



APPENDIX 7-8

BIRD MONITORING PROGRAMME

Bird Monitoring Programme

Cooloo Wind Farm



DOCUMENT DETAILS

Client: **Neoen**

Project Title: **Cooloo Wind Farm**

Project Number: **190723-m**

Document Title: **Bird Monitoring Programme**

Document File Name: **Appendix 7-8 Bird Monitoring Programme - F - 2025.09.18 - 197023-m**

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



Rev	Status	Date	Author(s)	Approved By
01	Draft	2025.09.02	SD	PC
02	Draft	2025.09.05	SD	PC
03	Final	2025.09.18	SD	PC

Table of Contents

1.	INTRODUCTION	1
2.	METHODOLOGY	2
2.1	Construction Phase	2
2.2	Operational Phase	3
2.2.1	Prescribed Monitoring Years	3
2.2.2	Surveys	3
2.2.2.1	Vantage Point Surveys	3
2.2.2.2	Barn Owl Box Visit	4
2.2.2.3	Collision Monitoring Surveys	4
2.3	Decommissioning Phase	5
2.4	Reporting	5
3.	SUMMARY	6
4.	BIBLIOGRAPHY	7

1. INTRODUCTION

This Bird Monitoring Programme has been prepared by MKO for the Proposed Project. It has been informed by surveys undertaken from October 2019 to March 2022 and again from August 2023 to March 2025. Based on these surveys, key ornithological receptors (KORs) in the study area were identified and the potential effects of the development on these receptors during the construction, operational and decommissioning phases were assessed in the Environmental Impact Assessment Report (EIAR). This Bird Monitoring Programme was prepared based on the KORs to monitor the bird population within the study area during each development phase. The objectives of the Bird Monitoring Programme are:

- To ensure any required construction, operational and decommissioning phase surveys are scheduled to avoid impacts on birds of conservation concern;
- To record birds using the study area and their interaction with operating turbines;
- To monitor short-term and long-term effects of the Proposed Project on bird populations in the study 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) and raptors, which can be particularly susceptible to impacts from this type of development;
- To undertake collision monitoring for potential bird fatalities as a result of a collision with turbine blades;
- To report on the findings of monitoring.

Table 7 - 8 - 1 lists the KORs recorded within the study area. During field surveys, barn owl were recorded using a derelict building in the Proposed Wind Farm site. Although the significance of the effect of the removal of this building was assessed to be Very Low (Percival, 2003), enhancement measures with the objective of providing roosting structures for barn owl in this area were included in the EIAR (Chapter 7 Section 7.6). Surveys are proposed in the Bird Monitoring Programme to monitor this box. Also during field surveys, high golden plover flight activity was recorded in the turbine area and a Bird Mitigation Plan was prepared to reduce the significance of the effect of collision risk for golden plover (refer to Appendix 7-7 Bird Mitigation Plan). Surveys are proposed in the Bird Monitoring Programme that will monitor golden plover flight activity and collision rates to further inform the Bird Mitigation Plan.

Table 7 - 8 - 1 Key ornithological receptors

Species	Scientific Name	Status
Golden Plover	<i>Pluvialis apricaria</i>	Annex I & Red List (breeding & wintering)
Hen Harrier	<i>Circus cyaneus</i>	Annex I & Raptor
Merlin	<i>Falco columbarius</i>	Annex I & Raptor
Peregrine Falcon	<i>Falco peregrinus</i>	Annex I & Raptor
Whooper Swan	<i>Cygnus cygnus</i>	Annex I

Species	Scientific Name	Status
Kestrel	<i>Falco tinnunculus</i>	Red List (breeding) & Raptor
Lapwing	<i>Vanellus vanellus</i>	Red List (breeding & wintering)
Snipe	<i>Gallinago gallinago</i>	Red List (breeding & wintering)
Barn Owl	<i>Tyto alba</i>	Red List (breeding) & Raptor
Buzzard	<i>Buteo buteo</i>	Raptor
Long-eared Owl	<i>Asio otus</i>	Raptor
Sparrowhawk	<i>Accipiter nisus</i>	Raptor

2.

METHODOLOGY

This Bird Monitoring Programme consists of three discrete parts: the construction phase, operational phase and decommissioning phase. Construction and decommissioning phase monitoring will begin within one month prior to the commencement of construction or decommissioning works to avoid impacts on birds of conservation concern during the works. Operational monitoring will be conducted during prescribed monitoring years throughout the operational lifetime of the Proposed Wind Farm.

Target species during surveys will include all KORs listed in Table 7 - 8 - 1. In addition, target species will include all other waterbirds, raptors, groundfowl, and passerines/near-passerines of conservation concern¹.

2.1

Construction Phase

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 site and its environs. Pre-commencement surveys will be undertaken within one month prior to the initiation of works. The purpose of these surveys is to identify sensitive roosting sites.

If works run into the subsequent breeding season(s) (April-September), surveys will be conducted to identify sensitive nesting sites. Breeding season surveys will be conducted once per month from April to July inclusive when works are taking place. If works run into the subsequent winter season(s) (October to March), surveys will be repeated to identify sensitive roost sites. These surveys will be conducted at the beginning of each winter season (e.g., October).

Surveys will be undertaken by a suitably qualified ornithologist. The survey will comprise a thorough walkover survey of the development footprint and/or all works areas to a 500m radius, where access allows. If winter roosts or nests of birds of high conservation concern are identified, the roost/nest will be earmarked for continued monitoring during works. If the roost/nest is found to be active during

¹ Conservation concern comprises (i) species listed on Annex I of the EU Birds Directive (Directive 2009/147/EC) and (ii) species listed as Red on the Birds of Conservation Concern in Ireland.

works, works will cease within a species-specific buffer of its location in line with best practice guidance (Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007) to avoid disturbance. No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied. Aerial surveys using a drone may be used to confirm the presence or absence of roosting/nesting birds, where conditions are suitable.

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 to alert all personnel on site to the suspension of works within that area.

2.2 Operational Phase

2.2.1 Prescribed Monitoring Years

Operational monitoring will be undertaken in prescribed monitoring years during the operational lifetime of the Proposed Wind Farm. The NatureScot guidance document 'Monitoring the impact of onshore wind farms on birds' (SNH, 2009) requires that bird monitoring in wind farms should occur in years 1, 2, 3, 5, 10 and 15 after the turbines become operational. As mitigation is being undertaken at the Proposed Wind Farm site (refer to Appendix 7-7 Bird Mitigation Plan), there is an associated requirement for an increase in the frequency of monitoring surveys compared to guidance. Monitoring will be conducted continuously during the first 5 operational years. At the end of this period, the results will be reviewed and future monitoring needs and gaps will be identified to determine the frequency of monitoring in subsequent years (i.e., increased frequency or a return to the NatureScot guidance). The requirements for monitoring in subsequent years, including any decision to reduce the frequency of surveys, will be confirmed in writing with the Planning Authority and will include consultation with the National Parks and Wildlife Service, allowing an adaptive approach to monitoring.

2.2.2 Surveys

The ornithological surveys that will be undertaken during the prescribed monitoring years are listed below and the methodology is outlined in the following sections:

- Vantage point surveys;
- Barn owl box visit;
- Collision monitoring.

2.2.2.1 Vantage Point Surveys

Vantage point surveys will be undertaken to monitor flight activity within a 500m radius of the turbine positions. Surveys should be conducted from the same three fixed point vantage points as were used during pre-planning surveys. Should vantage point locations need to be moved, a viewshed analysis will be conducted to ensure there is still comprehensive coverage of the 500m radius of turbines at the new locations.

To provide comparable data before and after construction of the Proposed Wind Farm, vantage point survey methodology will be the same as used during pre-planning surveys. Survey methodology should follow SNH (2017) and any revisions to the same. The surveyor should collect data on bird observations and flight activity from the scanning arc of 180° to a 2km radius at the fixed vantage point locations for two 3-hour watches separated by a minimum 30 minute break (i.e. 6 hours total) per month. Surveys should be conducted every month and provide a minimum of 36 hours per winter or breeding season and spread over the full daylight period, including dawn and dusk watches, to coincide with the highest periods of bird activity.

Flight activity of target species will be mapped and recorded as per defined flight bands chosen in relation to the dimensions of the turbines as built: below rotor swept height, at the rotor swept height and above rotor swept height. In addition, the presence of any non-target species will be recorded to inform the evaluation of supporting habitat.

2.2.2.2 Barn Owl Box Visit

The barn owl box erected at the Proposed Wind Farm site will be visited to check its condition and occupancy. The surveyor will visit the box outside the breeding season (preferably November or December). The surveyor will check the condition of the box and note any repairs that are necessary and check that the box remains well fixed and stable. If the box requires repairs/replacement, these will be communicated to the wind farm operator to organise repairs/replacement in a timely manner, before the beginning of the next breeding season.

The surveyor will open the box to check and record signs of barn owl occupancy. As per the Barn Owl Trust guidance (Barn Owl Trust, 2025), these visits should be conducted during dry calm weather, close to dusk, in case a roosting owl is flushed.

If debris in the box is deeper than ~50mm, it should be cleared out and disposed of by the surveyor, to maintain a drop between the bottom of the access hole and the floor of the box of ~460mm. If there are any obstructions around the access hole (e.g., ivy), these should be removed. While the box is open, the surveyor should note if there are any leaks that make the inside of the box wet, and report these for repair.

2.2.2.3 Collision Monitoring Surveys

Collision monitoring will be undertaken during prescribed monitoring years at the Proposed Wind Farm site. Carcass search methodology for bird casualties as a result of collision with turbines will follow survey methods based on guidelines issued by SNH (2009) and search methods adopted by Duffy and Steward (2008).

All turbines will be visited once per month. As collision risk mitigation is being undertaken, there is an associated requirement for an increase in the frequency of collision monitoring surveys compared to guidance. Because of this, turbines within the mitigation area (i.e., T1) will be visited twice per month during the winter season (October to March inclusive) because these have the highest potential collision risk.

During each visit, the base of each operating turbine will be searched for bird carcasses. The area to be searched will be based on the turbine size and the 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. During carcass removal trials, a carcass is placed in a study area periodically and is monitored for a set number of days or until scavengers remove the carcass. A determination on carcass removal is made when no body parts containing flesh or bone or >10 disarticulated feathers can be found. During searcher efficiency trials, a number of carcasses are placed in a study area by a person, then searched for by the dog. The result of these trials is a correction factor that can be applied to the results of the carcass searches.

2.3 Decommissioning Phase

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. The purpose of these surveys is to identify sensitive roosting sites.

If works run into the subsequent breeding season(s) (April-September), surveys will be conducted to identify sensitive nesting sites. Breeding season surveys will be conducted once per month from April to July inclusive when works are taking place. If works run into the subsequent winter season(s) (October to March), surveys will be repeated to identify sensitive roost sites. These surveys will be conducted at the beginning of each winter season (e.g., October).

Surveys will be undertaken by a suitably qualified ornithologist. The survey will comprise a thorough walkover survey of the development footprint and/or all works areas to a 500m radius, where access allows. If winter roosts or nests of birds of high conservation concern are identified, the roost/nest will be earmarked for continued monitoring during works. If the roost/nest is found to be active during works, works will cease within a species-specific buffer of its location in line with best practice guidance (Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007) to avoid disturbance. No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied. Aerial surveys using a drone may be used to confirm the presence or absence of birds, where conditions are suitable.

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 to alert all personnel on site to the suspension of works within that area.

2.4 Reporting

A report summarising the findings of vantage point, barn owl box and collision monitoring surveys will be submitted to the Planning Authority and the National Parks and Wildlife Service at the end of each prescribed monitoring year.

Survey results should be presented in a manner that allows a comparison of bird activity before and after the construction and commissioning of the turbines, so that short and long term effects on birds can be monitored. To facilitate this, the wind farm operator should make the results of previous surveys available. The current year's findings should be compared to previous monitoring and pre-planning surveys to understand patterns and trends.

The report will discuss potential impacts on birds (particularly KORs) and any recommendations that may inform additional mitigation measures during the operational phase of the Proposed Wind Farm. This report will also include the findings of the Bird Mitigation Plan (Appendix 7-7), including field inspections, adherence to the Bird Mitigation plan actions and any additional associated recommendations. If golden plover carcasses are found during surveys, the significance of the effect on the county population will be evaluated and any necessary recommendations made.

3.

SUMMARY

Table 7 - 8 - 2 summarises the measures required for the Bird Monitoring Programme. The prescribed monitoring years are outlined in Section 2.2.1.

Table 7 - 8 - 2 Measures for the Bird Monitoring Programme

Phase	Measure	Timeframe	Method	Quantity
Construction	Pre-commencement and construction walkover surveys	Prior to the beginning of and during construction works	Walkover throughout the works area to a 500m radius	1 visit prior to works beginning and additional visits as required during works
Operation	Vantage Point Survey	Prescribed monitoring years	6 hour vantage point surveys at 3 vantage point locations	1 visit per month every month
Operation	Barn owl box visit	Prescribed monitoring years	Condition and occupancy check	1 visit in November/December
Operation	Collision Monitoring	Prescribed monitoring years	Dog-led carcass searches at all turbine bases	April-September: 1 visit per month to all turbines. October-March: 2 visits per month to T1 and 1 visit per month to T2-9.
Operation	Report	Prescribed monitoring years	Report to be issued to Planning Authority and National Parks and Wildlife Service	1 report at the end of each prescribed monitoring year
Decommissioning	Pre-commencement and decommissioning walkover surveys	Prior to the beginning of and during decommissioning works	Walkover throughout the works area to a 500m radius	1 visit prior to works beginning and additional visits as required during works

4.

BIBLIOGRAPHY

Barn Owl Trust (2025) Nestboxes. Available at: <https://www.barnowltrust.org.uk/nestboxes/>

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.

Goodship, N.M. and Furness, R.W. (2022). Disturbance distances review: an updated literature review of disturbance distance of selected bird species. NatureScot Research Report 1283, Inverness, Scotland.

Ruddock, M. and Whitfield, D. P. (2007). A review of disturbance distances in selected bird species. Natural Research, Banchory, UK.

SNH (2009). Monitoring the impact of onshore wind farms on birds. Scottish Natural Heritage, Inverness, Scotland.

SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Scottish Natural Heritage, Inverness, Scotland