An Bord Pleanála

Technical note: Ecology
ABP- 316178-23

To: Alaine Clarke, Senior Planning Inspector

From: Dr Maeve Flynn, MCIEEM, Inspectorate Ecologist

Re: Proposed development of Oweninny Windfarm Phase 3 consisting of 18 no. wind turbines and potential impacts on breeding Golden plover, a special conservation interest of Owenduff/ Nephin SPA [004098]

Date 11/26/2024

1. Introduction

This technical note has been prepared to assist the Senior Planning Inspector and the Board in the consideration of impacts on (breeding) Golden Plover (*Pluvialis apricaria*), a species listed on Annex I of the EU Birds Directive and a special conservation interest (SCI) bird species of Owenduff/ Nephin SPA [004098].

In my capacity as Inspectorate Ecologist, I have the relevant expertise to provide a professional opinion as to the adequacy of the information before the Inspector and the Board to undertake Appropriate Assessment (AA).

The Department of Housing, Local Government & Heritage (DHLGH) has raised concerns regarding possible impacts on the SPA population in terms of risks posed by the windfarm alone or in combination with other developments in the area to birds dispersing from the SPA post breeding and the wider regional and national population. Small numbers of Golden plover were recorded on the windfarm site in mid-late September which they consider could be related to the SPA breeding population.

Following a request for further information, the applicant submitted a revised Natura Impact Statement (NIS) which assessed and excluded potential adverse effects on site integrity of the Owenduff/ Nephin SPA.

An Bord Pleanála commissioned an independent expert examination of the further information from Blackstaff Ecology regarding impacts on birds including Golden Plover.

In a further submission on the revised NIS and further information, the DHLGH observed that concerns remained regarding impacts on the breeding population of Golden Plover.

The aim of this technical note is to consolidate the information provided in the various reports, taking account of the observations made by DHHLG to assist the Inspector and the Board in the consideration of impacts on Golden Plover in both the EIA and AA of the proposed windfarm development.

2. Golden Plover

Comprehensive bird surveys were undertaken to inform the ornithological impact assessment and appropriate assessment for Oweninny 3 windfarm. Golden plover was recorded on the proposed windfarm throughout the non-breeding/ wintering season. The Irish wintering population originate from Iceland reaching peak numbers between months October to February in general. Data from the UK and Ireland shows numbers steadily increasing from mid-September[1] (see Figure 1).

The wintering population of golden plover in the Republic of Ireland is estimated at 80,707 birds.

As described in the Departments observation, the breeding population of Golden plover is estimated at just 100 pairs and confined to the Northwest on areas of intact peatland. This species has undergone significant decline in its traditional breeding

[1] https://www.bto.org/understanding-birds/birdfacts/golden-plover

areas with breeding population declines over a long period of 84% documented by Gilbert *et al* in Birds of Conservation Concern in Ireland 4: 2020-2026[2].

Owenduff/ Nephin SPA which is located to the southwest of the proposed windfarm development is designated for breeding Golden Plover and Merlin.

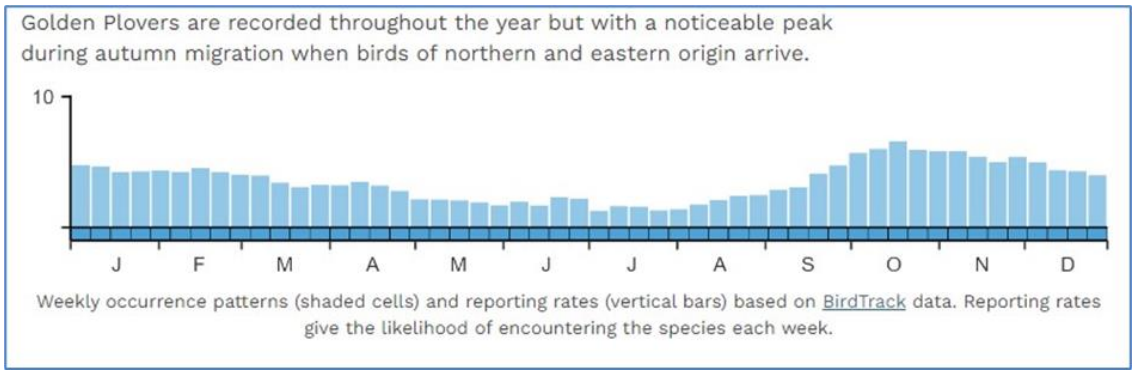

Figure 1. Golden plover abundance patterns in Ireland and the UK from BirdTrack data which compiles migration movements and distributions of birds throughout Britain and Ireland.

3. Owenduff/ Nephin SPA and possible connections to the birds recorded on the proposed windfarm site.

Initially, the applicant screened out likely significant effects on the Owenduff/ Nephin SPA based on the distance of the proposed windfarm from the core range of the SCI birds in line with industry standard guidance developed by Scottish Natural Heritage in their guidance *Assessing Connectivity with Special Protection Areas* (SPAs) (Version 3, 2016)[3].

This guidance aims to assist in identifying 'connectivity' between development proposals and Special Protection Areas (SPAs).

> *It acts like a screening stage, removing from the Habitats Regulations Appraisal plans/projects which clearly have no connectivity to a site's*

[2] https://birdwatchireland.ie/app/uploads/2021/04/Irish-Birds-2021-BOCCI-for-web.pdf

[3] Assessing connectivity with special protection areas.pdf

qualifying interests or those where it is very obvious that the conservation objectives for the site's qualifying interests will not be undermined despite a connection. To assess whether there are processes or pathways by which the proposal may influence the site's qualifying interests, it is important to consider the distances that some species may travel beyond the boundary of their SPAs. This guidance provides information on ***dispersal and foraging*** *distances for a range of bird species which are frequently encountered when considering plans and projects.*

The connectivity distances of each species are drawn from a review of the scientific literature that examined ranging behaviour. The guidance states that (emphasis added):

> **In most cases the core range should be used when determining whether there is connectivity between the proposal and the qualifying interests**. Maximum ranges are also provided to indicate that birds will, at times, travel further. In **exceptional cases distances up to the maximum foraging range may be considered**.

For Breeding Golden plover a **core range of 3km** is provided, with maximum range of 11km.

Quantitative information on foraging ranges of breeding golden plover in Ireland is currently unavailable (NPWS, 2023)[4] but notes in the conservation objectives set for Connemara Bog Complex SPA [004181] state that studies from elsewhere have shown breeding adults to forage **up to 4km** from the nest, with distances of 1.1 to 3.7 km reported for moorland breeding Golden plover during the incubation period. (radio telemetry study on moors in county Durham UK, Whittingham et al., 2000)[5].

The boundary of the SPA is located c.3.8km southwest of the proposed development site at the closest point. The most recent surveys undertaken in the SPA (Suddaby and O'Brien, 2020)[6] show an apparently occupied territory (AOT) site located within

[4] CO004181.pdf
[5] Whittingham M.J.; Percival S.M.; Brown A.F (2020) Time budgets and foraging of breeding golden plover Pluvialis apricaria. Journal of Applied Ecology 37, 632-646
[6] Suddaby, D. & O'Brien, C. (2020) A survey of breeding Golden Plover within the Owenduff/Nephin Complex SPA, County Mayo. Irish Wildlife Manuals, No. 120. NPWS *IWM120.pdf

a 1km square at the northwest corner of the SPA which would fall within the range of 4.5km to the proposed development site and within 6-8 km of nearest turbines. I have mapped this location for ease of reference in Figure 2 below.

Therefore, based on the scientific information provided, it is reasonable to conclude that the development is likely outside of the core range of breeding Golden plover but within the parameters of the species maximum range.

The data collected by the applicant supports this. There are no records of the species at the proposed development site during the breeding season (April to July). This is the main scientific argument put forward by the applicant for the exclusion of a connection between birds recorded on the proposed development site and the SPA population.

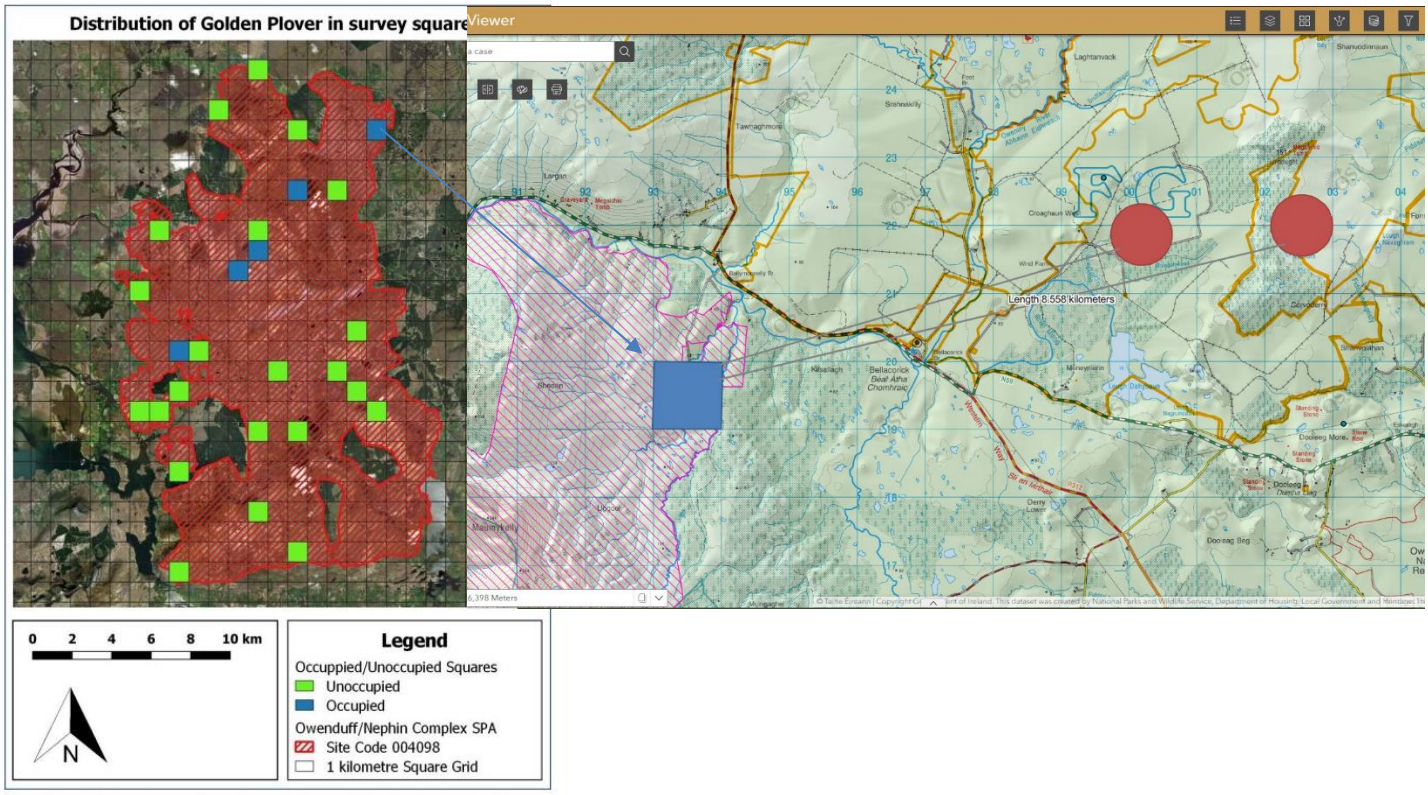

Figure 7 Distribution of Golden Plover breeding territories within the surveyed squares in 2019.

Figure 2. Illustration of location of Owenduff/ Nephin SPA and closest apparently occupied territories (AOT) (NPWS, 2020) in relation to the proposed windfarm. Red dots represent nearest turbine locations.

Small numbers of Golden plover were recorded in mid-late September during surveys undertaken in years 2019-2022 (see table 1 below). This period is identified

as within the breeding survey season covered by Tobin ecologists on behalf of the applicant (April to July 2020; April to September 2021and 2022). I note that the inclusion of September in the breeding bird survey methodology is outside of the timeframes normally followed for breeding birds (April – July) and outside that recommended in the Guidance followed (SNH, 2017) and is more usually defined as being within autumn migration period and the non-breeding season for Vantage Point Surveys.

The DHLGH raised concerns that these birds could be connected to the SPA population if they were birds dispersing from the SPA post breeding/ post fledging.

Golden plover recorded in September could also be associated with autumn migration and early winter arrivals, part of the overwintering population. Indeed, the flock of 22 birds recorded on 20/09/2019 are likely to be wintering flock based on numbers and recorded activity.

Table 1. Golden Plover recordings from September 2019-2022 (VP- vantage point survey, BBS- breeding bird survey)

Survey dates	**Birds recorded**	**Behavior**
20/09/2019	22 (VP)	Flying over-landed on bog
28/09/2019	3 (VP)	Landed on bog
15/09/2021	5 (BBS)	Roosting on bog
16/09/2021	5 (BBS)	Roosting on bog
15/09/2022	9 (VP)	Flying E-W

4. Revised Natura Impact Statement

As part of further information submitted by the Applicant, a revised NIS was prepared which addressed the recommendation from the DHLGH that the Owenduff/ Nephin SPA should be screened in for appropriate assessment to consider the implications in view of the conservation objectives of the site. Of note, is that at the time of assessment, only first order site-specific conservation objectives (SSCO) with no set targets of objectives are available.

The applicant has ‘adopted’ site specific conservation targets and attributes from Connemara Bog Complex SPA as a proxy for this species (and Merlin) in the NIS to present a scientific assessment of risks to the species. This is an acceptable and best practice approach in the absence of site-specific conservation objectives.

The updated AA screening report and NIS maintain that the special conservation interest (SCIs) for the Owenduff/Nephin Complex SPA are not associated with the Golden plover recorded at the proposed development site.

However, following a precautionary approach based on foraging ranges, the updated AA screening report concluded there is potential for ex-situ disturbance effects on both Golden Plover and Merlin, if found breeding within or immediately adjacent to the proposed windfarm site, which would undermine the conservation objectives of the SPA. The NIS addresses this potential impact by mitigation in the form of disturbance management and a pre-construction survey are proposed. Additionally, the potential for in-combination effects was examined taking account of Sheskin South windfarm. The risk of collision causing mortality of significance to the population level was considered negligible.

5. Collision Risk Model and population context

An updated collision risk model for Golden Plover (among other species) was also provided in the further information which covered data collected between April 2019 to September 2022 (Natural Power, January 2023). The model breaks the risk assessment into data collected in the breeding season and non-breeding season. For Golden Plover, the only birds recorded during the 'breeding season' were in mid-late September (which is more aligned to the autumn migration period). The model was based on 3 flights and 31 individuals resulting in an estimated collision risk of 0.27 birds/ year at a 98% avoidance rate. I note that the discussion section of the CRM references other studies which utilise a higher avoidance rate of 99% for Golden plover which lowers the risk to 0.14 birds/year.

I would question why the applicant separated out these September records in the first instance as they go on to discount them forming part of the breeding population. The inclusion of a flock of 22 birds during this period is indicative of autumn migration and therefore the I consider the CRM estimate for this particular breeding season definition to be unreliable and an overestimate.

The applicant combines all Golden Plover data for an overall collision risk estimated at 7.77 birds/ year, equating to 169.25 birds over a 25year period. This potential impact is contextualized in terms of the national wintering population and an estimate

of the County Mayo wintering population based on data from the Irish Wetland Bird Survey (a likely underestimate as the survey is of wetlands only and doesn't take account of terrestrial wintering birds). The increase in annual mortality due to collisions is estimated as negligible and not significant at a county and national level (see Table 8-16 of Further information).

The DHLGH is critical of the approach taken in terms of possible impacts on the breeding population for the SPA and in a regional and national context. However, the survey data points to a low probability that dispersing birds post breeding form a significant cohort of the birds recorded in September. In their independent review of the ornithological impact assessment, Blackstaff Ecology largely endorsed the ornithological assessment prepared by Tobin Ecologists on behalf of the applicant. The independent examination could not definitively rule out that birds recorded in September were associated with the SPA population. However, they considered that a number of other factors reduced the likelihood of significant effects and adverse effects on the SPA including the distance from the SPA which is beyond the core range for the species, preferential foraging close to nest sites, post breeding dispersal would be to higher quality foraging habitats which are limited at the development site.

I consider that the applicant has addressed the issue regarding context of population effects in a manner that is acceptable for the overall assessment. The use of Natural Heritage Zones quoted by DHLGH and used in Scotland to define biogeographical units is not an approach that has been applied in an Irish context that I am currently aware of. It would be a positive development if applied, however it would need careful consideration in the definitions of the areas to be included.

The Board needs to be satisfied that adverse effects on the integrity of the SPA can be excluded and that significant effects at National and regional population levels will be avoided. I consider that the applicant has provided this information for bird species assessed in both the NIS and EIAR and in the application of mitigation and monitoring measures where effects were identified.

6. Summary to assist in Appropriate Assessment for Owenduff/ Nephin SPA: special conservation interest species Golden plover

The following is a summary of attributes and targets that should be considered in the AA for Owednduff/ Nephin SPA in respect of breeding Golden plover and is in line with the applicants approach of adopting attributes and targets from Connemara Bog Complex SPA which has set site specific conservation objectives for breeding Golden plover. As most recent data shows significant decreases in the SPA breeding population, any updated conservation objectives will be to restore the favorable conservation condition of Golden plover. The current conservation objective is to maintain/ restore the favorable conservation condition of this species.

Table 2. Summary of examination of implications of Oweninny 3 windfarm on Owenduff/Nephin SPA (based on attributes and targets from Connemara Bog Complex SPA)

Attribute/ measure	**Target**	**Note**	**Potential for adverse effects**
Breeding population trend Percentage change in number of Apparently Occupied Territories (AOTs)	Long term trend is stable or increasing	Most recent scientific evidence shows that the long-term trend is decreasing in this SPA and nationally. Most recent survey found only 5 occupied territories showing decline of 37.5% from counts in 2006	No These attributes related to targets within the SPA site. The proposed windfarm development could not have any effect on these targets as no direct impacts on the SPA will occur
Productivity rate Number of young fledged per Apparently Occupied Territory (AOT	Sufficient productivity to maintain the population trend as stable or increasing		
Distribution of breeding habitat Spatial distribution	No significant loss of distribution in the long term, other than that occurring due to natural patterns of variation		
Extent and condition of breeding habitat Hectares of high quality breeding habitat	Sufficient area of high-quality habitat to support the population target		
Disturbance at breeding site Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact upon population target		No The proposed development is located at a distance of greater than 3.5km and will not exert a disturbance effect at breeding sites within the SPA.

	In the revised NIS, the applicant considers potential for ex-situ disturbance or displacement of Golden Plover **if** they were found to breed within or in immediate proximity to the proposed development (based on core range- see note above). This was considered an unlikely situation to occur but would be a potential adverse effect on this attribute if a breeding attempt was disturbed. Mitigation measures including preconstruction survey for breeding birds are proposed. No breeding Golden Plover were recorded over the survey period 2019-2022 and habitat at the site is unlikely to be suitable.		
Barriers to connectivity and site use Number, location, shape and hectares	Barriers do not significantly impact the breeding population's access to the SPA or other ecologically important sites outside the SPA	Barriers limiting the breeding population's access to this SPA or movement within the SPA will ultimately affect the achievement of targets for population trend and/or spatial distribution. Factors such as the number, location, shape and area of potential barriers must be taken into account to determine their potential impact	The proposed windfarm site is not considered an ecologically important site outside of the SPA for breeding GP due to sub optimal habitat. Located outside of the core range for the species, with no records of GP occurring on the windfarm site before mid-September the windfarm will not impact on access to the SPA. An assessment of barrier for wintering population effect found low magnitude effect (Table 8.21). The proposed development site is located in an open landscape, this topographical characteristic limits the potential for a barrier effect. In combination assessment with other windfarms located north of SPA found no adverse effects.
Forage spatial distribution, extent and abundance Location, hectares, and forage biomass	Sufficient number of locations, area of suitable habitat, and available forage biomass to support the population target	Quantitative information on foraging ranges of breeding golden plover in Ireland is unavailable but studies elsewhere	**No** The proposed development is outside of the core foraging range cited for this species

		have shown breeding adults to forage up to 4km from the nest (Whittingham et al., 2000). Whittingham et al. (2000) reported moorland breeding golden plover foraged 1.1 to 3.7 km from their nests during the incubation period	While a range of up to 11km is cited this would be where suitable foraging/dispersal habitat is limited, which isn't the case here. No Golden Plover were recorded on the windfarms site during the breeding season over 4 seasons of survey (2019-2022) Peatland habitats at the proposed windfarm site are sub optimal for breeding Golden plover.
	Based on the above and the information provided by the applicant, adverse effects on site integrity can be excluded. **The proposed development will not prevent or delay the attainment of conservation objectives to maintain or restore favourable conservation condition of Golden Plover for this SPA.**		

Signed:

Dr Maeve Flynn

Inspectorate Ecologist

Date: 26/11/ 2024