



APPENDIX 7-7

BIRD MONITORING PROGRAMME

Bird Monitoring Programme

Meenbog Wind Farm



DOCUMENT DETAILS

Client **Planree Ltd**

Project Title: **Meenbog Wind Farm**

Project Number: **240505**

Document Title: **Bird Monitoring Programme**

Document File Name: **Ch 7 Birds Appendix 7-7 Bird Monitoring Programme - F - 2026.06.26 - 240505**

Prepared By: **MKO
Tuam Road
Galway
Ireland
H91 VW84**



Rev	Status	Date	Author(s)	Approved By
01	Draft	2026.03.20	SD	PC
02	Final	2026.06.26	SD	PC

Table of Contents

1.	INTRODUCTION	1
1.1	Background	1
1.2	Key Ornithological Receptors	1
2.	METHODOLOGY	2
2.1	Pre-construction and Construction Monitoring	2
2.2	Operational Monitoring	2
2.2.1	Breeding Hen Harrier Surveys.....	2
2.2.2	Breeding Walkover Surveys.....	3
2.2.3	Collision Monitoring Surveys	3
2.2.4	Vantage Point Surveys.....	3
2.2.5	Breeding Red-throated Diver Surveys.....	4
2.2.6	Biodiversity Management Site Survey	4
2.2.7	Summary	5
2.3	Decommissioning Monitoring.....	6
2.4	Reporting	6
2.5	Sharing Ecological Data	6
3.	BIBLIOGRAPHY	7

1.

INTRODUCTION

1.1

Background

This Bird Monitoring Programme has been prepared by MKO for Meenbog Wind Farm, Co. Donegal. It provides a timeframe and monitoring schedule for the bird population in the Wind Farm Site during the operational phase of the project, informed by surveys undertaken to date. Bird surveys were undertaken from September 2023 to September 2025. Key ornithological receptors (KORs) in the study area were identified based on these surveys.

The objectives of the Bird Monitoring Programme are:

- To ensure any required construction phase monitoring is scheduled to avoid impacts on birds of conservation concern during the construction phase.
- To record birds using the Wind Farm Site and their interaction with operating turbines.
- To monitor short-term and long-term effects on bird populations in the area, with a particular emphasis on birds of high conservation concern (birds listed on Annex I of the EU Birds Directive or on the Red List of Birds of Conservation Concern in Ireland).
- To undertake collision monitoring for potential bird fatalities as a result of a collision with turbine blades.
- To monitor the implementation and outcomes of the hen harrier habitat enhancement plan.
- To report on the findings of monitoring at the end of Years 1, 2, 3, 5, 10 and 15 of the operational life of the wind farm.
- To ensure any required decommissioning phase monitoring is scheduled to avoid impacts on birds of conservation concern during the decommissioning phase.

1.2

Key Ornithological Receptors

The KORs recorded during surveys conducted from September 2023 to September 2025 are listed below. These species form the basis of the Bird Monitoring Programme.

High Sensitivity

- Golden eagle (ecologically sensitive species, population of National Importance)
- Hen harrier (ecologically sensitive species, breeding population of National Importance)
- White-tailed eagle (population of National Importance)

Medium Sensitivity

- Golden plover (Annex I, population of County Importance)
- Merlin (Annex I, population of County Importance)
- Peregrine falcon (Annex I, population of County Importance)
- Whooper swan (Annex I, population of County Importance)
- Kestrel (BoCCI Red Listed)
- Snipe (BoCCI Red Listed, population of County Importance)

Low Sensitivity

- Buzzard (conservation interest)
- Long-eared owl (conservation interest)
- Sparrowhawk (conservation interest)

2. METHODOLOGY

2.1 Pre-construction and Construction Monitoring

It is proposed that construction works will commence outside the bird nesting season (1st of March to 31st of August inclusive) to avoid the most sensitive time of the year for most bird species with the potential to use the Wind Farm Site and its environs. Pre-commencement surveys will be undertaken within one month prior to the initiation of works at the Wind Farm Site. The surveys will aim to identify sensitive sites for birds (e.g., nests or roosts) in proximity to works. During construction, surveys will be conducted once per month during the breeding season (April to July) and once at the start of the winter season (October). As above, these surveys will aim to identify sensitive sites for birds in proximity to works. Any requirement for construction works to run into subsequent breeding or winter seasons following the commencement of works will be subject to a repeat of the construction bird surveys.

Monitoring will be undertaken by a suitably qualified ornithologist. The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas. Suitable hen harrier habitat will be visited, particularly in areas where hen harrier were previously recorded nesting.

If winter roosts or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and earmarked for monitoring at the beginning of the first winter or breeding season of the construction phase. If the roost/nest is found to be active during the construction phase, works will cease within a species-specific buffer of this location in line with best practice guidance (Forestry Commission Scotland, 2006; NatureScot, 2022). No works shall be permitted within the buffer until it can be demonstrated that the roost or nest is no longer occupied.

All site staff and subcontractors will be made aware of any restrictions to be imposed by means of a toolbox talk and a map of the 'no-work zone' will be made available to all construction staff. The restricted area will also be marked off to alert all personnel on site to the suspension of works within that area.

2.2 Operational Monitoring

Operational monitoring will be undertaken in Years 1, 2, 3, 5, 10 and 15 of the lifetime of the wind farm, following SNH (2009) guidance. The surveys that will be undertaken are:

- Breeding Hen Harrier Surveys
- Breeding Walkover Surveys
- Vantage Point Surveys
- Collision Monitoring Surveys
- Breeding Red-throated Diver Surveys

2.2.1 Breeding Hen Harrier Surveys

As hen harrier were confirmed breeding during surveys, Breeding Hen Harrier Surveys are proposed to monitor their response to the operating wind farm. It is proposed to conduct breeding season surveys

at potential nest sites within 2km of the nest locations identified within the Wind Farm Site during operational Years 1, 2, 3, 5, 10 and 15 of the operational lifetime. The location of the 2025 nest may be used as a starting point, and the location of future nest sites can inform future surveys.

Survey methodology should follow Hardey *et al.* (2013) or any revisions to the same. Surveys should be conducted four times over the course of the breeding season: visit 1 to establish occupancy in March to mid-April; visit 2 to establish active nests in mid-April to late-May; visit 3 to check for chicks in late May to late June; and visit 4 to check for fledglings in late June to late August. It is noted that the first visit to establish occupancy may need to be conducted at a number of locations until a potential nest site is located. Once a nest site is located, it will become the focal point for the remaining surveys.

Surveys should be conducted for 6 hours and should be during periods of peak activity (06:00-12:00 or 16:00-20:00). All hen harrier and signs of nesting should be recorded and mapped.

2.2.2 Breeding Walkover Surveys

Breeding Walkover Surveys are proposed to monitor species that were recorded breeding within proximity to or within the Wind Farm Site during surveys from September 2023 to September 2025 and their response to the operating wind farm. In particular, these include grey wagtail, kestrel, meadow pipit, snipe, buzzard, long-eared owl and sparrowhawk. Surveys are proposed during operational Years 1, 2, 3, 5, 10 and 15 of the operational lifetime.

Survey methodology should be adapted from Brown and Shepherd methodology (Brown and Shepherd, 1993; Calladine *et al.*, 2009). One visit should be conducted each month from April to July inclusive to all areas within a 500m radius of the development footprint. The surveyor should record and map all target species (species listed on Annex I of the EU Birds Directive or red-listed for breeding populations on the Birds of Conservation Concern in Ireland list). A list of non-target species encountered should also be recorded to inform supporting habitat.

2.2.3 Collision Monitoring Surveys

Carcass searches for bird casualties as a result of collision with turbines will follow survey methods broadly based on guidelines issued by the SNH (2009) and search methods adopted by Duffy and Steward (2008) and any revisions to the same. The study area will be visited once per month during operational Years 1, 2, 3, 5, 10 and 15 of the operational lifetime. During each visit, the base of each of the 19 turbines will be searched for bird carcasses. The area to be searched will be based on the turbine size and surrounding landscape. A trained dog and handler should be used to locate carcasses.

If a bird carcass is found, the following details will be recorded: GPS location of each bird carcass, photographic record, carcass condition (intact - carcass that is completely intact or not badly composed; scavenged - evidence that the carcass was fed upon by a scavenger/predator; or feather spot - ten or more feathers indicating predation or scavenging or two or more primary feathers must be present to consider the carcass a casualty), distance from the turbine, date and time.

Carcass removal trials and searcher efficiency trials will be undertaken to account for the ability of the dog to find bird carcasses and the likelihood of scavenging of carcasses by animals. This is done to ensure a more accurate estimation of the total number of collision victims. The result of these trials is a correction factor that can be applied to the results of the carcass searches.

2.2.4 Vantage Point Surveys

Vantage Point Surveys are proposed to monitor bird flight activity at the Wind Farm Site. This will provide information on bird responses to the operating wind farm as well as providing context to any carcasses found during Collision Monitoring Surveys.

Surveys should be conducted at the same vantage point locations used during pre-planning surveys (VP1-VP6) to provide comparable data. Methodology should follow NatureScot (2025) or any revisions to the same. The surveyor should conduct a 6 hour survey (including a 30 minute break after 3 hours) at each vantage point once per month. The surveyor should record and map all target species (species listed on Annex I of the EU Birds Directive or red-listed for breeding populations on the Birds of Conservation Concern in Ireland list). A list of non-target species encountered should also be recorded to inform supporting habitat.

2.2.5 Breeding Red-throated Diver Surveys

Field surveys showed that red-throated diver may be breeding in Lough Golagh and Lough Slug, and birds also travel to Loughnaweelagh. Although the Wind Farm Site was considered to be of No Ecological Importance to this species, given that red-throated diver are a rare breeding bird with a breeding range restricted to County Donegal, this presents an exclusive opportunity to monitor the local red-throated diver population in County Donegal in an area where there are wind energy developments. Therefore, it is proposed to conduct breeding season surveys at Lough Golagh and Lough Slug during operational Years 1, 2, 3, 5, 10 and 15 of the operational lifetime.

Survey methodology should follow Gilbert *et al.* (1998) or any revisions to the same. Surveys should be conducted once at the end of May/June and once in July (leaving 14 days between visits). The surveyor should select a vantage point overlooking the lough. Surveys should be conducted for 6 hours (with a 30 minute break after 3 hours) and should be during daylight. Red-throated diver, foraging flights and signs of nesting should be recorded and mapped.

2.2.6 Biodiversity Management Site Survey

Hen Harrier Activity

Hen harrier activity in the Biodiversity Management Site will be monitored during operational Years 1, 2, 3, 4, 5, 10 and 15 of the operational lifetime to understand their use of the habitat in the short and long term. Although the habitat is being enhanced principally to support the breeding hen harrier pair, hen harrier are known to use open peatland adjacent to the plots for winter hunting and roosting. Therefore, it is proposed to visit the plots once per month year-round to monitor breeding season activity, post-breeding use, and wintering activity.

The surveyor should visit each plot and undertake transect or vantage watches overlooking the area to monitor hen harrier activity. All hen harrier should be recorded and mapped, with notes on their use of the habitat.

Habitat Suitability

The suitability of the habitat in the Biodiversity Management Site for hen harrier will also be monitored during operational Years 1, 2, 3, 4 and 5. The frequency of monitoring will be reviewed at this stage and can be reduced if the habitat is in a suitable structure and condition. Given the extent of the area to cover, the total area can be covered over multiple visits, however, the all areas must be visited at least once during the period May 15th to August 31st in a given year.

Monitoring will follow the 'scorecard' approach set out by the Hen Harrier Project (<http://www.henharrierproject.ie/about.html>). Specifically, the 'Bog and Heath Scorecard' and the 'West Grassland Scorecard' can be used, with any adaptations required for the specifics of the Biodiversity Management Site.

The scorecard approach accounts for the ecological integrity of the habitat (including habitat structure and scrub structure), of hydrology (including drainage) and threats (such as invasive species, burning and other damaging activity). If a feature scores unfavourably (e.g., 'poor' for habitat structure), this will be communicated to the wind farm operator in a timely manner. Recommendations to improve the score will be made and implemented, until the feature scores favourably.

2.2.7 Summary

Table 7 - 7 - 1 summarises the proposed bird monitoring schedule for each monitoring year.

Table 7 - 7 - 1 Proposed bird monitoring schedule

Survey	Year	Period	Visits	Survey Method
Breeding Hen Harrier Survey	Operational Year 1, 2, 3, 5, 10 & 15	Mar to mid-April, mid-Apr to late-May, late May to late Jun & late Jun to late Aug	1 visit per month to potential nest sites	Vantage watch following Hardey <i>et al.</i> (2013)
Breeding Walkover Survey	Operational Year 1, 2, 3, 5, 10 & 15	Apr-Jul	1 visit per month to areas within 500m of the development footprint	Transects adapted from Brown and Shepherd (1993) and Calladine <i>et al.</i> (2009)
Vantage Point Survey	Operational Year 1, 2, 3, 5, 10 & 15	Every month	1 visit to 6 vantage points per month	Vantage point survey following NatureScot (2025)
Collision Monitoring	Operational Year 1, 2, 3, 5, 10 & 15	Every month	1 visit to each of the 19 turbines per month	Dog-led carcass searches following SNH (2009) and Duffy and Steward (2008)
Breeding Red-throated Diver Survey	Operational Year 1, 2, 3, 5, 10 & 15	May/Jun & Jul	1 visit per month to Lough Golagh and Lough Slug	Vantage watch following Gilbert <i>et al.</i> (1998)
Biodiversity Enhancement Site Survey	Operational Year 1, 2, 3, 4, 5, 10 & 15	Every month	1 visit to each of the two plots per month	Vantage watch or transect for hen harrier activity
Biodiversity Enhancement Site Survey	Operational Year 1, 2, 3, 4 & 5. Frequency of visits to be reviewed after 5 years.	May 15 th to August 31 st	visit to all areas of Parcel 1 and Parcel 2	score card for habitat suitability

2.3 Decommissioning Monitoring

It is proposed that decommissioning works will commence outside the bird nesting season (1st of March to 31st of August inclusive) to avoid the most sensitive time of the year for most bird species with the potential to use the site and its environs. Pre-commencement surveys will be undertaken within one month prior to the initiation of works at the Wind Farm Site. The surveys will aim to identify sensitive sites (e.g., nests or roosts) in proximity to works. During construction, surveys will be conducted once per month during the breeding season (April to July) and once at the start of the winter season (October). As above, these surveys will aim to identify sensitive sites for birds in proximity to works. Any requirement for construction works to run into subsequent breeding or winter seasons following the commencement of works will be subject to a repeat of the pre-construction bird surveys.

Monitoring will be undertaken by a suitably qualified ornithologist. The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas. Suitable hen harrier habitat will be visited, particularly in areas where hen harrier were previously recorded nesting during pre-planning or operational phase surveys.

If winter roosts or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and earmarked for monitoring at the beginning of the first winter or breeding season of the construction phase. If the roost/nest is found to be active during the construction phase no works shall be undertaken, works will cease within a species-specific buffer of this location in line with best practice guidance (Forestry Commission Scotland, 2006; NatureScot, 2022). No works shall be permitted within the buffer until it can be demonstrated that the roost or nest is no longer occupied.

All site staff and subcontractors will be made aware of any restrictions to be imposed by means of a toolbox talk and a map of the 'no-work zone' will be made available to all construction staff. The restricted area will also be marked off to alert all personnel on site to the suspension of works within that area.

2.4 Reporting

A report summarising the findings of bird monitoring surveys will be submitted to the Planning Authority and the National Parks and Wildlife Service at the end of each monitoring year (i.e., Year 1, 2, 3, 5, 10 and 15; and Year 4 in relation to the Biodiversity Management Site). The report will provide the results of the surveys and discuss potential impacts on birds (particularly KORs) and any recommendations that may inform additional mitigation measures during the operational phase.

2.5 Sharing Ecological Data

As a measure to support conservation research and policy, it is proposed to submit the monitoring survey data and information to the National Biodiversity Data Centre and to BirdWatch Ireland. This measure will be fulfilled within three months of each monitoring year, as relevant, in the event of a successful application. This commitment ensures the Proposed Development is contributing to the aims of Objective Four, Outcome 4B of the Ireland's 4th National Biodiversity Action Plan 2: Data relevant to biodiversity and ecosystems, including conservation needs, is widely accessible and standardised.

3.

BIBLIOGRAPHY

- Brown, A. F., and Shepherd, K. B. (1993). A method for censusing upland breeding waders. *Bird study*, 40(3), 189-195. <https://doi.org/10.1080/00063659309477182>
- Calladine, J., Garner, G., Wernham, C., and Thiel, A. (2009). The influence of survey frequency on population estimates of moorland breeding birds. *Bird Study*, 56(3), 381-388. <https://doi.org/10.1080/00063650902984604>
- Duffy, K. and Steward, M. (2008). Turbine search methods and carcass removal trials at the Braes of Doune windfarm. Natural Research Information Note 4, Natural Research Ltd, Banchory, UK.
- Forestry Commission Scotland (2006). Forest operations and birds in Scottish forests – the law and good practice. Forestry Commission Scotland, Scotland.
- Gilbert, G., Gibbons, D.W. and Evans, J. (1998) *Bird monitoring methods*. Bedfordshire, England: Pelagic Publishing, Royal Society for the protection of Birds.
- Hardey, J., Crick, H.Q.P., Wernham, C.V., Riley, H., Etheridge, B. and Thompson, D.B.A. (2013). *Raptors: a field guide for surveys and monitoring* [3rd Edition]. The Stationary Office, Edinburgh.
- NatureScot (2022). Disturbance distances review: an updated literature review of disturbance distance of selected bird species. NatureScot, Inverness, Scotland.
- NatureScot (2025). Recommended bird survey methods to inform impact assessment of onshore wind farms. Scottish Natural Heritage, Inverness, Scotland
- SNH (2009). Monitoring the impact of onshore wind farms on birds. Scottish Natural Heritage, Inverness, Scotland.