

Moanmore Lower Bird Activity Summary Report Winter 2023/2024

Produced June 2024

IRISH ORNITHOLOGICAL SURVEY GROUP



Contents

Contents	1
Table of Figures	2
Table of Tables	2
1 Introduction	1
1.1 Statement of Authority	1
1.2 Survey Justification	2
1.3 Survey Limitations.....	2
2 FIELD SURVEY METHODOLOGIES.....	2
2.1 Survey Details & Data Recording.....	2
2.2 Vantage Point Surveys.....	4
2.2.1 Table 1: Vantage Point Locations.....	4
2.3 Distribution & Abundance Surveys.....	6
2.3.1 Hen Harrier Roost Surveys.....	6
2.3.2 Woodcock Surveys.....	8
2.3.3 Waterbird Surveys.....	10
2.3.4 Winter Transect Surveys	12
3 RESULTS.....	14
3.1 Summary of All Survey Results	14
3.2 Vantage Point Survey Results.....	15
3.2.1 Golden Plover (<i>Pluvialis apricaria</i>)	15
3.2.2 Hen Harrier (<i>Circus cyaneus</i>)	15
3.2.3 Little Egret (<i>Egretta Garzetta</i>).....	15
3.2.4 Merlin (<i>Falco columbarius</i>).....	16
3.2.5 Peregrine Falcon (<i>Falco peregrinus</i>).....	16
3.2.6 Kestrel (<i>Falco tinnunculus</i>)	16
3.2.7 Lapwing (<i>Vanellus vanellus</i>)	16
3.3 Hen Harrier Roost Survey Results	17
3.4 Woodcock Survey Results	17
3.5 Waterbird Survey Results.....	17
3.6 Winter Transect Survey Results	17
4 REFERENCES	18
5 APPENDICES (ALL SURVEY DATA).....	5-1
Appendix 1 Vantage Point Survey Effort.....	5-2
Appendix 2 Hen Harrier Roost Survey Effort.....	5-3
Appendix 3 Woodcock Survey Effort	5-4
Appendix 4 Waterbird Survey Effort.....	5-4
Appendix 5 Transect Survey Effort	5-6
Appendix 6 Transect Survey Results.....	5-6
Appendix 7 VP Flight Activity Results	5-11
Appendix 8 Hen Harrier Roost Survey Results	5-14
Appendix 9 Woodcock Survey Results	5-16
Appendix 10 Waterbird Survey Results.....	5-18
Appendix 11 VP Flight Maps	5-26

Table of Figures

Figure 1. Site Location	5
Figure 2. Hen Harrier Roost Survey Locations 2023/2024.....	7
Figure 3. Woodcock Survey Points	9
Figure 4. Waterbird Survey Areas	11
Figure 5. Transect Locations.....	13
Figure 6. Hen Harrier Roost Survey Results Map.....	5-16
Figure 7. Woodcock Observations	5-17
Figure 8. Golden Plover Flights.....	5-26
Figure 9. Hen Harrier Flights.....	5-27
Figure 10. Little Egret Flights	5-28
Figure 11. Merlin Flights.....	5-29
Figure 12. Peregrine Flights.....	5-30
Figure 13. Kestrel Flights	5-31
Figure 14. Lapwing Flights	5-32
Figure 15. Snipe Flights	5-33
Figure 16. Black-headed Gull Flights	5-34
Figure 17. Herring Gull Flights	5-35
Figure 18. Lesser Black-backed Gull Flights	5-36
Figure 19. Greenshank Flights	5-37
Figure 20. Great Black-backed Gull Flights	5-38
Figure 21. Grey Heron Flights.....	5-39
Figure 22. Buzzard Flights	5-40
Figure 23. Sparrowhawk Flights.....	5-41
Figure 24. Mallard Flights.....	5-42

Table of Tables

Table 1. Vantage Point survey effort	5-2
Table 2. Hen Harrier Roost Survey Effort.....	5-3
Table 3. Woodcock Survey Effort.....	5-4
Table 4. Waterbird Survey Effort	5-4
Table 5. Transect Survey Effort.....	5-6
Table 6. Survey Results for Winter 2023/2024 at Transect A	5-6
Table 7. Survey Results for Winter 2023/2024 at Transect B	5-8
Table 8. Survey Results for winter 2023/2024 at Transect C.....	5-9
Table 9. VP Flight Activity Results.....	5-11
Table 10. Hen Harrier Roost Survey Results with Map Codes	5-14
Table 11. Woodcock Survey Results with map codes	5-16
Table 12. Waterbird Survey Results - Doonbeg Bay	5-18
Table 13. Waterbird Survey Results - Kilrush to Knock Zone A	5-19
Table 14. Waterbird Survey Results - Kilrush to Knock Zone B	5-19
Table 15. Waterbird Survey Results Kilrush to Knock Zone C	5-20
Table 16. Waterbird Survey Results Kilrush to Knock Zone D	5-21
Table 17. Waterbird Survey Results - PC1 Poulfnasherry	5-22
Table 18. Waterbird Survey Results - PC2 Poulfnasherry	5-22
Table 19. Waterbird Survey Results - PC3 Poulfnasherry	5-23
Table 20. Waterbird Survey Results - Tullabrack Lough.....	5-25

1 Introduction

Irish Ornithological Survey Group (IOSG) were commissioned by the client to complete bird surveys at the Moanmore Lower Site for the winter 2023/2024 survey period.

This report is a compilation of the bird activity recorded at the Moanmore Lower site during the months of October 2023 to March 2024, inclusive. It describes the methods used and data collected at Moanmore Lower during this study period.

This report is supported by Appendices 1 – 11, which provides a breakdown of survey results.

Appendix 1 contains the vantage point survey effort including survey times, weather conditions, surveyor information, and any other additional information such as disturbances (where relevant).

Appendix 2 - 5 contains details on survey effort (as above) for hen harrier roost surveys, woodcock surveys, waterbird surveys and transect surveys carried out during the winter 2023/2024 season.

Appendices 6 - 10 contains results for all surveys carried with detailed maps of all observations included for accuracy and context, these maps were drafted using QGIS 3.22 software and were cross referenced with all relevant raw data collected in the field by surveyors. Appendix 11 shows each flightline recorded during VP surveys.

1.1 Statement of Authority

The reliability of survey work is dependent on the use of appropriately skilled and experienced observers. As such, surveys were carried out by the following members of Irish Ornithological Survey Group (IOSG):

- Austin Cooney
- Stan Nugent
- John N Murphy

All surveyors are competent experts in bird surveying and experienced Ornithologists in their own right.

This Report was prepared by Tom Ryan (BSc. (Hons.) PgDip. Environmental and Natural Resource Management, an experienced Ornithologist, and was reviewed/approved by John N Murphy (Environmental Manager & Lead Ornithologist) of IOSG.

1.2 Survey Justification

A comprehensive suite of surveys was employed at this site. They have provided a detailed set of data which describes bird flight activity and bird behavior observed within the Site and surrounding areas during this survey period. During the suite of surveys, all species heard or seen were recorded, with emphasis being given to species of higher conservation concern e.g., Amber/Red listed species (Birdwatch Ireland, 2020), or those protected under the EU Birds Directive (2009/147/EC) (EC, 2023) e.g., Annex I species.

The results of which can be combined with subsequent surveys at this Site so as to provide a detailed overview and assessment of bird activity/usage at the site, and the surrounding area. SNH (2017) recommends a minimum survey effort of 2-years in order to draw robust conclusions regarding bird activity at the Site.

1.3 Survey Limitations

No limitations were encountered during the survey period which prevented completion of the winter bird surveys scheduled at this Site during the winter 2023/2024 period.

2 FIELD SURVEY METHODOLOGIES

Surveys were carried out in accordance with the guidance outlined in 'Recommended bird survey methods to inform impact assessment of onshore wind farms' (SNH, 2017).

Survey methodologies carried out on Site during this survey period comprised vantage point survey methodology, and distribution & abundance surveys.

Distribution & abundance surveys carried out on site during this survey period includes:

- Hen Harrier Roost Surveys
- Woodcock Surveys
- Waterbirds Surveys, and;
- Winter Transect Surveys (Routes A, B, C)

2.1 Survey Details & Data Recording

Survey work reliability is dependent on the expertise of the surveyor and the quality of the data captured in the field. As such, the bird surveys have been designed to capture all relevant information pertaining to observations of bird activity on site, wherein the following standardised information is captured during site visits:

- The date the survey is completed;
- The start time of the survey;
- The finish time of the survey;
- The weather conditions on the date of the survey, and;

- The degree of visibility during the survey.

Weather conditions recorded during the surveys comprise a range of features and units of measurement, which, when combined, provide an overview of environmental conditions on Site, at the time of the survey. These include: cloud cover (okta scale), wind direction, wind speed (Beaufort scale), precipitation (detailed, if any), temperature (Degrees Celsius), and visibility. However, some variation may be present between surveyors, due to the subjective nature of some of the scales that are used. Survey effort is included in Appendix 1 below.

Additional information such as disturbance (e.g., by animals, walkers, traffic or machinery) was also noted, should it occur.

At the time of each species observation, the following information is captured:

- Species name/species BTO code (BTO, 2018);
- Species total count (i.e., the total number of each species observed during the survey);
- Species activity of note (e.g., displaying, singing, flying/passing through, etc.); and
- Any evidence of nesting/roosting, marking the locations of same on the survey sheet map.

All surveys are scheduled per Best Practice Guidelines at the time of the survey at appropriate times when species are expected to be active within the respective summering/breeding seasons.

2.2 Vantage Point Surveys

Vantage point surveys were executed by suitably qualified personnel over a six-month period from October 2023 – March 2024, inclusive.

In order to achieve maximum visibility vantage points were positioned on elevated areas of land, where possible, or in other areas which provide clear views over the entire study area. The study area is defined as the site boundary up to and including 500m that extends from the site boundary (as provided by the client), hereafter referred to as the 500m buffer. A total of two (2 no.) vantage point locations were selected for this project to provide maximum cover of the study area.

Each vantage point was surveyed for a total of six hours per month by scanning a two- kilometre radius overlooking the study area. Flight activity data was recorded for all target species encountered within the site boundary and within the study area. The following flight bands were used in describing species' flight heights: 0-20m, 20-50m, 50-100m, and >100m. The location of the Site, including the site boundary and vantage point locations employed for the survey period, are included in Figure 1 below. The ITM Co- ordinates for each VP location are included in Table 1 below.

2.2.1 Table 1: Vantage Point Locations

Vantage Point	Co-ordinates (ITM)
VP1	X (ITM): 498224, Y (ITM): 657935
VP2	X (ITM): 496561, Y (ITM): 657606

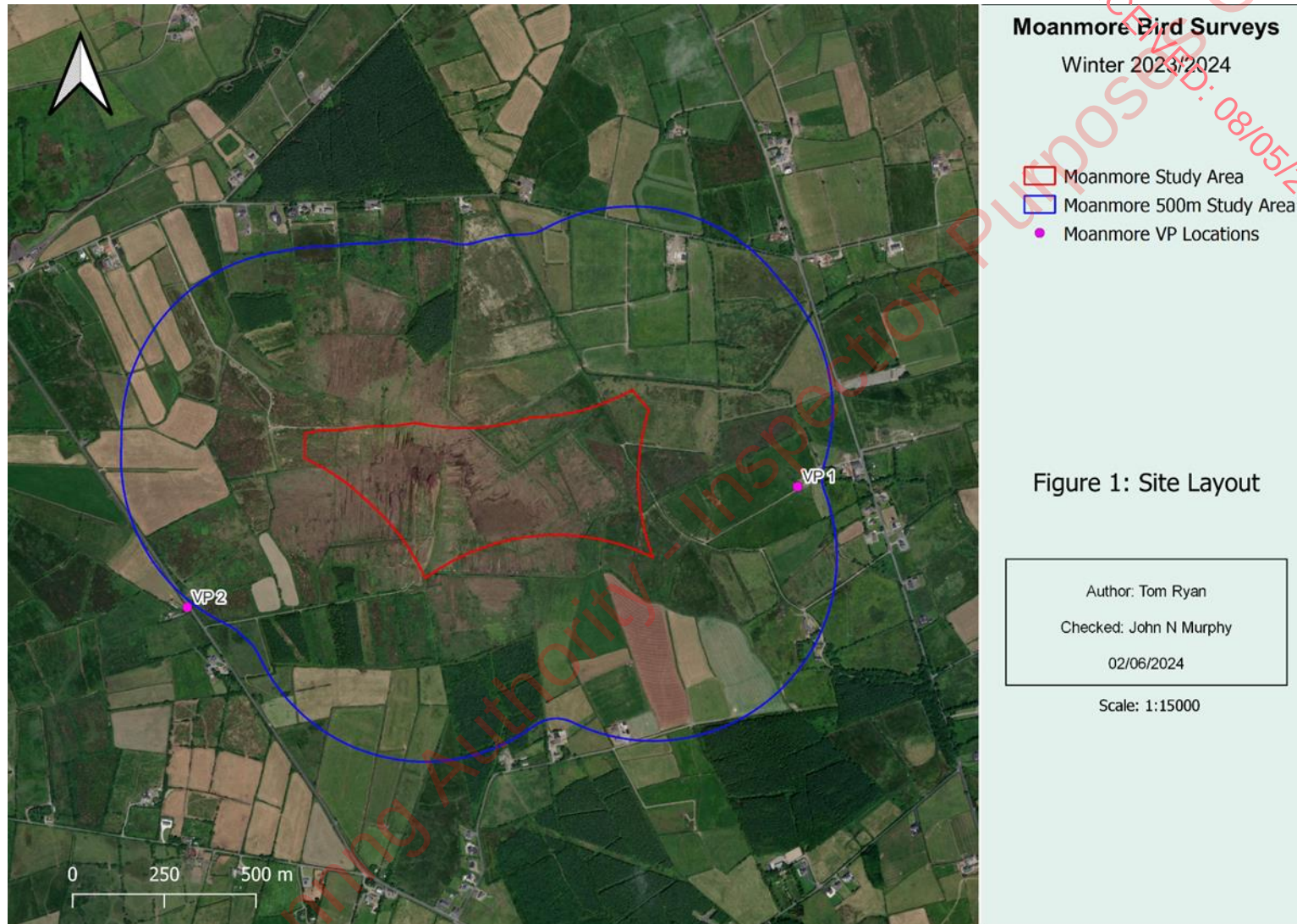


Figure 1. Site Location

2.3 Distribution & Abundance Surveys

2.3.1 Hen Harrier Roost Surveys

Hen Harrier Roost Surveys were carried out to monitor the suitable roosting habitat within 2km of the site boundary, as per guidance by SNH (2017). Known roost sites and areas deemed potentially suitable for roosting out to 5km were also monitored. Survey methodologies were adapted from published guidance by Hardey et al (2013) and Gilbert et al (1998). Survey effort for winter roost surveys is included in Appendix 2. Figure 2 below shows the areas surveyed for roosting Hen harrier during the winter 2023/2024 survey period.

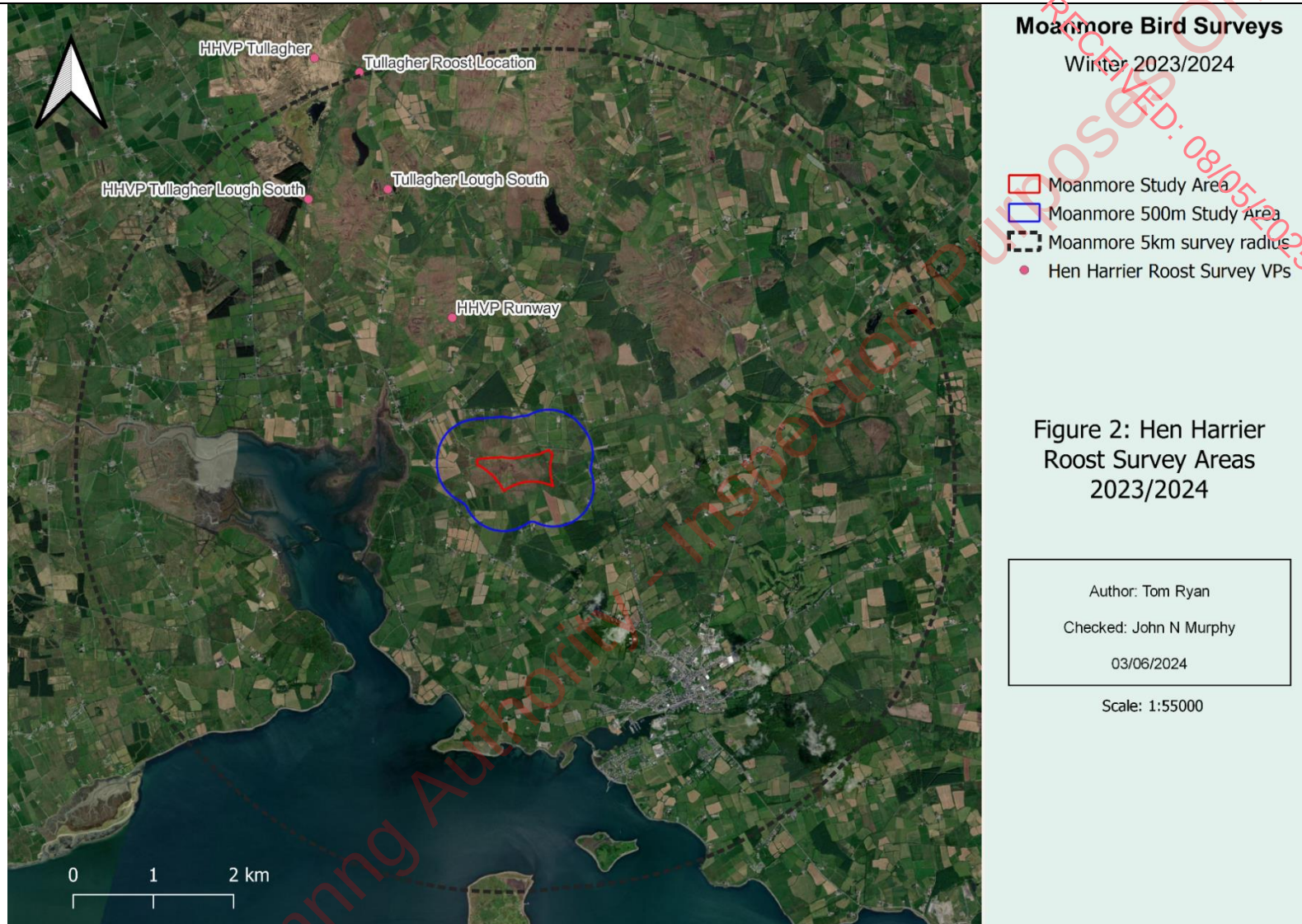


Figure 2. Hen Harrier Roost Survey Locations 2023/2024

2.3.2 Woodcock Surveys

Woodcock surveys were carried out once during this survey period, in November. Figure 3 below shows the area surveyed for wintering woodcock. Please note that Woodcock is a red listed species in Ireland during the breeding season only (Gilbert et al, 2021). Survey effort for woodcock surveys is included in Appendix 3. These surveys were carried out as a precautionary measure and to assess the distribution and abundance of wintering woodcock in the area shown in Figure 3 below.

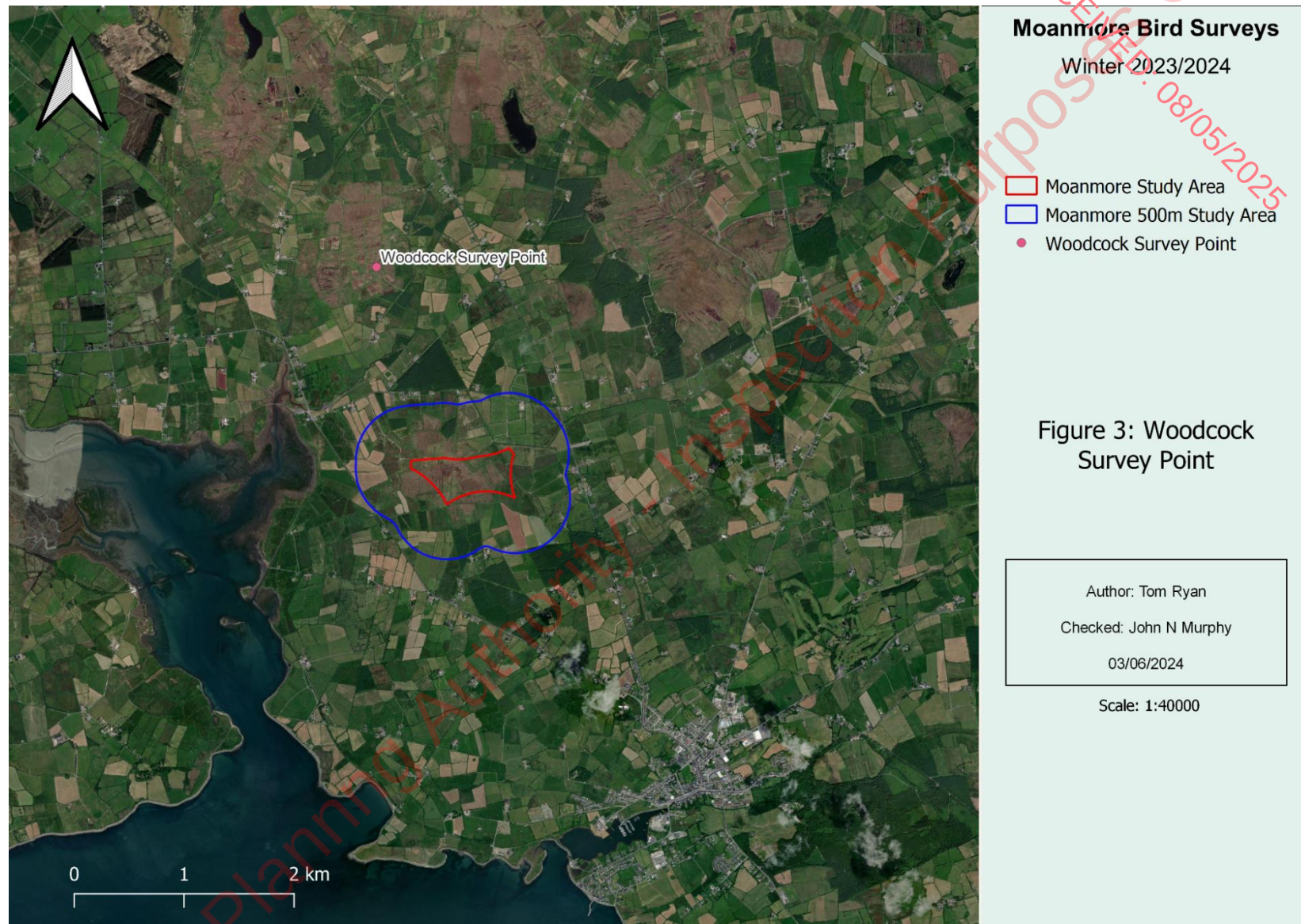


Figure 3. Woodcock Survey Points

2.3.3 Waterbird Surveys

The nearby Poulmasherry Bay and sections of the estuary between Knock and Kilrush were surveyed during the winter months to monitor the distribution and abundance of wintering wildfowl populations within the surrounding environs of the proposed development area. The survey methodology was based on birdwatch Irelands IWEBS methodology (Bibby et al, 2000). Seven sections were created and each one surveyed where all target species were recorded and counted in each section. Habitats surveyed include all suitable foraging and roosting areas for wintering waterbirds. Survey effort for waterbird surveys is included in Appendix 4. The areas surveyed are displayed in Figure 4 below.

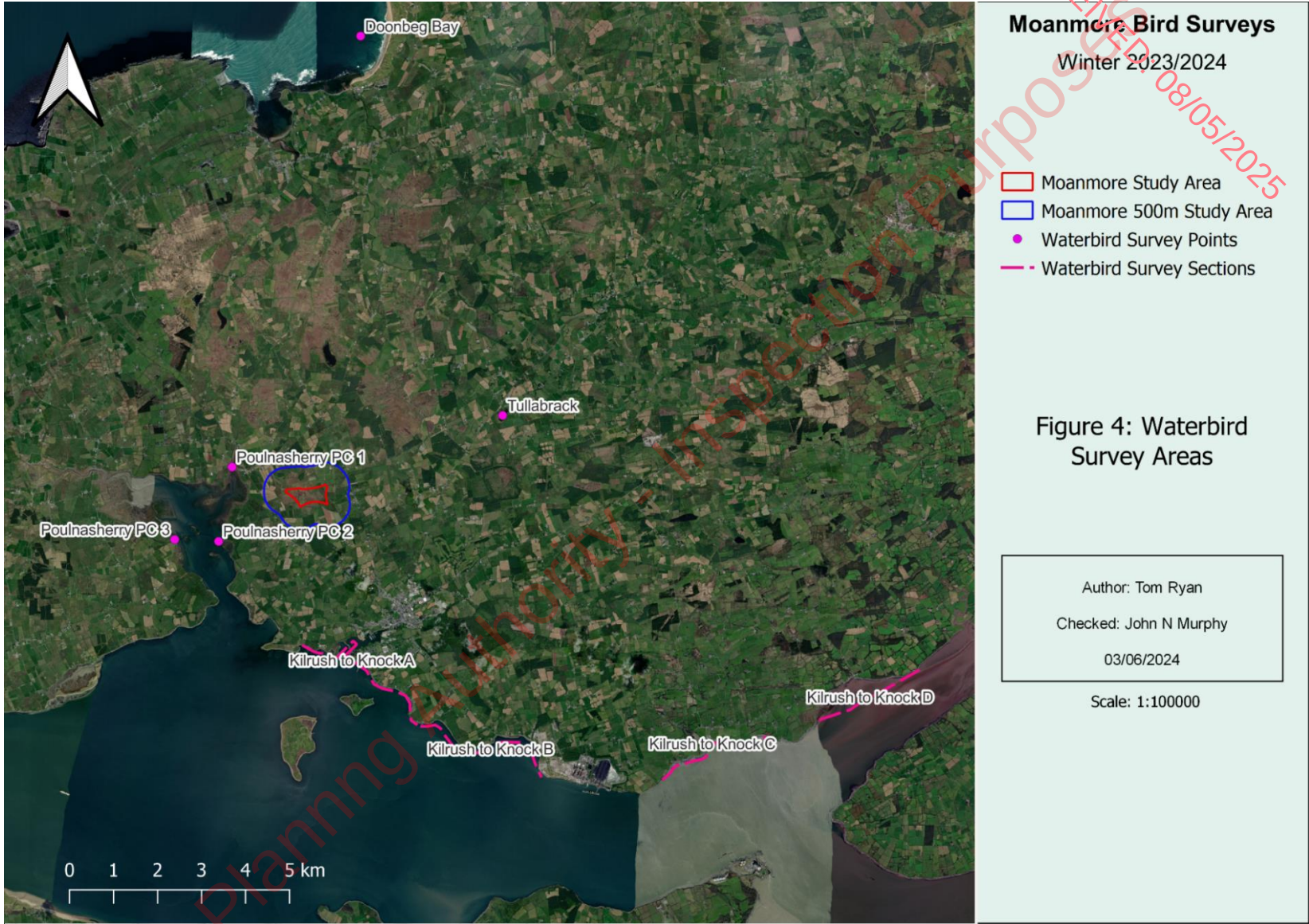


Figure 4. Waterbird Survey Areas

2.3.4 Winter Transect Surveys

Transect surveys were carried out having regard for CBS methodology as used by Birdwatch Ireland for ongoing countryside bird monitoring (Birdwatch Ireland, 2012). This method involves the recording of all species encountered along a set transect route as well as the number of individuals of each species. As these transects were carried out during the non-breeding season, the recording of breeding behaviour was less relevant.

One fixed transect was surveyed during the survey period, labelled A in Figure 5 below. One visit was made to this transect during the winter period survey period. Once in December and once in February. Survey effort for transect surveys is included in Appendix 5. Transect routes surveyed are displayed in Figure 5 below.

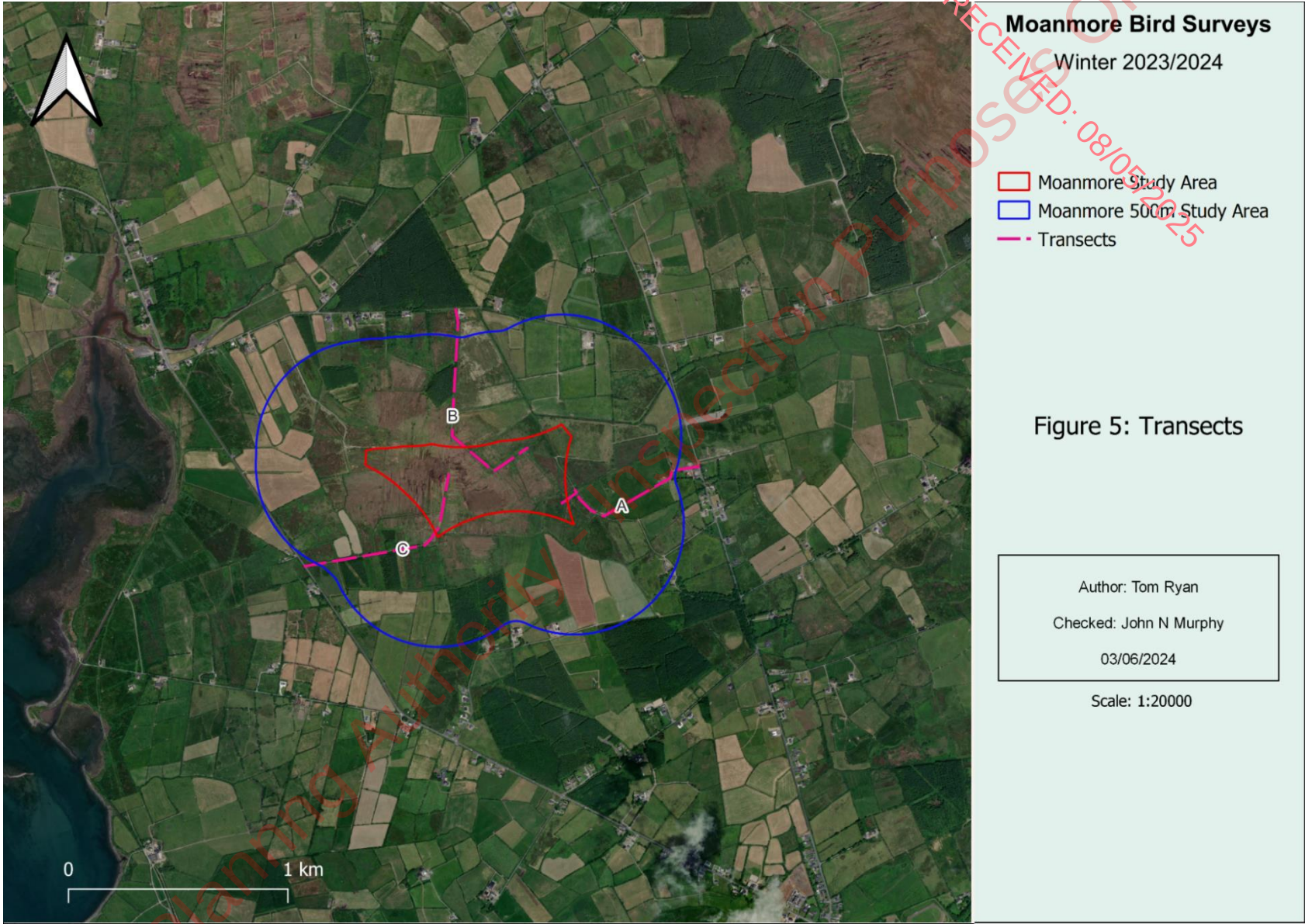


Figure 5. Transect Locations

3 RESULTS

3.1 Summary of All Survey Results

A total of 18 target species were recorded during this survey period. Target species recorded within the core 500m study area, including all survey methodologies, are listed below.

- Golden Plover (Annex I Birds Directive)
- Hen Harrier (Annex I Birds Directive)
- Little Egret (Annex I Birds Directive))
- Merlin (Annex I Birds Directive)
- Peregrine Falcon (Annex I Birds Directive)
- Curlew (BoCCI Red List)
- Kestrel (BoCCI Red List)
- Lapwing (BoCCI Red List)
- Common Snipe (BoCCI Red List)
- Black-headed Gull (BoCCI Amber List)
- Herring Gull (BoCCI Amber List)
- Lesser Black-backed Gull (BoCCI Amber List))
- Greenshank (BoCCI Green List)
- Great Black-backed Gull (BoCCI Amber List)
- Grey Heron (BoCCI Amber List)
- Buzzard (BoCCI Amber List)
- Sparrowhawk (BoCCI Amber List)
- Mallard (BoCCI Amber List).

While the above provides a summary of species observed within the core 500m study area of the Site, all survey data recorded during this winter period at Moanmore Lower, including data obtained from waterbird surveys, Hen Harrier roost surveys and Woodcock surveys is included in the Appendices which accompany this Report.

3.2 Vantage Point Survey Results

Listed below are species of conservation concern which were recorded during the vantage point surveys at Moanmore Lower during the winter 2023/2024 survey period. A total of 17 target species were recorded during vantage point surveys, as follows:

- Golden Plover (Annex I Birds Directive)
- Hen Harrier (Annex I Birds Directive)
- Little Egret (Annex I Birds Directive)
- Merlin (Annex I Birds Directive)
- Peregrine Falcon (Annex I Birds Directive)
- Kestrel (BoCCI Red List)
- Lapwing (BoCCI Red List)
- Common Snipe (BoCCI Red List)
- Black-headed Gull (BoCCI Amber List)
- Herring Gull (BoCCI Amber List)
- Lesser Black-backed Gull (BoCCI Amber List)
- Greenshank (BoCCI Green List)
- Great Black-backed Gull (BoCCI Amber List)
- Grey Heron (BoCCI Amber List)
- Buzzard (BoCCI Amber List)
- Sparrowhawk (BoCCI Amber List)
- Mallard (BoCCI Amber List)

Included below is a summary of the activity observed for each of the above-listed species, during the vantage point surveys for the survey period.

3.2.1 Golden Plover (*Pluvialis apricaria*)

Golden Plover is a Red-listed species in Ireland (Gilbert et al., 2021). The species is also listed on Annex I of the European Birds Directive (2009/147/EC). There was one flight recorded on site in February. An individual bird was observed from VP1 travelling westwards through the site at 20-50m.

3.2.2 Hen Harrier (*Circus cyaneus*)

Hen Harrier is a Red-listed species in Ireland (Gilbert et al., 2021). The species is also listed on Annex I of the European Birds Directive (2009/147/EC). There were three separate flights recorded on site. Adult males were recorded in December and February and a juvenile female was recorded in January. All were observed hunting at the western side of the development area and within 500m north and south. All flights were low hunting flights, typical of the species when hunting over suitable habitat. Time recorded within the 500m study area was 20, 180 and 780 seconds.

3.2.3 Little Egret (*Egretta Garzetta*)

Little Egret is listed on Annex I of the European Birds Directive (2009/147/EC). Four separate flights were recorded during November and December VP surveys. All flights were of birds commuting through the study area. Three flights were of an individual bird, one included two birds travelling together. The flight height bands used ranged from 0-20 – 50-100m.

3.2.4 Merlin (*Falco columbarius*)

Merlin is an Amber-listed species in Ireland (Gilbert et al., 2021) and is also listed on Annex I of the European Birds Directive (2009/147/EC). Three low flights were recorded over rough grassland to the east of the development area, within the 500m study area, in December, January and February. Adult male and juvenile female birds were recorded for short periods of time, consistent with the species elusive nature. All flight were in the 0-20m height band.

3.2.5 Peregrine Falcon (*Falco peregrinus*)

Peregrine Falcon is listed on Annex I of the European Birds Directive (2009/147/EC). One flightline was recorded to the east of the development area, within the 500m study area in October. The bird was recorded flying within the 0-20 height band for 15 seconds.

3.2.6 Kestrel (*Falco tinnunculus*)

Kestrel is a Red-listed species in Ireland (Gilbert et al., 2021). Four flights were recorded outside the development area and within the 500m study area. At both the east and west sides of the site. Three flights were of birds in flight, one was of a bird hunting at the western edge of the 500m study area.

3.2.7 Lapwing (*Vanellus vanellus*)

Lapwing are a Red-listed species in Ireland (Gilbert et al., 2021). Two flights were recorded in December, 5 and 32 birds were observed commuting through the development area in the mid-morning. The largest flock of 32 was travelling in a northeasterly direction.

3.3 Hen Harrier Roost Survey Results

Hen Harrier was recorded on nine occasions during roost surveys. Roosting was confirmed on one occasion at Tullagher, in March. This known roost area is located approximately 4.8km northwest of the site boundary. Observations of Hen Harrier recorded during roost surveys are displayed in Appendix 8.

3.4 Woodcock Survey Results

A single Woodcock was observed in flight during the Woodcock survey carried out in November. The bird was observed in the late evening approximately 1.7km north of the site over an area of cutover bog and forestry. Maps and details are included in Appendix 9.

3.5 Waterbird Survey Results

A wide range of waterbird species were recorded during surveys. Full tables of all results are included in Appendix 10, Tables 12-20.

3.6 Winter Transect Survey Results

A Hen Harrier male was recorded hunting, and a single Curlew was recorded in flight during transect surveys in December at transect A.

Other target species recorded on site are listed below:

- Black-headed Gull
- Herring Gull
- Grey Heron.

Full tables of all results are included in Appendix 6.

4 REFERENCES

Balmer, D., Gillings, S., Caffrey, B., Swann, B., Downie, I. and Fuller, R. (2013). Bird Atlas 2007-11: The breeding and summering birds of Britain & Ireland. BTO Books, Thetford.

Bibby, C.J., Burgess, N.D., Hill, D.A. and Mustoe, S.H. (2000). Bird Census Techniques. 2nd edn. Academic Press, London.

Birdwatch Ireland. (2012). Countryside Bird Survey (CBS) Manual. Available [ONLINE] at <https://birdwatchireland.ie/our-work/surveys-research/research-surveys/countryside-bird-survey/>

Birdwatch Ireland (2020). Birds of conservation concern in Ireland 2020 – 2026. Available [ONLINE] at <https://birdwatchireland.ie/publications/birds-of-conservation-concern-in-ireland-bocci-2020-2026/>

Bird Survey & Assessment Steering Group (2023). Bird Survey Guidelines for assessing ecological impacts. Available [ONLINE] at <https://birdsurveyguidelines.org/>

British Trust for Ornithology (BTO) (2018). Breeding bird survey methods (2018). Available [ONLINE] at <https://www.bto.org/our-science/publications/birdtrends/2019/methods/breeding-bird-survey>

European Commission. (EC)(2000). *Communication from the Commission on the precautionary principle*. Commission of the European Communities, Brussels.

European Commission. (EC)(2023). The Birds Directive. Available [ONLINE] at https://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

Fossitt, J. (2000). *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.

Gilbert, G., Stanbury, A. and Lewis, L. (2021). "Birds of Conservation Concern in Ireland 2020 –2026" (BOCCI).

Lack P. (1986). The atlas of summering birds in Britain and Ireland. T. & A.D. Poyser

Percival, S.M. (2003). Birds and Wind farms in Ireland: A Review of Potential Issues and Impact Assessment. Sustainable Energy Ireland.

Scottish Natural Heritage (SNH) (2016). Assessing Connectivity with Special Protection areas (SPAs) (Version 3). Scottish Natural Heritage, Edinburgh, UK.

Scottish Natural Heritage. (SNH)(2017). Recommended bird survey methods to inform impact assessment of onshore windfarms (Version 2). Scottish Natural Heritage, Edinburgh, U.K. Available [ONLINE] at <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms>

5 APPENDICES (ALL SURVEY DATA)

RECEIVED: 08/05/2025

Clare Planning Authority - Inspection Purposes Only

Appendix 1 Vantage Point Survey Effort

Table 1. Vantage Point Survey Effort at Moanmore Lower for the winter 2023/2024 survey period

Vantage Point survey effort at Moanmore Lower for the winter 2023/2024 survey period												
Date	VP	Start Time	Finish Time	Survey Duration	Visibility	Cloud Cover (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Temperature °C	Disturbance	Observer
04/10/2023	1	07:30	10:30	03:00	Good	6	Light Showers	4	S	13	None	SN
04/10/2023	1	11:00	14:00	03:00	Good	8	Light Showers	5	S	15	None	SN
04/10/2023	2	07:30	10:30	03:00	Good	6	Light Showers	4	S	13	None	AC
04/10/2023	2	11:00	14:00	03:00	Good	8	Light Showers	5	S	15	None	AC
10/11/2023	1	10:45	13:45	03:00	Good	7	Heavy Showers	4	NW	10	None	AC
10/11/2023	1	14:15	17:15	03:00	Good	7	Heavy Showers	5	NW	8	None	AC
10/11/2023	2	10:45	13:45	03:00	Good	7	Heavy Showers	4	NW	10	None	SN
10/11/2023	2	14:15	17:15	03:00	Good	7	Heavy Showers	5	NW	8	None	SN
05/12/2023	1	08:00	11:00	03:00	Good	2	Dry	1	E	2	None	SN
05/12/2023	1	11:30	14:30	03:00	Good	2	Dry	2	E	2	None	SN
05/12/2023	2	08:00	11:00	03:00	Good	2	Dry	1	E	2	None	AC
05/12/2023	2	11:30	14:30	03:00	Good	2	Dry	2	E	2	None	AC
03/01/2024	1	10:50	13:50	03:00	Good	8	Light Showers	4	W	8	None	AC
03/01/2024	1	14:20	17:20	03:00	Good	8	Light Showers	4	W	7	None	AC
03/01/2024	2	11:00	14:00	03:00	Good	7	Light Showers	4	W	9	None	SN
03/01/2024	2	14:30	17:30	03:00	Good	7	Light Showers	4	W	9	None	SN
02/02/2024	1	07:30	10:30	03:00	Poor - Moderate	8	Drizzle	5	SW	10	None	SN
02/02/2024	1	11:00	14:00	03:00	Moderate	8	Heavy Rain	5	SW	11	None	SN
02/02/2024	2	07:30	10:30	03:00	Poor - Moderate	8	Drizzle	5	SW	10	None	AC
02/02/2024	2	11:00	14:00	03:00	Moderate	8	Heavy Rain	5	SW	11	None	AC
04/03/2024	1	12:00	15:00	03:00	Moderate - Good	8	Light Showers	6	SE	8	None	AC
04/03/2024	1	15:30	18:30	03:00	Moderate - Good	8	Light Showers	6	SE	8	None	AC
04/03/2024	2	12:00	15:00	03:00	Moderate - Good	8	Light Showers	6	SE	8	None	SN

Bird Activity Summary Report

Moanmore Lower, Co. Clare

Winter 2023/2024

04/03/2024	2	15:30	18:30	03:00	Moderate - Good	8	Light Showers	6	SE	8	None	SN
------------	---	-------	-------	-------	-----------------	---	---------------	---	----	---	------	----

Appendix 2 Hen Harrier Roost Survey Effort

Table 2. Hen Harrier Roost Survey Effort at Moanmore Lower for the winter 2023/2024 survey period

Hen Harrier Roost Survey Effort at Moanmore Lower for the winter 2023/2024 survey period												
Date	Survey Location	Start Time	Finish Time	Survey Duration	Visibility	Cloud Cover (Oktas)	Rain	Wind Speed (Beaufort)	Wind Direction	Temperature °C	Notes on Disturbance	Observer
06/10/2023	Runway	15:10	19:45	04:35	Good	4	Dry	3	SW	10	None	AC
07/11/2023	Runway	15:15	18:15	03:00	Good	7	Dry	3	SW	10	None	SN
06/12/2023	Tullagher Lough South	14:00	17:00	03:00	Moderate	8	Heavy Showers	5	SE	9	None	SN
05/01/2024	Tullagher Lough South	14:00	17:30	03:30	Good	1	Dry	4	W	2	None	SN
06/02/2024	Runway	15:00	18:15	03:15	Good	8	Dry	3	NE	6	None	AC
06/03/2024	Runway	16:00	19:30	03:30	Good	8	Dry	4	SE	8	None	SN
13/03/2024	Tullagher (Doonbeg)	16:00	18:30	02:30	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	None	JNM

Appendix 3 Woodcock Survey Effort

Table 3. Woodcock Survey Effort at Moanmore Lower for the winter 2023/2024 survey period

Woodcock Survey Effort at Moanmore Lower for the winter 2023/2024 survey period												
Date	Survey Location	Start Time	Finish Time	Survey Duration	Visibility	Cloud Cover (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Temperature °C	Notes on Disturbance	Observer
09/11/2023	WK Runway	15:00	18:00	03:00	Good	6	Light Showers	5	W	9	None	SN

Appendix 4 Waterbird Survey Effort

Table 4. Waterbird Survey Effort at Moanmore Lower for the winter 2023/2024 survey period

Waterbird Survey Effort at Moanmore Lower for the winter 2023/2024 survey period												
Date	Survey Type	Start Time	Finish Time	Survey Duration	Visibility	Cloud Cover (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Temperature °C	Notes on Disturbance	Observer
09/11/2023	WK Runway	15:00	18:00	03:00	Good	6	Light Showers	5	W	9	None	SN
17/10/2023	Doonbeg Bay	Not Specified	Not Specified		Not Specified	Not Specified	Light Showers	4	E	9	None	JNM
02/11/2023	Doonbeg Bay	Not Specified	Not Specified		Not Specified	Not Specified	Light Showers	3	NW	10	None	JNM
01/12/2023	Doonbeg Bay	Not Specified	Not Specified		Not Specified	Not Specified	Heavy Showers	2	S	0	None	JNM
09/01/2024	Doonbeg Bay	Not Specified	Not Specified		Not Specified	Not Specified	Dry	1	SW	2	None	JNM
08/02/2024	Doonbeg Bay	Not Specified	Not Specified		Good	Not Specified	Dry	3	S	11	None	JNM
06/03/2024	Doonbeg Bay	Not Specified	Not Specified		Good	2	Dry	3	S	12	None	JNM
15/12/2023	Kilrush to Knock. Zone A-D	12:30	15:00	02:30	Good	4	Dry	4	SW	12	None	JNM
08/01/2024	Kilrush to Knock. Zone A-D	10:00	12:30	02:30	Good	Not Specified	Dry	3	S	4	None	JNM

10/02/2024	Kilrush to Knock. Zone A-D	12:30	15:00	02:30	Moderate - Good	Not Specified	Dry	3	NE	8	None	JNM
04/03/2024	Kilrush to Knock. Zone A-D	13:00	15:30	02:30	Moderate - Good	Not Specified	Light Showers	5	S	6	None	JNM
11/12/2023	Poulnasherry Bay - PC1	09:00	12:00	03:00	Good	6	Dry	3	SE	6	None	AC
09/01/2024	Poulnasherry Bay - PC1	09:00	12:00	03:00	Good	7	Dry	4	E	2	None	SN
16/02/2024	Poulnasherry Bay - PC1	13:30	16:30	03:00	Good	4	Dry	4	SW	11	None	AC
06/03/2024	Poulnasherry Bay - PC1	11:00	14:00	03:00	Poor - Moderate	8	Heavy Rain	2	NW	8	None	SN
11/12/2023	Poulnasherry Bay - PC2	09:00	12:00	03:00	Good	6	Dry	3	SE	6	None	SN
09/01/2024	Poulnasherry Bay - PC2	09:00	12:00	03:00	Good	7	Dry	4	E	2	None	AC
16/02/2024	Poulnasherry Bay - PC2	13:30	16:30	03:00	Good	4	Dry	4	SW	11	None	SN
06/03/2024	Poulnasherry Bay - PC2	11:00	14:00	03:00	Poor - Moderate	8	Drizzle	2	NW	8	None	AC
11/12/2023	Poulnasherry Bay - PC3	09:00	12:00	03:00	Good	6	Dry	3	SE	6	None	PC
09/01/2024	Poulnasherry Bay - PC3	09:00	12:00	03:00	Good	7	Dry	4	E	2	None	PC
16/02/2024	Poulnasherry Bay - PC3	13:30	16:30	03:00	Good	4	Dry	4	SW	11	None	PC
06/03/2024	Poulnasherry Bay - PC3	11:00	14:00	03:00	Poor - Moderate	8	Drizzle	2	NW	8	None	PC
11/10/2023	Tullabrack Lough	16:45	17:00	00:15	Good	8	Dry	2	NE	10	None	PC
03/11/2023	Tullabrack Lough	14:00	14:15	00:15	Good	4	Dry	4	NW	12	None	SN
04/12/2023	Tullabrack Lough	11:10	11:15	00:05	Good	3	Dry	3	N	3	None	AC
02/01/2024	Tullabrack Lough	10:30	10:40	00:10	Moderate	8	Heavy Showers	4	W	9	None	SN
09/11/2023	WK Runway	15:00	18:00	03:00	Good	6	Light Showers	5	W	9	None	SN

Appendix 5 Transect Survey Effort

Table 5. Transect Survey Effort at Moanmore Lower for the winter 2023/2024 survey period

Transect Survey Effort at Moanmore Lower for the winter 2023/2024 survey period												
Date	Transect	Start Time	Finish Time	Survey Duration	Visibility	Cloud Cover (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Temperature °C	Notes on Disturbance	Observer
07/12/2023	A-C	09:00	12:00	03:00	Good	8	Dry	4	S	11	None	SN
07/02/2024	A-C	09:00	12:00	03:00	Good	2	Dry	2	NE	2	None	SN

Appendix 6 Transect Survey Results

Table 6. Survey Results for Winter 2023/2024 at Transect A

Survey Results for Winter 2023/2024 at <u>Transect A</u>									
Transect A	Moanmore Lower Transect A Species Count		07/12/2023				07/02/2024		
			0-25m	25-100m	>100m	Notes	0-25m	25-100m	>100m
BTO Code	Species	Scientific	No.	No.	No.		No.	No.	No.
Target Species									
BZ	Buzzard	<i>Buteo buteo</i>							1
CU	Curlew	<i>Numenius arquata</i>	1						
H.	Grey Heron	<i>Ardea cinerea</i>			1				
HH	Hen Harrier	<i>Circus cyaneus</i>		1		Adult male hunting over bog heading northwest			
HG	Herring Gull	<i>Larus argentatus</i>							2
Non-target Species									
B	Blackbird	<i>Turdus merula</i>	4				4	2	

BT	Blue Tit	<i>Cyanistes caeruleus</i>	2			1		
CH	Chaffinch	<i>Fringilla coelebs</i>		4			2	
D	Dunnock	<i>Prunella modularis</i>	3			2		
FF	Fieldfare	<i>Turdus pilaris</i>		22			4	
GO	Goldfinch	<i>Carduelis carduelis</i>		2				
GT	Great Tit	<i>Parus major</i>	2			1		
HC	Hooded Crow	<i>Corvus cornix</i>					8	
JD	Jackdaw	<i>Corvus monedula</i>		14				
MG	Magpie	<i>Pica pica</i>		4		2		
MP	Meadow pipit	<i>Anthus pratensis</i>	8	6				2
PW	Pied wagtail	<i>Motacilla alba</i>	2			2		
RE	Redwing	<i>Turdus iliacus</i>		15			3	
R	Robin	<i>Erithacus rubecula</i>	4			4	2	
RO	Rook	<i>Corvus frugilegus</i>		20			4	
S	Skylark	<i>Alauda arvensis</i>						2
ST	Song Thrush	<i>Turdus philomelos</i>	2			1	4	
SG	Starling (Common)	<i>Sturnus vulgaris</i>		11			12	
SC	Stonechat	<i>Saxicola rubicola</i>	2			2		
WP	Woodpigeon	<i>Columba palumbus</i>						8
WR	Wren	<i>Troglodytes troglodytes</i>	5			4		

Table 7. Survey Results for Winter 2023/2024 at Transect B

Survey Results for Winter 2023/2024 at <u>Transect B</u>									
Transect B	Moanmore Lower Transect B Species Count		07/12/2023				07/02/2024		
			0-25m	25-100m	>100m	Notes	0-25m	25-100m	>100m
BTO Code	Species	Scientific	No.	No.	No.		No.	No.	No.
Target Species									
HG	Herring Gull	<i>Larus argentatus</i>						1	
Non-target Species									
B	Blackbird	<i>Turdus merula</i>	12				3	2	
BT	Blue Tit	<i>Cyanistes caeruleus</i>	2				6		
CH	Chaffinch	<i>Fringilla coelebs</i>		2			3		
CT	Coal Tit	<i>Parus ater</i>	2				1		
D	Dunnock	<i>Prunella modularis</i>	8				2	1	
GC	Goldcrest	<i>Regulus regulus</i>	1				1		
GT	Great Tit	<i>Parus major</i>	1				2		
HC	Hooded Crow	<i>Corvus cornix</i>						4	
JD	Jackdaw	<i>Corvus monedula</i>						1	
MG	Magpie	<i>Pica pica</i>	2					2	
MP	Meadow pipit	<i>Anthus pratensis</i>	12				4		
RE	Redwing	<i>Turdus iliacus</i>							
RB	Reed Bunting	<i>Emberiza schoeniclus</i>	4						
R	Robin	<i>Erithacus rubecula</i>	6				5		

RO	Rook	Corvus frugilegus	6					
SK	Siskin	Carduelis spinus					6	
S	Skylark	Alauda arvensis					2	
ST	Song Thrush	Turdus philomelos	2				2	2
SG	Starling (Common)	Sturnus vulgaris		5			8	
WP	Woodpigeon	Columba palumbus					1	2
WR	Wren	Troglodytes troglodytes	8				7	

Table 8. Survey Results for winter 2023/2024 at Transect C

Survey Results for winter 2023/2024 at Transect C									
Transect C	Moanmore Lower Transect C Species Count		07/12/2023				07/02/2024		
			0-25m	25-100m	>100m	Notes	0-25m	25-100m	>100m
BTO Code	Species	Scientific	No.	No.	No.		No.	No.	No.
Target Species									
H.	Grey Heron	<i>Ardea cinerea</i>							1
HG	Herring Gull	<i>Larus argentatus</i>			1				
Non-target Species									
B	Blackbird	<i>Turdus merula</i>	6				5	2	
BT	Blue Tit	<i>Cyanistes caeruleus</i>	1				2		
CH	Chaffinch	<i>Fringilla coelebs</i>		2					
D	Dunnock	<i>Prunella modularis</i>	4				4		
GT	Great Tit	<i>Parus major</i>					3		

HC	Hooded Crow	Corvus cornix					5	
MG	Magpie	Pica pica		2			4	
MP	Meadow pipit	Anthus pratensis		2			1	
RB	Reed Bunting	Emberiza schoeniclus					3	
R	Robin	Erithacus rubecula	2				5	
RO	Rook	Corvus frugilegus					1	
ST	Song Thrush	Turdus philomelos	1				3	1
SG	Starling (Common)	Sturnus vulgaris						4
SC	Stonechat	Saxicola rubicola					2	1
WP	Woodpigeon	Columba palumbus						1
WR	Wren	Troglodytes troglodytes	2				5	

Appendix 7 VP Flight Activity Results

Table 9. VP Flight Activity Results

Flight Ref GIS Maps	Date	Time	VP	Species Common Name	No. of Birds	Sex	Activity (1)	Flight Height Band 0 -20m	Flight Height Band 20-50m	Flight Height Band 50-100m	Flight Height Band >100m	Duration (s)	Flight Path Notes	Surveyor
BH 001	10/11/23	11:25	1	Black-headed Gull	5		Flying		35			35		AC
BZ 001	04/10/23	07:34	1	Buzzard	1		Flying	12				12		SN
BZ 002	04/10/23	08:50	2	Buzzard	1		Hunting		180			180		AC
BZ 003	04/10/23	12:14	2	Buzzard	1		Hunting		240			240		AC
BZ 004	10/11/23	11:51	2	Buzzard	1		Hunting		840			840		SN
BZ 005	10/11/23	14:12	1	Buzzard	1		Hunting			300		300		AC
BZ 006	05/12/23	10:19	2	Buzzard	1		Flying	70				70		AC
ET 001	10/11/23	10:50	2	Little Egret	1		Flying	2				2		SN
ET 002	10/11/23	13:25	1	Little Egret	2		Flying			65		65		AC
ET 003	05/12/23	09:40	1	Little Egret	1		Flying	7				7		SN
ET 004	05/12/23	09:44	2	Little Egret	1		Flying		20			20		AC
GB 001	10/11/23	13:02	1	Great Black-backed Gull	1		Flying			70		70		AC
GK 001	05/12/23	12:05	1	Greenshank	1		Flying	12				12		SN
GK 002	03/01/24	12:45	2	Greenshank	5		Flying		7			7		SN
GP 001	02/02/24	09:17	1	Golden Plover	1		Flying		7			7		SN
H 001	10/11/23	15:21	1	Grey Heron	1		Perched	Perched, no flight				0		AC
H 002	03/01/24	12:52	2	Grey Heron	1		Flying	35				35		SN
H 003	02/02/24	08:20	1	Grey Heron	1		Flying	3				3		SN
H 004	02/02/24	09:40	1	Grey Heron	1		Flying	12				12		SN
H 005	04/03/24	12:44	1	Grey Heron	1		Flying	10				10		AC
HG 001	04/10/23	08:37	1	Herring Gull	2		Flying		9			9		SN
HG 002	04/10/23	09:15	1	Herring Gull	2		Flying		14			14		SN
HG 003	04/10/23	12:43	1	Herring Gull	1		Flying		12			12		SN
HG 004	10/11/23	13:29	2	Herring Gull	1		Flying		8			8		SN

Bird Activity Summary Report

Moanmore Lower Co. Clare
Winter 2023/2024

HG 005	05/12/23	09:00	1	Herring Gull	2		Flying	8				8		SN
HG 006	03/01/24	11:55	2	Herring Gull	1		Flying	6				6		SN
HG 007	03/01/24	12:49	2	Herring Gull	1		Flying		10			10		SN
HG 008	03/01/24	14:48	1	Herring Gull	3		Flying		70			70		AC
HG 009	03/01/24	15:29	2	Herring Gull	2		Flying		7			7		SN
HG 010	02/02/24	09:55	2	Herring Gull	1		Flying		12			12		AC
HG 011	04/03/24	16:12	2	Herring Gull	1		Flying			25		25		SN
HH 001	05/12/23	09:29	2	Hen Harrier	1	M	Hunting	180				180	male hunting over bog	AC
HH 002	03/01/24	11:30	2	Hen Harrier	1	F	Hunting	20				20	Hunting, flew south	SN
HH 003	02/02/24	09:08	2	Hen Harrier	1	M	Hunting	780				780	Adult male hunting over bog	AC
K 001	04/10/23	07:46	1	Kestrel	1		Flying	6				6		SN
K 002	10/11/23	11:16	2	Kestrel	1		Hunting		10			10		SN
K 003	10/11/23	14:42	2	Kestrel	1		Flying		7			7		SN
K 004	05/12/23	11:44	1	Kestrel	1		Flying	7				7		SN
L 001	05/12/23	09:05	1	Lapwing	5		Flying		16			16		SN
L 002	05/12/23	10:07	1	Lapwing	32		Flying		10			10		SN
LB 001	05/12/23	08:30	1	Lesser Black-backed Gull	1		Flying		12			12		SN
LB 002	03/01/24	11:55	2	Lesser Black-backed Gull	1		Flying	6				6		SN
LB 003	04/03/24	12:00	2	Lesser Black-backed Gull	1		Flying		5			5		SN
LB 004	04/03/24	13:00	2	Lesser Black-backed Gull	1		Flying			17		17		SN
MA 001	02/02/24	09:46	1	Mallard	2		Flying		12			12		SN
ML 001	05/12/23	09:01	1	Merlin	1		Flying	8				8	Juvenile female	SN
ML 002	03/01/24	16:42	1	Merlin	1		Flying	15				15	Adult male flying south	AC
ML 003	02/02/24	10:04	1	Merlin	1		Hunting	6				6	Flew northward over fields	SN

Bird Activity Summary Report

Moanmore Lower Co. Clare
Winter 2023/2024

PE 001	04/10/23	09:40	1	Peregrine Falcon	1		Flying	15				15		SN
SH 001	03/01/24	12:59	1	Sparrowhawk	1		Perched	Perched, no flight				0		AC
SH 002	02/02/24	10:06	1	Sparrowhawk	1		Flying	3				3		SN
SN 001	02/02/24	10:28	1	Snipe	1		Flying			5		5		SN

Clare Planning Authority - Inspection Purposes Only

RECEIVED: 08/05/2025

Appendix 8 Hen Harrier Roost Survey Results

Table 10. Hen Harrier Roost Survey Results with Map Codes

Species Reference Number GIS Maps	Date	Time	Species BTO	Species Common Name	No. of Birds	Age	Sex	Activity (1)	Habitat (1)	Flight Path Notes	Surveyor
HH 001	06/12/23	16:14:00	HH	Hen Harrier	1	Adult	F	Flying low	Bog	Flew down towards bog east of observation point, heading south. Lost to view behind forestry.	SN
HH 002	05/01/24	15:15:00	HH	Hen Harrier	1	Adult	M	Hunting	Bog	Hunting over bog area	SN
HH 003	05/01/24	15:47:00	HH	Hen Harrier	1	Adult	M	Hunting	Bog	Hunting over bog area, same bird as earlier in the evening	SN
HH 004	06/02/24	17:28:00	HH	Hen Harrier	1	Adult	F	Hunting	Bog	Hunting over bog for 11 minutes. Went out of view north of VP and treeline.	AC
HH 005	06/03/24	16:10:00	HH	Hen Harrier	1	Adult	M	Hunting	Bog	Hunting over bog for 32 seconds. Circled bog area.	SN
HH 006	06/03/24	17:05:00	HH	Hen Harrier	1	Adult	F	Hunting	Bog	Hunting over bog for 3 seconds. Disappeared southwest.	SN
HH 007	13/03/24	16:57:00	HH	Hen Harrier	1	Adult	M	Hunting	Bog	Appeared hunting over bog and fields for approx 5 min. Headed off south and did not return.	JNM
HH 008	13/03/24	18:06:00	HH	Hen Harrier	1	Adult	F	Flying low	Bog	Flew in over the bog from the east and flew through the site for approximately 2 min. Went south and did not return to roost in the usual location on the bog.	JNM
HH 009	06/02/24	16:45:00	HH	Hen Harrier	1	A	M	Hunting	Bog	Male observed hunting over bog	SN



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Hen Harrier Roost

**Hen Harrier
Observations
- Roost Surveys**

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:40000

Figure 6. Hen Harrier Roost Survey Results Map

Appendix 9 Woodcock Survey Results

Table 11. Woodcock Survey Results with map codes

Map Ref GIS	Date	Species Common Name	No of Birds	Notes	Surveyor
WK 001	19/11/2023	Woodcock	1	Travelling in flight going northeast over laneway	SN

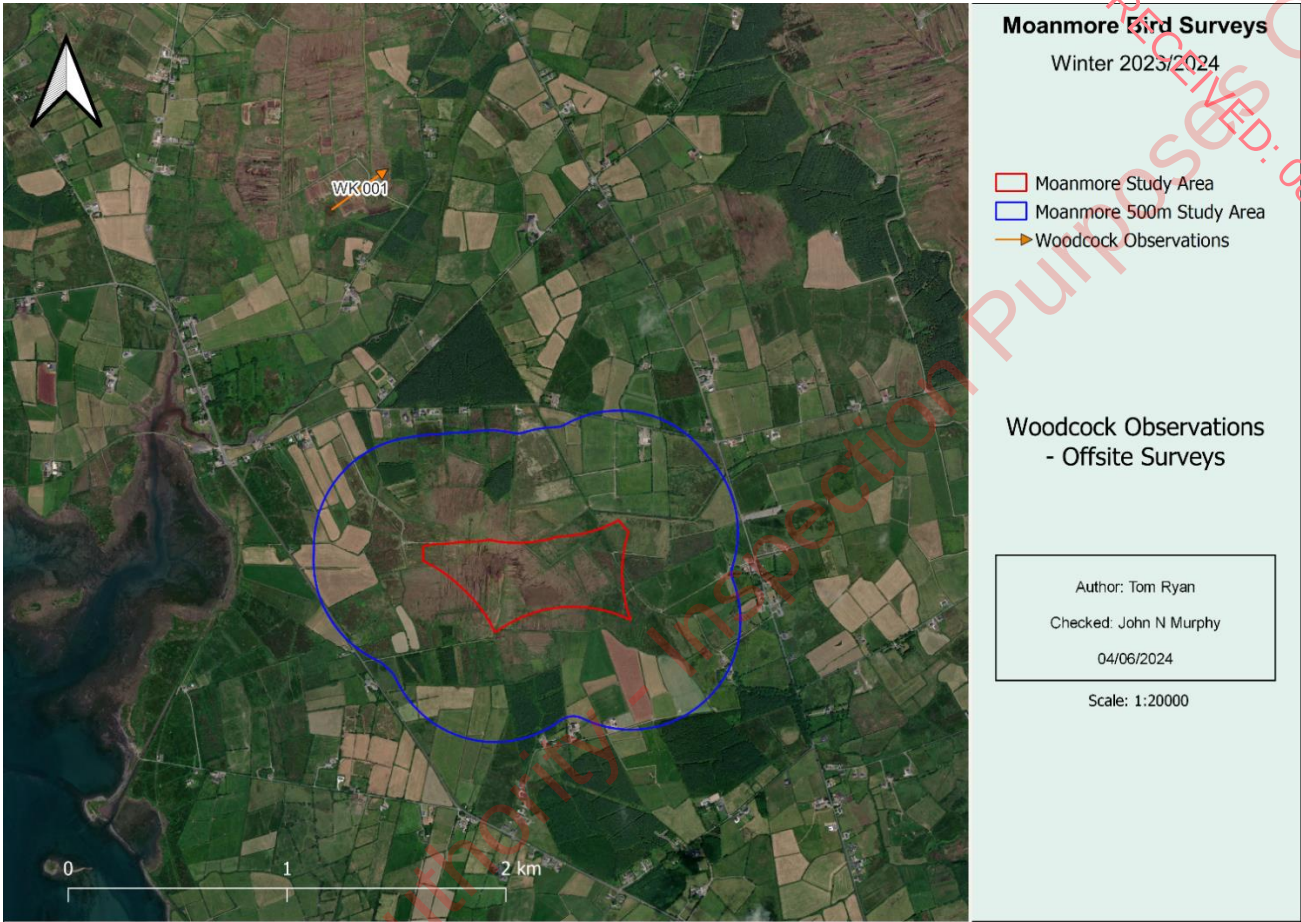


Figure 7. Woodcock Observations

Appendix 10 Waterbird Survey Results

Table 12. Waterbird Survey Results - Doonbeg Bay

Doonbeg Bay							
DATE:		17/10/2023	02/11/2023	01/12/2023	09/01/2024	08/02/2024	06/03/2024
BTO	Species	Count	Count	Count	Count	Count	Count
BH	Black-headed Gull	15	23	5	10	5	
BA	Bar-tailed Godwit	5	7	3	5	7	10
BG	Brent Goose		5				
CM	Common Gull	25	32	16	6	6	8
CS	Common Sandpiper	1					
CA	Cormorant	5	2		4	5	2
CU	Curlew	40	47	95	110	108	5
DN	Dunlin	27	35	18	72	26	12
GP	Golden Plover	32	60	150		6	80
GB	Great B-B Gull	1	3	2		2	2
GN	Great Northern Diver			11	4	4	4
H.	Grey Heron	2	3	2	1	1	1
GK	Greenshank	5	7	2	3	2	2
HG	Herring Gull	8	21	12	8	8	4
KF	Kingfisher				1		10
KN	Knot		5				
L.	Lapwing		26	67			
LB	Lesser B-B Gull	4	2				
ET	Little Egret	5	6	5	4	5	
LG	Little Grebe			2			2
MA	Mallard	40	36	30	41	4	
MS	Mute Swan	3		2	2	2	
OC	Oystercatcher	12	14	22	8	21	
PS	Purple Sandpiper						18
RK	Redshank	38	45	62	37	40	
RP	Ringed Plover	42	60	25	52	41	30
SS	Sanderling	16	4			10	15
TE	Sandwich Tern	15					
SA	Shag	1	1	2	2	2	
SN	Snipe	48	18	10	5	8	1
SU	Shelduck	1				3	
T.	Teal	85	68	50	66	84	52
AE	Arctic Tern		1 immature				
TT	Turnstone	6	7	14	22	8	19
WM	Whimbrel						
WN	Wigeon	12	19	10			

Table 13. Waterbird Survey Results - Kilrush to Knock Zone A

Zone A - Kilrush to Knock					
Species BTO	Species	15/12/2023	08/01/2024	10/02/2024	04/03/2024
BA	Bar-tailed Godwit			4	
BH	Black-headed Gull	23	14	1	5
BT	Black-tailed Godwit	2			
BG	Brent Goose	11			7
CM	Common Gull	18	5	9	26
CU	Curlew	11	15	10	8
ET	Little Egret	2	1		1
GG	Great Crested Grebe	2	1	6	
GK	Greenshank		4	1	1
H	Grey Heron	2		2	
HG	Herring Gull	16	4	4	28
KF	Kingfisher	1			
L	Lapwing	14	3	34	
LG	Little Grebe	2			
MA	Mallard	2		2	2
ND	Great Northern Diver	1		1	
OC	Oystercatcher	10	10	15	
RH	Red-throated Diver		1	2	1
RK	Redshank	18	23		2
RP	Ringed Plover				25
SA	Shag	4		2	
SN	Snipe	3		3	
T	Teal	4	18	16	8
TY	Black Guillemot			1	
WN	Wigeon		5		

Table 14. Waterbird Survey Results - Kilrush to Knock Zone B

Zone B - Kilrush to Knock					
Species BTO	Species	15/12/2022	08/01/2024	10/02/2024	04/03/2024
BG	Brent Goose	7			
BH	Black-headed Gull	17	10	15	
CM	Common Gull	6	42	5	14
CU	Curlew	16	4	60	42
DN	Dunlin			4	
GB	Great Black-backed Gull	2			
GG	Great Crested Grebe			2	
HG	Herring Gull	6		2	2
L	Lapwing			5	
ND	Great Northern Diver	2		1	
OC	Oystercatcher	5	22	6	16
RH	Red-throated Diver	1			
RK	Redshank	5	2		
RP	Ringed Plover	10		7	

Zone B - Kilrush to Knock					
Species BTO	Species	15/12/2022	08/01/2024	10/02/2024	04/03/2024
SN	Snipe			10	
T	Teal		8		3
TT	Turnstone			2	
TT	Turnstone				5

Table 15. Waterbird Survey Results Kilrush to Knock Zone C

Zone C - Kilrush to Knock					
Species BTO	Species	15/12/2022	08/01/2024	10/02/2024	04/03/2024
BH	Black-headed Gull	40	90	5	
BW	Black-tailed Godwit	10	7		2
CA	Cormorant	2	1	2	
CM	Common Gull	23	5	6	
CU	Curlew	11		10	
DN	Dunlin	10	15	18	50
ET	Little Egret	2		1	
GK	Greenshank		1	1	1
GB	Great Black-backed Gull			1	1
H	Grey Heron		1		
HG	Herring Gull	4			
KF	Kingfisher		1		
MA	Mallard			4	
OC	Oystercatcher	3			
RK	Redshank	16	25	30	40
RP	Ringed Plover	28		8	10
SN	Snipe	25			
SA	Shag			1	
SU	Shelduck			2	2
T	Teal	70	40	50	18
TT	Turnstone				25
WN	Wigeon	45	36	15	14

Table 16. Waterbird Survey Results Kilrush to Knock Zone D

Zone D - Kilrush to Knock					
Species BTO	Species	15/12/2022	08/01/2024	10/02/2024	04/03/2024
BH	Black-headed Gull	50	17	12	
BW	Black-tailed Godwit	5			
CA	Cormorant			1	
CM	Common Gull		8	10	
CU	Curlew	44		8	
DN	Dunlin			26	
ET	Little Egret			1	
GP	Golden Plover		4		
GB	Great Black-backed Gull				1
GG	Great Crested Grebe	1		4	4
ND	Great Northern Diver	2		2	
GK	Greenshank	3	2	1	2
HG	Herring Gull	3			
L	Lapwing		10		
RK	Redshank	45	31	40	17
SU	Shelduck			2	4
T	Teal	110	50	52	34
TT	Turnstone				12
WN	Wigeon	90	49	10	18

Table 17. Waterbird Survey Results - PC1 Poulnasherry

PC1 -Poulnasherry				
Species	11/12/2023	09/01/2024	16/02/2024	06/03/2024
Brent Goose			36	10
Black-headed Gull	3	18		
Brent Goose	54	83		
Curlew	26	41	45	24
Common Gull		8		
Great Black-backed Gull	1		1	
Dunlin		111	40	
Greenshank		21	1	1
Greenshank	2			
Golden Plover		7		
Grey Heron	2	2		
Herring Gull	2	6	4	
Hen Harrier	2			
Lapwing	60	14		
Knot		18		31
Little Egret	3	22	3	10
Little Grebe		2		
Mallard	30	30	10	8
Oystercatcher	5	2		
Pintail	7	6		
Redshank	42	32	26	18
Ringed Plover		61	18	
Snipe	21			
Shelduck	5		10	12
Teal	100	164	80	123
Turnstone	4	14	20	22
Wigeon	80	120	10	18

Table 18. Waterbird Survey Results - PC2 Poulnasherry

PC2 -Poulnasherry				
Species	11/12/2023	09/01/2024	16/02/2024	06/03/2024
Bar-tailed Godwit	47	9	6	2
Brent Goose	12			
Black-headed Gull	18	6	9	
Brent Goose		33	58	
Cormorant	2	1	2	1
Common Gull		6	12	
Curlew	82	21	77	11
Dunlin	70	19		
Golden Plover	152		110	
Little Egret	13			
Great Black-backed Gull	1		6	
Great Crested Grebe	6	2	4	3

PC2 -Poulnasherry				
Species	11/12/2023	09/01/2024	16/02/2024	06/03/2024
Great Northern Diver	5		2	2
Greenshank	3	4	6	2
Grey Plover	2		1	
Grey Heron	2	4		1
Herring Gull	9	10	19	7
Little Egret		8	13	
Lapwing	10			
Little Grebe	2		2	13
Mallard	12	26	17	
Lesser Black-backed Gull				2
Oystercatcher	9	11	7	1
Redshank	63	40	57	14
Pintail		1		
Red-breasted Merganser	2			
Snipe	4		1	
Shelduck	4	2	17	4
Teal		6	50	
Turnstone	5	2	31	1
Wigeon	2	2	27	

Table 19. Waterbird Survey Results - PC3 Poulnasherry

PC3 -Poulnasherry				
Species	11/12/2023	09/01/2024	16/02/2024	06/03/2024
Bar-tailed Godwit	47	9	6	2
Bar-tailed Godwit	36	21	19	34
Brent Goose	2	22	113	76
Black-headed Gull	32	38	21	18
Cormorant	4	2	5	2
Common Gull	38	57	81	27
Curlew	51	87	77	103
Dunlin	567	312	1035	248
Little Egret	12	1	14	15
Great Black-backed Gull	3		3	3
Great Crested Grebe	6	1		6
Greenshank	6	8	2	3
Golden Plover	72			269
Grey Plover	22	8	8	22
Grey Heron	2	2		1
Herring Gull	18	3	17	14
Hen Harrier		1		1
Knot	311	26	415	136
Lapwing	58			
Little Grebe	1		3	2
Mallard		5	5	4
Great Northern Diver	3	1	3	4
Oystercatcher	7	14	10	12

PC3 -Poulnasherry				
Species	11/12/2023	09/01/2024	16/02/2024	06/03/2024
Pintail			1	
Redshank	29	40	67	78
Red-breasted Merganser	2			
Snipe	2	1		
Shelduck	92	119	103	27
Teal	169	8	8	
Turnstone	9	1	4	2
Wigeon	1			13
Sandwich Tern			1	
Water Rail			1	

Table 20. Waterbird Survey Results - Tullabrack Lough

Tullabrack Lough				
Species	11/10/2023	03/11/2023	04/12/2023	02/01/2024
Coot	4			
Herring Gull	1			
Mallard	36	2	5	4
Moorhen		2		
Ring-necked duck	1			
Teal			8	6
Tufted Duck				2
Water Rail	2			
Wigeon				12

Appendix 11 VP Flight Maps

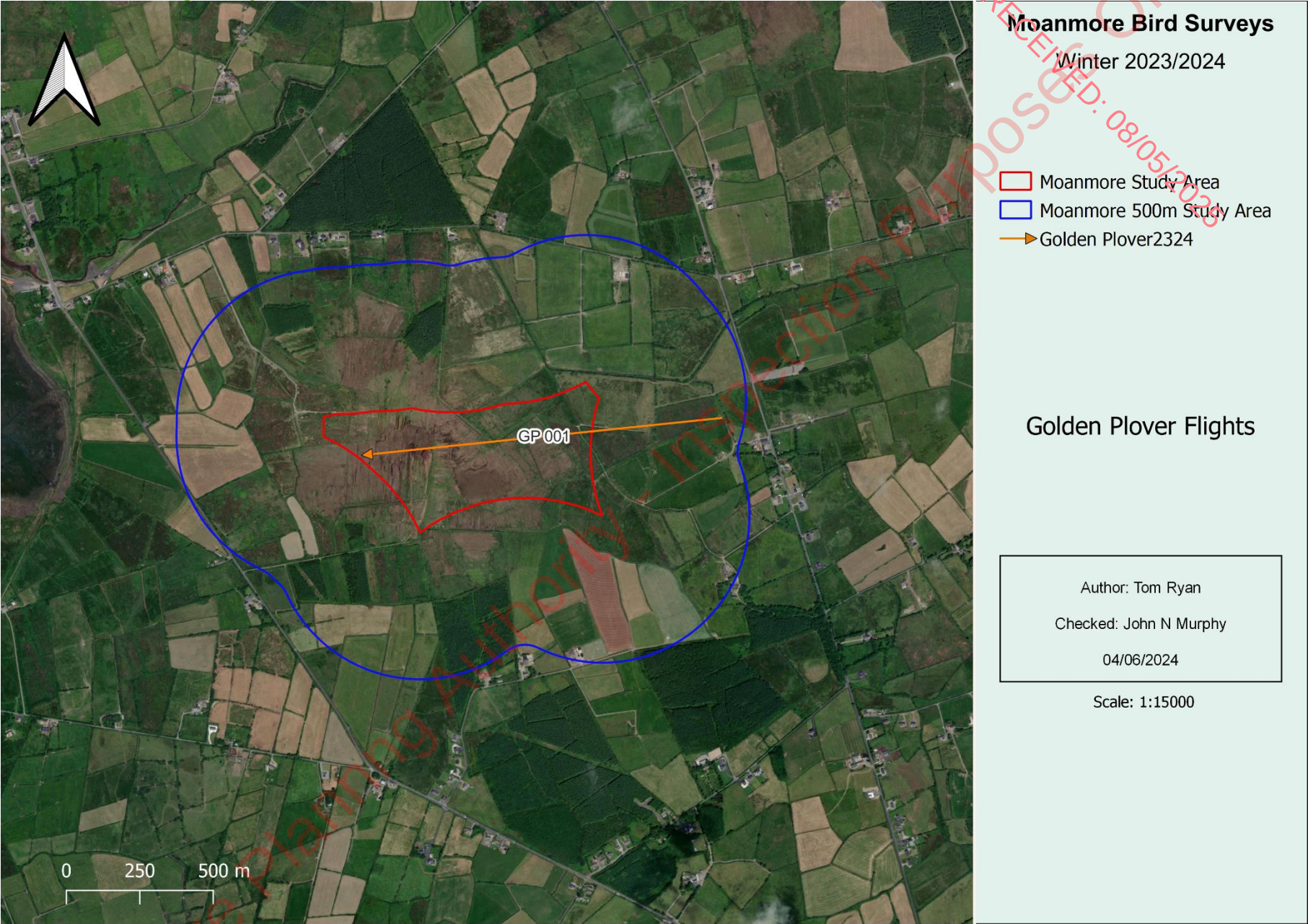


Figure 8. Golden Plover Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Hen Harrier2324

Hen Harrier Flights

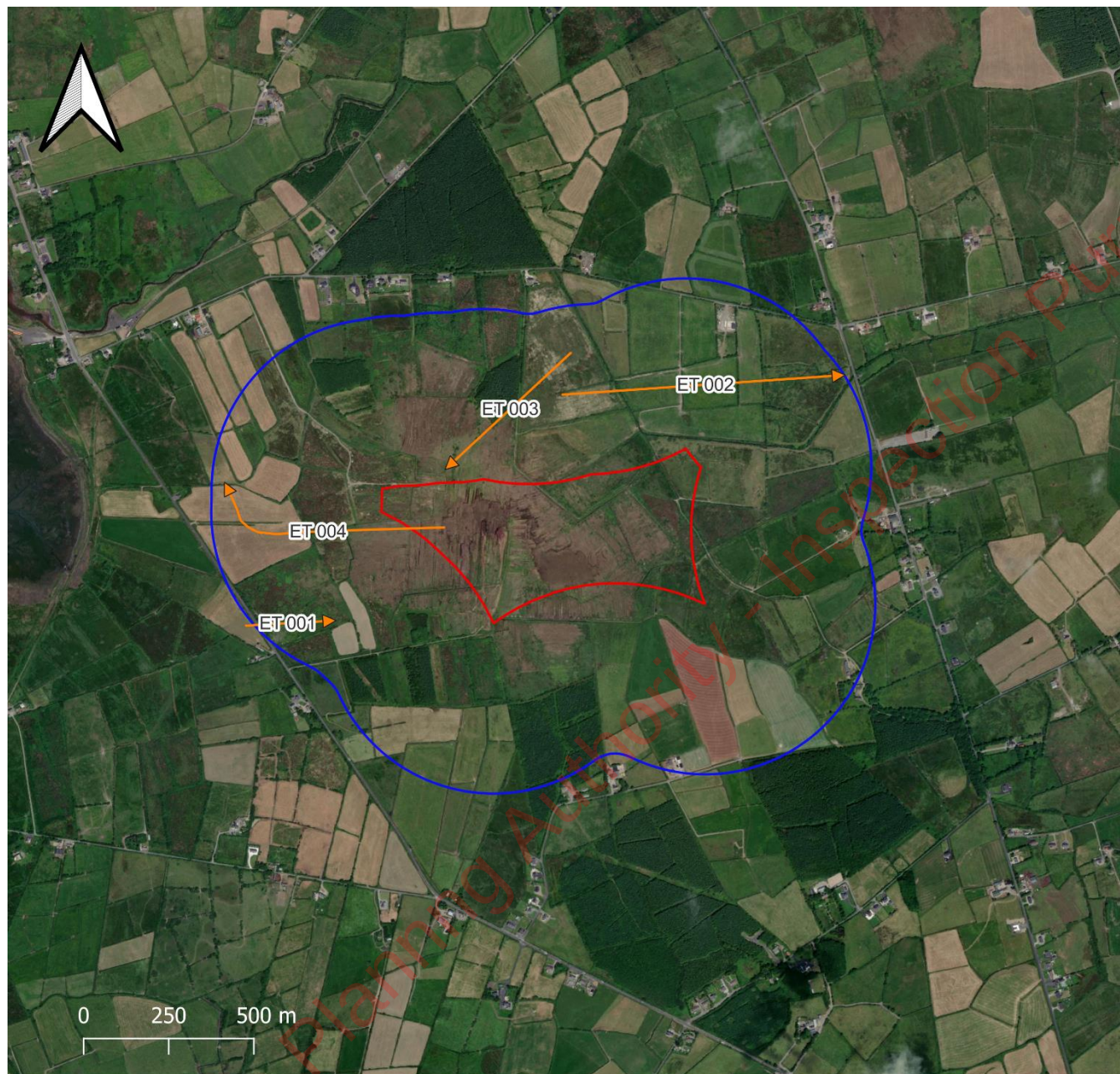
Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 9. Hen Harrier Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Little Egret2324

Little Egret Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 10. Little Egret Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Merlin2324

Merlin Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 11. Merlin Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Peregrine2324

Peregrine Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 12. Peregrine Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Kestrel2324

Kestrel Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 13. Kestrel Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Lapwing2324

Lapwing Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 14. Lapwing Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Snipe2324

Snipe Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 15. Snipe Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Black_headed Gull2324

Black-headed Gull Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 16. Black-headed Gull Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Herring Gull2324

Herring Gull Flights

Author: Tom Ryan
Checked: John N Murphy
04/06/2024
Scale: 1:15000

Figure 17. Herring Gull Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Lesser Black backed Gull2324

**Lesser Black-backed
Gull Flights**

Author: Tom Ryan
Checked: John N Murphy
04/06/2024
Scale: 1:15000

Figure 18. Lesser Black-backed Gull Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Greenshank2324

Greenshank Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 19. Greenshank Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Great Black backed Gull2324

Great Black-backed Gull Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 20. Great Black-backed Gull Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Grey Heron2324

Grey Heron Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 21. Grey Heron Flights

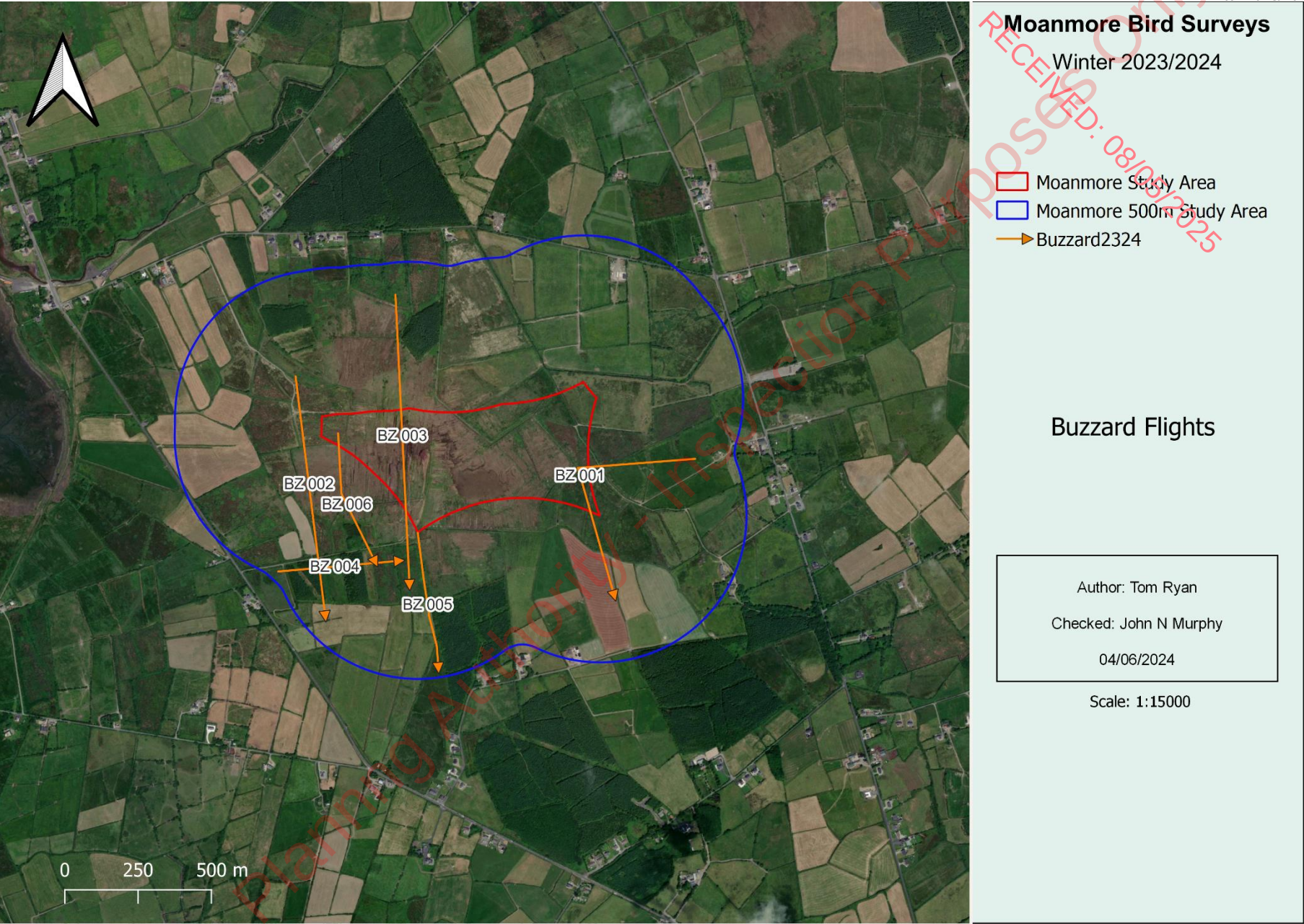


Figure 22. Buzzard Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Sparrowhawk2324

Sparrowhawk Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 23. Sparrowhawk Flights



Moanmore Bird Surveys

Winter 2023/2024

- Moanmore Study Area
- Moanmore 500m Study Area
- Mallard2324

Mallard Flights

Author: Tom Ryan

Checked: John N Murphy

04/06/2024

Scale: 1:15000

Figure 24. Mallard Flights