

# National Parks and Wildlife Service

## *Conservation Objectives Series*

Owenduff/Nephin Complex SPA 004098



**NPWS**

An tSeirbhís Páirceanna  
Náisiúnta agus Fiadhúlra  
National Parks and Wildlife  
Service

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**Citation:**

**NPWS (2025) Conservation Objectives: Owenduff/Nephin Complex SPA 004098.  
Version 1. National Parks and Wildlife Service, Department of Housing, Local  
Government and Heritage.**

**Series Editors: Maria Long and Colin Heaslip  
ISSN 2009-4086**

## Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

### **Notes/Guidelines:**

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

## Qualifying Interests

*\* indicates a priority habitat under the Habitats Directive*

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004098      Owenduff/Nephin Complex SPA

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A098      Merlin *Falco columbarius*

A140      Golden Plover *Pluvialis apricaria*

**Please note that this SPA overlaps with Owenduff / Nephin Complex SAC (000534) and Clew Bay Complex SAC (001482). See map 2. The conservation objectives for this site should be used in conjunction with those for the overlapping site(s) as appropriate.**

## Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: [www.npws.ie/Publications](http://www.npws.ie/Publications)

### NPWS Documents

<b>Year :</b>	2013
<b>Title :</b>	A survey of red grouse ( <i>Lagopus lagopus scoticus</i> ) in the Owenduff/Nepin Complex Special Protection Area, County Mayo
<b>Author :</b>	Murray, T.; Clotworthy, C.; Bleasdale, A.
<b>Series :</b>	Irish Wildlife Manual No. 77
<hr/>	
<b>Year :</b>	2013
<b>Title :</b>	A review of the SPA network of sites in the Republic of Ireland
<b>Author :</b>	NPWS
<b>Series :</b>	Published Report
<hr/>	
<b>Year :</b>	2020
<b>Title :</b>	A survey of breeding Golden Plover within the Owenduff/Nepin Complex SPA, County Mayo
<b>Author :</b>	Suddaby, D. & O'Brien, C.
<b>Series :</b>	Irish Wildlife Manuals No. 120
<hr/>	
<b>Year :</b>	2022
<b>Title :</b>	Survey of breeding merlin in the special protection area network 2018
<b>Author :</b>	Lusby, J.; O'Brien, I.; Lauder, A.; Wilson-Parr, R.; Breen, D.; Cummins, S.; Tierney, D.
<b>Series :</b>	Irish Wildlife Manual No. 139
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## Other References

- Year :** 2000  
**Title :** Time budgets and foraging of breeding golden plover *Pluvialis apricaria*  
**Author :** Whittingham M.J.; Percival S.M.; Brown A.F.  
**Series :** Journal of Applied Ecology 37, 632-646
- 
- Year :** 2004  
**Title :** Upland Bird Survey 2004: County Mayo & Connemara (west Galway)  
**Author :** Cummins, S.; Swann, M.; Newton, S.  
**Series :** Birdwatch Ireland Conservation Report No. 04/07.
- 
- Year :** 2005  
**Title :** Merlins of the Wicklow mountains  
**Author :** McElheron, A.  
**Series :** Currach Press, Dublin
- 
- Year :** 2009  
**Title :** The Distribution and Ecology of Eurasian Golden Plover (*Pluvialis apricaria*) in the Owenduff/Nephin Complex Special Protection Area 4098.  
**Author :** Clotworthy, C.  
**Series :** MSc. Thesis
- 
- Year :** 2010  
**Title :** Breeding biology of merlins *Falco columbarius* in Ireland, 1986-1992  
**Author :** Norriss, D.W.; Hara, B.; Hennigan, J.; McElheron, A.; McLaughlin, D.J.; Swan, V.; Walsh, A.  
**Series :** Irish Birds, 9:23-30
- 
- Year :** 2011  
**Title :** Assessing the effectiveness of monitoring methods for merlin *Falco columbarius* in Ireland: the pilot merlin survey 2010  
**Author :** Lusby, J.; Fernández-Bellon, D.; Norriss, D.; Lauder, A.  
**Series :** Irish Birds 9, 143 – 154
- 
- Year :** 2011  
**Title :** The feeding ecology of merlin *Falco columbarius* during the breeding season in Ireland, and an assessment of current diet analysis methods  
**Author :** Fernández-Bellon, D.; Lusby, J.  
**Series :** Irish Birds 9, 159-164
- 
- Year :** 2017  
**Title :** Breeding ecology and habitat selection of merlin *Falco columbarius* in forested landscapes  
**Author :** Lusby, J.; Corkery, I.; McGuinness, S.; Fernández-Bellon, D.; Toal, L.; Norriss, D.; Breen, D.; O'Donnail, A.; Clarke, D.; Irwin, S.; Quinn, J.L.; O'Halloran, J.  
**Series :** Bird Study 64, 445-454
- 
- Year :** 2019  
**Title :** Report under Article 12 of the Birds Directive Period 2013-2018  
**Author :** EEA  
**Series :** European Environment Agency. European Topic Centre on Biological Diversity. Pp 1-9.  
[https://cdr.eionet.europa.eu/Converters/run\\_conversion?file=ie/eu/art12/envxztxxq/IE\\_birds\\_reports\\_20191031-130157.xml&conv=612&source=remote](https://cdr.eionet.europa.eu/Converters/run_conversion?file=ie/eu/art12/envxztxxq/IE_birds_reports_20191031-130157.xml&conv=612&source=remote)

## Conservation Objectives for : Owenduff/Nephin Complex SPA [004098]

### A098 Merlin *Falco columbarius*

To restore the Favourable conservation condition of Merlin in Owenduff/Nephin Complex SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population size	Number of occupied territories	Breeding population is increasing	Early season visits improve detection of Merlin, a challenging species to survey (Norriss et al., 2010; Lusby et al., 2011, 2017). Lusby et al. (2017) defined occupied territories according to highest levels of breeding evidence, i.e. all confirmed breeding pairs and any occupied territories during the survey breeding season (1 April - 15 July) and sites with recent signs of occupation e.g. plucking posts with fresh kills on repeat visits. A review of the SPA network (NPWS, 2013) estimated that this SPA held 4-8 Merlin territories. In 2018, a survey of breeding Merlin in the SPAs (Lusby et al., 2022) covered 31.64% of this SPA, and recorded two observations of Merlin, equating to a single occupied territory. No signs of successful breeding were observed. Outside the SPA, earlier surveys of North Mayo suggest a historic decline, with Merlin recorded directly or indirectly (through traces such as kills and droppings) at 11 sites in 1986 and at only 3 sites in 1992 (NPWS internal files)
Productivity rate	Number of fledged young per breeding attempt with known outcome	Sufficient to maintain the population size target	Various Irish studies have provided estimates of productivity and/or breeding success for Merlin (Norriss et al., 2010; Lusby et al., 2017; Lusby et al., 2022). Monitoring of five traditional nesting areas in Ireland from 1986 - 1992 calculated a mean productivity of 2.23 young per pair based on 141 confirmed pairs (Norriss et al., 2010). A review of available breeding data for Ireland 1982 - 2014, estimated productivity at 2.1 young per breeding attempt (Lusby et al., 2017). However, general information on life history such as natal dispersal, first year and adult survival are lacking in the Irish context. Furthermore, reproductive performance of pairs at this SPA is not known. In the absence of such data, it is not possible to identify a minimum breeding productivity rate for this SPA
Distribution: extent of available nesting options within the SPA	Number and spatial distribution	Sufficient availability of suitable nesting sites throughout the SPA to maintain the population	Formerly ground-nesting in heather, Merlin are now largely tree-nesting in Ireland, often utilising old crows' nests (McElheron, 2005; Norriss et al., 2010; Lusby et al., 2017), albeit some ground-nesting pairs may remain. Other nesting options include copses and shelter belts, isolated trees in open upland areas. The SPA is a large area of relatively intact blanket bog and mountains, incorporating the catchment of the Owenduff River and much of the Nephin Beg Mountain range and is bounded by coniferous plantations along parts of its southern and eastern limits. Thus, a sufficiency of available nest sites (e.g. mature trees holding suitable stick nests, that are proximate to open foraging habitats and dense heather stands on sloping ground), distributed across the SPA, is needed to support the breeding population

Extent and condition of suitable open habitats for foraging	Hectares; condition assessment; prey biomass	Sufficient availability of suitable foraging habitat across the SPA to support targets relating to population size, productivity rate and distribution	The sporadic occupancy of territories by Merlin, and failures of some pairs to lay clutches, is seen also in other raptor species where females in poorer territories have difficulty attaining condition to breed (Norriss et al., 2010). Lusby et al. (2017) showed that the proportion of open suitable habitat i.e. moors and heathland, peat bogs and semi-natural grasslands (using CORINE Land Cover) within 5km of nest sites was positively related to breeding success. Preferred prey include open country small passerines and moths; woodland birds feature in April (Fernández-Bellon and Lusby, 2011). Open foraging habitats include wet and dry heaths; <i>Molinia</i> -dominated meadows; blanket bog; semi-open habitats i.e. woodland copses. The total extent of suitable foraging habitat in this SPA has not been estimated. Key aspects to consider regarding any assessment of the condition of these habitats for Merlin include prey biomass, structure, soil integrity, overall connectivity and coherence
Disturbance to breeding sites	Intensity, timing, frequency, and duration	Disturbance occurs at levels that do not significantly impact upon the breeding population	Factors such as intensity, frequency, timing, location and duration of a (direct or indirect) disturbance source must be taken into account to determine the potential impact upon the targets for population size, population trend, productivity rate and distribution of nesting options. Merlin frequently select the tallest trees in which to nest, thereby potentially increasing nest vulnerability to felling operations for pairs nesting in commercial forests (Norriss et al., 2010). Lusby et al. (2022) described the pressures within the SPA network, which include turf-cutting, burning, agricultural intensification and afforestation. For this SPA, documented pressures include overgrazing, wildfire, predation, and habitat fragmentation associated with coniferous forestry



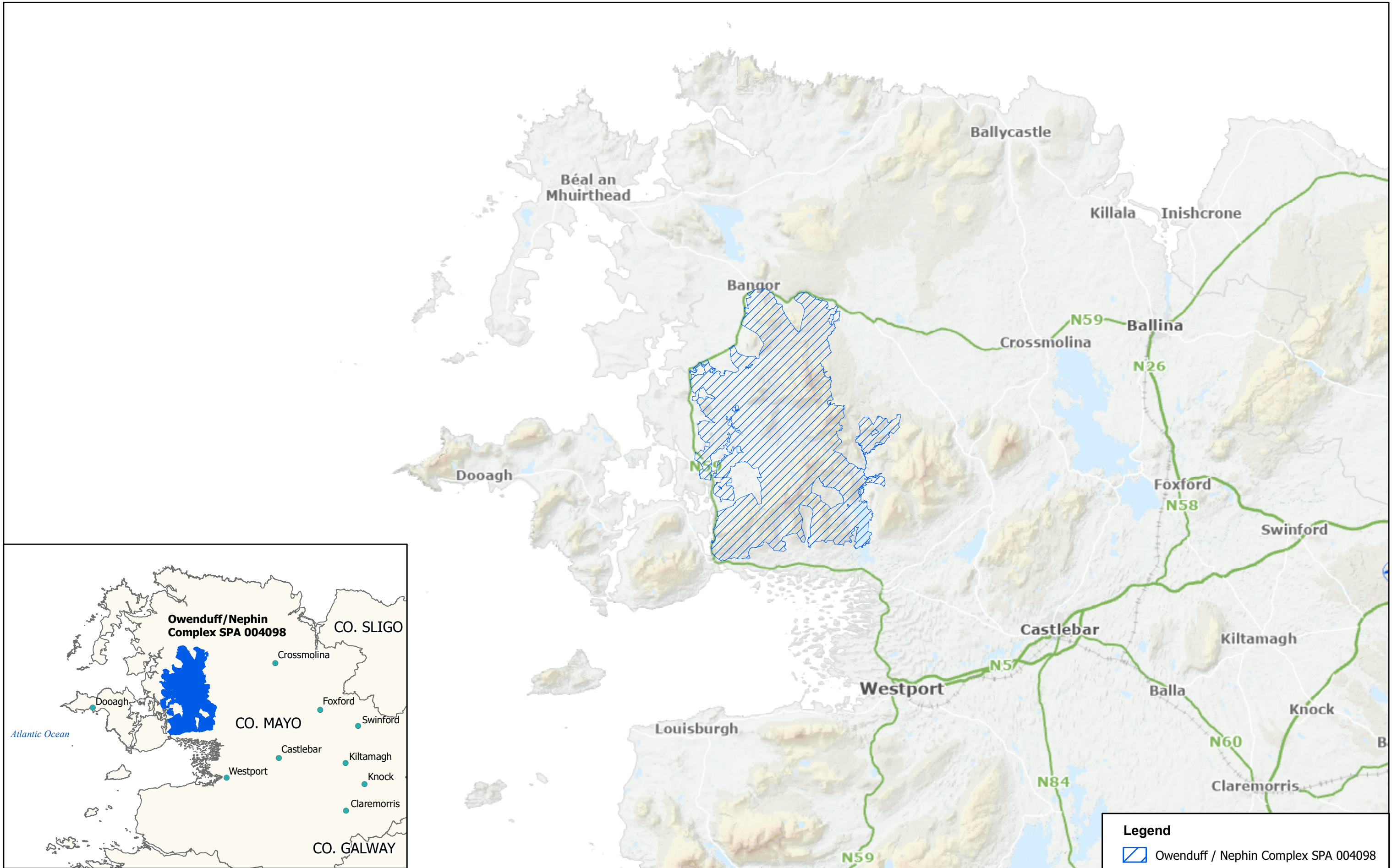
## Conservation Objectives for : Owenduff/Nephin Complex SPA [004098]

### A140 Golden Plover *Pluvialis apricaria*


To restore the Favourable conservation condition of Golden Plover in Owenduff/Nephin Complex SPA, which is defined by the following list of attributes and targets:

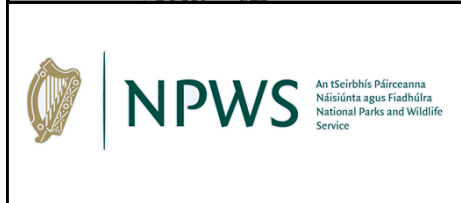
Attribute	Measure	Target	Notes
Breeding population trend	Percentage change in number of potential breeding pairs	Long term trend is stable or increasing	The national breeding population of Golden Plover in Ireland is estimated to have declined by 82 - 84% between 1972 and 2019 (see EEA, 2019). Apparently Occupied Territory (AOT) is a standard metric used to represent breeding pairs. In 2004, baseline surveys to inform SPA designation recorded 15 Golden Plover AOTs across 14 1km-squares in this SPA (see Cummins et al. (2004) for survey results and NPWS (2013) for SPA figures). In 2005 and 2006, Clotworthy (2009) surveyed 26 randomly selected 1km-squares which held suitable breeding habitat for Golden Plover and recorded a maximum of 8 Golden Plover AOTs (a density of 0.31 pairs per km <sup>2</sup> ). In 2019, Suddaby and O'Brien (2020) re-surveyed the 26 1km-squares of Clotworthy (2009; and one additional square) and recorded 5 Golden Plover AOTs (a density of 0.19 pairs per km <sup>2</sup> ). The results of Suddaby and O'Brien (2020) suggest that the breeding population of Golden Plover within the SPA declined in the region of 38% between 2006 and 2019
Productivity rate	Number of young fledged per potential breeding pair	Sufficient productivity to maintain the population trend as stable or increasing	Productivity is a measure of breeding output and a key determinant in whether a population can maintain itself. It is defined here as the total number of young that are successfully reared to fledge (i.e. become independent of their parents) divided by the total number of breeding pairs (or AOTs), including failed pairs/females, in a given breeding season. There is currently no information on the productivity rate of Golden Plover within this SPA. A lack of comprehensive data precludes the identification of a minimum productivity rate for the Golden Plover population of this SPA or indeed for the national breeding population
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	Golden Plover breed in open habitats, primarily blanket bog and other peatland habitats in Ireland, where they nest on the ground, in short or tussocky vegetation. Clotworthy (2009) recorded Golden Plover present in 7 and 8 1km-squares in 2005 and 2006 respectively. Covering the same survey squares in 2019, Suddaby and O'Brien (2020) recorded Golden Plover in only 5 1km-squares. The results from Suddaby and O'Brien suggest the distribution of breeding Golden Plover in the SPA contracted between 2005/2006 and 2019
Extent and condition of breeding habitat	Hectares of high quality breeding habitat	Sufficient area of high quality habitat to support the population target	Golden Plover breed in open habitats, primarily blanket bog and other peatland habitats in Ireland, where they nest on the ground, in short or tussocky vegetation. High-quality breeding habitat is considered as habitat in which Golden Plover can successfully nest and rear young. In 2019, Suddaby and O'Brien (2020) repeated the assessments of habitat suitability for breeding Golden Plover that were undertaken by Clotworthy (2009) in 2005 and 2006. Using the same assessment methodology in the same 1km-squares, Suddaby and O'Brien determined that the cover of shrubs and heather had increased and suggested that this may have negatively impacted on the breeding population as Golden Plover do not utilise extensive or old stands of dense tall heather. This suggests that the condition of breeding habitat within the SPA may have deteriorated between 2005/2006 and 2019

Disturbance at breeding site	Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution	The impact of any significant disturbance (direct or indirect) to the breeding population will ultimately affect the achievement of targets for population trend and/or spatial distribution of nesting and foraging habitat. Factors such as intensity, frequency, timing and duration of a (direct or indirect) disturbance source must be taken into account to determine the potential impact upon the targets for population trend and spatial distribution. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of mortality (in adults and chicks) or reduced breeding fitness of adults (if energy expenditure is greater than energy intake), and can thus negatively impact population trends. Disturbance is likely to have greatest impact at nesting sites and feeding areas for young, for example, increasing the mortality risk to eggs and young from predation, inclement weather and starvation
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
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	Golden Plover forage exclusively at ground level and rely primarily on a wide variety of surface and sub-surface dwelling invertebrate prey. Coleoptera, Oligochaeta, and Diptera (Bibionidae and Tipulidae) are known important prey for the species. The species is reliant on open habitats, primarily breeding in blanket bogs and other peatland habitats in Ireland. During the breeding season, Golden Plover also utilise a range of surrounding habitats for foraging, including grasslands, lake shores and other wetlands. While Golden Plover primarily forage diurnally, the species is also known to feed nocturnally on clear and moonlit nights. Quantitative information on foraging ranges of breeding Golden Plover in Ireland is unavailable but studies elsewhere 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 1.1km - 3.7km from their nests during the incubation period



**Legend**

 Owenduff / Nepin Complex SPA 004098




**MAP 1:  
OWENDUFF / NEPHIN COMPLEX SPA  
CONSERVATION OBJECTIVES  
SPA DESIGNATION**

Map to be read in conjunction with the NPWS Conservation Objectives Document

**SITE CODE:  
SPA 004098; version 3.02  
CO. MAYO**

0 2.5 5 10 Kilometres



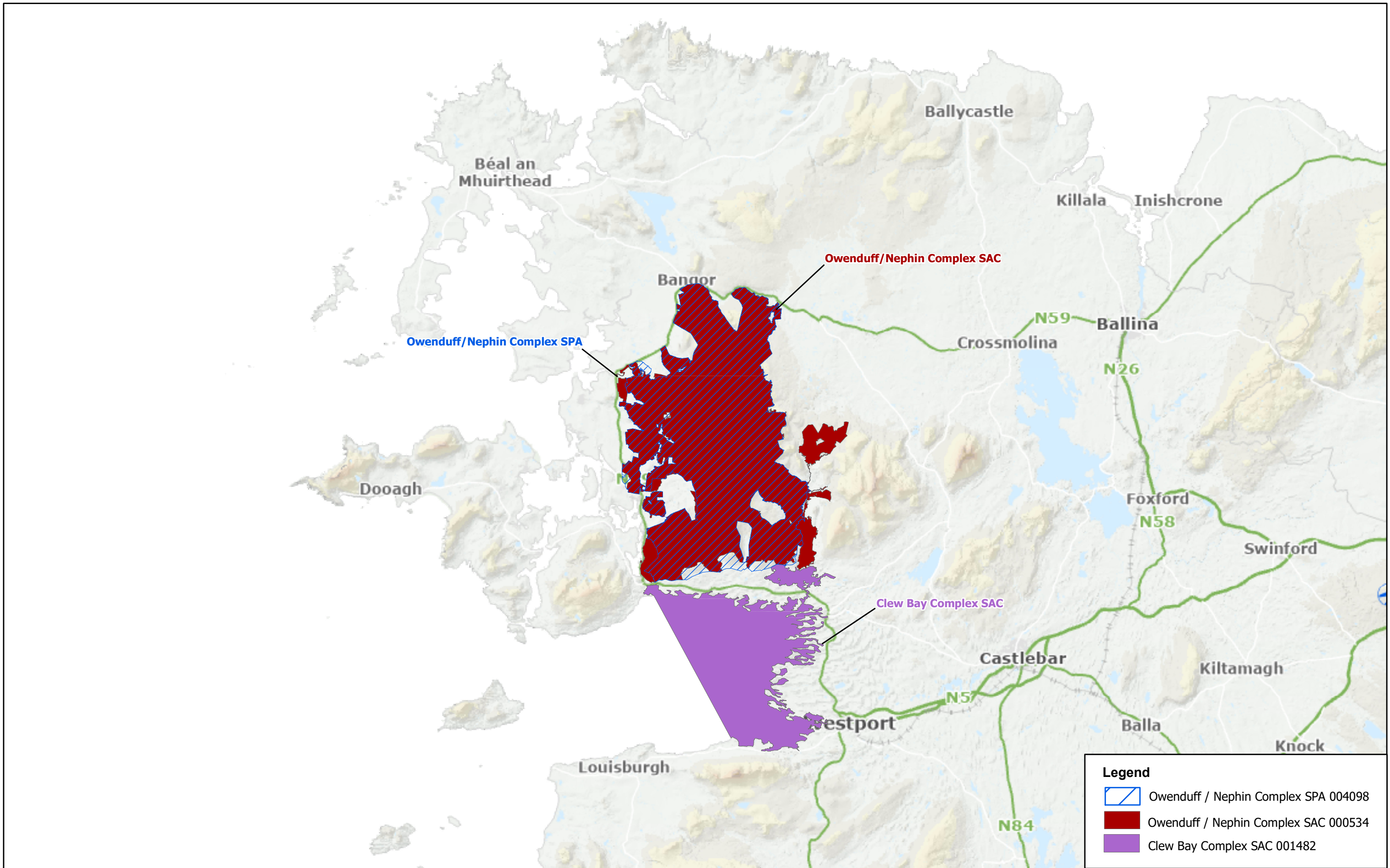
The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.  
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**Map version 1  
Date: May 2024**



**Legend**

-  Owenduff / Nephin Complex SPA 004098
-  Owenduff / Nephin Complex SAC 000534
-  Clew Bay Complex SAC 001482