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DYRICK HILL WIND FARM

BASELINE ORNITHOLOGICAL SURVEYS AT DYRICK HILL WIND FARM

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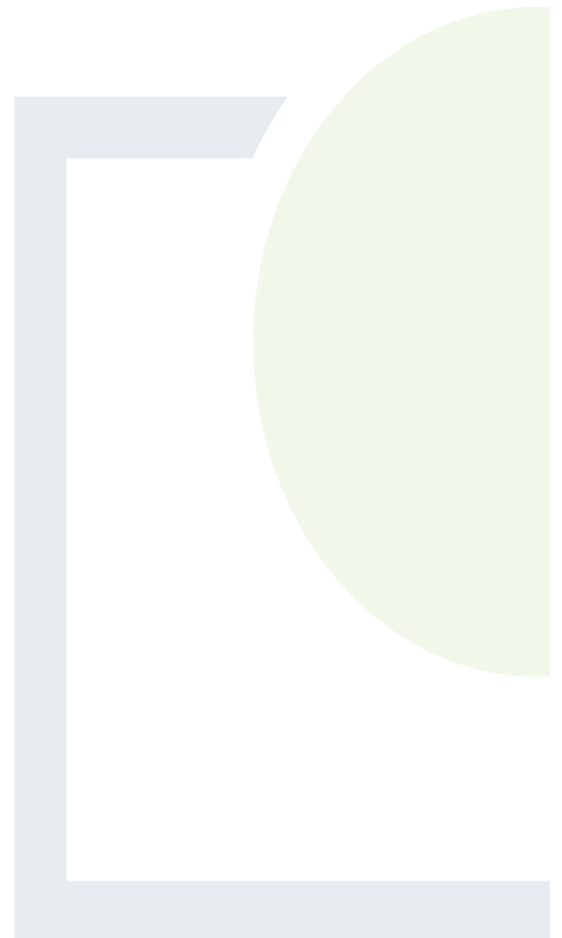
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Abstract: This document outlines a baseline ornithological survey at the proposed Dyrick Hill Wind Farm, Co. Waterford, during the following seasons: summer 2020, winter 2020/2021, summer 2021, summer 2022 and winter 2021/2022.

TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	ERROR! BOOKMARK NOT DEFINED.
1. INTRODUCTION	1
1.1 Study Area	1
2. SURVEY METHODOLOGY	3
2.1 Vantage Point Surveys.....	3
2.2 Hinterland Surveys	6
2.2.1 Hen Harrier Surveys	6
2.3 Breeding Wader Surveys	7
2.4 Breeding Bird Surveys.....	9
2.5 Transect Surveys during Winter Months.....	11
3. RESULTS	12
3.1 Avian usage of the Study Area – Vantage Point Surveys.....	12
3.1.1 Summary Results Summer 2020	12
3.1.2 Summary Results Winter 2020/2021	12
3.1.3 Summary Results Summer 2021	12
3.1.4 Summary Results Winter 2021/2022	12
3.2 Target species observations during VP surveys.....	14
3.2.1 Black-headed gull	14
3.2.2 Buzzard	15
3.2.3 Golden Plover	16
3.2.4 Grey Heron	18
3.2.5 Hen Harrier.....	18
3.2.6 Herring Gull	19
3.2.7 Kestrel.....	19
3.2.8 Lapwing	20
3.2.9 Lesser Black-Backed Gull	21
3.2.10Mallard	22
3.2.11Merlin	22
3.2.12Osprey	23
3.2.13Peregrine	23

3.2.14	Snipe	24
3.2.15	Sparrowhawk.....	25
3.2.16	Teal	26
3.3	Hinterland Surveys	26
3.3.1	Summer 2020	28
3.3.2	Winter 2020/2021	28
3.3.3	Summer 2021	28
3.3.4	Winter 2021/2022	29
3.3.5	Hen Harrier Surveys	31
3.4	Breeding Wader Surveys	31
3.5	Breeding Bird Surveys.....	31
3.5.1	Breeding Bird Surveys Summer 2020.....	32
3.5.2	Breeding Bird Surveys Summer 2021.....	32
3.6	Winter Bird Surveys.....	38
3.6.1	Winter Bird Surveys 2020/2021	38
3.6.2	Winter Bird Surveys 2021/2022	38
4.	DISCUSSION	42
5.	REFERENCES.....	44

LIST OF TABLES

Table 1.1:	European sites within a 15km radius of the proposed Dyrick Hill Wind Farm, and National Heritage areas within a 10km radius.	Error! Bookmark not defined.
Table 2.1:	Survey effort for Vantage Point surveys at Dyrick Hill	4
Table 2.2:	Hinterland Survey Locations	Error! Bookmark not defined.
Table 2.3:	Target Species and Associated Suitable Breeding Habitat.....	7
Table 2.4:	Count units for each wading species	8
Table 2.5:	Breeding waders survey details	8
Table 2.6:	Breeding bird summer transect survey details	9
Table 2.7:	Wintering bird transect survey details.....	11
Table 3.1:	Bird species recorded during VP surveys	13
Table 3.2:	Bird species recorded during hinterland surveys	26
Table 3.3:	Results of breeding bird transects surveys of Dyrick Hill in 2020(Transects 1,2)	33
Table 3.4:	Results of breeding bird transects surveys of Dyrick Hill in 2021 (Transects 1,2,3)	34
Table 3.5:	Results of winter bird transects surveys at Dyrick Hill in Winter 2020/2021 (Transects 1,2)	39
Table 3.6:	Results of winter bird transects surveys at Dyrick Hill in Winter 2021/2022 (Transects 1,2,3)	40



1. INTRODUCTION

Fehily Timoney & Company (FT) was appointed by EPower to undertake two and half years of winter and summer ornithological surveys at the proposed Dyrick Hill Wind Farm from 2020 to 2022. This report presents the results of these ornithological surveys and summarises the activity of bird species during these survey periods. The study area of the proposed Dyrick Hill Wind Farm is near Cappoquin, Co. Waterford.

The following terms will be employed throughout this report:

- The Site: Refers to all lands that fall within the Development (Dyrick Hill Wind Farm) Boundary as shown in Appendix 7.4. Figure 1;
- The Redline Boundary: Refers to the Proposed Development Boundary extents;
- The Development: Refers to all elements of the application for the Proposed Development (Dyrick Hill Wind Farm), the details of which will be set out within Chapter 2: Project Description. These elements include the wind turbines, all site infrastructure (access tracks, substation(s), temporary construction / storage compounds, permanent meteorological mast, borrow pit(s) etc.) including the works required within the Redline Boundary to accommodate the Grid Connection and Turbine Delivery Route;
- The Project: The Project refers to the development works within the Redline Boundary but also includes lands for replanting of forestry, the Turbine Delivery Route details and details of associated haulage of any other construction materials to the Site which derive from outside the Redline Boundary;
- Study Areas: Refers to areas which are considered as part of the assessment process and is defined in Section 1.1 below.

This ornithological assessment for surveys includes the assessment of bird species occurring within the proposed site boundary, and surveys of surrounding habitats of value to birds. Surveys adhered to Scottish Natural Heritage guidance (SNH, 2017). The following surveys were carried out:

- Vantage Point survey;
- Hinterland survey;
- Breeding wader survey;
- Breeding bird transect survey;
- Winter transect survey;
- Hen harrier roost survey.

1.1 Study Area

The Study Area is located c. 7.5km northeast of Cappoquin, Co. Waterford and c. 15km northwest of Dungarvan, Co. Waterford (Appendix 7.4. Figure 1).



Surrounding habitats and land uses are described by Corine 2018¹ as: pastures (Code 231), coniferous forests (312), transitional woodland scrub (324) and peat bogs (412).

¹ <https://gis.epa.ie/EPAMaps/>. Accessed 12/05/22



2. SURVEY METHODOLOGY

The following surveys were carried out:

- Vantage Point survey;
- Hinterland survey;
- Breeding wader survey;
- Breeding bird transect survey;
- Winter transect survey;
- Hen harrier roost survey.

Surveys in Summer 2020 and Winter 2020/2021 were conducted solely by Joe Adamson (Senior Ecologist/Ornithologist, BSc, MSc.). Surveys in Summer 2021 were conducted by Joe Adamson and Noel Linehan (Ornithologist). Winter 2021/2022 and Summer 2022 surveys were conducted by Noel Linehan.

Methodology for these surveys will be detailed under the headings below:

2.1 Vantage Point Surveys

In this instance, survey area refers to the entirety of the Site, as well as a 500m buffer. The main purposes of vantage point survey watches are to collect data on *target species* that will enable estimates to be made of:

- a. The time spent flying over the defined survey area;
- b. The relative use of different parts of the defined survey area;
- c. The proportion of flying time spent within the upper and lower height limits as determined by the rotor diameter and rotor hub height.

Vantage Point (VP) surveys were carried out at the Site from May 2020 to September 2022 during the non-breeding (winter) and breeding seasons, in accordance with the Scottish Natural Heritage Methodology for onshore Wind Farms (SNH, 2017). These surveys were divided into winter (October – March) and summer (April – September) seasons. The following seasons were surveyed: Summer 2020, Winter 2020/2021, Summer 2021, Winter 2021/2022, and Summer 2022. A total of three VP locations overlooking the survey area were used during the VP surveys (Appendix 7.4. Figure 1), each with specific viewsheds chosen to ensure the entirety of the Site, as well as a 500m buffer.

Vantage point locations were based on observations from walkover/reconnaissance surveys, viewshed analysis (using GIS) and collated information on known feeding and roosting sites from a desktop review. In February 2022, VP2 had to be moved slightly to VP2b as a result of a change in access restrictions. In July 2022, tall bracken growth had impeded the view from VP2b, resulting in an additional short move to VP2d. The viewshed remained the same at both VP locations given the minor shift in locations locally. The number and location of vantage points was selected to achieve visibility of the entire survey area and important features for birds in close proximity to the Site (e.g., lakes, wetlands).



In line with recommended best practice (SNH, 2017 and Band *et al.* 2007), viewshed analysis was undertaken using ARCMAP 10.4.1, to calculate a theoretical zone of visibility from each vantage point.

Visibility is calculated from each vantage point along an invisible layer suspended at the predicted lowermost height passed through by the rotor blade tips, using an observer height of 1.5 m. We note the following from SNH guidance in respect of priority areas for viewshed analysis (emphasis added):

“Where the key purpose is to estimate the risk of collision with turbines, it is the visibility of the airspace to be occupied by the turbine rotors (the collision risk volume) that is of prime importance. Therefore, it is recommended that visibility be calculated using the least visible part of this airspace, i.e. an imaginary layer suspended at the lowermost height passed through by the rotor blade tips (typically about 20-30m above ground level).”

“Predicting visibility at this level is a simple task using GIS, however it should be noted that the baseline should take account of any forestry or other features that will potentially obstruct the view. For example, forestry may be 10-30m high and if viewshed height is taken as 20-30m ground level the visible area could be overestimated if there is forestry within the viewshed. Being able to view all or most of the site to ground level can be helpful in gauging overall bird activity and usage of the site but is not as important as being able to view the collision risk volume”

Following SNH guidance (2017), watches were conducted to sample target species and fulfilling the required effort from SNH. Vantage Point (VP) surveys (6 hours) were conducted at each VP every month. As per SNH guidance (2017), 36 hours of vantage point effort was carried out at each vantage point during all seasons, with the exception of minor deviation in Summer 2020 (Refer to Table 2.1). Additional time during the Winter 2020/2021 and an additional season in summer 2022 accommodated for this shortfall. The total survey period was also greater than the recommended 2 years of surveys required by SNH guidance (SNH, 2017a).

Table 2.1: Survey effort for Vantage Point surveys at Dyrick Hill

Season	Surveyor	Duration (hh:mm)		
		VP1	VP2	VP3
Summer 2020	Joe Adamson	31:10	32:20	31:25
Winter 2020/2021	Joe Adamson	42:00	43:00	43:00
Summer 2021	Joe Adamson, Noel Linehan	36:10	36:15	36:10
Winter 2021/2022	Noel Linehan	36:30	36:36	36:05
Summer 2022	Noel Linehan	36:00	36:00	36:00

Data recorded included flight activity of target species (flight height, duration, directionality) in addition to metrics such as flock size (per recorded transit) and relative time of observation. Detailed notes of each observation of a target bird species were recorded including behaviour, sex (where possible), numbers, flight height, associated habitat and the period spent within the survey area. Successful foraging events were also noted if they arose. Other bird species seen or heard during the VP surveys were also recorded and were considered separately in the analysis as additional species. Flight activity was annotated onto field maps. Total



numbers of birds present both on arrival at the VP and on departure was noted. Details of each flight-path observation is provided in Section 3. Binoculars and telescopes were used to scan for target species. Dictaphones were utilised to dictate bird heights whilst tracking flight events.

Flight heights were estimated visually as allowed for in SNH (2017) guidance. Flight height estimation using a clinometer or rangefinder is accepted as an *alternative* means of determining flight height however this is often not practicable (equipment may be clumsy and birds may be lost from view whilst trying to focus additional equipment on a target species rapidly moving out of sight); it should be noted that in practice many flocks of swans do not fly close enough to a surveyor for a rangefinder to be used, resulting in most flights heights being estimated in any case. As is often the case an experienced observer will be able to record accurate observations at a higher frequency. All surveys were conducted during suitable weather conditions.



2.2 Hinterland Surveys

The methodology used for wetland sites during hinterland surveys followed I-WeBS (Irish Wetland Bird Survey) methodology (Lewis *et al*, 2019), whereby each location was surveyed for the duration necessary to identify and obtain a count for all target species present. The same approach was adapted for non-wetland sites.

Timing and details of hinterland surveys are detailed in Appendix 7.3.

The surveys were carried out in suitable habitats including woodlands and wetlands in the area surrounding the proposed wind farm site. This comprised of 12 hinterland vantage points within 10 km from the Site. These hinterland vantage points (HVP) were chosen as they had suitable habitat for the following target species: raptors, waders, waterfowl, swans, geese, barn owl, wildfowl and other waterbirds. Additionally, checks were made in the general area surrounding the Site. Surveys were carried out between May 2020 and September 2022. The HVPs detailed in **Error! Reference source not found.** and Appendix 7.4, Figure 3**Error! Reference source not found.** were checked regularly across this period.

The centre point of HVP9 is in close proximity to HVP10, but HVP9 extended further up and down the R671 from the centre point on the map.

2.2.1 Hen Harrier Surveys

A hinterland survey for raptors was conducted in accordance with Hardey *et al.* (2013) to assess hen harrier and other raptor activity over the winter and breeding periods in the greater surroundings of the Site.

An area between VP3 and north of VP1 was searched on the following dates: 21/10/2020, 21/01/2021, 17/02/2021, 23/03/2021. Additionally, a watch was conducted on 27/12/2021 at Aughavanlomaun (HVP1). Hinterland surveys were also completed monthly during the summer 2022 breeding season (20th April 2022 to the 25th of September 2022). Timing and details of hinterland surveys are detailed in Appendix 7.3.



2.3 Breeding Wader Surveys

Survey transects to assess the presence of breeding wader populations were completed during April, May, June, and July 2020; April, May and June 2021; and April, May and June 2022. A number of methods were combined from published literature including Bibby *et al.*, (2000), Gilbert *et al.*, (1998), O’Brien and Wilson (2011) and SNH (2017) to estimate numbers of target species breeding within study area.

Methods utilised were grouped into two categories: those for breeding lapwing *Vanellus* and those for other species such as curlew *Numenius arquata*, common snipe *Gallinago*, redshank *Tringa totanus*, woodcock *Scolopax rusticola*, common sandpiper *Actitis hypoleucos* and ringed plover *Charadrius hiaticula*. For each species, a pre-defined matrix of suitable habitats was created and used to select target habitats for survey (Table 2.2).

Table 2.2: Target Species and Associated Suitable Breeding Habitat

Target Species	Suitable Breeding Habitat
Lapwing	Lowland wet grassland, arable farmland, cutover bog with pools and wet grassland
Snipe	Wet pastures, marsh, bogs (intact and cutover) and fens
Redshank	Bog
Curlew	Bog
Common Sandpiper	Streams/rivers in bog
Woodcock	Woodland, bog woodland
Ringed Plover	Cutover bog, milled peat with exposed gravel

Survey methods for lapwing followed those in Bibby *et al.* (2000), where the primary count unit for breeding birds is defined as an incubating female. In addition, displaying birds, birds standing guard near nests or distraction displays were also recorded as indications of occupied territories. Extensive areas of open ground were covered from roads, farm tracks or roadsides (where possible); larger areas of open ground not visible from easily accessible vantage points were walked using transects.

Surveys were carried out during the time periods recommended in Bibby *et al.* (2000) although territorial behaviour noted outside these periods was also utilised in the assessment. For all additional species of wader the employed method was the same and utilised transects walked through suitable habitat within three hours of dawn or dusk. However, surveys conducted in April 2020 and June 2021 were outside of this three-hour window. Count units (Table 2.3) were predefined for each target species and included in the method statement provided to surveyors.



Table 2.3: Count units for each wading species

Species	Count Unit
Lapwing	Incubating Bird
Common Snipe	Drumming or Chipping Bird
Redshank	Alarming Bird
Woodcock	Displaying Male
Ringed Plover	Presence or Absence/ Fledged Young late in season
Common Sandpiper	Presence or Absence/ Fledged young late in season
Curlew	Territorial Activity

All suitable habitats for waders were visited, during the months of April, May, and June and/or July (2020, 2021, 2022). Observations from the visits were annotated onto maps (locations of territories or breeding attempts) and a final, summary map produced at the end of the survey season using ARCMAP 10.8.2. Breeding wader summary sheets were also compiled at the end of the breeding season, indicating in each case the minimum number of breeding pairs/occupied territories known to occur.

All species encountered (seen or heard) were recorded and their abundance, behaviour, sex/age and breeding status noted. Any species occurring more than 100 m from the observer, or flying over the site and not using it, were recorded as ‘additional’ species to further inform the baseline survey. Table 2.4 details the survey dates and weather conditions.

In addition to waders, other bird species were also observed during breeding wader surveys

Table 2.4: Breeding waders survey details

Date	Surveyor	Start Time	Transect/Area	Cloud (Okta)	Precipitation	Wind
15/04/2020	Joe Adamson	16:45	Between VP1 and VP2	8/8	None	F4
29/05/2020		09:45	Site	0/8	None	F4
16/06/2020		No data	Site	3/8	None	F4
19/07/2020		09:40	Site	0/8	None	F3
02/04/2021		09:40	Between VP1 and VP3	8/8	Showers	F4-5
29/05/2021		09:45	Site	8/8	None	F4
27/06/2021		12:05	North of Dyrick Hill	3/8	None	F4-5
27/04/2022		Noel Linehan	06:10	T4	2/8	None
27/04/2022	08:03		T1	3/8	None	F2 NE



Date	Surveyor	Start Time	Transect/Area	Cloud (Okta)	Precipitation	Wind
08/05/2022		18:50	T5	8/8	None	F3 S
08/05/2022		19:56	T6	6/8	None	F3 S
08/05/2022		19:56	T6	6/8	None	F3 S
27/06/2022		04:23	T5	3/8	None	F3 NW
27/06/2022		06:23	T7	3/8	None	F3 NW
27/06/2022		05:43	T1	3/8	None	F3 WNW
27/04/2022		06:10	T4	2/8	None	F1 E
27/04/2022		08:03	T1	3/8	None	F2 NW
08/05/2022		18:50	T5	8/8	None	F3 SE
08/05/2022		19:56	56	6/8	None	F3 SE
27/06/2022		04:23	T5	3/8	None	F3 NW
27/06/2022		06:23	T7	3/8	None	F3 NW
27/06/2022		05:43	T1	3/8	None	F3 NW

2.4 Breeding Bird Surveys

For general breeding birds the method utilised was based on the existing British Trust for Ornithology (BTO) Breeding Bird Survey (BBS or CBS; Bibby *et al.* 2000). The survey area for this survey comprised a total of 3 no. c. 1km transects, which were selected and centred on different habitats present within the subject sites (See Table 2.5).

Birds were counted over two visits, each timed to coincide with the early part of the breeding season (April/May) and later part of the season (June/July/August). Surveyors recorded all birds seen or heard as they walked methodically along the transect routes.

In the 2021 and 2022 surveys, birds were noted in three distance categories, measured at right angles to the transect line (within 25m, between 25m-100m and over 100m from the transect line) and those seen in flight only. Recording birds in distance bands gives a measure of bird detectability and allows relative population densities to be estimated if required (BTO, 2022).

The summer breeding bird transect schedule is detailed in Table 2.5, with further details including weather and times.

Table 2.5: Breeding bird summer transect survey details

Date	Transect	Surveyor	Start Time	Cloud (oktas)	Rain	Wind	Visibility
31/05/2020	1	Joe Adamson	18:50	1/8	Dry	F3	Excellent
31/05/2020	2		18:50	1/8	Dry	F3	Excellent



Date	Transect	Surveyor	Start Time	Cloud (oktas)	Rain	Wind	Visibility
28/08/2020	1		16:30	No data	No data	No data	No data
26/05/2021	1		18:20	2/8	Dry	F2-3	Excellent
26/05/2021	2		18:20	2/8	Dry	F2-3	Excellent
29/06/2021	3		16:20	3/8	Dry	F4-5	Excellent
31/07/2021	1	Noel Linehan	09:59	8/8	Dry	F2	Excellent
31/07/2021	2		08:16	8/8	Dry	F1-2	Excellent
31/07/2021	3		06:45	8/8	Drizzle	F0-1	Drizzle
27/04/2022	3		05:43	2/8	Dry	F1 E	Excellent
27/04/2022	2		06:53	3/8	Dry	F2 NE	Excellent
27/04/2022	1		08:03	3/8	Dry	F2 NE	Excellent
27/06/2022	1		05:43	3/8	Dry	F3 WNW	Excellent
19/06/2022	2		19:45	2/8	Dry	F4 N	Excellent
19/06/2022	3		20:46	2/8	Dry	F4 N	Excellent



2.5 Transect Surveys during Winter Months

For general wintering bird transects the method utilised was the same as for the breeding bird transects, except it was undertaken in the winter season. In the 2020/2021 winter season, two rounds were carried out (October and November). In the 2021/2022 season, three rounds were carried out (November, February, and March).

The wintering bird transect schedule is available in Table 2.6. The results are presented in Table 3.6.

Table 2.6: Wintering bird transect survey details

Date	Transect	Surveyor	Start Time	Cloud (oktas)	Rain	Wind	Visibility
14/10/2020	1 &2	JA	09:15	8/8	Showers	F1-2	Excellent
13/12/2020	1 &2	JA	16:10	8/8	Showers	F4-5	Excellent
05/11/2021	3	JA	07:48	8/8	None	F0	Excellent
17/11/2021	1	JA	08:00	2/8	None	F0-1	Excellent
	2	NL	15:30	2/8	None	F0-1	Excellent
04/02/2022	3	NL	08:05	1/8	None	F2-4	Excellent
	2	NL	08:38	0/8	None	F3	Excellent
	1	NL	10:27	3/8	None	F3	Excellent
23/03/2022	3	NL	06:52	0/8	None	F2	Excellent
	2	NL	07:42	0/8	None	F2	Excellent
	1	NL	08:50	1/8	None	F2	Excellent



3. RESULTS

3.1 Avian usage of the Study Area – Vantage Point Surveys

Vantage Point surveys were conducted across the following seasons: Summer 2020, Winter 2020/2021, Summer 2021, Winter 2021/2022 and Summer 2022. The survey effort equalled or exceeded 36 hours of observation time at each VP, over each survey period (with the exception of Summer 2020). Bird activity was recorded from the VPs during each survey. Table 3.1 shows all the species recorded during surveys. In total there were 660 individual flight lines of 19 target species observed during the survey period.

Including target species, and other species observed, a total of 78 species were observed. Of these species, 33 are birds of conservation concern. The Red listed-species observed were golden plover, grey wagtail, kestrel, lapwing, meadow pipit, redwing, red kite, snipe, stock dove and swift.

3.1.1 Summary Results Summer 2020

During the summer 2020 season, five target species were recorded. Of these, two species were red-listed (kestrel, and stock dove), one species was amber-listed (lesser black-backed gull), and one was green-listed (buzzard). Hen harrier is also listed under Annex I of the EU Birds Directive.

3.1.2 Summary Results Winter 2020/2021

During the winter 2020/2021 season, five target species were recorded. Of these, two species were red-listed (golden plover, and kestrel), one species was amber-listed (lesser black-backed gull), and two were green-listed (buzzard, and sparrowhawk). Golden plover is also listed under Annex I of the EU Birds Directive.

3.1.3 Summary Results Summer 2021

During the summer 2021 season, 11 target species were recorded. Of these, four species were red-listed (kestrel, snipe, stock dove, and swift), three species were amber-listed (black-headed gull, herring gull, and lesser black-backed gull), and four were green-listed (buzzard, osprey, peregrine, and sparrowhawk). Peregrine is also listed under Annex I of the EU Birds Directive.

3.1.4 Summary Results Winter 2021/2022

During the winter 2021/2022 season, 16 target species were recorded. Of these, five species were red-listed (golden plover, kestrel, lapwing, snipe, and stock dove), six species were amber-listed (black-headed gull, hen harrier, lesser black-backed gull, mallard, merlin, and teal) and five were green-listed (buzzard, green sandpiper, grey heron, peregrine, and sparrowhawk). Golden plover, hen harrier, merlin, and peregrine are also listed under Annex I of the EU Birds Directive.

3.1.5 Summary Results Summer 2022

During the summer 2022 season, 16 target species were recorded. Of these, six species were red-listed (golden plover, kestrel, red kite, snipe, stock dove, and swift), five species were amber-listed (cormorant, hen harrier, herring gull, lesser black-backed gull, and mallard), and four were green-listed (buzzard, great black-backed gull, grey heron, and sparrowhawk). Golden plover, peregrine, and red kite are also listed under Annex I of the EU Birds Directive.



Table 3.1 Bird species recorded during VP surveys

Common name	Scientific name	*BoCCI status	**Annex I status
Blackbird	<i>Turdus merula</i>	Green	No
Blackcap	<i>Sylvia atricapilla</i>	Green	No
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Amber	No
Blue Tit	<i>Cyanistes caeruleus</i>	Green	No
Brambling	<i>Fringilla montifringilla</i>	Amber	No
Brent Goose	<i>Branta bernicla</i>	Amber	No
Bullfinch	<i>Pyrrhula pyrrhula</i>	Green	No
Buzzard	<i>Buteo buteo</i>	Green	No
Chaffinch	<i>Fringilla coelebs</i>	Green	No
Chiffchaff	<i>Phylloscopus collybita</i>	Green	No
Coal Tit	<i>Parus ater</i>	Green	No
Common Crossbill	<i>Loxia curvirostra</i>	Green	No
Cormorant	<i>Phalacrocorax carbo</i>	Amber	No
Cuckoo	<i>Cuculus canorus</i>	Green	No
Dunnock	<i>Prunella modularis</i>	Green	No
Feral Pigeon	<i>Columba livia</i>	Green	No
Fieldfare	<i>Turdus pilaris</i>	Green	No
Goldcrest	<i>Regulus</i>	Amber	No
Golden Plover	<i>Pluvialis apricaria</i>	Red	Yes
Goldfinch	<i>Carduelis carduelis</i>	Green	No
Great Black-backed Gull	<i>Larus marinus</i>	Green	No
Great Spotted Woodpecker	<i>Dendrocopos major</i>	Green	No
Grasshopper Warbler	<i>Locustella naevia</i>	Green	No
Great Tit	<i>Parus major</i>	Green	No
Green Sandpiper	<i>Tringa ochropus</i>	Green	No
Greenfinch	<i>Carduelis chloris</i>	Amber	No
Grey Heron	<i>Ardea cinerea</i>	Green	No
Grey Wagtail	<i>Motacilla cinerea</i>	Red	No
Hen Harrier	<i>Circus cyaneus</i>	Amber	Yes
Herring Gull	<i>Larus argentatus</i>	Amber	No
Hooded Crow	<i>Corvus cornix</i>	Green	No
House Martin	<i>Delichon urbicum</i>	Amber	No
House Sparrow	<i>Passer domesticus</i>	Amber	No
Jackdaw	<i>Corvus monedula</i>	Green	No
Jay	<i>Garrulus glandarius</i>	Green	No
Kestrel	<i>Falco tinnunculus</i>	Red	No
Lapwing	<i>Vanellus vanellus</i>	Red	No
Lesser Black-backed Gull	<i>Larus fuscus</i>	Amber	No
Lesser Redpoll	<i>Carduelis cabaret</i>	Green	No
Linnet	<i>Carduelis cannabina</i>	Amber	No



Common name	Scientific name	*BoCCI status	**Annex I status
Long-tailed Tit	<i>Aegithalos caudatus</i>	Green	No
Magpie	<i>Pica pica</i>	Green	No
Mallard	<i>Anas platyrhynchos</i>	Amber	No
Meadow Pipit	<i>Anthus pratensis</i>	Red	No
Merlin	<i>Falco columbarius</i>	Amber	Yes
Mistle Thrush	<i>Turdus viscivorus</i>	Green	No
Osprey	<i>Pandion haliaetus</i>	Green	No
Peregrine	<i>Falco peregrinus</i>	Green	Yes
Pheasant	<i>Phasianus colchicus</i>	Green	No
Pied/White Wagtail	<i>Motacilla alba</i>	Green	No
Raven	<i>Corvus corax</i>	Green	No
Red Kite	<i>Milvus milvus</i>	Red	Yes
Redwing	<i>Turdus iliacus</i>	Red	No
Reed Bunting	<i>Emberiza schoeniclus</i>	Green	No
Reed Warbler	<i>Acrocephalus scirpaceus</i>	Green	No
Robin	<i>Erithacus rubecula</i>	Green	No
Rook	<i>Corvus frugilegus</i>	Green	No
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	Green	No
Sand Martin	<i>Riparia riparia</i>	Amber	No
Siskin	<i>Carduelis spinus</i>	Green	No
Skylark	<i>Alauda arvensis</i>	Amber	No
Snipe	<i>Gallinago gallinago</i>	Red	No
Song Thrush	<i>Turdus philomelos</i>	Green	No
Sparrowhawk	<i>Accipiter nisus</i>	Green	No
Spotted Flycatcher	<i>Muscicapa striata</i>	Amber	No
Starling	<i>Sturnus vulgaris</i>	Amber	No
Stock Dove	<i>Columba oenas</i>	Red	No
Stonechat	<i>Saxicola torquatus</i>	Green	No
Swallow	<i>Hirundo rustica</i>	Amber	No
Swift	<i>Apus apus</i>	Red	No
Teal	<i>Anas crecca</i>	Amber	No
Tree Pipit	<i>Anthus trivialis</i>	Amber	No
Treecreeper	<i>Certhia familiaris</i>	Green	No
Whitethroat	<i>Sylvia communis</i>	Green	No
Willow Warbler	<i>Phylloscopus trochilus</i>	Amber	No
Woodpigeon	<i>Columba palumbus</i>	Green	No
Wren	<i>Troglodytes troglodytes</i>	Green	No

3.2 Target species observations during VP surveys

3.2.1 Black-headed gull



Summer 2020

Black headed gull was not observed in Summer 2020.

Winter 2020/2021

Black headed gull was not observed in Winter 2020/2021.

Summer 2021

Black headed gull was not observed in Summer 2021.

Winter 2021/2022

There was a single observation of black-headed gull from VP3 on 7th November 2021. This observation was of two individuals flying above 185m for 246s. The birds were heading approximately north-north-westerly and were lost in the distance.

Summer 2022

Black headed gull was not observed in Summer 2022.

3.2.2 Buzzard

Buzzard was the most frequently observed bird during vantage point surveys, with 200 observations mapped.

Summer 2020

Buzzard was observed on eight occasions in Summer 2020. These observations occurred from June to September, with buzzards observed from all VPs. Observations were generally of between one and two birds, but on one occasion an observation of up to six birds was noted. On 24th August 2020, from VP1, three buzzards were observed directly over Dyrick Hill, and were joined by an additional three birds. By 14:45, three of the birds disappeared to the north leaving three birds circling and tacking against the wind for about ten minutes. For all observations flight height was most frequently in the 0-10m band (0-10m = 765s, 10-20m = 300s, 30-50m = 65s, 50-100m = 45s). Behaviours included circling, flying, calling, and soaring. Activity was generally concentrated on the area south of T04 and T03.

Winter 2020/2021

Buzzard was observed on seven occasions between October 2020 and March 2021. Observations occurred at all VPs and consisted of either a single individual or two birds. Flight height was most frequently in the 20-30m height band (0-10m = 165s, 10-20m = 250s, 20-30m = 265s). Behaviours included being mobbed by ravens, rooks, and hooded crows, hovering and circling. Activity was generally concentrated on the area south of T04 and T03, similar to the previous season.

Summer 2021

There were 27 observations of buzzard during Summer 2021. Numbers of birds ranged from one to four individuals. Observations occurred from all VPs and across all months except May. Flight height was most frequently in the 50-100m height band (0-10m = 117s, 10-20m = 285s, 20-30m = 715s, 30-50m = 999s, 50-100m = 2398s, 100-185m = 883s, >185m = 575s). Behaviours included soaring, hovering, circling, feeding, perching, chasing each other, and calling.

The observation of four buzzard occurred on 2nd April 2021, with the four birds tacking against the wind north of Dyrick Hill. They eventually moved south over a conifer plantation, separating into two pairs.



Winter 2021/2022

Buzzard was observed on 89 occasions during Winter 2021/2022. Observations occurred in all months except January and from all VPs. Number of birds ranged from one to five. Activity was most frequently in the 0-10m height band (0-10m = 13986s, 10-20m = 2493s, 20-30m = 1968s, 30-50m = 5776s, 50-100m = 2488s, 100-185m = 1468, >185m = 500s). Behaviours included hunting, hovering, perching, circling, chasing each other, and being mobbed by corvids.

The observation of five buzzards occurred on 21st February from VP2. Three birds were noted to fly northwest across the site, with the other two staying near their original location. Additionally, an observation of four buzzards occurred from VP3 on the 19th of February. On this occasion, four birds were being mobbed by a hooded crow.

Summer 2022

Buzzard was observed on 69 occasions during Summer 2022. Observations occurred during all months, and from all VPs. Bird numbers ranged from one to three. Flight was most frequently observed in the 30-50m height band ((0-10m = 6636s, 10-20m = 967s, 20-30m = 1182s, 30-50m = 8122s, 50-100m = 7986, 100-185m = 652s, >185m = 90s). Behaviours included commuting, being mobbed by hooded crows and ravens, perching, circling, hovering, sky dancing, and jostling with other buzzards. Both males and females were observed, in addition to juveniles.

3.2.3 Cormorant

Vantage Point Surveys: Summer Season (2020, 2021, and 2022)

Not recorded within the flight activity survey area, however; a single bird was noted passing outside and east of the VP3 viewsheds (flightline not drawn as the bird was beyond 2km) at approximately 100m, heading in a north-westerly direction on the 31st July.

Vantage Point Surveys: Winter Season (2020/21, and 2021/22)

Not recording during winter season vantage point surveys.

3.2.4 Golden Plover

Summer 2020

Golden plover was not observed in Summer 2020.

Winter 2020/2021

Golden plover was observed twice in Winter 2020/2021. Both observations occurred from VP1. On the 6th of October 2020, 27 golden plover were observed at a height of 50-100m for 75 seconds. This flock came in from the Dungarvan direction and were in a tight flock, flying in a northerly direction. The flock circled back at times and was heard calling.

On the 21st of November 2020, a flock of 60 golden plover were observed at a height of 30-50m for 60s. This flock was circling and gradually moving northwards.



Summer 2021

Golden plover was not observed in Summer 2021.

Winter 2021/2022

Golden plover was observed on 38 occasions during Winter 2021/2022. Flock size ranged from one to 500, with an average size of 118 birds. Observations occurred in all months except January, and from all VPs. Flight was most frequently in the 0-10m height band (0-10m = 21027s, 10-20m = 671s, 20-30m = 1417s, 30-50m = 2253s, 50-100m = 1058s, 100-185m = 1955s, >185m = 72s). Behaviours included commuting, circling, landing, roosting, preening. Birds were also flushed on one occasion from VP1.

A flock of over 500 golden plover were recorded in two flightlines on the 22nd of February from VP1. The initial flightline was recorded as the surveyor was walking to the VP. Thirty minutes later, the surveyor observed a large flock circling locally. They almost certainly landed but this was out of the view of the surveyor, to the north of the VP.

Summer 2022

Golden plover was observed on 19 occasions during Summer 2022 (in April, May and September). No observations of golden plover were made from VP2. Flock size ranged from one to 125, with an average size of 53 birds. Flight was most frequently in the 0-10m height band (0-10m = 35328s, 10-20m = 172s, 20-30m = 356s, 30-50m = 3628s, 50-100m = 3030s, 100-185m = 80s). Behaviours included commuting and circling. Birds were also observed landed, with preening and roosting observed on two occasions from VP1.

3.2.5 Great Black-backed gull

Summer 2020

Great black-backed gull was not observed in Summer 2020.

Winter 2020/2021

Great black-backed gull was not observed in Winter 2020/2021.

Summer 2021

Great black-backed gull was not observed in Summer 2021

Winter 2021/2022

Great black-backed gull was not observed in Winter 2021/2022

Summer 2022

There were six observations of great black-backed gull in Summer 2022. One of these observations was from VP3 in May (individual commuting), the remainder of observations originated from VP2 in September. The observations in September were all of the same adult, which was observed sitting in a field preening, roosting as well as commuting around the site. Flight was most frequently in the 0-10m height band (0-10m = 9382s, 10-20m = 61s, 20-30m = 17s, 30-50m = 35s).

3.2.6 Green Sandpiper

Vantage Point Surveys: Summer Season (2020, 2021, and 2022)

Recorded once from VP2 on the 5th November 2021. The bird was only hear briefly in flight and not seen.



Vantage Point Surveys: Winter Season (2020/21, and 2021/22)

Not recording during winter season vantage point surveys.

3.2.7 Grey Heron

Summer 2020

Grey heron was not observed in Summer 2020.

Winter 2020/2021

Grey heron was not observed in Winter 2020/2021.

Summer 2021

Grey heron was not observed in Summer 2021

Winter 2021/2022

Two flightlines were recorded for grey heron during Winter 2021/2022. Both of these flightlines were recorded on the 8th March from VP2. At 11:48, an individual was seen flying and reducing height from 100-185m, to 10-20m, where it was eventually lost from view. Later in the day at 13:37, an individual was seen landing amongst vegetation.

Summer 2022

Grey heron was observed once in Summer 2022. A single individual was observed in August, landing close to VP2. Flight lasted for 2s in the 0-10m height band.

3.2.8 Hen Harrier

Summer 2020

A female hen harrier was observed from VP1 on the 22nd of September 2020. This bird came in rapidly from the west, flying directly in an east-north easterly direction just north of Dyrick Hill. It was recorded in the 20-30m height band for 15 seconds. This was a late evening vantage point with the bird most likely going to roost.

Winter 2020/2021

Hen harrier was not observed in Winter 2020/2021.

Summer 2021

Hen harrier was not observed in Summer 2021.

Winter 2021/2022

Hen harrier was observed once in Summer 2021, on the 21st of September during Migration Surveys, from VP1. This juvenile was heading in an east-north-easterly direction a height of 50 to 185m (50-100m = 30s, 100-185m = 197s).

Another observation occurred at VP2 on the 5th of November 2021. An individual was flying between 20-30m for 23s. This individual was flying towards the site and was then lost from view behind the trees.



The next observation was at VP1 on the 3rd of February 2022. In this instance, a male was flying at a height of between 0-20m (0-10m = 38s, 10-20m = 38s). This individual was hunting, being observed hanging in the wind and dropping to ground level. It disappeared over the Dyrick Hill to the north-northwest.

The third observation was of a female at VP1 on the 8th of March 2022. This bird was likely hunting and was observed for 23 seconds (<30m) heading in a west-north-west direction before being obscured from view by a hedgerow.

Summer 2022

Hen harrier was observed twice in Summer 2022. The first observation occurred in July at VP2, with a single individual appearing intermittently above the treeline. This bird was loafing around, changing direction a lot before heading off in a northwesterly direction (0-10m = 383s, 20-30s = 382s). The second observation was of a commuting or hunting juvenile from VP1 in September. This bird flew in the 0-10m height band for 120s.

3.2.9 Herring Gull

Summer 2020

Herring gull was not observed in Summer 2020.

Winter 2020/2021

Herring gull was not observed in Winter 2020/2021.

Summer 2021

Herring gull was observed once in Summer 2021. On the 28th of June, a single individual was observed from VP1 at a height of 20-30m for 190s. This was a first summer gull, moving steadily northwards through the centre of the site against the wind.

Winter 2021/2022

Herring gull was not observed in Winter 2021/2022.

Summer 2022

Herring gull was observed on 9 occasions in Summer 2022. Quantities ranged from one to six birds. Observations occurred in all VPs, and in all months except April and September. Behaviours included commuting, feeding, preening and roosting. Flight height was most frequently in the 0-10m height band (0-10m = 24278s, 10-20m = 30s, 20-30m = 46s, 30-50m = 175, 50-100m = 283s, 100-185m = 80s).

3.2.10 Kestrel

Summer 2020

Kestrel was observed on four occasions during summer 2020, from June to September inclusive. Observations occurred at VP1 and VP3, with two observations east of T06 and two observations southwest of T03. On two occasions, the surveyor could identify the birds as male. Behaviours included flight, hunting and hovering. Hunting activity was focussed along conifer treelines and improved agricultural grassland. Flight heights were between 0-10m (25s) and 10-20m (65s).

Winter 2020/2021



Kestrel was observed twice in Winter 2020/2021. The first observation was of an individual flying south for 15s at a height of 0-10m. This bird was observed stopping to forage before moving on.

On 23rd January 2021, a male kestrel flew directly over VP2 for 15s at a height of 0-10m.

Summer 2021

Kestrel was observed on 43 occasions during Summer 2021. These observations occurred in April, July, August and September, from all VPs. Males, females and juveniles were observed. Quantities observed ranged from one to two, and males were noted on three occasions. Flight height was most frequently in the 0-10m height band (0-10m = 2440s, 10-20m = 1176s, 20-30m = 628s, 30-50m = 828s, 50-100m = 710s, 100-185m = 673s, >185m = 347s).

Behaviours included hunting, hovering, circling, carrying prey, and commuting. Areas where hunting was observed included improved agricultural grassland and forested areas.

Winter 2021/2022

A total of 59 flightlines were recorded for kestrel during winter 2021/2022 surveys. Observations occurred in all months except January, and from all VPs. Males, females and juveniles were all observed, with between one and three individuals per observation. Flight was recorded predominantly in the 30-50m height band (0-10m = 3340s, 10-20m = 2161s, 20-30m = 2335s, 30-50m = 4077s, 50-100m = 423s, 100-185m = 522s, >185m = 100s). Behaviours included perching, hovering, being chased by corvids, and hunting.

The observation of three kestrel occurred from VP1 on 15th of October 2021. One adult male, one immature male and one adult/immature female was observed feeding. They often hovered and circled low over the ground, occasionally landing. The two males often hovered near each other, and occasionally were observed tussling. This observation lasted for a total of 1740s.

Summer 2022

Kestrel was the most frequently recorded species in Summer 2022, with 112 observations. Observations were made from all VPs and in all months. Most observations were of single individuals, but up to three kestrel were observed on one occasion (VP3, August), in addition to some sighting of two birds. Males, females and juveniles were observed. Behaviours included hovering, dive bombing, preening, perching, commuting, circling, hunting and capturing prey. Flight was most frequently in the 0-10m height band (0-10m = 6032s, 10-20m = 3626s, 20-30m = 4040s, 30-50m = 5777s, 50-100m = 4409s, 100-185m = 1136s).

3.2.11 Lapwing

Summer 2020

Lapwing was not observed in Summer 2020.

Winter 2020/2021

Lapwing was not observed in Winter 2020/2021.

Summer 2021

Lapwing was not observed in Summer 2021.

Winter 2021/2022



There was one observation of lapwing on the 21st of October 2021. A single bird was observed flying for 19s at a height of 20-30m.

Summer 2022

Lapwing was not observed in Summer 2022.

3.2.12 Lesser Black-Backed Gull

Summer 2020

There were two observations of lesser black-backed gull in Summer 2020. On the 16th of June at VP1, a single individual was observed at a height of 30-50m for 25s. This immature individual was flying west, past Dyrick Hill.

Additionally, a mixed flock of lesser black-backed gull and herring gull was observed on the 11th of August at VP2, flying in a south-easterly direction at a height of 20-30m.

Winter 2020/2021

Lesser black-backed gull was observed from VP2 on the 6th of October 2020. A total of nine birds were observed moving slowly in a north-westerly direction, at a height of 10-20m for 60s. Birds varied from immature to 2nd winter individuals, to adults.

Summer 2021

Lesser black-backed gull was observed 18 times during Summer 2021. Sightings occurred from July to September, from all VPs (but only once from VP1). Quantities observed ranged from one to six. Flight occurred in all height bands, most frequently above 185m (0-10m = 31s, 10-20m = 10s, 20-30m = 158s, 30-50m = 437s, 50-100m = 115s, 100-185m = 215s, >185m = 647s). Behaviours included circling, hovering, and flying. Roosting, feeding and preening was observed on improved agricultural grass. Juveniles, first and second calendar year and adult birds were all observed.

Winter 2021/2022

A total of 30 flightlines were recorded for lesser black-backed gull in Winter 2021/2022. Observations occurred from VP2 and 3, in September (Migration surveys), October, November, December and February. Flock size ranged from one to 25 (average = 5).

Flight was most frequently recorded in the 0-10m height band (0-10m = 12235s, 10-20m = 248s, 20-30m = 292s, 30-50m = 282s, 50-100m = 125s, 100-185m = 382s, >185m = 560s). Behaviours observed were feeding (in fields), roosting/preening, and flying.

The observation of 25 individuals occurred from VP3 on the 7th of November 2021. These birds were seen briefly flying approximately north-northwest.

Summer 2022

There were 28 observations of lesser black-backed gull in Summer 2022. Observations occurred during all months, but only from VP2 and VP3. Most observations originated from VP2. Within the viewshed, numbers ranged from one to five, with an average of 1 bird. Flight height was most commonly in the 0-10m height band (0-10m = 16203s, 10-20m = 192s, 20-30m = 174, 30-50m = 411, 50-100m = 322s, 100-185m = 1136s)

A flock of 133 birds were observed from VP3 in June, commuting across the site.



Additional observations were made of lesser black-backed gulls outside the viewshed, but noted due to their large numbers. A flock of 133 birds were observed from VP3 in June, commuting across the site. Additionally a large group of 227 lesser black back gulls is also recorded from outside the viewshed. The group was observed on the ground roosting, preening, foraging and drinking from a cattle trough.

3.2.13 Mallard

Summer 2020

Mallard was not observed in Summer 2020.

Winter 2020/2021

Mallard was not observed in Winter 2020/2021.

Summer 2021

Mallard was not observed in Summer 2021.

Winter 2021/2022

A total of 12 flightlines were recorded for mallard in Winter 2021/2022. Both males and females were observed, and quantities ranged from between one and three. Flight was most frequently observed in the 0-10m height band (0-10m = 126s, 10-20m = 98s, 20-30m = 24s, 30-50m = 18s). Behaviours included flight, males chasing females, and landed individuals.

Summer 2022

There were eight observations of mallard in Summer 2022. Numbers ranged from 1 to 6. The observation of 6 individuals involved courtship, occurring in May from VP3. Other behaviours noted included flying, commuting and calling. Flight was most frequently observed in the 10-20m height band (0-10m = 27s, 10-20m = 42s, 20-30m = 27s, 30-50m = 27s).

3.2.14 Merlin

Summer 2020

Merlin was not observed in Summer 2020.

Winter 2020/2021

Merlin was not observed in Winter 2020/2021.

Summer 2021

Merlin was not observed in Summer 2021.

Winter 2021/2022

Merlin was observed once in Winter 2021/2022.

This observation was from VP3 on 19th February 2022. On this occasion, a single bird was observed for 82s in the 30-50m height band.

Another observation of a likely merlin occurred from VP2 on 21st February. A single individual was observed in the 10-20m for 34s.



Summer 2022

Merlin was not observed in Summer 2022.

3.2.15 Osprey

Summer 2020

Osprey was not observed in Summer 2020.

Winter 2020/2021

Osprey was not observed in Winter 2020/2021.

Summer 2021

Osprey was observed from VP3 on the 1st of September 2021. This observation was of a single individual in the 100-185m height band for 480s. The bird was heading approximately southwest through the site, making slow progress.

Winter 2021/2022

Osprey was not observed in Winter 2021/2022.

Summer 2022

Osprey was not observed in Summer 2022.

3.2.16 Peregrine

Summer 2020

Peregrine was not observed in Summer 2020.

Winter 2020/2021

Peregrine was not observed in Winter 2020/2021.

Summer 2021

Peregrine was observed twice during Summer 2021. The first observation was of a single bird from VP2 on the 22nd of July. This bird flew at heights of between 30 to over 185m (30-50m = 21s, 50-100m = 25s, 100-185m = 101s, >185m = 314s). Peregrines were seen drifting, soaring, and circling (most likely hunting). On one occasion it closed its wings a couple of times to attempt to stoop but then abandoned the attempt.

Peregrine was observed in flight on the 10th of August from VP3. This bird flew at a height of >185m for 24s and was lost from view behind a conifer plantation.

Winter 2021/2022

Peregrine was observed four times during Winter 2021/2022. Two observations were in December 2021 and two in February 2022. Observations occurred from all VPs, and single birds were seen on all occasions. Flight was most frequently recorded in the 30-50m height band (0-10m = 26s, 10-20m = 26s, 20-30m = 58s, 30-50m = 271s, 50-100m = 78s).

Summer 2022



There were three observations of peregrine during Summer 2022. One observation was from VP3 in April, with two observations from VP1 in July and August. Single individuals were noted on each occasion. Two observations included commuting, with another observation of stooping on a flock of feral/racing pigeons. Flight was most frequently recorded in the 50-100m height band (0-10m = 2s, 10-20m = 7s, 20-30m = 20s, 30-50m = 27s, 50-100m = 103s, 100-185 = 100s).

3.2.17 Red Kite

Summer 2020

Red kite was not observed in Summer 2020.

Winter 2020/2021

Red kite was not observed in Winter 2020/2021.

Summer 2021

Red kite was not observed in Summer 2021.

Winter 2021/2022

Red kite was not observed in Winter 2021/2022.

Summer 2022

Red kite was observed once during Summer 2022. A single individual was observed from VP1 in April 2022. It flew for 335s, gaining height where it circled to the southwest of the VP (50-100m = 100s, 100-185 = 100s, >185m = 135s). This bird had a tag on each wing.

3.2.18 Snipe

Summer 2020

Snipe was not observed in Summer 2020.

Winter 2020/2021

Snipe was not observed in Winter 2020/2021.

Summer 2021

Snipe was observed once, on the 4th of September 2021. This single snipe was flying at a height of 50-100m for 26s. It flew into the distance out of view of the surveyor.

Winter 2021/2022

Snipe was observed nine times during Winter 2021/2022, from VP1 and VP2. Between one and 30 birds were observed per observation (average = 5). Flight height was most frequently in the 10-20m height band (0-10m = 85s, 10-20m = 180s, 20-30m = 77s, 30-50m = 30s, 50-100m = 13s, 100-185m = 14s). Snipe were observed being flushed and in flight.

The observation of 30 snipe occurred on 17th October 2021 from VP2. The birds were flying around looking for somewhere to land. The group of snipe were subsequently observed a further three times.

Summer 2022



Snipe was observed three times during Summer 2022. One observation occurred in May from VP1. This was a single individual, which was flushed on arrival. Snipe was observed twice from VP2 in September. Both observations were of two individuals in flight and landing. Flight height was most frequently in the 30-50m height band (0-10m = 5s, 10-20m = 5s, 20-30m = 6s, 30-50m = 30s, 50).

3.2.19 Sparrowhawk

Summer 2020

Sparrowhawk was not observed in Summer 2020.

Winter 2020/2021

A single male sparrowhawk was observed from VP1 on the 23rd of March 2021. This bird was observed flying between 0-10m for 5s. As the surveyor arrived at the VP, the male flew across the road and continued west by a conifer plantation and over improved agricultural grassland.

Summer 2021

Sparrowhawk was observed three times during the Summer 2021 surveys. Sightings all occurred in August and September, from all VPs. A single bird was observed on each occasion. Flight was most frequently in the 50-100m height band (0-10m = 11s, 50-100m = 117s). Birds were observed in flight.

Winter 2021/2022

Sparrowhawk was observed eight times during Winter 2021/2022, in September (Migration surveys), November, December and February. All observations were of a single individual, with one noted to be a male. Observations occurred at all VPs. Flight height was most frequently in the 20-30m height band (0-10m = 20s, 10-20m = 22s, 20-30m = 201s, 30-50m = 88s, 50-100m = 60s). Behaviours included hunting, flying and stooping., and on one occasion a sparrowhawk was flushed from a plantation as the surveyor walked to the VP.

Summer 2020

Sparrowhawk was observed 13 times in Summer 2022. Observations of this species were made from all VPs, with observations in all months except April and May. All observations were of single individuals, with both males and females recorded. Behaviours included hunting, circling, being mobbed by hooded crows, perching, and commuting. Flight was most frequently in the 0-10m height band (0-10m = 793s, 10-20m = 109s, 20-30m = 200s, 30-50m = 197s, 50-100 = 203s, 100-185 = 76s).

3.2.20 Stock Dove

Vantage Point Surveys: Summer Season (2020, 2021, and 2022)

Recorded on 52 occasions from all VPs. A total of 16,594 seconds of activity time was logged. A total of 29 records occurred within the flight activity survey area, amounting to 3,727 seconds, of which 522 occurred in the rotor sweep zone. Most sightings referred to records of one or two birds, with a high count of four birds recorded from VP1 on the 20th June 2022.

Vantage Point Surveys: Winter Season (2020/21, and 2021/22)

Recorded on six occasions from VPs 2 and 3 between the 10th October 2021, and the 21st February 2022.

3.2.21 Swift

Vantage Point Surveys: Summer Season (2020, 2021, and 2022)



Recorded on 16 occasions from all VPs. A total of 272 seconds of activity time was logged. In all, seven records occurred within the flight activity survey area, amounting to 181 seconds, of which 163 occurred in the rotor sweep zone.

Vantage Point Surveys: Winter Season (2020/21, and 2021/22)

Not recording during winter vantage point surveys.

3.2.22 Teal

Summer 2020

Teal was not observed in Summer 2020.

Winter 2020/2021

Teal was not observed in Winter 2020/2021.

Summer 2021

Teal was not observed in Summer 2021.

Winter 2021/2022

Teal was observed once on 7th February 2022 from VP2. A single teal was observed flying between 0-10m for 12s. During this flight, it flew briefly from a stream before returning to the stream.

Summer 2021

Teal was not observed in Summer 2022.

3.3 Hinterland Surveys

Hinterland surveys to establish occupancy within a 10km radius of the site were carried out during Summer 2020, Winter 2020/2021, Summer 2021, Winter 2021/2022 and summer 2022.

For site specific Hinterland survey results see Appendix 7.3 of the ornithology chapter.

A total of four Annex I species were recorded during hinterland surveys: golden plover, hen harrier, merlin and peregrine. A total of seven Red-listed species were observed: golden plover, grey wagtail, kestrel, meadow pipit, redwing, snipe and swift. A further 12 Amber-listed species were observed: brent goose, goldcrest, hen harrier, house martin, lesser black-backed gull, mallard, merlin, skylark, spotted flycatcher, starling, swallow and willow warbler. All observed species, including green listed species are included in Table 3.2.

Table 3.2: Bird species recorded during hinterland surveys conducted near the proposed Dyrick Hill Wind Farm

Common Name	Scientific Name	Conservation Status	
		BoCCI*	Annex I**
Blackbird	<i>Turdus merula</i>	Green	No
Blackcap	<i>Sylvia atricapilla</i>	Green	No
Blue Tit	<i>Cyanistes caeruleus</i>	Green	No
Brent Goose	<i>Branta bernicla</i>	Amber	No



Common Name	Scientific Name	Conservation Status	
		BoCCI*	Annex I**
Bullfinch	<i>Pyrrhula pyrrhula</i>	Green	No
Buzzard	<i>Buteo buteo</i>	Green	No
Chaffinch	<i>Fringilla coelebs</i>	Green	No
Chiffchaff	<i>Phylloscopus collybita</i>	Green	No
Coal Tit	<i>Periparus ater</i>	Green	No
Common Crossbill	<i>Loxia curvirostra</i>	Green	No
Cuckoo	<i>Cuculus canorus</i>	Green	No
Dipper	<i>Cinclus cinclus</i>	Green	No
Dunnock	<i>Prunella modularis</i>	Green	No
Feral Pigeon	<i>Columba livia</i>	Green	No
Fieldfare	<i>Turdus pilaris</i>	Green	No
Garden Warbler	<i>Sylvia borin</i>	Green	No
Goldcrest	<i>Regulus regulus</i>	Amber	No
Golden Plover	<i>Pluvialis apricaria</i>	Red	Yes
Grasshopper Warbler	<i>Locustella naevia</i>	Green	No
Goldfinch	<i>Carduelis carduelis</i>	Green	No
Great Tit	<i>Parus major</i>	Green	No
Grey Heron	<i>Ardea cinerea</i>	Green	No
Grey Wagtail	<i>Motacilla cinerea</i>	Red	No
Hen Harrier	<i>Circus cyaneus</i>	Amber	Yes
Hooded Crow	<i>Corvus cornix</i>	Green	No
House Martin	<i>Delichon urbicum</i>	Amber	No
Jackdaw	<i>Corvus monedula</i>	Green	No
Jay	<i>Garrulus glandarius</i>	Green	No
Kestrel	<i>Falco tinnunculus</i>	Red	No
Lesser Black-backed Gull	<i>Larus fuscus</i>	Amber	No
Lesser Redpoll	<i>Carduelis cabaret</i>	Green	No
Long-tailed Tit	<i>Aegithalos caudatus</i>	Green	No
Magpie	<i>Pica pica</i>	Green	No
Mallard	<i>Anas platyrhynchos</i>	Amber	No
Meadow Pipit	<i>Anthus pratensis</i>	Red	No
Merlin	<i>Falco columbarius</i>	Amber	Yes
Mistle Thrush	<i>Turdus viscivorus</i>	Green	No
Peregrine	<i>Falco peregrinus</i>	Green	Yes
Pheasant	<i>Phasianus colchicus</i>	Green	No
Pied/White Wagtail	<i>Motacilla alba</i>	Green	No
Raven	<i>Corvus corax</i>	Green	No
Redwing	<i>Turdus iliacus</i>	Red	No
Reed Bunting	<i>Emberiza schoeniclus</i>	Green	No
Robin	<i>Erithacus rubecula</i>	Green	No
Rook	<i>Corvus frugilegus</i>	Green	No



Common Name	Scientific Name	Conservation Status	
		BoCCI*	Annex I**
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	Green	No
Siskin	<i>Carduelis spinus</i>	Green	No
Skylark	<i>Alauda arvensis</i>	Amber	No
Snipe	<i>Gallinago gallinago</i>	Red	No
Song Thrush	<i>Turdus philomelos</i>	Green	No
Sparrowhawk	<i>Accipiter nisus</i>	Green	No
Spotted Flycatcher	<i>Muscicapa striata</i>	Amber	No
Starling	<i>Sturnus vulgaris</i>	Amber	No
Stonechat	<i>Saxicola rubicola</i>	Green	No
Swallow	<i>Hirundo rustica</i>	Amber	No
Swift	<i>Apus apus</i>	Red	No
Treecreeper	<i>Certhia familiaris</i>	Green	No
Whitethroat	<i>Sylvia communis</i>	Green	No
Willow Warbler	<i>Phylloscopus trochilus</i>	Amber	No
Woodpigeon	<i>Columba palumbus</i>	Green	No
Wren	<i>Troglodytes troglodytes</i>	Green	No

Species of conservation concern that are known to be potentially vulnerable to wind farm developments will be discussed in more detail in this section. Species have been selected for detailed discussion based on conservation status, vulnerability to wind farm developments and if species sightings have been confirmed on or near the proposed Wind Farm site, which will indicate potential links between species recorded at the proposed site and the surrounding environment.

3.3.1 Summer 2020

Two Hinterland sites were visited in Summer 2020, River Finisk (Mountain Castle) and Boolahalla. No target species were recorded but Red-listed grey wagtail was observed at River Finisk on 11th of August 2020.

3.3.2 Winter 2020/2021

Two Hinterland sites, in addition to general searches of the surrounding hinterland did not record any target species. Redwing (red-listed) was observed from Boolahalla on 22nd of November 2020.

3.3.3 Summer 2021

A total of six specific hinterland sites were visited in Summer 2021 (Aughavanlomaun, Broemountain, Glenshellane Woods, River Finisk (Ballynagleragh), River Finisk (Ballynamult) and River Finisk (Mountain Castle), in addition to general hinterland searches. Two target species were observed during Hinterland surveys in Summer 2021: kestrel, and buzzard.



Kestrel (Red-listed) was observed at both Broemountain and Aughavanlomaun in August 2021. A single bird was observed on both occasions.

Buzzard (Green-listed) was observed on five occasions during the hinterland surveys in Summer 2021. In August 2021, buzzard was observed at Broemountain, Glenshellane Woods and Aughavanlomaun. Additionally, a buzzard was observed from Glenshellane Woods in September 2021. All of these observations were of a single individual.

Additionally, the following birds of conservation concern were observed during the hinterland surveys of Summer 2021: swift (Red-listed), meadow pipit (Red-listed), grey wagtail (Red-listed), goldcrest (Amber-listed), house martin (Amber-listed), spotted flycatcher (Amber-listed) and swallow (Amber-listed).

3.3.4 Winter 2021/2022

A total of eight specific hinterland sites were searched during Winter 2021/2022. (Aughavanlomaun, Boolahalla, Broemountain, Crow Hill, Glenshellane Woods, Knocknanask and Knocknascullage, Knocknanask South, R671), in addition to general searches of the hinterland area. A total of 10 target species were observed during these surveys.

Brent goose (Amber-listed) was observed from Aughavanlomaun in December 2021, approximately 3km north of the proposed site.

Buzzard was observed twice during the Winter 2021/2022 hinterland surveys. On the 7th of November 2021, four buzzards were observed from Glenshellane Woods. On the 27th of December 2021, a single buzzard was observed from the R671, seen briefly circling over forestry at a height of about 20-30m.

Golden plover was observed three times during the Winter 2021/2022 hinterland surveys. The first observation was observed at Broemountain, on the 17th of October 2021. Two golden plover were observed flying low on the southwest side of Broemountain. Golden plover was also observed at Aughavanlomaun on 27th December 2021. On 4th February 2022, eight golden plover flew past Broemountain in a southwest direction.

Grey heron (Red-listed, Annex I) was observed three times during the hinterland surveys of Winter 2021/2022. The first observation was on the 7th of November at Glenshellane Woods, with a juvenile observed feeding in the Glenshellane River. On the 27th of November 2021, grey heron was observed twice along the R671.

Hen harrier (Amber-listed, Annex I) was observed twice during the Winter 2021/2022 hinterland surveys. On the 17th of October 2021, an adult male was observed hunting or flying low over heather moor at Broemountain. It came from the northwest and headed east-southeast, probably just on the eastern side of Broemountain. Additionally, on the 20th of March 2022, a male hen harrier was flying north-northwest at Knocknanask South at height range of 0-10m. This individual was likely foraging.

Kestrel (Red-listed) was observed four times during this season. On the 17th of October, two kestrels were observed at Knocknanask and Knockscullage. Four kestrels were observed near Broemountain on the 20th of October. Kestrel was observed at Glenshellane Woods on 7th November, and a kestrel was observed perched from the Crow Hill HVP, on the south slope of Knocknasheega.

Lesser black-backed gull (Amber-listed, n =11) was observed feeding in a field c. 2km south-west of the southern summit of Broemountain on the 20th of October 2020.



Mallard (Amber-listed) was heard calling at Knocknanask South on the 20th of March 2022, this individual was likely in flight.

Snipe (Red-listed) was observed on four occasions during the Winter 2021/2022 hinterland surveys. On the 17th of October, snipe was observed twice. At Broemountain, 16 snipe were observed flying past in a south-westerly direction. Snipe was also observed on 20th October 2021 during migration survey period. Additionally, on the 20th of March 2022, three snipe were heard both drumming and calling at Knocknanask South.

Sparrowhawk (Green-listed) was observed twice during the Winter 2021/2022 surveys, on both instances from Glenshellane Woods. On the 21st of March 2022, a female flew over at a height of 30-50m, circling and moving in an approximate north-east direction.

Additionally, the following birds of conservation concern were observed during the hinterland surveys of Winter 2021/2022: grey wagtail (Red-listed), meadow pipit (Red-listed), redwing (Red-listed), starling (Amber-listed), goldcrest (Amber-listed), skylark (Amber-listed) and swallow (Amber-listed).

3.3.5 Summer 2022

Buzzard was observed five times during the Summer 2022 hinterland surveys. Observations occurred at Knocksculloge, Glenshellane Woods and Knocknanask and Knocknasculloge. Of these observations, four were of single birds. On one occasion in April 2022, two buzzards were observed from Knocksculloge. One of these birds flew to the southeast of the HVP, heading in a southwesterly direction. The other was on the ground on an area of upland pasture, to the east-southeast of the HVP.

Hen harrier was observed on four occasions, all from Knocknanask and Knocknasculloge. Observations occurred in April and May and were all of a single individual. In April, a ringtail was seen foraging northwest of the HVP along the heather upper slopes of Knocknanask. There were three observations of hen harrier on the 8th May 2022, this may be the same male. First, a male was seen hunting. Later, a male was seen carrying prey before heading to the north-northwest of the HVP. Finally, a male carrying prey flew in front of the surveyor before landing to feed and subsequently hunting again.

Mallard was observed once in April from Knocknanask and Knocknasculloge. A male was seen flying to the north of the HVP and heading in a northwesterly direction.

Merlin was observed once from Knocknanask and Knocknasculloge on 25th September 2022. This bird was carrying prey and chased by a kestrel.

Peregrine was observed once from Knocknanask and Knocknasculloge on 25th September 2022. This bird was seen stooping onto the eastern slope of Knocknanask, where it circled, gained height and flew at high speed in an easterly direction.

Snipe was heard twice, once in April and once in May. Both observations occurred from Knocksculloge. First, flight calls were heard in addition to singing. Multiple flight calls were heard so a number were present in the area. In May, drumming and singing was heard from three different locations, therefore at least three snipe were believed to be present.

Sparrowhawk was seen four times in Summer 2022, from Knocksculloge, Glenshellane Woods, and Knocknanask and Knocknasculloge. These observations occurred in June and July. One of these observations appeared to be a female. Behaviours noted included commuting and hunting.



Additionally, the following birds of conservation concern were observed during the hinterland surveys for Summer 2022: goldcrest (Amber-listed), grey wagtail (Red-listed), hen harrier (Amber-listed, Annex I), house martin (Amber-listed), kestrel (Red-listed), mallard (Amber-listed), meadow pipit (Red-listed), merlin (Amber-listed, Annex I), skylark (Amber-listed), snipe (Red-listed), swallow (Amber-listed), swift (Red-listed), willow warbler (Amber-listed).

3.3.6 Hen Harrier Surveys

In addition to the regular hinterland surveys, specific hen harrier hinterland surveys were conducted.

A hen harrier roost survey was carried out at dusk on the 21st of December 2020. No hen harrier was observed, but suitable roost habitat was observed between VP1 and VP3. Subsequent watches at this location were conducted on 21/01/2021, 17/02/2021, 23/03/2021. No evidence of a hen harrier roost was observed during these surveys.

Additionally, a watch was conducted on 27/12/2021 at Aughavanlomaun, at a habitat of open moor and young coniferous plantation. No hen harriers or evidence of a roost were observed.

Hen harrier was observed during the vantage point surveys. For example, a female hen harrier was observed from VP1 on the 22nd of September 2020. This bird came in rapidly from the west, flying directly in an east-north easterly direction just north of Dyrick Hill. It was recorded in the 20-30m height band for 15 seconds.

Hen harrier was also observed during hinterland surveys in Summer 2022. Activity was located near Knocknanask, with hunting and flight activity observed.

3.4 Breeding Wader Surveys

During breeding wader surveys conducted in Summer 2020, 2021, and 2022 no breeding waders were observed.

Outside of the Breeding Wader Surveys, snipe (Red-listed) was observed during Winter 2020/2021 and Summer 2021, however no breeding behaviour was observed.

During hinterland surveys, evidence of snipe breeding was recorded on the 20th of March 2022. On this occasion three snipe were heard both drumming and calling at Knocknanask South, approximately 2km west of the proposed wind farm site in an area of coniferous plantation of various ages and moor with areas of heather. Furthermore, snipe drumming and calling was heard from Knocksculloge in April and May 2022.

3.5 Breeding Bird Surveys

The results of the three seasons (Summer 2020, Summer 2021, Summer 2022) of breeding bird transect surveys at Dyrick Hill are shown in Table 3.3, Table 3.4 and Table 3.6). A total of 44 species were recorded along the transects. Only one red-listed species was observed, meadow pipit.

A total of 12 Amber-listed species were recorded: goldcrest, house martin, house sparrow, lesser black-backed gull, linnet, mallard, skylark, spotted flycatcher, starling, swallow, wheatear, and willow warbler. The remaining 31 are Green-listed.



The following birds of conservation concern were observed in all years: goldcrest (Amber-listed), meadow pipit (Red-listed), starling (Amber-listed), swallow (Amber-listed), willow warbler (Amber-listed) and house martin (Amber-listed).

3.5.1 Breeding Bird Surveys Summer 2020

At Transect 1, the most frequently observed bird was starling (Amber-listed). A total of four Red-listed meadow pipit was observed from this transect during both the early and late surveys. Amber-listed swallow and willow warbler were also observed during the early and late surveys. The following Green-listed species were observed during the early and late surveys: blackcap, chaffinch, pheasant, robin, rook, wood pigeon and wren.

Rooks were the most frequently observed species in Transect 2 in the early survey in Summer 2020. A later survey was not conducted during this season.

3.5.2 Breeding Bird Surveys Summer 2021

At Transect 1, starling was again the most frequently observed species (n=23) in the early season surveys, but it was not observed in the later season surveys. Blackbird (Green-listed), chaffinch (Green-listed), hooded crow (Green-listed), song thrush (Green-listed), swallow (Amber-listed), and woodpigeon (Green-listed) were observed during both the early and late surveys.

At Transect 2, the following species were present during both the early and late surveys: blackbird (Green-listed), jackdaw (Green-listed), willow warbler (Amber-listed) and wren (Green-listed).

At Transect 3 (a new transect added in 2021), the following species were present during both the early and late surveys: hooded crow (Green-listed), redpoll (Green-listed), meadow pipit (Red-listed), skylark (Amber-listed), willow warbler (Amber-listed) and wren (Green-listed).

3.5.3 Breeding Bird Surveys Summer 2022

Meadow pipit was the most frequently observed species in Summer 2022.

At Transect 1, the following species were observed during both the early and late surveys: blackbird (Green-listed), chaffinch (Green-listed), dunnock (Green-listed), linnets (Amber-listed), meadow pipit (Red-listed), pheasant (Green-listed), skylark (Amber-listed), song thrush (Green-listed), willow warbler (Amber-listed), woodpigeon (Green-listed), and wren (Green-listed).

At Transect 2, the following species were observed during both the early and late surveys: buzzard (Green-listed), chaffinch (Green-listed), dunnock (Green-listed), goldcrest (Amber-listed), hooded crow (Green-listed), linnets (Amber-listed), meadow pipit (Red-listed), stonechat (Green-listed), swallow (Amber-listed), willow warbler (Amber-listed), woodpigeon (Green-listed) and wren (Green-listed).

At Transect 3, the following species were observed during both the early and late surveys: blackcap (Green-listed), chaffinch (Green-listed), goldcrest (Amber-listed), hooded crow (Green-listed), pheasant (Green-listed), song thrush (Green-listed), willow warbler (Green-listed), woodpigeon (Green-listed) and wren (Green-listed).



Table 3.3: Results of breeding bird transects surveys of Dyrick Hill in 2020 (Transects 1,2)

Common Name	Scientific Name	T1						T2		
		Early			Late			Early		
		0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO
Blackbird	<i>Turdus merula</i>		4						5	
Blackcap	<i>Sylvia atricapilla</i>		2			3				
Bullfinch	<i>Pyrrhula pyrrhula</i>					2				
Chaffinch	<i>Fringilla coelebs</i>		4			6			6	
Goldcrest	<i>Regulus regulus</i>					2				
Hooded Crow	<i>Corvus cornix</i>		2							
House Martin	<i>Delichon urbicum</i>					1				
Meadow Pipit	<i>Anthus pratensis</i>		4			4			6	
Pheasant	<i>Phasianus colchicus</i>		2			1				
Raven	<i>Corvus corax</i>								2	
Robin	<i>Erithacus rubecula</i>		6			8				
Rook	<i>Corvus frugilegus</i>		3			1			18	
Siskin	<i>Carduelis spinus</i>								2	
Song Thrush	<i>Turdus philomelos</i>								3	
Starling	<i>Sturnus vulgaris</i>		15			22				
Stonechat	<i>Saxicola torquatus</i>		1			4			2	
Swallow	<i>Hirundo rustica</i>		5			3				
Willow Warbler	<i>Phylloscopus trochilus</i>		2			4				
Woodpigeon	<i>Columba palumbus</i>		4			4			4	
Wren	<i>Troglodytes troglodytes</i>		2			4			2	



Table 3.4: Results of breeding bird transects surveys of Dyrick Hill in 2021 (Transects 1,2,3)

Common Name	Scientific Name	T1						T2						T3					
		Early			Late			Early			Late			Early			Late		
		0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO
Blackbird	<i>Turdus merula</i>	6	2			1	1				1			1					
Blue Tit	<i>Cyanistes caeruleus</i>				2					4									
Bullfinch	<i>Pyrrhula pyrrhula</i>						2												
Buzzard	<i>Buteo buteo</i>					1													
Chaffinch	<i>Fringilla coelebs</i>	6			4	3				5	1	1	1		1				
Chiffchaff	<i>Phylloscopus collybita</i>				1					1									
Coal Tit	<i>Periparus ater</i>									1									
Common Crossbill	<i>Loxia curvirostra</i>											1						1	
Dunnock	<i>Prunella modularis</i>									2									
Goldcrest	<i>Regulus regulus</i>				3					6									
Goldfinch	<i>Carduelis carduelis</i>				2	5													
Great Tit	<i>Parus major</i>										1								
Hooded Crow	<i>Corvus cornix</i>	1				1					2				1			1	
House Martin	<i>Delichon urbicum</i>					4													
Jackdaw	<i>Corvus monedula</i>							4				2							
Lesser Black-backed Gull	<i>Larus fuscus</i>											1							
Lesser Redpoll	<i>Carduelis cabaret</i>				6	3									1			1	
Linnet	<i>Carduelis cannabina</i>									5					3				
Magpie	<i>Pica pica</i>									3	2								
Meadow Pipit	<i>Anthus pratensis</i>				2	1		5	3				4			16		1	
Pied/White Wagtail	<i>Motacilla alba</i>					1													



Common Name	Scientific Name	T1						T2						T3					
		Early			Late			Early			Late			Early			Late		
		0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO
Raven	<i>Corvus corax</i>																		1
Reed Bunting	<i>Emberiza schoeniclus</i>																		1
Robin	<i>Erithacus rubecula</i>	6									4	1						1	
Rook	<i>Corvus frugilegus</i>				5		2												
Siskin	<i>Carduelis spinus</i>							2									1		
Skylark	<i>Alauda arvensis</i>															3			1
Song Thrush	<i>Turdus philomelos</i>	2			1									1					
Spotted Flycatcher	<i>Muscicapa striata</i>				1														
Starling	<i>Sturnus vulgaris</i>	8	15																
Stonechat	<i>Saxicola torquatus</i>				3													1	
Swallow	<i>Hirundo rustica</i>	8			1	1							1			2			
Whitethroat	<i>Sylvia communis</i>													2					
Willow Warbler	<i>Phylloscopus trochilus</i>							2	1			2		1					2
Woodpigeon	<i>Columba palumbus</i>		2			2	1				6								
Wren	<i>Troglodytes troglodytes</i>				2	1	1	3	1		2	1		4			1	2	2



Table 3.5: Results of breeding bird transects surveys of Dyrick Hill in 2022 (Transects 1,2,3)

Common Name	Scientific Name	T1						T2						T3					
		Early			Late			Early			Late			Early			Late		
		0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO
Blackbird	<i>Turdus merula</i>		2		1			4	1					3	2				
Blackcap	<i>Sylvia atricapilla</i>					1		1						2	1		2	3	
Bullfinch	<i>Pyrrhula pyrrhula</i>								2										
Buzzard	<i>Buteo buteo</i>							1		1			2						
Chaffinch	<i>Fringilla coelebs</i>	2				1		3				3	2		13	6			7
Coal Tit	<i>Parus ater</i>													1					
Dunnock	<i>Prunella modularis</i>		2			1		1					2						
Goldcrest	<i>Regulus regulus</i>							2				1			3			4	2
Goldfinch	<i>Carduelis carduelis</i>																		4
Great Tit	<i>Parus major</i>							1	1					2					
Hooded Crow	<i>Corvus cornix</i>			6								2		1	1		2		2
House Martin	<i>Delichon urbicum</i>													2					
House Sparrow	<i>Passer domesticus</i>							2											
Jackdaw	<i>Corvus monedula</i>							1						3					
Lesser Redpoll	<i>Carduelis cabaret</i>	2																	
Linnet	<i>Carduelis cannabina</i>	4			4			2				2							
Mallard	<i>Anas platyrhynchos</i>													1					
Meadow Pipit	<i>Anthus pratensis</i>	26	4		21	2	3	1	2				1						
Mistle Thrush	<i>Turdus viscivorus</i>			4									2		2				
Pheasant	<i>Phasianus colchicus</i>			2			2		1	1					3	3		1	
Pied/White Wagtail	<i>Motacilla alba</i>											1							



Raven	<i>Corvus corax</i>									1									
Reed Bunting	<i>Emberiza schoeniclus</i>				1														
Robin	<i>Erithacus rubecula</i>							1	3					1	1				
Rook	<i>Corvus frugilegus</i>							1		8									
Skylark	<i>Alauda arvensis</i>	4	2		7	3	1												
Song Thrush	<i>Turdus philomelos</i>		4				1	1						4			2	1	
Spotted Flycatcher	<i>Muscicapa striata</i>																2		
Starling	<i>Sturnus vulgaris</i>							3											
Stock Dove	<i>Columba oenas</i>							2						2					
Stonechat	<i>Saxicola torquatus</i>				5			2			1								
Swallow	<i>Hirundo rustica</i>							3	1				6						1
Treecreeper	<i>Certhia familiaris</i>												1						
Wheatear	<i>Oenanthe oenanthe</i>				1														
Willow Warbler	<i>Phylloscopus trochilus</i>		6				3		1			1		1	1		1	1	
Woodpigeon	<i>Columba palumbus</i>		2	4	1		1	2	3		4	1	4	11	3	1	8	16	
Wren	<i>Troglodytes troglodytes</i>		6		1	3	1	7	1			1		7	4		1	3	



3.6 Winter Bird Surveys

Two seasons of Winter Bird Surveys were conducted, Winter 2020/2021 and Winter 2021/2022. In Winter 2020/2021, two transects were chosen and surveyed in October and December 2021 (Table 2.6, Table 3.6). In Winter 2021/2022 an additional transect was included, with surveys conducted in November 2021 and February and March 2022 (Table 3.7).

Over both seasons, 39 species were recorded. One of these species is an Annex I species, golden plover. Of the 39 species observed, five are Red-listed: golden plover, kestrel, meadow pipit, redwing, snipe. A further five species are Amber-listed: goldcrest, house sparrow, linnet, starling, and skylark.

The following birds of conservation concern were observed in both winter seasons: meadow pipit (Red-listed), redwing (Red-listed), and starling (Amber-listed). The following Green-listed species were also observed across both winter seasons: blackbird, chaffinch, fieldfare, goldfinch, hooded crow, mistle thrush, raven, reed bunting, robin, rook, siskin, stonechat, woodpigeon, and wren.

3.6.1 Winter Bird Surveys 2020/2021

At *Transect 1*, chaffinch (Green-listed) was the most numerous species (16 chaffinch across both surveys) in Winter 2020/2021. The following species (all Green-listed) were observed in both the early and late surveys: chaffinch, hooded crow, reed bunting, robin, rook, siskin, and wren.

Woodpigeon was the most numerous species at *Transect 2* (n = 14). Starling (Amber-listed) was observed in both the early and late surveys for Winter 2020/2021. Additionally, the following Green-listed species were observed in both early and late surveys: blackbird, robin, song thrush, woodpigeon, and wren.

3.6.2 Winter Bird Surveys 2021/2022

In the Winter 2021/2022 at *Transect 1*, the most numerous species was golden plover (Red-listed, Annex I). Golden plover was observed in both the mid (n = 60) and late surveys (n = 42). Meadow pipit (Red-listed) and robin (Green-listed) were observed during all surveys (mid, early and late Winter 2021/2022).

The most numerous species at *Transect 2* in Winter 2021/2022 was starling (n = 326, across all three survey months). Of particular note was 306 starlings in the 100 m+/FO band on the 4th of February 2022. Approximately 300 birds were observed on one side of the observer, with six observed on the other. The following species (all Green-listed) were observed in the early, mid and late winter surveys: blackbird, chaffinch, hooded crow, magpie, robin, rook, woodpigeon, and wren.

At *Transect 3*, the most numerous species in 2021/2022 was golden plover (Red-listed, Annex I). At this Transect, golden plover was observed during both the early (n = 21) and mid (n = 40). The following species (all Green-listed) was observed during all transect surveys in 2021/2022: chaffinch, dunnock, hooded crow, magpie, raven, robin, and wren.



Table 3.6: Results of winter bird transects surveys at Dyrick Hill in Winter 2020/2021 (Transects 1,2)

Common Name	Scientific Name	T1						T2					
		Early			Late			Early			Late		
		0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO
Blackbird	<i>Turdus merula</i>					2			4			4	
Chaffinch	<i>Fringilla coelebs</i>		10			6			12				
Fieldfare	<i>Turdus pilaris</i>											4	
Goldfinch	<i>Carduelis carduelis</i>					3							
Hooded Crow	<i>Corvus cornix</i>		2			4			4				
Lesser Redpoll	<i>Carduelis cabaret</i>					1			2				
Meadow Pipit	<i>Anthus pratensis</i>		6										
Mistle Thrush	<i>Turdus viscivorus</i>								2				
Raven	<i>Corvus corax</i>		2										
Redwing	<i>Turdus iliacus</i>											6	
Reed Bunting	<i>Emberiza schoeniclus</i>		3			2							
Robin	<i>Erithacus rubecula</i>		4			2			5			2	
Rook	<i>Corvus frugilegus</i>		1			8						6	
Siskin	<i>Carduelis spinus</i>		6			2							
Song Thrush	<i>Turdus philomelos</i>								4			1	
Starling	<i>Sturnus vulgaris</i>								8			5	
Stonechat	<i>Saxicola torquatus</i>								2				
Woodpigeon	<i>Columba palumbus</i>								9			5	
Wren	<i>Troglodytes troglodytes</i>		3			1			4			2	



Table 3.7: Results of winter bird transects surveys at Dyrick Hill in Winter 2021/2022 (Transects 1,2,3)

Common Name	Scientific Name	T1									T2						T3											
		Early			Mid			Late			Early			Mid			Late			Early			Mid			Late		
		0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO	0-25m	25-100m	100 m+/FO			
Blackbird	<i>Turdus merula</i>	2	2							1	1	3	4			4	2				1	2		1	2			
Blue Tit	<i>Cyanistes caeruleus</i>														1						1	1						
Buzzard	<i>Buteo buteo</i>			1								2						1					1			1		
Chaffinch	<i>Fringilla coelebs</i>	2		1					1	1	1		4	1		4	1			2	2	1		10	5			
Chiffchaff	<i>Phylloscopus collybita</i>																								1			
Coal Tit	<i>Periparus ater</i>		1							1			1								2		3	1				
Common Crossbill	<i>Loxia curvirostra</i>																					1						
Dunnock	<i>Prunella modularis</i>	3						1					2			1			2		1			1				
Fieldfare	<i>Turdus pilaris</i>			1											1				2							40		
Goldcrest	<i>Regulus regulus</i>	2								3											5			2				
Golden Plover	<i>Pluvialis apricaria</i>					60	2		40										21			40						
Goldfinch	<i>Carduelis carduelis</i>	2		3									2			2		3										
Great Tit	<i>Parus major</i>	1											3			1		1			1			1	1			
Hooded Crow	<i>Corvus cornix</i>			1		1							2		1	2		1			3	3		2	1		4	
House Sparrow	<i>Passer domesticus</i>												1			1												
Jackdaw	<i>Corvus monedula</i>	9										3	1										2		14			
Kestrel	<i>Falco tinnunculus</i>								2																			
Linnet	<i>Carduelis cannabina</i>								1							2	1											
Magpie	<i>Pica pica</i>		1	1						1	1			2			1				1		1	2	1	5		



Common Name	Scientific Name	T1									T2									T3								
		Early			Mid			Late			Early			Mid			Late			Early			Mid			Late		
		0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO	0-25m	25-100m	100 m+ /FO			
Meadow Pipit	<i>Anthus pratensis</i>	2		2	1			21					7	13		4			18		5							
Mistle Thrush	<i>Turdus viscivorus</i>	1	2						1							1					1				1	2		
Pheasant	<i>Phasianus colchicus</i>								1				1								2				1	2		
Pied/White Wagtail	<i>Motacilla alba</i>			2								2				1								2				
Raven	<i>Corvus corax</i>							7			2										1		1			3		
Redwing	<i>Turdus iliacus</i>			1									7			1												
Reed Bunting	<i>Emberiza schoeniclus</i>					1			1												1							
Robin	<i>Erithacus rubecula</i>	3	1		1			2	2	1	1	3	1		2	1				1	2	2	1	4				
Rook	<i>Corvus frugilegus</i>	1		8	5	1						5			4	4	2					2						
Siskin	<i>Carduelis spinus</i>											1			1													
Skylark	<i>Alauda arvensis</i>				2		7	4																				
Snipe	<i>Gallinago gallinago</i>					1																						
Song Thrush	<i>Turdus philomelos</i>	2		1									7	2		2	1	1					2			4		
Sparrowhawk	<i>Accipiter nisus</i>																								1			
Starling	<i>Sturnus vulgaris</i>	1	8	22									7		306	12	1											
Stonechat	<i>Saxicola torquatus</i>							2					2			5			1									
Treecreeper	<i>Certhia familiaris</i>															1												
Woodpigeon	<i>Columba palumbus</i>	7	2	1				1	4			1		1	2		3				4		3	2	5	9		
Wren	<i>Troglodytes troglodytes</i>	5			1	1				4	2	2	2			9	5	1	3	2	3	1			8	4		



4. DISCUSSION

In conclusion, FT carried out five seasons of ornithological surveys at the proposed Dyrick Hill Wind Farm site between May 2020 and September 2022. The following surveys were undertaken: vantage point surveys, breeding bird transect surveys, winter bird transect surveys, hinterland surveys, breeding wader surveys and hen harrier roost surveys.

During vantage point surveys, there were 22 target species observed during the survey period. A number of species (with ≤ 10 records) were found to be infrequently using the site including great black-backed gull, hen harrier, herring gull, and peregrine.

Mallard was also infrequently observed during the VP surveys, with 20 flightlines recorded solely in winter 2021/2022 and summer 2022. Similarly, only 13 flightlines were recorded for snipe.

During the vantage point surveys a number of species were found to be incidental, with less than five records over two and half years of surveys. These species were black-headed gull, grey heron, lapwing, merlin, red kite, teal and osprey. These species are considered to be passing through the study area.

During the vantage point surveys, buzzard and kestrel were observed during all seasons, suggesting breeding and regular use of site. Buzzards are likely breeding within the site boundary, as suitable breeding habitats exists in the form of mature deciduous trees to the north of Dyrick Hill. Kestrels were observed hunting and foraging, with both males and females, as well as juveniles observed. Similarly, lesser black-backed gull was observed foraging, roosting, feeding and preening on site, with both adults and juveniles observed.

At VP1, buzzards often followed similar behaviour. Birds often fly in the up draught of the wind current, which is present just south of Dyrick Hill, during prevailing south-westerly winds. They are often joined by hooded crows and ravens. During these observations the buzzards don't appear to forage, just interact with each other while availing of the wind current.

Lesser black-backed gull was frequently observed feeding in agricultural and recently cut silage fields. It is common to see this species feeding at inland sites, particularly when silage was cut. While the surveyor observed roosting at the site, there is a large congregation of roosting gulls at Dungarvan Bay², where these birds are likely to roost considering the direction of travel into and away from the proposed site and distance to Dungarvan Bay (c. 12 km).

Golden plover was observed passing over the site during both winter seasons. In Winter 2021/2022 this species was additionally observed roosting on site.

Breeding waders were not observed on site. There is no suitable breeding habitat within the site, as it is primarily improved agricultural grassland that is cut for silage, or pockets of mature woodland and trees. However, in March 2022 drumming was recorded during a hinterland watch at Knocknask South, approximately 1km to the west of the SNH buffer. Drumming was also heard from Knocksculloge in May 2022, approximately 1.5 km to the northwest of the SNH buffer.

² I-WeBS Site Summary Table for 0M402 Dungarvan Harbour. <https://c0amf055.caspio.com/dp/f4db30005d8e20614b404564be88> [Accessed 21st December 2022].



During hinterland surveys, 62 species of bird were noted, including four Annex I species (golden plover, merlin, peregrine and hen harrier). A total of seven Red-listed species were observed: golden plover, grey wagtail, kestrel, meadow pipit, redwing, snipe and swift. A further 12 Amber-listed species were observed.

A number of hinterland sites of importance were identified. In particular Glenshellane Woods (3.7km southwest) was species rich, with 41 species identified. Of these species, four are Red-listed (grey wagtail, kestrel, redwing, swift), with a further five Amber listed species. Other sites of importance included Broemountain (500m west), Aughavanlomaun (2.5km north) and Knocknanask South (1.5km west).

No evidence was observed of a hen harrier roost either on site or nearby. Potential roosting habitat for hen harriers was observed between VP1 and VP3, however no evidence of a roost at within the site was observed. Similarly, while an area of habitat of open moor and young coniferous plantation was suitable for a roost at Aughavanlomaun, over 2km to the north of the site, no hen harriers or evidence of a roost was observed.



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