



APPENDIX 7-7

BIRD MONITORING PROGRAMME

Table of Contents

1.	INTRODUCTION	1
1.1	Background	1
1.2	Key Ornithological Receptors	1
2.	METHODOLOGY	3
2.1	Breeding Dunlin Surveys	3
2.2	Breeding Red Grouse Surveys.....	3
2.3	Breeding Walkover Surveys	4
2.4	Winter Walkover Surveys.....	4
2.5	Collision Monitoring	4
2.6	Fallen Animal Removal	5
2.7	Summary	5
2.8	Reporting	6
2.9	Sharing Ecological Data	6
3.	BIBLIOGRAPHY	7

1. INTRODUCTION

1.1 Background

This Bird Monitoring Programme has been prepared by MKO for Crumhach Wind Farm. It provides a timeframe and monitoring schedule for the bird population in the Proposed Wind Farm during the operational phase of the project, informed by surveys undertaken to date. Bird surveys were undertaken from May 2021 to March 2025. Key ornithological receptors (KORs) in the Proposed Wind Farm were identified based on these surveys.

The objectives of the Bird Monitoring Programme are:

- › To record birds using the Proposed Wind Farm and the surrounds and their interaction with operating turbines
- › To monitor short-term and long-term effects on bird populations in the Proposed Wind Farm, 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 breeding dunlin activity in peatland west of the Proposed Wind Farm and bird activity in the Easky Bog Ramsar site adjacent to the Proposed Wind Farm.
- › To remove fallen animals from the Proposed Wind Farm to reduce the likelihood of white-tailed eagle being attracted to the Proposed Wind Farm.
- › To report on the findings of monitoring at the end of Years 1, 2, 3, 5, 10 and 15 of the extended operational life of the Proposed Wind Farm.

1.2 Key Ornithological Receptors

Table 7 - 7 - 1 lists the KORs recorded within the Proposed Wind Farm during surveys conducted from May 2021 to March 2025 inclusive. These species form the basis of the Bird Monitoring Programme.

Table 7 - 7 - 1 Key ornithological receptors identified during surveys

Species	Scientific Name	Conservation Status
White-tailed eagle	<i>Haliaeetus albicilla</i>	Annex I of Birds Directive, Red List
Dunlin	<i>Calidris alpina</i>	Annex I of Birds Directive, Red List with respect to breeding and wintering populations
Golden plover	<i>Pluvialis apricaria</i>	Annex I of Birds Directive, Red List with respect to breeding and wintering populations
Hen harrier	<i>Circus cyaneus</i>	Annex I of Birds Directive
Merlin	<i>Falco columbarius</i>	Annex I of Birds Directive
Peregrine falcon	<i>Falco peregrinus</i>	Annex I of Birds Directive

Species	Scientific Name	Conservation Status
Whooper swan	<i>Cygnus cygnus</i>	Annex I of Birds Directive
Kestrel	<i>Falco tinnunculus</i>	Red List with respect to breeding population
Red grouse	<i>Lagopus scotica</i>	Red List with respect to breeding population
Snipe	<i>Gallinago gallinago</i>	Red List with respect to breeding and wintering populations
Woodcock	<i>Scolopax rusticola</i>	Red List with respect to breeding population
Buzzard	<i>Buteo buteo</i>	Green List
Sparrowhawk	<i>Accipiter nisus</i>	Green List

2. METHODOLOGY

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

- Breeding dunlin surveys (in the areas where breeding dunlin territories were recorded)
- Breeding red grouse surveys (in bog habitat across the Proposed Wind Farm)
- Breeding walkover surveys (within 500m of infrastructure)
- Winter walkover surveys (within 500m of infrastructure)
- Collision monitoring
- Fallen animal monitoring and removal

2.1 Breeding Dunlin Surveys

Breeding dunlin surveys will be undertaken to establish whether the species is breeding in the area. The objective of the survey is to provide information on dunlin use of the peatland area west of the Proposed Wind Farm for breeding after construction of the Proposed Wind Farm that can be compared to their breeding activity in pre-planning data.

Pre-planning findings should inform the locations of the breeding dunlin surveys based on the breeding dunlin territories identified. The methodology will be based on Brown and Shepherd (1993). Breeding dunlin surveys will be conducted in daylight over two visits. The first visit should occur between early April and mid-May, the second visit should be between mid-May and late June. Surveyors will walk a route within 500m X 500m quadrats covering all suitable breeding dunlin habitat in the vicinity of the identified territories (where access allows). Surveyors should spend approximately 20-25 minutes in each 500m x 500m quadrat. Using binoculars, the surveyor will regularly scan the surroundings of each transect for breeding dunlin. All dunlin will be mapped and breeding status will be assigned following British Trust for Ornithology (BTO) breeding status codes (<https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence>) and the following details should be provided for each map reference: time, transect number, number of birds detected and behaviour and habitat.

2.2 Breeding Red Grouse Surveys

Breeding red grouse surveys will be undertaken to establish whether this species is breeding in the Proposed Wind Farm. The objective of the surveys is to provide information on red grouse use of the Proposed Wind Farm for breeding after construction of the Proposed Wind Farm that can be compared to their breeding activity in pre-planning data.

Pre-planning surveys should inform the locations of the breeding red grouse surveys. Methodology should follow the National Red Grouse Survey method (Cummins *et al.*, 2010). The surveyor should walk transects 150m apart throughout suitable bog and heath habitat within 500m of any Proposed Turbine, where access allows. Along the transect, the surveyor should stop every 100m to broadcast the lure for a maximum of 30 seconds and listen and watch for a response.

If a response from a red grouse occurs after a broadcast, the surveyor should map the location of the red grouse on a map and the following details should be provided: time, transect number, number of birds detected, breeding activity and behaviour (including which one of the four responses to the broadcast occurred) and habitat (and secondary and tertiary habitat if necessary). During the survey,

the surveyor also should record any indicators of red grouse (e.g., feathers and droppings). Red grouse tape and lure surveys are conducted under a National Parks and Wildlife Service (NPWS) license.

2.3 Breeding Walkover Surveys

Breeding walkover surveys will be undertaken to determine possible, probable or confirmed breeding bird activity within a 500m radius of all built infrastructure and the BMEP area (which includes sections of the Easky Bog Ramsar Site). The objective of the survey is to provide information on bird use of the Proposed Wind Farm and immediate surrounds for breeding after construction that can be compared to their breeding activity in pre-planning data.

The methodology will be based on Brown and Shepherd (1993). Breeding walkover surveys will be conducted in daylight over four visits during the core breeding season months April to July.

Surveyors will walk a route within quadrats which will have been selected to survey all suitable breeding habitat types within a 500m radius of all built infrastructure and the BMEP area (where access allows). Surveyors should spend approximately 20-25 minutes in each 500m x 500m quadrat. Transect routes will be walked across different habitat complexes. Using binoculars, the surveyor will regularly scan the surroundings of each transect for target species. All target species will be mapped and breeding status will be assigned following BTO breeding status codes (<https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence>) and the following details should be provided for: time, transect number, number of birds detected and behaviour and habitat. In addition, the presence of any non-target species will be recorded to inform the evaluation of supporting habitat.

2.4 Winter Walkover Surveys

Winter walkover surveys will be undertaken to record the presence of bird species within a 500m radius of all built infrastructure and the BMEP area (which includes sections of the Easky Bog Ramsar Site). The objective of the survey is to provide information on bird use of the Proposed Wind Farm and immediate surrounds during the winter after construction that can be compared to their activity in pre-planning data.

The methodology will be adapted from the breeding walkover methodology outlined in Brown and Shepherd (1993). Winter walkover surveys will be conducted in daylight hours over four visits between October and March.

Surveyors will walk a route across different habitat complexes within a 500m radius of all built infrastructure and the BMEP area (where access allows). Using binoculars, the surveyor will regularly scan the surroundings of each transect for target species. All target species will be recorded and mapped, and the following details should be provided: time, transect number, number of birds detected and behaviour and habitat. In addition, the presence of any non-target species will be recorded to inform the evaluation of supporting habitat.

2.5 Collision Monitoring

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; or any revisions to the same). The Proposed Wind Farm will be visited once per month during operational Years 1, 2, 3, 5, 10 and 5 of the lifetime of the Proposed Wind Farm. 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 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 searcher to find bird carcass and the likelihood of scavenging of carcass 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 Proposed Wind Farm 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 Proposed Wind Farm by one worker, then searched for by the carcass searcher later. The result of these trials is a correction factor that can be applied to the results of the carcass searches.

2.6 Fallen Animal Removal

Fallen animal carcasses will be removed from the Proposed Wind Farm to reduce the likelihood of white-tailed eagle being attracted to the Proposed Wind Farm. The removal of fallen animal carcasses should be conducted throughout the lifetime of the Proposed Wind Farm to make the Proposed Wind Farm less attractive to eagles. The site manager will walk/drive transects of the Proposed Wind Farm including all area between turbines and to a buffer of a minimum of 100m outside the outer most turbine. In addition, the surveys may be supplemented by a drone flight with associated high-quality imagery, which would assist in surveying concealed areas of the Proposed Wind Farm.

2.7 Summary

Table 7 - 7 - 2 summarises the proposed bird monitoring schedule for each monitoring year. Depending on the findings of these surveys, the efforts and methodologies may be revised in agreement with the Planning Authority.

Table 7 - 7 - 2 Proposed bird monitoring schedule

Survey	Year	Period	Visits	Survey Method
Breeding dunlin surveys	Operational years 1, 2, 3, 5, 10 and 15	Twice between April and June	2 visits per year to known breeding dunlin territories	Transects following Brown and Shepherd (1993)
Breeding red grouse surveys	Operational years 1, 2, 3, 5, 10 and 15	Between January and March	Once per year	Tape-lure surveys, following Cummins <i>et al.</i> (2010).
Breeding walkover surveys	Operational years 1, 2, 3, 5, 10 and 15	4 times between April and July inclusive	4 visits per year	Transects route walked following Brown and Shepherd (1993)
Winter walkover surveys	Operational years 1, 2, 3, 5, 10 and 15	4 times between October and	4 visits per year	Transects route walked adapted from Brown and Shepherd (1993)

Survey	Year	Period	Visits	Survey Method
		March inclusive		
Collision monitoring	Operational years 1, 2, 3, 5, 10 and 15	Each month of the year	Once monthly to each turbine	Surveys following Duffy and Steward (2008)
Fallen animal removal	Lifetime	-	-	Following the appropriate carcass removal protocols for the jurisdiction

2.8

Reporting

A report summarising the findings of bird monitoring surveys will be submitted to the Planning Authority and NPWS at the end of each monitoring year (i.e., Year 1, 2, 3, 5, 10 and 15). 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 of the Proposed Wind Farm.

2.9

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 (NBDC) and to BirdWatch Ireland on relevant ecological records, for example, information on the location of breeding territories and nest sites of bird species of conservation concern (e.g., Red-List Species as per the most recent BoCCI). The submission of the data will follow relevant standards and will be provided in the preferred NBDC excel template. 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 project is contributing to the aims of Objective Four, Outcome 4B of the Ireland's 4th National Biodiversity Action Plan2: Data relevant to biodiversity and ecosystems, including conservation needs, is widely accessible and standardised.

3.

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