

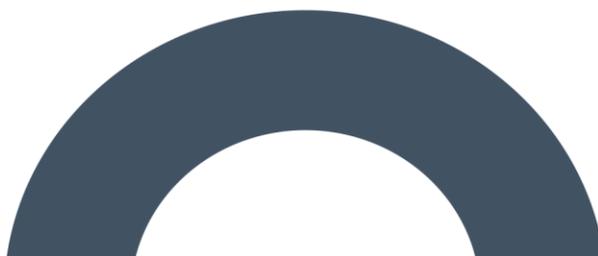


APPENDIX 7-6

BIRD MONITORING PROGRAMME

Appendix 7-6 – Post- Construction Monitoring Programme

Coole Wind Farm
Development, Co.
Westmeath





DOCUMENT DETAILS

Client: **Coole Wind Farm Ltd**

Project Title: **Coole Wind Farm Development, Co. Westmeath**

Project Number: **200445**

Document Title: **Appendix 7-6 – Bird Monitoring Programme**

Document File Name: **Ch7 BMP F – 2021.03.11 – 200445**

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



Rev	Status	Date	Author(s)	Approved By
01	Draft	05/11/2020	MP	PC
02	Draft	17/12/2020	MP	PC
03	Final	15/03/2021	MP	PC

Table of Contents

1.	INTRODUCTION	1
	1.1 Key Ornithological Receptors and Birds of Conservation Concern	1
	1.2 Objectives.....	1
2.	METHODOLOGY	1
	2.1 Commencement and Pre-construction Bird Monitoring	1
	2.2 Post-construction Bird Monitoring.....	1
3.	TIMEFRAME OF PROPOSED MONITORING WORKS.....	1
4.	REPORTING	2
	BIBLIOGRAPHY.....	3

TABLE OF TABLES

<i>Table 1-1 Key Ornithological Receptors identified during field surveys undertaken at Coole Wind Farm Site.....</i>	<i>1</i>
<i>Table 3-1 Proposed bird monitoring work schedule for each monitoring year at Coole Wind Farm.....</i>	<i>1</i>

1. INTRODUCTION

This Bird Monitoring Programme has been prepared by MKO for the proposed Coole Wind Farm, Co. Westmeath.

This document provides a timeframe and monitoring schedule for the bird population of the study area during the construction and post-construction phase of the project. Breeding and wintering bird surveys were undertaken during the periods October 2015-September 2017 and April 2018-March 2020 (core data set) encompassing four full breeding seasons and four full winter seasons, as well as autumn and spring migration periods, in line with SNH guidance on recommended bird survey methods to inform impact assessment for onshore wind energy developments (SNH, 2017). The surveys undertaken to date have informed the various proposed bird monitoring measures outlined in this document.

1.1 Key Ornithological Receptors and Birds of Conservation Concern

Table 1-1 lists the Key Ornithological Receptors recorded within the study area during field surveys.

Table 1-1 Key Ornithological Receptors identified during field surveys undertaken at Coole Wind Farm Site

Common Name	Latin Name	Conservation Status
Whooper Swan	<i>Cygnus cygnus</i>	Annex I; EU Birds Directive
Greenland White-fronted Goose	<i>Anser albifrons flavirostris</i>	Annex I; EU Birds Directive
Golden Plover	<i>Pluvialis apricaria</i>	Annex I; EU Birds Directive
Merlin	<i>Falco columbarius</i>	Annex I; EU Birds Directive
Peregrine Falcon	<i>Falco peregrinus</i>	Annex I; EU Birds Directive
Osprey	<i>Pandion haliaetus</i>	Annex I; EU Birds Directive
Red Kite	<i>Milvus milvus</i>	Annex I; EU Birds Directive
Wigeon	<i>Anas penelope</i>	BoCCI Red List & Irish Wildlife Act
Teal	<i>Anas crecca</i>	BoCCI Red List & Irish Wildlife Act
Black-headed Gull	<i>Larus ridibundus</i>	BoCCI Red List & Irish Wildlife Act
Lapwing	<i>Vanellus vanellus</i>	BoCCI Red List & Irish Wildlife Act
Woodcock	<i>Scolopax rusticola</i>	BoCCI Red List & Irish Wildlife Act
Barn Owl	<i>Tyto alba</i>	BoCCI Red List & Irish Wildlife Act
Long-eared Owl	<i>Asio otus</i>	Raptor Species; Schedule 4 of the Wildlife Act 1976
Buzzard	<i>Buteo buteo</i>	Raptor Species; Schedule 4 of the Wildlife Act 1976
Sparrowhawk	<i>Accipiter nisus</i>	Raptor Species; Schedule 4 of the Wildlife Act 1976
Kestrel	<i>Falco tinnunculus</i>	Raptor Species; Schedule 4 of the Wildlife Act 1976
Common Snipe	<i>Gallinago gallinago</i>	BoCCI Amber-Listed

1.2 Objectives

This document has been prepared having regard to the following objectives:

- To ensure any required pre-commencement/pre-construction phase monitoring is scheduled to ensure any impacts on KOR and/or birds of conservation concern are avoided.
- To record usage of the site by birds and interaction with operating turbines during the post-construction phase of the development.
- To monitor short-term and long-term effects on bird populations with a particular emphasis on wintering and breeding birds deemed to be of high conservation concern (Annex I; EU Birds Directive and BoCCI Red List species).
- To undertake collision monitoring and corpse searches for potential bird fatalities as a result of collision with turbine blades.
- To report on findings of post-construction monitoring at the end of each monitoring year (Year 1, 2, 3, 5, 10 & 15 of the life-time of the wind farm).

2. METHODOLOGY

2.1 Commencement and Pre-construction Bird Monitoring

Pre-commencement surveys will be undertaken prior to the initiation of works at the wind farm.

The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas, where access allows. In the specific case of the identified lapwing breeding sites and probable barn owl nest, these would be visited (pre-construction) on a minimum of three occasions during the breeding season to confirm their continued occupancy.

If winter roost sites 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 season or breeding season (respectively) of the construction phase. If it is found to be active during the construction phase no works shall be undertaken within a disturbance buffer (Forestry Commission Scotland, 2006; Ruddock & Whitfield, 2007) in line with best practise. 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 using hazard-tape fencing to alert all personnel on site to the suspension of works within that area.

2.2 Post-construction Bird Monitoring

Survey methods employed for post-construction monitoring will be in line with guidelines issued by the Scottish Natural Heritage (SNH, 2009). Post-construction monitoring will be undertaken in Years 1, 2, 3, 5, 10 and 15 of the life-time of the wind farm.

Post-construction monitoring will include vantage point surveys and a programme of regular corpse searching of birds that may potentially collide with operating turbines during the operational phase of the wind farm project.

Bird monitoring will include the following survey methods:

- Flight activity surveys: vantage point surveys.
- Breeding bird walkover survey: adapted Brown and Shepherd.
- Targeted bird collision surveys (corpse searches): the surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust.

Vantage Point Surveys

Vantage point surveys will be undertaken monthly between January and December during operational years 1, 2, 3, 5, 10 and 15 of the life-time of the wind farm. The methodology for vantage point watches will follow guidelines issued by the SNH (2009) and SNH (2017). The proposed vantage point watches will adhere to a minimum of 36 hours/VP per season as per guidelines issued by SNH. Monthly visits will be undertaken throughout the year. During each visit, six-hour vantage point watches will be undertaken from each fixed vantage point location that offers an un-interrupted view of the study area. Vantage points will be undertaken from the same locations that pre-planning surveys which informed the EIAR application of the proposed development (i.e. VPs 3, 4 and 5). Vantage point surveys will be timed to provide a spread over the full daylight period including dawn and dusk watches to coincide

with the highest periods of bird activity. Behavioural categories for the observation of bird interactions with operational wind farms will be in line with terminology outlined by Meredith et al. (2002). All breeding or non-breeding observations will be recorded, with a particular emphasis on wintering populations, e.g. whooper swan or golden plover.

Breeding Bird Walkover Surveys

Survey methodology will be similar to methods employed for baseline EIAR surveys which will allow a comparison of data to be made for each monitoring year.

During Adapted Brown & Shepherd surveys, particular attention will be paid to breeding waders (e.g. lapwing), although all bird species and breeding activity will be recorded. The standard approach for surveying breeding waders is outlined in Brown and Shepherd (1993) and Gilbert et al. (1998). On site surveys will consist of the surveyors walking a route that will ensure all suitable habitat types on site and to a 500m radius from the development/planning boundary is visited (where access allows). Four visits will be schemed to coincide with the core survey period April – July during monitoring years. Notes will be recorded on nesting and territorial behaviour and breeding signs using standard BTO codes. Non-breeding behaviour such as birds flying over the site will also be recorded.

Collision Searches (Bird Casualties)

Surveys for bird casualties will follow survey methods broadly based on guidelines issued by the Scottish Natural Heritage (2009) and search methods adopted by Duffy & Steward, 'Turbine Search Methods and Carcass Removal Trials at the Braes of Doune Windfarm' (Natural Research Information Note 4. Natural Research Ltd, Banchory, UK, 2008).

It is proposed to undertake a minimum of one visit per month during each survey year. During each visit, searches will be undertaken at each operating turbine location by a team of two surveyors. A plot measuring 130m x 130m from the centre of each turbine location will be the subject of target searches for bird casualties. Searches will incorporate the use of transects spaced at 10m intervals apart with the observer covering 5m on either side for each transect. Locations and coordinates of transect routes will be confirmed using a portable GPS recording device. Recording sheets will be used to document bird carcasses encountered in the field.

Alternatively, a trained dog and handler may be used where possible to locate any carcasses.

The following details will be considered during field surveys: 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 location, date, time, etc.

Corpse searching work will be calibrated to account for the ability to find bird corpses and likelihood of scavenging of corpses by animals. This will ensure a more accurate estimation of the total number of collision victims. To allow for this, sample bird corpses of various bird sizes will be placed within the various habitats found within proximity of the turbine locations. Carcasses will be left out in the trial areas by one worker and searched for by another two days later. A 36-hour period between laying carcasses and searching for them will help to prevent disturbance from discouraging scavengers from attending the trial plots. The locations of all carcasses will be logged using GPS by the layer and the finder. Any signs of scavenging will be recorded. Birds will be left in place for a further two weeks before a further examination will occur in order to determine further predation levels. The level of scavenging which occurs will then be used to help calibrate the detection rate and estimate a likely percentage of collisions that may be removed by scavengers between searches.

Results of bird casualties will be issued in a final report at the end of each monitoring year.

3. TIMEFRAME OF PROPOSED MONITORING WORKS

It is proposed to undertake bird monitoring surveys during years 1, 2, 3, 5, 10 & 15 of the wind farm operation.

Table 3-1 below describes the proposed bird monitoring work schedule for each monitoring year for the proposed wind farm development.

Table 3-1 Proposed bird monitoring work schedule for each monitoring year at Cooler Wind Farm

Survey Type	Phase	Period	No. of Visits	Survey Method
Vantage Point Surveys	Year 1, 2, 3, 5, 10 & 15	January - December	1 visit/ VP/ month for each monitoring year	Three fixed, 6-hour, Vantage Point Surveys
Breeding Bird Surveys	Year 1, 2, 3, 5, 10 & 15	April to July	4 visits / monitoring year	Adapted Brown & Shepherd Survey
Corpse Searches (Bird Casualties)	Year 1, 2, 3, 5, 10 & 15	January - December	1 visit/month for each monitoring year	Targeted corpse searches at turbine bases

4. **REPORTING**

A report summarising the findings of the bird monitoring surveys will be submitted to the Planning Authority, at the end of each monitoring year. This will provide details of the various methods employed, the results of field surveys (vantage point watches and corpse searches), potential effects/impacts on birds and any recommendations that may inform additional mitigation measures during the operational phase of the wind farm project.

Maps outlining flight lines of key target species will be produced using GIS software applications to accompany the final report at the end of each monitoring year.

BIBLIOGRAPHY

Bibby, C.J., Burgess, N.D. & Hill, D.A. & Mustoe, S. (2000) *Bird Census Techniques (Second edition)*. Academic Press, London.

Colhoun K. & Cummins S. 2013. Birds of Conservation Concern in Ireland 2014-2019. *Irish Birds* (9) p523-544

Duffy, K. & 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.

Gilbert, G., Gibbons, D.W. & Evans, J. (1998) *Bird Monitoring Methods*. RSPB, Sandy.

Hardey, J., Crick, H., Wernham, C., Riley, H. & Thompson, D. (2009): *Raptors: a field guide to survey and monitoring*. 2nd Edition Edinburgh: The Stationery Office.

Meredith, C., Venosta, M. & Resson, R. 2002. Cordington *Wind Farm Avian Avoidance Behaviour Report 2002*. Biosis Research Project.

Scottish Natural Heritage, 2009. *Monitoring the Impact of Onshore Wind Farms on Birds*. Scottish Natural Heritage.

Scottish Natural Heritage, 2017. *Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms*. Scottish Natural Heritage.