APPENDIX 7-7

BIRD MONITORING PROGRAMME

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1. INTRODUCTION

1.1 Background

This Bird Monitoring Programme has been prepared by MKO for the proposed Ballydermot Wind Farm (i.e. the Proposed Project). It provides a timeframe and monitoring schedule for the bird population at the Proposed Wind Farm during the operational phase of the project, informed by surveys undertaken to date. Bird surveys were undertaken from April 2020 to March 2026. Key ornithological receptors (KORs) in the Core Ornithology Study Area were identified based on these surveys. These surveys were in line with NatureScot Guidance entitled: '*Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms*' (NatureScot, 2025).

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 Core Ornithology Study Area and their interaction with operating turbines
- To monitor short-term and long-term effects on bird populations in the Core Ornithology 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).
- To undertake collision monitoring for potential bird fatalities as a result of a collision with turbine blades.
- To ensure that the mitigation and enhancement measures are implemented in full and are functioning efficiently. This will inform any alterations or improvements required to the Proposed Enhancement Areas
- To report on the findings of monitoring annually 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

Table 7 - 7 - 1 lists the key ornithological receptors recorded within the Core Ornithology Survey Area during surveys conducted from April 2020 to March 2026 inclusive. These species form the basis of the Bird Monitoring Programme.

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

Species	Latin name	Conservation Status
Golden Plover	*Pluvialis apricaria*	Annex I EU Birds Directive & BoCCI Red Listed (Breeding and Wintering Populations)
Greenland White-fronted Goose	*Anser albifrons flavirostris*	Annex I EU Birds Directive
Hen Harrier	*Circus cyaneus*	Annex I EU Birds Directive
Kingfisher	*Alcedo atthis*	Annex I EU Birds Directive & SCI of River Boyne and River Blackwater SPA
Little Egret	*Egretta garzetta*	Annex I EU Birds Directive
Merlin	*Falco columbarius*	Annex I EU Birds Directive
Peregrine	*Falco peregrinus*	Annex I EU Birds Directive
Whooper Swan	*Cygnus cygnus*	Annex I EU Birds Directive

Species	Latin name	Conservation Status
Lesser Black-backed Gull	*Larus fuscus*	SCI of the Poulaphouca Reservoir SPA
Barn Owl	*Tyto alba*	BoCCI Red Listed
Curlew	*Numenius arquata*	BoCCI Red Listed
Kestrel	*Falco tinnunculus*	BoCCI Red Listed
Lapwing	*Vanellus vanellus*	BoCCI Red Listed (Breeding & Wintering Populations)
Snipe	*Gallinago gallinago*	BoCCI Red Listed (Breeding & Wintering Populations)
Woodcock	*Scolopax rusticola*	BoCCI Red Listed (Breeding Population)
Buzzard	*Buteo buteo*	Species sensitive to wind farm developments (Raptor Species)
Long-eared Owl	*Asio otus*	Species sensitive to wind farm developments (Raptor Species)
Sparrowhawk	*Accipiter nisus*	Species sensitive to wind farm developments (Raptor Species)

2. METHODOLOGY

This Bird Monitoring Programme consists of three discrete parts: the pre-construction/construction phase, operational phase and decommissioning phase. Construction and decommissioning phase monitoring will begin one month before 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. In addition, annual bird monitoring of the Proposed Enhancement Areas (Scrub Mosaic Creation Area, Lodge Bog enhancement areas and Killina Bog offsetting area) is also proposed and will inform the adaptive management strategy for these three areas.

Target species during surveys will include all key ornithological receptors listed in Table 7 - 7 - 1. In addition, target species will include all other waterbirds, raptors, ground fowl, and passerines/near-passerines of conservation concern.

2.1 Pre-construction Monitoring

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 Project Site and its environs. Works are defined as the clearing of woody vegetation and construction works. Pre-commencement surveys will be undertaken within one month prior to the initiation of any construction works within the Proposed Wind Farm site, as described below. 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 March 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) and continue if evidence of roosting of birds of conservation concern are observed.

Surveys will be undertaken by a suitably qualified ornithologist. The survey will comprise a thorough walkover survey of the Proposed Project 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 are 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; NatureScot, 2022) to avoid disturbance. No works will be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied. Aerial surveys using a drone will be used to confirm the presence or absence of roosting/nesting birds (subject to the appropriate license, if required), 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 Monitoring

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 Proposed Turbines become operational. However, as enhancement

is being undertaken at the Proposed Wind Farm (refer to Appendix 6-5 Biodiversity Management Plan (BMP)), there is an associated requirement for an increase in the frequency of monitoring surveys compared to guidance, to ensure that there is an adaptive management approach to enhancement and for the purposes of monitoring for curtailment. Monitoring will be conducted annually at the Proposed Wind Farm site, including the Proposed Enhancement Areas at Lodge Bog and Killina Bog. Any future 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 (NPWS), allowing an adaptive approach to monitoring.

2.2.1 Surveys

The ornithological surveys that will be undertaken during each operational year are listed below and the methodology is outlined in the following sections:

- Wind Farm Surveys
  - Vantage Point Surveys
  - Targeted bird collision surveys (corpse searches) will be undertaken by a trained dog and handler. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust.
  - Scrub Mosaic Area Vegetation Surveys
- Lodge Bog Enhancement Area Monitoring
  - Breeding Wader Census Surveys
  - Wintering Golden Plover Vantage Point Surveys
  - Winter swan roost surveys
  - Vegetation Surveys
  - Predator-Proof Fence Inspections
- Killina Bog Offsetting Area Monitoring
  - Wintering Golden Plover Vantage Point Surveys
  - Vegetation Surveys
- Nest Box Monitoring (Various Species)

2.2.2 Proposed Wind Farm

2.2.2.1 Vantage Point Surveys

Vantage point surveys will be undertaken monthly during in years 1, 2, 3, 4, 5, 10 and 15 of the Proposed Project. Additionally, these surveys will be undertaken in winter (October to March) in all other operational years to monitor the usage of the site by golden plover to inform adaptive management and curtailment as set out in Appendix 6-5. The methodology for vantage point watches will follow guidelines issued by the SNH (2009) and NatureScot (2025). The proposed vantage point watches will adhere to a minimum of 36 hours per vantage point per season as per guidelines issued by NatureScot. Monthly visits will be undertaken for 12 consecutive months in years 1, 2, 3, 4, 5, 10 and 15, with surveys commencing at the start of the breeding season (April) or the start of the winter season (October), and monthly for six consecutive months in all other monitoring years, with surveys commencing at the start of the winter season (October). 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 Proposed Turbines.

Vantage points will be undertaken from the same locations that pre-planning surveys which informed the EIAR application of the Proposed Project at vantage point locations which have Proposed Turbines within the viewshed (i.e. VP1, VP2, VP3, VP7, VP8, VP9, VP10, VP11, VP12, VP13, VP14, VP15, VP16). The adequacy of the vantage point viewsheds will be monitored throughout the lifetime of the Proposed Wind Farm, with vantage points locations being adjusted as required. A viewshed analysis will be carried out every two years to ensure adequate coverage of the Proposed Turbines is still being

achieved. 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).

2.2.2.2 Collision Monitoring

Carcass searches for bird casualties as a result of collision with Proposed Turbines will follow survey methods broadly based on guidelines issued by the SNH (2009) and search methods adopted by Duffy and Steward (2008). Each of the Proposed Turbines will be visited twice per month during the operational phase for 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 will be used to locate carcasses. Edkins (2014) recommends the *"search width should be equal to the maximum rotor tip height*". Given a turbine rotor tip height of 200 and 220 meters the search area surrounding the base of the turbine would be taken as a radius of 100 or 110 meters centred on the turbine base. This area 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.

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 one worker, then searched for by the dog later. The result of these trials is a correction factor that can be applied to the results of the carcass searches. The results of the corrected fatality estimated will be presented within the operational monitoring reports for each monitoring year.

2.2.2.2.1 *Golden Plover Collision Analysis/Curtailment*

During each winter of the operational phase, the number of golden plover casualties from collision at the proposed wind farm will be closely monitored. Flight activity of these species will also be monitored through the vantage point surveys. If the number of golden plover collisions during the winter/passage period (September to April) is above the threshold of 10 golden plover (please see Chapter 7, Section 7.6.4.1 for further details), curtailment of the Proposed Turbines will be implemented immediately. The turbine, or turbines, which led to the high number of golden plover collisions will be curtailed for the remainder of the winter season, until the start of the following May when the majority of large flocks of golden plover will have left the Proposed Wind Farm site.

2.2.2.3 Scrub Mosaic Creation Area

The scrub mosaic creation areas proposed within 250m of the Proposed Turbines will be monitored every year for five years after these measures have been implemented (i.e. during the construction phase and the beginning of the operational phase), or until it can be demonstrated that the proposed measures have satisfied the requirements to make these areas unsuitable for golden plover.

Vegetation surveys will be undertaken to map the vegetation within 250m of the Proposed Turbines where scrub mosaic measures are proposed (i.e. T2, T3, T4, T5, T6, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32, T36, T38 and T39). The maps will be analysed to determine the extent of scrub coverage in these areas, if any open areas exceeding 10ha are identified within, or partially within, 250m of the Proposed Turbines, additional intervention will be required through planting of saplings or an additional application of fertiliser or granular lime as outlined in Appendix 6-5, Section 4.2.

2.2.3 Proposed Enhancement Area Monitoring

2.2.3.1 Lodge Bog Enhancement Area

The Lodge Bog Enhancement Area will be the subject of ongoing monitoring during the operational phase of the Proposed Wind Farm to ensure it is offering supporting habitat for breeding waders, and wintering whooper swans and golden plover. The ongoing monitoring will take place during the breeding bird season (March to August) for breeding waders and winter (October to March) for whooper swan and golden plover. Each of the monitoring types are described in detail below.

Breeding Wader Census Surveys

Breeding wader census surveys will seek to identify whether these species are utilising the areas under active management. These surveys will be undertaken once a month March to August, each year.

During the breeding season (March to August) three surveys will be undertaken for six hours per month starting at sunrise (as per Gilbert *et al.,* 1998), one overlooking each of the three proposed breeding wader areas. All activity of waders will be recorded and mapped. The peak number of birds for each species will be recorded as well as an estimate of the number of pairs of each species breeding within the breeding wader area. Breeding productivity and response to management will also be recorded. During each visit productivity data will be gather (e.g. how many pairs are displaying, how many pairs incubating, how many chicks within the area and how many birds fledged). Surveys will be undertaken from locations adjacent to the proposed breeding wader areas, at a sufficient distance as to not cause disturbance whilst surveying.

Winter Vantage Point Surveys

During the winter season (October to March), monthly vantage point surveys will be conducted during for six hours per month, alternating between starting one hour before sunrise to finishing one hour after sunset each month, at the two existing vantage point survey locations that are within Lodge Bog (i.e. VP5 and VP6), to monitor the usage of the enhancement area by golden plover and whooper swan. All golden plover and whooper swan activity will be recorded, including details of the number of birds landing within the Lodge Bog, the duration they were landed and if they were roosting or foraging. Each usage area will also be georeferenced.

Winter Roost Surveys

Roost surveys will be undertaken at each of the two permeant waterbodies created for the benefit of whooper swans and the reedbed created for the benefit of roosting hen harrier. Surveys will be conducted once per month for the duration of the winter period (October to March) for three hours, alternating between one hour before sunrise to two hours after sunrise and between two hours before sunset to one hour after sunset each month for the whooper swan roost surveys. The hen harrier roost surveys will be conducted once per month for the duration of the winter period (October to March) for three hours, from two hours before sunset to one hour after sunset each month. All activity relating to whooper swan and hen harrier will be recorded, including the total number of birds using the roost area and the direction of flight of birds arriving at, or departing from, the roost area.

Vegetation Surveys

The Lodge Bog enhancement area will be monitored annually after the measures outlined within the BMP have been implemented (i.e. during the construction phase and throughout the lifetime of the Proposed Wind Farm). Sward height monitoring will be undertaken annually. Vegetation surveys will be undertaken using a drone, or other suitable remote sensing technology, to map the vegetation within Lodge Bog every five years. The maps will be analysed to determine the extent of scrub coverage and encroachment within the area, if scrub is identified within Lodge Bog, additional intervention will be required through mechanical flailing and/or livestock grazing as outlined in Appendix 6-5, Section 4.3.

The requirement for mowing in the breeding wader areas will be informed by the sward height monitoring. sward heights will be inspected within each of the breeding wader areas. Data will be recorded prior to the commencement of the BMP activities and annually in late winter thereafter. The character of each breeding wader area will be recorded and photographs will be taken of each area from a fixed point. The results from the sward height inspections will be used to inform when mowing is required in the breeding wader areas. Thresholds are set in the methodology section of the BMP (Appendix 6-4, Section 4.3).

Predator-Proof Fence Inspections

The predator-proof fence will be inspected annually prior to the commencement of the breeding season. The fence will be inspected for any damage that would reduce its effectiveness, such as holes, loose posts etc. Any repairs required to the fence will be undertaken before the start of the breeding season (1st March). Continuity on each strand of electrical fence will also be inspected around the entirety of the fence. Any maintenance required on the electrical wire will be undertaken before the start of the breeding season, e.g. any cutting of vegetation to ensure continuity of the electrical wires.

Continuity of the electric fence will be inspected once per month during the breeding season (March to August). Any maintenance that is required to ensure the fence remains live is required, this will be completed as soon as possible after the required maintenance is identified. If a crow trapping regime is implemented, traps will be monitored daily while in use.

2.2.3.2 Killina Bog Offsetting Area

Wintering Golden Plover Vantage Point Surveys

Vantage point surveys will seek to identify whether these species are utilising the areas under active management. These surveys will be undertaken once a month October to March inclusive, each year.

During the winter season (October to March), monthly vantage point surveys will be conducted during daylight hours for six hours per month from one vantage point survey location, within Killina Bog, to monitor the usage of the enhancement area by golden plover. All golden plover activity will be recorded, including details of the number of birds landing within the offsetting area, the duration they were landed and if they were roosting or foraging. Each usage area will also be georeferenced.

Vegetation Surveys

The Killina Bog offsetting area will be monitored annually after the measures outlined within the BMP have been implemented (i.e. during the construction phase and throughout the lifetime of the Proposed Wind Farm). Sward height monitoring will be undertaken twice annually, in August and December each year. Vegetation surveys will be undertaken using a drone, or other suitable remote sensing technology, to map the vegetation within Lodge Bog every five years. The maps will be analysed to determine the extent of scrub coverage and encroachment within the area, if scrub is identified within

Lodge Bog, additional intervention will be required through mechanical flailing and/or livestock grazing as outlined in Appendix 6-5, Section 4.4.

The requirement for additional mowing in the offsetting areas will be informed by the sward height monitoring, i.e. if a second mowing is required during the winter season after the annual mowing in August. Vegetation mapping will be undertaken by drone within the offsetting area in early winter (October), every five years. Data will be recorded prior to the commencement of the BMP activities and every five years thereafter. The results from the drone survey will be used to inform if additional intervention is required in the offsetting area. Thresholds are set in the methodology section of the BMP (Appendix 6-4, Section 4.4). The vegetation survey data will then be re-examined every five years following the commencement of the BMP to establish the extent of habitat improvement resulting from management practices.

2.2.3.3 Falcon Nest Boxes

There will be annual nest box monitoring at each of the 27 proposed nest boxes (2 peregrine and 25 kestrel) throughout the hinterlands of the Project Site during the lifetime of the Proposed Project. Each nest box will be monitored for signs of occupancy. Should nest box be occupied (by any bird species, not limited to peregrine or kestrel), then replacement nest boxes will be installed such that there will always be a surplus of 20% to allow for population growth and to avoid inter-specific competition for nest sites.

2.2.4 Operational Phase Summary

Table 7 - 7 - 2 summarises the proposed bird monitoring schedule for each monitoring year.

Table 7 - 7 - 2 Proposed bird monitoring schedule

Survey	Year	Period	Visits	Survey Method
Vantage Point Surveys	Years 1, 2, 3, 4, 5, 10 and 15	Commencing at the beginning of the breeding or non-breeding and continuing for 12 months thereafter.	1 visit per VP per month for each monitoring year	13 fixed, 6-hour, vantage point surveys (VP 1, 2 ,3, 7 ,8, 9, 10, 11, 12, 13, 14, 15, 16)
Winter Vantage Point Surveys	Annually	October to March	1 visit per VP per month for each operational year	13 fixed, 6-hour, vantage point surveys (VP 1, 2 ,3, 7 ,8, 9, 10, 11, 12, 13, 14, 15, 16)
Corpse Searches (Bird Casualties)	Annually	Commencing at the beginning of the breeding or non-breeding and continuing for 12 months thereafter.	2 visits per month for each operational year	Targeted corpse searches at turbine bases
Scrub Mosaic Creation Area	Annually for the first five years, or until it can be demonstrated that all areas are no longer suitable for golden plover.	August/September	1 visit per year for the first five years	Vegetation surveys to map vegetation within 250m of the Proposed Turbines.

Survey	Year	Period	Visits	Survey Method
Lodge Bog Breeding Wader Census Surveys	Annually	March to August	7 visits per operational year	Three 6-hour surveys starting at sunrise
Winter Vantage Point Surveys	Annually	October to March	6 visits per operational year	Two fixed, 6-hour, vantage point surveys (VP 5 & 6)
Lodge Bog Winter Roost Monitoring	Annually	October to March	6 visits per operational year	Three fixed, 3-hour, vantage point survey
Lodge Bog Vegetation Monitoring	Annually	Prior to BMP activities and annually in late winter.	Prior to BMP Activities and 1 visit per year for each operational year.	Sward height survey annually and habitat surveys every five years.
Predator Proof Fence Inspections	Annually	Before start of breeding season, to ensure repairs are carried out before 1st March. Monthly then through breeding season March - August	8 visits per operational year	The fence will be inspected for any damage that would reduce its effectiveness, such as holes, loose posts etc. Continuity on each strand of electrical fence will also be inspected around the entirety of the fence.
Killina Bog Wintering Golden Plover Surveys	Annually	October to March	6 visits per operational year	One fixed, 6-hour, vantage point survey
Killina Bog Vegetation Monitoring	Annually	Prior to BMP activities and annually in winter (August and December).	Prior to BMP Activities and 1 visit per operational year.	Sward height survey twice annually and habitat surveys every five years.
Falcon Nest Boxes	Annually	November/December	1 visit per box per operational year	Monitored for signs of occupancy.

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.

Decommissioning surveys will be undertaken prior to the initiation of works at the Proposed Wind Farm. The survey will aim to identify sensitive sites (e.g. nests or roosts). Any requirement for decommissioning works to run into subsequent breeding or winter seasons following the commencement of works will be subject to a repeat of the decommissioning 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. 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 decommissioning phase no works shall be undertaken, works will cease within a species-specific buffer of this location (Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007) in line with best practice. 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.

2.4 Reporting

A report summarising the findings of bird monitoring surveys will be submitted to the Planning Authority annually, at the end of each monitoring year. 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.

2.5 Sharing Ecological Data

As a measure to support conservation research and policy, the Applicant proposes to submit the monitoring survey data and information to organisations such as National Biodiversity Data Centre (NBDC) to contribute to the upcoming bird atlas (2027) and other ongoing research projects on relevant ecological records, for example, information on the location of breeding territories and nest sites of bird species of conservation concern, where available. 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 Plan: Data relevant to biodiversity and ecosystems, including conservation needs, is widely accessible and standardised.

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