

National Parks and Wildlife Service

Conservation Objectives Series

Lough Iron SPA 004046



NPWS

An tSeirbhís Páirceanna
Náisiúnta agus Fiadhúlra
National Parks and Wildlife
Service

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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

004046 Lough Iron SPA

A038 Whooper Swan *Cygnus cygnus*

A050 Wigeon *Anas penelope*

A052 Teal *Anas crecca*

A056 Shoveler *Anas clypeata*

A125 Coot *Fulica atra*

A140 Golden Plover *Pluvialis apricaria*

A395 Greenland White-fronted Goose *Anser albifrons flavirostris*

A999 Wetlands

Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

NPWS Documents

Year :	2013
Title :	A review of the SPA network of sites in the Republic of Ireland
Author :	NPWS
Series :	Unpublished Report
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Year :	2019
Title :	Irish wetland bird survey: waterbird status and distribution 2009/10-2015/16
Author :	Lewis, L. J.; Burke, B.; Fitzgerald, N.; Tierney, T. D.; Kelly, S.
Series :	Irish Wildlife Manuals No. 106

Other References

Year :	1995
Title :	Impacts of hunting disturbance on waterbirds - a review
Author :	Madsen, J.; Fox, A.D.
Series :	Wildlife Biology 1(4):193-207
<hr/>	
Year :	2016
Title :	Assessing connectivity with Special Protection Areas (SPAs)
Author :	Scottish Natural Heritage
Series :	Guidance Series Version 3 - June 2016
<hr/>	
Year :	2018
Title :	Habitat-and species mediated short-and long-term distributional changes in waterbird abundance linked to variation in European winter weather
Author :	Pavón-Jordán, D.; Clausen, P.; Dagys, M.; Devos, K.; Encarnação, V.; Fox, A.D.; Frost, T.; et al.
Series :	Diversity and Distributions, 1-15
<hr/>	
Year :	2019
Title :	Report of the 2018/19 international census of Greenland white-fronted geese
Author :	Fox, T.; Francis, I.; Walsh, A; Norriss, D.
Series :	Unpublished report
<hr/>	
Year :	2020
Title :	Report of the 2019/20 international census of Greenland white-fronted geese
Author :	Fox, T.; Francis, I.; Walsh, A.; Norriss, D.
Series :	Unpublished report
<hr/>	
Year :	2021
Title :	Report of the 2020/21 international census of Greenland white-fronted geese
Author :	Fox, T.; Francis, I.; Walsh, A.; Norriss, D.; Kelly, S.
Series :	Unpublished report
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Year :	2022
Title :	Irish wetland bird survey: I-WeBS national and site trends report 1994/95 – 2019/20
Author :	Kennedy, J.; Burke, B.; Fitzgerald, N.; Kelly, S.B.A.; Walsh, A.J; Lewis, L.J.
Series :	https://birdwatchireland.ie/app/uploads/2022/04/iwebs_trends_report.html

Year : 2022
Title : Report of the 2021/22 international census of Greenland white-fronted geese
Author : Fox, T.; Francis, I.; Walsh, A; Norriss, D.; Kelly, S.
Series : Unpublished report

Year : 2023
Title : Report of the 2022/23 international census of Greenland white-fronted geese
Author : Fox, T.; Francis, I.; Walsh, A; Norriss, D.; Kelly, S.
Series : Unpublished report

A038 Whooper Swan *Cygnus cygnus*

To restore the Favourable conservation condition of Whooper Swan in Lough Iron SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	The national population of Whooper Swan wintering in Ireland has increased in the long term, with a 40% population increase from 1991 - 2015 (Lewis et al., 2019). During the baseline assessments to inform SPA designation, 214 Whooper Swan were estimated to be using this SPA (5 year mean of peak counts for baseline period 1995/96 - 1999/2000; see NPWS, 2013). More recent data showed a population of 148 Whooper Swan used the Lough Iron SPA during the period 2017/18 - 2021/22 (5 year mean of peak counts from the Irish Wetland Bird Survey, I-WeBS). This represents an estimated population decrease of 31% since the baseline period
Winter spatial distribution	Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	Distribution encapsulates the number of locations and area of potentially suitable habitat for the wintering population and its availability for use. The suitability and availability of habitat areas is likely to vary throughout the season, for example, due to variation in land management practices or the abundance of resources available (due to natural variation and other factors). This will affect the spatio-temporal patterns of use of the habitats by the wintering population
Disturbance at wintering 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 wintering population will ultimately affect the achievement of targets for population trend and/or spatial distribution. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of winter mortality or reduced fitness (if energy expenditure is greater than energy gain), which can negatively impact population trends (see, for example, Madsen and Fox, 1995). 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
Barriers to connectivity and site use	Number, location, shape and hectares	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	Barriers limiting the population's access to this SPA or ecologically important sites outside 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. Access to ecologically important sites outside the SPA must also be considered as a single SPA may not satisfy all the ecological requirements of the wintering population, and it may require access to other SPAs or sites for certain activities, such as foraging when preferred foraging areas are unavailable due to disturbance, extensive flooding, or other factors

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	This species feeds on a wide range of aquatic and terrestrial vegetation. Key forage materials include: leaves, with significant consumption of grasses; seeds, including spilled grain; roots; tubers, including potatoes; shoots, including those from winter wheat and other cereals. Key foraging habitats are grasslands (including wet grassland, semi-improved grassland, and intensive grassland), arable stubble, winter cereals, rivers, lakes, turloughs and other wetland habitats. In general, the foraging distance of wintering Whooper Swan from night roosts is estimated to be less than 5km (Scottish Natural Heritage, 2016), although this will vary depending on site and landscape
Roost spatial distribution and extent	Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	Overnight roosting habitat consists primarily of permanent waterbodies, such as rivers, lakes, turloughs, lagoons and other open waterbodies. Roosting is a critical ecological requirement for the wintering population. Daytime roosting is also a common behaviour, where birds minimise activity levels to conserve energy, while benefitting from the vigilance of other flock members. A lack of sufficient and suitable roosting habitats can result in increased mortality risk, whether indirectly (e.g. via increased energy expenditure travelling to/from roost sites) or directly (e.g. via increased predation risk), or reduction in site use; this would ultimately affect the achievement of targets for population trend and/or spatial distribution
Supporting habitat: area and quality	Hectares and quality	Sufficient area of utilisable habitat available in ecologically important sites outside the SPA	The wintering population can make extensive use of suitable habitats in important areas outside the SPA, for foraging and roosting. The extent, availability and quality of these supporting habitats may be of importance for the resilience of the SPA population. Suitable supporting habitats include those highlighted in the attributes for foraging and roosting habitat

Conservation Objectives for : Lough Iron SPA [004046]

A050 *Wigeon Anas penelope*

To restore the Favourable conservation condition of Wigeon in Lough Iron SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	The national population of wintering Wigeon in Ireland has declined by 18% from 1994/95 - 2019/20, as monitored via I-WeBS (Kennedy et al., 2022). In a robust statistical analysis of I-WeBS data, Kennedy et al. (2022) determined that the population of Wigeon that used Lough Iron SPA decreased by 74% between winters 1995/96 - 2019/20. This result is significantly greater than the reported national population trend. In their analyses, Kennedy et al. used indices of the total count of a given species across the entire winter period, providing a more comprehensive assessment of change in the population that used the site compared to approaches such as a comparison of 5 year mean peak values
Winter spatial distribution	Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	Distribution encapsulates the number of locations and area of potentially suitable habitat for the wintering population and its availability for use. The suitability and availability of habitat areas is likely to vary throughout the season, for example, due to variation in land management practices or the abundance of resources available (due to natural variation and other factors). This will affect the spatio-temporal patterns of use of the habitats by the wintering population
Disturbance at wintering 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 wintering population will ultimately affect the achievement of targets for population trend and/or spatial distribution. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of winter mortality or reduced fitness (if energy expenditure is greater than energy gain), which can negatively impact population trends (see, for example, Madsen and Fox, 1995). 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
Barriers to connectivity and site use	Number, location, shape and hectares	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	Barriers limiting the population's access to this SPA or ecologically important sites outside 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. Access to ecologically important sites outside the SPA must also be considered as a single SPA may not satisfy all the ecological requirements of the wintering population, and it may require access to other SPAs or sites for certain activities, such as foraging when preferred foraging areas are unavailable due to disturbance, extensive flooding, or other factors
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	This dabbling duck feeds primarily on aquatic vegetation, at surface level in waterbodies or at ground level in wetland habitats. Key forage materials include leaves, stems, stolons, roots, rhizomes, and seeds (including cereals). Key wintering habitats are marshes, lagoons, estuaries, coastal bays, lakes, rivers and river floodplains, turloughs and other wetland habitats, as well as pastures

Roost spatial distribution and extent	Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	Wigeon rely primarily on wetlands or waterbodies for roosting. Roosting is a critical ecological requirement for the wintering population. When roosting overnight, this species typically utilises a similar range of habitats as noted for foraging. Daytime roosting is also a common behaviour, where birds minimise activity levels to conserve energy, while benefitting from the vigilance of other flock members. A lack of sufficient and suitable roosting habitats can result in increased mortality risk, whether indirectly (e.g. via increased energy expenditure travelling to/from roost sites) or directly (e.g. via increased predation risk), or reduction in site use; this would ultimately affect the achievement of targets for population trend and/or spatial distribution
Supporting habitat: area and quality	Hectares and quality	Sufficient area of utilisable habitat available in ecologically important sites outside the SPA	The wintering population can make extensive use of suitable habitats in important areas outside the SPA, for foraging and roosting. The extent, availability and quality of these supporting habitats may be of importance for the resilience of the SPA population. Suitable supporting habitats include those highlighted in the attributes for foraging and roosting habitat

To restore the Favourable conservation condition of Teal in Lough Iron SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	The national population of wintering Teal in Ireland has increased by 19% from 1994/95 - 2019/20, as monitored via I-WeBS (Kennedy et al., 2022). In a robust statistical analysis of I-WeBS data, Kennedy et al. (2022) determined that the population of Teal that used Lough Iron SPA decreased by 61% between winters 1995/96 - 2019/20. This result is contrary to the reported national population trend. In their analyses, Kennedy et al. used indices of the total count of a given species across the entire winter period, providing a more comprehensive assessment of change in the population that used the site compared to approaches such as a comparison of 5 year mean peak values
Winter spatial distribution	Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	Distribution encapsulates the number of locations and area of potentially suitable habitat for the wintering population and its availability for use. The suitability and availability of habitat areas is likely to vary throughout the season, for example, due to variation in land management practices or the abundance of resources available (due to natural variation and other factors). This will affect the spatio-temporal patterns of use of the habitats by the wintering population
Disturbance at wintering 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 wintering population will ultimately affect the achievement of targets for population trend and/or spatial distribution. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of winter mortality or reduced fitness (if energy expenditure is greater than energy gain), which can negatively impact population trends (see, for example, Madsen and Fox, 1995). 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
Barriers to connectivity and site use	Number, location, shape and hectares	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	Barriers limiting the population's access to this SPA or ecologically important sites outside 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. Access to ecologically important sites outside the SPA must also be considered as a single SPA may not satisfy all the ecological requirements of the wintering population, and it may require access to other SPAs or sites for certain activities, such as foraging when preferred foraging areas are unavailable due to disturbance, extensive flooding, or other factors
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	Key foraging material is predominantly small seeds but includes aquatic vegetation, algae, aquatic insects and their larvae, molluscs and crustaceans. Key habitats include shallow water depths between 4cm (dabbling) to 24cm (upending), and can be widespread on wetlands with good cover, such as reedbeds. A wide variety of habitats, both coastal and inland, and usually below an altitude of 200m, including coastal lagoons and estuaries and inland marshes, lakes, ponds and turloughs. They feed by day where they are safe from disturbance

Roost spatial distribution and extent	Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	Roosting is a critical ecological requirement for the wintering population. When roosting overnight, Teal primarily utilise permanent waterbodies, marsh, wide ditches, wet grassland and wetlands (see foraging habitats). Daytime roosting is also a common behaviour, where birds minimise activity levels to conserve energy, while benefitting from the vigilance of other flock members. A lack of sufficient and suitable roosting habitats can result in increased mortality risk, whether indirectly (e.g. via increased energy expenditure travelling to/from roost sites) or directly (e.g. via increased predation risk), or reduction in site use; this would ultimately affect the achievement of targets for population trend and/or spatial distribution
Supporting habitat: area and quality	Hectares and quality	Sufficient area of utilisable habitat available in ecologically important sites outside the SPA	The wintering population can make extensive use of suitable habitats in important areas outside the SPA, for foraging and roosting. The extent, availability and quality of these supporting habitats may be of importance for the resilience of the SPA population. Suitable supporting habitats include those highlighted in the attributes for foraging and roosting habitat

Conservation Objectives for : Lough Iron SPA [004046]

A056 Shoveler *Anas clypeata*

To restore the Favourable conservation condition of Shoveler in Lough Iron SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	The national population of wintering Shoveler in Ireland has declined by 11% from 1994/95 - 2019/20, as monitored via I-WeBS (Kennedy et al., 2022). In a robust statistical analysis of I-WeBS data, Kennedy et al. (2022) determined that the population of Shoveler that used Lough Iron SPA decreased by 67% between winters 1995/96 - 2019/20. This result is significantly greater than the reported national population trend. In their analyses, Kennedy et al. used indices of the total count of a given species across the entire winter period, providing a more comprehensive assessment of change in the population that used the site compared to approaches such as a comparison of 5 year mean peak values
Winter spatial distribution	Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	Distribution encapsulates the number of locations and area of potentially suitable habitat for the wintering population and its availability for use. The suitability and availability of habitat areas are likely to vary throughout the season, for example, due to variation in land management practices or the abundance of resources available (due to natural variation and other factors). This will affect the spatio-temporal patterns of use of the habitats by the wintering population
Disturbance at wintering 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 wintering population will ultimately affect the achievement of targets for population trend and/or spatial distribution. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of winter mortality or reduced fitness (if energy expenditure is greater than energy gain) and, in turn, negatively impact population trends (see, for example, Madsen and Fox, 1995). 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
Barriers to connectivity and site use	Number, location, shape and hectares	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	Barriers limiting the population's access to this SPA or ecologically important sites outside 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	Foraging habitats include a range of wetlands, such as marshes, rivers, flood-waters, lakes, reservoirs, lagoons and estuaries, as well as grasslands. Shoveler are omnivorous and primarily forage at the surface (dabbling or up-ending), but also dive. The species demonstrates a highly specialised filter-feeding behaviour which allows it to consume a wide variety of planktonic prey items, including crustaceans, molluscs, insects, larvae and various plant materials

Roost spatial distribution and extent	Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	Roosting is a critical ecological requirement for the wintering population. When roosting overnight, Shoveler primarily utilise wetlands (see foraging habitats). Daytime roosting is also a common behaviour, where birds minimise activity levels to conserve energy, while benefitting from the vigilance of other flock members. A lack of sufficient and suitable roosting habitats can result in increased mortality risk, whether indirectly (e.g. via increased energy expenditure travelling to/from roost sites) or directly (e.g. via increased predation risk), or reduction in site use; this would ultimately affect the achievement of targets for population trend and/or spatial distribution
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Conservation Objectives for : Lough Iron SPA [004046]

A125 Coot *Fulica atra*

To restore the Favourable conservation condition of Coot in Lough Iron SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	The national population of wintering Coot in Ireland has declined by 23% from 1994/95 - 2019/20, as monitored via I-WeBS (Kennedy et al., 2022). In a robust statistical analysis of I-WeBS data, Kennedy et al. (2022) determined that the population of Coot that used Lough Iron SPA decreased by 33% between winters 1995/96 - 2019/20. This result is greater than the reported national population trend. In their analyses, Kennedy et al. used indices of the total count of a given species across the entire winter period, providing a more comprehensive assessment of change in the population that used the site compared to approaches such as a comparison of 5 year mean peak values. Population declines are likely linked, at least in part, to distribution shifts driven by climate change (see Pavón-Jordan et al., 2018)
Winter spatial distribution	Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	Distribution encapsulates the number of locations and area of potentially suitable habitat for the wintering population and its availability for use. The suitability and availability of habitat areas is likely to vary throughout the season, for example, due to variation in land management practices or the abundance of resources available (due to natural variation and other factors). This will affect the spatio-temporal patterns of use of the habitats by the wintering population
Disturbance at wintering 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 wintering population will ultimately affect the achievement of targets for population trend and/or spatial distribution. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of winter mortality or reduced fitness (if energy expenditure is greater than energy gain) and, in turn, negatively impact population trends (see, for example, Madsen and Fox, 1995). 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
Barriers to connectivity and site use	Number, location, shape and hectares	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	Barriers limiting the population's access to this SPA or ecologically important sites outside 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	This species is omnivorous; plants dominate the diet but it will also take invertebrate and vertebrate prey. It forages primarily in waterbodies, rarely foraging far from them. The species feeds at the surface and sub-surface of waterbodies by up-ending and diving. It prefers shallow, open, slow-moving waterbodies with marginal, floating, emergent or bottom vegetation. Foraging habitats utilised by the Coot include rivers, canals, lakes, reservoirs, ponds, lagoons, estuaries, drainage channels and flooded lands. In winter, individual Coot can forage alone or as part of large aggregations

Roost spatial distribution and extent	Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	When roosting overnight, Coot use a range of waterbodies, as noted for foraging habitat. Roosting is a critical ecological requirement for the wintering population. Daytime roosting is also a common behaviour, where birds minimise activity levels to conserve energy, while benefitting from the vigilance of other flock members. A lack of sufficient and suitable roosting habitats can result in increased mortality risk, whether indirectly (e.g. via increased energy expenditure travelling to/from roost sites) or directly (e.g. via increased predation risk), or reduction in site use; this would ultimately affect the achievement of targets for population trend and/or spatial distribution
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Conservation Objectives for : Lough Iron SPA [004046]

A140 Golden Plover *Pluvialis apricaria*

To restore the Favourable conservation condition of Golden Plover in Lough Iron SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	The national population of wintering Golden Plover in Ireland has declined by 54% from 1994/95 - 2019/20, as monitored via I-WeBS (Kennedy et al., 2022). In a robust statistical analysis of I-WeBS data, Kennedy et al. (2022) determined that the population of Golden Plover that used Lough Iron SPA decreased by 93% between winters 1995/96 - 2019/20. This result is significantly greater than the reported national population trend. In their analyses, Kennedy et al. used indices of the total count of a given species across the entire winter period, providing a more comprehensive assessment of change in the population that used the site compared to approaches such as a comparison of 5 year mean peak values
Winter spatial distribution	Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	Distribution encapsulates the number of locations and area of potentially suitable habitat for the wintering population and its availability for use. The suitability and availability of habitat areas are likely to vary throughout the season, for example, due to variation in land management practices or the abundance of resources available (due to natural variation and other factors). This will affect the spatio-temporal patterns of use of the habitats by the wintering population
Disturbance at wintering 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 wintering population will ultimately affect the achievement of targets for population trend and/or spatial distribution. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of winter mortality or reduced fitness (if energy expenditure is greater than energy gain) and, in turn, negatively impact population trends (see, for example, Madsen and Fox, 1995). 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
Barriers to connectivity and site use	Number, location, shape and hectares	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	Barriers limiting the population's access to this SPA or ecologically important sites outside 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. Access to ecologically important sites outside the SPA must also be considered as a single SPA may not satisfy all the ecological requirements of the wintering population, and it may require access to other SPAs or sites for certain activities, such as foraging when preferred foraging areas are unavailable due to disturbance, extensive flooding, or other factors

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	This species forages exclusively at ground level and relies primarily on surface and sub-surface dwelling invertebrate prey, consuming a wide variety of prey items. The species is reliant on open habitats, including a wide range of wetland habitats such as the edges of lakes, turloughs, river floodplains, lagoons, estuaries, intertidal flats and other wetlands, as well as grasslands (wet grassland, semi-improved and improved grasslands), stubble fields and ploughed farmlands. While Golden Plover primarily forage diurnally, the species is also known to feed nocturnally on clear and moonlit nights
Roost spatial distribution and extent	Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	Golden Plover roost exclusively at ground level. Roosting is a critical ecological requirement for the wintering population. When roosting overnight, this species typically utilises a similar range of habitats as noted for foraging. Daytime roosting is also a common behaviour, where birds minimise activity levels to conserve energy, while benefitting from the vigilance of other flock members. A lack of sufficient and suitable roosting habitats can result in increased mortality risk, whether indirectly (e.g. via increased energy expenditure travelling to/from roost sites) or directly (e.g. via increased predation risk), or reduction in site use; this would ultimately affect the achievement of targets for population trend and/or spatial distribution
Supporting habitat: area and quality	Hectares and quality	Sufficient area of utilisable habitat available in ecologically important sites outside the SPA	The wintering population can make extensive use of suitable habitats in important areas outside the SPA, for foraging and roosting. The extent, availability and quality of these supporting habitats may be of importance for the resilience of the SPA population. Suitable supporting habitats include those highlighted in the attributes for foraging and roosting habitat

Conservation Objectives for : Lough Iron SPA [004046]

A395 Greenland White-fronted Goose *Anser albifrons flavirostris*

To restore the Favourable conservation condition of Greenland White-fronted Goose in Lough Iron SPA, which is defined by the following list of attributes and targets:

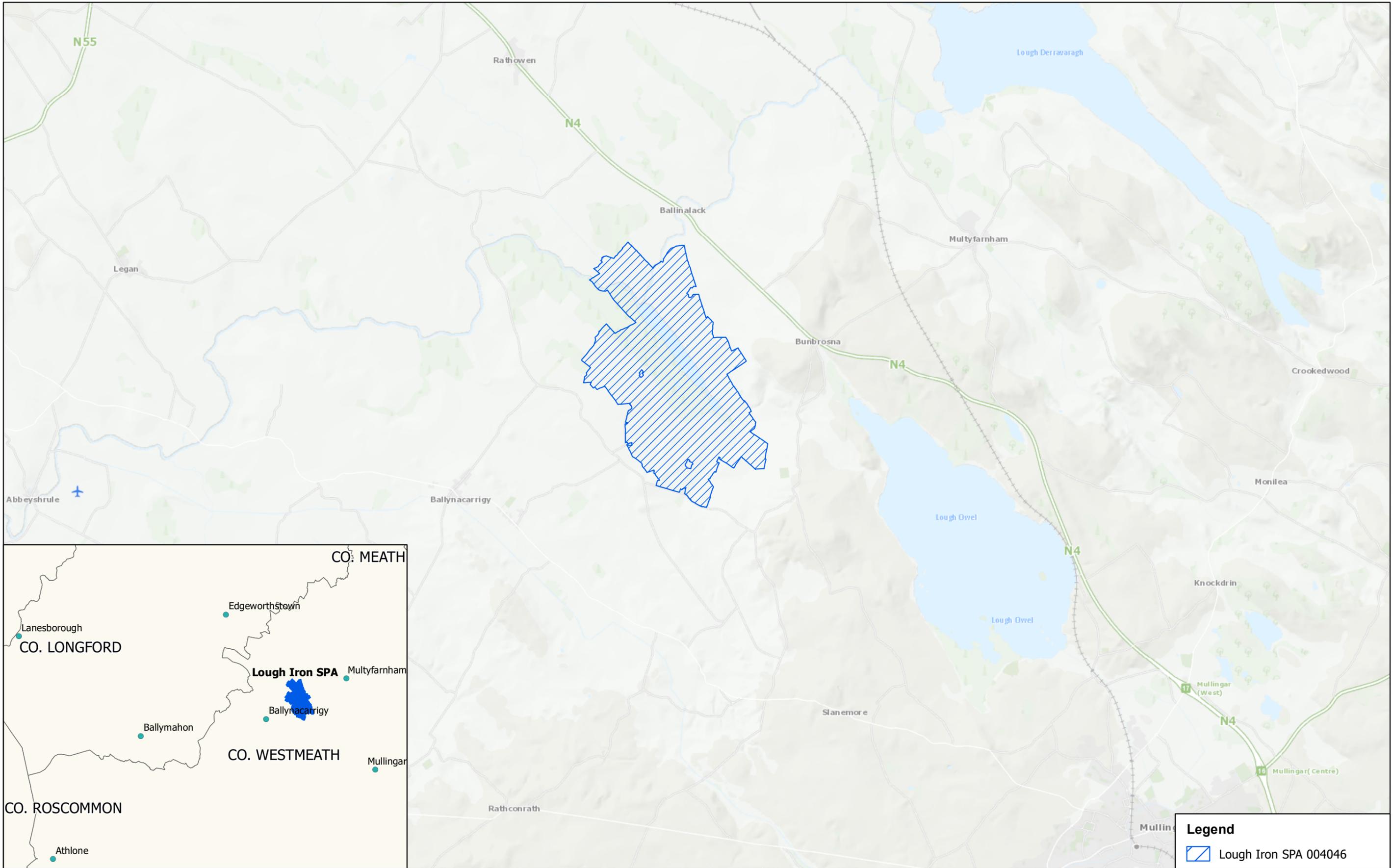
Attribute	Measure	Target	Notes
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	The national population of Greenland White-fronted Goose has declined by 13% between 1985 - 2018 (NPWS, 2019). During the baseline assessments to inform SPA designation, 426 geese were estimated to be using this SPA (5 year mean of peak counts for baseline period 1994/95 - 1998/99; see NPWS, 2013). In recent years, a total of 255 Greenland White-fronted Geese were determined to be using the SPA (5 year mean of peak counts from the annual Greenland White-fronted Goose Survey 2018/19 - 2022/23; see Fox et al. 2019, 2020, 2021, 2022 and 2023). This represents a SPA population decline of 40% since the baseline period, which is significantly greater than the noted national population decline
Winter spatial distribution	Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	Distribution encapsulates the number of locations and area of potentially suitable habitat for the wintering population and its availability for use. The suitability and availability of habitat areas are likely to vary throughout the season, for example, due to variation in land management practices or the abundance of resources available (due to natural variation and other factors). This will affect the spatio-temporal patterns of use of the habitats by the wintering population
Disturbance at wintering 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 wintering population will ultimately affect the achievement of targets for population trend and/or spatial distribution. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of winter mortality or reduced fitness (if energy expenditure is greater than energy gain) and, in turn, negatively impact population trends (see, for example, Madsen and Fox, 1995). 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
Barriers to connectivity and site use	Number, location, shape and hectares	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	Barriers limiting the population's access to this SPA or ecologically important sites outside 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. Access to ecologically important sites outside the SPA must also be considered as a single SPA may not satisfy all the ecological requirements of the wintering population, and it may require access to other SPAs or sites for certain activities, such as foraging when preferred foraging areas are unavailable due to disturbance, extensive flooding, or other factors

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	This species is a grazer, feeding on a wide range of vegetation. Key forage materials include roots, tubers (such as potatoes), shoots (such as winter wheat), stolons, rhizomes, leaves (such as grasses), and seed such as (spilled) grain. Key habitats include peat bogs (including raised bogs and blanket bogs), grasslands (such as wet grassland, callows, semi-improved grassland, and intensive grassland), arable stubble, winter cereal fields, coastal grasslands, and occasionally salt marsh. In general, the foraging distance of wintering Greenland White-fronted Goose from night roosts is estimated at 5 to 8km (Scottish Natural Heritage, 2016), although this will vary depending on site and landscape
Roost spatial distribution and extent	Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	Overnight roosting habitat mainly consists of permanent waterbodies, such as lakes, estuaries, bays, and other open waterbodies. When roosting in waterbodies, this species can roost on above-water features such as sandbanks. Roosting is a critical ecological requirement for the wintering population. Daytime roosting is also a common behaviour, where birds minimise activity levels to conserve energy, while benefitting from the vigilance of other flock members. A lack of sufficient and suitable roosting habitats can result in increased mortality risk, whether indirectly (e.g. via increased energy expenditure travelling to/from roost sites) or directly (e.g. via increased predation risk), or reduction in site use; this would ultimately affect the achievement of targets for population trend and/or spatial distribution
Supporting habitat: area and quality	Hectares and quality	Sufficient area of utilisable habitat available in ecologically important sites outside the SPA	The wintering population can make extensive use of suitable habitats in important areas outside the SPA, for foraging and roosting. The extent, availability and quality of these supporting habitats may be of importance for the resilience of the SPA population. Suitable supporting habitats include those highlighted in the attributes for foraging and roosting habitat

A999 Wetlands

To maintain the Favourable conservation condition of Wetland habitats in Lough Iron SPA as a resource for the regularly-occurring migratory waterbirds that utilise these areas. This is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Wetland habitat area	Hectares	No significant loss to wetland habitat within the SPA, other than that occurring from natural patterns of variation	Any significant loss to the wetland habitat within the SPA would likely negatively impact the regularly-occurring migratory waterbirds that utilise this wetland habitat. Such loss of wetland habitat would likely reduce the diversity and abundance of waterbird species that the wetland can support. This, in turn, could negatively impact the Conservation Objectives for waterbird species listed as Special Conservation Interests in the SPA or other regularly-occurring migratory waterbird species
Wetland habitat quality and functioning	Quality and function of the wetland habitat	No significant impact on the quality or functioning of the wetland habitat within the SPA, other than that occurring from natural patterns of variation	Any significant impact on the quality, functioning and accessibility of the wetland habitat within the SPA would likely negatively impact the regularly-occurring migratory waterbirds that utilise this wetland habitat. Impacts on wetland quality, functioning and accessibility would likely reduce the diversity and abundance of waterbird species that the wetland can support. This, in turn, could negatively impact the Conservation Objectives for waterbird species listed as Special Conservation Interests in the SPA or other regularly-occurring migratory waterbird species



Legend

 Lough Iron SPA 004046



**MAP 1:
LOUGH IRON SPA
CONSERVATION OBJECTIVES
SPA DESIGNATION**

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

**SITE CODE:
SPA 004046; version 3
CO. WESTMEATH**

0 0.5 1 2 Kilometres



The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.
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arna atáirgeadh faoin rannán mapála Náisiúnta d'uimhir cheadúnais Tailte Éireann CYAL50351092

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**Map version 1
Date: February 2024**