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Conservation Objectives Series

Middle Shannon Callows SPA 004096

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Local Government and Heritage

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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***

004096	Middle Shannon Callows SPA
A038	Whooper Swan *Cygnus cygnus*
A050	Wigeon *Anas penelope*
A122	Corncrake *Crex crex*
A140	Golden Plover *Pluvialis apricaria*
A142	Lapwing *Vanellus vanellus*
A156	Black-tailed Godwit *Limosa limosa*
A179	Black-headed Gull *Chroicocephalus ridibundus*
A999	Wetlands

Please note that this SPA overlaps with or is adjacent to Lough Derg (Shannon) SPA (004058), River Little Brosna Callows SPA (004086), River Suck Callows SPA (004097), River Shannon Callows SAC (000216), Pilgrim's Road Esker SAC (001776), Lough Derg, North-east Shore SAC (002241) and Redwood Bog SAC (002353). See map 2. The conservation objectives for this site should be used in conjunction with those for the overlapping sites as appropriate.

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
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
Year :	2021
Title :	Aerial surveys by NPWS staff: I-WeBS sites (Winter 2020-21) and the international swan census survey (Winter 2019-20)
Author :	NPWS
Series :	Unpublished report
Year :	2022
Title :	Aerial survey data stored centrally in the Irish wetland bird survey (I-WeBS) database
Author :	NPWS
Series :	https://irishwetlandbirdsurvey.ie/

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
Year :	2019
Title :	Annex B – Bird species' status and trends report format (Article 12) for the period 2013 – 2018
Author :	NPWS
Series :	Birds Directive - Article 12 Reporting
Year :	2021
Title :	Population size, breeding success and habitat use of whooper swan *Cygnus cygnus* and Bewick's Swan *Cygnus columbianus bewickii* in Ireland: results of the 2020 international swan census
Author :	Burke, B.; McElwaine, J.G.; Fitzgerald, N.; Kelly, S.B.A.; McCulloch, N.; Walsh, A.J.; Lewis, L.J.
Series :	Irish Birds 43:57-70
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

A038 Whooper Swan *Cygnus cygnus*

To maintain the favourable conservation condition of whooper swan in Middle Shannon Callows 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 over-wintering in Ireland has increased in the long term, with a 40% population increase from 1991 to 2015 (Lewis et al., 2019). During the baseline assessments to inform SPA designation, 305 whooper swans were estimated to be using this SPA (4 year mean of peak counts from a combination of aerial and groundbased surveys for baseline period 1995/96 to 1999/2000; see NPWS, 2013; note no data for the winter of 1997/98 was available). A population of 728 whooper swan was estimated to be using the Middle Shannon Callows SPA in recent years (3 year mean of peak counts from aerial- and ground-based surveys during winters 2018/19 to 2020/21; Edge et al., 2020; NPWS, 2021 and 2022). This represents an estimated population increase of 139% 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	The intensity, frequency, timing and duration of 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 over-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 over-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	The number, location, shape and area of 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 and area, and available 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 over-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. For recent information on this species use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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	Over-night roosting habitat mainly consists primarily of permanent waterbodies, such as rivers, lakes, turloughs, lagoons and other open waterbodies. Roosting is a critical ecological requirement for the over-wintering population. Day-time 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. For recent information on this species use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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

A050 Wigeon *Anas penelope*

To restore the favourable conservation condition of wigeon in Middle Shannon Callows 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 over-wintering wigeon in Ireland has declined by 18% from 1994/95 to 2019/20, as monitored via the Irish Wetland Bird Survey (Kennedy et al., 2022). During the baseline assessments to inform SPA designation, 3,059 wigeon were estimated to be using this SPA (4 year mean of peak counts from a combination of aerial and ground based surveys for baseline period 1995/96 to 1999/2000; see NPWS, 2013; note no data for the winter of 1997/98 was available). The most recent available data to assess the population trend is from two aerial surveys completed during the winters of 2018/19 and 2020/21 (Edge et al., 2020; NPWS, 2021). A population of 2,759 wigeon was estimated to be using the Middle Shannon Callows SPA during this period (2 year mean of peak counts). This represents an estimated population decline of 10% 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	The intensity, frequency, timing and duration of 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 over-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 over-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	The number, location, shape and area of 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 and area, and available 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 over-wintering habitats are marshes, lagoons, estuaries, coastal bays, lakes, rivers and river floodplains, turloughs and other wetland habitats, as well as pastures. For recent information on this species use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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 over-wintering population. When roosting over-night, this species typically utilises a similar range of habitats as noted for foraging. Day-time 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. For recent information on this species use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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 : Middle Shannon Callows SPA [004096]

A122 **Corncrake *Crex crex***

The status of corncrake as a Species of Conservation Interest for the Middle Shannon Callows SPA is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this species

Attribute	Measure	Target	Notes

A140 Golden Plover *Pluvialis apricaria*

To maintain the favourable conservation condition of golden plover in Middle Shannon Callows 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 over-wintering golden plover in Ireland has declined by 54% from 1994/95 to 2019/20, as monitored via the Irish Wetland Bird Survey (Kennedy et al., 2022). During the baseline assessments to inform SPA designation, 4,133 golden plover were estimated to be using this SPA (4 year mean of peak counts from a combination of aerial and ground based surveys for baseline period 1995/96 to 1999/2000; see NPWS, 2013; note no data for the winter of 1997/98 was available). The most recent available data to assess the population trend is from two aerial surveys completed during the winters of 2018/19 and 2020/21 (Edge et al., 2020; NPWS, 2021). A population of 5,130 golden plover was estimated to be using the Middle Shannon Callows SPA during this period (2 year mean of peak counts). This represents an estimated population increase of 24% 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	The intensity, frequency, timing and duration of 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 over-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 over-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	The number, location, shape and area of 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 and area, and available 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 coastal wetlands, as well as in 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. For recent information on this species use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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 over-wintering population. When roosting over-night, this species typically utilises a similar range of habitats as noted for foraging. Day-time 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. For recent information on this species use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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

A142 Lapwing *Vanellus vanellus*

To restore the favourable conservation condition of lapwing in Middle Shannon Callows 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 over-wintering lapwing in Ireland has declined by 64% from 1994/95 to 2019/20, as monitored via the Irish Wetland Bird Survey (Kennedy et al., 2022). During the baseline assessments to inform SPA designation, 13,240 were estimated to be using this SPA (4 year mean of peak counts from aerial surveys for baseline period 1995/96 to 1999/2000; see NPWS, 2013; note no data for the winter of 1997/98 was available). The most recent available data to assess the population trend is from two aerial surveys completed during the winters of 2018/19 and 2020/21 (Edge et al., 2020; NPWS, 2021). A population of 2,159 was estimated to be using the Middle Shannon Callows SPA during this period (2 year mean of peak counts). This represents an estimated population decline of 84% 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	The intensity, frequency, timing and duration of 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 over-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 over-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	The number, location, shape and area of 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 and area, and available 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 coastal wetlands, as well as grasslands (wet grassland, semi-improved and improved grasslands) and ploughed farmlands. While lapwing feed primarily diurnally, the species is also known to feed nocturnally on clear and moonlit nights. For recent information on this species use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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	Lapwing roost exclusively at ground level. Roosting is a critical ecological requirement for the over-wintering population. When roosting over-night, this species typically utilises a similar range of habitats as noted for foraging. Day-time 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. For recent information on this species use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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

A156 Black-tailed Godwit *Limosa limosa*

To restore the favourable conservation condition of Black-tailed godwit in Middle Shannon Callows 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 over-wintering black-tailed godwit in Ireland has increased by 92% from 1994/95 to 2019/20, as monitored via the Irish Wetland Bird Survey (Kennedy et al., 2022). During the baseline assessments to inform SPA designation, 485 black-tailed godwit were estimated to be using this SPA (4 year mean of peak counts from a combination of aerial and ground based surveys for the baseline period 1995/96 to 1999/2000; see NPWS, 2013; note no data for the winter of 1997/98 was available). The most recent available data to assess the population trend is from two aerial surveys completed during the winters of 2018/19 and 2020/21 (Edge et al., 2020; NPWS, 2021). A population of 300 black-tailed godwit was estimated to be using the Middle Shannon Callows SPA during this period (2 year mean of peak counts). This represents an estimated population decline of 38% 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	The intensity, frequency, timing and duration of 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 over-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 over-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	The number, location, shape and area of 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 and area, and available 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 avoids tall, dense vegetation and water deeper than it can stand in. The species relies primarily on surface and sub-surface dwelling invertebrate prey, but also consumes plant materials (e.g. cereal grain). This species consumes a wide variety of invertebrate prey, including polychaete worms, molluscs, crabs, amphipods and larvae (e.g. of Tipulidae). The species is reliant on open habitats, including a wide range of wetland habitats, such as marshes, the shores of lakes and turloughs, river floodplains, lagoons, intertidal estuarine flats (preferring mud flats) and other coastal wetlands, as well as grasslands (wet grassland, semi-improved and improved grasslands). For recent information on this species use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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	This species roosts exclusively at ground level. Roosting is a critical ecological requirement for the over-wintering population. When roosting over-night, this species typically utilises a similar range of habitats as noted for foraging. Day-time 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. For recent information on this species use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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

A179 Black-headed Gull *Chroicocephalus ridibundus*

To restore the favourable conservation condition of black-headed gull in Middle Shannon Callows 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 waterbird monitoring scheme (Irish Wetland Bird Survey) does not comprehensively monitor this population and therefore robust national population estimates and trends cannot be generated (Lewis et al., 2019).During the baseline assessments to inform SPA designation, 1,209 individuals were estimated to be using this SPA (4 year mean of peak counts from a combination of aerial and ground based surveys for the baseline period 1995/96 to 1999/2000; see NPWS, 2013; note no data for the winter of 1997/98 was available). The most recent available data to assess the population trend comes from aerial surveys completed during the winters of 2018/19 and 2020/21 (Edge et al., 2020; NPWS, 2021). A population of 1,055 individuals was estimated to be using the Middle Shannon Callows SPA during this period (2 year mean of peak counts). This represents an estimated population decline of 13% 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	The intensity, frequency, timing and duration of 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 over-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 over-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	The number, location, shape and area of 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

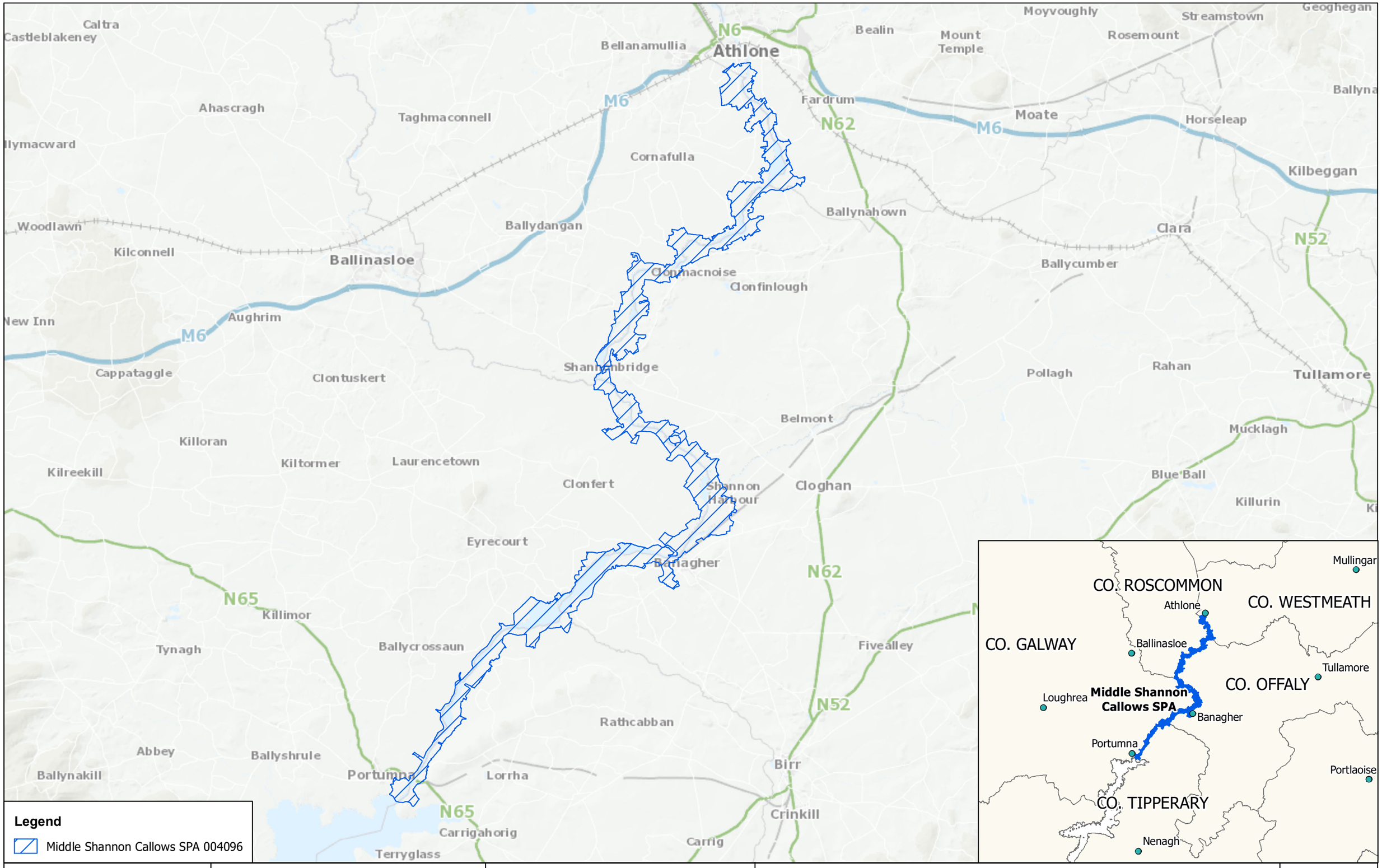
Forage spatial distribution, extent and abundance	Location and area, and available forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	Black-headed gull diet can be both broad and opportunistic and includes both aquatic and terrestrial insects, earthworms as well as plant material (e.g. seeds). Key over-wintering habitats include both wetlands and surrounding agricultural areas. For recent information on this species' use of habitats along the Middle Shannon Callows SPA and its environs see Edge et al. (2020)
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	Black-headed gull rely primarily on wetlands or waterbodies for roosting. Open areas adjacent to such areas may also be important. Roosting is a critical ecological requirement for the over-wintering population. 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. For recent information on this species' use of habitats along the Middle Shannon Callows SPA and its environs, see Edge et al. (2020)
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 : Middle Shannon Callows SPA [004096]

A999 Wetlands

To maintain the favourable conservation condition of wetlands in Middle Shannon Callows SPA, which 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 significantly negatively impact the regularly-occuring 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-occuring 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 significantly negatively impact the regularly-occuring migratory waterbirds that utilise this wetland habitat. Impacts on wetland quality, functioning and accessibility would llikely 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-occuring migratory waterbird species



An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

MAP 1:
MIDDLE SHANNON CALLOWS SPA
CONSERVATION OBJECTIVES
SPA DESIGNATION

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

SITE CODE:
SPA 004096; version 3.01
COs GALWAY, OFFALY,
TIPPERARY, WESTMEATH, ROSCOMMON

0 1.5 3 6 Kilometres

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Date: November 2022

River Suck Callows SPA 004097

Pilgrim's Road Esker SAC 001776

River Shannon Callows SAC 000216

Middle Shannon Callows SPA 004096

River Little Brosna Callows SPA 004086

Redwood Bog SAC 002353

Lough Derg, North-east Shore SAC 002241

Lough Derg (Shannon) SPA 004058

Legend

- Middle Shannon Callows SPA 004096
- Lough Derg (Shannon) SPA 004058
- River Little Brosna Callows SPA 004086
- River Suck Callows SPA 004097
- River Shannon Callows SAC 000216
- Pilgrim's Road Esker SAC 001776
- Lough Derg, North-east Shore SAC 002241
- Redwood Bog SAC 002353

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

MAP 2:
MIDDLE SHANNON CALLOWS SPA
CONSERVATION OBJECTIVES
OVERLAPPING AND ADJACENT SITES

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

SITE CODE:
SPA 004096; version 3.01
COs GALWAY, OFFALY,
TIPPERARY, WESTMEATH, ROSCOMMON

0 2.5 5 10 Kilometres

N

Date: November 2022