.18 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Long-term Slight Negative Effect
Collision	It is acknowledged that the predicted number of transits, and hence the predicted rate of collision for common snipe may be underestimated, as flight	The magnitude of the effect is assessed as <i>Low</i> .	Long-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	<p>activity for this species is predominantly crepuscular in nature while the Vantage Point surveys are largely diurnal (Table 1.4, SNH (2017)).</p> <p>The species was recorded flying with the potential collision risk zone during VP surveys. A “Random” collision risk analysis has been undertaken and full details are provided in Appendix 5.</p> <p>The collision risk has been calculated at a ratio of 0.18 collisions per year, or one bird every 5.6 years. The results of this analysis are not significantly different from the collision risk reported in the EIAR as lodged. The predicted collision risk is low in the context of the county, national and international population.</p>	<p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a Low effect significance.</p>	

4.4.9 Woodcock (*Breeding*)

As outlined in Section 7.8.2.12 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.12 of the EIAR for further details on the impact assessment for woodcock. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.12 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>Direct loss of habitat will be minimal. The majority of the wind farm site is bare peat which does not provide optimal habitat for the species. The felling of forestry may temporarily reduce the distribution and availability of suitable habitat. However significant areas of forestry will remain within the wind farm site and surrounding area.</p> <p>Significant effects are not anticipated. This further corroborates the results of the impact assessment provided in Section 7.8.2.12 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Long-term Slight Negative Effect
Disturbance	<p>Similar to the data outlined in Section 7.8.2.12 of the EIAR, this species was frequently recorded during breeding woodcock surveys. Disturbance from construction activities could result in the disturbance of woodcock from suitable breeding habitat locally. However, habitat loss will be restricted to the small areas of forestry onsite. It is noted that the majority of proposed development infrastructure will be sited in cutover bog, a habitat of very limited ecological value to this species.</p> <p>Should any potential displacement effect occur, there are extensive areas of suitable habitat in the wider area, to render this potential impact inconsequential. Significant impacts are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.12 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a <i>Low</i> effect significance.</p>	Short-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated.	No Effect	No Effect
Displacement & Barrier Effect	<p>There is potential for displacement of breeding woodcock in areas of forestry adjacent to proposed turbines. The wind farm site does not contain habitats that are unique to the local area nor are commercial forestry plantations of particularly high-quality breeding habitat for this species.</p> <p>Significant effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.12 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> Impact corresponds to a Low effect significance.</p>	Long-term Slight Negative Effect
Collision	<p>The species was recorded flying within the potential collision risk zone during VP surveys. A “Random” collision risk analysis has been undertaken and full details are provided in Appendix 5.</p> <p>The collision risk has been calculated to be 0.009 collisions per year or one bird every 106 years. The results of this analysis are not significantly different from the collision risk reported in the EIAR as lodged. The predicted collision risk is insignificant in the context of the county, national and international population.</p>	<p>The magnitude of the effect is assessed as <i>Negligible</i>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Imperceptible Negative Effect

4.4.10 Buzzard (All Seasons)

As outlined in Section 7.8.2.15 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.15 of the EIAR for further details on the impact assessment for buzzard. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.15 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>Similar to the data outlined in Section 7.8.2.15 of the EIAR, this species was frequently recorded foraging and commuting within the wind farm site during the breeding and winter seasons. Direct loss of foraging habitat relative to its availability onsite, will be minimal.</p> <p>Substantial areas of undisturbed suitable breeding and foraging habitat will remain post construction.</p> <p>Significant effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.15 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of a <i>Low</i> sensitivity species and a <i>Low</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Slight Negative Effect
Disturbance	<p>Similar to the data outlined in Section 7.8.2.15 of the EIAR, this species was frequently recorded within the wind farm site during the breeding and winter seasons. The majority of observations involve foraging or commuting birds. The wind farm site does not contain habitats that are of particularly high quality for this species (e.g. cutover bog) or unique to the local area. Therefore, were displacement to occur it would not result in the loss of a scarce resource for the local buzzard population.</p> <p>Significant displacement effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.15 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>low</i> Impact corresponds to a Very Low effect significance.</p>	Short-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated	No Effect	No Effect
Displacement & Barrier Effect	<p>Significant effects are not anticipated, given that extensive areas of suitable foraging habitat exist and will remain in the wider area. In addition, onsite habitats are not considered of particularly high quality to this species (e.g. cutover bog) or unique to the wind farm site.</p> <p>Significant effects are not anticipated at any geographical scale. This further corroborates the results of the impact assessment provided in Section 7.8.2.15 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Slight Negative Effect
Collision	<p>The species was recorded flying with the potential collision risk zone during VP surveys. A “Random” collision risk analysis has been undertaken and full details are provided in Appendix 5.</p> <p>The collision risk has been calculated at a ratio of 3.7 collisions per year. A separate collision risk was run relating to breeding buzzard specifically. The collision risk for breeding buzzard was calculated as 2.4 birds per breeding season. The results of this analysis are not significantly different from the collision risk reported in the EIAR as lodged. The favourable conservation status of this species (Green-listed BoCCI) limits the potential for ecologically significant effects to result. The predicted collision risk is insignificant in the context of the county, national and international population.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Slight Negative Effect

4.4.11 Long-eared Owl (All Seasons)

As outlined in Section 7.8.2.14 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.14 of the EIAR for further details on the impact assessment for long-eared owl. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.14 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>This species was observed perched in a tree on one occasion, within the wind farm site (along the internal road route) and 1.2km from the closest turbine. This is the same location where birds were observed during surveys outlined in the EIAR. The habitats of the wind farm site (i.e. predominantly cutover bog) are considered sub-optimal foraging habitat for long-eared owl. Long-eared owl favour open grassland for foraging. One turbine is proposed in agricultural grassland. However, habitat loss in this area is likely to be insignificant given the availability of similar habitat in the wider surroundings.</p> <p>Significant effects with regard to direct habitat loss are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.14 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Slight Negative Effect
Disturbance	<p>As previously discussed, the habitats of the wind farm site (i.e. predominantly cutover bog) are considered sub-optimal foraging habitat for long-eared owl. Long-eared owl favour open grassland for foraging. One turbine is proposed in agricultural grassland. Therefore, disturbance from construction works is unlikely to be significant as birds would not be foraging in habitats where the majority of these works will be taking place.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> Impact corresponds to a Very Low effect significance.</p>	Short-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	Significant disturbance effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.14 of the EIAR as lodged.		
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated	No Effect	No Effect
Displacement & Barrier Effect	<p>Significant displacement is not predicted given the area of grassland (i.e. long-eared owl foraging habitat) within the wind farm site is confined to a small marginal area and there is an abundance of similar suitable habitat in the wider surroundings.</p> <p>Significant displacement or barrier effects are not predicted. This further corroborates the results of the impact assessment provided in Section 7.8.2.14 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Slight Negative Effect
Collision	The species was not recorded flying at Potential Collision Height during Vantage Point Surveys. Collision related mortality is not likely to significantly impact this species.	No Effect	No Effect

4.4.12 Sparrowhawk (All Seasons)

As outlined in Section 7.8.2.16 of the EIAR, no significant effects were identified for this species. Please refer to Section 7.8.2.16 of the EIAR for further details on the impact assessment for sparrowhawk. The table below compares the data from the EIAR with the data collected between March 2021 and March 2022 and provides an updated impact assessment that considers all survey data. This impact assessment considers whether the results of surveys collected between March 2021 and March 2022 will inform any change to the impact assessment provided in Section 7.8.2.16 of the EIAR as lodged.

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	<p>Similar to the data discussed in Section 7.8.2.16 the EIAR, this species was frequently recorded foraging and commuting within the wind farm site during the breeding and winter seasons. There was one confirmed breeding territory within the wind farm site. Direct loss of foraging and breeding habitat relative to its availability onsite will be minimal.</p> <p>Substantial areas of undisturbed suitable breeding and foraging habitat will remain post construction.</p> <p>Significant effects are not predicted at the county or national level. This further corroborates the results of the impact assessment provided in Section 7.8.2.16 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of a <i>Low</i> sensitivity species and a <i>Low</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Slight Negative Effect
Disturbance	<p>This species was frequently recorded within the wind farm site during the breeding and winter seasons. The majority of observations involved foraging and commuting birds, with one confirmed breeding territory within the wind farm site during the 2021 breeding season. Construction adjacent to these nest sites could potentially cause displacement of breeding and foraging sparrowhawk. The disturbance associated with construction works will result in a measurable reduction in the breeding density of sparrowhawk and a reduction in the amount of foraging habitat within the wind farm site. However, these</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>low</i> Impact corresponds to a Very Low effect significance.</p>	Short-term Slight Negative Effect

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	<p>lands (e.g. cutover bog and scrub) are not considered unique to the wind farm site or rare in the wider surroundings.</p> <p>Significant displacement effects are not predicted at the county, national or international scale. This further corroborates the results of the impact assessment provided in Section 7.8.2.16 of the EIAR as lodged.</p>		
Operational Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated.	No Effect	No Effect
Displacement & Barrier Effect	<p>As previously discussed, the wind farm site hosts breeding and foraging sparrowhawk. Displacement from turbines is not reported for sparrowhawk, however, it is assumed for the purposes of the assessment that sparrowhawk show avoidance to a distance of 500m from turbines as with other raptors (Pearce-Higgins et al., 2009).</p> <p>There was one breeding territory within 500m of the proposed turbine layout in 2021. The disturbance associated with operational turbines will result in a measurable reduction in the breeding density of sparrowhawk and a reduction in the amount of foraging habitat within the wind farm site. Notwithstanding this, extensive areas of suitable foraging habitat exist and will remain in the wider area (i.e. outside 500m from the proposed turbine layout). Moreover, onsite habitats are not considered unique to the wind farm site.</p> <p>Significant displacement or barrier effects are not predicted at the county, national or international scale. This further corroborates the results of the impact assessment provided in Section 7.8.2.16 of the EIAR as lodged.</p>	<p>The magnitude of the effect is assessed as <i>Low</i>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> Impact corresponds to a Very Low effect significance.</p>	Long-term Slight Negative Effect
Collision	The species was recorded flying with the potential collision risk zone during VP surveys. A “Random” collision risk analysis has been undertaken and full details are provided in Appendix 5.	The magnitude of the effect is assessed as <i>Negligible</i> .	Long-term Slight Negative Effect



Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
	<p>The collision risk has been calculated to be 0.09 collisions per year, equating to one bird every 10.9 years. The results of this analysis are not significantly different from the collision risk reported in the EIAR as lodged. The predicted collision risk is insignificant in the context of the county, national and international population.</p>	<p>The cross tabulation of <i>Low</i> sensitivity species and <i>Negligible</i> Impact corresponds to a Very Low effect significance.</p>	

4.5

Effects on Key Ornithological Receptors during Decommissioning

4.5.1

All Species

Potential effects during the construction and operational phases of the Proposed Development		Significance (Percival 2003)	Significance (EPA 2017)
Construction Phase			
Direct Habitat Loss	Direct or indirect effects are not anticipated	No Effect	No Effect
Displacement & Barrier Effect	As above for construction phase for each species listed as a KOR.	As above for construction phase for each KOR	As above for construction phase for each KOR

4.6 Mitigation

Lapwing continues to breed locally the potential for the construction works to impact breeding lapwing persists and requires mitigation (as per Section 4.4.7 above). This further corroborates the results of the impact assessment as reported the EIAR as lodged. Please refer to Section 7.9.2.1 of the EIAR for the prescriptive mitigation measures that have been designed to ensure significant impacts are avoided.

4.7 Cumulative Effects

There has been no significant changes to the bird communities observed at the wind farm site during surveys between March 2021 and March 2022 when compared to those outlined in the EIAR. Furthermore, there have been no significant changes to the effects of the wind farm site on key ornithological receptors to those outlined in the EIAR. Therefore, the cumulative effects as described in the EIAR remain unchanged, and no additional information is required.

5. CONCLUSION

Following consideration of the residual effects (post-mitigation), it is concluded that the proposed development will not result in any significant effects on any of the identified KORs. No significant effects on receptors of International, National or County Importance were identified.

Provided that the proposed development is constructed, operated and decommissioned in accordance with the design, best practice and mitigation that is described within the EIAR, significant individual or cumulative effects on ornithology are not anticipated at the international, national or county scales or on any of the identified KORs.

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APPENDIX 1

SURVEY EFFORT



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1. APPENDIX 1 (SURVEY EFFORT)

Table 1-1 Vantage Point Survey Effort

Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
06/04/2021	Vantage Point Survey	VP6	3:00 starting at 14:30	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
06/04/2021	Vantage Point Survey	VP6	1:00 starting at 18:00	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
06/04/2021	Vantage Point Survey	VP6	2:00 starting at 19:00	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		PM
28/04/2021	Vantage Point Survey	VP4	3:00 starting at 15:30	Visibility: good; Wind speed and direction: gentle breeze NE; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
28/04/2021	Vantage Point Survey	VP4	3:00 starting at 19:00	Visibility: good; Wind speed and direction: gentle breeze NE; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
21/05/2021	Vantage Point Survey	VP4	3:00 starting at 04:20	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		PM
21/05/2021	Vantage Point Survey	VP4	3:00 starting at 07:50	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		PM
26/05/2021	Vantage Point Survey	VP6	3:00 starting at 04:15	Visibility: good; Wind speed and direction: light breeze N; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		PM
26/05/2021	Vantage Point Survey	VP6	3:00 starting at 07:45	Visibility: good; Wind speed and direction: light breeze N; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		PM
17/06/2021	Vantage Point Survey	VP4	3:00 starting at 11:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 0-33% <150m; Rain: none; Frost: none; Snow: none		PM
17/06/2021	Vantage Point Survey	VP4	3:00 starting at 14:30	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 0-33% <150m; Rain: none; Frost: none; Snow: none		PM
30/06/2021	Vantage Point Survey	VP6	3:00 starting at 09:30	Visibility: good; Wind speed and direction: light air W; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none	No target species	PM



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
30/06/2021	Vantage Point Survey	VP6	3:00 starting at 13:00	Visibility: good; Wind speed and direction: light air W; Cloud cover and height: 0-33% <150m; Rain: none; Frost: none; Snow: none		PM
27/07/2021	Vantage Point Survey	VP4	3:00 starting at 08:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
27/07/2021	Vantage Point Survey	VP4	3:00 starting at 11:30	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		PM
30/07/2021	Vantage Point Survey	VP6	3:00 starting at 09:00	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
30/07/2021	Vantage Point Survey	VP6	3:00 starting at 12:30	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		PM
19/08/2021	Vantage Point Survey	VP6	1:00 starting at 09:30	Visibility: moderate; Wind speed and direction: light breeze E; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		TRea
19/08/2021	Vantage Point Survey	VP6	1:00 starting at 10:30	Visibility: moderate; Wind speed and direction: light breeze E; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		TRea
19/08/2021	Vantage Point Survey	VP6	1:00 starting at 11:30	Visibility: good; Wind speed and direction: light air E; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		TRea
19/08/2021	Vantage Point Survey	VP6	1:00 starting at 13:00	Visibility: good; Wind speed and direction: light air E; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		TRea
19/08/2021	Vantage Point Survey	VP6	1:00 starting at 14:00	Visibility: good; Wind speed and direction: light breeze E; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		TRea
19/08/2021	Vantage Point Survey	VP6	1:00 starting at 15:00	Visibility: good; Wind speed and direction: light breeze E; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		TRea
26/08/2021	Vantage Point Survey	VP4	1:00 starting at 09:30	Visibility: limited; Wind speed and direction: light breeze E; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	Fog for at beginning limited visibility	TRea
26/08/2021	Vantage Point Survey	VP4	1:00 starting at 10:30	Visibility: good; Wind speed and direction: light breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea
26/08/2021	Vantage Point Survey	VP4	1:00 starting at 11:30	Visibility: good; Wind speed and direction: light breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
26/08/2021	Vantage Point Survey	VP4	1:00 starting at 13:00	Visibility: good; Wind speed and direction: light breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea
26/08/2021	Vantage Point Survey	VP4	1:00 starting at 14:00	Visibility: good; Wind speed and direction: light breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea
26/08/2021	Vantage Point Survey	VP4	1:00 starting at 15:00	Visibility: good; Wind speed and direction: light breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea
06/09/2021	Vantage Point Survey	VP6	1:00 starting at 14:35	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		TRea
06/09/2021	Vantage Point Survey	VP6	1:00 starting at 15:35	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		TRea
06/09/2021	Vantage Point Survey	VP6	1:00 starting at 16:35	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		TRea
06/09/2021	Vantage Point Survey	VP6	1:00 starting at 18:05	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		TRea
06/09/2021	Vantage Point Survey	VP6	1:00 starting at 19:05	Visibility: good; Wind speed and direction: light air SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		TRea
06/09/2021	Vantage Point Survey	VP6	1:00 starting at 20:05	Visibility: good; Wind speed and direction: light air SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		TRea
07/09/2021	Vantage Point Survey	VP4	1:00 starting at 14:35	Visibility: good; Wind speed and direction: gentle breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea
07/09/2021	Vantage Point Survey	VP4	1:00 starting at 15:35	Visibility: good; Wind speed and direction: gentle breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea
07/09/2021	Vantage Point Survey	VP4	1:00 starting at 16:35	Visibility: good; Wind speed and direction: gentle breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea
07/09/2021	Vantage Point Survey	VP4	1:00 starting at 18:05	Visibility: good; Wind speed and direction: gentle breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea
07/09/2021	Vantage Point Survey	VP4	1:00 starting at 19:05	Visibility: good; Wind speed and direction: gentle breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea
07/09/2021	Vantage Point Survey	VP4	1:00 starting at 20:05	Visibility: good; Wind speed and direction: gentle breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		TRea



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
08/10/2021	Vantage Point Survey	VP5	3:00 starting at 06:50	Visibility: moderate; Wind speed and direction: fresh breeze S; Cloud cover and height: 66-100% 150-500m; Rain: persistent; Frost: none; Snow: none	Sunrise - 07:45. Persistent lights and drizzly showers throughout which reduced visibility a great deal (especially at a distance). Occasional clear and brighter spells but drizzle was always threatening. Very mild with fresh S breeze (14 - 17° C).	NM
08/10/2021	Vantage Point Survey	VP5	3:00 starting at 10:15	Visibility: moderate; Wind speed and direction: fresh breeze S; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		NM
19/10/2021	Vantage Point Survey	VP4	6:30 starting at 07:00	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% >500m; Rain: drizzle; Frost: none; Snow: none	Sunrise - 08:05	



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
22/10/2021	Vantage Point Survey	VP6	3:00 starting at 07:15	Visibility: moderate; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none	Sunrise - 08:06. Cool with moderate W breeze (which was especially apparent in open areas). Largely overcast early on with thin sheets of cloud being blown across. 90% cover. Frequent drizzly and misty showers moving across early in the survey which produced sporadic decreases in visibility. (6 - 12° C)	NM



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
22/10/2021	Vantage Point Survey	VP6	3:00 starting at 10:30	Visibility: good; Wind speed and direction: fresh breeze W; Cloud cover and height: 33-66% >500m; Rain: drizzle; Frost: none; Snow: none	Became a lot brighter by mid-morning with prolonged periods of sunny and clearer conditions stretching into lunchtime. Cloud cover reduced but the threat of showers remained. Wind increased to fresh W which made it feel cold despite the sun. Very occasional drizzly shower	NM
23/10/2021	Vantage Point Survey	VP3	6:10 starting at 07:20	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	Sunrise - 08:06. Cool and moderate S breeze (5 - 13°C). Patchy cloud and partly overcast with some clearer spots. Continued to be largely cloudy with moderate breeze (+ fresher gusts).	
15/11/2021	Vantage Point Survey	VP3	3:00 starting at 11:17	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		CR
15/11/2021	Vantage Point Survey	VP3	3:00 starting at 14:47	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		CR
16/11/2021	Vantage Point Survey	VP4	3:00 starting at 11:05	Visibility: good; Wind speed and direction: moderate breeze N; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		CR



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
16/11/2021	Vantage Point Survey	VP4	3:00 starting at 14:35	Visibility: moderate; Wind speed and direction: moderate breeze N; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none	Drizzle and reduced visibility until 15:26 pm.	CR
19/11/2021	Vantage Point Survey	VP5	3:00 starting at 11:04	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		CR
19/11/2021	Vantage Point Survey	VP5	3:00 starting at 14:34	Visibility: moderate; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none	Drizzle and reduced visibility from 16:23 pm.	CR
22/11/2021	Vantage Point Survey	VP6	3:00 starting at 11:02	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		CR
22/11/2021	Vantage Point Survey	VP6	3:00 starting at 14:32	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 0-33% >500m; Rain: none; Frost: ; Snow:		CR
09/12/2021	Vantage Point Survey	VP4	3:00 starting at 07:33	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		KB
09/12/2021	Vantage Point Survey	VP4	3:00 starting at 11:03	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		KB
15/12/2021	Vantage Point Survey	VP6	3:00 starting at 07:39	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		KB
15/12/2021	Vantage Point Survey	VP6	3:00 starting at 11:10	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		KB
23/12/2021	Vantage Point Survey	VP3	3:00 starting at 07:44	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		KB
23/12/2021	Vantage Point Survey	VP3	3:00 starting at 11:14	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		KB
03/01/2022	Vantage Point Survey	VP5	3:00 starting at 07:45	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		KB
03/01/2022	Vantage Point Survey	VP5	3:00 starting at 11:15	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 33-66% >500m; Rain: drizzle; Frost: none; Snow: none		KB
25/01/2022	Vantage Point Survey	VP5	3:00 starting at 11:00	Visibility: good; Wind speed and direction: light air S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		ZE
25/01/2022	Vantage Point Survey	VP5	3:00 starting at 14:30	Visibility: good; Wind speed and direction: light air S; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none		ZE



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
26/01/2022	Vantage Point Survey	VP3	3:00 starting at 11:30	Visibility: good; Wind speed and direction: moderate breeze NE; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		ZE
26/01/2022	Vantage Point Survey	VP3	1:00 starting at 15:00	Visibility: good; Wind speed and direction: moderate breeze NE; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		ZE
26/01/2022	Vantage Point Survey	VP3	1:00 starting at 16:00	Visibility: moderate; Wind speed and direction: fresh breeze NE; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none		ZE
26/01/2022	Vantage Point Survey	VP3	1:00 starting at 17:00	Visibility: good; Wind speed and direction: moderate breeze NE; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		ZE
27/01/2022	Vantage Point Survey	VP4	3:00 starting at 11:30	Visibility: good; Wind speed and direction: light air NE; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	Occasional light drizzle for few minutes	ZE
27/01/2022	Vantage Point Survey	VP4	3:00 starting at 15:00	Visibility: good; Wind speed and direction: light breeze NE; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		ZE
31/01/2022	Vantage Point Survey	VP6	3:00 starting at 11:40	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		ZE
31/01/2022	Vantage Point Survey	VP6	3:00 starting at 15:10	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		ZE
08/02/2022	Vantage Point Survey	VP5	0:30 starting at 07:00	Visibility: none; Wind speed and direction: light air SW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		NS
08/02/2022	Vantage Point Survey	VP5	0:30 starting at 07:30	Visibility: poor; Wind speed and direction: light air SW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		NS
08/02/2022	Vantage Point Survey	VP5	1:00 starting at 08:00	Visibility: poor; Wind speed and direction: light breeze SW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none	Very misty, visibility reduced greatly	NS
08/02/2022	Vantage Point Survey	VP5	1:00 starting at 09:00	Visibility: ; Wind speed and direction: SW; Cloud cover and height: ; Rain: ; Frost: ; Snow:		NS



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
08/02/2022	Vantage Point Survey	VP5	1:00 starting at 10:30	Visibility: good; Wind speed and direction: calm SW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
08/02/2022	Vantage Point Survey	VP5	0:30 starting at 11:30	Visibility: moderate; Wind speed and direction: calm SW; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		NS
08/02/2022	Vantage Point Survey	VP5	1:30 starting at 12:00	Visibility: poor; Wind speed and direction: light air SW; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		NS
15/02/2022	Vantage Point Survey	VP3	0:30 starting at 06:45	Visibility: none; Wind speed and direction: light air WSW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
15/02/2022	Vantage Point Survey	VP3	2:30 starting at 07:15	Visibility: good; Wind speed and direction: light air WSW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
15/02/2022	Vantage Point Survey	VP3	3:00 starting at 10:15	Visibility: moderate; Wind speed and direction: light breeze WSW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
16/02/2022	Vantage Point Survey	VP4	1:45 starting at 06:45	Visibility: poor; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		NS
16/02/2022	Vantage Point Survey	VP4	1:15 starting at 08:30	Visibility: moderate; Wind speed and direction: fresh breeze SW; Cloud cover and height: 66-100% <150m; Rain: heavy showers; Frost: none; Snow: none	visibility low, very misty	NS
16/02/2022	Vantage Point Survey	VP4	0:45 starting at 10:15	Visibility: poor; Wind speed and direction: strong breeze SW; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		NS
16/02/2022	Vantage Point Survey	VP4	0:30 starting at 11:00	Visibility: poor; Wind speed and direction: strong breeze SW; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		NS
16/02/2022	Vantage Point Survey	VP4	1:45 starting at 11:30	Visibility: limited; Wind speed and direction: strong breeze SW; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none		NS
17/02/2022	Vantage Point Survey	VP6	0:50 starting at 06:40	Visibility: poor; Wind speed and direction: light air SW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
17/02/2022	Vantage Point Survey	VP6	1:30 starting at 07:30	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
17/02/2022	Vantage Point Survey	VP6	0:40 starting at 09:00	Visibility: poor; Wind speed and direction: SW; Cloud cover and height: ; Rain: heavy showers; Frost: none; Snow: none		NS



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
17/02/2022	Vantage Point Survey	VP6	2:00 starting at 10:10	Visibility: poor; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% <150m; Rain: heavy showers; Frost: none; Snow: none		NS
17/02/2022	Vantage Point Survey	VP6	1:00 starting at 12:10	Visibility: moderate; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		NS
09/03/2022	Vantage Point Survey	VP6	3:00 starting at 13:20	Visibility: moderate; Wind speed and direction: near gale SW; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none		NS
09/03/2022	Vantage Point Survey	VP6	3:00 starting at 16:50	Visibility: good; Wind speed and direction: strong breeze SW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
10/03/2022	Vantage Point Survey	VP4	3:00 starting at 13:25	Visibility: good; Wind speed and direction: strong breeze WSW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
10/03/2022	Vantage Point Survey	VP4	3:00 starting at 16:55	Visibility: good; Wind speed and direction: strong breeze WSW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
22/03/2022	Vantage Point Survey	VP5	3:00 starting at 13:10	Visibility: good; Wind speed and direction: light breeze N; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		ZOC
22/03/2022	Vantage Point Survey	VP5	3:00 starting at 16:40	Visibility: good; Wind speed and direction: light air N; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none		ZOC
23/03/2022	Vantage Point Survey	VP3	3:00 starting at 13:15	Visibility: good; Wind speed and direction: moderate breeze NE; Cloud cover and height: 0-33% 150-500m; Rain: none; Frost: none; Snow: none		ZOC
23/03/2022	Vantage Point Survey	VP3	3:00 starting at 16:45	Visibility: good; Wind speed and direction: light breeze N; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none		ZOC

Table 1-2 Breeding Bird Survey Effort

Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
07/04/2021	Breeding Walkover Survey	500m Survey Radius	6:00 starting at 07:00	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
14/05/2021	Breeding Walkover Survey	500m Survey Radius	3:00 starting at 05:30	Visibility: poor; Wind speed and direction: light air S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	Foggy	PM
14/05/2021	Breeding Walkover Survey	500m Survey Radius	3:00 starting at 08:30	Visibility: good; Wind speed and direction: light air S; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		PM
18/06/2021	Breeding Walkover Survey	500M Survey Radius	6:00 starting at 05:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 0-33% <150m; Rain: none; Frost: none; Snow: none		PM
21/06/2021	Breeding Walkover Survey	500M Survey Radius	9:00 starting at 08:20	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 0-33% >500m; Rain: none; Frost: light; Snow: none	Cool, bright and clear with almost no clouds early on and some light frost in places (2 - 11 °C). No apparent breeze to start with but gentle - moderate W wind emerged (in open areas). Remaining clear and bright for the majority of the survey (cool in wind but warm in shade). Cloud cover gradually increasing towards evening with very light passing showers - but continued to be clear and cloud cover never went above 30%.	NM



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
23/07/2021	Breeding Walkover Survey	500M Survey Radius	5:00 starting at 05:30	Visibility: good; Wind speed and direction: light air E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		PM
06/05/2022	Breeding Walkover Survey	VP3	3:00 starting at 10:00	Visibility: poor; Wind speed and direction: gentle breeze NE; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none	Persistent rain through entire walkover.	NS
09/05/2022	Breeding Walkover Survey	VP6	3:30 starting at 09:00	Visibility: good; Wind speed and direction: moderate breeze NE; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		NS
09/05/2022	Breeding Walkover Survey	VP4	3:30 starting at 13:30	Visibility: moderate; Wind speed and direction: strong breeze NE; Cloud cover and height: 66-100% <150m; Rain: ; Frost: none; Snow: none		NS
10/05/2022	Breeding Walkover Survey	VP5	3:00 starting at 08:15	Visibility: good; Wind speed and direction: moderate breeze NE; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none	Persistent rain through entire walkover.	NS
24/05/2022	Breeding Walkover Survey	500M Survey Radius	11:00 starting at 06:00	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 33-66% >500m; Rain: drizzle; Frost: none; Snow: none	Primarily clear throughout with widespread sunny spells. Occasional showers with some heavier ones emerging later in the day. 9 - 14°C	NM
25/05/2022	Breeding Walkover Survey	500M Survey Radius	12:00 starting at 06:00	Visibility: good; Wind speed and direction: fresh breeze WSW; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	Largely clear throughout with bright spells. Occasional light showers but they were seldom and short-lived. 9 - 13°C. Fresh WSW breeze with some stronger gusts.	NM

Table 1-3 Breeding Raptor Survey Effort

Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
29/04/2021	Breeding Raptor Survey	BRVP5	3:00 starting at 08:30	Visibility: good; Wind speed and direction: light breeze NE; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
29/04/2021	Breeding Raptor Survey	BRVP6	3:00 starting at 12:00	Visibility: good; Wind speed and direction: light breeze NE; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
30/04/2021	Breeding Raptor Survey	BRVP2	3:00 starting at 07:30	Visibility: good; Wind speed and direction: light breeze NE; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
30/04/2021	Breeding Raptor Survey	BRVP1	3:00 starting at 11:00	Visibility: good; Wind speed and direction: light breeze NE; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		PM
06/05/2021	Breeding Raptor Survey	BRVP1	3:00 starting at 16:30	Visibility: good; Wind speed and direction: light breeze NW; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		PM
18/05/2021	Breeding Raptor Survey	BRVP6	3:00 starting at 17:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		PM
20/05/2021	Breeding Raptor Survey	BRVP5	3:00 starting at 16:30	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none	No Raptors Observed	PM
24/05/2021	Breeding Raptor Survey	BRVP2a	3:00 starting at 17:15	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 33-66% >500m; Rain: light showers; Frost: none; Snow: none		PM
03/06/2021	Breeding Raptor Survey	BRVP1	3:00 starting at 17:45	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		PM
04/06/2021	Breeding Raptor Survey	BRVP6	3:00 starting at 17:20	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		PM
28/06/2021	Breeding Raptor Survey	BRVP2	3:00 starting at 17:30	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 0-33% <150m; Rain: none; Frost: none; Snow: none		PM
29/06/2021	Breeding Raptor Survey	BRVP6	3:00 starting at 17:30	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 0-33% <150m; Rain: none; Frost: none; Snow: none		PM
13/07/2021	Breeding Raptor Survey	BRVP6	1:00 starting at 09:00	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		Trea
13/07/2021	Breeding Raptor Survey	BRVP6	1:00 starting at 10:00	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		Trea



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
13/07/2021	Breeding Raptor Survey	BRVP6	1:00 starting at 11:00	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	No target species observed	Trea
13/07/2021	Breeding Raptor Survey	BRVP5	1:00 starting at 12:30	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		Trea
13/07/2021	Breeding Raptor Survey	BRVP5	1:00 starting at 13:30	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		Trea
13/07/2021	Breeding Raptor Survey	BRVP5	1:00 starting at 14:30	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		Trea
19/07/2021	Breeding Raptor Survey	BRVP1	1:00 starting at 10:00	Visibility: good; Wind speed and direction: light breeze E; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		Trea
19/07/2021	Breeding Raptor Survey	BRVP1	1:00 starting at 11:00	Visibility: good; Wind speed and direction: light breeze E; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		Trea
19/07/2021	Breeding Raptor Survey	BRVP1	1:00 starting at 12:00	Visibility: good; Wind speed and direction: light breeze E; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		Trea
19/07/2021	Breeding Raptor Survey	BRVP2	1:00 starting at 12:30	Visibility: good; Wind speed and direction: calm E; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		Trea
19/07/2021	Breeding Raptor Survey	BRVP2	1:00 starting at 13:30	Visibility: good; Wind speed and direction: calm E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		Trea
19/07/2021	Breeding Raptor Survey	BRVP2	1:00 starting at 14:30	Visibility: good; Wind speed and direction: calm E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		Trea

Table 1-4 Winter Transect Survey Effort

Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
20/10/2021	Winter Walkover Survey	500M Survey Radius	7:25 starting at 08:35	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 33-66% >500m; Rain: light showers; Frost: none; Snow: none	Grey and dark with persistent heavy showers to start with but cleared considerably by mid-morning - leading to relatively bright conditions and occasional sunny spells. Occasional heavy showers and drizzly outbursts. (10 - 17°C).	NM
27/01/2022	Winter Walkover Survey	T1	6:00 starting at 11:30	Visibility: moderate; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none		AOD
28/01/2022	Winter Walkover Survey	T1,T2	6:00 starting at 11:20	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		AOD
22/02/2022	Winter Walkover Survey	T1	6:00 starting at 11:50	Visibility: good; Wind speed and direction: fresh breeze S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
23/02/2022	Winter Walkover Survey	T1,T2	6:00 starting at 12:00	Visibility: good; Wind speed and direction: fresh breeze SE; Cloud cover and height: 66-100% 150-500m; Rain: heavy showers; Frost: none; Snow: none		AOD
15/03/2022	Winter Walkover Survey	VP3&4 area	7:00 starting at 09:30	Visibility: good; Wind speed and direction: moderate breeze NE; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
16/03/2022	Winter Walkover Survey	VP6&4 area	7:00 starting at 09:30	Visibility: good; Wind speed and direction: gentle breeze NE; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		NS

Table 1-5 Wildfowl Survey Effort

Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
16/09/2021	Waterfowl Distribution Survey	8km buffer	9:10 starting at 08:00	Visibility: good; Wind speed and direction: light breeze SE; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	Overcast with some patchy clearances peeking through at times. Quite calm with light SE breeze, mild (10 - 18°C). Some lights showers emerging by mid-morning - mixture of random showers and hazy sunshine for the remainder of survey	NM
17/09/2021	Waterfowl Distribution Survey	8km buffer	5:30 starting at 12:00	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	Warm and humid throughout (16 - 18°C) with largely cloudy sky but with clearer spells on occasion. Occasional sporadic lights showers. Moderate SW breeze.	NM
17/09/2021	Waterfowl Distribution Survey	L. Iron Roost	11:30 starting at 18:00	Visibility: good; Wind speed and direction: light air SW; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	Mild conditions continued along with a reduction in cloud cover leading to a bright a largely clear evening. Wind dropped considerably - light air from SW. 14 - 17°C. Sunset - 19:40	NM



29/09/2021	Waterfowl Distribution Survey	8km buffer	8:15 starting at 07:45	Visibility: moderate; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none	Relatively mild (6 - 14°C) and entirely overcast. Moderate SW breeze. Grey and drear throughout. Blustery showers at dawn followed by sporadic drizzly showers throughout the morning - some heavier and more persistent showers towards evening.	NM
30/09/2021	Waterfowl Distribution Survey	L. Iron Roost	2:45 starting at 17:30	Visibility: good; Wind speed and direction: fresh breeze SW; Cloud cover and height: 33-66% >500m; Rain: light showers; Frost: none; Snow: none	Breezy with fresh SW breeze. Sunny spells and scattered showers blowing across. Relatively mild (10 - 14°C) but wind made it feel colder	NM
11/10/2021	Waterfowl Distribution Survey	L. Iron Roost	3:15 starting at 16:30	Visibility: good; Wind speed and direction: light breeze NW; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	Sunset - 18:56. Cool and bright evening with bright sunny patches. Almost no breeze whatsoever with light movement of air on occasion. Cool with the temperature dropping towards dusk (4 - 10°C). Mist gathering low of fields and wetlands at dusk also.	NM

12/10/2021	Waterfowl Distribution Survey	8km buffer (point survey on water bodies)	9:15 starting at 08:00	Visibility: good; Wind speed and direction: light breeze NW; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none	Grey and overcast but with thinner and brighter patches at times (remaining largely overcast throughout). Patches of sunny spells emerging towards mid afternoon but continued to remain rather cloudy. (8 - 13°C).	NM
25/10/2021	Waterfowl Distribution Survey	L. Iron roost	2:30 starting at 16:45	Visibility: moderate; Wind speed and direction: light breeze W; Cloud cover and height: 33-66% >500m; Rain: drizzle; Frost: none; Snow: none	Sunset - 18:10	NM
26/10/2021	Waterfowl Distribution Survey	8km buffer	8:45 starting at 08:15	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none	Very mild and humid (12 - 15°C) with overcast sky and sporadic light SW breeze. Occasional drizzly showers. Brightening up as morning progressed with some patchy brighter spots but remaining largely overcast. Prolonged clear spells in afternoon.	NM



08/11/2021	Waterfowl Distribution Survey	8km buffer	5:30 starting at 11:00	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 33-66% >500m; Rain: drizzle; Frost: none; Snow: none	Mild with moderate SW breeze (10 - 13°C). Damp with rain in the morning - but when survey started it had cleared significantly. Extensive clearer spells throughout the day with drifting lines of stratus clouds. Becoming cloudier and darker in afternoon.	NM
09/11/2021	Waterfowl Distribution Survey	8km buffer (+ L. Iron roost)	9:10 starting at 08:20	Visibility: good; Wind speed and direction: gentle breeze SE; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	Sunset - 16:40. L. Iron roost: 15:15 - 17:30	NM
22/11/2021	Waterfowl Distribution Survey	L. Iron Roost	2:30 starting at 15:00	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	Cool (3 - 8°C) with light S breeze. Bright and clear with no cloud. Sunset - 16:21	NM

23/11/2021	Waterfowl Distribution Survey	8km buffer	8:15 starting at 08:15	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	Cool (4 - 6°C) with light SW breeze. Almost entirely overcast with occasional thinner and brighter areas but these were fleeting. Still and quiet for the most part with breeze apparent in open areas. L. Bane - almost inaccessible, perimeter of tangled and boggy birch woodland and scrub + very wet and boggy shores (with Sphagnum) - fully saturated (quaking bog??).	NM
09/12/2021	Waterfowl Distribution Survey	8km buffer (+ L. Iron roost)	4:20 starting at 13:00	Visibility: limited; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none	Constant drizzle and rain throughout made survey unpleasant. Very poor visibility throughout. Cold with moderate W breeze (4 - 6°C). The weather during this survey was very bad and the visibility very poor. The lake was seen to be full of wildfowl but ID was nearly impossible.	NM

10/12/2021	Waterfowl Distribution Survey	8km buffer	8:05 starting at 08:15	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 0-33% >500m; Rain: drizzle; Frost: light; Snow: none	Cold and crisp throughout the day with light NW breeze (3 - 7°C). Cold and sleety showers to start with but by mid-morning it had tunred into a clear and bright day.	NM
22/12/2021	Waterfowl Distribution Survey	8km buffer	7:50 starting at 08:30	Visibility: good; Wind speed and direction: gentle breeze SE; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	Cool with gentle SE breeze throuough (2 - 7°C). Grey and entirely overcast	NM
23/12/2021	Waterfowl Distribution Survey	L. Iron roost	2:15 starting at 14:45	Visibility: good; Wind speed and direction: light air S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	Mild and calm with clear bright skies (9 - 12°C). No wind. Good visibility.	NM



04/01/2022	Waterfowl Distribution Survey	8km buffer (+ L. Iron roost	8:20 starting at 09:00	Visibility: good; Wind speed and direction: moderate breeze SE; Cloud cover and height: 33-66% 150-500m; Rain: drizzle; Frost: heavy; Snow: falling	Cold all day (-1 - 3°C). Light snow on ground along with heavy frost which stayed put all day. Predominantly overcast throughout with snow showers up until 13:00 - visibility greatly reduced during snow. Turning clear and bright very abruptly in the afternoon with clear and sunny conditions - but remained very cold. Clouding over once again in evening but remaining high and bright. L. Iron roost: 15:00 - 17:20. Numbers of WF recorded were likely to be underestimates due to high numbers and distance away from lake by surveyor. Sunset: 16:22	NM
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05/01/2022	Waterfowl Distribution Survey	8km buffer	7:45 starting at 08:45	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 33-66% >500m; Rain: none; Frost: light; Snow: none	Predominantly bright and clear with prolonged sunny spells which persisted for the survey duration. Cold and crisp (-2 - 4° C) and remained so throughout.	NM
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17/01/2022	Waterfowl Distribution Survey	8km buffer	8:30 starting at 08:30	Visibility: good; Wind speed and direction: calm W; Cloud cover and height: 0-33% >500m; Rain: none; Frost: heavy; Snow: none	Cold and crisp early in the morning (-3 - 7°C) with heavy frost on ground. No wind, very calm all day. Patchy mist and haze early on which hampered visibility but it was quickly burned off. Clear and bright all day, never a cloud to be seen. Warming up gradually with frost disappearing mostly by mid-morning (except in shaded areas). Remaining clear and calm throughout. Large numbers of wildfowl on L. Sheelin, with CO & TU being notable numerous - underestimation of numbers likely. Large RE & SG flocks flying over site at dusk.	NM
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18/01/2022	Waterfowl Distribution Survey	8km buffer	5:00 starting at 10:00	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 33-66% >500m; Rain: drizzle; Frost: none; Snow: none	Largely clear and bright early on with with prolonged sunny spells (5 - 8° C). Relatively calm with light S breeze. Becoming gradually cloudier and greyer towards lunchtime with rain showers blowing in - turning entirely overcast and wet by mid-afternoon.	NM
18/01/2022	Waterfowl Distribution Survey	L. Iron roost	2:00 starting at 15:30	Visibility: poor; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% 150-500m; Rain: heavy showers; Frost: none; Snow: none	Entirely overcast with mid-height cloud (5 - 9° C). Consistent heavy rain and very wet conditions - some occasional but short-lived clearances. Rain hampered visibility greatly. Sunset - 16:43	NM
14/02/2022	Waterfowl Distribution Survey	5km buffer	4:40 starting at 10:30	Visibility: good; Wind speed and direction: fresh breeze NW; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		KB
15/02/2022	Waterfowl Distribution Survey	5km buffer	6:00 starting at 09:30	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		KB
26/02/2022	Waterfowl Distribution Survey	5km buffer	5:00 starting at 09:00	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none		KB
28/02/2022	Waterfowl Distribution Survey	5km buffer	3:50 starting at 11:40	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 33-66% >500m; Rain: light showers; Frost: none; Snow: none		KB
07/03/2022	Waterfowl Distribution Survey	5km buffer	4:00 starting at 09:00	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		KB

08/03/2022	Waterfowl Distribution Survey	5km buffer	4:30 starting at 11:30	Visibility: good; Wind speed and direction: fresh breeze S; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		KB
31/03/2022	Waterfowl Distribution Survey	5km buffer	4:00 starting at 08:00	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		KB
31/03/2022	Waterfowl Distribution Survey	5km buffer	3:30 starting at 13:00	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		KB
17/04/2022	Waterfowl Distribution Survey	5km buffer	5:30 starting at 11:00	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% 150-500m; Rain: persistent; Frost: none; Snow: none		KB
04/05/2022	Waterfowl Distribution Survey	5km buffer	6:00 starting at 11:00	Visibility: good; Wind speed and direction: moderate breeze NW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		KB
20/05/2022	Waterfowl Distribution Survey	8km buffer	11:00 starting at 07:00	Visibility: good; Wind speed and direction: moderate breeze WSW; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none	Consistent rain for the first half of the day - light showers. Clearing gradually towards the evening with the onset of clearer and sunny spells. Moderate WSW breeze, 11 - 15°C	NM
27/05/2022	Waterfowl Distribution Survey	5km buffer	10:15 starting at 08:15	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	Moderate SW breeze , 10 - 16°C. Largely clear and bright and remained so throughout - some darker and cloudier spells came and went. Brightening significantly (and warming) from 1pm onwards with a decrease in cloud cover	NM



Table 1-6 Woodcock Survey Effort

Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
06/05/2021	Breeding Woodcock Survey	T1	2:30 starting at 20:00	Visibility: good; Wind speed and direction: light breeze NW; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		PM
18/05/2021	Breeding Woodcock Survey	T3	2:00 starting at 20:30	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		PM
20/05/2021	Breeding Woodcock Survey	T4	2:00 starting at 20:30	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% >500m; Rain: drizzle; Frost: none; Snow: none	No WK Observed	PM
24/05/2021	Breeding Woodcock Survey	T2	2:00 starting at 20:30	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 33-66% >500m; Rain: light showers; Frost: none; Snow: none		PM
03/06/2021	Breeding Woodcock Survey	T2	2:00 starting at 20:50	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		PM
03/06/2021	Breeding Woodcock Survey	T1	2:00 starting at 20:50	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		Trea
04/06/2021	Breeding Woodcock Survey	T4	3:00 starting at 20:50	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none	No WK observed	PM
04/06/2021	Breeding Woodcock Survey	T3	2:00 starting at 20:50	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		Trea
28/06/2021	Breeding Woodcock Survey	T2	2:00 starting at 21:00	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 0-33% <150m; Rain: none; Frost: none; Snow: none	No WK observed	PM
28/06/2021	Breeding Woodcock Survey	T1	2:00 starting at 21:00	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 0-33% <150m; Rain: none; Frost: none; Snow: none		Trea



Date	Survey		Duration (h)	Weather Conditions	Comments	Surveyor
29/06/2021	Breeding Woodcock Survey	T4	2:00 starting at 21:00	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 0-33% <150m; Rain: none; Frost: none; Snow: none	No WK observed	PM
29/06/2021	Breeding Woodcock Survey	T3	2:00 starting at 21:00	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 0-33% <150m; Rain: none; Frost: none; Snow: none	No WK Observed	Trea
16/05/2022	Breeding Woodcock Survey	T4	2:10 starting at 20:30	Visibility: moderate; Wind speed and direction: gentle breeze NE; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
20/05/2022	Breeding Woodcock Survey	T2	2:20 starting at 20:30	Visibility: moderate; Wind speed and direction: light breeze NE; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		NS
24/05/2022	Breeding Woodcock Survey	T1	2:10 starting at 20:40	Visibility: moderate; Wind speed and direction: light air NE; Cloud cover and height: 33-66% <150m; Rain: none; Frost: none; Snow: none		NS



APPENDIX 2

SURVEY DATA

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1. APPENDIX 2 (SURVEY DATA)

Table 1-1 Common Tern Wildfowl Distribution Survey Data

Vantage Point Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CN001	L. D'varagh	17/09/2021	13:48	Common Tern	2	mesotrophic lakes; appeared to be doing laps around lake shore	NM

Table 1-2 Golden Plover Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
GP001	VP5	08/10/2021	12:43	Golden Plover	175	330	0	0	0	330	improved agricultural grassland, semi-natural grassland and scrub; flying high over and back far to the s of vp	NM
GP002	VP4	19/10/2021	09:13	Golden Plover	65	170	0	0	170	0	cutover bog; flying w across site	NM
GP003	VP6	22/10/2021	13:05	Golden Plover	54	245	0	40	205	0	cutover bog and scrub; flying and swirling over bog in flock	NM
GP004	VP3	23/10/2021	10:10	Golden Plover	6	65	0	65	0	0	cutover bog; flying s	NM
GP005	VP3	23/10/2021	10:18	Golden Plover	6	60	25	35	0	0	cutover bog; flying across bog + rapidly low across ground	NM
GP006	VP3	23/10/2021	10:21	Golden Plover	148	650	0	60	590	0	cutover bog, improved agricultural grassland and hedgerows; flying and swirling in group over bog and farmland	NM
GP007	VP3	23/10/2021	10:27	Golden Plover	46	125	0	0	125	0	cutover bog, improved agricultural grassland and scrub; flying across s of site	NM
GP008	VP3	23/12/2021	08:47	Golden Plover	11	5	5	0	0	0	cutover bog; travelling	KB
GP009	VP3	23/12/2021	09:14	Golden Plover	10	8	8	0	0	0	cutover bog; travelling	KB

Table 1-3 Golden Plover Breeding Walkover Survey Data

Breeding Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
GP001	07/04/2021	08:47	Golden Plover	3	cutover bog; travelling (flyover; non-breeding)	PM

Table 1-4 Golden Plover Winter Walkover Survey Data

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
GP002	20/10/2021	10:56	Golden Plover	6	cutover bog; flying and swirling across bog (wintering)	NM
GP003	20/10/2021	16:13	Golden Plover	6	improved agricultural grassland and scattered tress and parkland; flying and calling (wintering)	NM
GP004	20/10/2021	10:56	Golden Plover	16	cutover bog; on bog and calling (wintering)	NM
GP005	27/01/2022	16:27	Golden Plover	14	cutover bog; roosting, roosting on bog (wintering)	AOD

Table 1-5 Golden Plover Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GP001	L. D'varagh	12/10/2021	16:16	Golden Plover	6	lakes and ponds; flying low and rapidly across lake - heading w	NM



Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GP002		26/10/2021	12:47	Golden Plover	5	cutover bog; flying low across bog wetland	NM
GP003		23/11/2021	15:40	Golden Plover	160	lakes and ponds; flying over farmland to n of lake	NM
GP004	L. D'varagh	04/01/2022	09:14	Golden Plover	19	improved agricultural grassland and hedgerows; swirling low over fields	NM

Table 1-6 Greenland White-fronted Goose Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
WG001	VP6	06/04/2021	19:54	Greenland White-fronted Goose	14	100	0	0	100	0	cutover bog and wet grassland; travelling	PM

Table 1-7 Greenland White-fronted Goose Winter Walkover Survey Data

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
WG001	21/10/2021	10:14	Greenland White-fronted Goose	5	cutover bog and scrub; flying sw across site (wintering)	NM

Table 1-8 Greenland White-fronted Goose Waterfowl Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WG001	Piercefield	15/02/2022	10:10	Greenland White-fronted Goose	24	wet grassland; foraging, rest of the flock was unseen through vegetation/trees but more birds heard calling	KB
WG002	Piercefield	15/02/2022	10:10	Greenland White-fronted Goose	4	wet grassland; foraging, more birds likely present but unseen through hedgerow	KB



Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WG003	Lough Iron - piercefield fields	28/02/2022	15:30	Greenland White-fronted Goose	9	wet grassland; foraging, more birds present but not visible through the vegetation/trees - calling heard indicating larger flock	KB
WG004	Lough Iron - piercefield	08/03/2022	11:42	Greenland White-fronted Goose	12	wet grassland; foraging, whole flock not visible through the vegetation/trees - more birds likely present	KB

Table 1-9 Hen Harrier Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
HH001	VP6	06/04/2021	19:53	Hen Harrier	1	110	110	0	0	0	wet grassland, cutover bog and conifer plantation; travelling, 2cy male	PM
HH002	VP6	06/09/2021	17:30	Hen Harrier	1	6	6	0	0	0	cutover bog; flying, ringtail, glided in and landed out of site in scrub near river	TRea
HH003	VP6	06/09/2021	18:13	Hen Harrier	1	27	27	0	0	0	cutover bog; travelling, ringtail, flew low over bog and landed by stream	TRea
HH004	VP6	22/10/2021	12:14	Hen Harrier	1	95	95	0	0	0	semi-natural grassland, scrub and cutover bog; flying low with acrobatics across grassland and scrub along river, diving at passerines	NM
HH005	VP6	17/02/2022	09:48	Hen Harrier	1	20	20	0	0	0	lowland blanket bog; flying, male	NS
HH006	VP6	17/02/2022	12:35	Hen Harrier	1	150	150	0	0	0	lowland blanket bog; flying, male	NS
HH008	VP6	17/02/2022	10:17	Hen Harrier	1	15	15	0	0	0	improved agricultural grassland; flying, male	NS
HH008	VP6	17/02/2022	12:13	Hen Harrier	1	25	25	0	0	0	improved agricultural grassland; flying, same male in the area seen 4 times	NS

Table 1-10 Kingfisher Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
KF001	VP4	27/07/2021	12:38	Kingfisher	1	40	40	0	0	0	cutover bog; flew from drain	PM
KF002	VP6	22/11/2021	16:03	Kingfisher	1	21	21	0	0	0	eroding/upland rivers; flying	CR

Table 1-11 Kingfisher Vantage Point Survey Non-flight Survey Data

Vantage Point Surveys							
Map Ref.	VP	Date	Time	Species	Number	Habitat and activity	Surveyor
KF003	VP6	22/11/2021	16:07	Kingfisher	1	depositing/lowland rivers; calling/flying, kingfisher heard calling whilst travelling downstream.	CR

Table 1-12 Kingfisher Winter Walkover Survey Data

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
KF001	28/01/2022	13:04	Kingfisher	1	depositing/lowland rivers; fly, along inny (wintering)	AOD

Table 1-13 Kingfisher Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
KF001	River Inny and lake off Loughh Derravaragh	31/03/2022	14:12	Kingfisher	1	watercourses; foraging	KB

Table 1-14 Kingfisher Incidental Observations Data

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
KF001	Wildfowl Distribution Survey, r. inny	16/09/2021	16:24	Kingfisher	1	depositing/lowland rivers; flying over river, perching on riverbank willow before flying low and rapidly upstream, appeared to be hunting	NM
KF002	Wildfowl Distribution Survey,	12/10/2021	09:45	Kingfisher	1	depositing/lowland rivers; flying rapidly along wooded river	NM
KF003	Wildfowl Distribution Survey, r. inny	12/10/2021	15:10	Kingfisher	1	depositing/lowland rivers; flying low and rapidly over river	NM
KF004	Wildfowl Distribution Survey,	26/10/2021	10:37	Kingfisher	1	depositing/lowland rivers; flying rapidly along river, perched	NM
KF005	Wildfowl Distribution Survey, r. inny	23/11/2021	13:10	Kingfisher	1	depositing/lowland rivers; flying low downstream along river edge	NM
KF006	Wildfowl Distribution Survey, r. inny	10/12/2021	13:08	Kingfisher	1	depositing/lowland rivers; flushed from perch at bridge, flying low and rapidly along river	NM
KF007	Wildfowl Distribution Survey,	22/12/2021	11:32	Kingfisher	1	lakes and ponds; flying rapidly along vegetated river channel	NM
KF008	Wildfowl Distribution Survey, r. inny	05/01/2022	11:18	Kingfisher	1	depositing/lowland rivers; flying low and rapidly along river, perching in willow	NM

Table 1-15 Little Egret Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
ET001		12/10/2021	10:18	Little Egret	1	lakes and ponds and scrub; flying over scrubby lake shore	NM
ET002		12/10/2021	15:41	Little Egret	1	lakes and ponds and semi-natural grassland; flying over lake fringes	NM
ET003	L. Iron	22/11/2021	16:06	Little Egret	1	lakes and ponds; flying across lake	NM
ET004		10/12/2021	08:35	Little Egret	2	scrub; flying over bog and scrubland near to lake	NM
ET005	L. Iron	23/12/2021	15:43	Little Egret	2	lakes and ponds; flying low along lake edge	NM
ET006	L. Sheelin	17/01/2022	08:34	Little Egret	2	scrub, semi-natural grassland and lakes and ponds; perched on scrubby lake shore	NM
ET007		17/01/2022	11:28	Little Egret	1	depositing/lowland rivers and semi-natural grassland; perched on grassy bank of river	NM
ET008		17/01/2022	12:30	Little Egret	1	improved agricultural grassland; grazing on farmland	NM
ET009	BN2	17/01/2022	16:08	Little Egret	2	cutover bog; flying low across bog wetland + landing and foraging sporadically at different locations on wetland, consistently in area for over an hour	NM
ET010	BN2	17/01/2022	16:16	Little Egret	1	cutover bog; flying across bog wetland + landing within	NM
ET011	Derragh Lough	14/02/2022	13:26	Little Egret	1	lakes and ponds; foraging	KB
ET012	Bracklagh Lough	26/02/2022	09:00	Little Egret	2	lakes and ponds; roosting	KB



ET013	Lough Derravaragh north	28/02/2022	13:31	Little Egret	1	lakes and ponds; foraging	KB
ET014	Brackagh Lough	07/03/2022	09:00	Little Egret	2	lakes and ponds; roosting	KB
ET015	Derragh Lough	07/03/2022	10:51	Little Egret	1	lakes and ponds; foraging	KB
ET016	Derragh Lough	31/03/2022	09:32	Little Egret	1	lakes and ponds; foraging	KB

Table 1-16 Merlin Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
ML001	VP4	09/12/2021	10:21	Merlin	1	5	5	0	0	0	cutover bog; foraging, adult male	KB
ML002	VP6	15/12/2021	09:31	Merlin	1	6	6	0	0	0	cutover bog; foraging - landed on ground, female	KB
ML003	VP6	15/12/2021	09:42	Merlin	1	8	8	0	0	0	cutover bog and semi-natural grassland; foraging, female	KB
ML004	VP6	15/12/2021	14:01	Merlin	1	6	6	0	0	0	scrub and semi-natural grassland; foraging, male	KB
ML005	VP4	10/03/2022	15:12	Merlin	1	18	18	0	0	0	cutover bog; flying	NS

Table 1-17 Peregrine Falcon Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
PE001	VP5	03/01/2022	09:17	Peregrine Falcon	1	12	0	12	0	0	improved agricultural grassland and hedgerows; foraging	KB
PE002	VP3	26/01/2022	15:05	Peregrine Falcon	1	25	25	0	0	0	cutover bog; flying	ZE

Table 1-18 Peregrine Falcon Breeding Raptor Survey Data

Breeding Raptor Surveys								
Map Ref.	BRVP	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
PE001	BRVP6	29/06/2021	17:46	Peregrine Falcon	1	improved agricultural grassland and mixed broadleaved/conifer woodland, soaring/travelling	flyover; non-breeding	PM
PE002	BRVP6	13/07/2021	15:13	Peregrine Falcon	1	highly modified/non-native woodland and bogs, travelling	suitable nesting habitat; possible breeder	TRea

Table 1-19 Peregrine Falcon Incidental Observations Data

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
PE001	Vantage Point Survey, doon	31/01/2022	14:55	Peregrine Falcon	1	lowland blanket bog and improved agricultural grassland; flying	ZE

Table 1-20 Ruff Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
RU001	BN2	16/09/2021	14:13	Ruff	2	cutover bog; perched on bare peat at edge of shallow bog pool	NM

Table 1-21 White-tailed Eagle Breeding Raptor Survey Data

Breeding Raptor Surveys								
Map Ref.	BRVP	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
WE001	BRVP2	19/07/2021	14:20	White-tailed Eagle	1	highly modified/non-native woodland and improved grassland, fighting buzzards, buzzards soaring above and diving down, eagle flipped to repel with talons.	flyover; non-breeding	TRea

Table 1-22 White-tailed Eagle Incidental Observation Data

Incidental Records								
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor	
WE001	Wildfowl Distribution Survey,	12/10/2021	16:33	White-Tailed Eagle	1	lakes and ponds, highly modified/non-native woodland and improved agricultural grassland; soaring over lake and adjacent sloping ground - appeared to descend and land within scrub		NM

Table 1-23 Whooper Swan Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
WS001	VP4	19/10/2021	08:12	Whooper Swan	7	100	0	100	0	0	cutover bog; flying across bog and calling, descending towards bn2	NM
WS002	VP4	19/10/2021	12:34	Whooper Swan	4	210	0	0	210	0	cutover bog; flying w across bog	NM
WS003	VP6	22/10/2021	09:05	Whooper Swan	7	120	105	15	0	0	cutover bog, scrub and improved agricultural grassland; flying sw across site	NM
WS004	VP6	22/10/2021	08:53	Whooper Swan	2	85	40	45	0	0	cutover bog and depositing/lowland rivers; flying along river and adjacent bog	NM
WS005	VP6	22/10/2021	09:02	Whooper Swan	9	150	0	130	20	0	improved agricultural grassland, hedgerows and semi-natural grassland; flying ne across farmland	NM
WS006	VP6	22/10/2021	10:27	Whooper Swan	8	130	0	0	130	0	cutover bog and improved agricultural grassland; flying and calling to w of site	NM
WS007	VP6	22/10/2021	10:56	Whooper Swan	16	140	0	125	15	0	improved agricultural grassland and bogs; flying ne and calling	NM
WS008	VP6	22/10/2021	10:58	Whooper Swan	3	65	0	65	0	0	cutover bog, improved agricultural grassland and semi-natural grassland; flying n	NM
WS009	VP6	22/10/2021	11:24	Whooper Swan	3	65	0	40	25	0	watercourses and cutover bog; flying ne along river and bog fringes	NM
WS010	VP6	22/10/2021	11:32	Whooper Swan	12	170	0	0	170	0	cutover bog, scrub and improved agricultural grassland; flying w across bog to nw of site	NM
WS011	VP3	23/10/2021	08:22	Whooper Swan	5	180	25	155	0	0	cutover bog, scrub and hedgerows; flying along s boundary of site	NM

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
WS012	VP3	23/10/2021	08:16	Whooper Swan	7	90	0	90	0	0	treelines, improved agricultural grassland and cutover bog; flying n	NM
WS013	VP3	23/10/2021	09:23	Whooper Swan	8	125	0	125	0	0	cutover bog, scrub and improved agricultural grassland; flying s across bog	NM
WS014	VP3	23/10/2021	09:28	Whooper Swan	15	95	25	70	0	0	cutover bog and scrub; flying n across bog	NM
WS015	VP3	23/10/2021	10:25	Whooper Swan	12	95	95	0	0	0	depositing/lowland rivers and cutover bog; flying and calling along river	NM
WS016	VP3	23/10/2021	11:00	Whooper Swan	7	240	210	30	0	0	cutover bog and scrub; flying low across bog	NM
WS017	VP5	03/01/2022	08:24	Whooper Swan	5	8	0	0	8	0	improved agricultural grassland; travelling	KB
WS018	VP5	03/01/2022	08:31	Whooper Swan	5	30	0	0	30	0	improved agricultural grassland; travelling	KB
WS019	VP5	03/01/2022	08:32	Whooper Swan	9	10	0	0	10	0	improved agricultural grassland; travelling	KB
WS020	VP5	03/01/2022	08:46	Whooper Swan	10	50	0	0	50	0	improved agricultural grassland; travelling	KB
WS021	VP5	03/01/2022	09:05	Whooper Swan	3	70	0	20	50	0	improved agricultural grassland; travelling	KB
WS022	VP5	03/01/2022	09:09	Whooper Swan	2	25	0	0	25	0	improved agricultural grassland; travelling	KB
WS023	VP5	03/01/2022	09:12	Whooper Swan	2	20	0	0	20	0	improved agricultural grassland; travelling	KB
WS024	VP4	27/01/2022	17:54	Whooper Swan	8	13	0	13	0	0	cutover bog and conifer plantation; flying	ZE
WS025	VP5	08/02/2022	09:08	Whooper Swan	2	30	0	30	0	0	improved agricultural grassland; flying	NS

Table 1-24 Whooper Swan Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WS001	L. Iron	30/09/2021	18:30	Whooper Swan	3	lakes and ponds; swimming on lake	NM
WS002	L. Iron	11/10/2021	18:00	Whooper Swan	3	improved agricultural grassland and scrub; flying in from s and descending onto lake, roost	NM
WS003	L. Iron	25/10/2021	17:20	Whooper Swan	26	lakes and ponds; swimming on lake	NM
WS004	L. Iron	25/10/2021	17:47	Whooper Swan	5	lakes and ponds, highly modified/non-native woodland and improved agricultural grassland; flying onto lake from w/sw, roost	NM
WS005	L. Iron	25/10/2021	18:29	Whooper Swan	9	semi-natural grassland and reed and large sedge swamps; flying in and landing on lake - coming from n, roost	NM
WS008		26/10/2021	10:21	Whooper Swan	18	lakes and ponds; swimming on lake, some individuals grazing on banks	NM
WS007		26/10/2021	09:40	Whooper Swan	49	improved agricultural grassland; foraging on grassy edge of lake	NM
WS009		26/10/2021	14:58	Whooper Swan	11	lakes and ponds and highly modified/non-native woodland; flying sw along lake shore	NM
WS006		26/10/2021	09:46	Whooper Swan	16	lakes and ponds; flying e across lake	NM
WS010	Derragh Lough	09/11/2021	11:34	Whooper Swan	25	lakes and ponds; swimming on lake	NM
WS012	L. Iron	09/11/2021	16:24	Whooper Swan	21	lakes and ponds; swimming on lake, roost	NM
WS011	Lough Iron	09/11/2021	16:53	Whooper Swan	7	improved agricultural grassland, highly modified/non-native woodland and lakes and ponds; commuting towards and landing on lake - arriving in group from farmland to w	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WS015	L. Iron	22/11/2021	16:00	Whooper Swan	24	lakes and ponds; swimming on lake, roost	NM
WS013	Lough Iron	22/11/2021	16:30	Whooper Swan	5	semi-natural grassland, scrub and lakes and ponds; flying in from s and landing on lake	NM
WS014	Lough Iron	22/11/2021	16:46	Whooper Swan	7	improved agricultural grassland and lakes and ponds; flying from farmland to sw of lake, roost	NM
WS016		23/11/2021	10:47	Whooper Swan	7	improved agricultural grassland and highly modified/non-native woodland; flying sw across farmland	NM
WS017		10/12/2021	14:10	Whooper Swan	4	lakes and ponds and semi-natural grassland; feeding on reedy grassland adjacent to lake	NM
WS019	R. Inny	22/12/2021	10:16	Whooper Swan	2	depositing/lowland rivers; swimming on river	NM
WS021	L. Bane	22/12/2021	15:45	Whooper Swan	39	lakes and ponds; swimming and foraging on lake, calling	NM
WS018		22/12/2021	10:10	Whooper Swan	8	lakes and ponds; swimming and feeding within reedy lake margins	NM
WS020		22/12/2021	10:34	Whooper Swan	16	cutover bog and scrub; flying sw across bog	NM
WS024	L. Iron	23/12/2021	15:32	Whooper Swan	16	lakes and ponds; swimming on lake, roost	NM
WS022	Lough Iron	23/12/2021	16:16	Whooper Swan	5	semi-natural grassland and scrub; flying in from fields to n	NM
WS023	Lough Iron	23/12/2021	16:35	Whooper Swan	16	semi-natural grassland, reed and large sedge swamps and scrub; flying in from fields and wetland to the n, calling profusely, roost	NM
WS025	L. Iron	04/01/2022	15:40	Whooper Swan	12	lakes and ponds; swimming on lake	NM
WS026	L. Bane	05/01/2022	09:02	Whooper Swan	16	lakes and ponds; swimming on lake	NM
WS029	L. Sheelin	17/01/2022	08:47	Whooper Swan	6	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WS028	R. Inmy	17/01/2022	14:00	Whooper Swan	7	improved agricultural grassland; grazing on grassland adjacent to river	NM
WS027	L. Sheelin	17/01/2022	09:55	Whooper Swan	6	lakes and ponds; flying low across lake	NM
WS030	L. Iron	18/01/2022	15:43	Whooper Swan	45	lakes and ponds, reed and large sedge swamps and scrub; swimming on lake and within swollen edges	NM
WS031	Lough Iron	18/01/2022	16:56	Whooper Swan	7	improved agricultural grassland, highly modified/non-native woodland and lakes and ponds; flying in from lands to sw and landing on lake - calling. numbers unclear due to poor visibility, roost	NM
WS032	Piercefield	15/02/2022	09:40	Whooper Swan	77	improved agricultural grassland; foraging	KB
WS033	Piercefield	15/02/2022	10:10	Whooper Swan	1	wet grassland; foraging	KB
WS034	Lough Iron - piercefield fields	28/02/2022	15:20	Whooper Swan	31	improved agricultural grassland; foraging	KB
WS035	Lough Iron - piercefield fields	28/02/2022	15:30	Whooper Swan	2	wet grassland; foraging	KB
WS036	Flooded bog on site	08/03/2022	15:24	Whooper Swan	4	cutover bog; foraging	KB

Table 1-25 Coot Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
CO001	VP6	31/01/2022	15:37	Coot	1	111	0	0	111	0	improved agricultural grassland and conifer plantation; flying	ZE
CO002	VP6	31/01/2022	16:19	Coot	1	121	0	0	121	0	cutover bog and conifer plantation; flying	ZE
CO003	VP6	17/02/2022	07:30	Coot	2	30	0	30	0	0	lowland blanket bog; flying west	NS
CO004	VP6	17/02/2022	11:56	Coot	1	25	0	25	0	0	lowland blanket bog and improved agricultural grassland; flying	NS

Table 1-26 Coot Waterfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CO001	Derragh Lough	16/09/2021	12:16	Coot	96	mesotrophic lakes; swimming on lake - in groups and frequently within reed boundaries + diving, throughout lake	NM
CO002		16/09/2021	17:00	Coot	5	mesotrophic lakes; swimming on lake	NM
CO003	L. Kinale	16/09/2021	10:56	Coot	9	mesotrophic lakes; swimming on lake	NM
CO004	L. Kinale	16/09/2021	11:05	Coot	13	mesotrophic lakes; swimming on lake	NM
CO005	L. Sheelin	16/09/2021	10:03	Coot	16	mesotrophic lakes; swimming and diving on lake near reed beds - forming group with lg	NM
CO006	L. D'varagh	17/09/2021	14:40	Coot	25	mesotrophic lakes; swimming on lake - n section	NM
CO007	Bracklagh Lough	17/09/2021	12:30	Coot	10	mesotrophic lakes; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CO008	L. D'varagh	17/09/2021	12:59	Coot	9	mesotrophic lakes; swimming on lake	NM
CO009	L. D'varagh	17/09/2021	13:06	Coot	3	mesotrophic lakes; swimming on lake	NM
CO010	L. D'varagh	17/09/2021	13:10	Coot	13	mesotrophic lakes; swimming on lake	NM
CO011	L. D'varagh	17/09/2021	14:01	Coot	3	mesotrophic lakes; swimming on lake	NM
CO012	L. D'varagh	17/09/2021	13:08	Coot	6	mesotrophic lakes; swimming in reedy fringes	NM
CO013	L. Iron	17/09/2021	19:00	Coot	78	mesotrophic lakes; swimming and foraging on lake	NM
CO014	L. D'varagh	17/09/2021	13:05	Coot	7	mesotrophic lakes; swimming and diving on lake	NM
CO015	L. D'varagh	17/09/2021	13:49	Coot	8	mesotrophic lakes; swimming and diving on lake	NM
CO016	L. D'varagh	17/09/2021	16:16	Coot	9	mesotrophic lakes; swimming and diving along lake fringes	NM
CO017	L. D'varagh	17/09/2021	16:07	Coot	18	mesotrophic lakes; swimming and calling on lake and within reeds	NM
CO018	L. D'varagh	17/09/2021	15:45	Coot	37	mesotrophic lakes; swimming and calling on lake (+ foraging within reeds)	NM
CO019	L. D'varagh	17/09/2021	13:06	Coot	8	mesotrophic lakes; swimming along edge of lake	NM
CO020	Bracklagh Lough	29/09/2021	09:25	Coot	16	mesotrophic lakes; swimming on lake	NM
CO021	L. D'varagh	29/09/2021	16:15	Coot	31	mesotrophic lakes; swimming on lake	NM
CO022	L. Sheelin	29/09/2021	08:07	Coot	6	lakes and ponds; swimming on lake	NM
CO023	L. Sheelin	29/09/2021	08:45	Coot	6	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CO024	Derragh Lough	29/09/2021	10:53	Coot	180	mesotrophic lakes; swimming and foraging on lake, approx. count	NM
CO025	L. D'varagh	29/09/2021	16:00	Coot	47	mesotrophic lakes; swimming and foraging in and around reed islets	NM
CO026	L. Kinale	29/09/2021	12:15	Coot	16	mesotrophic lakes; swimming along lake edge	NM
CO027	L. D'varagh	29/09/2021	16:15	Coot	58	mesotrophic lakes; swimming along lake edge	NM
CO028	L. D'varagh	12/10/2021	16:07	Coot	12	lakes and ponds; swimming within reedy islets	NM
CO029	L. Kinale	12/10/2021	12:05	Coot	19	lakes and ponds; swimming on lake	NM
CO030	L. D'varagh	12/10/2021	16:02	Coot	53	lakes and ponds; swimming on lake	NM
CO031	L. Sheelin	12/10/2021	08:18	Coot	287	lakes and ponds; swimming in large group in open water	NM
CO032	Derragh Lough	12/10/2021	11:10	Coot	91	lakes and ponds; swimming and diving on lake	NM
CO033	L. D'varagh	12/10/2021	15:37	Coot	13	lakes and ponds; swimming and diving on lake	NM
CO034	L. D'varagh	12/10/2021	16:31	Coot	14	lakes and ponds; swimming and diving on lake	NM
CO035	L. D'varagh	12/10/2021	16:14	Coot	10	lakes and ponds; swimming and calling within complex of reedy islets	NM
CO036	L. Sheelin	26/10/2021	15:04	Coot	265	lakes and ponds; swimming on lake in large dense flock	NM
CO037	L. Sheelin	26/10/2021	15:00	Coot	129	lakes and ponds; swimming on lake in dense flock	NM
CO038	Derragh Lough	26/10/2021	11:24	Coot	58	lakes and ponds; swimming on lake and foraging around fringes	NM
CO039		26/10/2021	09:12	Coot	6	lakes and ponds; swimming on lake	NM
CO040		26/10/2021	09:12	Coot	15	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CO041		26/10/2021	09:34	Coot	156	lakes and ponds; swimming on lake	NM
CO042		26/10/2021	09:38	Coot	24	lakes and ponds; swimming on lake	NM
CO043		26/10/2021	10:22	Coot	9	lakes and ponds; swimming on lake	NM
CO044	L. Sheelin	26/10/2021	14:06	Coot	6	lakes and ponds; swimming on lake	NM
CO045	L. Sheelin	26/10/2021	15:00	Coot	34	lakes and ponds; swimming on lake	NM
CO046		26/10/2021	09:06	Coot	39	lakes and ponds; swimming and calling on lake	NM
CO047		26/10/2021	09:21	Coot	2	lakes and ponds; flying w across lake	NM
CO048	L. D'varagh	26/10/2021	08:36	Coot	5	lakes and ponds; calling within reedy fringes of lake	NM
CO049		26/10/2021	10:18	Coot	6	reed and large sedge swamps and dystrophic lakes; calling within reeds	NM
CO050	L. D'varagh	08/11/2021	12:26	Coot	6	lakes and ponds; swimming on lake	NM
CO051	L. Sheelin	09/11/2021	09:28	Coot	87	lakes and ponds; swimming on lake - large group in open water	NM
CO052	L. Sheelin	09/11/2021	10:02	Coot	8	lakes and ponds; swimming on lake	NM
CO053	Derragh Lough	09/11/2021	11:34	Coot	46	lakes and ponds; swimming and diving on lake	NM
CO054	L. Iron	22/11/2021	16:02	Coot	56	lakes and ponds; swimming on lake	NM
CO055	Derragh Lough	23/11/2021	11:10	Coot	56	lakes and ponds; swimming on lake + calling within reedy margins	NM
CO056	L. Sheelin	23/11/2021	09:13	Coot	70	lakes and ponds; swimming on lake - large 'raft' in open water	NM
CO057	L. D'varagh	23/11/2021	15:40	Coot	11	lakes and ponds; swimming on lake	NM
CO058	L. D'varagh	23/11/2021	15:41	Coot	26	lakes and ponds; swimming on lake	NM
CO059	L. D'varagh	23/11/2021	15:45	Coot	149	lakes and ponds; swimming on lake	NM
CO060		23/11/2021	15:45	Coot	7	lakes and ponds; swimming on lake	NM
CO061	L. D'varagh	23/11/2021	15:46	Coot	61	lakes and ponds; swimming on lake	NM
CO062	L. D'varagh	23/11/2021	15:49	Coot	23	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CO063	L. Sheelin	23/11/2021	08:46	Coot	6	lakes and ponds; swimming on lake	NM
CO064	L. Sheelin	23/11/2021	08:53	Coot	4	lakes and ponds; swimming and diving on lake	NM
CO065	Derragh Lough	10/12/2021	10:48	Coot	37	lakes and ponds; swimming on lake and around reedy margins	NM
CO066	L. Sheelin	10/12/2021	09:05	Coot	13	lakes and ponds; swimming on lake	NM
CO067	L. Sheelin	10/12/2021	08:40	Coot	54	lakes and ponds; swimming in large raft on lake	NM
CO068	L. Sheelin	22/12/2021	13:40	Coot	890	lakes and ponds; swimming on lake - 3 large rafts of birds floating in open water	NM
CO069	L. D'varagh	22/12/2021	08:34	Coot	13	lakes and ponds; swimming on lake	NM
CO070	L. D'varagh	22/12/2021	08:40	Coot	64	lakes and ponds; swimming on lake	NM
CO071	L. D'varagh	22/12/2021	08:50	Coot	14	lakes and ponds; swimming on lake	NM
CO072	L. D'varagh	22/12/2021	08:43	Coot	5	lakes and ponds; swimming on lake	NM
CO073	L. Kinale	22/12/2021	11:27	Coot	6	lakes and ponds; swimming on lake	NM
CO074	L. Sheelin	22/12/2021	13:53	Coot	170	lakes and ponds; swimming on lake	NM
CO075	L. Kinale	22/12/2021	12:24	Coot	43	lakes and ponds; swimming and diving on lake	NM
CO076	Deragh Lough	22/12/2021	11:01	Coot	68	lakes and ponds; swimming and calling on lake	NM
CO077	L. Kinale	22/12/2021	12:22	Coot	5	lakes and ponds; swimming and calling on lake	NM
CO078	L. Kinale	22/12/2021	11:23	Coot	4	lakes and ponds; calling within reedy margins	NM
CO079		22/12/2021	09:30	Coot	46	lakes and ponds; calling and swimming on lake	NM
CO080	L. Iron	23/12/2021	15:30	Coot	36	lakes and ponds; swimming on lake	NM
CO081	L. D'varagh	04/01/2022	09:10	Coot	5	lakes and ponds; swimming on lake	NM
CO082	L. D'varagh	04/01/2022	10:00	Coot	6	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CO083	L. D'varagh	04/01/2022	13:30	Coot	5	lakes and ponds; swimming on lake	NM
CO084	L. D'varagh	04/01/2022	14:45	Coot	11	lakes and ponds; swimming and calling on lake	NM
CO085	L. D'varagh	04/01/2022	14:16	Coot	6	lakes and ponds; calling from lake edge	NM
CO086	L. D'varagh	05/01/2022	13:20	Coot	77	lakes and ponds; swimming on lake	NM
CO087	Derragh Lough	05/01/2022	10:34	Coot	80	lakes and ponds; swimming and calling on lake	NM
CO088	R. Inny	17/01/2022	11:28	Coot	7	depositing/lowland rivers; swimming on river	NM
CO089	L. Kinale N	17/01/2022	10:40	Coot	146	lakes and ponds; swimming on lake	NM
CO090	Derragh Lough	17/01/2022	11:20	Coot	81	lakes and ponds; swimming on lake	NM
CO091	L. Kinale S	17/01/2022	11:46	Coot	9	lakes and ponds; swimming on lake	NM
CO092	L. D'varagh	17/01/2022	13:05	Coot	16	lakes and ponds; swimming on lake	NM
CO093	L. D'varagh	17/01/2022	13:08	Coot	16	lakes and ponds; swimming on lake	NM
CO094	L. Sheelin	17/01/2022	08:32	Coot	4	lakes and ponds; swimming on lake	NM
CO095	L. Sheelin	17/01/2022	08:35	Coot	13	lakes and ponds; swimming on lake	NM
CO096	L. Sheelin	17/01/2022	08:38	Coot	6	lakes and ponds; swimming on lake	NM
CO097	L. Sheelin	17/01/2022	09:30	Coot	37	lakes and ponds; swimming on lake	NM
CO098	L. Sheelin	17/01/2022	08:49	Coot	340	lakes and ponds; swimming on lake	NM
CO099	L. Sheelin	17/01/2022	08:46	Coot	130	lakes and ponds; swimming on lake	NM
CO100	L. D'varagh	17/01/2022	13:10	Coot	196	lakes and ponds; swimming in large group within sw corner of lake	NM
CO101	L. D'varagh	17/01/2022	13:04	Coot	8	lakes and ponds; swimming and diving on lake	NM
CO102	L. D'varagh	17/01/2022	13:12	Coot	5	lakes and ponds; swimming and calling on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CO103	L. Sheelin	17/01/2022	08:55	Coot	15	lakes and ponds; swimming and calling on lake	NM
CO104	L. D'varagh	17/01/2022	13:05	Coot	7	lakes and ponds; swimming and calling close to lake fringes	NM
CO105	L. D'varagh	17/01/2022	13:52	Coot	32	lakes and ponds; swimming all over lake	NM
CO106	L. Sheelin	17/01/2022	08:52	Coot	3	lakes and ponds; calling within reedy margins of lake	NM
CO107	L. D'varagh	18/01/2022	13:03	Coot	9	lakes and ponds; swimming on lake	NM
CO108	Lough Sheelin west	14/02/2022	11:45	Coot	8	lakes and ponds; foraging	KB
CO109	Lough Kinale	14/02/2022	12:50	Coot	153	lakes and ponds; foraging	KB
CO110	Derragh Lough	14/02/2022	13:26	Coot	27	lakes and ponds; foraging	KB
CO111	Lough Kinale south	14/02/2022	13:40	Coot	7	lakes and ponds; foraging	KB
CO112	Lough Iron	15/02/2022	09:40	Coot	70	lakes and ponds; foraging, estimate - birds difficult to id, vp very far away from lake - no access to get closer to the lake	KB
CO113	lake off Lough Derravaragh	15/02/2022	11:47	Coot	9	lakes and ponds; foraging	KB
CO114	Lough Derravaragh south	15/02/2022	12:20	Coot	347	lakes and ponds; foraging	KB
CO115	Lough Derravaragh north	15/02/2022	13:13	Coot	13	lakes and ponds; foraging	KB
CO116	Bracklagh Lough	26/02/2022	09:00	Coot	3	lakes and ponds; foraging	KB
CO117	Lough Sheelin west	26/02/2022	09:20	Coot	151	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CO118	Lough Sheelin centre	26/02/2022	09:53	Coot	1	lakes and ponds; foraging	KB
CO119	Lough Kinale	26/02/2022	10:26	Coot	266	lakes and ponds; foraging	KB
CO120	Derragh Lough	26/02/2022	11:04	Coot	29	lakes and ponds; foraging	KB
CO121	Lough Kinale south	26/02/2022	11:28	Coot	1	lakes and ponds; foraging	KB
CO122	Robinstown flooded fields	26/02/2022	13:46	Coot	4	wet grassland; foraging	KB
CO123	Lough Derravaragh south	28/02/2022	11:45	Coot	272	lakes and ponds; foraging	KB
CO124	lake off Lough Derravaragh	28/02/2022	12:28	Coot	16	lakes and ponds; foraging	KB
CO125	River Inny and lake off Lough Derravaragh	28/02/2022	13:05	Coot	10	lakes and ponds and watercourses; foraging	KB
CO126	Lough Derravaragh north	28/02/2022	13:31	Coot	10	lakes and ponds; foraging	KB
CO127	Lough Sheelin west	07/03/2022	09:16	Coot	1	lakes and ponds; foraging	KB
CO128	Lough Kinale	07/03/2022	10:20	Coot	53	lakes and ponds; foraging	KB
CO129	Derragh Lough	07/03/2022	10:51	Coot	22	lakes and ponds; foraging	KB
CO130	Lough Kinale south	07/03/2022	11:08	Coot	13	lakes and ponds; foraging	KB
CO131	Lough Derravaragh south	08/03/2022	12:01	Coot	137	lakes and ponds; foraging	KB
CO132	Lake off Lough Derravaragh	08/03/2022	12:37	Coot	17	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CO133	River Inny and lake off Loughh Derravaragh	08/03/2022	13:10	Coot	14	lakes and ponds and watercourses; foraging	KB
CO134	Lough Derravaragh north	08/03/2022	13:32	Coot	7	lakes and ponds; foraging	KB
CO135	Lough Kinale	31/03/2022	09:07	Coot	7	lakes and ponds; foraging	KB
CO136	Derragh Lough	31/03/2022	09:32	Coot	22	lakes and ponds; foraging	KB
CO137	Lough Kinale south	31/03/2022	09:50	Coot	3	lakes and ponds; foraging	KB
CO138	Robinstown flooded fields	31/03/2022	13:16	Coot	5	lakes and ponds; foraging	KB
CO139	Lough Derravaragh north	31/03/2022	13:41	Coot	16	lakes and ponds; foraging	KB
CO140	River Inny and lake off Loughh Derravaragh	31/03/2022	14:12	Coot	1	lakes and ponds; foraging	KB
CO141	Lake off Lough Derravaragh	31/03/2022	15:00	Coot	5	lakes and ponds; foraging	KB
CO142	Lough Derravaragh south	31/03/2022	15:27	Coot	34	lakes and ponds; foraging	KB

Table 1-27 Shoveler Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
SV001	Derragh Lough	16/09/2021	12:18	Shoveler	12	mesotrophic lakes; foraging on lake + a few resting	NM
SV002	L. Iron	17/09/2021	18:56	Shoveler	13	mesotrophic lakes; swimming and foraging on lake	NM
SV003	Derragh Lough	29/09/2021	11:04	Shoveler	6	mesotrophic lakes; swimming and foraging on lake	NM
SV004	L. Iron	25/10/2021	17:40	Shoveler	36	lakes and ponds; swimming and dabbling on lake	NM
SV005		26/10/2021	10:21	Shoveler	5	lakes and ponds; swimming on lake	NM
SV006	L. Iron	09/11/2021	16:32	Shoveler	14	lakes and ponds; swimming on lake	NM
SV007	L. Iron	22/11/2021	16:05	Shoveler	27	lakes and ponds; swimming on lake	NM
SV008	L. Sheelin	23/11/2021	08:46	Shoveler	5	lakes and ponds; flying low across lake	NM
SV009	Derragh lough	10/12/2021	10:52	Shoveler	6	lakes and ponds; swimming and feeding on lake	NM
SV010	L. Iron	23/12/2021	15:35	Shoveler	19	lakes and ponds; swimming on lake	NM
SV011	L. Sheelin	17/01/2022	08:54	Shoveler	7	lakes and ponds; flying low across lake	NM

Table 1-28 Teal Winter Walkover Survey Data

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
T001	27/01/2022	16:07	Teal	2	cutover bog; fly, m and f pair (wintering)	AOD
T002	28/01/2022	16:55	Teal	22	lakes and ponds; foraging (wintering)	AOD
T003	22/02/2022	17:11	Teal	2	cutover bog; roosting (wintering)	AOD

Table 1-29 Teal Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
T001	BN2	16/09/2021	14:10	Teal	31	cutover bog; roosting in shallow water and on bare peat with flooded area of bog	NM
T004	L. Iron	17/09/2021	19:28	Teal	14	reed and large sedge swamps and mesotrophic lakes; wading within reedy pool at se end of lake	NM
T002	L. D'varagh	17/09/2021	13:37	Teal	3	mesotrophic lakes and reed and large sedge swamps; wading within reedbeds at edge of lake	NM
T003	L. Iron	17/09/2021	19:04	Teal	94	mesotrophic lakes; swimming and foraging on lake	NM
T005		29/09/2021	12:36	Teal	145	raised bog, immature woodland and mesotrophic lakes; swimming in large frantic flock over s of l. kinale	NM
T006		29/09/2021	12:40	Teal	23	mesotrophic lakes and mixed conifer woodland; flying s across woodland and lake fringes	NM
T008	L. Sheelin	29/09/2021	08:29	Teal	16	lakes and ponds; flying ne across lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
T007		29/09/2021	12:49	Teal	33	mixed broadleaved woodland, raised bog and mesotrophic lakes; flying in wide random circles	NM
T009	L. Iron	30/09/2021	18:30	Teal	57	lakes and ponds; swimming on lake	NM
T010	L. Sheelin	12/10/2021	08:12	Teal	6	lakes and ponds; flying low across lake	NM
T011	L. Iron	25/10/2021	17:48	Teal	134	lakes and ponds; swimming on lake and around wetland fringes	NM
T012		26/10/2021	14:54	Teal	16	lakes and ponds; calling within reedy fringes	NM
T013	L. Sheelin	09/11/2021	10:01	Teal	16	lakes and ponds; swimming on lake	NM
T014		09/11/2021	11:54	Teal	6	improved agricultural grassland; swimming and feeding on pond within field	NM
T015	L. Iron	22/11/2021	16:04	Teal	95	lakes and ponds; swimming on lake	NM
T016	L. Kinale	23/11/2021	10:56	Teal	26	lakes and ponds; calling within reedy & flooded margins	NM
T017	L. Bane	10/12/2021	15:57	Teal	34	lakes and ponds and semi-natural grassland; swimming on lake and foraging on wet boggy margins	NM
T020		22/12/2021	14:24	Teal	4	lakes and ponds; swimming on pool within field hollow	NM
T018	Deragh Lough	22/12/2021	11:04	Teal	13	lakes and ponds; swimming on lake	NM
T019	L. Sheelin	22/12/2021	13:45	Teal	7	lakes and ponds; swimming on lake	NM
T021	L. Bane	22/12/2021	15:45	Teal	26	lakes and ponds; swimming and calling on lake	NM
T022		22/12/2021	15:57	Teal	23	bogs and scrub; flying in wide circles over lake area	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
T023	L. Iron	23/12/2021	15:37	Teal	52	lakes and ponds; swimming and calling on lake	NM
T024	L. Iron	04/01/2022	15:40	Teal	240	lakes and ponds; swimming and calling on lake and within reedy fringes	NM
T025	L. D'varagh	04/01/2022	09:10	Teal	12	lakes and ponds; calling within flooded reedy margins of lake	NM
T026	L. D'varagh	04/01/2022	12:40	Teal	15	semi-natural grassland, highly modified/non-native woodland and lakes and ponds; calling within flooded birch / willow woodland along lake perimeter	NM
T027	L. Bane	05/01/2022	09:06	Teal	6	lakes and ponds; swimming on lake	NM
T030	L. Bane	17/01/2022	15:50	Teal	28	lakes and ponds, semi-natural grassland and transition mire and quaking bog; swimming on lake and within saturated margins	NM
T028	L. Kinale N	17/01/2022	10:40	Teal	67	lakes and ponds; swimming on lake	NM
T033	L. Sheelin	17/01/2022	08:58	Teal	13	lakes and ponds; swimming and calling within reedy margins	NM
T029		17/01/2022	13:54	Teal	16	improved agricultural grassland and reed and large sedge swamps; swimming and calling on flooding adjacent to lake	NM
T032	L. Sheelin	17/01/2022	08:50	Teal	16	lakes and ponds; flying across lake	NM
T031		17/01/2022	13:13	Teal	7	reed and large sedge swamps, scrub and lakes and ponds; bursting from wetland surrounding lake, flying	NM
T034	L. Iron	18/01/2022	16:00	Teal	45	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
T035		18/01/2022	10:33	Teal	4	turloughs, lakes and ponds and improved agricultural grassland; calling within flooded reeds	NM
T036	Robinstown flooded fields	14/02/2022	14:50	Teal	12	wet grassland; foraging	KB
T038	Lough Bane	26/02/2022	12:50	Teal	4	lakes and ponds; roosting	KB
T037	Derragh Lough	26/02/2022	11:04	Teal	4	lakes and ponds; foraging	KB
T039	Robinstown flooded fields	07/03/2022	12:50	Teal	5	wet grassland; foraging	KB
T040	Robinstown pond	31/03/2022	13:10	Teal	12	lakes and ponds; foraging	KB
T041	Lough Derravaragh north	31/03/2022	13:41	Teal	6	lakes and ponds; foraging	KB

Table 1-30 Tufted Duck Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
TU001	L. Kinale	16/09/2021	10:52	Tufted Duck	2	mesotrophic lakes; swimming on lake	NM
TU002	Bracklagh Lough	29/09/2021	09:26	Tufted Duck	57	mesotrophic lakes; swimming and diving on lake	NM
TU003	L. Kinale	29/09/2021	10:12	Tufted Duck	6	mesotrophic lakes; swimming and diving on lake	NM
TU004	L. Sheelin	29/09/2021	08:43	Tufted Duck	6	lakes and ponds; swimming and diving on lake	NM
TU005	Bracklagh Lough	12/10/2021	08:55	Tufted Duck	6	lakes and ponds; swimming on lake	NM
TU006	L. Sheelin	12/10/2021	08:07	Tufted Duck	4	lakes and ponds; swimming on lake	NM
TU007		26/10/2021	15:12	Tufted Duck	5	lakes and ponds; swimming on lake	NM
TU008	Bracklagh Lough	28/10/2021	16:18	Tufted Duck	14	lakes and ponds; swimming and diving on lake	NM
TU010	L. Sheelin	23/11/2021	09:00	Tufted Duck	7	lakes and ponds; swimming and diving on lake	NM
TU009	L. Kinale	23/11/2021	09:55	Tufted Duck	3	lakes and ponds; diving on lake	NM
TU011	Bracklagh Lough	10/12/2021	09:26	Tufted Duck	7	lakes and ponds; swimming on lake	NM
TU013	Deragh Lough	22/12/2021	11:02	Tufted Duck	6	lakes and ponds; swimming on lake	NM
TU016	L. Sheelin	22/12/2021	13:47	Tufted Duck	12	lakes and ponds; swimming on lake	NM
TU012	L. D'varagh	22/12/2021	08:32	Tufted Duck	10	lakes and ponds; swimming and diving on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
TU014	Bracklagh Lough	22/12/2021	12:03	Tufted Duck	9	lakes and ponds; swimming and diving on lake	NM
TU015	L. Sheelin	22/12/2021	13:40	Tufted Duck	5	lakes and ponds; swimming and diving on lake	NM
TU017	L. D'varagh	04/01/2022	13:34	Tufted Duck	2	lakes and ponds; swimming and diving on lake	NM
TU018	L. Sheelin	17/01/2022	09:46	Tufted Duck	38	lakes and ponds; swimming on lake	NM
TU020	L. Sheelin	17/01/2022	09:49	Tufted Duck	7	lakes and ponds; swimming on lake	NM
TU022	L. Sheelin	17/01/2022	08:37	Tufted Duck	13	lakes and ponds; swimming on lake	NM
TU023	L. Sheelin	17/01/2022	08:48	Tufted Duck	7	lakes and ponds; swimming on lake	NM
TU024	L. Sheelin	17/01/2022	08:46	Tufted Duck	19	lakes and ponds; swimming on lake	NM
TU025	L. Sheelin	17/01/2022	08:47	Tufted Duck	78	lakes and ponds; swimming on lake	NM
TU026	L. Sheelin	17/01/2022	08:47	Tufted Duck	190	lakes and ponds; swimming on lake	NM
TU027	L. Sheelin	17/01/2022	09:25	Tufted Duck	49	lakes and ponds; swimming on lake	NM
TU021	L. Kinale N	17/01/2022	10:40	Tufted Duck	36	lakes and ponds; swimming and diving on lake	NM
TU019	L. Sheelin	17/01/2022	09:57	Tufted Duck	16	lakes and ponds; flying across sw of lake	NM
TU028	Bracklagh Lough	18/01/2022	10:00	Tufted Duck	16	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
TU029	Lough Sheelin west	14/02/2022	11:45	Tufted Duck	183	lakes and ponds; foraging	KB
TU030	Bracklagh Lough	14/02/2022	12:20	Tufted Duck	10	lakes and ponds; foraging	KB
TU031	Lough Kinale	14/02/2022	12:50	Tufted Duck	81	lakes and ponds; foraging	KB
TU032	Robinstown pond	14/02/2022	14:32	Tufted Duck	2	lakes and ponds; foraging	KB
TU033	Lough Iron	15/02/2022	09:40	Tufted Duck	20	lakes and ponds; foraging, estimate - birds difficult to id, vp very far away from lake - no access to get closer to the lake	
TU034	Lough Derravaragh south	15/02/2022	12:20	Tufted Duck	174	lakes and ponds; foraging	KB
TU035	Bracklagh Lough	26/02/2022	09:00	Tufted Duck	11	lakes and ponds; foraging	KB
TU036	Lough Sheelin west	26/02/2022	09:20	Tufted Duck	74	lakes and ponds; foraging	KB
TU037	Lough Sheelin centre	26/02/2022	09:53	Tufted Duck	76	lakes and ponds; foraging	KB
TU038	Lough Kinale	26/02/2022	10:26	Tufted Duck	98	lakes and ponds; foraging	KB
TU039	Derragh Lough	26/02/2022	11:04	Tufted Duck	7	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
TU040	Lough Derravaragh south	28/02/2022	11:45	Tufted Duck	96	lakes and ponds; foraging	KB
TU041	Lough Derravaragh north	28/02/2022	13:31	Tufted Duck	7	lakes and ponds; foraging	KB
TU042	Brackagh Lough	07/03/2022	09:00	Tufted Duck	43	lakes and ponds; foraging	KB
TU043	Lough Sheelin west	07/03/2022	09:16	Tufted Duck	8	lakes and ponds; foraging	KB
TU044	Lough Kinale	07/03/2022	10:20	Tufted Duck	33	lakes and ponds; foraging	KB
TU045	Lough Derravaragh south	08/03/2022	12:01	Tufted Duck	49	lakes and ponds; foraging	KB
TU046	Brackagh Lough	31/03/2022	08:00	Tufted Duck	23	lakes and ponds; foraging	KB
TU047	Lough Sheelin west	31/03/2022	08:20	Tufted Duck	6	lakes and ponds; foraging	KB
TU048	Lough Kinale	31/03/2022	09:07	Tufted Duck	62	lakes and ponds; foraging	KB

Table 1-31 Wigeon Winter Walkover Survey Data

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
WN001	28/01/2022	16:55	Wigeon	8	lakes and ponds; foraging (wintering)	AOD

Table 1-32 Wigeon Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WN001	Derragh Lough	16/09/2021	12:18	Wigeon	7	mesotrophic lakes; swimming on lake	NM
WN004		29/09/2021	12:36	Wigeon	243	mesotrophic lakes and immature woodland; swirling in large frantic flock over s of l. kinale	NM
WN005	L. Sheelin	29/09/2021	08:50	Wigeon	10	lakes and ponds; swimming on lake	NM
WN003	Derragh Lough	29/09/2021	11:00	Wigeon	15	mesotrophic lakes; swimming and foraging on lake	NM
WN002	L. D'varagh	29/09/2021	16:18	Wigeon	14	mesotrophic lakes; swimming and dabbling on lake	NM
WN006	L. Iron	30/09/2021	18:30	Wigeon	25	lakes and ponds; swimming on lake	NM
WN007	L. Iron	11/10/2021	17:30	Wigeon	76	lakes and ponds; swimming on lake	NM
WN008	L. Kinale	12/10/2021	10:11	Wigeon	16	lakes and ponds; swimming on lake	NM
WN009	Derragh Lough	12/10/2021	11:12	Wigeon	7	lakes and ponds; swimming and dabbling on lake	NM
WN010	L. Sheelin	12/10/2021	08:14	Wigeon	5	lakes and ponds; flying high across lake	NM
WN011		26/10/2021	09:49	Wigeon	7	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WN015		09/11/2021	12:13	Wigeon	4	improved agricultural grassland; swimming on pond (flooding) within field	NM
WN014	Derragh Lough	09/11/2021	11:36	Wigeon	263	lakes and ponds; swimming on lake, flying around in vicinity, approximate numbers, numbers regular cycling as individuals arrived and departed	NM
WN013	L. Sheelin	09/11/2021	09:27	Wigeon	5	lakes and ponds; swimming on lake	NM
WN016	L. Iron	09/11/2021	16:26	Wigeon	71	lakes and ponds; swimming on lake	NM
WN012	L. Sheelin	09/11/2021	09:29	Wigeon	13	lakes and ponds; flying low across lake, heading e	NM
WN017	L. Iron	22/11/2021	16:03	Wigeon	120	lakes and ponds; swimming on lake	NM
WN018	L. Bane	23/11/2021	14:20	Wigeon	39	lakes and ponds; swimming and dabbling on lake	NM
WN019	L. Sheelin	10/12/2021	09:03	Wigeon	5	lakes and ponds; swimming on lake	NM
WN021	L. Bane	10/12/2021	15:54	Wigeon	16	lakes and ponds; swimming on lake	NM
WN020	L. Kinale	10/12/2021	10:02	Wigeon	12	lakes and ponds; flying low across lake	NM
WN023		22/12/2021	14:24	Wigeon	3	lakes and ponds; swimming on pool within field hollow	NM
WN022	Deragh Lough	22/12/2021	11:00	Wigeon	22	lakes and ponds; swimming and calling on lake	NM
WN024	L. Bane	22/12/2021	15:44	Wigeon	34	lakes and ponds; swimming and calling on lake	NM
WN025		22/12/2021	15:46	Wigeon	9	lakes and ponds and bogs; flying in wide circles over lake area	NM
WN026	L. Iron	23/12/2021	15:30	Wigeon	76	lakes and ponds; swimming on lake	NM
WN027	L. Iron	04/01/2022	15:40	Wigeon	70	lakes and ponds; swimming on lake	NM
WN028	L. Bane	05/01/2022	09:05	Wigeon	16	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WN030	L. Bane	17/01/2022	15:50	Wigeon	34	lakes and ponds, transition mire and quaking bog and semi-natural grassland; swimming on lake and within saturated edges	NM
WN029	L. Kinale N	17/01/2022	10:39	Wigeon	23	lakes and ponds; swimming on lake	NM
WN033	L. Sheelin	17/01/2022	08:42	Wigeon	11	lakes and ponds; swimming on lake	NM
WN032	L. D'varagh	17/01/2022	13:09	Wigeon	26	lakes and ponds; swimming and foraging on lake	NM
WN031	L. D'varagh	17/01/2022	13:13	Wigeon	6	reed and large sedge swamps and lakes and ponds; spooked and bursting from wetland, flying	NM
WN034	L. Iron	18/01/2022	16:00	Wigeon	46	lakes and ponds; swimming on lake	NM
WN035	Lough Sheelin west	26/02/2022	09:20	Wigeon	2	lakes and ponds; foraging	KB
WN036	Lough Bane	26/02/2022	12:50	Wigeon	2	lakes and ponds; foraging	KB
WN037	Lough Bane	31/03/2022	11:25	Wigeon	2	lakes and ponds; foraging	KB

Table 1-33 Curlew Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
CU001	VP5	08/10/2021	09:53	Curlew	3	80	0	80	0	0	improved agricultural grassland, semi-natural grassland and scrub; flying n along e 500m boundary + calling	NM
CU002	VP6	22/10/2021	09:32	Curlew	1	350	0	140	210	0	depositing/lowland rivers, cutover bog and semi-natural grassland; flying and soaring along river and adjacent areas, calling	NM

Table 1-34 Curlew Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CU001		16/09/2021	08:54	Curlew	2	mesotrophic lakes, immature woodland and raised bog; flying se across lake, bog and scrubby woodland	NM
CU002	BN2	22/12/2021	15:35	Curlew	6	cutover bog, scrub and mixed conifer woodland; flying high and calling, heading s	NM
CU003		23/12/2021	15:50	Curlew	57	improved agricultural grassland and hedgerows; flying low across farmland, heading sw	NM

Table 1-35 Goldeneye Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GN001	L. D'varagh	12/10/2021	16:23	Goldeneye	12	lakes and ponds; swimming on lake	NM
GN002	L. D'varagh	12/10/2021	16:31	Goldeneye	13	lakes and ponds; flying at mid height (~15m) across lake - heading se	NM
GN003	L. Sheelin	10/12/2021	08:42	Goldeneye	7	lakes and ponds; swimming and diving on lake	NM
GN004	L. D'varagh	05/01/2022	13:30	Goldeneye	6	lakes and ponds; swimming on lake	NM
GN005	L. D'varagh	17/01/2022	13:05	Goldeneye	24	lakes and ponds; swimming on lake	NM
GN006	L. Sheelin	17/01/2022	08:43	Goldeneye	17	lakes and ponds; swimming on lake	NM
GN007	Lough Derravaragh south	15/02/2022	12:20	Goldeneye	11	lakes and ponds; foraging	KB
GN008	Lough Derravaragh north	15/02/2022	13:13	Goldeneye	6	lakes and ponds; foraging	KB
GN009	Lough Derravaragh north	31/03/2022	13:41	Goldeneye	5	lakes and ponds; foraging	KB

Table 1-36 Kestrel Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
K002	VP4	28/04/2021	17:09	Kestrel	1	212	0	100	112	0	mixed broadleaved/conifer woodland and improved agricultural grassland; hunting	PM
K003	VP4	21/05/2021	06:34	Kestrel	1	58	58	0	0	0	cutover bog; travelling low	PM
K004	VP4	21/05/2021	10:12	Kestrel	1	192	0	92	100	0	mixed broadleaved/conifer woodland; hunting	PM
K005	VP6	30/07/2021	13:23	Kestrel	1	175	0	0	175	0	cutover bog and mixed broadleaved/conifer woodland; hunting	PM
K006	VP4	26/08/2021	13:48	Kestrel	1	186	0	0	186	0	cutover bog; hunting	TRea
K007	VP4	26/08/2021	15:54	Kestrel	1	182	20	43	129	0	cutover bog and treelines; chased by bzto open bog, flew low to edged, soared, flew off	TRea
K008	VP5	08/10/2021	08:17	Kestrel	1	130	80	50	0	0	improved agricultural grassland and hedgerows; hunting and hovering along hedgerows within farmland	NM
K009	VP6	22/10/2021	08:15	Kestrel	1	75	35	40	0	0	scrub and cutover bog; flying over bog and fringes	NM
K010	VP6	22/10/2021	09:26	Kestrel	1	70	0	70	0	0	cutover bog; commuting s across bog	NM

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
K011	VP3	15/11/2021	13:00	Kestrel	1	53	13	40	0	0	cutover bog and conifer plantation; flying, male observed descending into conifer plantation.	CR
K012	VP3	15/11/2021	13:06	Kestrel	1	292	9	37	246	0	conifer plantation and cutover bog; hunting, male observed hunting before descending into conifer plantation.	CR
K013	VP4	16/11/2021	13:02	Kestrel	1	444	6	98	340	0	highly modified/non-native woodland and cutover bog; hunting, observed hunting before descending into woodland.	CR
K014	VP5	19/11/2021	13:22	Kestrel	1	40	40	0	0	0	improved grassland; flying, male observed heading south east.	CR
K015	VP5	19/11/2021	13:47	Kestrel	1	250	5	25	220	0	improved grassland and conifer plantation; hunting, observed hunting for four minutes before descending into conifer woodland to the west of the 500 buffer.	CR
K016	VP6	22/11/2021	13:16	Kestrel	1	133	133	0	0	0	improved grassland, cutover bog and highly modified/non-native woodland; flying, male observed heading east before descending into woodland.	CR
K017	VP6	15/12/2021	13:36	Kestrel	1	660	60	570	30	0	cutover bog, wet grassland and scrub; foraging	KB
K018	VP5	03/01/2022	08:20	Kestrel	1	480	30	200	250	0	immature woodland and wet grassland; foraging	KB
K019	VP4	27/01/2022	15:24	Kestrel	1	510	0	0	510	0	conifer plantation and cutover bog; flying, hovering	ZE
K020	VP6	31/01/2022	14:22	Kestrel	1	648	0	26	622	0	cutover bog and conifer plantation; flying, hovering	ZE

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
K021	VP6	31/01/2022	14:32	Kestrel	1	370	0	0	370	0	improved agricultural grassland and conifer plantation; flying	ZE
K022	VP6	31/01/2022	16:04	Kestrel	1	38	10	28	0	0	lowland blanket bog and improved agricultural grassland; flying	ZE
K023	VP3	15/02/2022	10:51	Kestrel	1	240	0	60	180	0	cutover bog; flying	NS
K024	VP4	16/02/2022	10:11	Kestrel	1	30	0	30	0	0	lowland blanket bog; flying	NS
K025	VP6	17/02/2022	13:05	Kestrel	1	30	0	30	0	0	lowland blanket bog; flying, no hovering just flying	NS
K026	VP4	10/03/2022	15:22	Kestrel	1	86	0	0	86	0	cutover bog; flying	NS
K027	VP1	15/03/2022	15:49	Kestrel	1	420	0	0	420	0	cutover bog; flying	NS
K028	VP1	15/03/2022	17:03	Kestrel	1	20	0	20	0	0	cutover bog; flying	NS
K029	VP5	22/03/2022	14:04	Kestrel	1	120	0	20	100	0	improved agricultural grassland; hunting	ZOC

Table 1-37 Kestrel Breeding Raptor Survey Data

Breeding Raptor Surveys								
Map Ref.	BRVP	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
K001	BRVP5	29/04/2021	09:07	Kestrel	1	conifer plantation, hunting	flyover; non-breeding	PM
K002	BRVP2	30/04/2021	09:23	Kestrel	1	improved agricultural grassland, travelling	flyover; non-breeding	PM

Breeding Raptor Surveys								
Map Ref.	BRVP	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
K003	BRVP1	30/04/2021	13:11	Kestrel	1	mixed broadleaved/conifer woodland and improved agricultural grassland, hunting	flyover; non-breeding	PM
K004	BRVP6	04/06/2021	17:42	Kestrel	1	cutover bog, hunting	flyover; non-breeding	PM
K005	BRVP6	04/06/2021	18:25	Kestrel	1	conifer plantation, hunting	flyover; non-breeding	PM
K006	BRVP6	13/07/2021	09:25	Kestrel	1	highly modified/non-native woodland, hunting, hovering, diving	suitable nesting habitat; possible breeder	TRea
K007	BRVP6	13/07/2021	10:37	Kestrel	1	bogs and highly modified/non-native woodland, hunting, hovering, diving	suitable nesting habitat; possible breeder	TRea
K008	BRVP1	19/07/2021	12:48	Kestrel	1	bogs and highly modified/non-native woodland, flying, hovering, soaring, perched on tree, flew off hovering and soaring over bog	suitable nesting habitat; possible breeder	TRea

Breeding Raptor Surveys								
Map Ref.	BRVP	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
	BRVP6	06/05/2022	15:39	Kestrel	1	scrub and bogs, hunting, female observed hunting before descending beyond row of trees heading north west.	suitable nesting habitat; possible breeder	CR
	BRVP6	06/05/2022	16:06	Kestrel	1	scrub, bogs and conifer plantation, hunting, female kestrel last seen heading west.	suitable nesting habitat; possible breeder	CR
	BRVP2	23/05/2022	14:05	Kestrel	1	cutover bog, hunting and hovering over bog	flyover; non-breeding	NM
	BRVP1	26/05/2022	10:40	Kestrel	1	highly modified/non-native woodland and cutover bog, flying over bog wetland	flyover; non-breeding	NM
	BRVP1	26/05/2022	11:21	Kestrel	1	mixed conifer woodland and scrub, hunting and hovering	suitable nesting habitat; possible breeder	NM
	BRVP6	26/05/2022	16:30	Kestrel	1	bogs, flying across bog	flyover; non-breeding	NM

Table 1-38 Kestrel Winter Walkover Survey Data

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
K001	27/01/2022	14:55	Kestrel	1	cutover bog; fly/perch, k male (wintering)	AOD

Table 1-39 Kestrel Incidental Observation Data

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
K001	Wildfowl Distribution Survey, lough bane 2	16/09/2021	14:06	Kestrel	1	cutover bog, scrub and immature woodland; soaring high above scrubby bog wetland, moving n, hassled by sl & mp	NM
K002	Wildfowl Distribution Survey,	16/09/2021	14:19	Kestrel	2	cutover bog; flying low over bog, individuals then started chasing each other and flying rapidly low to w	NM
K003	Wildfowl Distribution Survey,	16/09/2021	15:39	Kestrel	1	improved agricultural grassland and hedgerows; flying low across farmland	NM
K004	Wildfowl Distribution Survey,	16/09/2021	16:17	Kestrel	1	scrub and dry meadows and grassy verges; perched on telephone wire along road	NM
K005	Wildfowl Distribution Survey,	17/09/2021	19:18	Kestrel	1	marsh and immature woodland; hunting and hovering over s marsh of lake	NM

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
K006	Wildfowl Distribution Survey,	12/10/2021	10:41	Kestrel	1	raised bog and scrub; hunting and hovering over scrubby bog fringes	NM
K007	Winter Walkover Survey,	20/10/2021	13:00	Kestrel	1	semi-natural grassland, depositing/lowland rivers and cutover bog; hunting and hovering over grassland along river	NM
K008	Winter Walkover Survey,	21/10/2021	13:44	Kestrel	1	immature woodland and cutover bog; flying low over scrubby woodland / farmland near bog fringes	NM
K009	Winter Walkover Survey,	21/10/2021	13:00	Kestrel	1	semi-natural grassland, depositing/lowland rivers and cutover bog; hunting and hovering over grassland along river	NM
K010	Winter Walkover Survey,	21/10/2021	15:25	Kestrel	1	semi-natural grassland, improved agricultural grassland and scrub; hunting and hovering over grassland	NM
K011	Wildfowl Distribution Survey,	26/10/2021	11:29	Kestrel	1	semi-natural grassland and mixed broadleaved woodland; flying across woodland	NM
K12	Wildfowl Distribution Survey,	26/10/2021	12:41	Kestrel	1	cutover bog and scrub; hunting and hovering over bog wetland and fringes	NM
K013	Wildfowl Distribution Survey, derragh lough	23/11/2021	10:40	Kestrel	1	improved agricultural grassland, semi-natural grassland and mixed broadleaved woodland; hunting and hovering over grassland	NM

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
K014	Wildfowl Distribution Survey,	10/12/2021	08:54	Kestrel	1	bogs and scrub; hunting and hovering over bog and scrubland	NM
K015	Wildfowl Distribution Survey,	22/12/2021	15:31	Kestrel	1	cutover bog and scrub; flying across bog and scrub fringes	NM
K016	Wildfowl Distribution Survey,	17/01/2022	15:20	Kestrel	1	cutover bog and scrub; flying across bog	NM
K017	Wildfowl Distribution Survey,	17/01/2022	16:30	Kestrel	1	cutover bog and scrub; commuting across bog and wetland	NM
K018	Wildfowl Distribution Survey,	18/01/2022	11:31	Kestrel	1	improved agricultural grassland and scrub; hunting and hovering over farmland	NM

Table 1-40 Lapwing Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
L001	VP6	22/11/2021	12:05	Lapwing	25	151	70	81	0	0	cutover bog; flying, flock of 25 birds observed flying in circles before heading east.	CR

Table 1-41 Lapwing Winter Walkover Survey Data

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
L007	15/03/2022	12:27	Lapwing	8	scrub; nest building (nest building; probable breeding)	NS

Table 1-42 Lapwing Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
L002	L. D'varagh	17/09/2021	13:17	Lapwing	32	mesotrophic lakes; flying in v shaped flock low across water - heading nw up length of length	NM
L001		17/09/2021	13:09	Lapwing	81	mesotrophic lakes, mixed broadleaved woodland and improved agricultural grassland; flying in lare flock over narrow 'foot' of lake - heading ne across farmland	NM
L003		25/10/2021	16:36	Lapwing	43	improved agricultural grassland; grazing on grassland to s of lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
L006		26/10/2021	12:50	Lapwing	32	cutover bog; perched on bog wetland, dispersed across area	NM
L004		26/10/2021	09:34	Lapwing	79	lakes and ponds and improved agricultural grassland; flying and swirling low over lake edge, landing on grassy edge	NM
L005		26/10/2021	12:43	Lapwing	54	cutover bog and scrub; flying across bog wetland	NM
L007		09/11/2021	09:32	Lapwing	18	scrub and bogs; circling over bog / scrubland to w	NM
L011	L. Sheelin	23/11/2021	08:46	Lapwing	145	lakes and ponds and semi-natural grassland; roosting on grassy shore + occasionally smaller groups would fly low across lake and return to land	NM
L010		23/11/2021	12:45	Lapwing	23	improved agricultural grassland; roosting and foraging within rushy wetland area - turlough? wetland?, habitat??	NM
L008		23/11/2021	09:56	Lapwing	8	lakes and ponds, scrub and semi-natural grassland; flying over shore of lake	NM
L012	L. Sheelin	23/11/2021	09:15	Lapwing	34	lakes and ponds; flying e across lake	NM
L009	L. D'varagh	23/11/2021	15:39	Lapwing	86	lakes and ponds; flying across lake	NM
L013	L. Sheelin	10/12/2021	08:45	Lapwing	28	lakes and ponds and scrub; swirling over w shore area	NM
L014	BN2	10/12/2021	15:41	Lapwing	19	cutover bog; roosting and foraging on bare peat within bog wetland area	NM
L016		22/12/2021	14:34	Lapwing	31	lakes and ponds and improved agricultural grassland; foraging and roosting at edge of pool within field, turlough?	NM
L015	L. D'varagh	22/12/2021	08:43	Lapwing	78	lakes and ponds; flying low across lake - heading w	NM
L017		23/12/2021	15:35	Lapwing	245	semi-natural grassland and scrub; flying high across grassland and scrub to n of lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
L018		23/12/2021	15:37	Lapwing	87	improved agricultural grassland; flying across grassland to nw of lake	NM
L020		04/01/2022	14:15	Lapwing	38	improved agricultural grassland; grazing on field	NM
L019		04/01/2022	13:57	Lapwing	158	improved agricultural grassland, hedgerows and lakes and ponds; flock wheeling and flying high over farmland and lake edges	NM
L021	BN2	05/01/2022	09:43	Lapwing	23	cutover bog; roosting on bog wetland	NM
L023		17/01/2022	13:52	Lapwing	7	improved agricultural grassland and semi-natural grassland; roosting on flooding	NM
L024	L. Sheelin	17/01/2022	08:36	Lapwing	38	lakes and ponds; flying low across lake - heading se	NM
L022	L. Sheelin	17/01/2022	09:45	Lapwing	26	lakes and ponds; flying low across lake	NM
L025	Lough Sheelin centre	14/02/2022	11:00	Lapwing	76	lakes and ponds; flying over	KB
L027	Flooded cutaway bog on site	26/02/2022	12:58	Lapwing	6	cutover bog; foraging on ground and flying over	KB
L026	Derragh Lough	26/02/2022	11:04	Lapwing	1	wet grassland; foraging	KB
L028	Flooded bog on site	31/03/2022	11:20	Lapwing	2	cutover bog; foraging and alarm calling	KB

Table 1-43 Pochard Wildfowl Distribution Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
PO001	L. Kinale	29/09/2021	10:23	Pochard	5	mesotrophic lakes; swimming and diving on lake	NM
PO002	L. Sheelin	26/10/2021	14:21	Pochard	5	lakes and ponds; swimming and diving on lake	NM
PO003	L. D'varagh	08/11/2021	12:23	Pochard	12	lakes and ponds; swimming on lake	NM
PO004	L. Sheelin	09/11/2021	09:15	Pochard	7	lakes and ponds; swimming and diving on lake	NM
PO005	L. Kinale	23/11/2021	09:52	Pochard	12	lakes and ponds; swimming on lake	NM
PO006	L. D'varagh	23/11/2021	15:42	Pochard	24	lakes and ponds; swimming on lake	NM
PO007	L. Sheelin	23/11/2021	09:10	Pochard	4	lakes and ponds; swimming and diving on lake	NM
PO008	L. Kinale	22/12/2021	12:20	Pochard	16	lakes and ponds; swimming on lake	NM
PO009	L. Sheelin	22/12/2021	13:52	Pochard	9	lakes and ponds; swimming and diving on lake	NM
PO010	L. D'varagh	04/01/2022	10:08	Pochard	5	lakes and ponds; swimming on lake	NM
PO011	L. Kinale	17/01/2022	10:41	Pochard	7	lakes and ponds; swimming on lake	NM
PO012	L. Sheelin	17/01/2022	08:59	Pochard	12	lakes and ponds; swimming and diving on lake	NM
PO013	Bracklagh Lough	14/02/2022	12:20	Pochard	1	lakes and ponds; foraging	KB
PO014	Lough Sheelin west	26/02/2022	09:20	Pochard	177	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
PO015	Lough Sheelin centre	26/02/2022	09:53	Pochard	182	lakes and ponds; foraging	KB
PO016	Lough Derravaragh south	28/02/2022	11:45	Pochard	6	lakes and ponds; foraging	KB
PO017	Brackagh Lough	07/03/2022	09:00	Pochard	76	lakes and ponds; foraging	KB
PO018	Derragh Lough	31/03/2022	09:32	Pochard	4	lakes and ponds; foraging	KB

Table 1-44 Snipe Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
SN001	VP6	06/04/2021	20:31	Snipe	1	10	10	0	0	0	cutover bog; flew from long grass	PM
SN002	VP6	26/05/2021	06:20	Snipe	1	15	15	0	0	0	cutover bog; travelling; landed in vegetation	PM
SN003	VP5	19/11/2021	12:03	Snipe	1	81	11	70	0	0	improved grassland; flying, landed in grassland to the north.	CR
SN004	VP6	31/01/2022	15:17	Snipe	1	10	10	0	0	0	improved agricultural grassland; flying, flushed	ZE
SN005	VP5	22/03/2022	19:25	Snipe	2	30	0	30	0	0	improved agricultural grassland; flying	ZOC

Table 1-45 Snipe Vantage Point Non-flight Survey Data

Vantage Point Surveys							
Map Ref.	VP	Date	Time	Species	Number	Habitat and activity	Surveyor
SN004	VP6	06/04/2021	20:44	Snipe	1	cutover bog; calling	PM
SN005	VP4	28/04/2021	21:29	Snipe	1	cutover bog; drumming, not seen	PM
SN007	VP4	28/04/2021	21:33	Snipe	1	cutover bog; drumming, second male; not seen	PM

Vantage Point Surveys							
Map Ref.	VP	Date	Time	Species	Number	Habitat and activity	Surveyor
SN006	VP4	28/04/2021	21:39	Snipe	1	cutover bog; drumming, not seen; possibly same bird as earlier	PM
SN008	VP3	15/11/2021	17:07	Snipe	1	cutover bog; calling	CR
SN009	VP3	15/11/2021	17:15	Snipe	1	cutover bog; calling	CR
SN010	VP3	15/11/2021	17:19	Snipe	1	cutover bog; calling	CR
SN011	VP5	19/11/2021	17:07	Snipe	1	improved grassland; calling	CR
SN012	VP6	22/11/2021	15:54	Snipe	1	depositing/lowland rivers; calling	CR
SN013	VP6	22/11/2021	16:42	Snipe	1	improved grassland and depositing/lowland rivers; calling	CR
SN014	VP6	22/11/2021	17:12	Snipe	1	cutover bog; calling	CR
SN015	VP6	31/01/2022	17:47	Snipe	1	lowland blanket bog; calling	ZE

Table 1-46 Snipe Breeding Walkover Survey Data

Breeding Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
SN001	07/04/2021	07:23	Snipe	1	wet grassland; flushed (flyover; non-breeding)	PM
SN002	07/04/2021	11:32	Snipe	2	cutover bog; flushed (summering; non-breeding)	PM

Breeding Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
SN003	07/04/2021	12:39	Snipe	1	cutover bog; flushed (suitable nesting habitat; possible breeder)	PM
SN004	07/04/2021	12:39	Snipe	1	cutover bog; flushed (suitable nesting habitat; possible breeder)	PM
SN005	18/06/2021	07:22	Snipe	1	cutover bog; flushed (suitable nesting habitat; possible breeder)	PM
SN006	18/06/2021	07:49	Snipe	1	cutover bog; flying (flyover; non-breeding)	PM
SN007	18/06/2021	10:40	Snipe	1	cutover bog; flushed (suitable nesting habitat; possible breeder)	PM
SN008	18/06/2021	10:40	Snipe	1	cutover bog; displaying (courtship and display; probable breeding)	PM

Table 1-47 Snipe Winter Walkover Survey Data

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
SN009	21/10/2021	11:52	Snipe	1	cutover bog, semi-natural grassland and depositing/lowland rivers; flushed from wet grassland along river (wintering)	NM
SN010	21/10/2021	11:57	Snipe	4	cutover bog; flushed from cutover bog fringes (wintering)	NM
SN011	28/01/2022	13:03	Snipe	2	raised bog; fly, flushed (wintering)	AOD
SN012	28/01/2022	16:56	Snipe	2	lakes and ponds; flushed (wintering)	AOD
SN013	22/02/2022	17:01	Snipe	4	lakes and ponds; flushed (wintering)	AOD
SN014	23/02/2022	17:08	Snipe	1	cutover bog; flushed (wintering)	AOD

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
SN015	23/02/2022	16:08	Snipe	1	cutover bog; flushed (wintering)	AOD
SN016	15/03/2022	15:10	Snipe	1	cutover bog; flying, flushed while walking (nest building; probable breeding)	NS

Table 1-48 Snipe Waterfowl Survey Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
SN001		29/09/2021	08:43	Snipe	1	raised bog; flushed from bog	NM
SN002		12/10/2021	13:27	Snipe	4	improved agricultural grassland and hedgerows; flying over farmland	NM
SN003		23/11/2021	14:18	Snipe	1	semi-natural grassland; flushed from wet grassland	NM
SN004		22/12/2021	15:46	Snipe	2	scrub and bogs; flushed from saturated fringes of lake, willow shrubs - wn7?	NM
SN005	L. D'varagh	04/01/2022	12:50	Snipe	2	highly modified/non-native woodland and semi-natural grassland; flushed from wet grass within woodland	NM
SN006	L. D'varagh	04/01/2022	13:30	Snipe	2	improved agricultural grassland; flushed from partially flooded field along lake edge	NM
SN008	BN1	17/01/2022	15:46	Snipe	1	scrub and semi-natural grassland; flushed from wet willow scrub	NM
SN009		17/01/2022	15:53	Snipe	1	transition mire and quaking bog and semi-natural grassland; flushed from saturated fringes	NM
SN007		17/01/2022	11:16	Snipe	1	improved agricultural grassland; flushed from disturbed farmland	NM
SN010	Lough Sheelin centre	14/02/2022	11:00	Snipe	1	raised bog; flushed	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
SN011	Lough Sheelin centre	26/02/2022	09:53	Snipe	1	raised bog; flushed	KB
SN012	Lough Bane	26/02/2022	12:50	Snipe	1	bogs and lakes and ponds; flushed	KB
SN013	Lough Derravaragh north	08/03/2022	13:32	Snipe	1	lakes and ponds; flushed	KB

Table 1-49 Snipe Incidental Observation Data

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
SN001	Breeding Woodcock Survey, t1	06/05/2021	22:39	Snipe	1	cutover bog; drumming	PM
SN002	Breeding Woodcock Survey, t1	06/05/2021	22:10	Snipe	1	cutover bog; drumming	PM
SN003	Breeding Woodcock Survey, t1	06/05/2021	22:30	Snipe	1	cutover bog and conifer plantation; drumming	PM
SN004	Breeding Woodcock Survey, t1 coole	03/06/2021	22:37	Snipe	2	bogs and woodland and scrub; drumming, 2 individuals drumming	TRea
SN005	Breeding Woodcock Survey, wkt1	28/06/2021	23:28	Snipe	1	bogs; drumming	TRea
SN006	Vantage Point Survey, vp6	06/09/2021	17:28	Snipe	1	cutover bog; travelling, took off from scrub as hh passed over	TRea

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
SN007	Vantage Point Survey, walking to vp6	15/12/2021	07:37	Snipe	1	cutover bog; flushed	KB
SN008	Vantage Point Survey, walking from vp6	15/12/2021	14:13	Snipe	1	cutover bog; flushed	KB
SN009	Vantage Point Survey, doon	31/01/2022	11:37	Snipe	1	lowland blanket bog; flying - flushed	ZE
SN010	Vantage Point Survey, coole westmeath	17/02/2022	13:17	Snipe	1	lowland blanket bog; flying, flushed while walking back from vp	NS

Table 1-50 Woodcock Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
WK001	VP4	31/03/2021	20:26	Woodcock	1	10	10	0	0	0	mixed broadleaved/conifer woodland; roding, displaying bird	AOD
WK002	VP4	31/03/2021	20:36	Woodcock	1	10	10	0	0	0	mixed broadleaved/conifer woodland and cutover bog; roding, displaying male	AOD

Table 1-51 Breeding Woodcock Survey Data

Breeding Woodcock Surveys							
Map Ref.	Transect	Date	Time	Species	Number	Habitat and activity	Surveyor
WK001	T1	06/05/2021	21:35	Woodcock	1	short rotation coppice, roding, t1 bird 1	PM
WK002	T1	06/05/2021	21:37	Woodcock	1	short rotation coppice, roding, t1 bird 1	PM
WK003	T1	06/05/2021	21:41	Woodcock	1	short rotation coppice, roding, t1 bird 2	PM
WK004	T1	06/05/2021	21:43	Woodcock	1	short rotation coppice, roding, t1 bird 2	PM
WK005	T1	06/05/2021	21:48	Woodcock	1	short rotation coppice, roding, t1 bird 2	PM
WK006	T1	06/05/2021	21:52	Woodcock	1	short rotation coppice, roding, t1 bird 3	PM
WK007	T1	06/05/2021	21:54	Woodcock	1	short rotation coppice, roding, t1 possible 4th bird	PM
WK008	T1	06/05/2021	21:58	Woodcock	1	short rotation coppice, roding, t1 possible 4th bird	PM

Breeding Woodcock Surveys							
Map Ref.	Transect	Date	Time	Species	Number	Habitat and activity	Surveyor
WK009	T3	18/05/2021	21:50	Woodcock	1	mixed broadleaved/conifer woodland, roding, t3 bird 1	PM
WK010	T3	18/05/2021	21:53	Woodcock	1	mixed broadleaved/conifer woodland, roding, t3 bird 1	PM
WK011	T2	24/05/2021	22:22	Woodcock	1	mixed broadleaved/conifer woodland, roding, t2 bird 1	PM
WK012	T2	24/05/2021	22:30	Woodcock	1	mixed broadleaved/conifer woodland and cutover bog, roding, t2 bird 2	PM
WK013	T2	03/06/2021	21:42	Woodcock	2	mixed broadleaved/conifer woodland, chasing each other	PM
WK014	T2	03/06/2021	22:14	Woodcock	1	conifer plantation, roding	PM
WK015	T2	03/06/2021	22:34	Woodcock	1	conifer plantation, roding	PM
WK016	T1	03/06/2021	21:45	Woodcock	1	woodland and scrub and bogs, roding, 1 of 2 individuals flying over territory to fields and woods east of lake.	TRea
WK017	T1	03/06/2021	21:54	Woodcock	1	woodland and scrub and bogs, roding, 1 of 2 individuals flying over territory to fields and woods east of lake.	TRea
WK018	T1	03/06/2021	21:56	Woodcock	1	woodland and scrub and bogs, roding, 1 of 2 individuals flying over territory to fields and woods east of lake.	TRea
WK019	T1	03/06/2021	22:10	Woodcock	1	woodland and scrub and bogs, roding, 1 of 2 individuals flying over territory to fields and woods east of lake.	TRea
WK020	T1	03/06/2021	22:16	Woodcock	1	woodland and scrub and bogs, roding, 1 of 2 individuals flying over territory to fields and woods east of lake.	TRea
WK021	T1	03/06/2021	22:22	Woodcock	1	woodland and scrub and bogs, roding, 1 of 2 individuals flying over wooded area to the west of the lake	TRea
WK022	T1	03/06/2021	22:24	Woodcock	1	woodland and scrub and bogs, roding, 1 of 2 individuals flying over wooded area to the west of the lake	TRea
WK023	T1	03/06/2021	22:42	Woodcock	1	woodland and scrub and bogs, roding, 1 of 2 individuals flying over wooded area to the west of the lake	TRea



Breeding Woodcock Surveys							
Map Ref.	Transect	Date	Time	Species	Number	Habitat and activity	Surveyor
WK024	T1	03/06/2021	22:19	Woodcock	1	woodland and scrub and bogs, roding, 1 of 2 individuals flying over wooded area to the west of the lake	TRea
WK025	T1	03/06/2021	22:50	Woodcock	1	woodland and scrub and bogs, roding, 1 of 2 individuals flying over wooded area to the west of the lake	TRea
WK026	T3	04/06/2021	21:58	Woodcock	1	conifer plantation and bogs, roding	TRea
WK027	T3	04/06/2021	22:51	Woodcock	1	conifer plantation and bogs, roding	TRea
WK028	T3	04/06/2021	22:19	Woodcock	1	conifer plantation and bogs, roding	TRea
WK029	T3	04/06/2021	22:31	Woodcock	1	conifer plantation and bogs, roding	TRea
WK030	T1	28/06/2021	22:35	Woodcock	2	highly modified/non-native woodland and bogs, roding, 2 flying in loop aa individuals	TRea

Table 1-52 Buzzard Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
BZ002	VP6	06/04/2021	15:00	Buzzard	1	117	0	0	117	0	cutover bog and conifer plantation; soaring	PM
BZ003	VP6	06/04/2021	15:31	Buzzard	1	244	0	0	244	0	conifer plantation and cutover bog; soaring before dropping down to land in tree	PM
BZ004	VP6	06/04/2021	16:17	Buzzard	1	155	0	0	155	0	conifer plantation and cutover bog; hunting/travelling	PM
BZ005	VP6	26/05/2021	10:18	Buzzard	1	20	20	0	0	0	improved agricultural grassland; travelling; being mobbed by hc	PM
BZ006	VP4	17/06/2021	15:03	Buzzard	2	200	0	0	100	100	conifer plantation and improved agricultural grassland; soaring	PM
BZ007	VP4	17/06/2021	15:32	Buzzard	1	450	0	0	400	50	cutover bog, conifer plantation and improved agricultural grassland; hunting; then soaring	PM
BZ008	VP4	17/06/2021	15:38	Buzzard	1	60	60	0	0	0	cutover bog; travelling	PM
BZ009	VP4	17/06/2021	15:42	Buzzard	1	23	23	0	0	0	cutover bog; travelling	PM
BZ010	VP4	17/06/2021	15:49	Buzzard	1	17	17	0	0	0	cutover bog; hunting	PM
BZ011	VP6	30/07/2021	12:48	Buzzard	1	19	0	19	0	0	cutover bog; hunting	PM
BZ012	VP6	30/07/2021	15:15	Buzzard	1	52	52	0	0	0	wet grassland; hunting	PM
BZ013	VP6	19/08/2021	11:00	Buzzard	1	787	0	127	660	0	cutover bog and semi-natural woodland; travelling, soaring	TRea
BZ014	VP6	19/08/2021	14:42	Buzzard	1	220	0	0	220	0	cutover bog; travelling	TRea
BZ015	VP6	19/08/2021	16:10	Buzzard	1	521	0	15	516	0	cutover bog; hunting	TRea
BZ016	VP4	26/08/2021	11:22	Buzzard	1	354	0	0	354	0	cutover bog; hunting	TRea
BZ017	VP4	26/08/2021	12:09	Buzzard	1	277	0	0	277	0	cutover bog and treelines; soaring	TRea
BZ018	VP4	26/08/2021	12:13	Buzzard	1	249	0	72	177	0	cutover bog and linear woodland/scrub; hunting	TRea

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
BZ019	VP4	26/08/2021	12:47	Buzzard	1	77	0	77	0	0	cutover bog; travelling	TRea
BZ020	VP4	26/08/2021	14:46	Buzzard	2	360	0	41	319	0	cutover bog and treelines; hunting	TRea
BZ021	VP4	26/08/2021	14:59	Buzzard	1	208	0	0	208	0	cutover bog; soaring	TRea
BZ022	VP4	26/08/2021	15:58	Buzzard	1	5	5	0	0	0	cutover bog and treelines; fighting k.	TRea
BZ023	VP5	08/10/2021	11:01	Buzzard	1	240	0	0	60	180	improved agricultural grassland, mixed conifer woodland and cutover bog; soaring over forestry and bog fringes	NM
BZ024	VP4	19/10/2021	11:28	Buzzard	1	120	0	50	70	0	bogs and highly modified/non-native woodland; soaring over woodland on bog	NM
BZ025	VP6	22/10/2021	11:59	Buzzard	1	560	65	150	330	20	scrub, treelines and cutover bog; soaring and hunting over bog and scrub fringes, perched for period	NM
BZ026	VP3	23/10/2021	12:03	Buzzard	1	160	0	0	140	20	cutover bog and scrub; soaring over bog and fringes	NM
BZ027	VP3	23/10/2021	12:24	Buzzard	1	70	0	0	70	0	mixed broadleaved woodland, improved agricultural grassland and cutover bog; flying across hazel woodland and farmland	NM
BZ028	VP3	15/11/2021	12:06	Buzzard	1	465	0	0	115	350	highly modified/non-native woodland, improved grassland and cutover bog; soaring, observed heading north west.	CR
BZ029	VP6	22/11/2021	11:06	Buzzard	1	40	40	0	0	0	highly modified/non-native woodland and cutover bog; flying, observed heading north west before descending beyond line of trees.	CR

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
BZ030	VP6	22/11/2021	14:49	Buzzard	1	80	80	0	0	0	cutover bog, improved grassland and highly modified/non-native woodland; flying, adult buzzard observed heading south before landing on tree top.	CR
BZ031	VP6	22/11/2021	15:00	Buzzard	1	42	20	22	0	0	highly modified/non-native woodland and improved grassland; flying, last seen heading south west.	CR
BZ032	VP6	15/12/2021	08:53	Buzzard	1	30	10	20	0	0	mixed broadleaved woodland; foraging	KB
BZ033	VP6	15/12/2021	09:42	Buzzard	1	10	10	0	0	0	semi-natural grassland; foraging	KB
BZ034	VP5	25/01/2022	14:57	Buzzard	1	5	0	5	0	0	improved agricultural grassland; flying	ZE
BZ035	VP5	25/01/2022	15:25	Buzzard	1	3	0	5	0	0	improved agricultural grassland and treelines; flying	ZE
BZ036	VP5	25/01/2022	16:20	Buzzard	1	19	19	0	0	0	improved agricultural grassland and hedgerows; flying	ZE
BZ037	VP3	26/01/2022	11:50	Buzzard	1	50	40	10	0	0	conifer plantation and treelines; flying, circling	ZE
BZ038	VP3	26/01/2022	13:24	Buzzard	1	3	3	0	0	0	conifer plantation and treelines; flying, landed on the field	ZE
BZ039	VP3	26/01/2022	12:43	Buzzard	2	85	0	85	0	0	conifer plantation and treelines; flying, displaying	ZE
BZ040	VP4	27/01/2022	14:13	Buzzard	2	180	10	10	160	0	conifer plantation; flying, displaying, one flew south after two minutes	ZE
BZ041	VP6	31/01/2022	14:25	Buzzard	1	26	0	26	0	0	conifer plantation; flying	ZE
BZ042	VP4	10/03/2022	13:47	Buzzard	2	50	8	0	0	50	cutover bog; flying, soaring high. lost sight behind clouds	NS
BZ043	VP4	10/03/2022	13:57	Buzzard	1	319	0	0	0	319	cutover bog; flying	NS
BZ044	VP4	10/03/2022	14:23	Buzzard	1	78	0	0	78	0	cutover bog; flying	NS

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
BZ045	VP4	10/03/2022	14:46	Buzzard	2	136	30	106	0	0	cutover bog; breeding behaviour	NS
BZ046	VP4	10/03/2022	15:15	Buzzard	2	500	0	200	300	0	cutover bog; flying	NS
BZ047	VP4	10/03/2022	17:30	Buzzard	1	30	0	30	0	0	cutover bog; flying	NS
BZ048	VP1	15/03/2022	15:46	Buzzard	2	68	0	68	0	0	cutover bog; flying	NS
BZ049	VP1	15/03/2022	15:53	Buzzard	1	8	8	0	0	0	cutover bog; flying	NS
BZ050	VP5	22/03/2022	13:47	Buzzard	1	60	0	10	50	0	oak-birch-holly woodland and improved agricultural grassland; soaring/ circling, soaring before dropping into woodland below	ZOC
BZ051	VP5	22/03/2022	14:00	Buzzard	1	190	0	0	190	0	dry calcareous and neutral grassland; travelling displaying, travelling and displaying briefly	ZOC
BZ052	VP5	22/03/2022	14:02	Buzzard	1	100	0	0	100	0	dry calcareous and neutral grassland; displaying, displaying	ZOC
BZ053	VP5	22/03/2022	16:55	Buzzard	1	50	5	10	35	0	improved agricultural grassland and oak-birch-holly woodland; travelling	ZOC
BZ054	VP3	23/03/2022	15:40	Buzzard	2	170	0	0	170	0	cutover bog and conifer plantation; flying, displaying	ZOC

Table 1-53 Buzzard Vantage Point Non-flight Survey Data

Vantage Point Surveys							
Map Ref.	VP	Date	Time	Species	Number	Habitat and activity	Surveyor
BZ023	VP4	26/08/2021	14:07	Buzzard	1	improved agricultural grassland and treelines; calling	TRea
BZ061	VP4	07/09/2021	15:16	Buzzard	1	cutover bog and woodland and scrub; calling	TRea
BZ055	VP6	22/11/2021	11:37	Buzzard	1	highly modified/non-native woodland and cutover bog; calling, no visual	CR
BZ056	VP6	22/11/2021	14:50	Buzzard	1	highly modified/non-native woodland and improved grassland; roosting, remained perched on tree top until 15:00.	CR
BZ057	VP5	25/01/2022	15:01	Buzzard	1	improved agricultural grassland and treelines; perching	ZE
BZ058	VP5	25/01/2022	15:33	Buzzard	1	improved agricultural grassland and treelines; perching	ZE
BZ059	VP5	08/02/2022	13:14	Buzzard	1	improved agricultural grassland; calling	NS
BZ060	VP4	10/03/2022	18:16	Buzzard	2	cutover bog; perched, perched in tree	NS

Table 1-54 Buzzard Breeding Walkover Survey Data

Breeding Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
BZ001	07/04/2021	10:16	Buzzard	1	mixed broadleaved/conifer woodland and cutover bog; flew from trees before circling (suitable nesting habitat; possible breeder)	PM

Breeding Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
BZ002	14/05/2021	11:30	Buzzard	1	mixed broadleaved/conifer woodland; calling (suitable nesting habitat; possible breeder)	PM
BZ003	18/06/2021	09:54	Buzzard	1	improved agricultural grassland; flying; calling (flyover; non-breeding)	PM
BZ004	23/07/2021	10:05	Buzzard	1	conifer plantation; calling, not seen (flyover; non-breeding)	PM

Table 1-55 Buzzard Winter Walkover Survey Data

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
BZ005	27/01/2022	14:05	Buzzard	2	cutover bog; fly, soaring over bog (wintering)	AOD
BZ006	22/02/2022	13:04	Buzzard	2	mixed broadleaved/conifer woodland; flying over, calling (wintering)	AOD
BZ007	22/02/2022	15:12	Buzzard	1	improved agricultural grassland and cutover bog; flying over (wintering)	AOD
BZ008	15/03/2022	13:06	Buzzard	1	bog woodland; flying (nest building; probable breeding)	NS
BZ009	15/03/2022	13:23	Buzzard	1	wet willow-alder-ash woodland; flying (nest building; probable breeding)	NS
BZ010	15/03/2022	14:58	Buzzard	1	cutover bog; flying (nest building; probable breeding)	NS
BZ011	16/03/2022	12:51	Buzzard	2	cutover bog; flying (nest building; probable breeding)	NS

Table 1-56 Buzzard Breeding Raptor Survey Data

Breeding Raptor Surveys								
Map Ref.	BRVP	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
BZ001	BRVP5	29/04/2021	09:51	Buzzard	1	raised bog, travelling	flyover; non-breeding	PM
BZ002	BRVP5	29/04/2021	10:09	Buzzard	1	conifer plantation, travelling	flyover; non-breeding	PM
BZ003	BRVP5	29/04/2021	10:29	Buzzard	2	improved agricultural grassland and conifer plantation, soaring, being mobbed by hc	flyover; non-breeding	PM
BZ004	BRVP5	29/04/2021	12:53	Buzzard	1	mixed broadleaved/conifer woodland, hunting	flyover; non-breeding	PM
BZ005	BRVP1	06/05/2021	17:07	Buzzard	1	improved agricultural grassland and mixed broadleaved/conifer woodland, travelling	flyover; non-breeding	PM
BZ006	BRVP1	06/05/2021	17:18	Buzzard	1	mixed broadleaved/conifer woodland, rising and travelling away from forestry	suitable nesting habitat; possible breeder	PM
BZ007	BRVP1	06/05/2021	17:33	Buzzard	1	mixed broadleaved/conifer woodland, travelling	flyover; non-breeding	PM
BZ008	BRVP1	06/05/2021	18:39	Buzzard	1	mixed broadleaved/conifer woodland, hunting/travelling	suitable nesting habitat; possible breeder	PM
BZ009	BRVP1	06/05/2021	19:06	Buzzard	1	mixed broadleaved/conifer woodland, travelling	flyover; non-breeding	PM

Breeding Raptor Surveys								
Map Ref.	BRVP	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
BZ010	BRVP1	06/05/2021	19:22	Buzzard	1	mixed broadleaved/conifer woodland, travelling	suitable nesting habitat; possible breeder	PM
BZ011	BRVP2	24/05/2021	18:22	Buzzard	1	improved agricultural grassland and mixed broadleaved/conifer woodland, hunting	flyover; non-breeding	PM
BZ012	BRVP2	24/05/2021	19:54	Buzzard	1	mixed broadleaved/conifer woodland, hunting	flyover; non-breeding	PM
BZ013	BRVP1	03/06/2021	19:43	Buzzard	1	conifer plantation, travelling; being mobbed by hc and bh	flyover; non-breeding	PM
BZ014	BRVP1	03/06/2021	19:48	Buzzard	1	conifer plantation, travelling	flyover; non-breeding	PM
BZ015	BRVP6	04/06/2021	18:25	Buzzard	1	conifer plantation, travelling; mobbed by crows	flyover; non-breeding	PM
BZ016	BRVP2	28/06/2021	17:39	Buzzard	2	conifer plantation and improved agricultural grassland, circling	pair; probable breeding	PM
BZ017	BRVP2	28/06/2021	18:07	Buzzard	1	improved agricultural grassland, circling	flyover; non-breeding	PM
BZ018	BRVP6	29/06/2021	17:28	Buzzard	1	mixed broadleaved/conifer woodland, circling low	suitable nesting habitat; possible breeder	PM
BZ019	BRVP6	29/06/2021	18:05	Buzzard	1	mixed broadleaved/conifer woodland and improved agricultural grassland, hunting	flyover; non-breeding	PM
BZ020	BRVP6	29/06/2021	18:15	Buzzard	1	improved agricultural grassland, soaring	flyover; non-breeding	PM
BZ021	BRVP6	29/06/2021	18:40	Buzzard	1	improved agricultural grassland, soaring	flyover; non-breeding	PM

Breeding Raptor Surveys								
Map Ref.	BRVP	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
BZ022	BRVP6	29/06/2021	18:40	Buzzard	1	improved agricultural grassland, travelling	flyover; non-breeding	PM
BZ023	BRVP6	29/06/2021	18:55	Buzzard	1	improved agricultural grassland and mixed broadleaved/conifer woodland, soaring	flyover; non-breeding	PM
BZ024	BRVP6	13/07/2021	09:25	Buzzard	1	highly modified/non-native woodland, soaring	suitable nesting habitat; possible breeder	TRea
BZ025	BRVP5	13/07/2021	13:42	Buzzard	1	mixed broadleaved/conifer woodland and bogs, soaring, travelling	suitable nesting habitat; possible breeder	TRea
BZ026	BRVP6	13/07/2021	14:34	Buzzard	2	highly modified/non-native woodland and bogs, soaring	pair; probable breeding	TRea
BZ027	BRVP6	13/07/2021	14:34	Buzzard	1	highly modified/non-native woodland and bogs, soaring	suitable nesting habitat; possible breeder	TRea
BZ028	BRVP1	19/07/2021	10:27	Buzzard	1	bogs and highly modified/non-native woodland, soaring, diving behind treeline	suitable nesting habitat; possible breeder	TRea
BZ029	BRVP1	19/07/2021	11:46	Buzzard	1	bogs and highly modified/non-native woodland, travelling	suitable nesting habitat; possible breeder	TRea
BZ030	BRVP2	19/07/2021	14:20	Buzzard	2	mixed broadleaved/conifer woodland and improved grassland, fighting white tailed eagle, calling and diving at eagle	agitated behaviour; probable breeding	TRea
BZ031	BRVP2	19/07/2021	15:16	Buzzard	1	improved grassland and highly modified/non-native woodland, soaring	suitable nesting habitat; possible breeder	TRea

Table 1-57 Buzzard Incidental Observation Data

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BZ001	Wildfowl Distribution Survey,	16/09/2021	12:53	Buzzard	1	immature woodland, mixed broadleaved woodland and mesotrophic lakes; soaring over woodland	NM
BZ002	Wildfowl Distribution Survey,	16/09/2021	14:26	Buzzard	1	conifer plantation and cutover bog; soaring over forestry fringes of bog	NM
BZ003	Wildfowl Distribution Survey,	16/09/2021	16:49	Buzzard	1	scrub, immature woodland and mixed conifer woodland; perched in scrubby trees along track	NM
BZ004	Wildfowl Distribution Survey,	16/09/2021	16:58	Buzzard	1	mixed conifer woodland, mixed broadleaved woodland and mesotrophic lakes; flying and circling	NM
BZ005	Wildfowl Distribution Survey, s2	16/09/2021	09:14	Buzzard	1	raised bog, mixed conifer woodland and scrub; soaring over bog and forestry	NM
BZ006	Wildfowl Distribution Survey,	17/09/2021	15:00	Buzzard	1	improved agricultural grassland, scrub and hedgerows; soaring and circling over farmland	NM
BZ007	Wildfowl Distribution Survey,	29/09/2021	12:23	Buzzard	1	mesotrophic lakes, mixed conifer woodland and mixed broadleaved woodland; soaring over forestry and s fringes of derragh lough	NM
BZ008	Wildfowl Distribution Survey,	12/10/2021	12:43	Buzzard	1	improved agricultural grassland and hedgerows; soaring and circling over farmland + calling	NM

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BZ009	Wildfowl Distribution Survey,	12/10/2021	16:33	Buzzard	2	improved agricultural grassland and hedgerows; soaring over farmland - appeared to be harrying we for a time	NM
BZ010	Winter Walkover Survey,	20/10/2021	10:55	Buzzard	2	scrub and bogs; soaring over scrubby bog areas	NM
BZ011	Winter Walkover Survey,	21/10/2021	12:13	Buzzard	1	improved agricultural grassland, mixed broadleaved woodland and scrub; soaring over woodland and farmland	NM
BZ012	Winter Walkover Survey,	21/10/2021	14:56	Buzzard	1	treelines and improved agricultural grassland; perched low in ashe along road, flushed	NM
BZ013	Wildfowl Distribution Survey,	26/10/2021	10:31	Buzzard	1	improved agricultural grassland; perched in tree in farmland	NM
BZ014	Wildfowl Distribution Survey,	26/10/2021	13:08	Buzzard	2	improved agricultural grassland and hedgerows; soaring over farmland	NM
BZ015	Wildfowl Distribution Survey,	26/10/2021	14:04	Buzzard	1	raised bog and immature woodland; soaring over bog and woody fringes	NM
BZ016	Wildfowl Distribution Survey,	22/12/2021	10:20	Buzzard	1	scrub, improved agricultural grassland and mixed conifer woodland; disturbed from perch along river, flew away low over farmland and woodland	NM
BZ017	Wildfowl Distribution Survey,	22/12/2021	12:18	Buzzard	1	lakes and ponds, scrub and improved agricultural grassland; soaring and circling over lake fringes	NM
BZ018	Wildfowl Distribution Survey,	22/12/2021	14:14	Buzzard	1	bogs and scrub; flying low across bog and scrub	NM

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BZ019	Wildfowl Distribution Survey,	22/12/2021	14:30	Buzzard	1	improved agricultural grassland and hedgerows; flying across field	NM
BZ020	Wildfowl Distribution Survey,	23/12/2021	15:27	Buzzard	2	improved agricultural grassland and hedgerows; calling and flying low along hedgerows within farmland	NM
BZ021	Wildfowl Distribution Survey,	23/12/2021	16:11	Buzzard	1	improved agricultural grassland and hedgerows; flying low along hedgerows within farmland, perching briefly within tree	NM
BZ022	Wildfowl Distribution Survey,	04/01/2022	09:01	Buzzard	1	improved agricultural grassland and hedgerows; flying across farmland	NM
BZ023	Wildfowl Distribution Survey,	04/01/2022	13:20	Buzzard	1	improved agricultural grassland and hedgerows; perched on telephone line before flying away over farmland	NM
BZ024	Wildfowl Distribution Survey,	04/01/2022	14:05	Buzzard	1	improved agricultural grassland, hedgerows and mixed conifer woodland; flying across fields	NM
BZ025	Wildfowl Distribution Survey,	05/01/2022	09:28	Buzzard	2	cutover bog, mixed conifer woodland and scrub; soaring over bog	NM
BZ026	Wildfowl Distribution Survey,	17/01/2022	09:35	Buzzard	1	improved agricultural grassland; flying low across farmland	NM
BZ027	Wildfowl Distribution Survey, l. sheelin	17/01/2022	10:20	Buzzard	1	lakes and ponds; flying high and ne across lake	NM
BZ028	Wildfowl Distribution Survey,	17/01/2022	10:27	Buzzard	1	mixed conifer woodland and scrub; perched within forestry before flying off	NM

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BZ029	Wildfowl Distribution Survey,	18/01/2022	10:23	Buzzard	1	improved agricultural grassland, hedgerows and scrub; soaring over farmland	NM
BZ030	Vantage Point Survey, coole vp4	16/02/2022	08:00	Buzzard	1	cutover bog; flying	NS
BZ031	Waterfowl Distribution Survey,	08/03/2022	15:24	Buzzard	1	cutover bog; foraging	KB
BZ032	Waterfowl Distribution Survey,	31/03/2022	11:25	Buzzard	1	lakes and ponds; foraging	KB

Table 1-58 Sparrowhawk Vantage Point Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
SH001	VP4	28/04/2021	16:28	Sparrowhawk	1	12	12	0	0	0	mixed broadleaved/conifer woodland; flew to perch on tree; known nest site, flew from woods to perch on top of tree near nest site	PM
SH002	VP4	28/04/2021	16:34	Sparrowhawk	1	5	5	0	0	0	mixed broadleaved/conifer woodland; flew between perches at known nest site, male	PM
SH003	VP4	28/04/2021	16:39	Sparrowhawk	1	10	10	0	0	0	mixed broadleaved/conifer woodland; flew from perch at known nest site and flew off low, male	PM
SH004	VP4	09/12/2021	09:22	Sparrowhawk	1	10	10	0	0	0	cutover bog and immature woodland; foraging	KB
SH005	VP4	09/12/2021	09:22	Sparrowhawk	2	5	2	3	0	0	cutover bog and immature woodland; foraging	KB
SH006	VP4	09/12/2021	09:22	Sparrowhawk	1	8	8	0	0	0	cutover bog and immature woodland; foraging	KB
SH007	VP4	10/03/2022	13:41	Sparrowhawk	1	190	30	60	100	0	cutover bog; flying	NS

Table 1-59 Sparrowhawk Winter Walkover Survey Data

Winter Walkover Surveys						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
SH001	07/04/2021	08:50	Sparrowhawk	1	mixed broadleaved/conifer woodland; carrying nest material into trees (nest building; probable breeding)	PM

Table 1-60 Sparrowhawk Breeding Raptor Survey Data

Breeding Raptor Surveys								
Map Ref.	BRVP	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
SH001	BRVP1	30/04/2021	13:15	Sparrowhawk	1	cutover bog, travelling; landed in tree	suitable nesting habitat; possible breeder	PM
SH002	BRVP1	06/05/2021	18:16	Sparrowhawk	1	mixed broadleaved/conifer woodland and cutover bog, travelling	flyover; non-breeding	PM
SH003	BRVP6	18/05/2021	18:52	Sparrowhawk	1	mixed broadleaved/conifer woodland, travelling, male	flyover; non-breeding	PM

Table 1-61 Sparrowhawk Incidental Observation Data

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
SH001	Winter Walkover Survey,	21/10/2021	12:04	Sparrowhawk	1	improved agricultural grassland and semi-natural grassland; flying low across grassland	NM
SH002	Wildfowl Distribution Survey,	26/10/2021	12:38	Sparrowhawk	1	scrub and cutover bog; flying over scrubby bog fringes + perched	NM

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
SH003	Wildfowl Distribution Survey,	08/11/2021	12:15	Sparrowhawk	1	improved agricultural grassland and hedgerows; flying low between hedgerows of farmland	NM
SH004	Vantage Point Survey, vp6	22/11/2021	14:03	Sparrowhawk	1	improved grassland and depositing/lowland rivers; flying, female observed during lunch break. last seen heading north.	CR
SH005	Vantage Point Survey, vp6	22/11/2021	14:06	Sparrowhawk	1	improved grassland and depositing/lowland rivers; flying, possibly same female bird observed three minutes earlier. last seen heading north.	CR
SH006	Wildfowl Distribution Survey,	17/01/2022	13:13	Sparrowhawk	1	lakes and ponds, scrub and reed and large sedge swamps; flying low and acrobatically across wetland - may have caused wn and t to be flushed	NM

Table 1-62 Vantage Point Non-target Species Survey Data

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
	VP4	21/05/2021	10:04	Black-headed Gull	1	50	0	50	0	0	cutover bog and mixed broadleaved/conifer woodland; travelling	PM
	VP5	08/10/2021	10:15	Black-headed Gull	6	125	15	80	30	0	improved agricultural grassland and hedgerows; flying and swirling across farmland - heading w	NM
	VP5	08/10/2021	08:47	Black-headed Gull	2	60	0	0	55	5	improved agricultural grassland and mixed conifer woodland; flying n and e across farmland	NM
	VP3	23/10/2021	08:15	Cormorant	2	55	15	40	0	0	mixed conifer woodland, depositing/lowland rivers and scrub; flying along sw boundary	NM
	VP4	16/11/2021	13:44	Cormorant	1	43	0	0	43	0	highly modified/non-native woodland and cutover bog; flying, heading north west	CR
	VP6	22/11/2021	15:34	Cormorant	1	291	0	0	214	77	improved grassland, depositing/lowland rivers and highly modified/non-native woodland; flying, last seen heading north at high altitude.	CR
	VP4	09/12/2021	11:38	Cormorant	1	12	0	12	0	0	cutover bog; travelling	KB
	VP6	15/12/2021	11:39	Cormorant	1	30	0	0	30	0	cutover bog and semi-natural grassland; travelling	KB
	VP6	15/12/2021	12:11	Cormorant	1	35	0	0	35	0	semi-natural grassland; travelling	KB

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
	VP6	15/12/2021	12:31	Cormorant	1	25	10	15	0	0	semi-natural grassland; travelling - descended	KB
	VP6	15/12/2021	13:52	Cormorant	1	20	0	20	0	0	semi-natural grassland; travelling	KB
	VP1	15/03/2022	15:57	Cormorant	1	50	0	50	0	0	cutover bog; flying	NS
	VP1	15/03/2022	17:00	Cormorant	1	29	0	29	0	0	cutover bog; flying	NS
GE001	VP6	22/11/2021	15:04	Green Sandpiper	1	18	2	4	12	0	improved grassland and depositing/lowland rivers; flying/calling, observed descending into river.	CR
	VP6	22/10/2021	11:18	Grey Heron	1	80	0	80	0	0	improved agricultural grassland and cutover bog; flying across bog	NM
	VP6	22/10/2021	11:55	Grey Heron	1	25	25	0	0	0	depositing/lowland rivers and semi-natural grassland; flying low along river	NM
	VP4	16/11/2021	12:27	Grey Heron	1	60	60	0	0	0	cutover bog and highly modified/non-native woodland; flying, heading east	CR
	VP4	16/11/2021	14:51	Grey Heron	1	48	48	0	0	0	highly modified/non-native woodland; flying	CR
	VP4	16/11/2021	15:48	Grey Heron	1	27	27	0	0	0	highly modified/non-native woodland; flying	CR

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
	VP4	16/11/2021	16:33	Grey Heron	1	40	40	0	0	0	cutover bog and highly modified/non-native woodland; flying	CR
	VP1	15/03/2022	16:42	Grey Heron	1	46	9	37	0	0	cutover bog; flying	NS
	VP6	06/04/2021	16:47	Grey Heron	1	17	0	17	0	0	conifer plantation; travelling along river	PM
	VP6	06/04/2021	16:52	Grey Heron	1	57	0	57	0	0	cutover bog and conifer plantation; travelling; dropped into drain	PM
	VP4	28/04/2021	17:31	Grey Heron	1	25	25	0	0	0	cutover bog; travelling along large drain	PM
	VP4	17/06/2021	13:19	Grey Heron	1	30	30	0	0	0	depositing/lowland rivers and conifer plantation; travelling; landed in river	PM
	VP4	17/06/2021	13:24	Grey Heron	1	14	14	0	0	0	cutover bog; travelling; landed in drain	PM
	VP4	17/06/2021	13:26	Grey Heron	64	0	64	0	0	0	cutover bog; travelling; landed in drain	PM
	VP6	30/07/2021	09:24	Grey Heron	1	52	52	0	0	0	cutover bog; travelling	PM
	VP6	07/09/2021	15:14	Grey Heron	1	14	14	0	0	0	cutover bog and treelines; travelling, roosting	TRea
	VP6	31/01/2022	16:01	Grey Heron	1	61	20	41	0	0	improved agricultural grassland and bogs; flying, ze	ZE

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
	VP6	31/01/2022	17:09	Grey Heron	1	34	34	0	0	0	improved agricultural grassland; flying	ZE
	VP4	21/05/2021	06:58	Lesser Black-backed Gull	1	32	0	32	0	0	cutover bog; travelling	PM
	VP6	26/05/2021	05:43	Lesser Black-backed Gull	1	100	0	100	0	0	cutover bog and wet grassland; travelling	PM
	VP6	26/05/2021	05:44	Lesser Black-backed Gull	1	577	0	577	0	0	cutover bog and wet grassland; travelling/circling bog	PM
	VP6	26/05/2021	08:05	Lesser Black-backed Gull	3	20	0	20	0	0	cutover bog and mixed broadleaved/conifer woodland; travelling	PM
	VP4	17/06/2021	17:00	Lesser Black-backed Gull	2	173	0	0	173	0	improved agricultural grassland; travelling/soaring	PM
	VP6	30/06/2021	15:26	Lesser Black-backed Gull	1	120	0	120	0	0	improved agricultural grassland; circling field where grass was being mown	PM
	VP4	27/07/2021	09:33	Lesser Black-backed Gull	1	51	0	0	61	0	cutover bog and mixed broadleaved/conifer woodland; travelling	PM
	VP6	06/04/2021	18:58	Mallard	3	20	5	15	0	0	conifer plantation; travelling; dropped behind trees toward river	PM
	VP4	28/04/2021	16:55	Mallard	1	47	27	20	0	0	cutover bog; travelling; landed in drain, male	PM
	VP4	28/04/2021	20:12	Mallard	1	25	0	5	20	0	cutover bog; travelling; landed in drain	PM
	VP4	28/04/2021	20:12	Mallard	2	36	0	0	36	0	cutover bog; travelling	PM
	VP4	28/04/2021	21:11	Mallard	2	30	30	0	0	0	cutover bog; travelling; landed in drain	PM

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
	VP6	26/05/2021	06:14	Mallard	2	27	27	0	0	0	cutover bog and depositing/lowland rivers; travelling; landed in river, 2 males	PM
	VP6	26/05/2021	06:41	Mallard	3	126	0	26	100	0	depositing/lowland rivers and cutover bog; travelling, 3 males	PM
	VP6	30/07/2021	09:50	Mallard	1	75	0	0	75	0	cutover bog and conifer plantation; travelling	PM
	VP6	30/07/2021	11:36	Mallard	2	80	0	80	0	0	cutover bog; travelling	PM
	VP5	08/10/2021	08:12	Mallard	3	85	0	25	60	0	cutover bog and mixed conifer woodland; flying in wide circle over cutover bog and adjacent area	NM
	VP5	08/10/2021	12:43	Mallard	2	45	0	45	0	0	improved agricultural grassland; flying s across farmland	NM
	VP4	09/12/2021	07:51	Mallard	2	10	10	0	0	0	cutover bog and immature woodland; travelling	KB
	VP4	09/12/2021	08:05	Mallard	10	14	14	0	0	0	cutover bog and immature woodland; travelling	KB
	VP1	08/03/2022	14:16	Mallard	2	120	0	120	0	0	cutover bog; flying	NS
	VP1	15/03/2022	18:49	Mallard	2	24	24	0	0	0	cutover bog; flying	NS
	VP1	15/03/2022	19:02	Mallard	2	15	15	0	0	0	cutover bog; flying	NS
	VP1	15/03/2022	17:07	Mallard	2	25	0	25	0	0	cutover bog; flying	NS
	VP4	27/01/2022	11:54	Meadow Pipit	1	41	41	0	0	0	cutover bog; flying, perching on top of a floodlight	ZE
	VP4	27/01/2022	13:50	Meadow Pipit	1	21	21	0	0	0	cutover bog; flying	ZE
	VP6	31/01/2022	12:15	Meadow Pipit	1	4	4	0	0	0	lowland blanket bog; flying	ZE

Vantage Point Surveys												
Map Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-15m)	Band 2 (15-25m)	PCH (25-200m)	Band 4 (>200m)	Habitat and activity	Surveyor
	VP4	16/02/2022	11:17	Meadow Pipit	3	15	15	0	0	0	lowland blanket bog; flying	NS
	VP6	18/02/2022	12:25	Meadow Pipit	4	10	10	0	0	0	lowland blanket bog; flying, 6 flying around throughout the day	NS
	VP3	23/03/2022	15:10	Meadow Pipit	2	15	5	10	0	0	cutover bog; flying	ZOC
	VP3	23/03/2022	17:19	Meadow Pipit	3	20	20	0	0	0	cutover bog; flying	ZOC
	VP6	26/05/2021	06:37	Mute Swan	1	15	15	0	0	0	depositing/lowland rivers; flew along river before landing again	PM
	VP4	17/06/2021	16:16	Mute Swan	1	67	67	0	0	0	cutover bog, depositing/lowland rivers and conifer plantation; travelling; landed in river	PM
	VP5	08/10/2021	07:43	Mute Swan	16	65	0	65	0	0	improved agricultural grassland and hedgerows; flying e - low across farmland and hedgerows	NM
	VP4	27/01/2022	17:55	Mute Swan	5	13	0	13	0	0	cutover bog and conifer plantation; flying	ZE
	VP1	15/03/2022	18:57	Mute Swan	2	40	0	0	40	0	cutover bog; flying, not seen only heard	NS
	VP5	25/01/2022	13:58	Redwing	25	35	0	35	0	0	improved agricultural grassland; flying	ZE
	VP6	31/01/2022	12:32	Redwing	13	15	15	0	0	0	lowland blanket bog; flying	ZE
	VP6	31/01/2022	13:55	Redwing	12	20	0	20	0	0	lowland blanket bog; flying	ZE
	VP5	08/02/2022	10:18	Redwing	25	25	25	0	0	0	improved agricultural grassland; flying	NS
	VP4	16/02/2022	07:44	Redwing	30	20	0	20	0	0	lowland blanket bog; flying	NS
	VP5	22/03/2022	16:10	Redwing	2	10	10	0	0	0	hedgerows; flying	ZOC

Table 1-63 Vantage Point Survey Non-target Species Non-flight Data

Vantage Point Surveys							
Map Ref.	VP	Date	Time	Species	Number	Habitat and activity	Surveyor
	VP6	22/11/2021	17:03	Grey Heron	1	depositing/lowland rivers, improved grassland and cutover bog; calling	CR
	VP6	06/04/2021	20:43	Grey Heron	1	depositing/lowland rivers; calling from river	PM
	VP6	26/05/2021	05:34	Grey Heron	1	depositing/lowland rivers; calling from river, not seen	PM
	VP6	26/05/2021	06:21	Grey Heron	1	depositing/lowland rivers; calling from river, not seen	PM
	VP6	26/05/2021	09:30	Grey Heron	1	depositing/lowland rivers; calling, not seen	PM
	VP3	15/11/2021	16:42	Mistle Thrush	4	cutover bog; flying	CR
	VP6	22/11/2021	12:18	Mistle Thrush	10	improved grassland, cutover bog and highly modified/non-native woodland; flying/calling, observed throughout survey	CR
	VP4	28/04/2021	21:39	Mallard	1	cutover bog; calling, not seen	PM
	VP6	22/10/2021	12:07	Mallard	4	depositing/lowland rivers; swimming on river	NM
	VP4	16/11/2021	17:09	Mallard	1	lakes and ponds and cutover bog; calling, no visual	CR
	VP4	16/11/2021	17:14	Mallard	1	lakes and ponds and cutover bog; calling	CR
	VP4	28/04/2021	20:57	Moorhen	1	lakes and ponds; calling	PM
	VP6	15/12/2021	12:05	Moorhen	1	watercourses; calling heard	KB
	VP6	06/04/2021		Meadow Pipit			PM
	VP6	26/05/2021	05:45	Meadow Pipit	1	cutover bog; displaying	PM
	VP4	17/06/2021	17:12	Meadow Pipit	1	cutover bog; singing intermittently throughout the survey	PM
	VP6	30/06/2021	15:27	Meadow Pipit	2	cutover bog; displaying periodically throughout survey	PM
	VP6	30/07/2021	15:16	Meadow Pipit	4	cutover bog; present throughout survey	PM

Vantage Point Surveys							
Map Ref.	VP	Date	Time	Species	Number	Habitat and activity	Surveyor
	VP6	06/09/2021		Meadow Pipit			TRea
	VP4	07/09/2021		Meadow Pipit			TRea
	VP6	22/10/2021		Meadow Pipit			NM
	VP3	23/10/2021		Meadow Pipit			NM
	VP3	15/11/2021	11:29	Meadow Pipit	11	cutover bog; flying/calling, observed throughout survey	CR
	VP4	16/11/2021	12:00	Meadow Pipit	9	cutover bog; flying/calling	CR
	VP5	19/11/2021	13:30	Meadow Pipit	5	improved grassland; flying/calling	CR
	VP6	22/11/2021	11:05	Meadow Pipit	21	cutover bog and improved grassland; flying/calling, observed throughout the survey.	CR
	VP6	15/12/2021	09:50	Meadow Pipit	2	cutover bog and scrub; foraging	KB
	VP4	16/02/2022	10:13	Meadow Pipit	2	cutover bog; calling	NS
	VP1	08/03/2022	14:28	Meadow Pipit	8	cutover bog; calling, some displaying activity	NS
	VP4	10/03/2022	14:18	Meadow Pipit	20	cutover bog; flying and calling, up to 20 seen flying and calling in the area	NS
	VP6	30/07/2021	10:49	Mute Swan	1	depositing/lowland rivers; call	PM
	VP3	23/10/2021	11:41	Mute Swan	3	depositing/lowland rivers; swimming on river	NM
	VP6	17/02/2022	11:08	Mute Swan	1	depositing/lowland rivers; feeding	NS
	VP6	22/10/2021		Redwing			NM

Vantage Point Surveys							
Map Ref.	VP	Date	Time	Species	Number	Habitat and activity	Surveyor
	VP3	15/11/2021		Redwing			CR
	VP4	16/11/2021		Redwing			CR
	VP5	19/11/2021		Redwing			CR
	VP6	22/11/2021		Redwing			CR
	VP3	23/12/2021	11:21	Redwing	22	hedgerows; foraging	KB
	VP5	03/01/2022	08:08	Redwing	270	hedgerows; foraging	KB
	VP6	22/11/2021	15:59	Water Rail	2	depositing/lowland rivers; calling, at least two water rails heard calling continuously until 16:30.	CR
	VP4	19/10/2021	10:06	Yellowhammer	1	scrub, highly modified/non-native woodland and cutover bog; calling within willow scrub on fringes of bog	NM

Table 1-64 Non-target species data (Vantage Point and Walkover survey Records)

Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
06/04/2021	Vantage Point Survey, VP6	Skylark		PM
06/04/2021	Vantage Point Survey, VP6	Blackbird		PM
06/04/2021	Vantage Point Survey, VP6	Barn Swallow		PM
06/04/2021	Vantage Point Survey, VP6	Sand Martin		PM
06/04/2021	Vantage Point Survey, VP6	Hooded Crow		PM
06/04/2021	Vantage Point Survey, VP6	Magpie		PM
06/04/2021	Vantage Point Survey, VP6	Pheasant		PM
06/04/2021	Vantage Point Survey, VP6	Woodpigeon		PM
06/04/2021	Vantage Point Survey, VP6	Pied Wagtail		PM
06/04/2021	Vantage Point Survey, VP6	Raven		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Hooded Crow		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Jackdaw		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Wren		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Robin		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Chaffinch		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Blackbird		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Great Tit		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Chiffchaff		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Raven		PM



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Woodpigeon		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Song Thrush		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Linnet		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Skylark		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Great Tit		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Goldfinch		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Starling		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Willow Warbler		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Bullfinch		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Jay		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Lesser Redpoll		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Barn Swallow		PM
07/04/2021	Breeding Walkover Survey, 500M Survey Radius	Goldcrest		PM
28/04/2021	Vantage Point Survey, VP4	Raven		PM
28/04/2021	Vantage Point Survey, VP4	Hooded Crow		PM
28/04/2021	Vantage Point Survey, VP4	Woodpigeon		PM
28/04/2021	Vantage Point Survey, VP4	Barn Swallow		PM



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
28/04/2021	Vantage Point Survey, VP4	Sand Martin		PM
28/04/2021	Vantage Point Survey, VP4	Chaffinch		PM
28/04/2021	Vantage Point Survey, VP4	Robin		PM
28/04/2021	Vantage Point Survey, VP4	Blackbird		PM
28/04/2021	Vantage Point Survey, VP4	Cuckoo		PM
28/04/2021	Vantage Point Survey, VP4	Song Thrush		PM
28/04/2021	Vantage Point Survey, VP4	Great Tit		PM
28/04/2021	Vantage Point Survey, VP4	Chiffchaff		PM
28/04/2021	Vantage Point Survey, VP4	Wren		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	House Sparrow		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Woodpigeon		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Hooded Crow		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Wren		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Robin		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Cuckoo		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Song Thrush		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Dunnoek		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Chaffinch		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Skylark		PM



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Willow Warbler		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Stonechat		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Pheasant		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Sedge Warbler		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Chiffchaff		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Goldfinch		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Blackbird		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Starling		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Goldcrest		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Barn Swallow		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Raven		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Blue Tit		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Great Tit		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Sand Martin		PM
14/05/2021	Breeding Walkover Survey, 500m Survey Radius	Coal Tit		PM



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
21/05/2021	Vantage Point Survey, VP4	Woodpigeon		PM
21/05/2021	Vantage Point Survey, VP4	Raven		PM
21/05/2021	Vantage Point Survey, VP4	Hooded Crow		PM
21/05/2021	Vantage Point Survey, VP4	Mistle Thrush		PM
21/05/2021	Vantage Point Survey, VP4	Song Thrush		PM
21/05/2021	Vantage Point Survey, VP4	Blackbird		PM
21/05/2021	Vantage Point Survey, VP4	Willow Warbler		PM
21/05/2021	Vantage Point Survey, VP4	Robin		PM
21/05/2021	Vantage Point Survey, VP4	Wren		PM
21/05/2021	Vantage Point Survey, VP4	Chaffinch		PM
21/05/2021	Vantage Point Survey, VP4	Barn Swallow		PM
21/05/2021	Vantage Point Survey, VP4	Sand Martin		PM
26/05/2021	Vantage Point Survey, VP6	Blackbird		PM
26/05/2021	Vantage Point Survey, VP6	Robin		PM
26/05/2021	Vantage Point Survey, VP6	Barn Swallow		PM
26/05/2021	Vantage Point Survey, VP6	Sand Martin		PM
26/05/2021	Vantage Point Survey, VP6	Song Thrush		PM
26/05/2021	Vantage Point Survey, VP6	Skylark		PM
26/05/2021	Vantage Point Survey, VP6	Chaffinch		PM
26/05/2021	Vantage Point Survey, VP6	Chiffchaff		PM
26/05/2021	Vantage Point Survey, VP6	Goldfinch		PM
26/05/2021	Vantage Point Survey, VP6	Hooded Crow		PM
26/05/2021	Vantage Point Survey, VP6	Raven		PM
26/05/2021	Vantage Point Survey, VP6	Woodpigeon		PM
26/05/2021	Vantage Point Survey, VP6	Cuckoo		PM
17/06/2021	Vantage Point Survey, VP4	Mistle Thrush		PM
17/06/2021	Vantage Point Survey, VP4	Song Thrush		PM
17/06/2021	Vantage Point Survey, VP4	Robin		PM

Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
17/06/2021	Vantage Point Survey, VP4	Great Tit		PM
17/06/2021	Vantage Point Survey, VP4	Blue Tit		PM
17/06/2021	Vantage Point Survey, VP4	Sand Martin		PM
17/06/2021	Vantage Point Survey, VP4	Barn Swallow		PM
17/06/2021	Vantage Point Survey, VP4	House Martin		PM
17/06/2021	Vantage Point Survey, VP4	Hooded Crow		PM
17/06/2021	Vantage Point Survey, VP4	Raven		PM
17/06/2021	Vantage Point Survey, VP4	Woodpigeon		PM
17/06/2021	Vantage Point Survey, VP4	Starling		PM
17/06/2021	Vantage Point Survey, VP4	Chaffinch		PM
17/06/2021	Vantage Point Survey, VP4	Cuckoo		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Wren		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Hooded Crow		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Raven		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Cuckoo		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	House Sparrow		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Blackbird		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Robin		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Blue Tit		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Chiffchaff		PM



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Chaffinch		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Willow Warbler		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Skylark		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Sedge Warbler		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Woodpigeon		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Pied Wagtail		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Song Thrush		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Sand Martin		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Barn Swallow		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Whitethroat		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Mistle Thrush		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Goldcrest		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Jay		PM
18/06/2021	Breeding Walkover Survey, 500m Survey Radius	Lesser Redpoll		PM
30/06/2021	Vantage Point Survey, VP6	Sand Martin		PM
30/06/2021	Vantage Point Survey, VP6	Barn Swallow		PM

Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
30/06/2021	Vantage Point Survey, VP6	House Martin		PM
30/06/2021	Vantage Point Survey, VP6	Skylark		PM
30/06/2021	Vantage Point Survey, VP6	Woodpigeon		PM
30/06/2021	Vantage Point Survey, VP6	Raven		PM
30/06/2021	Vantage Point Survey, VP6	Robin		PM
30/06/2021	Vantage Point Survey, VP6	Wren		PM
30/06/2021	Vantage Point Survey, VP6	Blackbird		PM
30/06/2021	Vantage Point Survey, VP6	Whitethroat		PM
30/06/2021	Vantage Point Survey, VP6	Dunnock		PM
30/06/2021	Vantage Point Survey, VP6	Starling		PM
30/06/2021	Vantage Point Survey, VP6	Willow Warbler		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	House Sparrow		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Jackdaw		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Blackbird		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Woodpigeon		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Wren		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Robin		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Chaffinch		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Linnet		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Goldfinch		PM



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Stonechat		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Coal Tit		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Barn Swallow		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Chiffchaff		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Pied Wagtail		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Great Tit		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Blue Tit		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Lesser Redpoll		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Raven		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Jay		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Skylark		PM
23/07/2021	Breeding Walkover Survey, 500m Survey Radius	Hooded Crow		PM
27/07/2021	Vantage Point Survey, VP4	Hooded Crow		PM
27/07/2021	Vantage Point Survey, VP4	Raven		PM
27/07/2021	Vantage Point Survey, VP4	Woodpigeon		PM
27/07/2021	Vantage Point Survey, VP4	Jay		PM
27/07/2021	Vantage Point Survey, VP4	Sand Martin		PM



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
27/07/2021	Vantage Point Survey, VP4	Barn Swallow		PM
27/07/2021	Vantage Point Survey, VP4	Song Thrush		PM
27/07/2021	Vantage Point Survey, VP4	Chaffinch		PM
27/07/2021	Vantage Point Survey, VP4	Wren		PM
27/07/2021	Vantage Point Survey, VP4	Pied Wagtail		PM
27/07/2021	Vantage Point Survey, VP4	Blackbird		PM
27/07/2021	Vantage Point Survey, VP4	Great Tit		PM
30/07/2021	Vantage Point Survey, VP6	Raven		PM
30/07/2021	Vantage Point Survey, VP6	Hooded Crow		PM
30/07/2021	Vantage Point Survey, VP6	Woodpigeon		PM
30/07/2021	Vantage Point Survey, VP6	Song Thrush		PM
30/07/2021	Vantage Point Survey, VP6	Barn Swallow		PM
30/07/2021	Vantage Point Survey, VP6	Sand Martin		PM
30/07/2021	Vantage Point Survey, VP6	Goldfinch		PM
30/07/2021	Vantage Point Survey, VP6	Skylark		PM
19/08/2021	Vantage Point Survey, VP6	Hooded Crow		TRea
19/08/2021	Vantage Point Survey, VP6	Raven		TRea
19/08/2021	Vantage Point Survey, VP6	Woodpigeon		TRea
19/08/2021	Vantage Point Survey, VP6	Barn Swallow		TRea
19/08/2021	Vantage Point Survey, VP6	Mistle Thrush		TRea
19/08/2021	Vantage Point Survey, VP6	Stonechat		TRea
19/08/2021	Vantage Point Survey, VP6	Whitethroat		TRea
19/08/2021	Vantage Point Survey, VP6	Sand Martin		TRea
19/08/2021	Vantage Point Survey, VP6	Willow Warbler		TRea
19/08/2021	Vantage Point Survey, VP6	Barn Swallow		TRea
26/08/2021	Vantage Point Survey, VP4	Sand Martin		TRea
26/08/2021	Vantage Point Survey, VP4	Woodpigeon		TRea
26/08/2021	Vantage Point Survey, VP4	Raven		TRea



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
26/08/2021	Vantage Point Survey, VP4	Dunnock		TRea
26/08/2021	Vantage Point Survey, VP4	Robin		TRea
26/08/2021	Vantage Point Survey, VP4	Stonechat		TRea
06/09/2021	Vantage Point Survey, VP6	Hooded Crow		TRea
06/09/2021	Vantage Point Survey, VP6	Woodpigeon		TRea
06/09/2021	Vantage Point Survey, VP6	Raven		TRea
06/09/2021	Vantage Point Survey, VP6	Stonechat		TRea
06/09/2021	Vantage Point Survey, VP6	Sand Martin		TRea
06/09/2021	Vantage Point Survey, VP6	Mistle Thrush		TRea
06/09/2021	Vantage Point Survey, VP6	Whitethroat		TRea
07/09/2021	Vantage Point Survey, VP4	Woodpigeon		TRea
07/09/2021	Vantage Point Survey, VP4	Raven		TRea
07/09/2021	Vantage Point Survey, VP4	Robin		TRea
07/09/2021	Vantage Point Survey, VP4	Stonechat		TRea
07/09/2021	Vantage Point Survey, VP4	Wren		TRea
07/09/2021	Vantage Point Survey, VP4	Willow Warbler		TRea
07/09/2021	Vantage Point Survey, VP4	Goldfinch		TRea
07/09/2021	Vantage Point Survey, VP4	Sand Martin		TRea
07/09/2021	Vantage Point Survey, VP4	Goldcrest		TRea
07/09/2021	Vantage Point Survey, VP4	Great Tit		TRea
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Jay		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Mistle Thrush		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Blue Tit		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Long-tailed Tit		NM

Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Wren		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Magpie		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Linnet		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Robin		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Raven		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Woodpigeon		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Pheasant		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Goldcrest		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Great Tit		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Chaffinch		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Hooded Crow		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Stonechat		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Pied Wagtail		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Reed Bunting		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Duncock		NM



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Song Thrush		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Starling		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Skylark		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Bullfinch		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Goldfinch		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Siskin		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Chaffinch		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Jackdaw		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Rook		NM
21/10/2021	Winter Walkover Survey, 500m Survey Radius	Collared Dove		NM
22/10/2021	Vantage Point Survey, VP6	Blackbird		NM
22/10/2021	Vantage Point Survey, VP6	Raven		NM
22/10/2021	Vantage Point Survey, VP6	Wren		NM
22/10/2021	Vantage Point Survey, VP6	Stonechat		NM
22/10/2021	Vantage Point Survey, VP6	Linnet		NM
22/10/2021	Vantage Point Survey, VP6	Chaffinch		NM
22/10/2021	Vantage Point Survey, VP6	Pied Wagtail		NM
22/10/2021	Vantage Point Survey, VP6	Rook		NM
22/10/2021	Vantage Point Survey, VP6	Jackdaw		NM



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
22/10/2021	Vantage Point Survey, VP6	Pheasant		NM
22/10/2021	Vantage Point Survey, VP6	Starling		NM
22/10/2021	Vantage Point Survey, VP6	Goldfinch		NM
22/10/2021	Vantage Point Survey, VP6	Reed Bunting		NM
22/10/2021	Vantage Point Survey, VP6	Woodpigeon		NM
22/10/2021	Vantage Point Survey, VP6	Jay		NM
22/10/2021	Vantage Point Survey, VP6	Mistle Thrush		NM
22/10/2021	Vantage Point Survey, VP6	Great Tit		NM
23/10/2021	Vantage Point Survey, VP3	Chaffinch		NM
23/10/2021	Vantage Point Survey, VP3	Raven		NM
23/10/2021	Vantage Point Survey, VP3	Pied Wagtail		NM
23/10/2021	Vantage Point Survey, VP3	Robin		NM
23/10/2021	Vantage Point Survey, VP3	Blackbird		NM
23/10/2021	Vantage Point Survey, VP3	Wren		NM
23/10/2021	Vantage Point Survey, VP3	Linnet		NM
23/10/2021	Vantage Point Survey, VP3	Hooded Crow		NM
23/10/2021	Vantage Point Survey, VP3	Great Tit		NM
23/10/2021	Vantage Point Survey, VP3	Woodpigeon		NM
23/10/2021	Vantage Point Survey, VP3	Collared Dove		NM
23/10/2021	Vantage Point Survey, VP3	Rook		NM
15/11/2021	Vantage Point Survey, VP3	Magpie		CR
15/11/2021	Vantage Point Survey, VP3	Linnet		CR
15/11/2021	Vantage Point Survey, VP3	Jay		CR
15/11/2021	Vantage Point Survey, VP3	Great Tit		CR
15/11/2021	Vantage Point Survey, VP3	Blue Tit		CR
15/11/2021	Vantage Point Survey, VP3	Bullfinch		CR
15/11/2021	Vantage Point Survey, VP3	Dunnock		CR
15/11/2021	Vantage Point Survey, VP3	Woodpigeon		CR



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
15/11/2021	Vantage Point Survey, VP3	Jackdaw		CR
15/11/2021	Vantage Point Survey, VP3	Rook		CR
15/11/2021	Vantage Point Survey, VP3	Robin		CR
15/11/2021	Vantage Point Survey, VP3	Pied Wagtail		CR
15/11/2021	Vantage Point Survey, VP3	Wren		CR
15/11/2021	Vantage Point Survey, VP3	Blackbird		CR
15/11/2021	Vantage Point Survey, VP3	Hooded Crow		CR
16/11/2021	Vantage Point Survey, VP4	Jackdaw		CR
16/11/2021	Vantage Point Survey, VP4	Hooded Crow		CR
16/11/2021	Vantage Point Survey, VP4	Linnet		CR
16/11/2021	Vantage Point Survey, VP4	Raven		CR
16/11/2021	Vantage Point Survey, VP4	Wren		CR
16/11/2021	Vantage Point Survey, VP4	Magpie		CR
16/11/2021	Vantage Point Survey, VP4	Woodpigeon		CR
16/11/2021	Vantage Point Survey, VP4	Stonechat		CR
16/11/2021	Vantage Point Survey, VP4	Starling		CR
16/11/2021	Vantage Point Survey, VP4	Blackbird		CR
19/11/2021	Vantage Point Survey, VP5	Chaffinch		CR
19/11/2021	Vantage Point Survey, VP5	Hooded Crow		CR
19/11/2021	Vantage Point Survey, VP5	Magpie		CR
19/11/2021	Vantage Point Survey, VP5	Blackbird		CR
19/11/2021	Vantage Point Survey, VP5	Robin		CR
19/11/2021	Vantage Point Survey, VP5	Jackdaw		CR
19/11/2021	Vantage Point Survey, VP5	Woodpigeon		CR
19/11/2021	Vantage Point Survey, VP5	Duncock		CR
19/11/2021	Vantage Point Survey, VP5	Wren		CR
19/11/2021	Vantage Point Survey, VP5	Blue Tit		CR
19/11/2021	Vantage Point Survey, VP5	Starling		CR



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
19/11/2021	Vantage Point Survey, VP5	Bullfinch		CR
19/11/2021	Vantage Point Survey, VP5	Rook		CR
19/11/2021	Vantage Point Survey, VP5	Jay		CR
19/11/2021	Vantage Point Survey, VP5	Raven		CR
19/11/2021	Vantage Point Survey, VP5	Great Tit		CR
19/11/2021	Vantage Point Survey, VP5	Pied Wagtail		CR
19/11/2021	Vantage Point Survey, VP5	Coal Tit		CR
22/11/2021	Vantage Point Survey, VP6	Starling		CR
22/11/2021	Vantage Point Survey, VP6	Song Thrush		CR
22/11/2021	Vantage Point Survey, VP6	Blackbird		CR
22/11/2021	Vantage Point Survey, VP6	Stonechat		CR
22/11/2021	Vantage Point Survey, VP6	Chaffinch		CR
22/11/2021	Vantage Point Survey, VP6	Raven		CR
22/11/2021	Vantage Point Survey, VP6	Woodpigeon		CR
22/11/2021	Vantage Point Survey, VP6	Duncock		CR
22/11/2021	Vantage Point Survey, VP6	Wren		CR
22/11/2021	Vantage Point Survey, VP6	Long-tailed Tit		CR
22/11/2021	Vantage Point Survey, VP6	Hooded Crow		CR
22/11/2021	Vantage Point Survey, VP6	Blue Tit		CR
22/11/2021	Vantage Point Survey, VP6	Reed Bunting		CR
22/11/2021	Vantage Point Survey, VP6	Pheasant		CR
09/12/2021	Vantage Point Survey, VP4	Blue Tit		KB
09/12/2021	Vantage Point Survey, VP4	Robin		KB
09/12/2021	Vantage Point Survey, VP4	Blackbird		KB
09/12/2021	Vantage Point Survey, VP4	Woodpigeon		KB
09/12/2021	Vantage Point Survey, VP4	Starling		KB
09/12/2021	Vantage Point Survey, VP4	Wren		KB
09/12/2021	Vantage Point Survey, VP4	Long-tailed Tit		KB



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
09/12/2021	Vantage Point Survey, VP4	Hooded Crow		KB
09/12/2021	Vantage Point Survey, VP4	Raven		KB
09/12/2021	Vantage Point Survey, VP4	Great Tit		KB
09/12/2021	Vantage Point Survey, VP4	Bullfinch		KB
15/12/2021	Vantage Point Survey, VP6	Wren		KB
15/12/2021	Vantage Point Survey, VP6	Blackbird		KB
15/12/2021	Vantage Point Survey, VP6	Starling		KB
15/12/2021	Vantage Point Survey, VP6	Bullfinch		KB
15/12/2021	Vantage Point Survey, VP6	Hooded Crow		KB
15/12/2021	Vantage Point Survey, VP6	Raven		KB
15/12/2021	Vantage Point Survey, VP6	Reed Bunting		KB
15/12/2021	Vantage Point Survey, VP6	Lesser Redpoll		KB
15/12/2021	Vantage Point Survey, VP6	Fieldfare		KB
15/12/2021	Vantage Point Survey, VP6	Pheasant		KB
15/12/2021	Vantage Point Survey, VP6	Stonechat		KB
15/12/2021	Vantage Point Survey, VP6	Blue Tit		KB
15/12/2021	Vantage Point Survey, VP6	Song Thrush		KB
15/12/2021	Vantage Point Survey, VP6	Great Tit		KB
23/12/2021	Vantage Point Survey, VP3	Robin		KB
23/12/2021	Vantage Point Survey, VP3	Wren		KB
23/12/2021	Vantage Point Survey, VP3	Starling		KB
23/12/2021	Vantage Point Survey, VP3	Pied Wagtail		KB
23/12/2021	Vantage Point Survey, VP3	Reed Bunting		KB
23/12/2021	Vantage Point Survey, VP3	Mistle Thrush		KB
23/12/2021	Vantage Point Survey, VP3	Blackbird		KB
23/12/2021	Vantage Point Survey, VP3	Lesser Redpoll		KB
23/12/2021	Vantage Point Survey, VP3	Raven		KB
23/12/2021	Vantage Point Survey, VP3	Blue Tit		KB



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
23/12/2021	Vantage Point Survey, VP3	Coal Tit		KB
23/12/2021	Vantage Point Survey, VP3	Bullfinch		KB
23/12/2021	Vantage Point Survey, VP3	Great Tit		KB
23/12/2021	Vantage Point Survey, VP3	Woodpigeon		KB
03/01/2022	Vantage Point Survey, VP5	Blackbird		KB
03/01/2022	Vantage Point Survey, VP5	Robin		KB
03/01/2022	Vantage Point Survey, VP5	Wren		KB
03/01/2022	Vantage Point Survey, VP5	Magpie		KB
03/01/2022	Vantage Point Survey, VP5	Rook		KB
03/01/2022	Vantage Point Survey, VP5	Coal Tit		KB
03/01/2022	Vantage Point Survey, VP5	Long-tailed Tit		KB
03/01/2022	Vantage Point Survey, VP5	Starling		KB
03/01/2022	Vantage Point Survey, VP5	Woodpigeon		KB
03/01/2022	Vantage Point Survey, VP5	Jackdaw		KB
03/01/2022	Vantage Point Survey, VP5	Raven		KB
03/01/2022	Vantage Point Survey, VP5	Hooded Crow		KB
03/01/2022	Vantage Point Survey, VP5	Fieldfare		KB
03/01/2022	Vantage Point Survey, VP5	Song Thrush		KB
03/01/2022	Vantage Point Survey, VP5	Chaffinch		KB
03/01/2022	Vantage Point Survey, VP5	Blue Tit		KB
03/01/2022	Vantage Point Survey, VP5	Great Tit		KB
03/01/2022	Vantage Point Survey, VP5	Dunnock		KB
25/01/2022	Vantage Point Survey, VP5	Raven		ZE
25/01/2022	Vantage Point Survey, VP5	Wren		ZE
25/01/2022	Vantage Point Survey, VP5	Robin		ZE
25/01/2022	Vantage Point Survey, VP5	Blackbird		ZE
25/01/2022	Vantage Point Survey, VP5	Rook		ZE
25/01/2022	Vantage Point Survey, VP5	House Sparrow		ZE



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
25/01/2022	Vantage Point Survey, VP5	Starling	large flocks over the fields	ZE
25/01/2022	Vantage Point Survey, VP5	Song Thrush		ZE
25/01/2022	Vantage Point Survey, VP5	Great Tit		ZE
25/01/2022	Vantage Point Survey, VP5	Magpie		ZE
25/01/2022	Vantage Point Survey, VP5	Jackdaw		ZE
25/01/2022	Vantage Point Survey, VP5	Woodpigeon		ZE
25/01/2022	Vantage Point Survey, VP5	Hooded Crow		ZE
25/01/2022	Vantage Point Survey, VP5	Goldcrest		ZE
25/01/2022	Vantage Point Survey, VP5	Blue Tit		ZE
25/01/2022	Vantage Point Survey, VP5	Dunnock		ZE
25/01/2022	Vantage Point Survey, VP5	Chiffchaff		ZE
25/01/2022	Vantage Point Survey, VP5	Pied Wagtail		ZE
26/01/2022	Vantage Point Survey, VP3	Rook		ZE
26/01/2022	Vantage Point Survey, VP3	Raven		ZE
26/01/2022	Vantage Point Survey, VP3	Magpie		ZE
26/01/2022	Vantage Point Survey, VP3	Hooded Crow		ZE
26/01/2022	Vantage Point Survey, VP3	Pied Wagtail		ZE
26/01/2022	Vantage Point Survey, VP3	Woodpigeon		ZE
26/01/2022	Vantage Point Survey, VP3	Starling	large flocks over the fields	ZE
27/01/2022	Vantage Point Survey, VP4	Raven		ZE
27/01/2022	Vantage Point Survey, VP4	Rook		ZE
27/01/2022	Vantage Point Survey, VP4	Woodpigeon		ZE
27/01/2022	Vantage Point Survey, VP4	Blackbird		ZE
27/01/2022	Vantage Point Survey, VP4	Wren		ZE
27/01/2022	Vantage Point Survey, VP4	Song Thrush		ZE
27/01/2022	Vantage Point Survey, VP4	Long-tailed Tit		ZE
27/01/2022	Vantage Point Survey, VP4	Coal Tit		ZE
27/01/2022	Vantage Point Survey, VP4	Magpie		ZE



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
27/01/2022	Vantage Point Survey, VP4	Robin		ZE
27/01/2022	Vantage Point Survey, VP4	Dunnock		ZE
27/01/2022	Vantage Point Survey, VP4	Blue Tit		ZE
27/01/2022	Vantage Point Survey, VP4	Robin		ZE
27/01/2022	Vantage Point Survey, VP4	Hooded Crow		ZE
27/01/2022	Vantage Point Survey, VP4	Starling	large flocks flying north	ZE
27/01/2022	Vantage Point Survey, VP4	Reed Bunting		ZE
31/01/2022	Vantage Point Survey, VP6	Great Tit		ZE
31/01/2022	Vantage Point Survey, VP6	Raven		ZE
31/01/2022	Vantage Point Survey, VP6	Rook		ZE
31/01/2022	Vantage Point Survey, VP6	Wren		ZE
31/01/2022	Vantage Point Survey, VP6	Fieldfare		ZE
31/01/2022	Vantage Point Survey, VP6	Woodpigeon		ZE
31/01/2022	Vantage Point Survey, VP6	Robin		ZE
31/01/2022	Vantage Point Survey, VP6	Magpie		ZE
31/01/2022	Vantage Point Survey, VP6	Starling		ZE
31/01/2022	Vantage Point Survey, VP6	Goldfinch		ZE
31/01/2022	Vantage Point Survey, VP6	Reed Bunting		ZE
31/01/2022	Vantage Point Survey, VP6	Blue Tit		ZE
31/01/2022	Vantage Point Survey, VP6	Song Thrush		ZE
31/01/2022	Vantage Point Survey, VP6	Lesser Redpoll		ZE
08/02/2022	Vantage Point Survey, VP5	Blackbird	flying	NS
08/02/2022	Vantage Point Survey, VP5	Wren	calling	NS
08/02/2022	Vantage Point Survey, VP5	Raven	flying and calling	NS
08/02/2022	Vantage Point Survey, VP5	Woodpigeon	flying and calling	NS
08/02/2022	Vantage Point Survey, VP5	Hooded Crow	flying	NS
08/02/2022	Vantage Point Survey, VP5	Magpie	flying and calling	NS
08/02/2022	Vantage Point Survey, VP5	Bullfinch	perched in hedge	NS



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
08/02/2022	Vantage Point Survey, VP5	Blue Tit	flying	NS
08/02/2022	Vantage Point Survey, VP5	Woodpigeon	flying and calling	NS
08/02/2022	Vantage Point Survey, VP5	Dunnock	calling, flying and in hedge	NS
08/02/2022	Vantage Point Survey, VP5	Great Tit	flying	NS
08/02/2022	Vantage Point Survey, VP5	Pied Wagtail	flying and calling	NS
08/02/2022	Vantage Point Survey, VP5	Jackdaw	flying and calling	NS
08/02/2022	Vantage Point Survey, VP5	Mistle Thrush	flying	NS
08/02/2022	Vantage Point Survey, VP5	Robin	flying	NS
08/02/2022	Vantage Point Survey, VP5	Rook	flying and calling	NS
08/02/2022	Vantage Point Survey, VP5	Starling	flying and in field	NS
15/02/2022	Vantage Point Survey, VP3	Robin	flying	NS
15/02/2022	Vantage Point Survey, VP3	Wren	calling and flying	NS
15/02/2022	Vantage Point Survey, VP3	Song Thrush	calling and perched in tree	NS
15/02/2022	Vantage Point Survey, VP3	Raven	flying and calling	NS
15/02/2022	Vantage Point Survey, VP3	Hooded Crow	flying	NS
15/02/2022	Vantage Point Survey, VP3	Rook	flying	NS
15/02/2022	Vantage Point Survey, VP3	Woodpigeon	flying and calling	NS
15/02/2022	Vantage Point Survey, VP3	Magpie	flying	NS
16/02/2022	Vantage Point Survey, VP4	Robin	flying	NS
16/02/2022	Vantage Point Survey, VP4	Hooded Crow	flying	NS
16/02/2022	Vantage Point Survey, VP4	Raven	flying and calling	NS
16/02/2022	Vantage Point Survey, VP4	Fieldfare	flying	NS
16/02/2022	Vantage Point Survey, VP4	Blackbird	flying	NS
16/02/2022	Vantage Point Survey, VP4	Siskin	flying, calling and perched in tree	NS
17/02/2022	Vantage Point Survey, VP6	Wren	calling	NS



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
17/02/2022	Vantage Point Survey, VP6	Raven	flying and calling	NS
17/02/2022	Vantage Point Survey, VP6	Rook	flying	NS
17/02/2022	Vantage Point Survey, VP6	Great Tit	flying	NS
17/02/2022	Vantage Point Survey, VP6	Reed Bunting	flying and perched on bush	NS
17/02/2022	Vantage Point Survey, VP6	Fieldfare	flying	NS
17/02/2022	Vantage Point Survey, VP6	Goldfinch	flying	NS
17/02/2022	Vantage Point Survey, VP6	Magpie	flying	NS
17/02/2022	Vantage Point Survey, VP6	Blackbird	flying	NS
17/02/2022	Vantage Point Survey, VP6	Woodpigeon	calling	NS
17/02/2022	Vantage Point Survey, VP6	Robin	flying	NS
17/02/2022	Vantage Point Survey, VP6	Starling	flying	NS
09/03/2022	Vantage Point Survey, VP6	Hooded Crow		NS
09/03/2022	Vantage Point Survey, VP6	Magpie		NS
09/03/2022	Vantage Point Survey, VP6	Woodpigeon		NS
09/03/2022	Vantage Point Survey, VP6	Blue Tit		NS
09/03/2022	Vantage Point Survey, VP6	Long-tailed Tit		NS
09/03/2022	Vantage Point Survey, VP6	Raven		NS
09/03/2022	Vantage Point Survey, VP6	Stonechat		NS
09/03/2022	Vantage Point Survey, VP6	Wren		NS
09/03/2022	Vantage Point Survey, VP6	Duncock		NS
09/03/2022	Vantage Point Survey, VP6	Chaffinch		NS
09/03/2022	Vantage Point Survey, VP6	Robin		NS
10/03/2022	Vantage Point Survey, VP4	Rook		NS
10/03/2022	Vantage Point Survey, VP4	Lesser Redpoll		NS
10/03/2022	Vantage Point Survey, VP4	Siskin		NS
10/03/2022	Vantage Point Survey, VP4	Wren		NS
10/03/2022	Vantage Point Survey, VP4	Hooded Crow		NS



Non-Target Species Records				
Date	Survey	Species	Notes	Surveyor
10/03/2022	Vantage Point Survey, VP4	Starling	large flock c1000	NS
10/03/2022	Vantage Point Survey, VP4	Song Thrush		NS
10/03/2022	Vantage Point Survey, VP4	Raven		NS
10/03/2022	Vantage Point Survey, VP4	Stonechat		NS
10/03/2022	Vantage Point Survey, VP4	Chaffinch		NS
22/03/2022	Vantage Point Survey, VP5	Raven		ZOC
22/03/2022	Vantage Point Survey, VP5	Robin		ZOC
22/03/2022	Vantage Point Survey, VP5	Hooded Crow		ZOC
22/03/2022	Vantage Point Survey, VP5	Dunnock		ZOC
22/03/2022	Vantage Point Survey, VP5	Great Tit		ZOC
22/03/2022	Vantage Point Survey, VP5	Rook		ZOC
22/03/2022	Vantage Point Survey, VP5	Woodpigeon		ZOC
22/03/2022	Vantage Point Survey, VP5	Wren		ZOC
22/03/2022	Vantage Point Survey, VP5	Starling		ZOC
22/03/2022	Vantage Point Survey, VP5	Magpie		ZOC
22/03/2022	Vantage Point Survey, VP5	Blackbird		ZOC
23/03/2022	Vantage Point Survey, VP3	Raven		ZOC
23/03/2022	Vantage Point Survey, VP3	Jay		ZOC
23/03/2022	Vantage Point Survey, VP3	Wren		ZOC
23/03/2022	Vantage Point Survey, VP3	Hooded Crow		ZOC
23/03/2022	Vantage Point Survey, VP3	Rook		ZOC

Table 1-65 Walkover Non-target Species Data

Walkover Survey Records						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
	07/04/2021	07:11	Grey Heron	2	wet grassland; travelling (flyover; non-breeding)	PM
	07/04/2021	07:13	Mallard	1	wet grassland; circling/travelling (flyover; non-breeding)	PM
	07/04/2021	07:16	Mallard	2	wet grassland; circling (flyover; non-breeding)	PM
	07/04/2021	09:15	Mute Swan	1	lakes and ponds; feeding (suitable nesting habitat; possible breeder)	PM
	07/04/2021	09:21	Ringed Plover	1	cutover bog; feeding (suitable nesting habitat; possible breeder)	PM
	07/04/2021	09:21	Mute Swan	1	cutover bog and lakes and ponds; feeding (suitable nesting habitat; possible breeder)	PM
	07/04/2021	09:32	Mallard	1	cutover bog; travelling (flyover; non-breeding)	PM
	07/04/2021	09:32	Grey Heron	1	cutover bog and immature woodland; travelling (flyover; non-breeding)	PM
	07/04/2021	09:36	Mute Swan	2	cutover bog; travelling (flyover; non-breeding)	PM
	07/04/2021	09:21	Moorhen	1	cutover bog and lakes and ponds; calling (suitable nesting habitat; possible breeder)	PM
	07/04/2021	10:33	Mute Swan	3	depositing/lowland rivers; feeding, one farmyard goose present also (summering; non-breeding)	PM
	07/04/2021	10:33	Mallard	2	cutover bog; flushed, 2 males (summering; non-breeding)	PM
	07/04/2021	10:33	Lesser Black-backed Gull	1	cutover bog; travelling (flyover; non-breeding)	PM
	07/04/2021	12:38	Mallard	1	cutover bog; flushed from reeds, female (suitable nesting habitat; possible breeder)	PM
	07/04/2021		Meadow Pipit			PM
	14/05/2021	07:41	Meadow Pipit	1	cutover bog; carrying food (adult carrying food/faecal sac; confirmed breeding)	PM

Walkover Survey Records						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
	14/05/2021	07:59	Grey Heron	1	recently-felled woodland; travelling (flyover; non-breeding)	PM
	14/05/2021	08:05	Black-headed Gull	2	cutover bog; being mobbed by 1. (flyover; non-breeding)	PM
	14/05/2021	08:18	Meadow Pipit	1	raised bog; displaying (courtship and display; probable breeding)	PM
	14/05/2021	09:23	Mallard	1	depositing/lowland rivers; flushed (flyover; non-breeding)	PM
	14/05/2021	09:26	Mallard	2	cutover bog; flushed (flyover; non-breeding)	PM
	14/05/2021	09:26	Mute Swan	1	depositing/lowland rivers; preening on bank, 2cy; with a white farmyard goose (summering; non-breeding)	PM
	14/05/2021	09:28	Meadow Pipit	1	cutover bog; perched (suitable nesting habitat; possible breeder)	PM
	14/05/2021	10:05	Meadow Pipit	1	cutover bog; displaying (courtship and display; probable breeding)	PM
	14/05/2021	10:13	Meadow Pipit	1	cutover bog; displaying (courtship and display; probable breeding)	PM
	14/05/2021	10:22	Mallard	2	cutover bog; flushed from drain (summering; non-breeding)	PM
	18/06/2021	05:24	Meadow Pipit	1	wet grassland; singing (singing male; possible breeder)	PM
	18/06/2021	07:20	Meadow Pipit	1	cutover bog; singing (singing male; possible breeder)	PM
	18/06/2021	07:49	Ringed Plover	1	cutover bog; feeding (suitable nesting habitat; possible breeder)	PM
	18/06/2021	07:49	Grey Heron	1	cutover bog; feeding (summering; non-breeding)	PM
	18/06/2021	07:49	Mallard	2	cutover bog; circling; calling, 2 males (summering; non-breeding)	PM

Walkover Survey Records						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
	18/06/2021	07:49	Black-headed Gull	1	cutover bog; calling (summering; non-breeding)	PM
	18/06/2021	09:09	Meadow Pipit	2	cutover bog; singing (singing male; possible breeder)	PM
	18/06/2021	09:54	Meadow Pipit	1	cutover bog; singing (singing male; possible breeder)	PM
	23/07/2021	08:01	Grey Heron	3	cutover bog; feeding (summering; non-breeding)	PM
	23/07/2021	08:01	Mallard	5	cutover bog; flew from flood (summering; non-breeding)	PM
	23/07/2021	08:01	Little Grebe	1	cutover bog; calling (suitable nesting habitat; possible breeder)	PM
	23/07/2021	08:01	Mallard	4	cutover bog; flushed (summering; non-breeding)	PM
	23/07/2021	08:01	Grey Heron	1	cutover bog; flushed (summering; non-breeding)	PM
	23/07/2021	08:27	Grey Heron	1	conifer plantation and cutover bog; travelling (flyover; non-breeding)	PM
	23/07/2021	09:10	Grey Heron	2	cutover bog and depositing/lowland rivers; travelling (flyover; non-breeding)	PM
	23/07/2021	09:14	Mute Swan	5	depositing/lowland rivers; feeding, 2ad & 3 juv (fledged young; confirmed breeding)	PM
	23/07/2021	09:41	Meadow Pipit	5	cutover bog; on bog, possibly a family flock (flyover; non-breeding)	PM
	20/10/2021	10:29	Grey Heron	1	scrub and cutover bog; flying across scrubby bog fringes and wetland (wintering)	NM
	21/10/2021	09:37	Mallard	5	lakes and ponds; swimming and calling on lake, fl (wintering)	NM
	21/10/2021	11:10	Mute Swan	1	depositing/lowland rivers; swimming on river (wintering)	NM
	21/10/2021		Meadow Pipit			NM
	27/01/2022	14:55	Redwing	8	conifer plantation; fly (wintering)	AOD
	27/01/2022	13:30	Meadow Pipit	6	cutover bog; fly (wintering)	AOD

Walkover Survey Records						
Map Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
	27/01/2022	13:40	Grey Heron	1	depositing/lowland rivers; fly, flew from inny (wintering)	AOD
	27/01/2022	14:57	Mute Swan	2	depositing/lowland rivers; foraging, pair on inny (wintering)	AOD
	28/01/2022	13:12	Meadow Pipit	2	wet grassland; fly (wintering)	AOD
	28/01/2022	15:12	Little Grebe	5	lakes and ponds; flying (wintering)	AOD
	28/01/2022	15:12	Mute Swan	1	lakes and ponds; feeding (wintering)	AOD
	28/01/2022	16:56	Mute Swan	11	lakes and ponds; foraging (wintering)	AOD
	22/02/2022	16:11	Mute Swan	2	lakes and ponds; feeding (wintering)	AOD
	22/02/2022	17:11	Mute Swan	2	cutover bog; feeding (wintering)	AOD
	22/02/2022	14:13	Meadow Pipit	4	cutover bog and wet grassland; fly (wintering)	AOD
	22/02/2022	17:13	Meadow Pipit	3	cutover bog; fly (wintering)	AOD
	23/02/2022	14:22	Redwing	30	wet grassland; fly (wintering)	AOD
	23/02/2022	14:22	Meadow Pipit	2	wet grassland; fly (wintering)	AOD
	23/02/2022	17:09	Meadow Pipit	2	cutover bog; displaying, display (courtship and display; probable breeding)	AOD
	23/02/2022	17:28	Mute Swan	2	lakes and ponds; flying (wintering)	AOD
	23/02/2022	17:28	Little Grebe	2	lakes and ponds; flying (wintering)	AOD

Table 1-66 Wildfowl Distribution Non-target Species Data

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BH001	L. Kinale	16/09/2021	10:49	Black-headed Gull	13	mesotrophic lakes; flying and swooping over lake	NM
CM002	L. Sheelin	16/09/2021	08:49	Common Gull	5	mesotrophic lakes; swirling and circling over lake - often diving and landing briefly on lake surface	NM
CM004	L. Kinale	16/09/2021	10:57	Common Gull	2	mesotrophic lakes; flying over lake	NM
CM003	L. Sheelin	16/09/2021	10:05	Common Gull	3	mesotrophic lakes; flying and wheeling over lake	NM
CM001		16/09/2021	08:47	Common Gull	6	mesotrophic lakes; flying across lake - numerous flyovers near s3	NM
GA001	Derragh Lough	16/09/2021	12:15	Gadwall	24	mesotrophic lakes; swimming and dabbling along lake fringes, all along s shore	NM
GG007	L. Sheelin	16/09/2021	10:00	Great Crested Grebe	15	mesotrophic lakes; swimming on lake (with juveniles present)	NM
GG004	L. Sheelin	16/09/2021	08:50	Great Crested Grebe	5	mesotrophic lakes; swimming on lake (including 2x juveniles)	NM
GG001		16/09/2021	16:26	Great Crested Grebe	5	mesotrophic lakes; swimming on lake	NM
GG002	L. Sheelin	16/09/2021	08:34	Great Crested Grebe	3	mesotrophic lakes; swimming on lake	NM
GG003	L. Sheelin	16/09/2021	08:37	Great Crested Grebe	7	mesotrophic lakes; swimming on lake	NM
GG005	L. Sheelin	16/09/2021	08:55	Great Crested Grebe	1	mesotrophic lakes; swimming on lake	NM
GG009	L. Kinale	16/09/2021	11:28	Great Crested Grebe	5	mesotrophic lakes; swimming and diving on lake (with 1 juvenile present)	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG006	S2	16/09/2021	09:16	Great Crested Grebe	8	mesotrophic lakes; swimming and diving on lake (+ 1 juvenile)	NM
GG008	L. Kinale	16/09/2021	10:52	Great Crested Grebe	13	mesotrophic lakes; swimming and diving on lake	NM
H001	L. Bracklagh	16/09/2021	10:40	Grey Heron	1	mesotrophic lakes; wading on edge of reedbed at lake fringe	NM
H002	BN2	16/09/2021	14:23	Grey Heron	1	cutover bog; perched within bog wetland	NM
H003	R. Inny	16/09/2021	15:25	Grey Heron	1	amenity grassland (improved) and depositing/lowland rivers; perched on grassy bank of river	NM
H004	Derragh Lough	16/09/2021	12:28	Grey Heron	1	mixed broadleaved woodland and mesotrophic lakes; flying s along w side of lake	NM
H005	L. Kinale	16/09/2021	11:12	Grey Heron	1	mesotrophic lakes; flying s across reedy lake fringes	NM
H006		16/09/2021	08:33	Grey Heron	2	mesotrophic lakes; flying n along lake shore	NM
H007	L. Sheelin	16/09/2021	08:47	Grey Heron	1	mesotrophic lakes; calling within reeds along lake shore	NM
LB001		16/09/2021	16:26	Lesser Black-backed Gull	1	mixed conifer woodland; flying w	NM
LB006	L. Kinale	16/09/2021	11:31	Lesser Black-backed Gull	2	mesotrophic lakes; flying sw across lake - swooping close to surface on occasion	NM
LB001		16/09/2021	09:39	Lesser Black-backed Gull	2	immature woodland and cutover bog; flying sw across bog and woodland	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
LB002		16/09/2021	09:27	Lesser Black-backed Gull	1	mixed conifer woodland, hedgerows and improved agricultural grassland; flying se	NM
LB005	L. Kinale	16/09/2021	10:08	Lesser Black-backed Gull	1	mesotrophic lakes and scrub; flying s along w lake shore	NM
LB003		16/09/2021	09:48	Lesser Black-backed Gull	5	raised bog and immature woodland; flying over land just to s of lake	NM
LB004	S1	16/09/2021	09:47	Lesser Black-backed Gull	2	mesotrophic lakes, immature woodland and mixed broadleaved woodland; flying e along lake shore	NM
LB002		16/09/2021	08:46	Lesser Black-backed Gull	3	mesotrophic lakes; flying across lake	NM
LG003		16/09/2021	13:24	Little Grebe	3	dystrophic lakes and cutover bog; swimming on diving on flooded bog - bog pool	NM
LG002		16/09/2021	16:30	Little Grebe	2	depositing/lowland rivers; swimming and diving on river	NM
LG008	L. Sheelin	16/09/2021	10:03	Little Grebe	9	mesotrophic lakes; swimming and diving on lake - close to reed bed border	NM
LG001	L. Bracklagh	16/09/2021	10:40	Little Grebe	7	mesotrophic lakes; swimming and diving on lake	NM
LG004	Derragh Lough	16/09/2021	12:23	Little Grebe	11	mesotrophic lakes; calling within reedbeds	NM
LG006	S1	16/09/2021	10:07	Little Grebe	3	mesotrophic lakes; calling and swimming within edge reeds	NM
LG005	L. Sheelin	16/09/2021	09:17	Little Grebe	3	mesotrophic lakes; calling and diving within overhanging boughs of willow and ashe	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
LG007	L. Sheelin	16/09/2021	09:47	Little Grebe	4	mesotrophic lakes and reed and large sedge swamps; calling along lake shore	NM
MA001	L. Sheelin	16/09/2021	09:17	Mallard	7	mesotrophic lakes; swimming on lake and around weedy fringes	NM
MA002		16/09/2021	17:00	Mallard	12	mesotrophic lakes; swimming on lake	NM
MA003	L. Kinale	16/09/2021	11:32	Mallard	11	mesotrophic lakes; swimming and dabbling within reeds and floating vegetation	NM
MA004	BN2	16/09/2021	14:12	Mallard	6	cutover bog; roosting on bare peat within flooded bog area	NM
MA005	Derragh Lough	16/09/2021	12:15	Mallard	49	mesotrophic lakes; dabbling on lake, throughout lake	NM
MA006	L. Sheelin	16/09/2021	08:50	Mallard	4	mesotrophic lakes; calling and frequent noise from reedy fringes	NM
MH001	L. Bracklagh	16/09/2021	10:40	Moorhen	6	mesotrophic lakes; wading within reedbed at lake fringe, most likely a lot more individuals around reedbed perimeter of lake	NM
MH002	L. Sheelin	16/09/2021	08:37	Moorhen	7	reed and large sedge swamps and mesotrophic lakes; wading at reedy fringes of lake	NM
MH003	R. Inny - Carnagh Br.	16/09/2021	15:25	Moorhen	3	depositing/lowland rivers; swimming on weedy river	NM
MH004		16/09/2021	16:30	Moorhen	2	depositing/lowland rivers; swimming on river	NM
MH005		16/09/2021	16:27	Moorhen	18	mesotrophic lakes; swimming at reedbed fringe on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MH006	BN2	16/09/2021	14:21	Moorhen	2	cutover bog; calling within reedy part of bog wetland	NM
MH007	L. Sheelin	16/09/2021	09:19	Moorhen	3	mesotrophic lakes; calling within reedy fringes of lake	NM
MH008	L. Sheelin	16/09/2021	10:12	Moorhen	5	mesotrophic lakes; calling within reeds and overhanging trees at edge of lake	NM
MH009	L. Sheelin	16/09/2021	08:30	Moorhen	3	mesotrophic lakes and reed and large sedge swamps; calling within reeds	NM
MH010	L. Sheelin	16/09/2021	09:57	Moorhen	13	mesotrophic lakes; calling from lakes edge + swimming amongst reed beds	NM
MH011	L. Sheelin	16/09/2021	09:50	Moorhen	3	mesotrophic lakes; calling from edge of lake	NM
MH012	Derragh Lough	16/09/2021	12:17	Moorhen	26	mesotrophic lakes; calling and wading within reedy lake fringes, throughout lake	NM
	R. Inny	16/09/2021	16:10	Mute Swan	3	depositing/lowland rivers; swimming on river - 2 adults + 1 juvenile	NM
	R. Inny	16/09/2021	15:53	Mute Swan	5	depositing/lowland rivers; swimming on river	NM
	L. Sheelin	16/09/2021	09:58	Mute Swan	8	mesotrophic lakes; swimming on lake and around small islands	NM
	Derrach Lough	16/09/2021	12:14	Mute Swan	88	mesotrophic lakes; swimming on lake + social calls (+ with 4 juveniles), throughout lake	NM
	L. Bracklagh	16/09/2021	10:41	Mute Swan	9	mesotrophic lakes; swimming on lake, 5 adults + 4 juveniles	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
		16/09/2021	16:27	Mute Swan	19	mesotrophic lakes; swimming on lake	NM
	L. Sheelin	16/09/2021	08:34	Mute Swan	5	mesotrophic lakes; swimming on lake	NM
	L. Sheelin	16/09/2021	08:40	Mute Swan	37	mesotrophic lakes; swimming on lake	NM
	L. Sheelin	16/09/2021	08:51	Mute Swan	6	mesotrophic lakes; swimming on lake	NM
	L. Sheelin	16/09/2021	08:45	Mute Swan	18	mesotrophic lakes; swimming on lake	NM
	L. Sheelin	16/09/2021	08:54	Mute Swan	5	mesotrophic lakes; swimming on lake	NM
	L. Sheelin	16/09/2021	09:18	Mute Swan	29	mesotrophic lakes; swimming on lake	NM
	L. Sheelin	16/09/2021	09:27	Mute Swan	3	mesotrophic lakes; swimming on lake	NM
	L. Sheelin	16/09/2021	10:23	Mute Swan	5	mesotrophic lakes; swimming on lake	NM
	L. Kinale	16/09/2021	10:50	Mute Swan	5	mesotrophic lakes; swimming on lake	NM
	L. Kinale	16/09/2021	10:50	Mute Swan	10	mesotrophic lakes; swimming on lake	NM
	L. Kinale	16/09/2021	10:50	Mute Swan	63	mesotrophic lakes; swimming on lake	NM
	L. Kinale	16/09/2021	10:52	Mute Swan	41	mesotrophic lakes; swimming on lake	NM
	L. Kinale	16/09/2021	11:28	Mute Swan	12	mesotrophic lakes; swimming on lake	NM
	L. Kinale	16/09/2021	11:45	Mute Swan	2	mesotrophic lakes; noisily taking off from lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WA001	BN2	16/09/2021	14:16	Water Rail	1	cutover bog; pig calls coming from far side of bog wetland	NM
WA002	L. Sheelin	16/09/2021	08:43	Water Rail	2	reed and large sedge swamps and mesotrophic lakes; pig calls coming from edge reeds	NM
BH012	L. D'varagh	17/09/2021	15:45	Black-headed Gull	12	mesotrophic lakes; swirling over n side of lake	NM
BH011	L. D'varagh	17/09/2021	15:54	Black-headed Gull	8	mesotrophic lakes; swirling over lake + diving to surface on occasion	NM
BH015	L. D'varagh	17/09/2021	15:58	Black-headed Gull	7	mesotrophic lakes; swirling over lake	NM
BH017	L. D'varagh	17/09/2021	13:04	Black-headed Gull	2	mesotrophic lakes; swirling over lake	NM
BH009	L. Iron	17/09/2021	18:34	Black-headed Gull	5	mesotrophic lakes; swirling and swooping over nw side of lake before flying away n	NM
BH007		17/09/2021	14:45	Black-headed Gull	49	mesotrophic lakes and improved agricultural grassland; perched and preening on grassy lake edge - some individuals flying low and chasing each other near	NM
BH016		17/09/2021	16:00	Black-headed Gull	23	mesotrophic lakes; flying over lake, numerous flyovers throughout	NM
BH018	L. D'varagh	17/09/2021	13:50	Black-headed Gull	3	mesotrophic lakes; flying low over edge of lake - perching on pontoon and landing on water (+ calling)	NM
BH004	L. D'varagh	17/09/2021	13:00	Black-headed Gull	1	mesotrophic lakes; flying across lake	NM
BH010	L. D'varagh	17/09/2021	15:45	Black-headed Gull	17	mesotrophic lakes; flying across lake, numerous flyovers	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BH013	L. D'varagh	17/09/2021	15:54	Black-headed Gull	25	mesotrophic lakes; flying across lake, numerous flyovers	NM
BH014	L. D'varagh	17/09/2021	15:43	Black-headed Gull	9	mesotrophic lakes; flying across lake, numerous flyovers	NM
BH003	L. D'varagh	17/09/2021	13:02	Black-headed Gull	5	mesotrophic lakes; circling over narrow end of lake	NM
BH006		17/09/2021	14:54	Black-headed Gull	6	mesotrophic lakes, reed and large sedge swamps and scrub; circling over lake and adjacent land	NM
BH005	L. D'varagh	17/09/2021	13:11	Black-headed Gull	3	mesotrophic lakes; circling over lake	NM
BH002	L. D'varagh	17/09/2021	13:35	Black-headed Gull	2	mesotrophic lakes; circling low over small floating jetty - landing briefly on water and on jetty	NM
BH008	L. D'varagh	17/09/2021	14:32	Black-headed Gull	4	mesotrophic lakes; circling and diving over lake	NM
CA001	L. D'varagh	17/09/2021	13:21	Cormorant	1	mesotrophic lakes; swimming and diving on lake	NM
CA002	L. D'varagh	17/09/2021	15:53	Cormorant	1	mesotrophic lakes; flying e across lake	NM
CA003	L. D'varagh	17/09/2021	13:19	Cormorant	1	mesotrophic lakes; flying along lake	NM
CM005		17/09/2021	13:58	Common Gull	2	improved agricultural grassland and treelines; flying nw along far side of lake	NM
GA002	L. Iron	17/09/2021	19:00	Gadwall	24	mesotrophic lakes; swimming and foraging on lake	NM
GG018	L. D'varagh	17/09/2021	15:41	Great Crested Grebe	23	mesotrophic lakes; swimming on lake (+ with present juveniles)	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG023	L. D'varagh	17/09/2021	13:16	Great Crested Grebe	5	mesotrophic lakes; swimming on lake (+ constant calling by juvenile)	NM
GG017	L. D'varagh	17/09/2021	14:40	Great Crested Grebe	16	mesotrophic lakes; swimming on lake - n section of lake	NM
GG011	L. D'varagh	17/09/2021	12:58	Great Crested Grebe	2	mesotrophic lakes; swimming on lake	NM
GG012	L. D'varagh	17/09/2021	13:03	Great Crested Grebe	9	mesotrophic lakes; swimming on lake	NM
GG015	L. D'varagh	17/09/2021	13:09	Great Crested Grebe	3	mesotrophic lakes; swimming on lake	NM
GG016	L. D'varagh	17/09/2021	13:22	Great Crested Grebe	3	mesotrophic lakes; swimming on lake	NM
GG019	L. D'varagh	17/09/2021	16:10	Great Crested Grebe	14	mesotrophic lakes; swimming on lake	NM
GG020	L. D'varagh	17/09/2021	16:14	Great Crested Grebe	7	mesotrophic lakes; swimming on lake	NM
GG022	L. D'varagh	17/09/2021	13:10	Great Crested Grebe	4	mesotrophic lakes; swimming on lake	NM
GG024	L. D'varagh	17/09/2021	13:56	Great Crested Grebe	3	mesotrophic lakes; swimming on lake	NM
GG025	L. Iron	17/09/2021	19:17	Great Crested Grebe	3	mesotrophic lakes; swimming on lake	NM
GG010	L. D'varagh	17/09/2021	12:55	Great Crested Grebe	5	mesotrophic lakes; swimming and diving on lake (with young calling)	NM
GG021	L. D'varagh	17/09/2021	13:07	Great Crested Grebe	3	mesotrophic lakes; swimming (resting) on lake	NM
GG013	L. D'varagh	17/09/2021	13:21	Great Crested Grebe	2	mesotrophic lakes; resting on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG014	L. D'varagh	17/09/2021	13:35	Great Crested Grebe	4	mesotrophic lakes; adults and young on lake - constant chirping from juveniles	NM
H008	L. D'varagh	17/09/2021	12:56	Grey Heron	1	mesotrophic lakes; perched on floating jetty	NM
H009	L. D'varagh	17/09/2021	14:59	Grey Heron	1	mesotrophic lakes and reed and large sedge swamps; calling from edge of lake	NM
LB008		17/09/2021	14:45	Lesser Black-backed Gull	23	mesotrophic lakes and improved agricultural grassland; perched and preening on grassy lake edge	NM
LB009		17/09/2021	18:47	Lesser Black-backed Gull	2	improved agricultural grassland and hedgerows; flying nw over farmland	NM
LB007		17/09/2021	14:35	Lesser Black-backed Gull	1	mesotrophic lakes; flying ne across w edge of lake	NM
LB010	L. D'varagh	17/09/2021	15:51	Lesser Black-backed Gull	2	mesotrophic lakes; flying ne across lake	NM
LG009		17/09/2021	12:38	Little Grebe	1	cutover bog; swimming on flooded bog pool	NM
LG012	L. Iron	17/09/2021	19:00	Little Grebe	23	mesotrophic lakes; swimming and foraging on lake	NM
LG010	L. D'varagh	17/09/2021	15:40	Little Grebe	15	mesotrophic lakes; swimming and calling within reedy islets on lake	NM
LG011	L. D'varagh	17/09/2021	16:32	Little Grebe	4	mesotrophic lakes; calling and diving on lake	NM
MA007	L. Iron	17/09/2021	19:10	Mallard	46	mesotrophic lakes; swimming and foraging on lake	NM
MA008	L. D'varagh	17/09/2021	16:35	Mallard	2	mesotrophic lakes; flushed from edge reeds	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MH013	L. Iron	17/09/2021	19:15	Moorhen	38	mesotrophic lakes and reed and large sedge swamps; wading along reedy edges and amongst weedy floating vegetation, most likely an underestimate of numbers	NM
MH014	L. D'varagh	17/09/2021	16:03	Moorhen	27	mesotrophic lakes; calling within fringe reed beds, most likely an underestimate	NM
MH015	L. D'varagh	17/09/2021	13:21	Moorhen	15	mesotrophic lakes; calling within edge reed beds (throughout narrow part of lake)	NM
MH016	L. D'varagh	17/09/2021	15:47	Moorhen	16	mesotrophic lakes; calling and waqding within reed islets on lake fringe	NM
MH017	L. D'varagh	17/09/2021	14:43	Moorhen	6	mesotrophic lakes and reed and large sedge swamps; calling and wading within fringe reedbeds	NM
MH018	L. D'varagh	17/09/2021	16:33	Moorhen	3	mesotrophic lakes; calling and ading in reedy lake fringes	NM
	L. D'varagh	17/09/2021	12:59	Mute Swan	6	mesotrophic lakes; swimming on lake and along reed fringes (2 adults + 4 juveniles)	NM
	L. D'varagh	17/09/2021	16:35	Mute Swan	5	mesotrophic lakes; swimming on lake (+ 2 juveniles)	NM
	Bracklagh Lough	17/09/2021	12:30	Mute Swan	7	mesotrophic lakes; swimming on lake	NM
	L. D'varagh	17/09/2021	15:47	Mute Swan	30	mesotrophic lakes; swimming on lake	NM
	L. D'varagh	17/09/2021	15:47	Mute Swan	17	mesotrophic lakes; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	L. D'varagh	17/09/2021	15:49	Mute Swan	41	mesotrophic lakes; swimming on lake	NM
	L. D'varagh	17/09/2021	15:39	Mute Swan	14	mesotrophic lakes; swimming on lake	NM
	L. D'vaagh	17/09/2021	16:09	Mute Swan	4	mesotrophic lakes; swimming on lake	NM
	L. D'varagh	17/09/2021	13:06	Mute Swan	2	mesotrophic lakes; swimming on lake	NM
	L. Iron	17/09/2021	19:15	Mute Swan	38	mesotrophic lakes; swimming and foraging on lake	NM
WA003	L. D'varagh	17/09/2021	15:52	Water Rail	2	mesotrophic lakes; pig calls from lake fringes	NM
BH023	L. D'varagh	29/09/2021	15:58	Black-headed Gull	12	mesotrophic lakes; swirling and swooping over lake	NM
BH021	L. D'varagh	29/09/2021	15:38	Black-headed Gull	2	mesotrophic lakes and mixed broadleaved woodland; flying over sw of lake and adjacent woodland	NM
BH019	Bracklagh Lough	29/09/2021	09:25	Black-headed Gull	3	mesotrophic lakes; flying over and swimming on lake	NM
BH020	L. Kinale	29/09/2021	10:04	Black-headed Gull	6	mesotrophic lakes; flying and swooping over lake	NM
BH022	L' D'varagh	29/09/2021	16:00	Black-headed Gull	1	mesotrophic lakes; flying and swooping over lake	NM
BH024	L. Sheelin	29/09/2021	08:07	Black-headed Gull	5	lakes and ponds; flying across lake	NM
BH026	L. Sheelin	29/09/2021	08:16	Black-headed Gull	6	lakes and ponds; flying across lake	NM
BH028	L. Sheelin	29/09/2021	08:45	Black-headed Gull	4	lakes and ponds; flying across lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BH027		29/09/2021	08:36	Black-headed Gull	2	raised bog and scrub; flying across bog and scrub	NM
BH025	L. Sheelin	29/09/2021	08:17	Black-headed Gull	16	lakes and ponds; circling and swooping over lake	NM
CA004	L. Sheelin	29/09/2021	08:11	Cormorant	1	lakes and ponds; flying low across lake	NM
CA005	L. Sheelin	29/09/2021	08:20	Cormorant	2	lakes and ponds; flying low across lake	NM
GA003	Derragh Lough	29/09/2021	11:04	Gadwall	35	mesotrophic lakes; swimming and foraging on lake	NM
GG031	L. Sheelin	29/09/2021	08:03	Great Crested Grebe	3	lakes and ponds; swimming on lake (w/ 2x juveniles)	NM
GG030	L. Sheelin	29/09/2021	08:12	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG033	L. Sheelin	29/09/2021	08:45	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG027	L. D'varagh	29/09/2021	15:56	Great Crested Grebe	3	mesotrophic lakes; swimming at lake fringes (+ 2 juveniles calling)	NM
GG026	L. Kinale	29/09/2021	10:16	Great Crested Grebe	7	mesotrophic lakes; swimming and diving on lake	NM
GG028	L. D'varagh	29/09/2021	15:58	Great Crested Grebe	3	mesotrophic lakes; swimming and diving on lake	NM
GG029	L. Sheelin	29/09/2021	08:00	Great Crested Grebe	2	lakes and ponds; swimming and diving on lake	NM
GG032	L. Sheelin	29/09/2021	08:19	Great Crested Grebe	6	lakes and ponds; swimming and diving on lake	NM
GG034	L. Sheelin	29/09/2021	08:53	Great Crested Grebe	1	lakes and ponds; swimming and diving on lake	NM
H010		29/09/2021	09:24	Grey Heron	1	mesotrophic lakes; flying low across lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
H011	L. Kinale	29/09/2021	12:10	Grey Heron	1	mesotrophic lakes; calling from lake edge	NM
LB012	L. Sheelin	29/09/2021	08:10	Lesser Black-backed Gull	3	lakes and ponds; flying over lake	NM
LB011		29/09/2021	16:02	Lesser Black-backed Gull	1	mesotrophic lakes; flying across lake	NM
LG014	L. D'varagh	29/09/2021	15:58	Little Grebe	13	mesotrophic lakes; swimming and diving within reedy fringes	NM
LG015	Derragh Lough	29/09/2021	10:57	Little Grebe	38	mesotrophic lakes; swimming and diving on lake	NM
LG017	L. Sheelin	29/09/2021	08:13	Little Grebe	5	lakes and ponds; swimming and diving on lake	NM
LG013		29/09/2021	13:10	Little Grebe	3	cutover bog; swimming and diving on bog pool	NM
LG018	L. Sheelin	29/09/2021	08:46	Little Grebe	8	lakes and ponds; swimming and diving near lake edge	NM
LG016	L. Sheelin	29/09/2021	08:12	Little Grebe	6	lakes and ponds; calling within reedy margins of lake	NM
MA009	L. Sheelin	29/09/2021	08:24	Mallard	5	lakes and ponds; swimming on lake	NM
MA010	L. Sheelin	29/09/2021	08:46	Mallard	7	lakes and ponds; swimming on lake	NM
MA011	L. D'varagh	29/09/2021	16:17	Mallard	19	mesotrophic lakes; swimming and foraging on lake	NM
MA012	Derragh Lough	29/09/2021	10:55	Mallard	57	mesotrophic lakes; swimming and foraging on lake	NM
MA013	L. D'varagh	29/09/2021	15:42	Mallard	24	mesotrophic lakes; swimming and dabbling on lake	NM
MA014	L. D'varagh	29/09/2021	16:15	Mallard	9	mesotrophic lakes; swimming and dabbling in weedy edge	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MA015	L. Kinale	29/09/2021	10:03	Mallard	23	mesotrophic lakes; swimming and dabbling along lake fringes	NM
MA016	Derragh Lough	29/09/2021	12:45	Mallard	7	mesotrophic lakes; flying over lake	NM
MA017		29/09/2021	12:43	Mallard	18	mesotrophic lakes; flying in wide circles over w of derragh lough	NM
MA018	L. D'varagh	29/09/2021	15:09	Mallard	2	mesotrophic lakes; calling within reeds	NM
MA019	L. Kinale	29/09/2021	12:15	Mallard	2	mesotrophic lakes; calling from lake edge	NM
MA020	L. Sheelin	29/09/2021	08:13	Mallard	5	lakes and ponds; calling and swimming within reedy edges of lake	NM
MH019	L. Sheelin	29/09/2021	08:18	Moorhen	3	lakes and ponds; wading on edge of reedbed	NM
MH020	Derragh Lough	29/09/2021	11:00	Moorhen	22	mesotrophic lakes; swimming and wading within reedy fringes, approx. count - likely that some were missed	NM
MH021	L. Sheelin	29/09/2021	08:02	Moorhen	7	lakes and ponds; calling within reedy margins of lake	NM
MH022	L. Sheelin	29/09/2021	08:23	Moorhen	3	lakes and ponds; calling within reedy edges of lake	NM
MH023	Bracklagh Lough	29/09/2021	09:34	Moorhen	1	mesotrophic lakes and reed and large sedge swamps; calling within reeds along fringes of lake	NM
MH024	L. Kinale	29/09/2021	12:16	Moorhen	2	mesotrophic lakes; calling from lake edge	NM
	L. D'varagh	29/09/2021	16:06	Mute Swan	6	mesotrophic lakes; swimming within reedy lake fringes	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	L. Kinale	29/09/2021	10:00	Mute Swan	6	mesotrophic lakes; swimming on lake and within reedy fringes	NM
	L. Kinale	29/09/2021	10:02	Mute Swan	56	mesotrophic lakes and reed and large sedge swamps; swimming on lake + roosting within reedy edges	NM
	L. Sheelin	29/09/2021	08:20	Mute Swan	29	lakes and ponds; swimming on lake (n shore)	NM
	Bracklagh Lough	29/09/2021	09:25	Mute Swan	16	mesotrophic lakes; swimming on lake	NM
	L. Kinale	29/09/2021	10:00	Mute Swan	12	mesotrophic lakes; swimming on lake	NM
	L. Kinale	29/09/2021	10:00	Mute Swan	14	mesotrophic lakes; swimming on lake	NM
	L. Kinale	29/09/2021	10:06	Mute Swan	18	mesotrophic lakes; swimming on lake	NM
	L. D'varagh	29/09/2021	15:32	Mute Swan	17	mesotrophic lakes; swimming on lake	NM
	L. D'varagh	29/09/2021	15:55	Mute Swan	28	mesotrophic lakes; swimming on lake	NM
	L. D'varagh	29/09/2021	16:16	Mute Swan	7	mesotrophic lakes; swimming on lake	NM
	L. Sheelin	29/09/2021	07:57	Mute Swan	4	lakes and ponds; swimming on lake	NM
	L. Sheelin	29/09/2021	08:05	Mute Swan	6	lakes and ponds; swimming on lake	NM
	L. Sheelin	29/09/2021	07:04	Mute Swan	18	lakes and ponds; swimming on lake	NM
	L. Sheelin	29/09/2021	08:15	Mute Swan	4	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	L. Sheelin	29/09/2021	08:45	Mute Swan	12	lakes and ponds; swimming on lake	NM
	L. Sheelin	29/09/2021	08:50	Mute Swan	4	lakes and ponds; swimming on lake	NM
	L. Sheelin	29/09/2021	08:57	Mute Swan	46	lakes and ponds; swimming on lake	NM
	Derragh Lough	29/09/2021	10:56	Mute Swan	155	mesotrophic lakes; swimming and foraging on lake, approx count	NM
	L. Sheelin	29/09/2021	08:22	Mute Swan	8	lakes and ponds; swimming on lake	NM
WA004	L. Sheelin	29/09/2021	08:19	Water Rail	3	lakes and ponds; calling from within reedy margins	NM
BH029	L. Iron	30/09/2021	17:51	Black-headed Gull	6	lakes and ponds, reed and large sedge swamps and scrub; flying around lake perimeter	NM
GG035	L. Iron	30/09/2021	18:12	Great Crested Grebe	6	lakes and ponds; swimming on lake	NM
LG019	L. Iron	30/09/2021	18:27	Little Grebe	21	lakes and ponds; swimming and diving on lake	NM
MA021	L. Iron	30/09/2021	18:30	Mallard	79	lakes and ponds; swimming and dabbling on lake	NM
	L. Iron	30/09/2021	18:30	Mute Swan	28	lakes and ponds; swimming on lake	NM
H012	L. Iron	11/10/2021	17:02	Grey Heron	1	lakes and ponds and reed and large sedge swamps; flying low and calling along lake shore	NM
LG020	L. Iron	11/10/2021	17:30	Little Grebe	14	lakes and ponds; swimming on lake	NM
MA022	L. Iron	11/10/2021	17:30	Mallard	56	lakes and ponds; swimming and dabbling on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	L. Iron	11/10/2021	17:30	Mute Swan	24	lakes and ponds; swimming on lake	NM
BH035	L. D'varagh	12/10/2021	16:33	Black-headed Gull	9	lakes and ponds; swirling over lake	NM
BH031	L. Sheelin	12/10/2021	08:06	Black-headed Gull	7	lakes and ponds; roosting near lake edge + flying around spot	NM
BH032	L. Sheelin	12/10/2021	08:16	Black-headed Gull	32	lakes and ponds; flying out over open water - not as open group but as frequent individuals	NM
BH030	Bracklagh Lough	12/10/2021	08:57	Black-headed Gull	7	lakes and ponds; flying and diving over lake and around fringes	NM
BH033	L. Sheelin	12/10/2021	08:20	Black-headed Gull	2	lakes and ponds and scrub; flying along s shore	NM
BH034	L. D'varagh	12/10/2021	16:20	Black-headed Gull	25	lakes and ponds; flying across lake - not as one large group but as frequent individuals	NM
CA006	Derragh Lough	12/10/2021	11:08	Cormorant	3	lakes and ponds; swimming and flying over lake	NM
CA007	L. D'varagh	12/10/2021	16:35	Cormorant	2	lakes and ponds; flying low across lake	NM
CA008		12/10/2021	09:25	Cormorant	1	depositing/lowland rivers and mixed broadleaved woodland; flying	NM
CA009		12/10/2021	09:29	Cormorant	1	mixed broadleaved woodland and lakes and ponds; flying	NM
GG036	L. Kinale	12/10/2021	10:09	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG037	L. Kinale	12/10/2021	12:02	Great Crested Grebe	4	lakes and ponds; swimming on lake	NM
GG038	L. Sheelin	12/10/2021	08:03	Great Crested Grebe	1	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG039	L. Sheelin	12/10/2021	08:06	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG040	L. Sheelin	12/10/2021	08:12	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG041	L. Sheelin	12/10/2021	08:15	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG042	L. Sheelin	12/10/2021	08:24	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG043	L. D'varagh	12/10/2021	16:05	Great Crested Grebe	4	lakes and ponds; swimming on lake	NM
GG045	L. D'varagh	12/10/2021	16:36	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG044	L. D'varagh	12/10/2021	16:17	Great Crested Grebe	3	lakes and ponds; swimming and diving on lake	NM
GN001	L. D'varagh	12/10/2021	16:23	Goldeneye	12	lakes and ponds; swimming on lake	NM
GN002	L. D'varagh	12/10/2021	16:31	Goldeneye	13	lakes and ponds; flying at mid height (~15m) across lake - heading se	NM
H013	R. Inny	12/10/2021	09:21	Grey Heron	1	depositing/lowland rivers; perched on bridge	NM
H014		12/10/2021	09:26	Grey Heron	1	depositing/lowland rivers and mixed broadleaved woodland; perched in tree along river	NM
H015		12/10/2021	09:30	Grey Heron	1	lakes and ponds; foraging within reeds	NM
H016	L. D'varagh	12/10/2021	16:57	Grey Heron	1	lakes and ponds; flying across lake and calling	NM
H017	L. Sheelin	12/10/2021	08:18	Grey Heron	2	lakes and ponds; flying across lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
H018	L. D'varagh	12/10/2021	16:15	Grey Heron	1	lakes and ponds; flying across lake	NM
H019	L. D'varagh	12/10/2021	16:12	Grey Heron	2	lakes and ponds and scrub; flushed from edges of lake	NM
H020	L. Sheelin	12/10/2021	08:20	Grey Heron	1	lakes and ponds and reed and large sedge swamps; calling within reedy margins	NM
LB013	L. Sheelin	12/10/2021	08:09	Lesser Black-backed Gull	2	lakes and ponds; flying across sw corner of lake	NM
LB014	L. D'varagh	12/10/2021	16:21	Lesser Black-backed Gull	3	lakes and ponds; flying across lake	NM
LG029	L. D'varagh	12/10/2021	16:12	Little Grebe	4	lakes and ponds; swimming and diving with complex of reedy islets	NM
LG024	Derragh Lough	12/10/2021	11:10	Little Grebe	18	lakes and ponds; swimming and diving on lake (+ calling)	NM
LG023	L. Kinale	12/10/2021	10:18	Little Grebe	2	lakes and ponds; swimming and diving on lake	NM
LG027	L. Sheelin	12/10/2021	08:26	Little Grebe	2	lakes and ponds; swimming and diving on lake	NM
LG028	L. D'varagh	12/10/2021	16:05	Little Grebe	14	lakes and ponds; swimming and diving on lake	NM
LG030	L. D'varagh	12/10/2021	16:18	Little Grebe	6	lakes and ponds; swimming and diving near lake shore	NM
LG022	L. Kinale	12/10/2021	10:06	Little Grebe	5	lakes and ponds; swimming and diving along reedy fringes	NM
LG031	L. D'varagh	12/10/2021	16:09	Little Grebe	8	lakes and ponds; calling within reedy margins of lake	NM
LG025	L. Sheelin	12/10/2021	08:03	Little Grebe	5	lakes and ponds; calling within reedy margins	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
LG026	L. Sheelin	12/10/2021	08:20	Little Grebe	6	lakes and ponds; calling within reedy margins	NM
LG021	L. Kinale	12/10/2021	09:51	Little Grebe	3	lakes and ponds; calling within reeds along lake fringe	NM
MA023	L. Kinale	12/10/2021	12:06	Mallard	6	lakes and ponds; swimming on lake	NM
MA024	L. D'varagh	12/10/2021	16:04	Mallard	12	lakes and ponds; swimming on lake	NM
MA025	L. D'varagh	12/10/2021	16:30	Mallard	6	lakes and ponds; swimming on lake	NM
MA026	L. Kinale	12/10/2021	10:12	Mallard	7	lakes and ponds; swimming and dabbling on lake	NM
MA027	Derragh Lough	12/10/2021	11:10	Mallard	18	lakes and ponds; swimming and dabbling mostly along lake fringes	NM
MA028	L. D'varagh	12/10/2021	16:07	Mallard	5	lakes and ponds; flushed from lake edge	NM
MA029	L. Sheelin	12/10/2021	08:23	Mallard	12	lakes and ponds; calling within reedy fringes of lake	NM
MH025	L. Sheelin	12/10/2021	08:26	Moorhen	2	lakes and ponds; swimming near reedy lake edges	NM
MH026	L. Sheelin	12/10/2021	08:18	Moorhen	7	lakes and ponds; swimming and calling near lake edge - around r. inny exit	NM
MH027	L. Sheelin	12/10/2021	08:02	Moorhen	2	lakes and ponds; calling within reedy margins of lake	NM
MH028	L. Sheelin	12/10/2021	08:07	Moorhen	1	lakes and ponds; calling within reedy margins of lake	NM
MH029	Derragh Lough	12/10/2021	11:10	Moorhen	29	lakes and ponds; calling within reedy margins, all over lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MH030	L. Sheelin	12/10/2021	08:21	Moorhen	3	lakes and ponds and reed and large sedge swamps; calling within reedy margins	NM
MH031		12/10/2021	10:08	Moorhen	9	lakes and ponds; calling within reedy lake margins	NM
MH032	L. D'varagh	12/10/2021	16:31	Moorhen	3	lakes and ponds; calling within reedy edges	NM
MH033		12/10/2021	09:51	Moorhen	4	lakes and ponds; calling with reedy margins of lake	NM
	L. Kinale	12/10/2021	12:00	Mute Swan	6	lakes and ponds; swimming within reedbeds	NM
	L. D'varagh	12/10/2021	16:14	Mute Swan	6	lakes and ponds; swimming within complex of reedy islets	NM
	L. Sheelin	12/10/2021	08:20	Mute Swan	27	lakes and ponds; swimming on lake - n side	NM
	L. Kinale	12/10/2021	10:05	Mute Swan	9	lakes and ponds; swimming on lake	NM
	Derragh Lough	12/10/2021	11:10	Mute Swan	156	lakes and ponds; swimming on lake, all over lake	NM
	L. Kinale	12/10/2021	12:00	Mute Swan	16	lakes and ponds; swimming on lake	NM
	L. Kinale	12/10/2021	12:03	Mute Swan	12	lakes and ponds; swimming on lake	NM
	L. Kinale	12/10/2021	12:04	Mute Swan	63	lakes and ponds; swimming on lake	NM
	L. D'varagh	12/10/2021	17:11	Mute Swan	39	lakes and ponds; swimming on lake	NM
	L. Sheelin	12/10/2021	08:05	Mute Swan	3	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	L. Sheelin	12/10/2021	08:05	Mute Swan	5	lakes and ponds; swimming on lake	NM
	L. Sheelin	12/10/2021	08:08	Mute Swan	15	lakes and ponds; swimming on lake	NM
	L. Sheelin	12/10/2021	08:14	Mute Swan	3	lakes and ponds; swimming on lake	NM
	L. Sheelin	12/10/2021	08:23	Mute Swan	6	lakes and ponds; swimming on lake	NM
	L. D'varagh	12/10/2021	16:08	Mute Swan	17	lakes and ponds; swimming on lake	NM
	L. D'varagh	12/10/2021	16:06	Mute Swan	23	lakes and ponds; swimming on lake	NM
	L. D'varagh	12/10/2021	16:10	Mute Swan	7	lakes and ponds; swimming on lake	NM
	L. D'varagh	12/10/2021	16:24	Mute Swan	23	lakes and ponds; swimming on lake	NM
	L. D'varagh	12/10/2021	16:20	Mute Swan	3	lakes and ponds; swimming on lake	NM
	L. D'varagh	12/10/2021	16:29	Mute Swan	11	lakes and ponds; swimming on lake	NM
	L. D'varagh	12/10/2021	16:32	Mute Swan	5	lakes and ponds; swimming on lake	NM
	R. Inny	12/10/2021	15:24	Mute Swan	2	watercourses; swimming and feeding on river	NM
	Bracklagh Lough	12/10/2021	08:54	Mute Swan	16	lakes and ponds; swimming and feeding on lake	NM
	L. D'varagh	12/10/2021	15:36	Mute Swan	29	lakes and ponds; swimming on lake	NM
	L. Sheelin	12/10/2021	08:09	Mute Swan	3	lakes and ponds; flying low across lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WA005		12/10/2021	10:15	Water Rail	2	lakes and ponds and reed and large sedge swamps; pig calls from wet reedy margins	NM
WA006	L. Sheelin	12/10/2021	08:07	Water Rail	3	lakes and ponds; pig calls from reedy margins	NM
BH036	L. Iron	25/10/2021	17:35	Black-headed Gull	15	lakes and ponds and reed and large sedge swamps; swirling over lake and adjacent wetland	NM
GG046	L. Iron	25/10/2021	17:50	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
LG032	L. Iron	25/10/2021	17:08	Little Grebe	20	lakes and ponds; swimming and diving on lake, ideal lg habitat	NM
MA030	L. Iron	25/10/2021	17:30	Mallard	59	lakes and ponds; swimming on lake	NM
MH034	L. Iron	25/10/2021	17:30	Moorhen	12	lakes and ponds and reed and large sedge swamps; calling and wading within wetland margins of lake	NM
	L. Iron	25/10/2021	17:32	Mute Swan	57	lakes and ponds; swimming on lake	NM
BH037		26/10/2021	09:16	Black-headed Gull	3	lakes and ponds; flying and swirling low over lake	NM
BH038	L. Sheelin	26/10/2021	14:18	Black-headed Gull	2	lakes and ponds; flying across lake	NM
CA010		26/10/2021	15:08	Cormorant	2	lakes and ponds; soaring over lake	NM
CA011	L. Sheelin	26/10/2021	14:02	Cormorant	6	lakes and ponds; roosting on buoys	NM
CA012	L. Sheelin	26/10/2021	15:01	Cormorant	1	lakes and ponds; perched on rock	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CA013		26/10/2021	15:59	Cormorant	1	improved agricultural grassland and hedgerows; flying s across farmland	NM
CA014		26/10/2021	09:23	Cormorant	1	lakes and ponds; flying low across lake	NM
CA015		26/10/2021	09:35	Cormorant	2	lakes and ponds; flying high across lake	NM
CA016		26/10/2021	11:27	Cormorant	1	lakes and ponds, semi-natural grassland and mixed broadleaved woodland; flying high across lake	NM
GG050		26/10/2021	09:46	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG051	Derragh Lough	26/10/2021	11:23	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG052	L. Sheelin	26/10/2021	14:09	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG053	L. Sheelin	26/10/2021	14:52	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG054	L. Sheelin	26/10/2021	14:57	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG055	L. Sheelin	26/10/2021	14:56	Great Crested Grebe	7	lakes and ponds; swimming on lake	NM
GG056	L. Sheelin	26/10/2021	15:03	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG057	L. Sheelin	26/10/2021	15:13	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG058		26/10/2021	15:20	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG047		26/10/2021	09:11	Great Crested Grebe	6	lakes and ponds; swimming and diving on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG048		26/10/2021	09:14	Great Crested Grebe	2	lakes and ponds; swimming and diving on lake	NM
GG049		26/10/2021	09:15	Great Crested Grebe	5	lakes and ponds; swimming and diving on lake	NM
GG059	L. Kinale	26/10/2021	16:09	Great Crested Grebe	3	lakes and ponds; swimming and diving on lake	NM
H021		26/10/2021	12:47	Grey Heron	1	cutover bog; perched on flooded bog	NM
H022	Bracklagh Lough	26/10/2021	16:19	Grey Heron	1	lakes and ponds; perched along lake shore	NM
H023	Derragh Lough	26/10/2021	11:20	Grey Heron	1	lakes and ponds; flying across lake	NM
H024		26/10/2021	10:16	Grey Heron	1	depositing/lowland rivers; flushed from river	NM
H025		26/10/2021	12:45	Grey Heron	1	scrub; calling within wet scrub	NM
H026		26/10/2021	15:14	Grey Heron	1	lakes and ponds; calling from reedy fringes	NM
H027	L. Sheelin	26/10/2021	14:26	Grey Heron	1	lakes and ponds; calling from lake margin	NM
LG035	Derragh Lough	26/10/2021	11:24	Little Grebe	47	lakes and ponds; swimming and diving on lake + calling within reedy fringes	NM
LG037	L. Sheelin	26/10/2021	14:15	Little Grebe	13	lakes and ponds; swimming and diving on lake	NM
LG039	L. Sheelin	26/10/2021	14:18	Little Grebe	7	lakes and ponds; swimming and diving on lake	NM
LG038	L. Sheelin	26/10/2021	14:23	Little Grebe	2	lakes and ponds; diving on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
LG036		26/10/2021	12:15	Little Grebe	1	lakes and ponds and cutover bog; diving on bog drainage pond	NM
LG034		26/10/2021	09:33	Little Grebe	6	lakes and ponds; calling within reedy islets	NM
LG040		26/10/2021	14:54	Little Grebe	6	lakes and ponds; calling within reedy fringes	NM
LG033		26/10/2021	09:11	Little Grebe	7	lakes and ponds; calling within reed islets + diving	NM
MA031		26/10/2021	15:09	Mallard	6	lakes and ponds; swimming within reeds	NM
MA032		26/10/2021	09:45	Mallard	6	lakes and ponds; swimming on lake	NM
MA033		26/10/2021	09:47	Mallard	4	lakes and ponds; swimming on lake	NM
MA034		26/10/2021	10:21	Mallard	17	lakes and ponds; swimming and dabbling on lake	NM
MA035	Derragh Lough	26/10/2021	11:25	Mallard	15	lakes and ponds; swimming and dabbling on lake	NM
MA036	Lough Bane	26/10/2021	13:19	Mallard	16	lakes and ponds; swimming and calling on lake	NM
MA037	L. Sheelin	26/10/2021	14:01	Mallard	4	lakes and ponds; swimming and calling on lake	NM
MA038		26/10/2021	09:41	Mallard	12	lakes and ponds; flying n across lake	NM
MA039		26/10/2021	11:41	Mallard	2	lakes and ponds and mixed broadleaved woodland; flying across lake and woodland fringes	NM
MA040		26/10/2021	08:45	Mallard	2	lakes and ponds; calling within reedy fringes of lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MH035	Derragh Lough	26/10/2021	11:25	Moorhen	4	lakes and ponds; wading within reedy fringes	NM
MH036		26/10/2021	14:53	Moorhen	6	lakes and ponds; calling within reedy fringes of lake	NM
MH037		26/10/2021	09:18	Moorhen	2	lakes and ponds; calling within reedy fringes	NM
MH038		26/10/2021	09:51	Moorhen	2	lakes and ponds; calling within reedy fringes	NM
MH039		26/10/2021	15:10	Moorhen	8	lakes and ponds; calling and swimming within reeds	NM
		26/10/2021	09:39	Mute Swan	16	lakes and ponds; wading and foraging along grassy fringe	NM
		26/10/2021	15:08	Mute Swan	1	lakes and ponds; swimming within reeds	NM
		26/10/2021	09:17	Mute Swan	12	lakes and ponds; swimming on lake	NM
		26/10/2021	09:36	Mute Swan	28	lakes and ponds; swimming on lake	NM
		26/10/2021	09:42	Mute Swan	19	lakes and ponds; swimming on lake	NM
		26/10/2021	09:48	Mute Swan	6	lakes and ponds; swimming on lake	NM
		26/10/2021	09:47	Mute Swan	36	lakes and ponds; swimming on lake	NM
		26/10/2021	09:45	Mute Swan	2	lakes and ponds; swimming on lake	NM
	Derragh Lough	26/10/2021	11:23	Mute Swan	202	lakes and ponds; swimming on lake	NM
	Lough Bane	26/10/2021	13:21	Mute Swan	6	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	L. Sheelin	26/10/2021	14:05	Mute Swan	16	lakes and ponds; swimming on lake	NM
	L. Sheelin	26/10/2021	14:13	Mute Swan	8	lakes and ponds; swimming on lake	NM
	L. Sheelin	26/10/2021	14:51	Mute Swan	4	lakes and ponds; swimming on lake	NM
	L. Sheelin	26/10/2021	14:59	Mute Swan	18	lakes and ponds; swimming on lake	NM
	L. Sheelin	26/10/2021	15:03	Mute Swan	3	lakes and ponds; swimming on lake	NM
	L. Kinale	26/10/2021	16:08	Mute Swan	16	lakes and ponds; swimming on lake	NM
	Bracklagh Lough	26/10/2021	16:17	Mute Swan	24	lakes and ponds; swimming on lake	NM
		26/10/2021	09:35	Mute Swan	4	lakes and ponds; swimming near campsite	NM
		26/10/2021	09:10	Mute Swan	2	lakes and ponds; swimming and foraging on lake	NM
		26/10/2021	10:21	Mute Swan	34	lakes and ponds; swimming and foraging on lake	NM
		26/10/2021	14:14	Mute Swan	39	lakes and ponds; swimming along lake edge + grazing on shore	NM
WA007		26/10/2021	15:15	Water Rail	2	lakes and ponds; pig calls from reedy fringes	NM
BH039	L. D'varagh	08/11/2021	12:30	Black-headed Gull	56	lakes and ponds and mixed broadleaved woodland; swirling over lower narrow part of lake	NM
CA017	L. D'varagh	08/11/2021	12:31	Cormorant	1	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CA018	L. D'varagh	08/11/2021	12:56	Cormorant	2	lakes and ponds; flying se low across lake	NM
GG060	L. D'varagh	08/11/2021	12:33	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG061	Bracklagh Lough	08/11/2021	14:34	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
LG041	L. D'varagh	08/11/2021	12:31	Little Grebe	3	lakes and ponds; calling within reeds along lake fringe	NM
	Bracklagh Lough	08/11/2021	14:33	Mute Swan	26	lakes and ponds; swimming on lake	NM
BH040	L. Sheelin	09/11/2021	09:37	Black-headed Gull	13	lakes and ponds; circling over lake - wheeling and descending regularly towards water	NM
CA019	L. Sheelin	09/11/2021	10:02	Cormorant	2	lakes and ponds; swimming and diving on lake	NM
CA020		09/11/2021	11:48	Cormorant	2	improved agricultural grassland and hedgerows; flyinfng n along adjacent area	NM
GA004	Derragh Lough	09/11/2021	11:32	Gadwall	9	lakes and ponds; swimming and feeding along lake edge	NM
GG063	L. Sheelin	09/11/2021	09:24	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG062	L. Sheelin	09/11/2021	09:14	Great Crested Grebe	4	lakes and ponds; swimming and diving on lake	NM
LB015	L. Sheelin	09/11/2021	09:38	Lesser Black-backed Gull	4	lakes and ponds; flying high across lake	NM
LB016		09/11/2021	10:12	Lesser Black-backed Gull	3	bogs and scrub; flying across bog and scrub to s of lake	NM
LG042	L. Iron	09/11/2021	16:21	Little Grebe	16	lakes and ponds; swimming and diving on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
LG044	Derragh Lough	09/11/2021	11:32	Little Grebe	4	lakes and ponds; swimming and diving on lake	NM
LG043	L. Sheelin	09/11/2021	09:23	Little Grebe	5	lakes and ponds; calling within reedy fringes of lake	NM
MA041	L. Iron	09/11/2021	10:56	Mallard	45	lakes and ponds; swimming on lake	NM
MA042	Derragh Lough	09/11/2021	09:35	Mallard	14	lakes and ponds; swimming and dabbling along reedy edges of lake	NM
MA043	L. Sheelin	09/11/2021	09:12	Mallard	5	lakes and ponds; swimming along reedy lake edge	NM
MA044	L. Sheelin	09/11/2021	09:21	Mallard	4	lakes and ponds; calling within reedy fringes of lake	NM
MH040	L. Iron	09/11/2021	16:32	Moorhen	5	lakes and ponds; swimming and calling within reedy margins	NM
	R. Inny	09/11/2021	14:02	Mute Swan	3	depositing/lowland rivers; swimming on river	NM
	L. Sheelin	09/11/2021	09:12	Mute Swan	6	lakes and ponds; swimming on lake	NM
	L. Sheelin	09/11/2021	09:13	Mute Swan	17	lakes and ponds; swimming on lake	NM
	L. Sheelin	09/11/2021	09:34	Mute Swan	17	lakes and ponds; swimming on lake	NM
	L. Sheelin	09/11/2021	09:57	Mute Swan	6	lakes and ponds; swimming on lake	NM
	Derragh Lough	09/11/2021	11:35	Mute Swan	68	lakes and ponds; swimming on lake	NM
	L. Iron	09/11/2021	16:30	Mute Swan	23	lakes and ponds; swimming on lake	NM
	L. Sheelin	09/11/2021	09:26	Mute Swan	7	lakes and ponds; swimming along reedy edges of lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
		09/11/2021	09:58	Mute Swan	7	lakes and ponds; flying nw across lake	NM
WA008	L. Sheelin	09/11/2021	09:30	Water Rail	2	lakes and ponds and reed and large sedge swamps; pig calls from within reedy lake margins	NM
BH041		22/11/2021	16:05	Black-headed Gull	58	improved agricultural grassland and hedgerows; swirling and flying over farmland in large group - landing occasionally. ~45mins continuously	NM
MA045	L. Iron	22/11/2021	16:02	Mallard	24	lakes and ponds; swimming on lake	NM
MH041	L. Sheelin	22/11/2021	08:40	Moorhen	3	lakes and ponds; calling within reedy boundaries	NM
	L. Iron	22/11/2021	16:00	Mute Swan	27	lakes and ponds; swimming on lake	NM
BH045	L. Sheelin	23/11/2021	09:32	Black-headed Gull	7	lakes and ponds; wheeling and circling over lake	NM
BH042		23/11/2021	10:11	Black-headed Gull	2	improved agricultural grassland; flying sw across farmland	NM
BH043	L. D'varagh	23/11/2021	15:41	Black-headed Gull	5	lakes and ponds; flying and swirling over lake	NM
BH044	L. Sheelin	23/11/2021	09:07	Black-headed Gull	6	lakes and ponds; flying across lake	NM
CA021	L. Kinale	23/11/2021	09:52	Cormorant	2	lakes and ponds; swimming and diving on lake	NM
CA022	Bracklagh Lough	23/11/2021	10:15	Cormorant	1	lakes and ponds; swimming and diving on lake	NM
CA023	L. Sheelin	23/11/2021	09:26	Cormorant	5	lakes and ponds; perched on tree	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CA024	Derragh Lough	23/11/2021	11:18	Cormorant	2	lakes and ponds; flying low across lake	NM
CA025	L. Sheelin	23/11/2021	09:31	Cormorant	2	lakes and ponds; flying low across lake	NM
CA026		23/11/2021	10:36	Cormorant	1	depositing/lowland rivers and highly modified/non-native woodland; flying high along r. inny	NM
CA027		23/11/2021	10:51	Cormorant	1	bogs; flying across bog	NM
GA005	L. Bane	23/11/2021	14:21	Gadwall	6	lakes and ponds; swimming on lake	NM
GG064	L. Kinale	23/11/2021	09:47	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG065	L. Kinale	23/11/2021	10:03	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG066	L. D'varagh	23/11/2021	15:42	Great Crested Grebe	13	lakes and ponds; swimming on lake	NM
GG067	L. D'varagh	23/11/2021	15:40	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG068	L. Sheelin	23/11/2021	08:36	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG069	L. Sheelin	23/11/2021	08:45	Great Crested Grebe	1	lakes and ponds; swimming on lake	NM
GG071	L. Sheelin	23/11/2021	08:58	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG073	L. Sheelin	23/11/2021	09:24	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG070	L. Sheelin	23/11/2021	08:45	Great Crested Grebe	5	lakes and ponds; swimming and diving on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG072	L. Sheelin	23/11/2021	09:07	Great Crested Grebe	2	lakes and ponds; swimming and diving on lake	NM
H028		23/11/2021	11:05	Grey Heron	1	semi-natural grassland; wading in wet reedy grassland	NM
H029	BN2	23/11/2021	14:04	Grey Heron	1	cutover bog; flying low across wetland	NM
H030		23/11/2021	13:45	Grey Heron	1	cutover bog and scrub/transitional woodland; flying low across bog + perching in adjacent scrubby woodland	NM
LB017		23/11/2021	15:41	Lesser Black-backed Gull	1	lakes and ponds; flying over lake	NM
LG045	Derragh Lough	23/11/2021	11:10	Little Grebe	21	lakes and ponds; swimming and diving on lake + calling within reedy margins	NM
LG046		23/11/2021	15:45	Little Grebe	5	lakes and ponds; swimming and diving on lake	NM
LG047	L. D'varagh	23/11/2021	15:48	Little Grebe	6	lakes and ponds; swimming and diving on lake	NM
LG049	L. Sheelin	23/11/2021	09:27	Little Grebe	3	lakes and ponds; swimming and diving near to sheltered lake shore	NM
LG048	L. Sheelin	23/11/2021	09:03	Little Grebe	5	lakes and ponds; calling within reedy margins	NM
MA046	L. D'varagh	23/11/2021	15:39	Mallard	5	lakes and ponds; swimming on lake	NM
MA047	L. D'varagh	23/11/2021	15:50	Mallard	8	lakes and ponds; swimming on lake	NM
MA048	L. Sheelin	23/11/2021	09:27	Mallard	9	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MA049	L. Bane	23/11/2021	14:20	Mallard	46	lakes and ponds; swimming and dabbling on lake	NM
MA050	L. Kinale	23/11/2021	09:48	Mallard	3	lakes and ponds; flying low across lake and fringes	NM
MA051	L. Sheelin	23/11/2021	08:45	Mallard	5	lakes and ponds; calling within reedy margins	NM
MA052	L. Sheelin	23/11/2021	09:08	Mallard	3	lakes and ponds; calling within reedy margins	NM
MH042	R. Inny	23/11/2021	13:06	Moorhen	1	depositing/lowland rivers; wading along river	NM
MH043	L. Kinale	23/11/2021	10:55	Moorhen	2	lakes and ponds; calling within reedy margins of lake	NM
MH044	L. Kinale	23/11/2021	09:50	Moorhen	2	lakes and ponds and reed and large sedge swamps; calling within reedy lake fringes	NM
MH045	L. D'varagh	23/11/2021	15:51	Moorhen	3	lakes and ponds; calling within lake fringes	NM
	L. D'varagh	23/11/2021	15:40	Mute Swan	12	lakes and ponds; swimming on lake + roosting on slipway	NM
	Derragh Lough	23/11/2021	11:10	Mute Swan	177	lakes and ponds; swimming on lake (+ juveniles)	NM
	L. Kinale	23/11/2021	09:50	Mute Swan	32	lakes and ponds; swimming on lake	NM
	L. Kinale	23/11/2021	09:50	Mute Swan	22	lakes and ponds; swimming on lake	NM
	L. Kinale	23/11/2021	09:55	Mute Swan	8	lakes and ponds; swimming on lake	NM
	Bracklagh Lough	23/11/2021	10:15	Mute Swan	16	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	L. Kinale	23/11/2021	10:55	Mute Swan	15	lakes and ponds; swimming on lake	NM
		23/11/2021	15:22	Mute Swan	16	lakes and ponds; swimming on lake	NM
	L. D'varagh	23/11/2021	15:44	Mute Swan	27	lakes and ponds; swimming on lake	NM
	L. D'varagh	23/11/2021	15:50	Mute Swan	10	lakes and ponds; swimming on lake	NM
	L. D'varagh	23/11/2021	15:52	Mute Swan	58	lakes and ponds; swimming on lake	NM
	L. Sheelin	23/11/2021	08:35	Mute Swan	4	lakes and ponds; swimming on lake	NM
	L. Sheelin	23/11/2021	08:46	Mute Swan	12	lakes and ponds; swimming on lake	NM
	L. Sheelin	23/11/2021	08:47	Mute Swan	17	lakes and ponds; swimming on lake	NM
	L. Sheelin	23/11/2021	08:55	Mute Swan	5	lakes and ponds; swimming on lake	NM
	L. Sheelin	23/11/2021	08:58	Mute Swan	3	lakes and ponds; swimming on lake	NM
	L. Sheelin	23/11/2021	09:23	Mute Swan	6	lakes and ponds; swimming on lake	NM
	L. Sheelin	23/11/2021	09:14	Mute Swan	11	lakes and ponds; flying across lake	NM
WA009	L. Sheelin	23/11/2021	08:45	Water Rail	2	lakes and ponds and reed and large sedge swamps; pig calls from reedy margins	NM
BH046	BN2	10/12/2021	15:34	Black-headed Gull	7	cutover bog; swirling over bog wetland	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CA028		10/12/2021	09:43	Cormorant	2	improved agricultural grassland; flying ne across farmland	NM
GG075	L. Sheelin	10/12/2021	09:04	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG076		10/12/2021	14:06	Great Crested Grebe	4	lakes and ponds; swimming on lake	NM
GG074	L. Sheelin	10/12/2021	08:35	Great Crested Grebe	2	lakes and ponds; swimming and diving on lake	NM
GN003	L. Sheelin	10/12/2021	08:42	Goldeneye	7	lakes and ponds; swimming and diving on lake	NM
H031	L. Bane	10/12/2021	16:04	Grey Heron	2	lakes and ponds and transition mire and quaking bog; perched on wet boggy margins of lake	NM
H032	R. Inny	10/12/2021	10:45	Grey Heron	1	highly modified/non-native woodland and depositing/lowland rivers; perched in tree along river	NM
H033	L. Kinale	10/12/2021	09:57	Grey Heron	1	lakes and ponds, semi-natural grassland and reed and large sedge swamps; calling from wet lake margins	NM
LB018	L. Sheelin	10/12/2021	08:37	Lesser Black-backed Gull	3	lakes and ponds; flying and swirling over lake	NM
LG050	L. Sheelin	10/12/2021	09:02	Little Grebe	6	lakes and ponds; swimming and diving close to lake shore	NM
LG051	Derragh Lough	10/12/2021	10:55	Little Grebe	12	lakes and ponds; calling within reedy margins	NM
MA053	L. Sheelin	10/12/2021	09:04	Mallard	12	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MA054	Derragh Lough	10/12/2021	10:51	Mallard	16	lakes and ponds; swimming and dabbling along reedy margins of lake	NM
MA055	L. Sheelin	10/12/2021	08:36	Mallard	6	lakes and ponds; swimming along reedy shores	NM
MA056	BN2	10/12/2021	15:40	Mallard	7	cutover bog; foraging on rushy bare peat within bog wetland	NM
MA057	Bracklagh Lough	10/12/2021	09:26	Mallard	3	lakes and ponds; feeding near to reedy lake edges	NM
MH046	R. Inny	10/12/2021	12:07	Moorhen	3	depositing/lowland rivers; swimming on river	NM
MH047	L. Kinale	10/12/2021	09:54	Moorhen	7	lakes and ponds; swimming and calling along lake edges	NM
MH048	L. Sheelin	10/12/2021	08:41	Moorhen	5	lakes and ponds; calling within reedy margins of lake	NM
	L. Sheelin	10/12/2021	08:35	Mute Swan	12	lakes and ponds; swimming on lake	NM
	L. Sheelin	10/12/2021	08:40	Mute Swan	6	lakes and ponds; swimming on lake	NM
	L. Sheelin	10/12/2021	08:59	Mute Swan	15	lakes and ponds; swimming on lake	NM
	L. Kinale	10/12/2021	10:03	Mute Swan	9	lakes and ponds; swimming on lake	NM
		10/12/2021	14:06	Mute Swan	16	lakes and ponds; swimming on lake	NM
	Bracklagh Lough	10/12/2021	09:24	Mute Swan	12	lakes and ponds; swimming and feeding on lake	NM
	Derragh Lough	10/12/2021	10:50	Mute Swan	76	lakes and ponds; swimming and feeding on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
WA010	L. Kinale	10/12/2021	09:52	Water Rail	3	lakes and ponds and reed and large sedge swamps; pig calls from lake margins	NM
BH050	L. Sheelin	22/12/2021	13:45	Black-headed Gull	2	lakes and ponds; wheeling over lake	NM
BH047	L. D'varagh	22/12/2021	08:45	Black-headed Gull	5	lakes and ponds; swirling and swooping over lake	NM
BH048		22/12/2021	12:14	Black-headed Gull	6	improved agricultural grassland, hedgerows and lakes and ponds; flying s over farmland	NM
BH049		22/12/2021	13:35	Black-headed Gull	26	lakes and ponds; flying high and sw across lake	NM
CA029	Bracklagh Lough	22/12/2021	12:04	Cormorant	1	lakes and ponds; swimming on lake	NM
CA030	L. Sheelin	22/12/2021	13:40	Cormorant	1	lakes and ponds; flying low across lake	NM
GG077		22/12/2021	08:43	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG078	Deragh Lough	22/12/2021	11:03	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG080	L. Sheelin	22/12/2021	13:38	Great Crested Grebe	1	lakes and ponds; swimming on lake	NM
GG081	L. Sheelin	22/12/2021	13:41	Great Crested Grebe	23	lakes and ponds; swimming on lake	NM
GG082	L. Sheelin	22/12/2021	14:09	Great Crested Grebe	4	lakes and ponds; swimming on lake	NM
GG079	L. Kinale	22/12/2021	12:24	Great Crested Grebe	3	lakes and ponds; swimming and diving on lake	NM
H034	L. Sheelin	22/12/2021	13:35	Grey Heron	4	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
H035		22/12/2021	15:47	Grey Heron	1	lakes and ponds and transition mire and quaking bog; perched on saturated lake fringes	NM
H036	R. Inny	22/12/2021	10:36	Grey Heron	1	semi-natural grassland and depositing/lowland rivers; perched along river	NM
H037	L. Sheelin	22/12/2021	13:10	Grey Heron	1	lakes and ponds; flying low and calling across lake	NM
H038		22/12/2021	13:47	Grey Heron	1	bogs and scrub; flying and calling across bog	NM
H039	L. Sheelin	22/12/2021	13:54	Grey Heron	1	lakes and ponds; flying across reedy lake fringes	NM
H040		22/12/2021	16:07	Grey Heron	1	cutover bog and scrub; flying across bog	NM
H041	L. Kinale	22/12/2021	12:21	Grey Heron	2	reed and large sedge swamps and lakes and ponds; calling from lake edge	NM
LB019	L. Sheelin	22/12/2021	13:37	Lesser Black-backed Gull	2	lakes and ponds; swooping over lake	NM
LG053	L. D'varagh	22/12/2021	08:35	Little Grebe	3	lakes and ponds; swimming close to shore	NM
LG058	L. Sheelin	22/12/2021	13:57	Little Grebe	3	lakes and ponds; swimming and diving within reedy margins	NM
LG057	Deragh Lough	22/12/2021	11:00	Little Grebe	16	lakes and ponds; swimming and diving on lake	NM
LG055		22/12/2021	08:42	Little Grebe	3	lakes and ponds; swimming and calling within reedy margins	NM
LG054	L. D'varagh	22/12/2021	08:43	Little Grebe	7	lakes and ponds; swimming and calling within emergent reedy islets	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
LG052	L. D'varagh	22/12/2021	08:31	Little Grebe	3	lakes and ponds; calling within reedy margins of lake	NM
LG056	L. Kinale	22/12/2021	11:23	Little Grebe	5	lakes and ponds; calling within reedy margins	NM
MA058	L. D'varagh	22/12/2021	08:34	Mallard	3	lakes and ponds; swimming on lake	NM
MA059	L. Kinale	22/12/2021	12:20	Mallard	5	lakes and ponds; swimming on lake	NM
MA060	L. Bane	22/12/2021	15:46	Mallard	41	lakes and ponds; swimming on lake	NM
MA061	BN2	22/12/2021	15:34	Mallard	7	cutover bog; swimming and foraging on bog wetland	NM
MA062	L. Sheelin	22/12/2021	13:36	Mallard	5	lakes and ponds; swimming along edge of reedy fringes	NM
MA063	Bracklagh Lough	22/12/2021	12:16	Mallard	2	lakes and ponds; flying low across lake	NM
MA064		22/12/2021	09:21	Mallard	2	watercourses; flushed from wet drain	NM
MA065		22/12/2021	09:32	Mallard	2	lakes and ponds; calling within reedy margins	NM
MH049	L. D'varagh	22/12/2021	08:32	Moorhen	4	lakes and ponds and highly modified/non-native woodland; wading within flooded willow margins	NM
MH050		22/12/2021	09:31	Moorhen	3	scrub and reed and large sedge swamps; calling within wetland / wet willow scrub	NM
MH051	L. Kinale	22/12/2021	11:23	Moorhen	2	lakes and ponds; calling within reedy margins	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MH052	L. Kinale	22/12/2021	12:14	Moorhen	2	lakes and ponds; calling within reedy margins	NM
MH053	L. Sheelin	22/12/2021	13:32	Moorhen	4	lakes and ponds; calling within reedy margins	NM
MH054	L. Sheelin	22/12/2021	13:55	Moorhen	5	lakes and ponds; calling within reedy margins	NM
	L. Sheelin	22/12/2021	13:05	Mute Swan	3	lakes and ponds; swimming within reedy corners of lake	NM
	L. D'varagh	22/12/2021	08:30	Mute Swan	46	lakes and ponds; swimming on lake	NM
	L. Kinale	22/12/2021	11:25	Mute Swan	5	lakes and ponds; swimming on lake	NM
	Deragh Lough	22/12/2021	11:00	Mute Swan	128	lakes and ponds; swimming on lake	NM
	Bracklagh Lough	22/12/2021	12:03	Mute Swan	13	lakes and ponds; swimming on lake	NM
	L. Kinale	22/12/2021	12:20	Mute Swan	16	lakes and ponds; swimming on lake	NM
	L. Kinale	22/12/2021	12:18	Mute Swan	35	lakes and ponds; swimming on lake	NM
	L. Kinale	22/12/2021	12:20	Mute Swan	7	lakes and ponds; swimming on lake	NM
	L. Sheelin	22/12/2021	13:35	Mute Swan	6	lakes and ponds; swimming on lake	NM
	L. Sheelin	22/12/2021	13:43	Mute Swan	7	lakes and ponds; swimming on lake	NM
	L. Sheelin	22/12/2021	13:47	Mute Swan	7	lakes and ponds; swimming on lake	NM
		22/12/2021	08:40	Mute Swan	7	lakes and ponds; swimming and foraging near lake edge	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
		22/12/2021	09:30	Mute Swan	29	lakes and ponds; swimming and feeding on lake	NM
	L. Sheelin	22/12/2021	13:47	Mute Swan	15	lakes and ponds; swimming and feeding along reedy lake fringes	NM
		22/12/2021	08:54	Mute Swan	5	lakes and ponds; roosting on lake edge	NM
	L. Bane	22/12/2021	15:44	Mute Swan	3	lakes and ponds; foraging within saturated edges of lake	NM
	R. Inny	22/12/2021	10:19	Mute Swan	3	depositing/lowland rivers; foraging along river edge (juveniles)	NM
WA011		22/12/2021	11:23	Water Rail	2	lakes and ponds and reed and large sedge swamps; pig calls from reeds	NM
BH051	L. Iron	23/12/2021	15:16	Black-headed Gull	12	lakes and ponds; swimming on lake + flying along edges	NM
H042		23/12/2021	16:18	Grey Heron	1	lakes and ponds; flying low and calling adjacent to lake	NM
MH055	L. Iron	23/12/2021	15:32	Moorhen	16	lakes and ponds; swimming within weedy edges of lake	NM
		23/12/2021	16:29	Mute Swan	3	improved agricultural grassland and hedgerows; flying sw across farmland	NM
BH054	L. D'varagh	04/01/2022	13:34	Black-headed Gull	8	lakes and ponds; flying and swooping over lake	NM
BH053	L. D'varagh	04/01/2022	10:10	Black-headed Gull	2	lakes and ponds, improved agricultural grassland and scrub; flying along lake shore	NM
BH052	L. D'varagh	04/01/2022	09:08	Black-headed Gull	34	lakes and ponds; circling and soaring over se end of lake	NM
CA031	L. D'varagh	04/01/2022	09:16	Cormorant	1	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
CA032	L. D'varagh	04/01/2022	10:05	Cormorant	2	lakes and ponds; swimming on lake	NM
CA033	L. D'varagh	04/01/2022	13:41	Cormorant	2	lakes and ponds; flying low across lake	NM
CA034	L. D'varagh	04/01/2022	09:21	Cormorant	2	lakes and ponds; flying low across lake	NM
CA035	L. D'varagh	04/01/2022	10:10	Cormorant	1	lakes and ponds; flying low across lake	NM
GG083	L. D'varagh	04/01/2022	09:10	Great Crested Grebe	4	lakes and ponds; swimming on lake	NM
GG084	L. D'varagh	04/01/2022	13:30	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
LB020	L. D'varagh	04/01/2022	13:37	Lesser Black-backed Gull	2	lakes and ponds; flying over lake	NM
LG061	L. D'varagh	04/01/2022	10:00	Little Grebe	7	lakes and ponds; swimming on lake	NM
LG063	L. D'varagh	04/01/2022	13:25	Little Grebe	5	lakes and ponds; swimming on lake	NM
LG065	L. D'varagh	04/01/2022	13:37	Little Grebe	6	lakes and ponds; swimming on lake	NM
LG060	L. D'varagh	04/01/2022	09:10	Little Grebe	9	lakes and ponds; swimming and diving on lake	NM
LG062	L. D'varagh	04/01/2022	13:30	Little Grebe	7	lakes and ponds; swimming and diving near edge of lake	NM
LG064	L. D'varagh	04/01/2022	13:31	Little Grebe	6	lakes and ponds; swimming and calling within tangled margins	NM
LG066	L. D'varagh	04/01/2022	14:47	Little Grebe	9	lakes and ponds; swimming and calling within reedbed boundary	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
LG059	L. Iron	04/01/2022	15:40	Little Grebe	37	lakes and ponds; swimming and calling on lake and within reedy boundaries	NM
MA066	L. D'varagh	04/01/2022	11:23	Mallard	18	other artificial lakes and ponds; swimming on pond	NM
MA067	L. Iron	04/01/2022	15:40	Mallard	32	lakes and ponds; swimming and foraging on lake and within reedy fringes	NM
MH056	L. D'varagh	04/01/2022	09:10	Moorhen	3	lakes and ponds; wading within flooded margins	NM
MH057	L. D'varagh	04/01/2022	11:40	Moorhen	3	other artificial lakes and ponds; swimming on pond	NM
MH058	L. D'varagh	04/01/2022	13:25	Moorhen	2	lakes and ponds; calling within reedy margins	NM
MH059	L. D'varagh	04/01/2022	14:45	Moorhen	6	lakes and ponds and reed and large sedge swamps; calling within reedy margins	NM
MH060	L. D'varagh	04/01/2022	14:17	Moorhen	2	lakes and ponds; calling from lake edge	NM
	L. D'varagh	04/01/2022	10:48	Mute Swan	2	other artificial lakes and ponds; swimming on pond	NM
	L. Iron	04/01/2022	15:40	Mute Swan	43	lakes and ponds; swimming on lake	NM
	L. D'varagh	04/01/2022	13:35	Mute Swan	23	lakes and ponds; swimming on lake	NM
	L. D'varagh	04/01/2022	13:27	Mute Swan	2	lakes and ponds; swimming and foraging in tangled margins of lake	NM
	L. D'varagh	04/01/2022	14:45	Mute Swan	7	lakes and ponds; flying low across lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG085	L. D'varagh	05/01/2022	13:27	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GN004	L. D'varagh	05/01/2022	13:30	Goldeneye	6	lakes and ponds; swimming on lake	NM
H043	BN2	05/01/2022	09:32	Grey Heron	2	cutover bog; flying low across bog wetland	NM
LG067	Derragh Lough	05/01/2022	10:35	Little Grebe	21	lakes and ponds; swimming and calling within reedy margins of lake	NM
LG068	L. D'varagh	05/01/2022	13:21	Little Grebe	16	lakes and ponds; swimming and calling within reedy edges	NM
	Derragh Lough	05/01/2022	10:34	Mute Swan	115	lakes and ponds; swimming on lake	NM
	L. D'varagh	05/01/2022	13:21	Mute Swan	50	lakes and ponds; swimming on lake	NM
BH057	L. Sheelin	17/01/2022	09:47	Black-headed Gull	4	lakes and ponds; swirling over lake	NM
BH061	L. D'varagh	17/01/2022	13:13	Black-headed Gull	16	lakes and ponds; swirling and swooping over lake	NM
BH063	L. Sheelin	17/01/2022	08:45	Black-headed Gull	16	lakes and ponds; swirling and swooping over lake	NM
BH058	Bracklagh Lough	17/01/2022	10:56	Black-headed Gull	6	lakes and ponds; swimming and swirling over lake	NM
BH056	L. Sheelin	17/01/2022	09:50	Black-headed Gull	19	lakes and ponds; flying and swooping over lake - spread out over s of lake	NM
BH055	L. Sheelin	17/01/2022	09:46	Black-headed Gull	6	lakes and ponds; flying and swooping over lake	NM
BH059		17/01/2022	15:54	Black-headed Gull	2	lakes and ponds, transition mire and quaking bog and semi-natural grassland; flying across lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BH060	L. D'varagh	17/01/2022	13:00	Black-headed Gull	4	lakes and ponds; flying across lake	NM
BH062	L. Sheelin	17/01/2022	08:34	Black-headed Gull	3	lakes and ponds; flying across lake	NM
CA036	Derragh Lough	17/01/2022	11:20	Cormorant	1	lakes and ponds; swimming on lake	NM
CA037	L. Sheelin	17/01/2022	09:50	Cormorant	1	lakes and ponds; swimming and diving on lake	NM
CA038	L. Sheelin	17/01/2022	08:38	Cormorant	2	lakes and ponds; swimming and diving on lake	NM
CA039	L. Sheelin	17/01/2022	08:46	Cormorant	14	scrub and lakes and ponds; perched in tree along lake	NM
CA040	L. Sheelin	17/01/2022	08:47	Cormorant	24	lakes and ponds; flying low across lake - not as one group but as numerous pairs and solitary individuals	NM
CA041	L. Sheelin	17/01/2022	09:49	Cormorant	1	lakes and ponds; flying high across sw area of lake	NM
GA006	L. Kinale N	17/01/2022	10:37	Gadwall	8	lakes and ponds; swimming on lake	NM
GA007	L. Bane	17/01/2022	15:50	Gadwall	6	lakes and ponds; swimming on lake	NM
GD002	L. Sheelin	17/01/2022	08:47	Goosander	28	lakes and ponds; swimming on lake	NM
GD001	L. Kinale	17/01/2022	10:35	Goosander	6	lakes and ponds and reed and large sedge swamps; flying s across lake	NM
GE001	BN2	17/01/2022	16:10	Green Sandpiper	1	cutover bog; flying rapidly across bog wetland + foraging + piercing call	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG087	Derragh Lough	17/01/2022	11:21	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG088	L. D'varagh	17/01/2022	13:02	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG090	L. D'varagh	17/01/2022	13:04	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG091	L. Sheelin	17/01/2022	08:36	Great Crested Grebe	2	lakes and ponds; swimming on lake	NM
GG093	L. Sheelin	17/01/2022	08:48	Great Crested Grebe	3	lakes and ponds; swimming on lake	NM
GG086	L. Kinale	17/01/2022	10:38	Great Crested Grebe	2	lakes and ponds; swimming and diving on lake	NM
GG089	L. D'varagh	17/01/2022	13:10	Great Crested Grebe	3	lakes and ponds; swimming and diving on lake	NM
GG092	L. Sheelin	17/01/2022	08:45	Great Crested Grebe	4	lakes and ponds; swimming and diving on lake	NM
GN005	L. D'varagh	17/01/2022	13:05	Goldeneye	24	lakes and ponds; swimming on lake	NM
GN006	L. Sheelin	17/01/2022	08:43	Goldeneye	17	lakes and ponds; swimming on lake	NM
H044	L. Bane	17/01/2022	15:50	Grey Heron	1	transition mire and quaking bog; perched on fringes	NM
H045	L. Sheelin	17/01/2022	09:50	Grey Heron	1	lakes and ponds; flying low and calling across lake	NM
H046	L. D'varagh	17/01/2022	13:07	Grey Heron	1	scrub and reed and large sedge swamps; flying low across scrub and wetland	NM
H047	L. Kinale	17/01/2022	10:40	Grey Heron	1	lakes and ponds; flying low across lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
H048	BN2	17/01/2022	16:20	Grey Heron	1	cutover bog and scrub; flying and calling across bog wetland	NM
H049	L. D'varagh	17/01/2022	13:17	Grey Heron	2	lakes and ponds; flying across lake	NM
H050	BN2	17/01/2022	16:24	Grey Heron	1	cutover bog; flying across bog + harried by rn	NM
LB021	L. Sheelin	17/01/2022	09:48	Lesser Black-backed Gull	2	lakes and ponds; flying across lake	NM
LG069	L. Sheelin	17/01/2022	10:26	Little Grebe	6	lakes and ponds and scrub; swimming close to and within flooded scrubby shore	NM
LG075	L. Sheelin	17/01/2022	08:53	Little Grebe	13	lakes and ponds; swimming and diving in sheltered area of lake	NM
LG071	L. D'varagh	17/01/2022	12:59	Little Grebe	5	lakes and ponds; swimming and diving close to lake shore	NM
LG072	L. D'varagh	17/01/2022	13:12	Little Grebe	12	lakes and ponds; swimming and calling within reedy islets close to lake shore	NM
LG074	L. Sheelin	17/01/2022	08:30	Little Grebe	6	lakes and ponds; swimming and calling within reedy margins of lake	NM
LG073	L. D'varagh	17/01/2022	13:12	Little Grebe	7	lakes and ponds; swimming and calling on lake	NM
LG070	Derragh Lough	17/01/2022	11:20	Little Grebe	32	lakes and ponds; calling and swimming on lake and within reeds	NM
MA068	L. D'varagh	17/01/2022	13:10	Mallard	18	lakes and ponds; swimming on lake	NM
MA069	L. Sheelin	17/01/2022	08:46	Mallard	6	lakes and ponds; swimming on lake	NM
MA070	L. D'varagh	17/01/2022	13:52	Mallard	7	lakes and ponds; swimming and calling along reedy fringes	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MA071	L. D'varagh	17/01/2022	13:04	Mallard	4	lakes and ponds; flying low across lake	NM
MA072	L. Sheelin	17/01/2022	08:52	Mallard	4	lakes and ponds; calling within reedy margins of lake	NM
MH061	R. Inny	17/01/2022	14:38	Moorhen	3	depositing/lowland rivers; wading along river banks	NM
MH062	L. Sheelin	17/01/2022	08:45	Moorhen	5	lakes and ponds; calling within reedy margins of lake	NM
MH063	L. D'varagh	17/01/2022	13:53	Moorhen	4	lakes and ponds; calling within reedy margins	NM
MH064	L. D'varagh	17/01/2022	13:08	Moorhen	6	lakes and ponds; calling within reedy margins	NM
MH065	L. D'varagh	17/01/2022	13:06	Moorhen	4	lakes and ponds and scrub; calling within flooded wooded margins of lake	NM
MH066	L. D'varagh	17/01/2022	13:14	Moorhen	6	lakes and ponds; calling and wading within reedy margins of lake	NM
MH067	Derragh Lough	17/01/2022	11:21	Moorhen	25	lakes and ponds and reed and large sedge swamps; calling and wading within reedy fringed	NM
	BN2	17/01/2022	16:09	Mute Swan	3	cutover bog; wading on bog wetland	NM
	L. Sheelin	17/01/2022	08:35	Mute Swan	7	lakes and ponds; swimming on lake	NM
	L. D'varagh	17/01/2022	13:23	Mute Swan	7	lakes and ponds; swimming within sw corner of lake	NM
	L. Sheelin	17/01/2022	09:56	Mute Swan	4	lakes and ponds; swimming on lake	NM
	L. Sheelin	17/01/2022	09:45	Mute Swan	16	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	L. Sheelin	17/01/2022	10:22	Mute Swan	5	lakes and ponds; swimming on lake	NM
	L. Kinale N	17/01/2022	10:40	Mute Swan	220	lakes and ponds; swimming on lake	NM
	L. Kinale	17/01/2022	10:41	Mute Swan	6	lakes and ponds; swimming on lake	NM
	Bracklagh Lough	17/01/2022	10:56	Mute Swan	12	lakes and ponds; swimming on lake	NM
	Derragh Lough	17/01/2022	11:20	Mute Swan	76	lakes and ponds; swimming on lake	NM
	L. Kinale S	17/01/2022	11:46	Mute Swan	17	lakes and ponds; swimming on lake	NM
	L. D'varagh	17/01/2022	13:51	Mute Swan	16	lakes and ponds; swimming on lake	NM
	L. Bane	17/01/2022	15:50	Mute Swan	10	lakes and ponds; swimming on lake	NM
	L. D'varagh	17/01/2022	12:58	Mute Swan	6	lakes and ponds; swimming on lake	NM
	L. D'varagh	17/01/2022	13:15	Mute Swan	6	lakes and ponds; swimming on lake	NM
	L. D'varagh	17/01/2022	13:05	Mute Swan	23	lakes and ponds; swimming on lake	NM
	L. D'varagh	17/01/2022	13:18	Mute Swan	11	lakes and ponds; swimming on lake	NM
	L. Sheelin	17/01/2022	08:30	Mute Swan	6	lakes and ponds; swimming on lake	NM
	L. Sheelin	17/01/2022	08:43	Mute Swan	14	lakes and ponds; swimming on lake	NM
	L. Sheelin	17/01/2022	08:39	Mute Swan	5	lakes and ponds; swimming on lake	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	L. Sheelin	17/01/2022	09:53	Mute Swan	17	lakes and ponds; swimming close to s shore	NM
	L. D'varagh	17/01/2022	13:06	Mute Swan	15	scrub and lakes and ponds; swimming and foraging along lake fringes and within edges of flooded woodland	NM
	L. Sheelin	17/01/2022	09:50	Mute Swan	18	lakes and ponds; swimming along n shore	NM
		17/01/2022	13:53	Mute Swan	2	improved agricultural grassland and semi-natural grassland; roosting on edge of flooding	NM
	R. Inny	17/01/2022	14:05	Mute Swan	61	improved agricultural grassland and depositing/lowland rivers; grazing on grassland along river (+5 swimming on river)	NM
	R. Inny	17/01/2022	14:00	Mute Swan	14	improved agricultural grassland and depositing/lowland rivers; grazing on grassland adjacent to river (4 swimming on river)	NM
	BN2	17/01/2022	16:40	Mute Swan	2	cutover bog and scrub; flying sw across bog wetland and adjacent cutover bog	NM
		17/01/2022	11:16	Mute Swan	6	lakes and ponds and mixed broadleaved woodland; flying sw	NM
WA012	BN2	17/01/2022	16:46	Water Rail	3	cutover bog; pig calls within bog wetland	NM
WA013	L. Sheelin	17/01/2022	08:41	Water Rail	3	lakes and ponds; pig calls from within reedy margins	NM

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BH067		18/01/2022	11:15	Black-headed Gull	28	improved agricultural grassland; swirling and swooping over grassland	NM
BH064	L. Iron	18/01/2022	16:23	Black-headed Gull	6	improved agricultural grassland, semi-natural grassland and scrub; soaring over swollen lake fringes	NM
BH065		18/01/2022	10:18	Black-headed Gull	4	improved agricultural grassland and lakes and ponds; roosting and foraging beside flooded hollow of field	NM
BH066		18/01/2022	10:23	Black-headed Gull	1	improved agricultural grassland and hedgerows; flying across farmland	NM
CA042	L. D'varagh	18/01/2022	13:45	Cormorant	2	lakes and ponds; flying across lake	NM
LG076	L. Iron	18/01/2022	16:00	Little Grebe	17	lakes and ponds; swimming on lake	NM
MA073		18/01/2022	10:31	Mallard	2	turloughs, lakes and ponds and improved agricultural grassland; wading within wetland	NM
MA074	L. Iron	18/01/2022	16:00	Mallard	67	lakes and ponds; swimming on lake	NM
		18/01/2022	10:30	Mute Swan	1	turloughs, lakes and ponds and improved agricultural grassland; wading within wetland	NM
	L. Iron	18/01/2022	16:00	Mute Swan	34	lakes and ponds; swimming on lake and within swollen edges	NM
BH068	Lough Sheelin west	14/02/2022	11:45	Black-headed Gull	65	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BH069	Bracklagh Lough	14/02/2022	12:20	Black-headed Gull	9	lakes and ponds; foraging	KB
BH070	Robinstown pond	14/02/2022	14:32	Black-headed Gull	7	lakes and ponds; foraging	KB
CA043	Lough Sheelin west	14/02/2022	11:45	Cormorant	3	lakes and ponds; foraging	KB
GG094	Lough Sheelin west	14/02/2022	11:45	Great Crested Grebe	17	lakes and ponds; foraging	KB
GG095	Bracklagh Lough	14/02/2022	12:20	Great Crested Grebe	2	lakes and ponds; foraging	KB
GG096	Derragh Lough	14/02/2022	13:26	Great Crested Grebe	2	lakes and ponds; foraging	KB
H051	Lough Sheelin west	14/02/2022	11:45	Grey Heron	1	lakes and ponds; foraging	KB
HG001	Lough Sheelin west	14/02/2022	11:45	Herring Gull	1	lakes and ponds; foraging	KB
LG077	Lough Sheelin west	14/02/2022	11:45	Little Grebe	5	lakes and ponds; foraging	KB
LG078	Derragh Lough	14/02/2022	13:26	Little Grebe	4	lakes and ponds; foraging	KB
MA075	Derragh Lough	14/02/2022	13:26	Mallard	1	lakes and ponds; roosting	KB
MA076	Bracklagh Lough	14/02/2022	12:20	Mallard	2	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MA077	Derragh Lough	14/02/2022	13:26	Mallard	2	lakes and ponds; foraging	KB
MH068	Lough Sheelin west	14/02/2022	11:45	Moorhen	2	lakes and ponds; foraging	KB
MH069	Bracklagh Lough	14/02/2022	12:20	Moorhen	3	lakes and ponds; foraging	KB
MH070	Lough Kinale south	14/02/2022	13:40	Moorhen	2	lakes and ponds; foraging	KB
	Lough Kinale	14/02/2022	12:50	Mute Swan	12	lakes and ponds; roosting	KB
	Derragh Lough	14/02/2022	13:26	Mute Swan	7	lakes and ponds; roosting	KB
	Lough Sheelin east	14/02/2022	10:40	Mute Swan	2	lakes and ponds; foraging	KB
	Lough Sheelin centre	14/02/2022	11:00	Mute Swan	1		KB
	Lough Sheelin west	14/02/2022	11:45	Mute Swan	43	lakes and ponds; foraging	KB
	Bracklagh Lough	14/02/2022	12:20	Mute Swan	9	lakes and ponds; foraging	KB
	Lough Kinale	14/02/2022	12:50	Mute Swan	89	lakes and ponds; foraging	KB
	Derragh Lough	14/02/2022	13:26	Mute Swan	37	lakes and ponds; foraging	KB
	River Inny	14/02/2022	13:35	Mute Swan	2	watercourses; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	Lough Kinale south	14/02/2022	13:40	Mute Swan	5	lakes and ponds; foraging	KB
SU001	Robinstown pond	14/02/2022	14:32	Shelduck	2	lakes and ponds; foraging	KB
CA044	Lough Derravaragh north	15/02/2022	13:13	Cormorant	2	lakes and ponds; foraging	KB
GG097	Lough Derravaragh south	15/02/2022	12:20	Great Crested Grebe	6	lakes and ponds; foraging	KB
GG098	Lough Derravaragh north	15/02/2022	13:13	Great Crested Grebe	2	lakes and ponds; foraging	KB
GN007	Lough Derravaragh south	15/02/2022	12:20	Goldeneye	11	lakes and ponds; foraging	KB
GN008	Lough Derravaragh north	15/02/2022	13:13	Goldeneye	6	lakes and ponds; foraging	KB
LG079	Lough Derravaragh south	15/02/2022	12:20	Little Grebe	4	lakes and ponds; foraging	KB
LG080	Lough Derravaragh north	15/02/2022	13:13	Little Grebe	11	lakes and ponds; foraging	KB
MH071	Lough Derravaragh north	15/02/2022	13:13	Moorhen	1	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	Lough Derravaragh south	15/02/2022	12:20	Mute Swan	4	lakes and ponds; roosting	KB
	Lough Derravaragh north	15/02/2022	13:13	Mute Swan	1		KB
	Lough Iron	15/02/2022	09:40	Mute Swan	12	lakes and ponds; foraging	KB
	lake off Lough Derravaragh	15/02/2022	11:47	Mute Swan	8	watercourses and lakes and ponds; foraging	KB
	Lough Derravaragh south	15/02/2022	12:20	Mute Swan	24	lakes and ponds; foraging	KB
	River Inny and lake off Lough Derravaragh	15/02/2022	12:50	Mute Swan	4	lakes and ponds; foraging	KB
	Clonave, river Inny	15/02/2022	12:56	Mute Swan	19	improved agricultural grassland and watercourses; foraging	KB
	River Inny	15/02/2022	12:58	Mute Swan	4	improved agricultural grassland and watercourses; foraging	KB
	Derrycrave	15/02/2022	15:30	Mute Swan	2	lakes and ponds and cutover bog; foraging	KB
BH071	Bracklagh Lough	26/02/2022	09:00	Black-headed Gull	108	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BH072	Lough Sheelin west	26/02/2022	09:20	Black-headed Gull	9	lakes and ponds; foraging	KB
BH073	Lough Kinale	26/02/2022	10:26	Black-headed Gull	56	lakes and ponds; foraging	KB
CA045	Lough Sheelin west	26/02/2022	09:20	Cormorant	2	lakes and ponds; foraging	KB
CA046	Lough Sheelin east	26/02/2022	10:14	Cormorant	1	lakes and ponds; foraging	KB
GG099	Bracklagh Lough	26/02/2022	09:00	Great Crested Grebe	2	lakes and ponds; foraging	KB
GG100	Lough Sheelin west	26/02/2022	09:20	Great Crested Grebe	22	lakes and ponds; foraging	KB
GG101	Lough Sheelin centre	26/02/2022	09:53	Great Crested Grebe	5	lakes and ponds; foraging	KB
GG102	Lough Kinale	26/02/2022	10:26	Great Crested Grebe	9	lakes and ponds; foraging	KB
GG103	Derragh Lough	26/02/2022	11:04	Great Crested Grebe	6	lakes and ponds; foraging	KB
GG104	Lough Kinale south	26/02/2022	11:28	Great Crested Grebe	1	lakes and ponds; foraging	KB
H052	Lough Sheelin west	26/02/2022	09:20	Grey Heron	2	lakes and ponds; foraging	KB
H053	Lough Kinale	26/02/2022	10:26	Grey Heron	4	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
H054	Derragh Lough	26/02/2022	11:04	Grey Heron	3	lakes and ponds; foraging	KB
LG081	Lough Sheelin west	26/02/2022	09:20	Little Grebe	8	lakes and ponds; foraging	KB
LG082	Derragh Lough	26/02/2022	11:04	Little Grebe	4	lakes and ponds; foraging	KB
MA078	Derragh Lough	26/02/2022	11:04	Mallard	5	lakes and ponds; foraging	KB
MA079	Derrycrave	26/02/2022	13:28	Mallard	5	lakes and ponds and cutover bog; foraging	KB
MH072	Derragh Lough	26/02/2022	11:04	Moorhen	1	lakes and ponds; foraging	KB
MH073	Lough Kinale south	26/02/2022	11:28	Moorhen	1	lakes and ponds; foraging	KB
	Bracklagh Lough	26/02/2022	09:00	Mute Swan	4	lakes and ponds; foraging	KB
	Lough Sheelin west	26/02/2022	09:20	Mute Swan	19	lakes and ponds; foraging	KB
	Lough Sheelin centre	26/02/2022	09:53	Mute Swan	5	lakes and ponds; foraging	KB
	Lough Kinale	26/02/2022	10:26	Mute Swan	218	lakes and ponds; foraging	KB
	Derragh Lough	26/02/2022	11:04	Mute Swan	35	lakes and ponds; foraging	KB
	Inny River	26/02/2022	11:22	Mute Swan	2	watercourses; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	Lough Kinale south	26/02/2022	11:28	Mute Swan	8	lakes and ponds; foraging	KB
	Flooded cutaway bog on site	26/02/2022	12:58	Mute Swan	2	cutover bog; foraging	KB
	Derrycrave	26/02/2022	13:28	Mute Swan	2	lakes and ponds and cutover bog; foraging	KB
SU002	Robinstown pond	26/02/2022	13:42	Shelduck	2	lakes and ponds; foraging	KB
BH074	Lough Derravaragh south	28/02/2022	11:45	Black-headed Gull	28	lakes and ponds; foraging	KB
BH075	lake off Lough Derravaragh	28/02/2022	12:28	Black-headed Gull	8	lakes and ponds; foraging	KB
BH076	River Inny and lake off Lough Derravaragh	28/02/2022	13:05	Black-headed Gull	3	lakes and ponds and watercourses; foraging	KB
GG105	Lough Derravaragh south	28/02/2022	11:45	Great Crested Grebe	10	lakes and ponds; foraging	KB
GG106	lake off Lough Derravaragh	28/02/2022	12:28	Great Crested Grebe	4	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG107	River Inny and lake off Lough Derravaragh	28/02/2022	13:05	Great Crested Grebe	3	lakes and ponds and watercourses; foraging	KB
LG083	Lough Derravaragh south	28/02/2022	11:45	Little Grebe	6	lakes and ponds; foraging	KB
LG084	Lough Derravaragh north	28/02/2022	13:31	Little Grebe	3	lakes and ponds; foraging	KB
MH074	lake off Lough Derravaragh	28/02/2022	12:28	Moorhen	2	lakes and ponds; foraging	KB
MH075	River Inny and lake off Lough Derravaragh	28/02/2022	13:05	Moorhen	2	lakes and ponds and watercourses; foraging	KB
MH076	River Inny	28/02/2022	14:00	Moorhen	2	watercourses; foraging	KB
	Lough Derravaragh south	28/02/2022	11:45	Mute Swan	11	lakes and ponds; foraging	KB
	lake off Lough Derravaragh	28/02/2022	12:28	Mute Swan	5	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	River Inny and lake off Lough Derravaragh	28/02/2022	13:05	Mute Swan	2	lakes and ponds and watercourses; foraging	KB
	Clonava island	28/02/2022	13:13	Mute Swan	36	improved agricultural grassland and watercourses; foraging	KB
	Clonava island	28/02/2022	13:21	Mute Swan	14	improved agricultural grassland and watercourses; foraging	KB
	Lough Derravaragh north	28/02/2022	13:31	Mute Swan	4	lakes and ponds; foraging	KB
	Lough Iron - piercefield fields	28/02/2022	15:20	Mute Swan	3	improved agricultural grassland; foraging	KB
BH077	Brackagh Lough	07/03/2022	09:00	Black-headed Gull	12	lakes and ponds; foraging	KB
BH078	Lough Kinale	07/03/2022	10:20	Black-headed Gull	8	lakes and ponds; foraging	KB
CA047	Lough Sheelin west	07/03/2022	09:16	Cormorant	8	lakes and ponds; roosting	KB
GG108	Brackagh Lough	07/03/2022	09:00	Great Crested Grebe	2	lakes and ponds; foraging	KB
GG109	Lough Sheelin west	07/03/2022	09:16	Great Crested Grebe	5	lakes and ponds; foraging	KB
GG110	Lough Kinale	07/03/2022	10:20	Great Crested Grebe	2	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG111	Derragh Lough	07/03/2022	10:51	Great Crested Grebe	3	lakes and ponds; foraging	KB
LG085	Brackagh Lough	07/03/2022	09:00	Little Grebe	6	lakes and ponds; foraging	KB
LG086	Lough Sheelin west	07/03/2022	09:16	Little Grebe	4	lakes and ponds; foraging	KB
LG087	Derragh Lough	07/03/2022	10:51	Little Grebe	4	lakes and ponds; foraging	KB
LG088	Lough Kinale south	07/03/2022	11:08	Little Grebe	1	lakes and ponds; foraging	KB
LG089	Robinstown pond	07/03/2022	12:39	Little Grebe	2	lakes and ponds; foraging	KB
MH077	Brackagh Lough	07/03/2022	09:00	Moorhen	4	lakes and ponds; foraging	KB
MH078	Lough Sheelin west	07/03/2022	09:16	Moorhen	2	lakes and ponds; foraging	KB
MH079	Derragh Lough	07/03/2022	10:51	Moorhen	2	lakes and ponds; foraging	KB
MH080	Robinstown flooded fields	07/03/2022	12:50	Moorhen	2	wet grassland; foraging	KB
	Brackagh Lough	07/03/2022	09:00	Mute Swan	2	lakes and ponds; roosting	KB
	Lough Sheelin west	07/03/2022	09:16	Mute Swan	5	lakes and ponds; roosting	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	Brackagh Lough	07/03/2022	09:00	Mute Swan	16	lakes and ponds; foraging	KB
	Lough Sheelin west	07/03/2022	09:16	Mute Swan	23	lakes and ponds; foraging	KB
	Lough Sheelin centre	07/03/2022	19:42	Mute Swan	4	lakes and ponds; foraging	KB
	Lough Sheelin east	07/03/2022	10:05	Mute Swan	2	lakes and ponds; foraging	KB
	Lough Kinale	07/03/2022	10:20	Mute Swan	42	lakes and ponds; foraging	KB
	Derragh Lough	07/03/2022	10:51	Mute Swan	31	lakes and ponds; foraging	KB
	Lough Kinale south	07/03/2022	11:08	Mute Swan	4	lakes and ponds; foraging	KB
	Robinstown pond	07/03/2022	12:39	Mute Swan	1	lakes and ponds; foraging	KB
	Robinstown flooded fields	07/03/2022	12:50	Mute Swan	2	wet grassland; foraging	KB
BH079	Lough Derravaragh south	08/03/2022	12:01	Black-headed Gull	33	lakes and ponds; foraging	KB
BH080	Lake off Lough Derravaragh	08/03/2022	12:37	Black-headed Gull	143	improved agricultural grassland; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
BH081	Lake off Lough Derravaragh	08/03/2022	12:37	Black-headed Gull	61	lakes and ponds; foraging	KB
CM006	Lough Derravaragh south	08/03/2022	12:01	Common Gull	1	lakes and ponds; foraging	KB
GG112	Lough Derravaragh south	08/03/2022	12:01	Great Crested Grebe	13	lakes and ponds; foraging	KB
GG113	Lake off Lough Derravaragh	08/03/2022	12:37	Great Crested Grebe	2	lakes and ponds; foraging	KB
GG114	River Inny and lake off Loughh Derravaragh	08/03/2022	13:10	Great Crested Grebe	4	lakes and ponds and watercourses; foraging	KB
GG115	Lough Derravaragh north	08/03/2022	13:32	Great Crested Grebe	2	lakes and ponds; foraging	KB
LG090	Lough Derravaragh south	08/03/2022	12:01	Little Grebe	4	lakes and ponds; foraging	KB
LG091	River Inny and lake off Loughh Derravaragh	08/03/2022	13:10	Little Grebe	2	lakes and ponds and watercourses; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MA080	Lake off Lough Derravaragh	08/03/2022	12:37	Mallard	7	lakes and ponds; foraging	KB
MA081	Lough Derravaragh north	08/03/2022	13:32	Mallard	20	lakes and ponds; foraging	KB
MA082	Lough Bane	08/03/2022	15:30	Mallard	2	lakes and ponds; foraging	KB
MA083	Derrycrave - BnaM lake/pond	08/03/2022	16:00	Mallard	1	lakes and ponds; foraging	KB
	Lough Derravaragh south	08/03/2022	12:01	Mute Swan	8	lakes and ponds; foraging	KB
	Lake off Lough Derravaragh	08/03/2022	12:37	Mute Swan	2	improved agricultural grassland; foraging	KB
	Lake off Lough Derravaragh	08/03/2022	12:37	Mute Swan	4	lakes and ponds; foraging	KB
	River Inny and lake off Loughh Derravaragh	08/03/2022	13:10	Mute Swan	2	lakes and ponds and watercourses; foraging	KB
	Clonava	08/03/2022	13:22	Mute Swan	38	improved agricultural grassland and watercourses; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	River Inny	08/03/2022	13:24	Mute Swan	17	watercourses; foraging	KB
	Lough Derravaragh north	08/03/2022	13:32	Mute Swan	5	lakes and ponds; foraging	KB
	Flooded bog on site	08/03/2022	15:24	Mute Swan	1	cutover bog; foraging	KB
	Derrycrave - BnaM lake/pond	08/03/2022	16:00	Mute Swan	2	lakes and ponds; foraging	KB
BH082	Brackagh Lough	31/03/2022	08:00	Black-headed Gull	3	lakes and ponds; foraging	KB
BH083	Lough Sheelin west	31/03/2022	08:20	Black-headed Gull	32	lakes and ponds; foraging	KB
BH084	Derragh Lough	31/03/2022	09:32	Black-headed Gull	2	lakes and ponds; foraging	KB
BH086	Lough Derravaragh south	31/03/2022	15:27	Black-headed Gull	16	lakes and ponds; foraging	KB
BH085	River Inny	31/03/2022	10:24	Black-headed Gull	3	watercourses and cutover bog; flying over	KB
GG116	Lough Sheelin west	31/03/2022	08:20	Great Crested Grebe	15	lakes and ponds; foraging	KB
GG117	Lough Kinale	31/03/2022	09:07	Great Crested Grebe	2	lakes and ponds; foraging	KB
GG118	Derragh Lough	31/03/2022	09:32	Great Crested Grebe	2	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
GG119	Lough Kinale south	31/03/2022	09:50	Great Crested Grebe	1	lakes and ponds; foraging	KB
GG120	Lough Derravaragh north	31/03/2022	13:41	Great Crested Grebe	2	lakes and ponds; foraging	KB
GG121	Lake off Lough Derravaragh	31/03/2022	15:00	Great Crested Grebe	2	lakes and ponds; foraging	KB
GG122	Lough Derravaragh south	31/03/2022	15:27	Great Crested Grebe	13	lakes and ponds; foraging	KB
GN009	Lough Derravaragh north	31/03/2022	13:41	Goldeneye	5	lakes and ponds; foraging	KB
H055	Lough Sheelin west	31/03/2022	08:20	Grey Heron	1	lakes and ponds; foraging	KB
H056	Derragh Lough	31/03/2022	09:32	Grey Heron	1	lakes and ponds; foraging	KB
LG092	Derragh Lough	31/03/2022	09:32	Little Grebe	2	lakes and ponds; foraging	KB
LG093	Lough Kinale south	31/03/2022	09:50	Little Grebe	1	lakes and ponds; foraging	KB
LG094	Lough Derravaragh north	31/03/2022	13:41	Little Grebe	3	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
LG095	Lough Derravaragh south	31/03/2022	15:27	Little Grebe	1	lakes and ponds; foraging	KB
MA084	Brackagh Lough	31/03/2022	08:00	Mallard	2	lakes and ponds; foraging	KB
MA085	Lough Kinale	31/03/2022	09:07	Mallard	2	lakes and ponds; foraging	KB
MA086	Derragh Lough	31/03/2022	09:32	Mallard	3	lakes and ponds; foraging	KB
MA087	Flooded bog on site	31/03/2022	11:20	Mallard	1	cutover bog; foraging	KB
MA088	Lough Bane	31/03/2022	11:25	Mallard	1	lakes and ponds; foraging	KB
MA089	Lough Derravaragh north	31/03/2022	13:41	Mallard	10	lakes and ponds; foraging	KB
MA090	Lake off Lough Derravaragh	31/03/2022	15:00	Mallard	4	lakes and ponds; foraging	KB
MA091	Lough Derravaragh south	31/03/2022	15:27	Mallard	6	lakes and ponds; foraging	KB
MH081	Lough Sheelin east	31/03/2022	08:45	Moorhen	1	lakes and ponds; foraging	KB
MH082	River Inny	31/03/2022	09:40	Moorhen	1	watercourses; foraging	KB
MH083	Robinstown flooded fields	31/03/2022	13:16	Moorhen	4	lakes and ponds; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MH084	Lough Derravaragh north	31/03/2022	13:41	Moorhen	2	lakes and ponds; foraging	KB
	Brackagh Lough	31/03/2022	08:00	Mute Swan	2	lakes and ponds; foraging	KB
	Lough Sheelin west	31/03/2022	08:20	Mute Swan	11	lakes and ponds; foraging	KB
	Lough Sheelin centre	31/03/2022	08:32	Mute Swan	21	lakes and ponds; foraging	KB
	Lough Sheelin east	31/03/2022	08:45	Mute Swan	2	lakes and ponds; foraging	KB
	Lough Kinale	31/03/2022	09:07	Mute Swan	214	lakes and ponds; foraging	KB
	Derragh Lough	31/03/2022	09:32	Mute Swan	34	lakes and ponds; foraging	KB
	Lough Kinale south	31/03/2022	09:50	Mute Swan	7	lakes and ponds; foraging	KB
	Flooded bog on site	31/03/2022	11:20	Mute Swan	1	cutover bog; foraging	KB
	Lough Bane	31/03/2022	11:25	Mute Swan	1	lakes and ponds; foraging	KB
	Lough Derravaragh north	31/03/2022	13:41	Mute Swan	11	lakes and ponds; foraging	KB
	River Inny	31/03/2022	14:02	Mute Swan	7	improved agricultural grassland and watercourses; foraging	KB

Wildfowl Distribution Surveys							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	River Inny and lake off Loughh Derravaragh	31/03/2022	14:12	Mute Swan	5	lakes and ponds; foraging	KB
	Lake off Lough Derravaragh	31/03/2022	15:00	Mute Swan	3	lakes and ponds; foraging	KB
	Lough Derravaragh south	31/03/2022	15:27	Mute Swan	32	lakes and ponds; foraging	KB
SU003	Robinstown pond	31/03/2022	13:10	Shelduck	2	lakes and ponds; foraging	KB

Table 1-67 Incidental Non-target Species Observations

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	Breeding Walkover Survey, onsite	07/04/2021	08:21	Hare	1	mixed broadleaved/conifer woodland; feeding	PM
	Breeding Walkover Survey, 500m survey radius	07/04/2021	09:21	Hare	1	cutover bog; walking	PM
	Breeding Raptor Survey, rvp6	29/04/2021	13:21	Mallard	1	wet grassland; travelling	PM
	Breeding Raptor Survey, rvp6	29/04/2021	14:35	Mallard	2	mixed broadleaved/conifer woodland; travelling	PM
	Breeding Raptor Survey, rvp1	30/04/2021	13:06	Black-Headed Gull	1	cutover bog; travelling	PM
	Breeding Raptor Survey, rvp1	30/04/2021	13:41	Grey Heron	1	cutover bog; travelling	PM
	Breeding Raptor Survey, rvp2	30/04/2021	08:16	Mallard	1	improved agricultural grassland and short rotation coppice; travelling; landed	PM
	Breeding Raptor Survey, rvp1	30/04/2021	12:45	Mallard	2	cutover bog; travelling	PM
	Breeding Raptor Survey, rvp1	30/04/2021	13:29	Ringed Plover	2	cutover bog; landed and began territorial behaviour, either m&f displaying or 2m posturing	PM

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	Breeding Raptor Survey, rvp1	06/05/2021	17:20	Black-Headed Gull	1	improved agricultural grassland; travelling	PM
	Breeding Raptor Survey, rvp1	06/05/2021	17:23	Black-Headed Gull	3	cutover bog; travelling; landed	PM
	Breeding Raptor Survey, rvp1	06/05/2021	16:39	Grey Heron	1	cutover bog; flew and landed on bog	PM
	Breeding Raptor Survey, rvp1	06/05/2021	18:47	Grey Heron	1	depositing/lowland rivers and mixed broadleaved/conifer woodland; travelling	PM
	Breeding Raptor Survey, rvp1	06/05/2021	16:39	Mallard	3	cutover bog; one flew and landed beside pair	PM
	Breeding Raptor Survey, rvp1	06/05/2021	16:50	Mallard	3	cutover bog; flew in to join other ma	PM
	Breeding Raptor Survey, rvp1	06/05/2021	18:03	Moorhen	1	cutover bog; feeding	PM
	Breeding Raptor Survey, rvp1	06/05/2021	17:20	Mute Swan	1	cutover bog; travelling	PM
	Breeding Raptor Survey, rvp1	06/05/2021	17:01	Ringed Plover	1	cutover bog; flying; landed and began feeding	PM
	Breeding Walkover Survey, on site	14/05/2021	08:27	Hare	1	cutover bog; running	PM

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	Breeding Walkover Survey, on site	14/05/2021	05:53	Red Fox	1	improved agricultural grassland; carrying prey (chicken)	PM
	Breeding Walkover Survey, on site	14/05/2021	07:23	Red Squirrel	1	conifer plantation; ran across track	PM
	Breeding Woodcock Survey, on site	18/05/2021	21:12	Grey Heron	1	mixed broadleaved/conifer woodland and improved agricultural grassland; travelling	PM
	Breeding Woodcock Survey, on site	18/05/2021	21:48	Grey Heron	1	mixed broadleaved/conifer woodland; travelling	PM
	Vantage Point Survey, vp4	21/05/2021	06:37	Hare	1	cutover bog; travelling	PM
	Breeding Raptor Survey, rvp2a	24/05/2021	19:21	Black-Headed Gull	1	improved agricultural grassland and mixed broadleaved/conifer woodland; travelling	PM
	Breeding Raptor Survey, rvp2a	24/05/2021	18:02	Grey Heron	1	improved agricultural grassland and mixed broadleaved/conifer woodland; travelling	PM
	Breeding Raptor Survey, rvp1	03/06/2021	18:10	Black-Headed Gull	3	cutover bog; roosting	PM
	Breeding Raptor Survey, rvp1	03/06/2021	18:29	Grey Heron	1	cutover bog; circling before landing	PM
	Breeding Raptor Survey, rvp1	03/06/2021	18:30	Irish Hare	1	cutover bog; travelling	PM

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	Breeding Raptor Survey, rvp1	03/06/2021	18:09	Mallard	5	cutover bog; roosting	PM
	Breeding Raptor Survey, rvp1	03/06/2021	20:18	Mallard	20	conifer plantation and cutover bog; coming into roost, all males	PM
	Breeding Raptor Survey, rvp1	03/06/2021	20:24	Mallard	43	cutover bog; flying to other lake	PM
	Breeding Raptor Survey, rvp1	03/06/2021	18:29	Ringed Plover	1	cutover bog; preening	PM
	Breeding Raptor Survey, rvp6	04/06/2021	19:26	Grey Heron	1	depositing/lowland rivers; travelling	PM
	Breeding Raptor Survey, rvp6	04/06/2021	18:47	Mallard	1	cutover bog; travelling, male	PM
	Breeding Woodcock Survey, t3 coole	04/06/2021	21:45	Mink	1	conifer plantation; travelling	TRea
	Breeding Raptor Survey, rvp2	28/06/2021	21:10	Black-Headed Gull	2	mixed broadleaved/conifer woodland; travelling	PM
	Breeding Raptor Survey, rvp2	28/06/2021	19:10	Black-Headed Gull	1	mixed broadleaved/conifer woodland; travelling	PM
	Breeding Raptor Survey, rvp2	28/06/2021	19:56	Black-Headed Gull	1	mixed broadleaved/conifer woodland and improved agricultural grassland; travelling, juvenile	PM
	Breeding Raptor Survey, rvp2	28/06/2021	19:23	Great Spotted Woodpecker	1	conifer plantation; on tree	PM

Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
	Breeding Raptor Survey, rvp2	28/06/2021	19:52	Lesser Black-Backed Gull	1	mixed broadleaved/conifer woodland and improved agricultural grassland; travelling	PM
	Breeding Raptor Survey, rvp2	28/06/2021	20:24	Lesser Black-Backed Gull	1	mixed broadleaved/conifer woodland; travelling	PM
	Breeding Raptor Survey, coole brvp5	13/07/2021	14:20	Pine Martin	1	bogs and highly modified/non-native woodland; travelling	TRea
	Breeding Raptor Survey, rvp1 coole	19/07/2021	10:29	Meadow Pipit	2	bogs; display	TRea
	Breeding Walkover Survey, 500m survey radius	23/07/2021	08:01	Irish Hare	1	cutover bog; travelling	PM
	Vantage Point Survey, coole vp6	19/08/2021	15:44	Meadow Pipit	6	cutover bog; flying, calling, present through duration of survey	TRea
GL001	Wildfowl Distribution Survey, r. inny	12/10/2021	15:04	Grey Wagtail	1	depositing/lowland rivers; flying along river	NM
GL002	Wildfowl Distribution Survey,	23/11/2021	13:12	Grey Wagtail	2	depositing/lowland rivers and hedgerows; flitting under bridge	NM
RE001	Vantage Point Survey, clonrobert	25/01/2022	14:07	Redwing	1	improved agricultural grassland and treelines; flying	ZE



Incidental Records							
Map Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MA001	Vantage Point Survey, coole vp6	08/03/2022	13:13	Mallard	2	cutover bog; flying, 2 ma seen flying in route to site	NS



APPENDIX 3

CONFIDENTIAL DATA

This data has been removed from the public files for confidentiality reasons in the interest of the protected species



APPENDIX 4

FIGURES



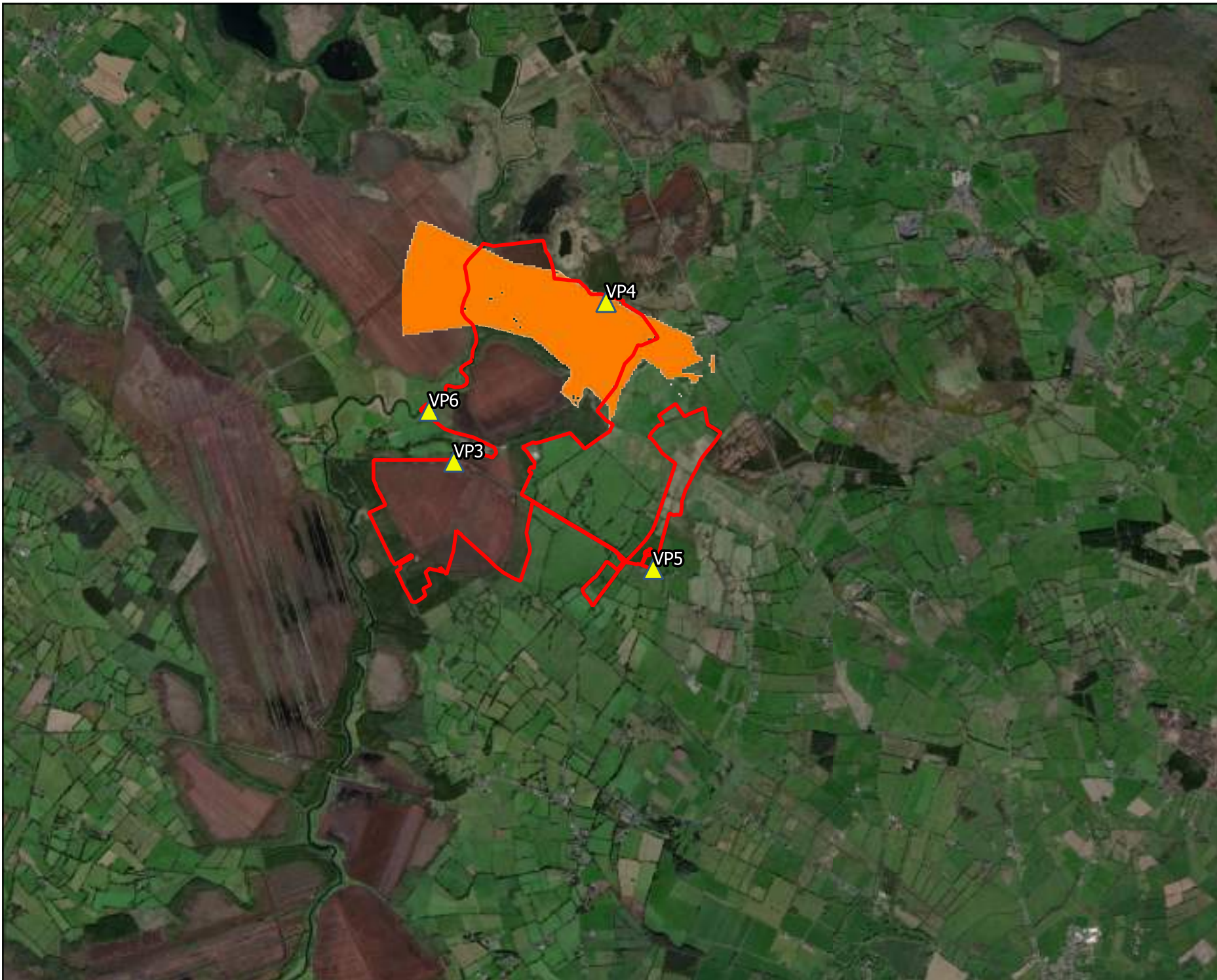
Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location



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Drawing Title Vantage Point Locations	
Project Title Coole Wind Farm	
Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 1
Scale 1:25000	Date 05/07/2022
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Map Legend

- Wind Farm Site
- ▲ Vantage Point Locations

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Drawing Title
Viewshed analysis (20m swept Height)

Project Title
Coolo Wind Farm

Drawn By IH	Checked By PC
Project No. 200445g	Drawing No. Fig. 1.A
Scale 1:48707	Date 27.10.2022

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Map Legend

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- ▲ Vantage Point Locations

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Drawing Title
Viewshed analysis (25m swept Height)

Project Title
Coolo Wind Farm

Drawn By IH	Checked By PC
Project No. 200445g	Drawing No. Fig. 1.B
Scale 1:48707	Date 27.10.2022

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Map Legend

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- ▲ Vantage Point Locations



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Drawing Title
Viewshed analysis (26m Swept Height)

Project Title
Coolo Wind Farm

Drawn By IH	Checked By PC
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Project No. 200445g	Drawing No. Fig.1C
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Scale 1:48707	Date 27.10.2022
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- ➔ Flightline



Drawing Title
**Golden Plover Observations.
 Vantage Point Surveys**

Project Title
Coole Wind Farm

Drawn By P. Manley	Checked By P. Cregg
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Project No. 200445g	Drawing No. Fig. 1.1
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Scale 1:45000	Date 05/07/2022
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- ▲ Vantage Point Location
- ➔ Flightline



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Drawing Title
**White-fronted Goose Obs.
 Vantage Point Surveys**

Project Title
Coole Wind Farm


Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 1.2
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- ➔ Flightline



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Drawing Title	
Hen Harrier Observations Vantage Point Surveys	
Project Title	
Coole Wind Farm	
Drawn By	Checked By
I.Hynes	P.Cregg
Project No.	Drawing No.
200445g	Fig.1.3
Scale	Date
1:25000	05/07/2022



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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- ➔ Flightline
- ◆ Non-flight observations



Drawing Title
**Kingfisher Observations
 Vantage Point Surveys**

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 1.4
Scale 1:25000	Date 05/07/2022

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- Turbine Layout
- ▲ Vantage Point Location
- ➔ Flightline



Drawing Title
Merlin Observations Vantage Point Surveys

Project Title
Coole Wind Farm

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Project No. 200445g	Drawing No. Fig.1.5
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- ➔ Flightline



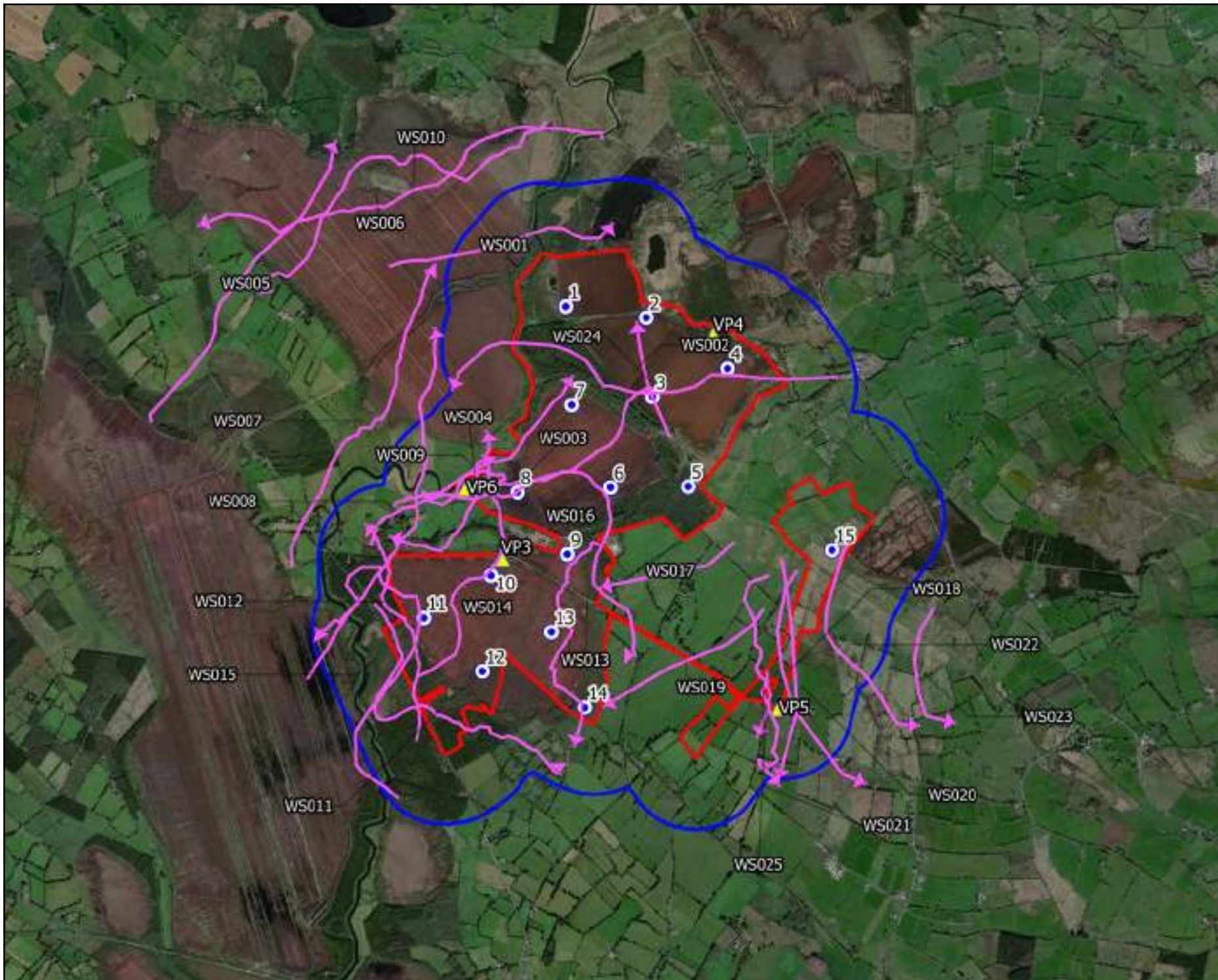
Drawing Title
**Peregrine Observations
 Vantage Point Surveys**

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig.1.6
Scale 1:25000	Date 05/07/2022

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- Turbine Layout
- ▲ Vantage Point Location
- Flightline



Drawing Title
**Whooper Swan Observations
 Vantage Point Surveys**

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 1.7
Scale 1:35000	Date 05/07/2022

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Map Legend

- Wind Farm Site
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- Turbine Layout
- ▲ Vantage Point Location
- ➔ Flightline



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Drawing Title
**Coot Observations
 Vantage Point Surveys**

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig.1.8
Scale 1:25000	Date 05/07/2022




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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- Flightline

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Drawing Title	
Curlew Observations Vantage Point Surveys	
Project Title	
Coole Wind Farm	
Drawn By	Checked By
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Project No.	Drawing No.
200445g	Fig. 1.9
Scale	Date
1:25000	05/07/2022



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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- Flightline



Drawing Title

Kestrel Observations
Vantage Point Surveys

Project Title

Coole Wind Farm

Drawn By

I. Hynes

Checked By

P. Cregg

Project No.

200445g

Drawing No.

Fig. 1.10

Scale

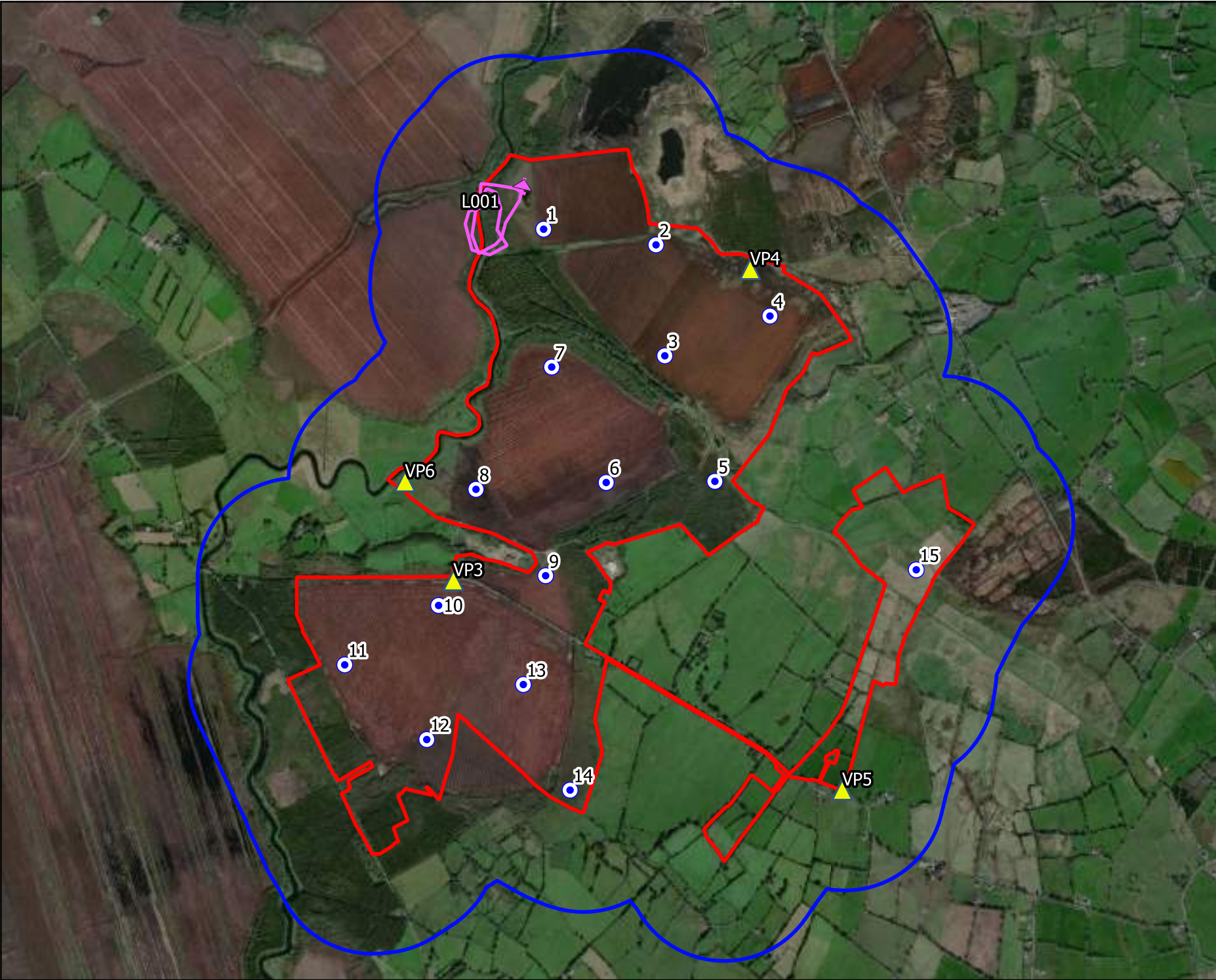
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Date

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Map Legend

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- Turbine Layout
- ▲ Vantage Point Location
- ➔ Flightline



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Drawing Title
**Lapwing Observations
Vantage Point Surveys**

Project Title
Coole Wind Farm

Drawn By I. Hynes	Checked By P. Cregg
Project No. 200445g	Drawing No. Fig. 1.11
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- Flightline
- ◆ Non-flight observations



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Drawing Title
**Snipe Observations
 Vantage Point Surveys**

Project Title
Coole Wind Farm

Drawn By I. hynes	Checked By P. Cregg
Project No. 200445g	Drawing No. Fig. 1.12
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- Flightline



Drawing Title
**Woodcock Observations
 Vantage Point Surveys**

Project Title
Coole Wind Farm

Drawn By I. Hynes	Checked By P. Cregg
Project No. 200445g	Drawing No. Fig. 1.13
Scale 1:25000	Date 05/07/2022


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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- Flightline



North Arrow

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<p>Drawing Title</p> <p>Buzzard Observations Vantage Point Surveys</p>	
<p>Project Title</p> <p>Coole Wind Farm</p>	
<p>Drawn By</p> <p>I.Hynes</p>	<p>Checked By</p> <p>P.Cregg</p>
<p>Project No.</p> <p>200445g</p>	<p>Drawing No.</p> <p>Fig.1.14</p>
<p>Scale</p> <p>1:45000</p>	<p>Date</p> <p>05/07/2022</p>
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- Possible Breeding Territories



Drawing Title
**Buzzard Breeding Territories
 Vantage Point Surveys**

Project Title
Coolie Wind Farm

Drawn By J.Hynes	Checked By P.Cregg
Project No. 2004-45g	Drawing No. Fig. 1.14.1
Scale 1:45000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ▲ Vantage Point Location
- ➔ Flightline



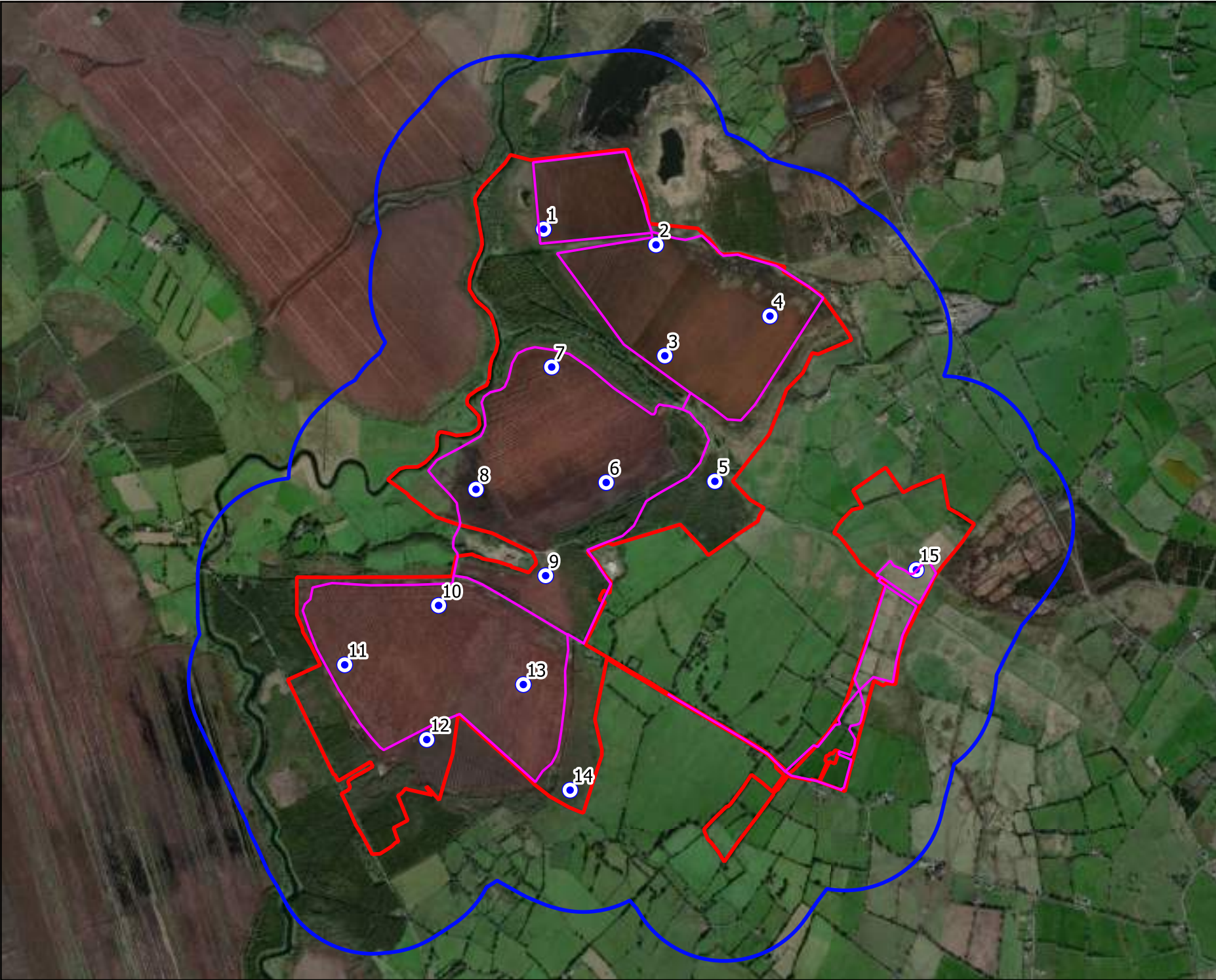
Drawing Title
**Sparrowhawk Observations
 Vantage Point Surveys**

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 1.15
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Walkover Transects



Drawing Title

Breeding Walkover Transects

Project Title

Coole Wind Farm

Drawn By

I.Hynes

Checked By

P.Cregg

Project No.

200445g

Drawing No.

Fig. 2

Scale

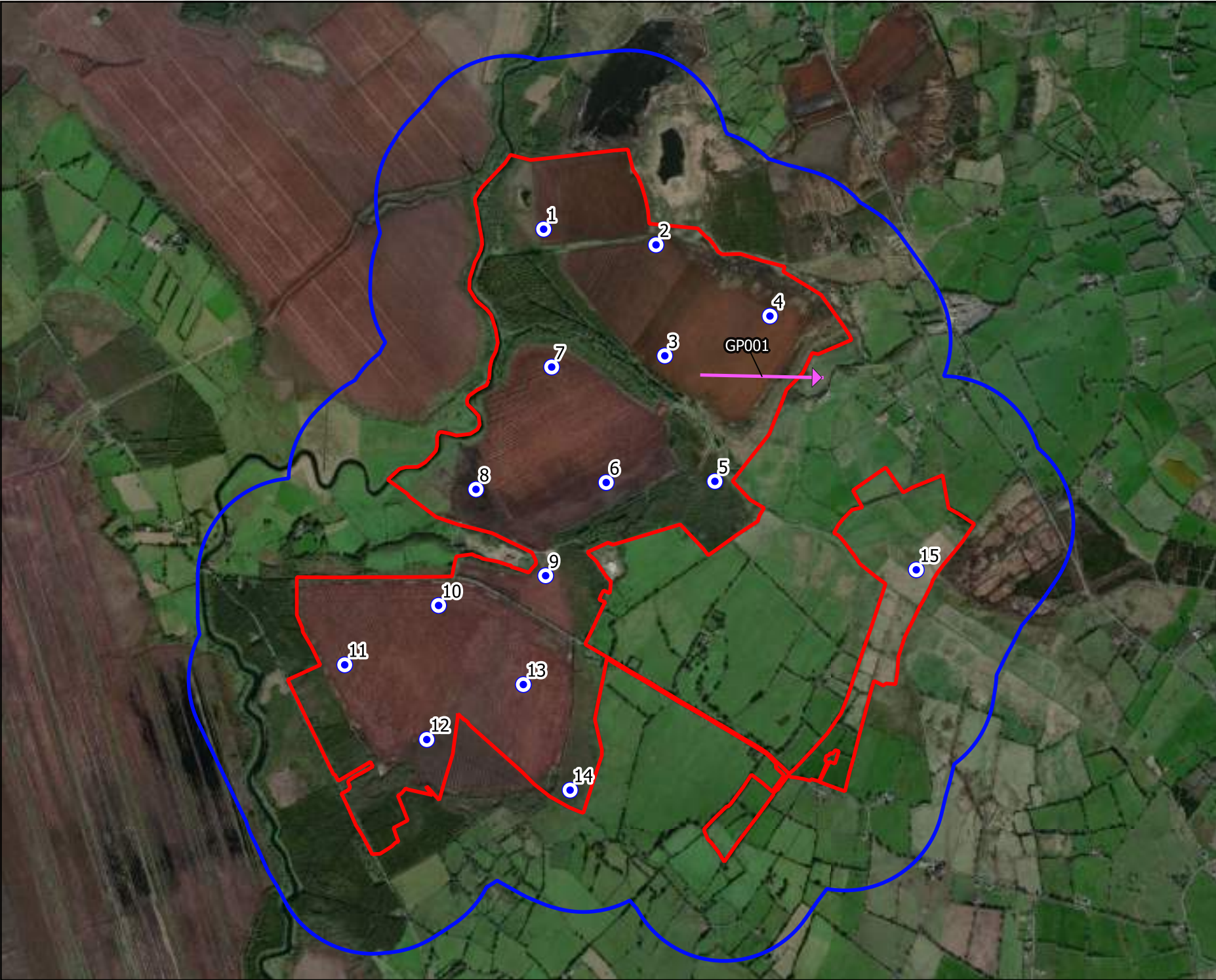
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Map Legend

- ▭ Wind Farm Site
- ▭ 500m Survey Radius
- Turbine Layout
- ➔ Flightline



Drawing Title
**Golden Plover Observations
 Breeding Walkover Surveys**

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 2.1
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Flightline



Drawing Title

Snipe Observations
Breeding Walkover Surveys

Project Title

Coole Wind Farm

Drawn By

I.Hynes

Checked By

P.Cregg

Project No.

200445g

Drawing No.

Fig. 2.3

Scale

1:45000

Date

05/07/2022



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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Probable Territory



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Drawing Title

Snipe Breeding Territories

Project Title

Cooler Wind Farm

Drawn By

P. Manley

Checked By

P. Cregg

Project No.

200445g

Drawing No.


Fig. 6.2

Scale

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Date

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Probable



Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Flightline



Drawing Title

Buzzard Observations
Breeding Walkover Surveys

Project Title

Coole Wind Farm

Drawn By

I.Hynes

Checked By

P.Cregg

Project No.

200445g

Drawing No.

Fig. 2.4

Scale

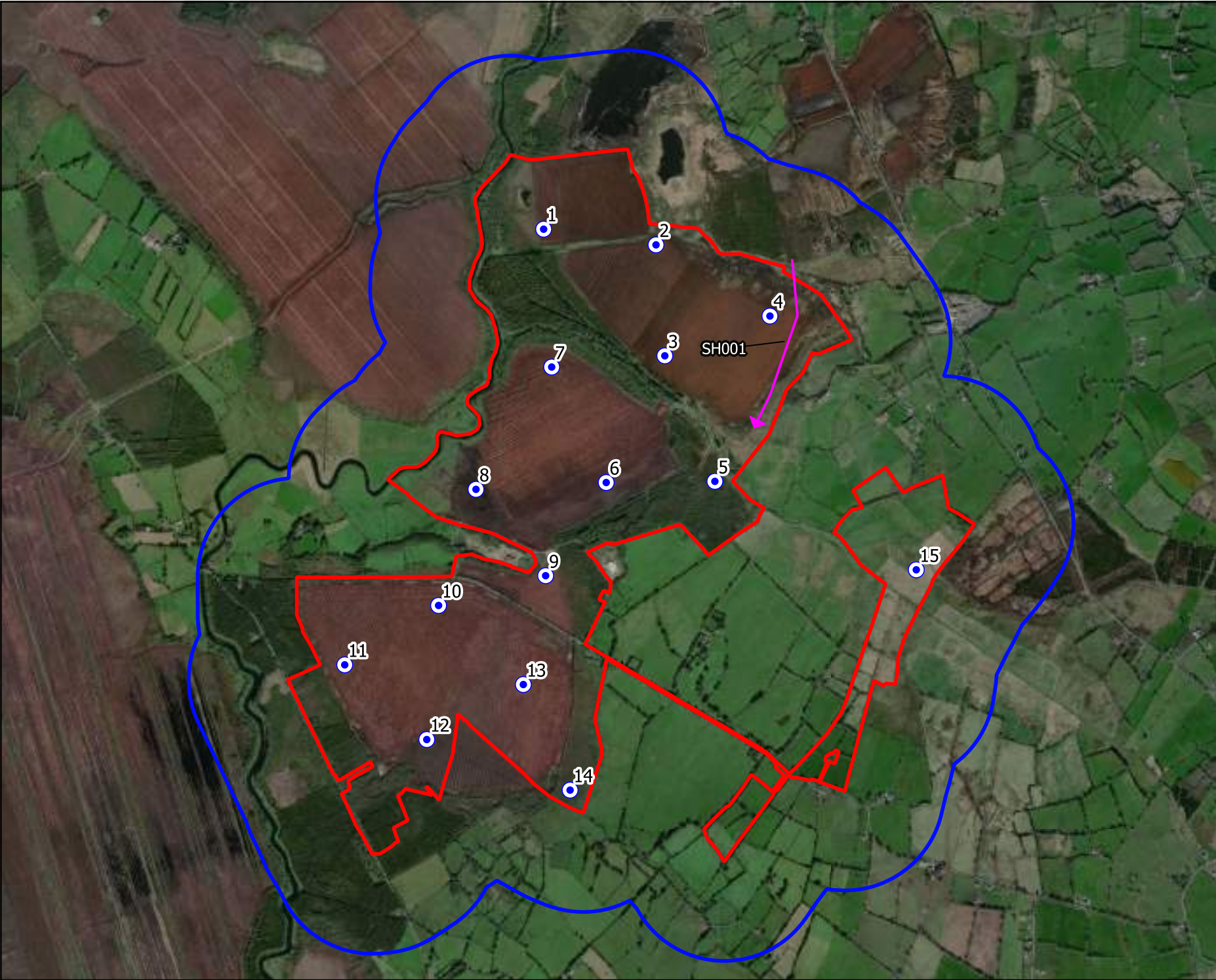
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ➔ Flightline



Drawing Title
**Sparrowhawk Observations
 Breeding Walkover Surveys**

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 2.5
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Confirmed Territory



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Drawing Title
Sparrowhawk Breeding Territory

Project Title
Cooler Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
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Project No. 200445g	Drawing No. Fig. 2.5.1
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Scale 1:25000	Date 05/07/2022
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Map Legend

- ▭ Wind Farm Site
- ▭ 2km Survey Radius
- Turbine Layout
- ▲ Breeding Raptor Vantage Point Locations



Drawing Title
Breeding Raptor Vantage Point Locations

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
----------------------------	------------------------------

Project No. 200445g	Drawing No. Fig. 3
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Scale 1:40000	Date 05/07/2022
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Map Legend

- Wind Farm Site
- 2km Survey Radius
- Turbine Layout
- ▲ Breeding Raptor Vantage Point Locations
- Flightline



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Drawing Title
**Peregrine Observations
 Breeding Raptor Surveys**

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
----------------------------	------------------------------

Project No. 200445g	Drawing No. Fig. 3.1
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Scale 1:40000	Date 05/07/2022
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Map Legend

- Wind Farm Site
- 2km Survey Radius
- Turbine Layout
- ▲ Breeding Raptor Vantage Point Locations
- ➔ Flightline



Drawing Title

White-tailed Eagle Obs.
Breeding Raptor Surveys

Project Title

Coole Wind Farm

Drawn By

I.Hynes

Checked By

P.Cregg

Project No.

200445g

Drawing No.

Fig. 3.2

Scale

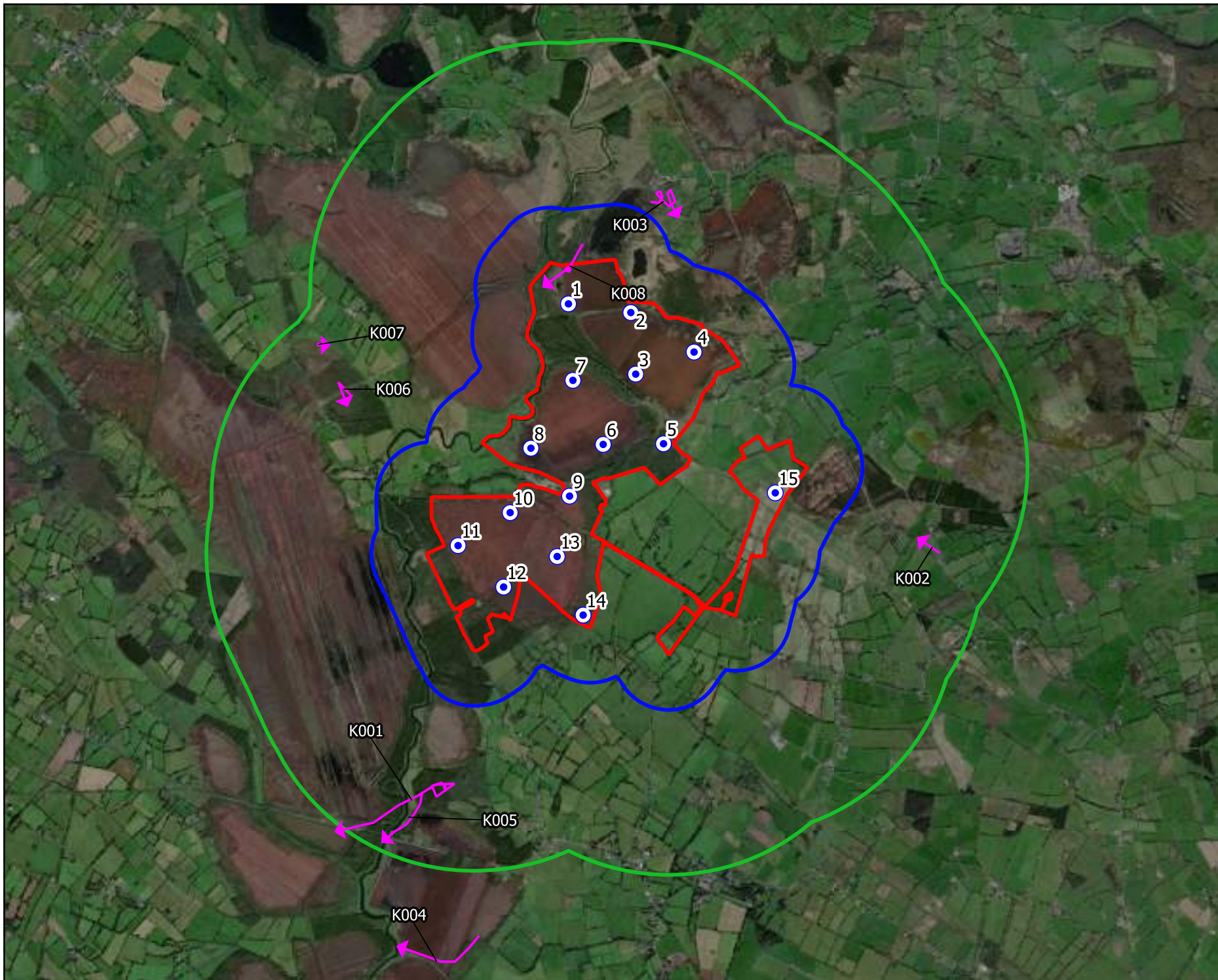
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Date

05/07/2022




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Map Legend

- Wind Farm Site
- 2km Survey Radius
- Turbine Layout
- ▲ Breeding Raptor Vantage Point Locations
- Flightline



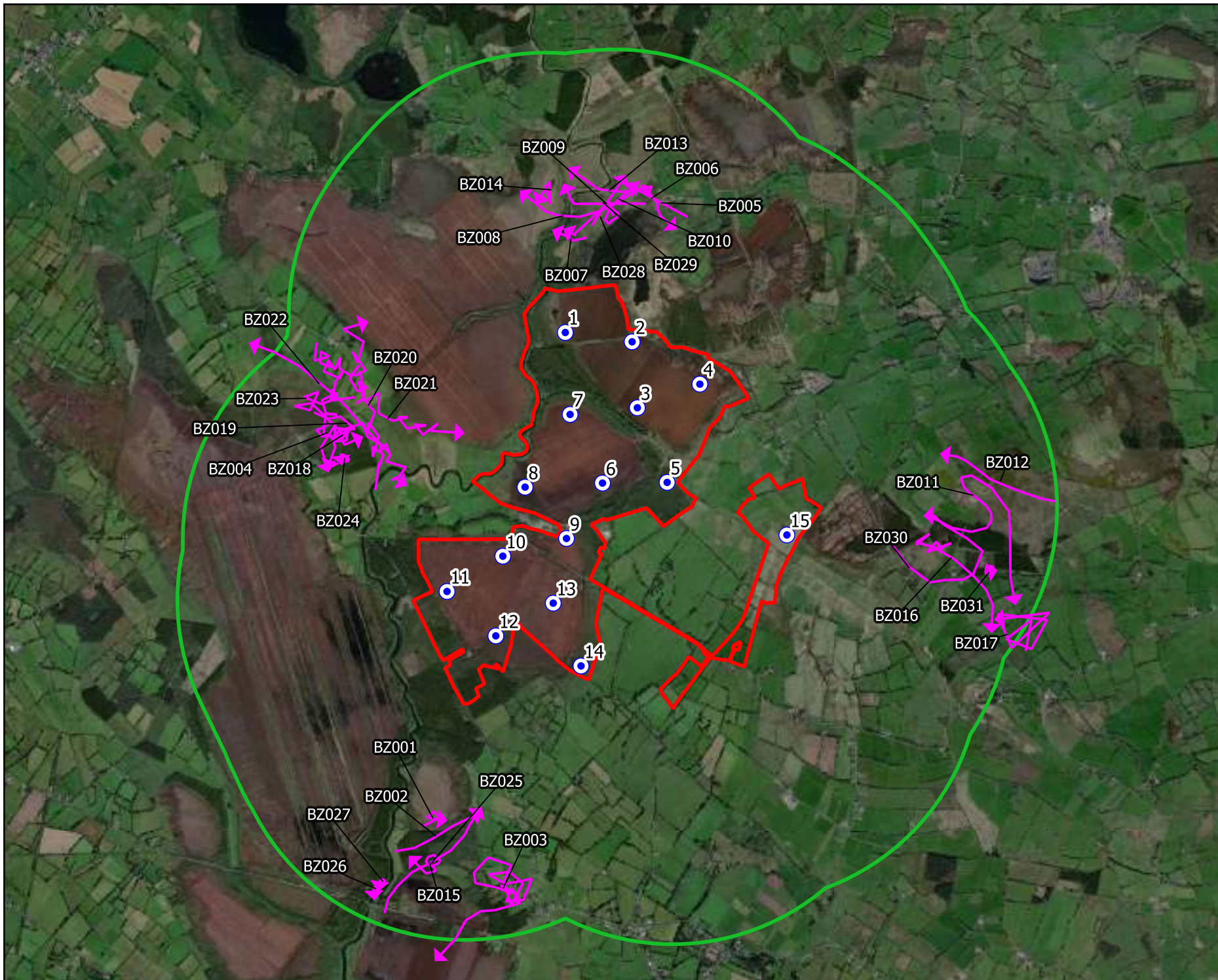
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Drawing Title	
Kestrel Observations Breeding Raptor Surveys	
Project Title	
Coole Wind Farm	
Drawn By	Checked By
I.Hynes	P.Cregg
Project No.	Drawing No.
200445g	Fig. 3.3
Scale	Date
1:45000	05/07/2022




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Map Legend

- Wind Farm Site
- 2km Survey Radius
- Turbine Layout
- ▲ Breeding Raptor Vantage Point Locations
- Flightline



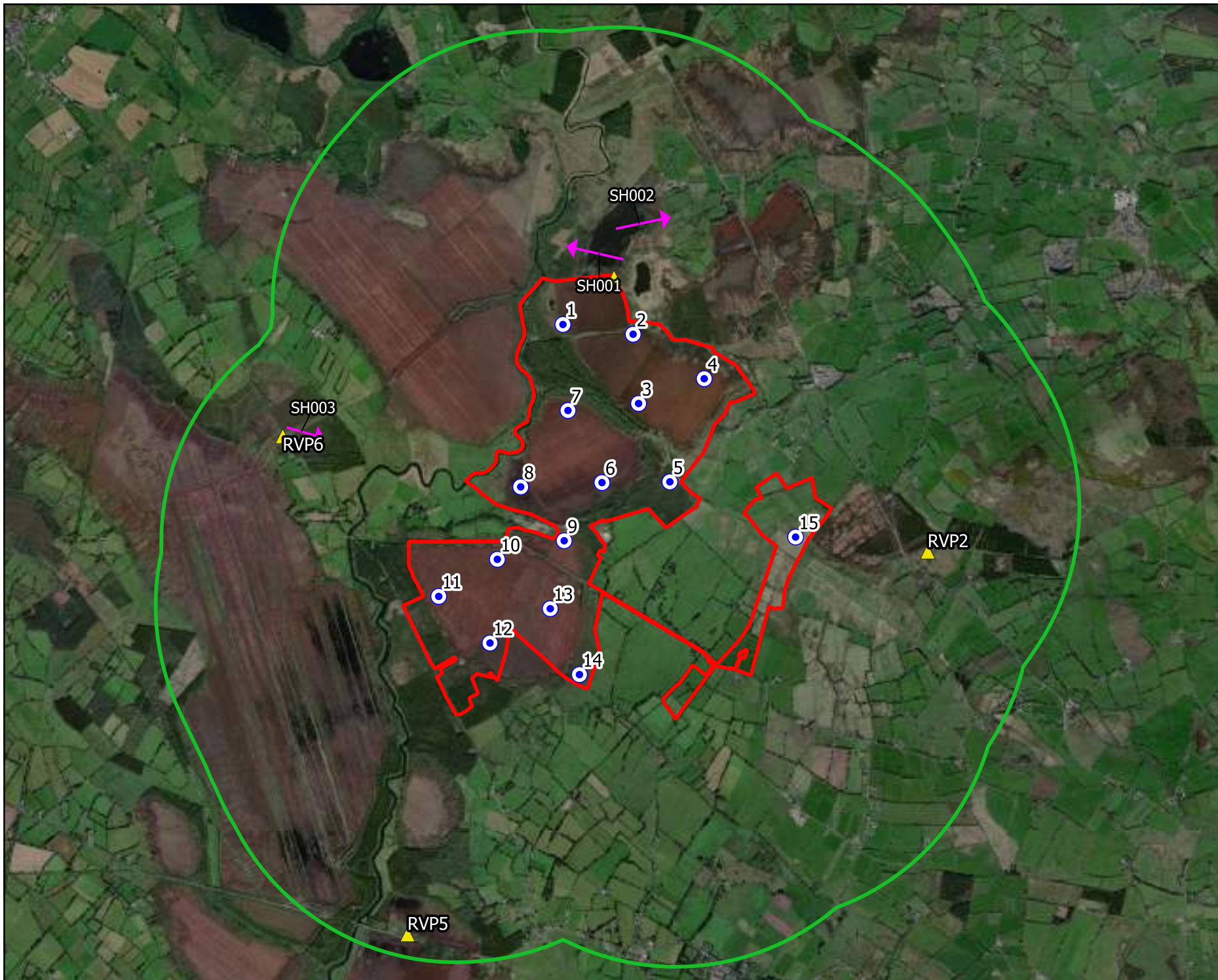
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Drawing Title	
Buzzard Observations Breeding Raptor Surveys	
Project Title	
Coole Wind Farm	
Drawn By	Checked By
I.Hynes	P.Cregg
Project No.	Drawing No.
200445g	Fig. 3.4
Scale	Date
1:42000	05/07/2022



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Map Legend

- Wind Farm Site
- 2km Survey Radius
- Turbine Layout
- ▲ Breeding Raptor Vantage Point Locations
- Flightline



Drawing Title

Sparrowhawk Observations
Breeding Raptor Surveys

Project Title

Coole Wind Farm

Drawn By

I.Hynes

Checked By

P.Cregg

Project No.

200445g

Drawing No.

Fig. 3.5

Scale

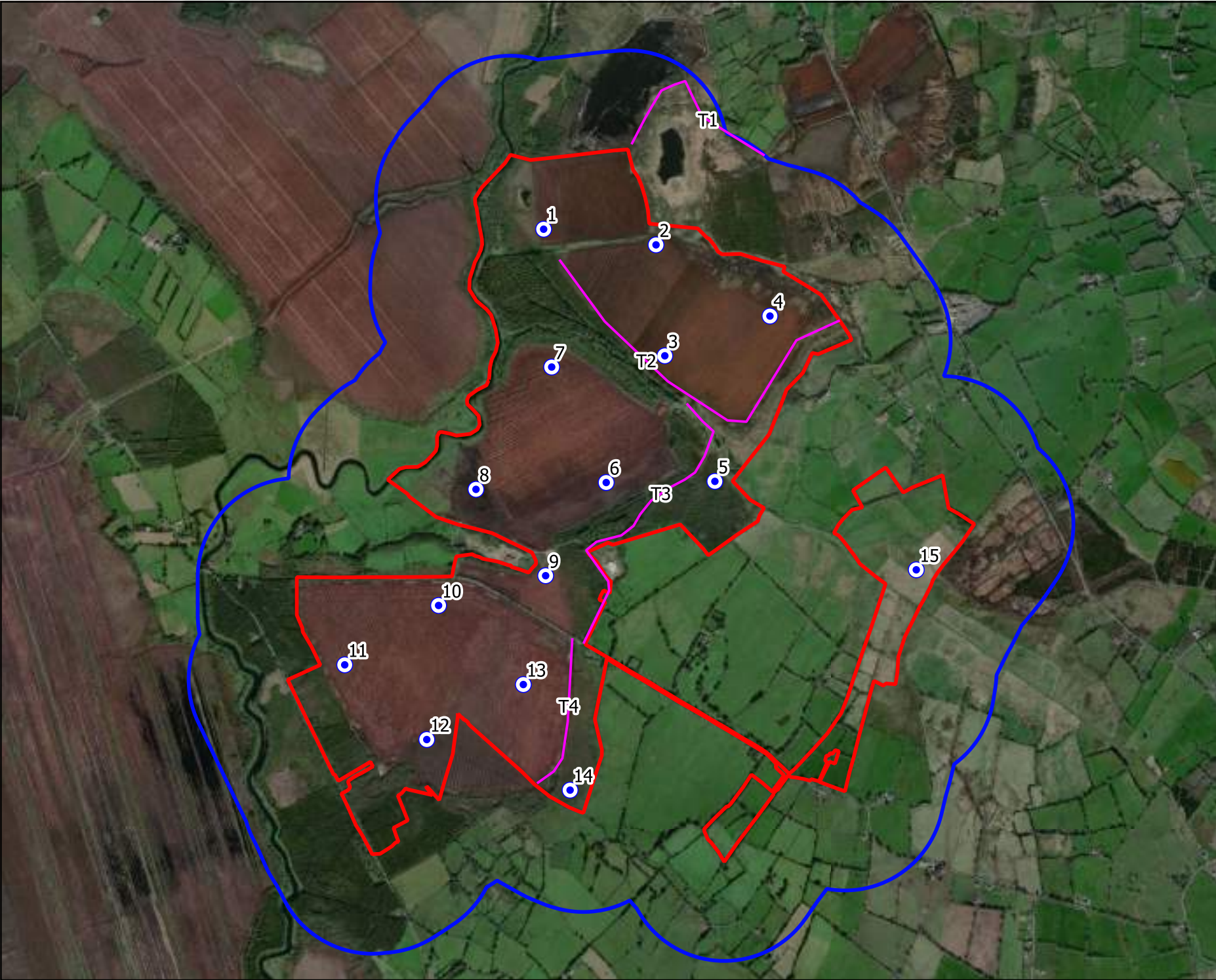
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Date

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Woodcock Transects



Drawing Title

Breeding Woodcock Transects

Project Title

Coole Wind Farm

Drawn By

I.Hynes

Checked By

P.Cregg

Project No.

200445g

Drawing No.

Fig. 4

Scale

1:25000

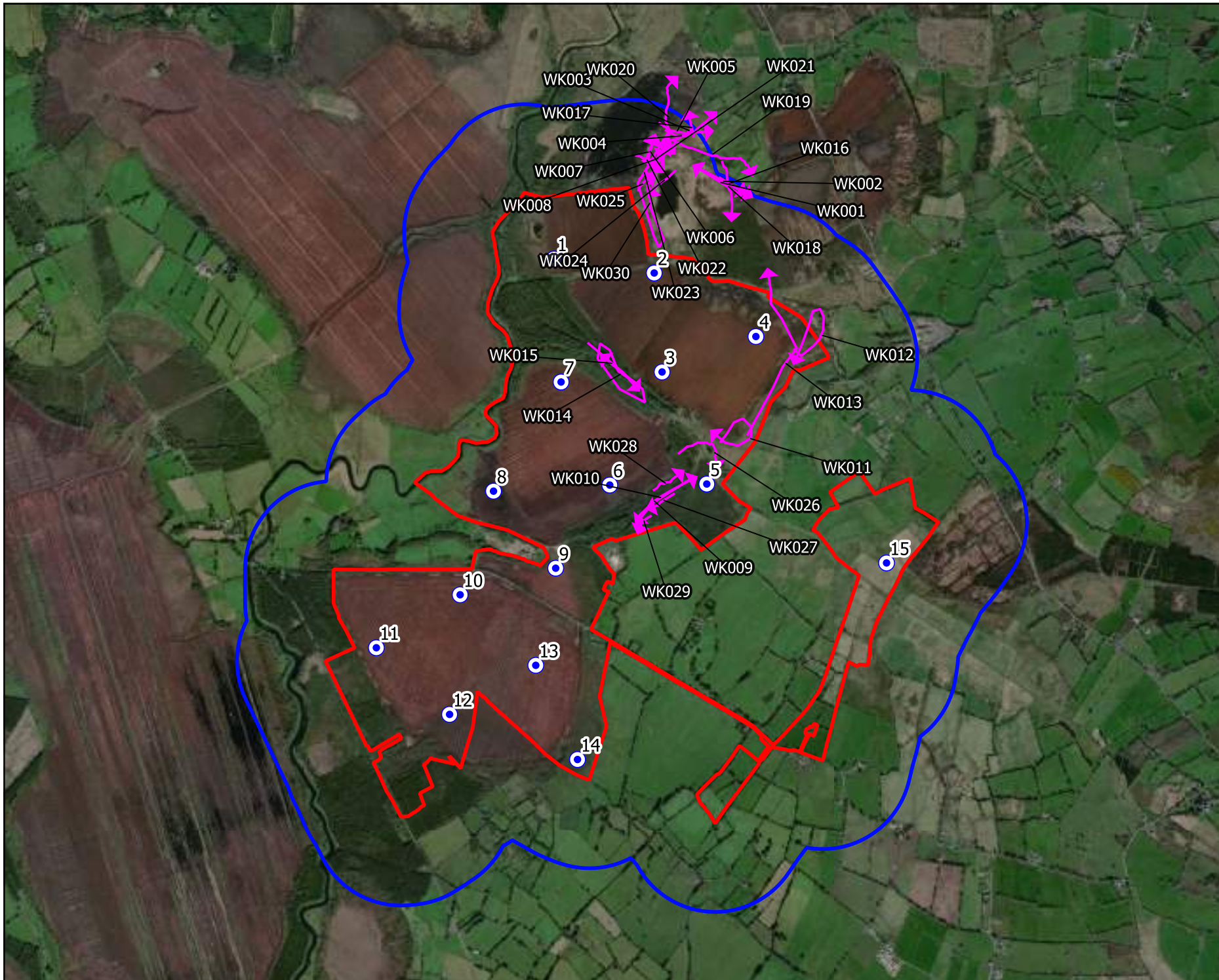
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Flightline



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Drawing Title Woodcock Observations Breeding Woodcock Surveys	
Project Title Coole Wind Farm	
Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 4.1
Scale 1:28000	Date 05/07/2022
	
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Possible Breeding Territory



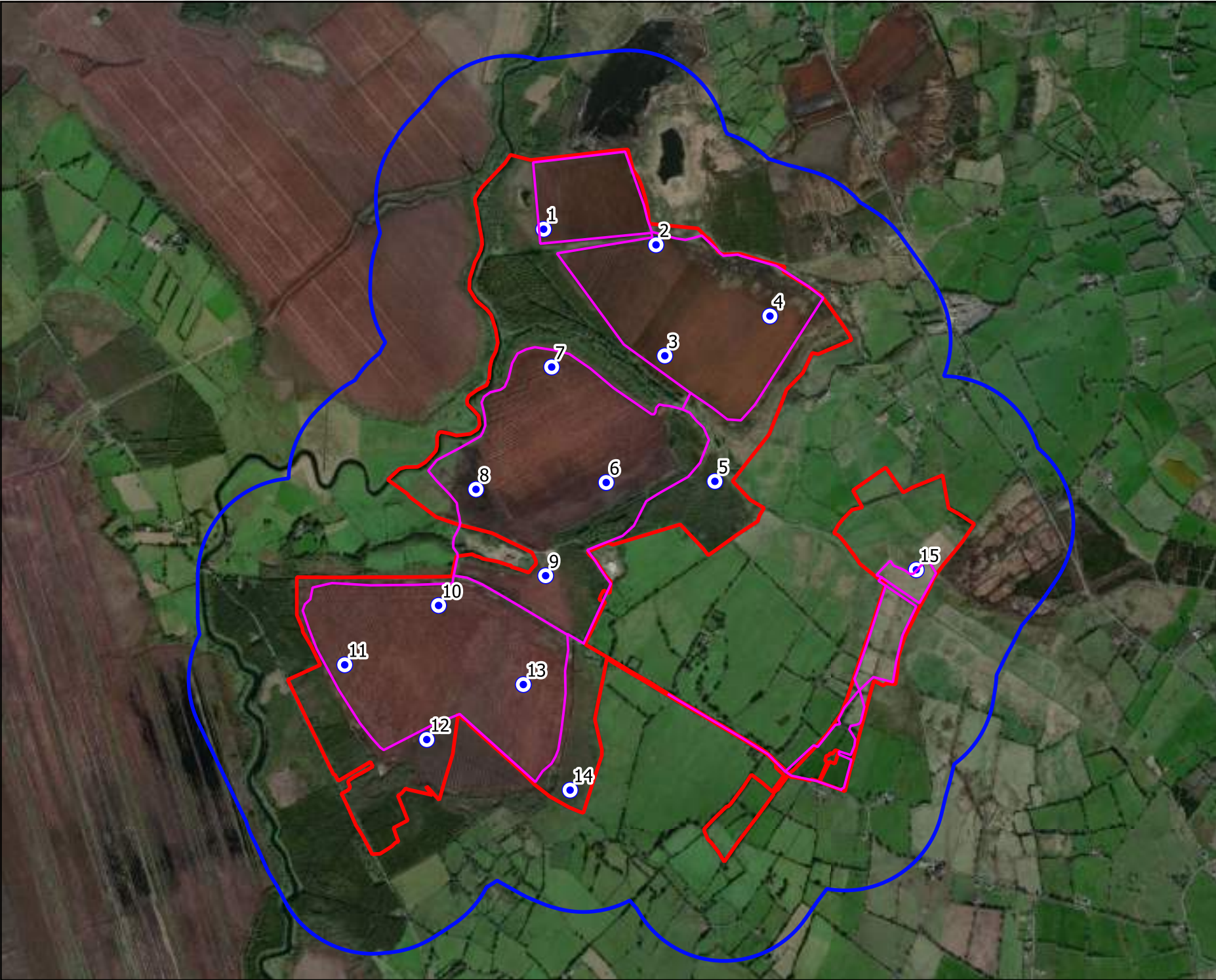
Drawing Title
**Woodcock Territories
 Breeding Woodcock Surveys**

Project Title
Coolie Wind Farm

Drawn By J.Hynes	Checked By P.Cregg
Figure No. 2004-45g	Figure Title Fig. 4.11
Scale 1:28000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Walkover Transects



Drawing Title

Winter Walkover Transects

Project Title

Cooler Wind Farm

Drawn By	Checked By
I.Hynes	P.Cregg

Project No.	Drawing No.
200445g	Fig. 5

Scale	Date
1:25000	05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Flightline



Drawing Title

Golden Plover Observations
Winter Walkover Surveys

Project Title

Coole Wind Farm

Drawn By

I.Hynes

Checked By

P.Cregg

Project No.

200445g

Drawing No.

Fig. 5.1

Scale

1:25000

Date

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Flightline



Drawing Title

Greenland white-fronted goose
Obs. Winter Walkover Surveys

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 5.2
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ➔ Flightline



Drawing Title
Kingfisher Observations Winter Walkover Surveys

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 5.3
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Flightline



Drawing Title
Teal Observations Winter Walkover Surveys

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 5.4
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ➔ Flightline



Drawing Title
Wigeon Observations Winter Walkover Surveys

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 5.5
Scale 1:25000	Date 05/07/2022

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Map Legend

- ▭ Wind Farm Site
- ▭ 500m Survey Radius
- Turbine Layout
- Flightline



Drawing Title

Kestrel Observations Winter Walkover Surveys

Project Title

Coole Wind Farm

Drawn By

I.Hynes

Checked By

P.Cregg

Project No.

200445g

Drawing No.

Fig. 5.6

Scale

1:25000

Date

05/07/2022



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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ➔ Flightline



Drawing Title
Lapwing Observations Winter Walkover Surveys

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 5.7
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Flightline



Drawing Title
Snipe Observations Winter Walkover Surveys

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 5.8
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Flightline



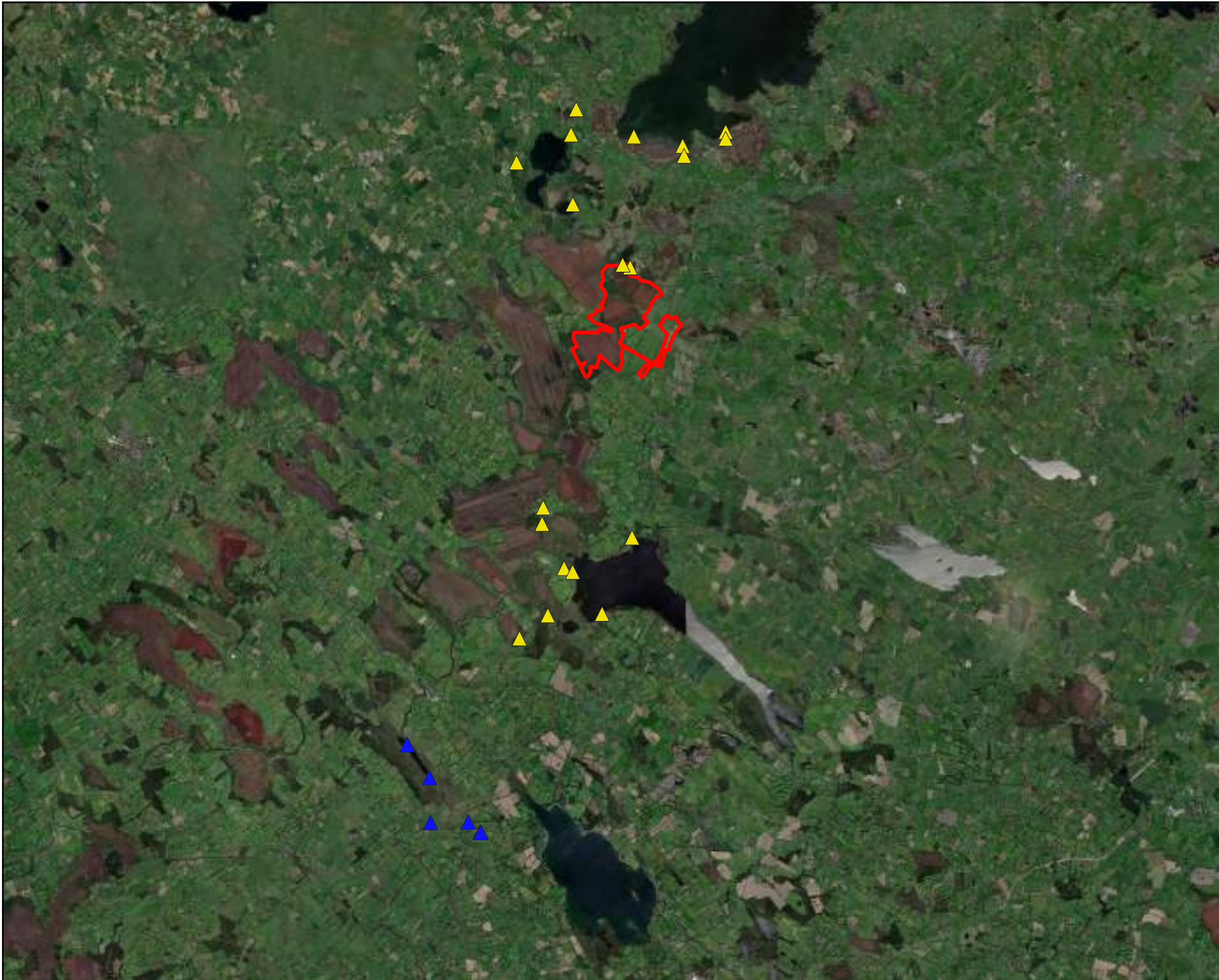
Drawing Title
Buzzard Observations Winter Walkover Surveys

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 5.9
Scale 1:25000	Date 05/07/2022

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Map Legend

- Wind Farm Site
- ▲ Wildfowl Distribution Survey Locations
- ▲ Lough Iron Wildfowl Distribution Survey Locations



Drawing Title
Wildfowl Distribution Survey Locations

Project Title
Cooler Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
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Project No. 200445g	Drawing No. Fig. 6
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Scale 1:156501	Date 05/07/2022
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Map Legend

-  Wind Farm Site
-  Observations



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Source Title
Common Tern Observations
Widfowl Distribution Survey

Project Title
Coole Wind Farm

Drawn By J.Hynes	Checked By P.Cregg
Figure No. 2004-45g	Page No. Fig. 6.1
Scale 1:126501	Date 05/07/2022



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Map Legend

-  Wind Farm Site
-  Observations

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Survey Title
**Golden Plover Observations
 Wildfowl Distribution Survey**

Project Title
Coolie Wind Farm

Drawn By J.Hynes	Checked By P.Cregg
Project No. 2004-15g	Figure No. Fig. 6.2
Scale 1:126501	Date 05/07/2022



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Map Legend

-  Wind Farm Site
-  Observations



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Drawing Title
Greenland white-fronted goose Obs.
Wildfowl Distribution Survey

Project Title
Coolie Wind Farm

Drawn By J.Hynes	Checked By P.Cregg
Figure No. 2004-45g	Figure Ref. Fig. 6.3
Scale 1:126501	Date 05/07/2022



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Map Legend

-  Wind Farm Site
-  Observations

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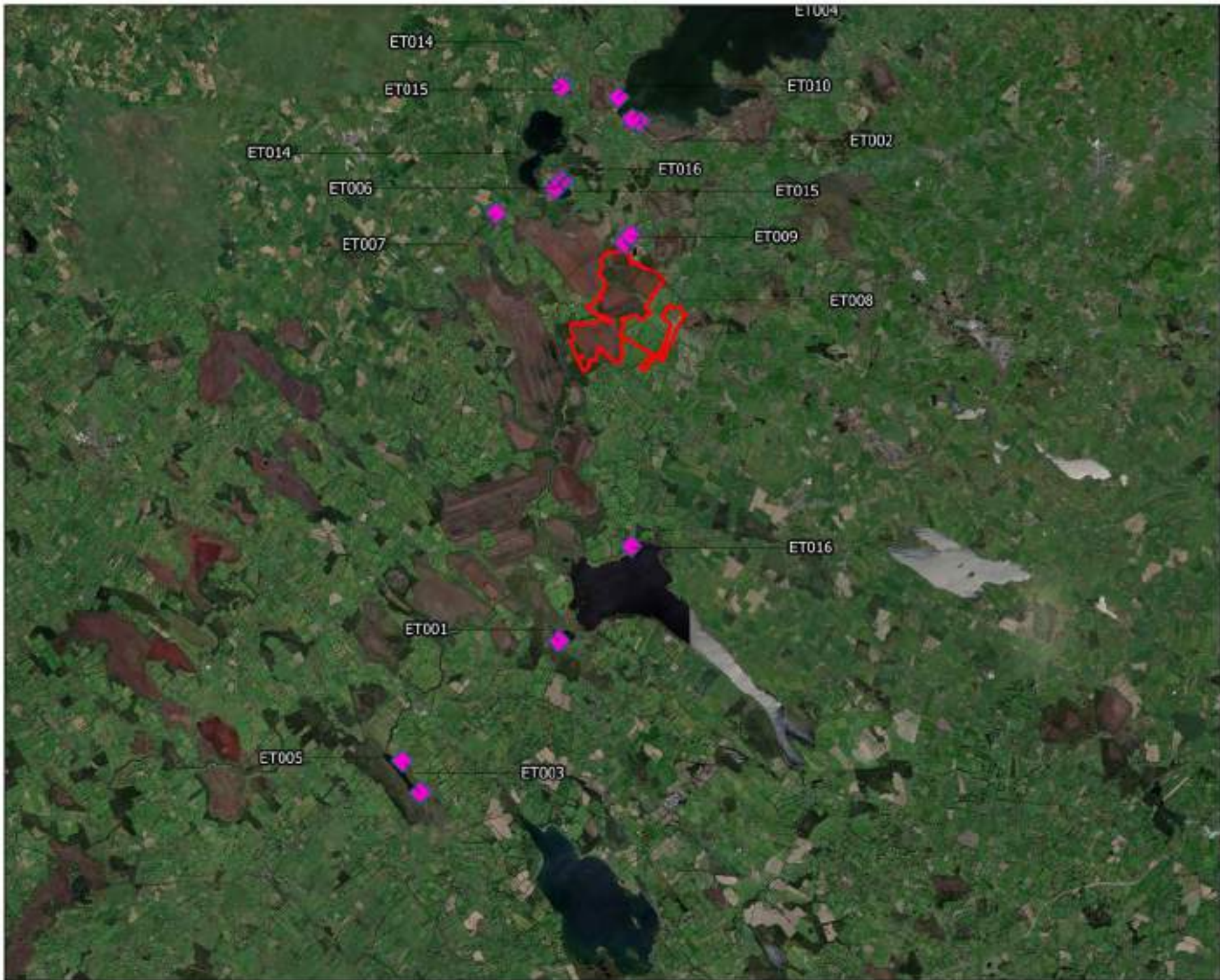
Drawing Title
**Kingfisher Observations
 Wiltfowl Distribution Survey**

Project Title
Coolie Wind Farm

Drawn By I.Hynes	Checked By P.Clegg
Project No. 200445g	Drawing No. Fig. 6.4
Scale 1:126501	Date 05/07/2022



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Map Legend

-  Wind Farm Site
-  Observations



Survey Title
**Little Egret Observations
 Widgeon Distribution Survey**

Project Title
Coolidge Wind Farm

Prepared By J.Hynes	Checked By P.Clegg
Project No. 2004-45g	Figure No. Fig. 6.5
Scale 1:146501	Date 05/07/2022



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Map Legend

-  Wind Farm Site
-  Observations



Drawing Title
Ruff Observations Wildfowl
Distribution Survey

Project Title
Coole Wind Farm

Drawn By J.Hynes	Checked By P.Cregg
Project No. 2004-15g	Drawing No. Fig. 6.6
Scale 1:146501	Date 05/07/2022



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Map Legend

- Wind Farm Site
- ◆ Observations



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Drawing Title
Coot Observations Wildfowl Distribution Survey

Project Title
Coole Wind Farm

Drawn By I.Hynes	Checked By P.Cregg
Project No. 200445g	Drawing No. Fig. 6.8
Scale 1:146501	Date 05/07/2022

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Map Legend

-  Wind Farm Site
-  Observations



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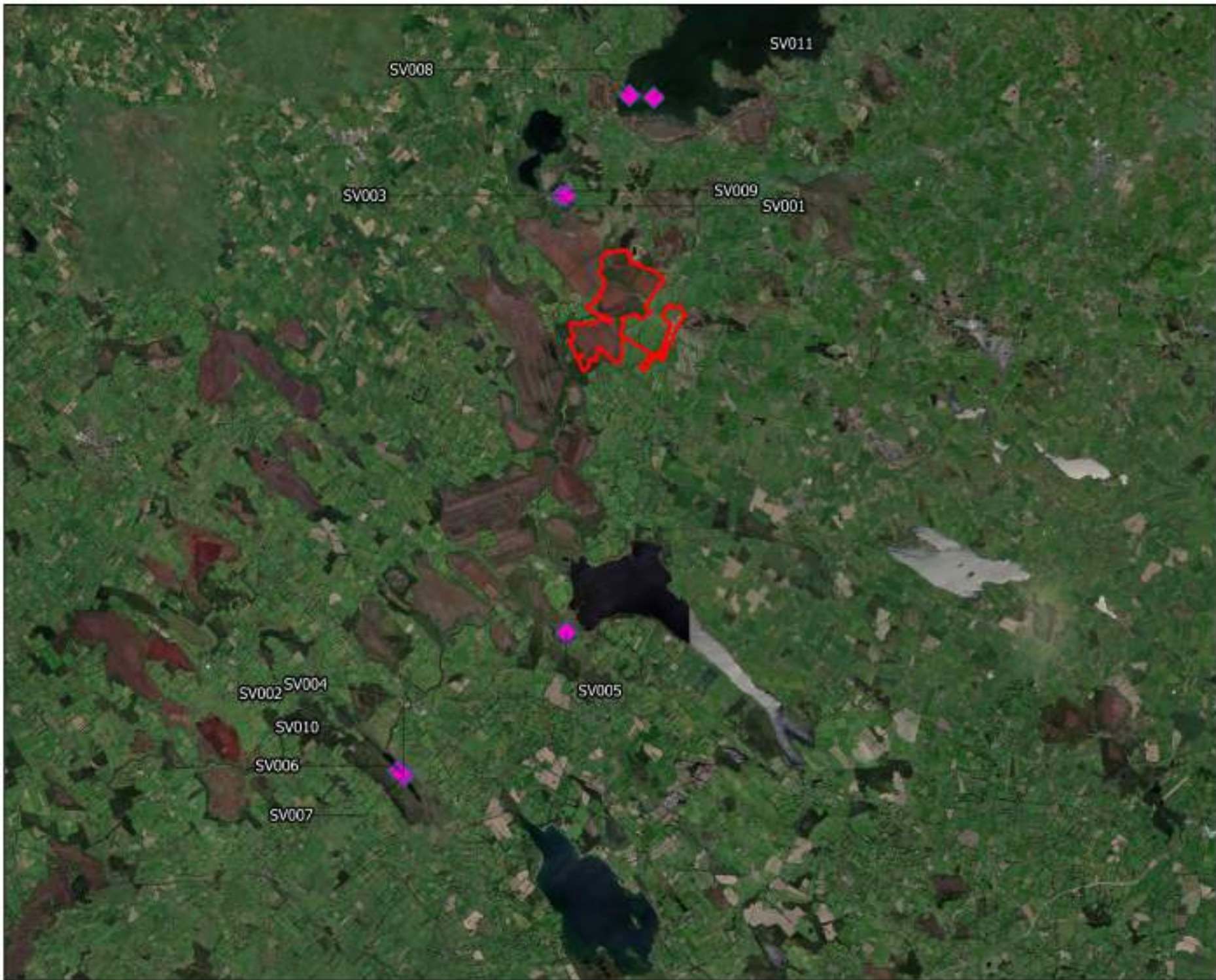
Survey Title
Pochard Observations Wildfowl Distribution Survey

Project Name
Coolie Wind Farm

Drawn by J Hynes	Checked by P Cragg
Project No. 200445g	Sheet No. Fig. 6.9
Scale 1:146501	Date 05/07/2022



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Map Legend

-  Wind Farm Site
-  Observations

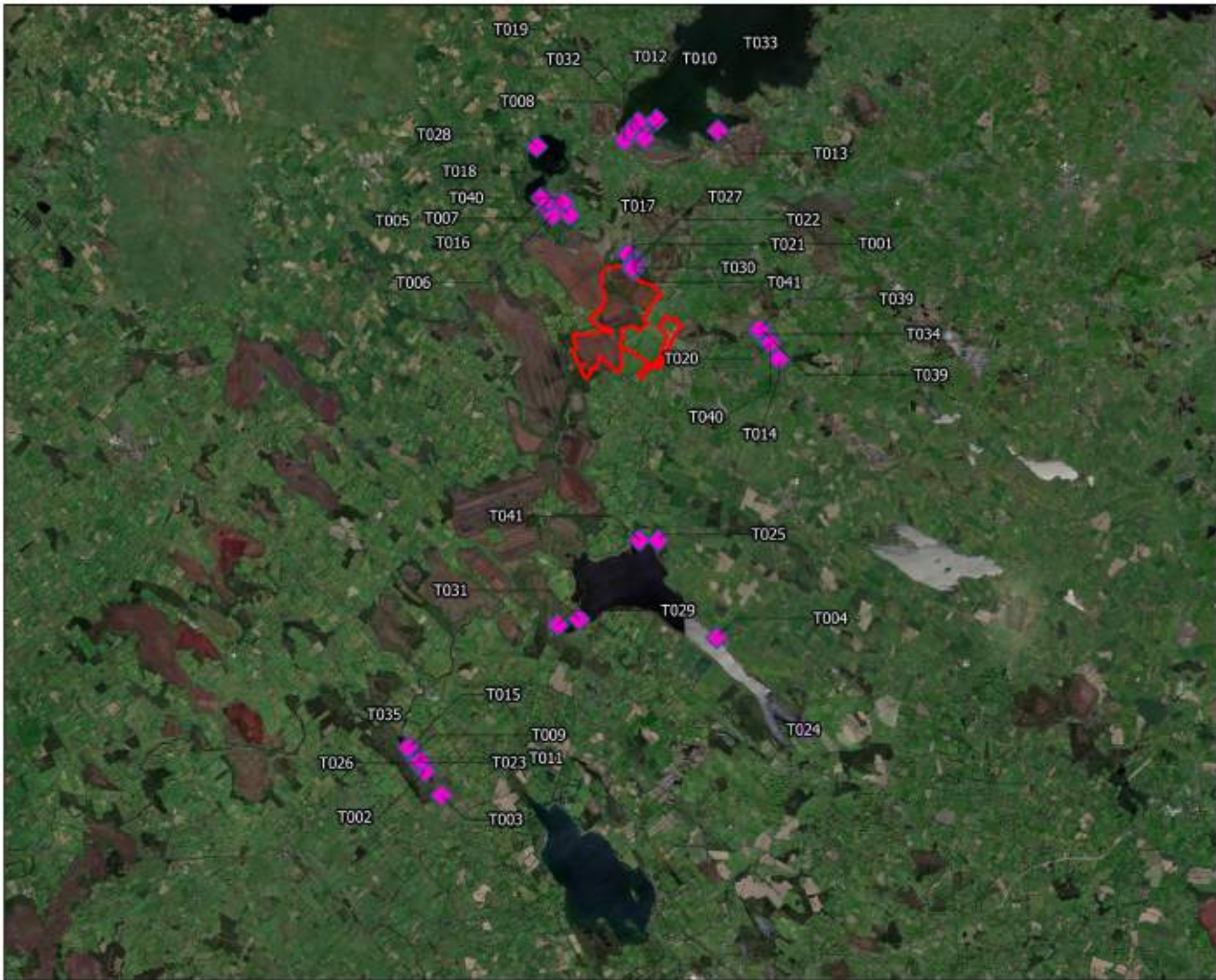
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 Drawing Title
Showler Observations Wildfowl Distribution Survey

Worksheet
Coolie Wind Farm

Drawn by:	Checked by:
I Hynes	P Cragg
Project No:	Worksheet No:
200445g	Fig. 6.10
Scale:	Date:
1:146501	05/07/2022


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Map Legend

- Wind Farm Site
- Observations

North Arrow

Survey Title
Teal Observations Wildfowl Distribution Survey

Project Name
Coolie Wind Farm

Drawn By J Hynes	Checked By P Clegg
Project No 200445g	Figure No Fig 6.11
Scale 1:156501	Date 05/07/2022

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Map Legend

-  Wind Farm Site
-  Observations



Drawing title
**Tufted Duck Observations
 Wildfowl Distribution Survey**

Project title
Coolidge Wind Farm

Drawn by: J Hynes	Checked by: P Cragg
Project No: 200445g	Figure No: Fig. 6.12
Scale: 1:206501	Date: 05/07/2022



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Map Legend

- Wind Farm Site
- Observations

North Arrow

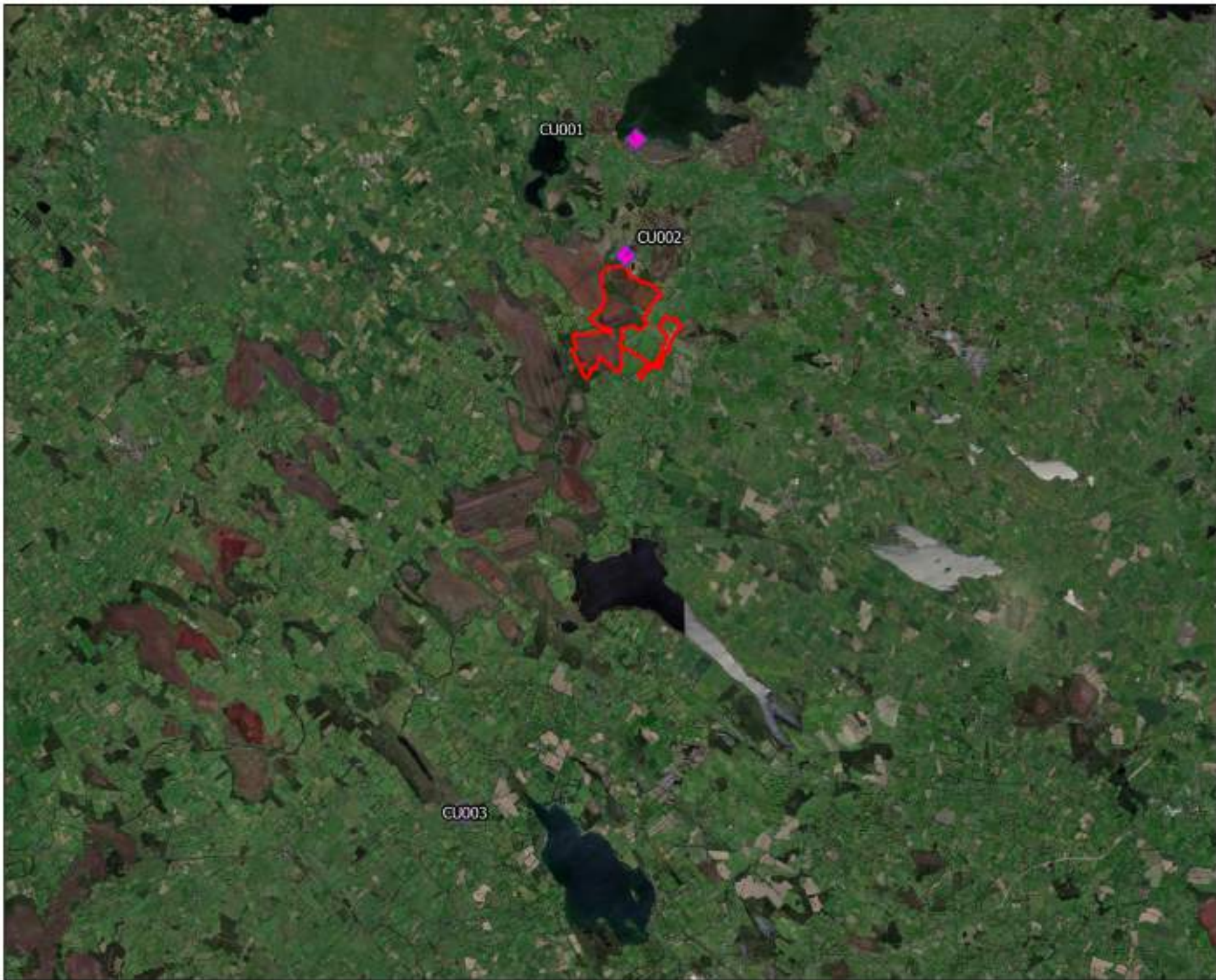
Drawing title:
Wigeon Observations Wildfowl Distribution Survey

Project title:
Coolie Wind Farm

Drawn by: J Hynes	Checked by: P Cragg
Project No: 200445g	Figure No.: Fig. 6.13
Scale: 1:156501	Date: 05/07/2022

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Map Legend

- Wind Farm Site
- Observations

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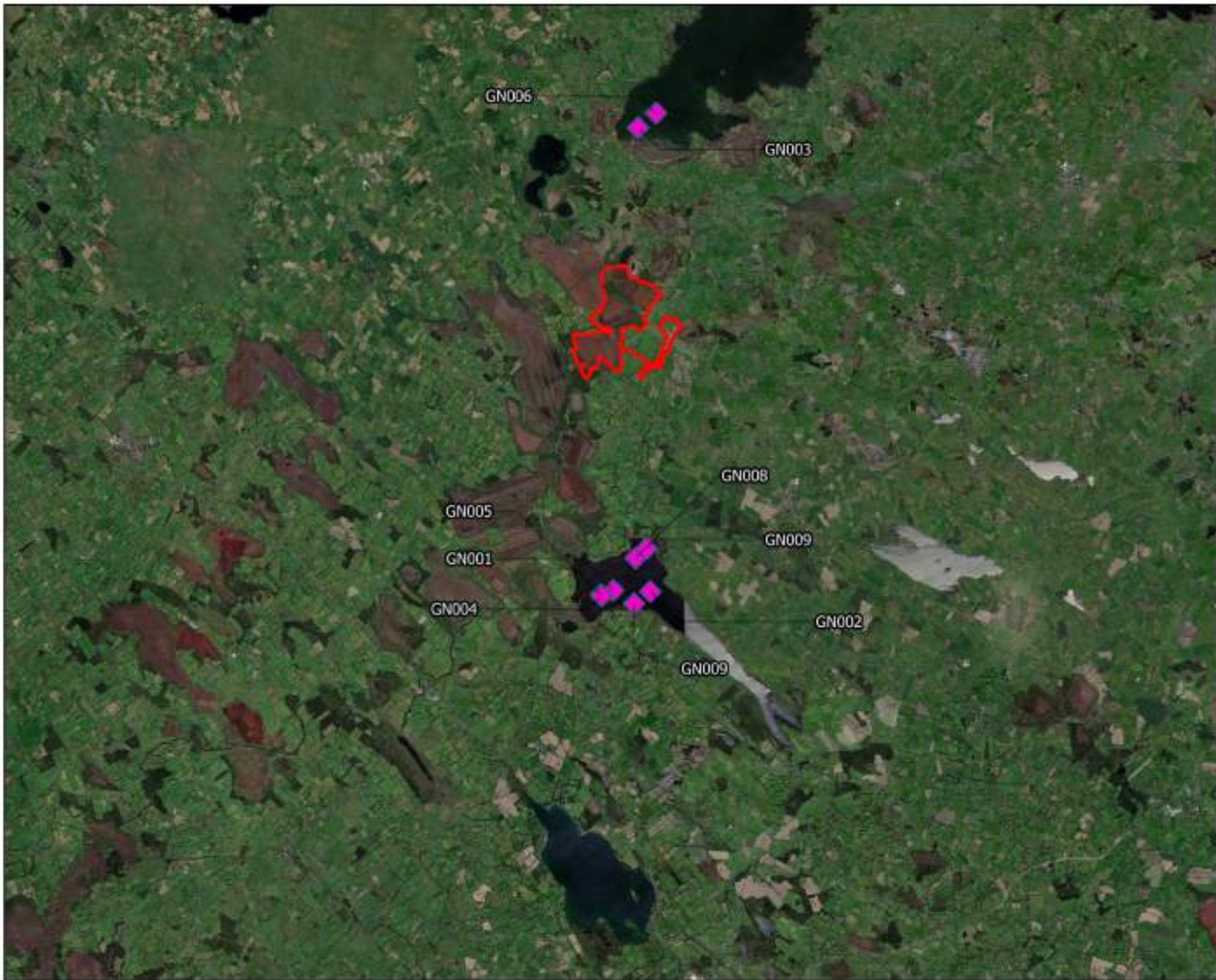
Curlew Observations Wildfowl Distribution Survey

Coole Wind Farm

Drawn by:	Checked by:
J Hynes	P Cragg
Project No:	Figure No:
200445g	Fig. 6.14
Scale:	Date:
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Map Legend

- Wind Farm Site
- Observations

North Arrow

**Goldeneye Observations
Wildfowl Distribution Survey**

Coolidge Wind Farm

Drawn by: J Hynes	Checked by: P Clegg
Project No: 200445g	Figure No: Fig. 6.15
Scale: 1:156501	Date: 05/07/2022

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Map Legend

- Wind Farm Site
- Observations

NOE

Project Title
Lapwing Observations Wildfowl Distribution Survey

Project Name
Coolie Wind Farm

Drawn by: J Hynes	Checked by: P Clegg
Project No: 200445g	Figure No.: Fig. 6.16
Scale: 1:156501	Date: 05/07/2022

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Map Legend

- Wind Farm Site
- Observations

North Arrow

Survey Title
 Snipe Observations Wildfowl Distribution Survey

Project Name
 Cooles Wind Farm

Drawn By J Hynes	Checked By P Cragg
Project No 200445g	Sheet No Fig. 6.17
Scale 1:156501	Date 05/07/2022

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Map Legend

-  Wind Farm Site
-  Turbine Layout
-  Flightline



Drawing Title
Kingfisher Incidental Observations

Project Name
Coolie Wind Farm

Drawn By J Hynes	Checked By P Cragg
Project No. 200445g	Drawing No. Fig 7.1
Scale 1:75000	Date 05/07/2022



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Map Legend

- Wind Farm Site
- ⊙ Turbine Layout
- ➔ Rightline



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Working Title
Peregrine Incidental Observations

Project Title
Coolie Wind Farm

Drawn by: J Hynes	Checked by: P Clegg
Project No: 200445g	Scale: Fig. 7.2
Scale: 1:30000	Date: 05/07/2022

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Map Legend

-  Wind Farm Site
-  Turbine Layout
-  Rightline

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Working File
White-tailed eagle Incidental Observations

Project File
Coolie Wind Farm

Drawn by: J Hynes	Checked by: P Cregg
Project No: 200445g	Figure No: Fig. 7.3
Scale: 1:95000	Date: 05/07/2022



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Map Legend

-  Wind Farm Site
-  Turbine Layout
-  Flightline



Working File
Kestrel Incidental Observations

Project File
Coolie Wind Farm

Drawn by: J Hynes	Checked by: P Cragg
Project No: 200445g	Figure No: Fig. 7.4
Scale: 1:125250	Date: 05/07/2022



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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- ➔ Flightline



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<p style="margin: 0;">Snipe Incidental Observations</p>	
<p style="margin: 0;">Cool Wind Farm</p>	
<p style="margin: 0;">Drawn by: I. Hynes</p> <p style="margin: 0;">Project No: 200445g</p> <p style="margin: 0;">Scale: 1:25000</p>	<p style="margin: 0;">Checked by: P. Cragg</p> <p style="margin: 0;">Figure No: Fig. 7.6</p> <p style="margin: 0;">Date: 08/07/2022</p>
<p style="margin: 0;">MKO Planning and Environmental Consultants East Road, Dublin 14, D14 Y804 +353 (0)1 251 2361 and 01 856 6146 Website: www.mkoc.ie</p>	



Map Legend

- Wind Farm Site
- 500m Survey Radius
- Turbine Layout
- Possible Breeding Territory



Drawing Title
**Snipe Breeding Territories
 Incidental Observations**

Project Name
Coolie Wind Farm

Drawn By I. Hynes	Checked By P. Clegg
Project No. 200445g	Drawing No. Fig. 7.6.1
Scale 1:25000	Date 08/07/2022

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Map Legend

-  Wind Farm Site
-  500m Survey Radius
-  Turbine Layout
-  Rightline

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Drawing Title	
Buzzerd Incidental Observations	
Project Name	
Coolie Wind Farm	
Drawn By	Checked By
I. Hynes	P. Cragg
Project No.	Drawing No.
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Scale	Date
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Map Legend

-  Wind Farm Site
-  500m Survey Radius
-  Turbine Layout
-  Rightline



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**Sparrowhawk
Incidental Observations**

Coolie Wind Farm

Drawn by: I. Hynes	Checked by: P. Clegg
Project No: 200445g	Sheet No: Fig. 7.8
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APPENDIX 5

COLLISION RISK ASSESSMENT

Appendix 5 – Collision Risk Assessment

Cooler Wind Farm



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1. INTRODUCTION

This document outlines the methodology used to assess the collision risk for birds at the proposed Coole wind farm, Co. Westmeath. The collision risk assessment is based on vantage point surveys undertaken at the wind farm site from October 2015 up to, and including, September 2017; from April 2018 up to, and including, March 2020; and from March 2021 up to, and including, March 2022. This represents two 24-month survey periods and a 13-month survey period, consisting of five breeding seasons and five non-breeding seasons, which is in full compliance with Scottish Natural Heritage guidance (SNH, 2017). Surveys were undertaken from four fixed Vantage Point (VP) Locations: VP3/VP4 between October 2015 to September 2017, VP3/VP5 between April 2018 to March 2020, VP4/VP6 between March 2021 to March 2022 and VP3/VP5 between October 2021 and March 2022.

Collision risk is calculated using a mathematical model to predict the number of birds that may be killed by collision with moving wind turbine rotor blades. The modelling method used in this collision risk calculation is known as the Band Model (Band *et al.*, 2007) and has been used in a number of studies on bird collision with wind turbines (e.g. Chamberlain *et al.*, 2006; Drewitt and Langston, 2006; Fernley *et al.*, 2006; Madders and Whitfield, 2006). Note that these are theoretical predictions, therefore results must be interpreted with a degree of caution.

Two stages are involved in the Band Model. First, the number of bird transits through the air space swept by the rotor blades of the wind turbines per year is estimated. Then the collision risk for a bird passing through the rotor blades is calculated using a mathematical formula. The product of these provides a theoretical annual collision mortality rate. Finally, a bird avoidance rate is applied to the collision mortality rate to account for birds attempting to avoid collision. This final collision mortality rate informs the assessment of impacts of the wind farm development on key ornithological receptors (KORs) in the EIAR.

To ensure the full range of possible turbine dimensions was assessed (20-175m) three separate collision risk analyses were undertaken. Details of the three turbine dimension scenarios are outlined in further detail in Section 2.3 below.

2. METHODOLOGY

2.1 The Band Model

The Band Model is used to predict the number of bird collisions that might be caused by a wind farm development. It uses species-specific information on bird biometrics, flight characteristics and the expected amount of flight activity, along with turbine-specific information on hub height, rotor diameter, pitch and rotational speed. The 15 No. turbines will be between 97.5m and 100.5 at hub height, with 3 blades with a diameter of between 149m and 155m, giving a maximum rotor height of 175m and a minimum rotor height of 20m. The model makes a number of assumptions on the turbine design and on biometrics of birds:

1. Birds are assumed to be of a simple cruciform shape.
 2. Turbine blades are assumed to have length, depth and pitch angle, but no thickness.
 3. Birds fly through turbines in straight lines.
 4. Bird flight is not affected by the slipstream of the turbine blade.
- Because the model assumes that no action is taken by a bird to avoid collision, it is recognised that the collision risk figures derived are purely theoretical and represent worst case estimates

Two forms of collision risk modelling are outlined by Band *et al.* (2007): a “**Regular Flight Model**” and the “**Random Flight Model**”. A Regular Flight Model is generally applied to situations where flightlines form a regular pattern. This may occur, for example, when birds are using the wind farm site as a commuting corridor between roosting and feeding grounds or migratory routes, as is often observed in geese and swans. The Random Flight Model generally applied to situations where flightlines form no discernible patterns or routes. This is often observed, for example when raptors are in foraging or hunting flights.

The Regular Flight Model predicts the number of transits through a cross-sectional area of the wind farm which represents the width of the commuting corridor. A “risk window” is identified: a 2-dimensional line the width of the wind farm to a 500m buffer of the turbines, multiplied by the rotor diameter. All commuting flights which pass through this risk window within the rotor swept height (potential collision height; PCH) are included in collision risk modelling. Any regular flights more than 500m from the turbine layout can be excluded from analysis. There are a number of key assumptions and limitations:

- The turbine rotor swept area is 2-dimensional, i.e. there is a single row of turbines in the windfarm. This represents all turbines within the commuting corridor accounted for by a single straight-line.
- Bird activity is spatially explicit.
- Birds in an observed flight only cross the turbine area once and do not pass through the cross-section a second time (or multiple times).
- Habitat and bird activity will remain the same over time and be unchanged during the operational stage of the windfarm.
- All flight activity used in the model occurred within the viewshed area calculated at the lowest swept rotor height.

The **Random Flight Model** predicts the number of transits through the wind farm while assuming that all flights within the vantage point viewshed are randomly occurring, i.e. any observed flight could just as easily occur within the wind farm site as outside it. All flights within PCH inside the viewshed are included in the model. There are a number of key assumptions and limitations:

- Bird activity is not spatially explicit, i.e. activity is equal throughout the viewshed area and this is equal to activity in the windfarm area.
- Habitat and bird activity will remain the same over time and be unchanged during the operational stage of the windfarm.
- All flight activity used in the model occurred within the viewshed area calculated at the lowest swept rotor height.

More detail on both the Random and Regular Flight Model calculations are available from SNH: <https://www.nature.scot/wind-farm-impacts-birds-calculating-theoretical-collision-risk-assuming-no-avoiding-action>.

In the case of Coole wind farm, for all species recorded in flight in the wind farm study area, flights were randomly distributed. Therefore, a **Random Flight Model** conducted for these species.

2.2 Modelling Process

The steps used in the Band Model to derive the collision mortality rate for each species observed at the wind farm site are outlined below.

- Stage 1: Estimate the number of bird transits through the air space swept by the rotor blades of the wind turbines. Transits are calculated using either the “Regular” or “Random” flight model (Band *et al.*, 2007), depending on flight distribution and behaviour.
- Stage 2: Calculate the collision risk for an individual bird flying through a rotating turbine blade. Collision risk is calculated using a formula which incorporates the number of bird transits (Stage 1), individual species’ biometrics, individual species’ flight speed and style, and the proposed turbine parameters. This formula is publicly available on the SNH website: <https://www.nature.scot/wind-farm-impacts-birds-calculating-probability-collision>. Biometrics are available from the British Trust of Ornithology (BTO, 2021) and flight speeds are available from Alerstam *et al.* (2007). For species that can both flap and glide, the mean of the collision risk for flapping and for gliding flight is taken.
- The product of the number of birds transits per year multiplied by the collision risk provides an annual collision mortality rate. Note that this is the unrealistic/worst-case scenario for collision mortality, as it assumes that birds flying towards the turbines make no attempt to avoid them.
- To account for birds attempting to avoid a collision, an avoidance factor is applied to the annual collision mortality rate. This corrects for the ability of the birds to detect and manoeuvre around the turbines. Avoidance rates are available from SNH (2018). Bird avoidance rates are generally 98-99% or higher for most species, based on empirical evidence, targeted studies and literature reviews, and continue to be updated following further studies of bird behaviour and mortality rates at wind farm sites.

The final annual collision risk corrected for avoidance is a “real-world” estimation of the number of collisions that may occur at the wind farm, based on observed bird activity during the vantage point survey period.

2.3 Turbine specifications

As previously outlined to ensure the full range of possible turbine dimensions was assessed (20-175m) three separate collision risk analyses were undertaken. Details of the three turbine dimension scenarios were as follows:

- Maximum rotor diameter and minimum hub height: 20-175m
- Median rotor diameter and median hub height: 25-175m
- Minimum rotor diameter and maximum hub height: 26-175m

Birds in flight within the viewshed at heights between 15-200m above ground level have been included in the collision risk model, as relevant. The candidate turbine specifications are available in Table 1.

Table 1 Turbine specifications at Coole wind farm

Wind Farm Component	Scenario Modelled
Candidate turbine model	Nordex 149 ¹
Number of turbines	15
Blades per turbine rotor	3
Rotor diameter (m)	155
Rotor radius (m)	77.5
Hub height (m)	97.5
Swept height (m)	20-175
Pitch of blade (degrees)	6
Maximum chord (m) (i.e. depth of blade)	4.5
Rotational period (s)	6.417
*Turbine operational time	85%

***This operational period of 85% is referenced from a report by the British Wind Energy Association (BWEA) (2007) which identifies the standard operational period of the wind turbines in the UK to be roughly 85%.**

The above candidate turbine parameters were used for the 15 No. turbines with a blade diameter of 155m, giving a maximum rotor height of 175 and a minimum rotor height of 20m are assessed in the analysis.

To ensure that the full range of possible turbine dimensions are assessed, two alternative turbine dimensions were considered. Collision risk models was run to assess the minimum rotor diameter of the range of turbine dimensions (i.e. rotor diameter of 149m) and the median turbine dimensions (i.e. rotor diameter of 150m) considered in this application. The second model assesses the swept path between 26-175m and the third model accesses the swept path between 25-175m. Appendix 1 shows the collision risk assessment based on alternative dimension turbines. These three collision risk assessments allow for the full range of possible turbine dimensions to be assessed (20-175m, 25-175m and 26-175m).

Please note:

Taking a precautionary approach, the highest predicted collision risk (from the three analyses, i.e. at 20-175m, 25-175m and 26-175m) for each species was considered to be the collision risk in the impact assessment.

2.4

Key Ornithological Receptors

¹ A candidate turbine is used to calculate the maximum chord and the rotational period for the modelling scenario. The best fit turbine model is used, in this case, a 149m Nordex turbine was the closest to the proposed turbine specifications.

The key ornithological receptors (KORs) recorded within PCH during surveys at Coole were:

- > Greenland White-fronted Goose
- > Golden Plover
- > Hen Harrier
- > Merlin
- > Peregrine
- > Whooper Swan
- > Kestrel
- > Lapwing
- > Snipe
- > Woodcock
- > Buzzard
- > Sparrowhawk

A CRM was conducted for each of these species. It is acknowledged that the predicted number of transits, and hence predicted rate of collision, for snipe may be largely underestimated, as flight activity for this species is largely crepuscular in nature (during twilight) while the VP survey sample predominantly consists of hours during daylight period when visibility is not an issue. It is assumed that waterbirds (including snipe) are active for 25% of the night along with daylight hours (as per SNH guidance) and this is accounted for in the model.

2.5

Calculation Parameters (20-175m)

The calculation parameters for the vantage point are outlined in Table 2. Bird biometrics are presented in Table 3. Table 4 presents the model input values: bird seconds in flight at PCH (random model) or the number of birds crossing the risk window (regular models) observed from the vantage point during the relevant survey period. Bird seconds in flight at PCH is calculated by multiplying the number of birds observed per flight by the duration of the flight spent within PCH.

Table 2 Coole wind farm survey effort and viewshed coverage

Vantage Point	Visible Area at 20m	Risk Area	Turbines visible	Total Survey Effort (hrs)
VP3	562.4	257.354	6	332.5
VP4	230.057	163.302	4	230.5
VP5	458.258	134.672	2	181
VP6	442.394	175.627	4	72

Table 3 Bird biometrics

Species	Body Length(m)	Wingspan(m)	Flight Speed(m/s)
Greenland White-fronted Goose	0.72	1.48	16.1
Golden Plover	0.28	0.72	17.9
Merlin	0.28	0.56	12.6
Peregrine Falcon	0.42	1.02	20.7
Whooper Swan	1.52	2.3	17.3
Kestrel	0.34	0.76	10.1
Lapwing	0.3	0.84	11.9
Snipe	0.26	0.46	17.1
Woodcock	0.34	0.58	17.1
Buzzard	0.54	1.2	13.3
Sparrowhawk	0.33	0.62	10

Table 4 Model input values

Species	Model	Period	Input Value (Total)
Greenland White-fronted Goose	random	Winter	3,800
Golden Plover	random	Winter	471,229
Merlin	random	All	80
Peregrine	random	All	1,315
Whooper Swan	random	Winter	17,204
Kestrel	random	All	13,505
Lapwing	random	Winter	3,625
Snipe	random	All	1,751
Woodcock	random	Breeding	40
Buzzard	random	All	34,448
Buzzard	random	Breeding	22,219
Sparrowhawk	random	All	1,493

The avoidance rates applied to the collision risk were: 99.8% for Greenland white-fronted goose, 99.6% for golden plover²; 99.5% for whooper swan, 95% for kestrel and 98% for the remaining species.

² Please see Appendix 2 for the rationale for the avoidance rate of golden plover.

3.

RESULTS (20-175M)

The predicted number of transits per year and the collision risk is presented in Table 5, along with the final predicted number of collisions per year. Note that for birds that both flap and glide, the average collision risk percentage between flapping and gliding is taken.

Table 5 Results of CRM

Species	Survey Period	Model	Transits	Collision Risk			Collision Rate			Estimated Collisions Over Lifetime of Wind Farm	One Bird Collision
				flapping	gliding	overall	without avoidance	avoidance factor	with avoidance		
Greenland White-fronted Goose	Winter	random	340.5304	5.92%	N/A	5.92%	20.15	99.8%	0.040	1.21 birds	24.81 years
Golden Plover	Winter	random	59,385.08	4.45%	N/A	4.45%	2645.53	99.6%	10.582	317.46 birds	0.09 years
Merlin	All	random	11.8707	4.61%	4.53%	4.57%	0.54	98.0%	0.011	0.33 birds	92.13 years
Peregrine Falcon	All	random	209.7564	4.81%	4.52%	4.67%	9.79	98.0%	0.196	5.87 birds	5.11 years
Whooper Swan	Winter	random	1,987.359	7.98%	N/A	7.98%	158.53	99.5%	0.793	23.78 birds	1.26 years
Kestrel	All	random	975.2979	5.17%	5.07%	5.12%	49.93	95.0%	2.497	74.90 birds	0.40 years
Lapwing	Winter	random	390.1192	4.86%	N/A	4.86%	18.95	98.0%	0.379	11.37 birds	2.64 years
Snipe	All	random	208.2588	4.29%	N/A	4.29%	8.93	98.0%	0.179	5.36 birds	5.60 years
Woodcock	Breeding	random	10.43266	4.53%	N/A	4.53%	0.47	98.0%	0.009	0.28 birds	105.90 years
Buzzard	All	random	3,371.563	5.63%	5.42%	5.52%	186.28	98.0%	3.726	111.77 birds	0.27 years
Buzzard	Breeding	random	2163.464	5.63%	5.42%	5.52%	119.53	98.0%	2.391	71.72 birds	0.42 years
Sparrowhawk	All	random	90.56372	5.09%	5.03%	5.06%	4.59	98.0%	0.092	2.75 birds	10.90 years

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- <https://www.timeanddate.com/sun/>



CRA APPENDIX 1

**COLLISION RISK ASSESSMENT –
ALTERNATIVE TURBINE
DIMENSIONS**

3.1

Alternative Turbine 1 Inputs (26-175m)

Table 6 Alternative turbine 1 specifications at Coole wind farm

Wind Farm Component	Scenario Modelled
Assumed turbine model	Nordex 149
Number of turbines	15
Blades per turbine rotor	3
Rotor diameter (m)	149
Rotor radius (m)	74.5
Hub height (m)	100.5
Swept height (m)	26-175
Pitch of blade (degrees)	6
Maximum chord (m) (i.e. depth of blade)	4.5
Rotational period (s)	6.417
*Turbine operational time	85%

***This operational period of 85% is referenced from a report by the British Wind Energy Association (BWEA) (2007) which identifies the standard operational period of the wind turbines in the UK to be roughly 85%.**

Table 7 Coole wind farm survey effort and viewshed coverage

Vantage Point	Visible Area at 26m	Risk Area	Turbines visible	Total Survey Effort
VP3	629.362	258.187	6	332.5
VP4	304.978	210.577	5	230.5
VP5	506.478	157.376	3	181
VP6	512.943	239.32	5	72

Table 8 Model input values

Species	Model	Period	Input Value (Total)
Greenland White-fronted Goose	random	Winter	3,800
Golden Plover	random	Winter	426,479
Merlin	random	All	80
Peregrine	random	All	888
Whooper Swan	random	Winter	8,495
Kestrel	random	All	7,380
Lapwing	random	Winter	800
Snipe	random	All	1,424
Woodcock	random	Breeding	0
Buzzard	random	All	23,478
Buzzard	random	Breeding	15,521
Sparrowhawk	random	All	1,171

3.2

Alternative Turbine 2 Inputs (25-175m)

Table 9 Alternative turbine 2 specifications at Coole wind farm

Wind Farm Component	Scenario Modelled
Assumed turbine model	Nordex 149
Number of turbines	15
Blades per turbine rotor	3
Rotor diameter (m)	150
Rotor radius (m)	75
Hub height (m)	100
Swept height (m)	25-175
Pitch of blade (degrees)	6
Maximum chord (m) (i.e. depth of blade)	4.5
Rotational period (s)	6.417
*Turbine operational time	85%

***This operational period of 85% is referenced from a report by the British Wind Energy Association (BWEA) (2007) which identifies the standard operational period of the wind turbines in the UK to be roughly 85%.**

Table 10 Coole wind farm survey effort and viewshed coverage

Vantage Point	Visible Area at 25m	Risk Area	Turbines visible	Total Survey Effort
VP3	627.494	256.887	6	332.5
VP4	292.392	201.662	5	230.5
VP5	497.208	154.51	3	181
VP6	505.53	232.92	5	72

Table 11 Model input values

Species	Model	Period	Input Value (Total)
Greenland White-fronted Goose	random	Winter	3,800
Golden Plover	random	Winter	426,479
Merlin	random	All	80
Peregrine	random	All	888
Whooper Swan	random	Winter	8,495
Kestrel	random	All	7,380
Lapwing	random	Winter	800
Snipe	random	All	1,424
Woodcock	random	Breeding	0
Buzzard	random	All	23,478
Buzzard	random	Breeding	15,521
Sparrowhawk	random	All	1,171

4.

ALTERNATIVE TURBINE DIMENSIONS RESULTS

The predicted number of transits per year and the collision risk for the alternative turbine dimensions are presented in Tables 12 and 13 below, along with the final predicted number of collisions per year. Note that for birds that both flap and glide, the average collision risk percentage between flapping and gliding is taken.

Table 12 Results of CRM for Alternative Turbine 1 (26-175m)

Species	Survey Period	Model	Transits	Collision Risk			Collision Rate			Estimated Collisions Over Lifetime of Wind Farm	One Bird Collision
				flapping	gliding	overall	without avoidance	avoidance factor	with avoidance		
Greenland White-fronted Goose	Winter	random	288.1648	6.09%	N/A	6.09%	17.54	99.8%	0.035	1.05 birds	28.51 years
Golden Plover	Winter	random	43507.54	4.62%	N/A	4.62%	2008.25	99.6%	8.033	240.99 birds	0.12 years
Merlin	All	random	8.607914	4.76%	4.68%	4.72%	0.41	98.0%	0.008	0.24 birds	123.08 years
Peregrine Falcon	All	random	104.7015	4.98%	4.66%	4.82%	5.05	98.0%	0.101	3.03 birds	9.90 years
Whooper Swan	Winter	random	802.4748	8.15%	N/A	8.15%	65.39	99.5%	0.327	9.81 birds	3.06 years
Kestrel	All	random	444.1574	5.32%	5.22%	5.27%	23.40	95.0%	1.170	35.10 birds	0.85 years
Lapwing	Winter	random	85.05496	5.01%	N/A	5.01%	4.26	98.0%	0.085	2.56 birds	11.72 years
Snipe	All	random	147.3097	4.43%	N/A	4.43%	6.53	98.0%	0.131	3.92 birds	7.65 years
Buzzard	All	random	1882.868	5.79%	5.58%	5.68%	107.01	98.0%	2.140	64.20 birds	0.47 years
Buzzard	Breeding	random	1286.294	5.79%	5.58%	5.68%	73.10	98.0%	1.462	43.86 birds	0.68 years
Sparrowhawk	All	random	53.84197	5.24%	5.18%	5.21%	2.80	98.0%	0.056	1.68 birds	17.83 years



Table 13 Results of CRM for Alternative Turbine 2 (25-175m)

Species	Survey Period	Model	Transits	Collision Risk			Collision Rate			Estimated Collisions Over Lifetime of Wind Farm	One Bird Collision
				flapping	gliding	overall	without avoidance	avoidance factor	with avoidance		
Greenland White-fronted Goose	Winter	random	292.3815	6.09%	N/A	6.09%	17.79	99.8%	0.036	1.07 birds	28.10 years
Golden Plover	Winter	random	44742.13	4.62%	N/A	4.62%	2065.24	99.6%	8.261	247.83 birds	0.12 years
Merlin	All	random	9.0387	4.76%	4.68%	4.72%	0.43	98.0%	0.009	0.26 birds	117.22 years
Peregrine Falcon	All	random	108.004	4.98%	4.66%	4.82%	5.21	98.0%	0.104	3.13 birds	9.60 years
Whooper Swan	Winter	random	822.1859	8.15%	N/A	8.15%	66.99	99.5%	0.335	10.05 birds	2.99 years
Kestrel	All	random	458.9188	5.32%	5.22%	5.27%	24.18	95.0%	1.209	36.26 birds	0.83 years
Lapwing	Winter	random	89.31155	5.01%	N/A	5.01%	4.48	98.0%	0.090	2.69 birds	11.16 years
Snipe	All	random	292.3815	6.09%	N/A	6.09%	17.79	99.8%	0.036	1.07 birds	28.10 years
Buzzard	All	random	1947.209	5.79%	5.58%	5.68%	110.66	98.0%	2.213	66.40 birds	0.45 years
Buzzard	Breeding	random	1309.816	5.79%	5.58%	5.68%	74.44	98.0%	1.489	44.66 birds	0.67 years
Sparrowhawk	All	random	54.82305	5.24%	5.18%	5.21%	2.86	98.0%	0.057	1.71 birds	17.51 years



Table 14 Comparison of collision risk for turbine dimensions and the alternative turbine dimensions

Species	Collision Risk – 155m rotor diameter		Collision Risk – 149m rotor diameter		Collision Risk – 150m rotor diameter	
	Collisions per year	Collisions over the lifetime of the wind farm	Collisions per year	Collisions over the lifetime of the wind farm	Collisions per year	Collisions over the lifetime of the wind farm
Greenland White-fronted Goose	0.040	1.21 birds	0.035	1.05 birds	0.036	1.07 birds
Golden Plover	10.582	317.46 birds	8.033	240.99 birds	8.261	247.83 birds
Merlin	0.011	0.33 birds	0.008	0.24 birds	0.009	0.26 birds
Peregrine Falcon	0.196	5.87 birds	0.101	3.03 birds	0.104	3.13 birds
Whooper Swan	0.793	23.78 birds	0.327	9.81 birds	0.335	10.05 birds
Kestrel	2.497	74.90 birds	1.170	35.10 birds	1.209	36.26 birds
Lapwing (Winter)	0.379	11.37 birds	0.085	2.56 birds	0.090	2.69 birds
Snipe	0.179	5.36 birds	0.131	3.92 birds	0.036	1.07 birds
Woodcock	0.009	0.28 birds	0	0 birds	0	0 birds
Buzzard	3.726	111.77 birds	2.140	64.20 birds	2.213	66.40 birds
Buzzard (Breeding)	2.391	71.72 birds	1.462	43.86 birds	1.489	44.66 birds
Sparrowhawk	0.092	2.75 birds	0.056	1.68 birds	0.057	1.71 birds



CRA APPENDIX 2

GOLDEN PLOVER AVOIDANCE RATE CALCULATION

**COOLE WIND FARM: GOLDEN PLOVER
AVOIDANCE RATES**

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SUMMARY

This report assesses the evidence for developing a species-specific avoidance rate for wintering Golden Plover populations, and makes recommendations for specifying this rate.

Collision risk modelling for onshore wind farms in Ireland generally follows the latest Scottish Natural Heritage / Natural Scotland avoidance rate guidance. This guidance includes two types of avoidance rates: species-specific avoidance rates; and a default avoidance rate that should be applied to all other species. Based on the latest version of the guidance, the default avoidance rate of 98% applies to wintering Golden Plover populations. However, review of the development of the SNH avoidance rate guidance shows that the default avoidance rate of 98% is not based on any published empirical evidence, the trend is for avoidance rates to increase as more data becomes available, and the guidance does not always reflect the latest evidence on species-specific avoidance rates. Therefore, the lack of a species-specific avoidance rate for Golden Plover in the SNH avoidance rate guidance does not necessarily mean that there is not any robust data available that could be used to develop a species-specific avoidance rate for Golden Plover.

There are reports for four UK wind farms that provide data that can be used to estimate avoidance rates, or which provide their own estimates of avoidance rates, for wintering Golden Plover populations. For three of these wind farms, the collision monitoring methodologies are robust and generally comply with best practice guidance, so the collision fatality estimates can be regarded as reliable. The avoidance rates calculated for the wintering Golden Plover populations at these wind farms range from 99.87-99.98%. For the fourth wind farm, the available information on the collision monitoring methodology was limited, but there may have been some issues with the methodology and results. The avoidance rate for the wintering Golden Plover population given in the relevant reports for this wind farm was 99.6%.

The highest avoidance rate currently recommended by Scottish Natural Heritage / Natural Scotland is 99.8% for geese. The narrow range of the avoidance rate values for wintering Golden Plover populations at the three wind farms with reliable collision fatality estimates would suggest that 99.8% is a suitable avoidance rate for wintering Golden Plover populations. The 99.6% avoidance rate at the other wind farm is lower than this value, although there may be some issues with this avoidance rate. Therefore, I recommend that collision risk modelling for wintering Golden Plover populations use two avoidance rate values: 99.6% and 99.8%. In practice, this will mean two predicted collision rates, with the one calculated with the 99.6% avoidance rate being twice the value of the other calculated with the 99.8% avoidance rate. These predicted collisions will be five times, and ten times, respectively, lower than predicted collisions calculated with the default 98% avoidance rate.

1. INTRODUCTION

This report was commissioned by MKO.

The objective of the report was to assess the evidence for developing a species-specific avoidance rate for wintering Golden Plover populations, and, if appropriate, make recommendations for specifying this rate.

Collision risk modelling for onshore wind farms in Ireland generally follows the latest Scottish Natural Heritage / Natural Scotland avoidance rate guidance (referred to hereafter as the SNH avoidance rate guidance). The latest version of this guidance (SNH, 2018) does not include a species-specific avoidance rate for wintering Golden Plover populations. Therefore, following the SNH avoidance rate guidance would mean that the default 98% avoidance rate should be applied to wintering Golden Plover populations. However, there is apparently robust data available from post-construction monitoring that indicates that a much higher avoidance rate should be applied to wintering Golden Plover populations.

In this report, I first review the development of the SNH avoidance rate guidance and consider whether the history of its development affects the interpretation of the fact that it does not include a species-specific avoidance rate for wintering Golden Plover populations. I then review the methods and results of four post-construction monitoring studies, and use the data from these studies to derive empirical avoidance rates for the wintering Golden Plover population in each study. I then assess the overall weight of evidence for applying a species-specific avoidance rate to wintering Golden Plover populations and make recommendations for avoidance rate values that should be used in collision risk modelling for such populations.

2. THE SNH AVOIDANCE RATE GUIDANCE

2.1. TYPES OF AVOIDANCE RATES

The SNH avoidance rate guidance includes two types of avoidance rates: specific avoidance rates for individual species, or groups of closely-related species (e.g., swans or geese); and a default avoidance rate that should be applied to all other species.

2.2. THE EVOLUTION OF THE SNH AVOIDANCE RATES

The latest version of the SNH avoidance rate guidance (SNH, 2018) includes a default 98% avoidance rate for species not listed in their guidance. However, this default avoidance rate does not appear to have any empirical basis.

In 2000, the first guidance from Scottish Natural Heritage on avoidance rates recommended a precautionary avoidance rate of 95%, which was “based solely on expert opinion and has little or no empirical basis, as no sound, relevant data were available at the time” (SNH, 2010). In 2010, Scottish Natural Heritage updated their guidance on avoidance rates to include species-specific avoidance rates where relevant data was available (SNH, 2010). They also updated the default avoidance rate for other species to 98% because “in the majority of cases where avoidance rates have been derived from empirical data, the avoidance rates are higher than 95%” (SNH, 2010). Further revisions of the SNH avoidance rate guidance were published in 2016 and 2018 (SNH, 2016; 2018). Comparison of the first species-specific avoidance rates published by Scottish Natural Heritage with the latest species-specific avoidance rates (Table 2.1) shows that as the knowledge base has developed there has been an increase in the recommended avoidance rates. Most species-specific avoidance rates are 99% or higher. The only species with species-specific avoidance rates of less than 99% are White-tailed Eagle and Kestrel.

Table 2.1. Species-specific avoidance rates defined in SNH guidance

Species	SNH Guidance	
	2010	2018
Divers	98%	99.5%
Swans	98%	99.5%
Geese	99%	99.8%
Red Kite	98%	99%
Hen Harrier	99%	99%
Golden Eagle	99%	99%
White-tailed Eagle	95%	95%
Kestrel	95%	95%
Skuas	98%	99.5%

Sources: SNH (2010, 2018). Divers: the 2010 guidance gives a species-specific avoidance rate for Red-throated Diver and a default avoidance rate for Black-throated Diver. Swans: the 2010 guidance gives a species-specific avoidance rate for Whooper Swan, and does not provide avoidance rates for other swan species, while the 2018 guidance gives a species-specific avoidance rate for all swan species. Geese: the 2010 guidance gives separate (but identical) species-specific avoidance rates for Greylag, Pink-footed, Greenland White-fronted and Barnacle Geese, while the 2018 guidance gives a single species-specific avoidance rate for all geese species. Skuas: the 2010 guidance gives a single default avoidance rate for all skua species, while the 2018 guidance gives separate (but identical) species-specific avoidance rates for Great Skua and Arctic Skua.

2.3. EXAMPLES OF SPECIES-SPECIFIC AVOIDANCE RATES IN THE SNH AVOIDANCE RATE GUIDANCE

The 95% avoidance rate for White-tailed Eagle is described as being based on: “sufficient evidence from flight behaviour and collision monitoring studies in Norway for vulnerability to collisions; see May *at al.* (2011)” (SNH, 2018). However, this appears to include a citation error as May *at al.* (2011) provides an estimate for a year-round avoidance rate of 98%, with a confidence interval of 95-99%, based on satellite telemetry data. Presumably, the intended citation was May *at al.* (2010), which included an estimated avoidance rate of 95.8%, based on VP survey data,

corrected for the observed wind speed distribution at the study site. This latter reference also included avoidance rates of 97.8% and 97.9% for fixed rotation speeds, and an avoidance rate of 92.5% when the collision risk was modelled using uncertainty levels. The SNH avoidance rate guidance on avoidance rates does not discuss these differing estimates of White-tailed Eagle avoidance rates, and the recommended 95% avoidance rate has remained unchanged since 2010 without any caveats added to reflect the various avoidance rates indicated by the May *at al.* (2010 and 2011) studies.

The 95% avoidance rate for Kestrel is described as being based on: “sufficient evidence from flight behaviour (including hovering) and collision monitoring studies for vulnerability to collisions” (SNH, 2018). The cited source (Whitfield and Madders, 2006) is, in fact, a review of avoidance rates for Red Kite. The information on Kestrel is derived from an analysis which finds a significant correlation between the “numbers of individuals seen” against numbers of carcasses found for 16 raptor species at a single wind farm in Spain. Kestrel is a large outlier above the regression line, and this appears to be the only empirical evidence that has been used by SNH to support the 95% avoidance rate for Kestrel. However, even taken at face value, all this analysis does is indicate that Kestrel has a lower avoidance rate than other raptor species, but it does not provide any quantitative data that can be used to estimate the avoidance rate. More seriously, this analysis does not account for behavioural and ecological differences between species that may affect the relationship between recorded bird activity and collisions. It is also subject to the perennial problem with analyses of collision rates: the small absolute numbers of collisions which means that random sampling error may have significant effects.

These two examples show that the species-specific avoidance rates in the SNH avoidance rate guidance do not necessarily reflect all the available evidence (White-tailed Eagle) and can be based on rather sketchy evidence (Kestrel).

2.4. UPDATING THE SNH AVOIDANCE RATE GUIDANCE

The SNH avoidance rate guidance states that “it is updated when robust new information becomes available” (SNH, 2018). However, while this may be an aspiration, it may not necessarily happen quickly. For example, the SNH avoidance rate guidance currently does not give species-specific avoidance rates for gulls, so the default avoidance rate of 98% applies to all gull species. This guidance refers specifically to onshore wind farms, while separate guidance has been developed for offshore wind farms (JNCC *at al.*, 2014). The latter guidance recommends an avoidance rate of 99.5% for large gulls, based on a review by Cook *at al.* (2014). The discrepancy between the recommended avoidance rates for large gulls between offshore and onshore wind farms, was not addressed until a review by Furness (2019), which was commissioned by SNH. This review recommended that the 99.5% avoidance rate for large gulls at offshore wind farms should also be adopted for onshore wind farms. The review also recommended an avoidance rate of 99.2% for small gulls, which was also based on the data in Cook *at al.* (2014). However, as of June 2022, Scottish Natural Heritage / NatureScot have not updated their guidance on avoidance rates for onshore wind farms to reflect the robust evidence that has been available about species-specific avoidance rates for gulls since at least 2014.

2.5. CONCLUSIONS

The above analysis of the development of the SNH avoidance rate guidance and its treatment of avoidance rates for White-tailed Eagle, Kestrel and gulls, shows that the default avoidance rate of 98% is not based on any published empirical evidence, the trend is for avoidance rates to increase as more data becomes available, and the guidance does not always reflect the latest evidence on species-specific avoidance rates. Therefore, the lack of a species-specific avoidance rate for Golden Plover in the SNH avoidance rate guidance does not necessarily mean that there is not any robust data available that could be used to develop a species-specific avoidance rate for Golden Plover.

3. REVIEW OF GOLDEN PLOVER AVOIDANCE RATES

3.1. SOURCES

I found post-construction monitoring reports for three UK wind farms that provide robust data on Golden Plover collision fatality rates, and, for which, there was appropriate data available that could be used to estimate avoidance rates. These reports were for the Blood Hill Wind Farm (Percival *at al.*, 2008), the Goole Fields I Wind Farm (Percival *at al.*, 2018a) and the Goole Fields II Wind Farm (Percival *at al.*, 2018b, 2019). In addition, information on Golden Plover collision fatality rates and avoidance rates is included in the Habitats Regulations Assessment reports for another UK wind farm site (Haverigg II and III¹; Percival, 2020a, 2020b), although the reports do not contain sufficient detail to allow full review of the collision monitoring methods and results. Unless otherwise stated, all information and data used in this report for each wind farm was taken from the relevant references cited above.

The characteristics of these wind farms are summarised in Table 3.1.

Table 3.1. Characteristics of the wind farms.

Wind farm	Location	Commissioned	Number of turbines	Hub height (m)	Turbine diameter (m)
Blood Hill Wind Farm	Norfolk	1992	10	30	27
Goole Fields I	Yorkshire	2014	16	80	92
Goole Fields II	Yorkshire	2016	17	80	92
Haverigg II	Cumbria	1998	4	62.5	42
Haverigg III	Cumbria	2005	4	76	52

Sources: Percival (2020a, 2020 b); Percival *at al.* (2008, 2018a, 2018b, 2019).

3.2. COLLISION MONITORING

3.2.1. Methods

The post-construction monitoring for the Blood Hill and Goole Fields I and II wind farms were carried out by the same consultancy and used the similar methodology for collision monitoring. These included weekly searches for carcasses, and searcher efficiency trials and carcass removal trials (Table 3.2). The weekly carcass searches included detailed searches of radii of 100 m (Blood Hill and Goole Fields I), or 130 m (Goole Fields II) around each turbine, with an additional 250 m scanned for large carcasses (Goole Fields I and Goole Fields II). The carcasses found were left in situ to provide data on searcher efficiency and removal rates. In addition, dedicated searcher efficiency, and carcass removal, trials were carried out at all three wind farms. These involved putting out a number of carcasses. A separate observer then tried to locate these carcasses the same day, while the carcasses were also monitored by trail cameras to investigate removal rates.

Table 3.2. Collision monitoring methods.

Wind farm	Seasons	Search frequency	Search radius	Searcher efficiency / carcass removal trials
Blood Hill	2006/07-2007/08	weekly	100 m	67 carcasses
Goole Fields I	2015/16-2018/19	weekly	100 m detailed search 250 m large carcass search	18 carcasses
Goole Fields II	2017/18-2018/19	weekly	130 m detailed search 250 m large carcass search	48 carcasses

Sources: Percival *at al.* (2008, 2018a, 2018b, 2019).

¹ Haverigg I and II are separate, but adjacent, wind farms. However, the reports combine the data for the two wind farms to calculate a single avoidance rate.

The post-construction monitoring for the Haverigg II and III wind farms was carried out between September 2018 and February 2019, with approximately monthly visits. Detailed information about the methodology of this monitoring was not available to me for this review. However, it included searcher efficiency and carcass removal trials.

3.2.2. Results

No Golden Plover fatalities were recorded at the Blood Hill Wind Farm, single fatalities were recorded at the Goole Fields I and Goole Fields II Wind Farms, and one probable Golden Plover fatality and another probable wader fatality were recorded at the Haverigg II and III Wind Farms (Table 3.3). At Blood Hill, searcher efficiency was very high, and the report notes that conditions were good for searching with winter cereals or bare ploughed ground under the turbines. At Goole Fields I and Goole Fields II, crop growth prevented full coverage of the search area on each visit, with overall coverage levels of 60-88% across the five winters covered at these two wind farms. Searcher efficiency was lower than at Blood Hill but still relatively high.

Table 3.3. Collision monitoring results.

Wind farm	Seasons	Golden Plover / wader fatalities recorded	Coverage	Searcher efficiency	% of carcasses missed due to scavengers
Blood Hill	2006/07	0	100%	> 99%	38%
	2007/08	0	100%		
Goole Fields I	2015/16	1	60%	82%	14%
	2016/17	0	81%		
	2018/19	0	79%		
Goole Fields II	2017/18	1	81%	91%	17%
	2018/19	0	88%		
Haverigg II and III	2018/19	2	no data	93%	33%

All data taken from the relevant reports cited in Section 3.1. The fatalities at Goole Fields I and Goole Fields II were confirmed Golden Plover fatalities. The fatalities at Haverigg II and III were one probable Golden Plover and one probable wader.

3.3. DERIVATION OF AVOIDANCE RATES

3.3.1. Avoidance rate calculations

Table 3.4 shows the predicted number of collisions using the SNH default 98% avoidance rate, the estimated number of collision fatalities, and the empirical avoidance rates for each site. The estimated number of collision fatalities are the actual number of collision fatalities recorded adjusted for coverage, searcher efficiency and carcass removal. Note that the data for Haverigg II and III is a combined estimate for Golden Plover and Curlew. At Blood Hill, Goole Fields I and Goole Fields II, the estimated numbers of collision fatalities were 30-90 times lower than the predicted collisions. The difference was lower at Haverigg II and III, but the estimated numbers of collision fatalities number of collision fatalities was still around six times lower than the predicted collisions. The empirical avoidance rates vary from 99.6% to 99.98%.

For the Blood Hill Wind Farm, there does not appear to be any pre-construction collision risk estimates available. Instead, collision risk estimates were obtained from post-construction vantage point surveys. The reports for the Haverigg II and III Wind Farms were for lifetime extension applications, so the collision risk estimates were also obtained from post-construction vantage point surveys. As noted in the reports, comparison of these estimates with the collision monitoring results may underestimate the avoidance rate, as birds avoiding the wind farm (macro-avoidance) will not be included in the collision risk predictions. However, the monitoring data does not indicate any significant displacement impacts to Golden Plover, so macro-avoidance may not be a significant factor for this species. For the Goole Fields I and Goole Fields II Wind Farms, the post-construction monitoring reports include the pre-construction collision risk predictions from the Environmental Statements for the projects.

No Golden Plover fatalities were recorded in the post-construction monitoring at Blood Hill. However, it would be incorrect to assume a 100% avoidance rate as, where collision rates are low, zero fatalities will be expected in some years (“false negatives”; SNH, 2009). The study by Fijn et al. (2012), which was used by Whitfield and Urquhart (2015) to derive an avoidance rate for Whooper Swan, also did not record any fatalities. To derive an avoidance rate, they assumed that one swan had been killed, and Whitfield and Urquhart (2015) followed that assumption. Therefore, to obtain an avoidance rate estimate for Blood Hill, I used a nominal value of 0.7 Golden Plover fatalities at Blood Hill (equal to one Golden Plover carcass found over two years, corrected for the expected percentage of carcasses missed due to scavenger removal).

Table 3.4. Comparison of collision risk predictions with collision monitoring results.

Wind farm	Predicted collisions (98% avoidance rate) per year	Golden Plover / wader fatalities per year	Avoidance rate
Blood Hill	62	0.7	99.98%
Goole Fields I	56	0.6	99.98%
Goole Fields II	53	1.7	99.94%
Haverigg II and III	28	5.0	99.6%

The data in this table for Haverigg II and III are combined calculations for Golden Plover and Curlew.

The predicted collisions were obtained from the data reported in the post-construction monitoring reports (see Section 3.1). In those reports, the predicted collisions were calculated from post-construction vantage point survey data for Blood Hill and Haverigg II and III, and from pre-construction vantage point survey data for Goole Fields I and Goole Fields II. For Blood Hill, the post-construction monitoring report includes the predicted collisions with an avoidance rate of 0% and the predicted collisions with a 98% avoidance rate were calculated from this figure. For Goole Fields I and Goole Fields II, the post-construction monitoring reports include the predicted collisions with a 99% avoidance rate, and the predicted collisions with a 98% avoidance rate were calculated from these figures.

The Golden Plover / wader fatalities (excluding Blood Hill) were obtained from the data reported in the post-construction monitoring reports (see Section 3.1). In those reports, the Golden Plover / wader fatalities are estimated figures that were calculated from the recorded collisions, adjusted for coverage, searcher efficiency and carcass removal. For Blood Hill, as no Golden Plover fatalities were recorded, a nominal value of 0.7 Golden Plover fatalities is used here to calculate the avoidance rate (see text). For Haverigg II and III, the recorded collisions used for the calculations comprised one probable Golden Plover and one probable wader.

The avoidance rates for Blood Hill, Goole Fields I and Goole Fields II were calculated from the predicted collisions and Golden Plover fatality data provided in the relevant post-construction monitoring reports (see Section 3.1). The avoidance rate for Haverigg II and III is the avoidance rate figure provided in the relevant reports (see Section 3.1).

3.3.2. Correction factors

There are some complicating factors that need to be taken into account in assessing the reliability of the avoidance rate estimates in Table 3.4.

The maps of Golden Plover flightlines in the Blood Hill post-construction monitoring report show a concentration of flightlines in the western section of the 500 m buffer used for the collision risk model, with relatively few flightlines actually crossing the central part of the buffer where the turbines are located. This pattern suggests that the assuming random distribution of flight activity within the 500 m buffer will overestimate the actual collision risk.

For the Goole Fields I and Goole Fields II Wind Farms, the use of pre-construction vantage point survey data for the collision risk predictions means that the accuracy of the avoidance rate estimates is dependent on the pre-construction Golden Plover flight activity being representative of the post-construction Golden Plover flight activity (allowing for any macro-avoidance effects). At Goole Fields II, the mean Golden Plover bird-days/km² were around 2.1 times higher in the pre-construction surveys, compared to the post-construction surveys (Figure 15 in Percival *at al.*, 2019), while the mean Golden Plover count within the 600 m buffer zone was around 2.2 times higher during the pre-construction surveys, compared to the post-construction surveys (Table 22 in Percival *at al.*, 2019). These differences seem unlikely to be due to macro-avoidance effects as any displacement impacts to wintering Golden Plover would be likely to be contained within the 600 m buffer zone (and the mean Golden Plover bird-days/km² included counts outside the 600 m buffer zone).

The collision risk predictions used for the avoidance rate calculation for the Haverigg II and III Wind Farms used post-construction vantage point survey data. However, this was from a different winter (2014/15) than the winter used for the collision monitoring (2018/19). Therefore, the accuracy of

the avoidance rate estimates is dependent on the Golden Plover flight activity patterns being similar in the two winters.

To allow for the above issues, I have used correction factors of 2.0 for the Blood Hill non-avoidance rate estimate, and 2.15 for the Goole Fields II non-avoidance rate estimate. The correction factor of 2.0 for the Blood Hill non-avoidance rate estimate is based on a visual estimate of differences in flightline densities in the western section of the buffer, compared to the central and eastern sections. The correction factor of 2.15 for the Goole Fields II non-avoidance rate estimate is the mean of the pre-construction / post-construction ratio of Golden Plover bird-days/km² and the pre-construction / post-construction ratio of Golden Plover counts within the 600 m buffer zone.

Applying correction factors of 2.0 to the Blood Hill non-avoidance rate estimate, and 2.15 to the Goole Fields II non-avoidance rate estimate, gives corrected avoidance rate estimates of 99.87-99.98%, while sufficient information is not available to assess whether a correction factor should be applied to the 99.6% avoidance rate for Haverigg II and III (Table 3.5).

Table 3.5. Corrected avoidance rate estimates.

Wind farm	Avoidance rate		Correction factor	Reason
	original	corrected		
Blood Hill	99.98%	99.96%	2.0	Uneven distribution of flight activity relative to turbine locations
Goole Fields I	99.98%	99.98%	1.0	-
Goole Fields II	99.94%	99.87%	2.15	Reduction in Golden Plover numbers
Haverigg II and III	99.6%	-	-	No data available to assess whether correction factor is needed (see text)

Note that the correction factor is applied to the non-avoidance rate. See text for further details of the reasons for the avoidance rate correction factors.

4. CONCLUSIONS

The collision monitoring methodologies used in the Blood Hill, Goole Fields I and Goole Fields II post-construction monitoring studies are robust and generally comply with best practice guidance (SNH, 2009). Therefore, I consider that the Golden Plover collision fatality estimates for the Goole Fields I and Goole Fields II Wind Farms from these studies are reliable. The reported zero collision fatality estimate for the Blood Hill Wind Farm does not include any correction for “false negatives” (cf., SNH, 2009), but I have allowed for this by using a nominal estimate in my calculations of avoidance rates.

The avoidance rates derived from these studies are very high, and even when I corrected two of them by doubling the non-avoidance rate to reflect uneven distribution of flight activity (Blood Hill) and apparent reductions in Golden Plover numbers (Goole Fields II), they remain around, or higher than, 99.9%. However, a degree of caution is necessary in applying these figures. Due to the low collision rate, very few collision fatalities are found. This means that random variation in the number of collision fatalities found can cause significant changes in the avoidance rate estimate. For example, if a second fatality had been found at Goole Fields II, then the corrected avoidance rate estimate would decrease from 99.87%-99.74%. While this change may seem small, it would cause a doubling in the predicted collision risk.

Detailed information about the collision monitoring methodology used for the Haverigg II and III Wind Farms post-construction monitoring study was not available to me for this review. However, I note that there was a lower frequency of monitoring (approximately monthly) compared to the other studies (weekly). This will have made the collision fatality estimate less reliable. The avoidance rate calculation for this wind farm used combined data for Golden Plover and Curlew, while the two collision fatalities were a probable Golden Plover and a probable wader. Also, the avoidance rate calculations used flight activity and collision fatality data from different winters, and, unlike with Goole Fields I and Goole Fields II it was not possible for me to assess whether differences in Golden Plover flight activity patterns between the winters could have affected the calculations². Therefore, it is possible that the significantly lower avoidance rate calculated for this wind farm, compared to the avoidance rates for Blood Hill, Goole Fields I and Goole Fields II, reflects methodological issues.

These avoidance rates are only derived from four studies, with two of these studies carried out at adjoining wind farms. However, these still represent a much stronger evidence base for a species-specific avoidance rate than the evidence used for Kestrel in the SNH avoidance rate guidance (see Section 2.3). Also, other species-specific avoidance rates in the SNH avoidance rate guidance are based on data from limited numbers of sites: e.g., both the White-tailed Eagle avoidance rate (see Section 2.3) and the Whooper Swan avoidance rate (Whitfield and Urquhart, 2015) are based on data from single sites. Therefore, the evidence base for a species-specific avoidance rate is relatively strong for Golden Plover compared to some of the species for which the SNH avoidance rate guidance does include species-specific avoidance rates. The lack of a species-specific avoidance rate for Golden Plover in the SNH avoidance rate guidance may reflect the fact that the conservation concern about Golden Plover and wind farms in Scotland is focussed on breeding populations. Data from wintering populations (such as in the studies reviewed here) may not be applicable to breeding populations due to the differences in their behaviour and ecology.

The highest avoidance rate currently recommended by SNH (2018) is 99.8% for geese. The narrow range of the corrected avoidance rates for Blood Hill, Goole Fields I and Goole Fields II (99.87-99.98%) would suggest that 99.8% is a suitable avoidance rate for wintering Golden Plover populations. The 99.6% avoidance rate at Haverigg II and III is lower than this value, although

² Note that, while my assessment of this issue for the Goole Fields II Wind Farm resulted in an increase in the corrected avoidance rate, compared to the original value, it is equally plausible that differences in flight activity between winters could cause a decrease in the corrected avoidance rate, compared to the original value.

there may be some issues with this avoidance rate. Therefore, I recommend that collision risk modelling for wintering Golden Plover populations use two avoidance rate values: 99.6% and 99.8%. In practice, this will mean two predicted collision rates, with the one calculated with the 99.6% avoidance rate being twice the value of the other calculated with the 99.8% avoidance rate. These predicted collisions will be five times, and ten times, respectively, lower than predicted collisions calculated with the default 98% avoidance rate.

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