An tSeirbhís Páirceanna Náisiúnta agus Fiadhúlra
National Parks and Wildlife Service

The status and distribution of wintering waterbirds in Ireland in 2023: results from the Irish Wetland Bird Survey (I-WeBS)

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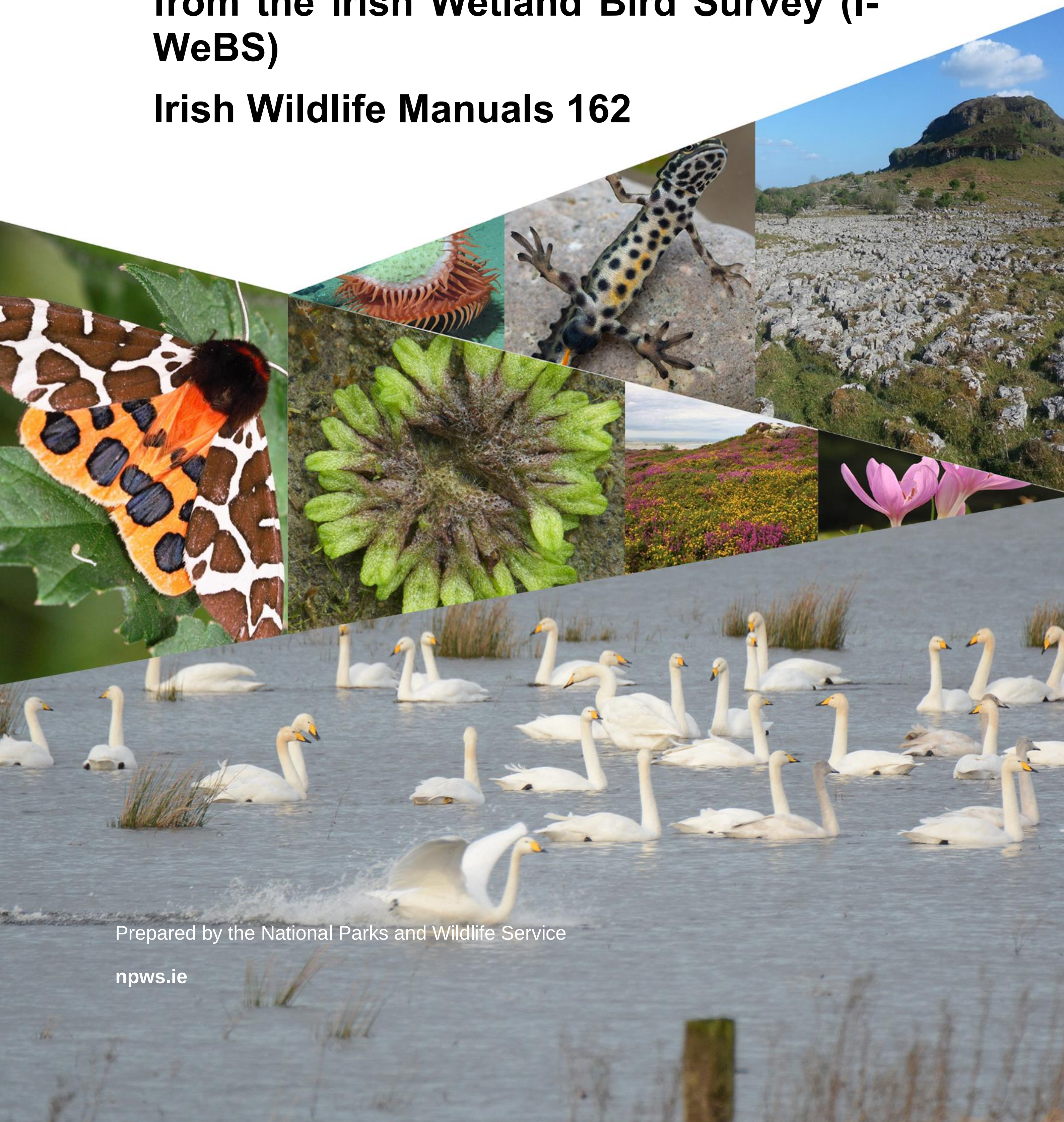

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Front cover, from left to right and top to bottom:

A deep water fly trap anemone *Phelliactis* sp., Yvonne Leahy; **Common Newt** *Lissotriton vulgaris,* Brian Nelson; **Limestone pavement**, Bricklieve Mountains, Co. Sligo, Andy Bleasdale; **Garden Tiger** *Arctia caja,* Brian Nelson; **Violet Crystalwort** *Riccia huebeneriana*, Robert Thompson; **Coastal heath**, Howth Head, Co. Dublin, Maurice Eakin; **Meadow Saffron** *Colchicum autumnale*, Lorcan Scott

Bottom photograph: **Whooper Swans** *Cygnus cygnus*, Lough Ree, Co. Roscommon, Brian Burke

The status and distribution of wintering waterbirds in Ireland in 2023: results from the Irish Wetland Bird Survey (I-WeBS).

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Executive Summary

Annual monitoring of the distribution and abundance wintering (non-breeding) waterbirds is carried out in the Republic of Ireland by the Irish Wetland Bird Survey (I-WeBS). This monitoring programme, which commenced during the 1994/95 season, is funded by the National Parks and Wildlife Service and, to date, has been coordinated under contract by BirdWatch Ireland. I-WeBS monitors coastal wetland sites together with inland lakes, turloughs, rivers and callows. Estimates of national population size and populations trends for a range of wintering waterbird species were generated using data from I-WeBS and associated surveys, including the Non-Estuarine Coastal Waterbird Survey (NEWS) and a number of species-specific surveys. I-WeBS, together with these other surveys, therefore provides the principal tool used in the monitoring of wintering waterbird populations in Ireland and the wetlands upon which they rely, as well as informing their conservation locally, nationally and internationally. Importantly, these data underpin Ireland's reporting under Article 12 of the EU Birds Directive and thus for monitoring and assessing the efficacy of the Directive for the conservation of birdlife on a national and European scale.

This report includes a single comprehensive account on the current population status of wintering waterbirds and their sites in the Republic of Ireland for the period 2016/17 – 2022/23. A total of 486 sites were surveyed during this period, 290 of which were covered in three or more seasons. Detailed accounts are provided for 63 regularly occurring waterbird species; comprising 39 species within the 'wildfowl and allies' category (swans, geese, ducks and their allies), 18 wading bird species, and 6 gull species. For each regularly occurring waterbird species, a national (and all-Ireland) population estimate is provided, as well as estimates of population trends over various time periods. It was possible to calculate population trends for 44 of these species. Summary data are provided for 69 non-regularly occurring waterbird species.

Of the 29 wildfowl and ally species that were assessed, 11 species are showing declines over the recent 5-year period, with Bewick's Swan showing the greatest decline (42.9%). Over the recent 26-year period, five species (Bewick's Swan, Pochard, Tufted Duck, Scaup and Goldeneye) have declined by >50% and a further five species have declined between 25-50% (Shelduck, Mallard, Greenland White-Fronted Goose, Greylag Goose (Icelandic) and Wigeon). Conversely, Little Egret, Whooper Swan, Brent Goose, Canada Goose, Barnacle Goose and Eider have increased by >50% over the 26-year period, and Greylag Goose (resident), Little Grebe, Cormorant and Gadwall have increased by 25-50%. Though Canada Goose, Barnacle Goose and Gadwall have increased in the long-term, their populations have shown declines in the short-term.

Seven of the 15 wader species assessed are showing declines over the recent 5-year period, with 10 of the 15 showing declines over the 26-year period. Two wader species (Grey Plover and Lapwing) have declined by >50% in the 26-year period, with five species (Golden Plover, Purple Sandpiper, Dunlin, Turnstone and Curlew) declining between 25-50% in the same timeframe. Three wader species (Sanderling, Black-tailed Godwit and Greenshank) have increased by >50% during this period. It was not possible to calculate national population estimates or trends for gull species.

This report also includes an assessment of the current pressures and predicted future threats facing Ireland's wintering waterbirds. Based on this assessment, the most significant pressures and threats are: avian influenza, recreation and other disturbance, energy production and related infrastructure (*e.g*. wind farms), mixed source water pollution/eutrophication, fisheries and aquaculture, climate change, hunting, urbanisation and development, agriculture and forestry, invasive alien species and problematic native species, and natural processes. A synthesis of these pressures and threats is included, with relevant information gaps highlighted.

This report employs updated methods for data analysis and therefore represents the most comprehensive and robust assessment of wintering waterbird populations and their trends over time. Furthermore, this report identifies areas where survey coverage in I-WeBS and associated surveys could be improved, as well as identifying where new survey approaches are required, such as aerial surveys for offshore marine waterbirds and a new approach for gull species.

Acknowledgements

This report is based on data gathered by more than 1100 committed volunteer observers, supplemented by professional conservation staff from the National Parks and Wildlife Service and BirdWatch Ireland. These passionate, devoted, diligent contributors have spent tens of thousands of hours in winter surveying the wetlands of Ireland. Without them, this analysis of waterbirds would not be possible, and we would not be able to quantify how the wintering waterbirds of Ireland are doing at local and national levels, nor contribute the Irish perspective to the status of these species across Europe and beyond.

As a small token of our appreciation, we dedicate this publication to everyone that has contributed to the Irish Wetland Bird Survey (I-WeBS) since its launch in 1994, and to those that have participated in related waterbird surveys across the island of Ireland. A list of I-WeBS participants is included in Appendix 1.

We are very grateful to the British Trust for Ornithology (BTO) for contributing data for all Northern Ireland WeBS sites to this analysis. We thank the Irish Brent Goose Research Group (Kerry Mackie), the Irish Whooper Swan Study Group (Graham McElwaine) and the Greenland White-fronted Goose Study Group (Alyn Walsh, Tony Fox) for data and input. Waterbird numbers, usage and distribution on the River Shannon and the River Fergus Estuaries 2017-2020 were kindly provided by The Strategic Integrated Framework Plan for the Shannon Estuary Steering Group. Our sincere thanks to the Irish Air Corps for facilitating our aerial surveys, and to the various photographers who kindly provided the images that accompany the species accounts.

A special thanks to former I-WeBS staff members who have worked on the project since its inception and helped guide and foster it into the very valuable resource it is today. A sincere thanks also to our colleagues in BirdWatch Ireland and the National Parks and Wildlife Service who contributed refinements to draft versions of this report.

With I-WeBS having just celebrated its 30th anniversary, the wintering waterbird database is an outstanding national resource and its value continues to grow. The National Parks and Wildlife Service and BirdWatch Ireland are proud to present this latest report into the status and distribution of the waterbirds in Ireland.

Glossary

The following abbreviations and terms are used in this text.

AEWA	African-Eurasian Migratory Waterbird Agreement
All-Ireland	Referring to the island of Ireland and associated small islands
BIM	An Bord Iascaigh Mhara
BTO	British Trust for Ornithology
CSR	Conservation Status Report
DAFM	Department of Agriculture, Food and the Marine
EAF	East Atlantic Flyway
EPA	Environmental Protection Agency
GAM	Generalised Additive Model
IBGRG	Irish Brent Goose Research Group
IGC	International Goose Census
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
I-WeBS	Irish Wetland Bird Survey
IWSSG	Irish Whooper Swan Study Group
NAO	North Atlantic Oscillation
NARGC	National Association of Regional Game Councils
NEWS	Non-Estuarine Coastal Waterbird Survey
NI	Northern Ireland - the six counties on the island of Ireland within the United Kingdom
NPWS	National Parks and Wildlife Service
ROI	Republic of Ireland - the twenty-six counties on the island of Ireland within the state of Ireland
SEAI	Sustainable Energy Authority of Ireland
SPA	Special Protection Area
UK	United Kingdom
WeBS	Wetland Bird Survey (UK)

1 Introduction

Over-wintering waterbirds are one of the most conspicuous and numerous elements of the Irish avifauna. Ireland has an abundance of coastal and inland wetlands and while these are biodiversity-rich habitats year-round, the numbers and diversity of birds surge at these wetlands each autumn with the arrival of migratory non-breeding waterbirds. The majority of species that over-winter in Ireland migrate from breeding grounds to the north and north-west (principally Canada, Greenland and Iceland) or from the north-east (Scotland and northern continental Europe, including Scandinavia, and Russia) (Wetlands International, 2018). Ireland is located along an important migratory route – the East Atlantic Flyway – with birds travelling from northern breeding grounds to Ireland and to other important wintering areas farther south. Ireland's relatively mild climate, moderated by the influences of the Atlantic Ocean and Gulf Stream, together with its diversity and abundance of productive wetland habitats, make it particularly attractive for wintering waterbirds, especially when other parts of north-west Europe experience harsh winter conditions. This means that Ireland is of critical importance in an international context to a large proportion of waterbirds, whether it is as a wintering refuge or an important place to stop, feed and rest before undertaking further migration to other wintering or breeding grounds. The conservation and sustainable management of these birds and the wetlands they utilise in Ireland can help ensure survival over winter, and their return to their summering grounds in a suitable condition for breeding.

The importance of Ireland's wetlands for wintering waterbirds has long been recognised due to early national surveys undertaken during the 1970s (Hutchinson, 1979) and repeated during the 1980s (Sheppard, 1993). In 1994/95, the Irish Wetland Bird Survey (I-WeBS) was initiated. Overseen and funded by the National Parks and Wildlife Service (NPWS), to date it has been coordinated and delivered by BirdWatch Ireland under contract. The primary objective of I-WeBS is to monitor the numbers and distribution of waterbird populations wintering in the Republic of Ireland using a standardised methodology across a network of defined survey sites. The survey focuses on those birds wintering here, as opposed to autumn and spring passage migrants. I-WeBS runs in parallel with the UK Wetland Bird Survey (WeBS), which covers Britain and Northern Ireland and is coordinated by the British Trust for Ornithology (BTO). In addition to I-WeBS site 'core counts', additional species-specific censuses are carried out at regular intervals for most migratory swan and goose species that winter here, in coordination with expert groups in Ireland and colleagues in other parts of the respective species wintering areas. In addition, the Non-Estuarine Coastal Waterbird Survey (NEWS) is undertaken under the auspices of I-WeBS approximately every nine years and provides data on the abundance and distribution of waterbirds along non-estuarine coasts not monitored during I-WeBS counts.

The waterbird data gathered via I-WeBS serve a variety of purposes. They help identify and protect sites of particular importance, for example by designation as a Special Protection Area (SPA) under the European Birds Directive (2009/147/EC). They provide the foundations for quantifying waterbird population sizes, and the trends in these populations over time. These analyses at local and national level also contribute to coordinated European and flyway-level population monitoring. Results from I-WeBS often form the basis for informed decision-making by planners, conservationists and developers on the sustainable use and management of wetland habitats and their waterbird communities. In these ways and more I-WeBS, together with its associated surveys, provides fundamental tools to inform the conservation of wintering waterbirds, and the wetlands that they depend upon, in Ireland and abroad.

This report provides a single comprehensive account of the current status of wintering waterbirds in the Republic of Ireland based primarily on data collected from 2016/17 to 2022/23 inclusive. It follows on from earlier reports (Delany, 1996, 1997; Colhoun, 1999, 2000, 2001a, 2001b; Crowe, 2005; Boland & Crowe, 2012; Lewis *et al.*, 2019) and provides updated assessments of population size and trends, key sites, and pressures and threats faced by wintering waterbirds in the Republic of Ireland.

2 Methods

2.1 Waterbirds monitored through I-WeBS

The term 'waterbirds' is defined as birds that are ecologically dependent on wetlands (Ramsar Convention, 1971). A waterbird population is a distinct assemblage of individuals of a species, that is either geographically discrete from other populations at all times of the year, or at some times of the year only, or is a specified part of a continuous distribution so defined for the purposes of conservation management (AEWA, 2022). There is often overlap of populations at some stage of the annual life cycle, but most species tend to remain isolated in their flyways (Wetlands International, 2006). For the purposes of this report, the term *waterbird* includes species in the families Anatidae (ducks, geese and swans), Rallidae (rails, crakes and coots), Podicipedidae (grebes), Haematopodidae (oystercatchers), Charadriidae (plovers), Scolopacidae (sandpipers, snipes and phalaropes), Laridae (gulls and terns, excluding Kittiwake *Rissa tridactyla*), Gaviidae (divers), Phalacrocoracidae (Cormorants and Shags) and Ardeidae (herons). It also includes river birds Kingfisher *Alcedo atthis*, Dipper *Cinclus cinclus* and Grey Wagtail *Motacilla cinerea*. While counts of gulls, terns and river birds are optional under I-WeBS, they are encouraged.

This report adopts the taxonomy and nomenclature of the *List of birds of the European Union* (European Commission, 2024), as per reporting requirements under Article 12 of the Birds Directive for the reporting period 2019-2024.

2.2 The Core Count approach

I-WeBS counts are undertaken by a network of skilled volunteer ornithologists and professional staff of NPWS and BirdWatch Ireland. The only pre-requisites for being an I-WeBS counter are a familiarity with the waterbird species likely to be present at the site to be counted, and suitable optical equipment. While waterbird counts at some wetlands can be carried out using binoculars, most require a spotting scope/telescope to aid identification and count accuracy. Counters that have contributed to I-WeBS are listed in Appendix 1.

Counts conducted for I-WeBS are known as core counts and are ideally undertaken once per month between September and March inclusive. Specific monthly count dates are suggested to maximise coordination of counts across the entire country and thereby minimise the risk of either duplicating counts or missing birds. While counts are recommended in all seven months, this is not always possible, so emphasis is put on achieving monthly counts during the mid-winter period of November to February when numbers of most waterbird species reach their peak. Counters are particularly encouraged to undertake counts in January as these totals contribute to the International Waterbird Census each year, coordinated by Wetlands International.

It is recommended that counts of a site are conducted over a short period (up to three hours) on the pre-determined dates, or on the nearest possible date, and that there is at least a three-week gap between successive count dates at that site. This flexibility is important to allow for local circumstances such as counter availability and weather conditions. Further, it is recommended that counts of coastal sites be carried out at or near high tide. As high tide approaches the available feeding area for waterbirds is reduced meaning most will gather to form roosts. As birds are concentrated in smaller areas, this tends to make it easier and quicker to carry out complete counts of the individuals present. For these reasons, dates on mid-month weekends with high tides as close to midday as possible are usually selected and, given differences in tidal cycle regimes around Ireland, counts for south and west coast sites are scheduled one week later than those of east coast sites. Inland count dates are suggested for the same dates as east coast sites.

Occasionally, extra counts within some months are submitted for a site. In this situation, the count that was conducted on or near the pre-determined date is deemed to be the core count, and the remaining counts are considered to be supplemental counts.

2.3 Count methodology

I-WeBS uses the well-established technique of counting the numbers of waterbirds at wetland sites by the 'look-see' method (Bibby *et al.*, 1992) which involves counters recording the number of individuals of each waterbird species within their defined count area during each survey.

A site can be interpreted as either a discrete, clearly defined area used by waterbirds or a broader area comprising multiple discrete wetlands interconnected by the waterbirds that use them within a winter. As such, typical examples of sites include estuaries, large lakes and stretches of river, but there are also cases where numerous small lakes and wetlands near each other are an I-WeBS site, as birds regularly move between them. Most sites are subdivided into smaller count units (subsites) to facilitate coverage by an individual or small group of counters. Large sites usually require a team of counters to ensure that coordinated counts are conducted over a relatively short period, thus minimising duplicate counting of birds, particularly for those species that move extensively within a site. Similarly, participants are encouraged to coordinate counts of adjacent sites between which waterbird movements may occur. Data for each subsite surveyed are submitted separately on specially designed paper, electronic or on-line forms. Counts from subsites are summed to determine monthly site totals, assuming subsites were counted on or around the same time. At the time of this analysis there were 1,071 sites, consisting of 3,528 subsites, in the I-WeBS monitoring network. Of those, 147 sites overlap with SPAs in the Republic of Ireland, though these are not necessarily all SPAs designated for wintering waterbirds. All sites surveyed at least once by I-WeBS, since its inauguration, are listed in Appendix 2.

In addition to ground-based core counts, aerial surveys are sometimes undertaken to facilitate coverage of large and inaccessible sites over a short period of time (usually less than two hours per site). Aerial surveys are undertaken in small fixed-wing aircraft by experienced project staff. The seven sites that have been covered by aerial survey for I-WeBS are the Shannon and Fergus Estuary, the Lower River Shannon, Lough Derg, Shannon Callows, Little Brosna Callows, River Suck, and Lough Ree. Aerial surveys have some limitations. Species that tend to be less conspicuous because they are spread out, such as Grey Plover or Great Crested Grebe, or those that spend much of their time in vegetation such as Moorhen, tend to be under-recorded from the air, and this survey method is best applied to larger species such as swans and geese and those waders and ducks that form large flocks. Aerial surveys require counters to make rapid estimates of large flocks and are typically less precise compared to ground counts. Counts of species in large mixed flocks can also have reduced accuracy.

All counts submitted to I-WeBS go through a review and validation process. Any unexpected or unusual species counts or occurrences at a site are followed up with the relevant counters for review and amendment where required.

2.4 Additional related surveys

I-WeBS monitors the non-breeding waterbirds on coastal estuaries, inland lakes, turloughs, rivers and other wetlands (see Section 3) in the Republic of Ireland. The British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) monitors non-breeding waterbirds in Northern Ireland (Woodward *et al.*, 2024). At the beginning of I-WeBS in winter 1994/95 a list of priority survey sites was compiled based on previous waterbird surveys (*e.g.* the Wetlands Enquiry in the 1970s, the Winter Wetlands Survey in the 1980s) and local knowledge of wetlands that supported substantial numbers of waterbirds. Since then additional waterbird sites have been added and the list of I-WeBS sites continues to increase, albeit very slowly, as new wetlands supporting wintering waterbirds are identified. However, the resulting dataset is still incomplete for some waterbird species that utilise other habitats, such as non-wetland habitats (*e.g*. grassland used by foraging geese and swans and some waders), non-estuarine coastline, small and ephemeral wetlands, and the open sea; the latter of which is obviously difficult to monitor from land-based surveys (Crowe, 2005). Accordingly, several additional surveys are conducted on an annual or multi-annual basis to help to fill these gaps. Data from the following surveys and censuses have been incorporated into the analyses detailed in this report where appropriate, and the sources of these data are gratefully acknowledged.

International Swan Census: Coordinated international censuses of the two migratory swan species that winter in Ireland, Bewick's Swan and Whooper Swan, have been organised at four or five yearly intervals since 1986 (Brides *et al.*, 2021). This census is carried out over one weekend in January. Counts in the Republic of Ireland are organised under the auspices of I-WeBS and in Northern Ireland by the Irish Whooper Swan Study Group (IWSSG).

International Greenland Barnacle Goose Census: Separate aerial censuses of wintering Barnacle geese from the north-east Greenland breeding population have been conducted in spring (February/March) every four to five years, since 1956/57, and since 2020 at three-year intervals (Kelly *et al.*, 2024). These censuses are coordinated with counts in Scotland where the rest of the flyway population over-winter. In Ireland, Barnacle geese predominantly over-winter on offshore and nearshore islands along the west coast of Ireland. A few regularly used mainland sites are usually ground-counted simultaneously. Counts are coordinated by NPWS staff.

Icelandic-breeding Goose Census: All sites known to support Icelandic Greylag geese are surveyed annually over one weekend in November (Burke *et al.*, 2023) since 2017/18. Known feral/resident flocks are not included in associated population estimates and where both populations occur together in winter, counts of the resident flocks from August or September are subtracted from the November totals. From November 2018, Pink-footed Goose was included as a target species in this survey in the Republic of Ireland. Counts in the Republic of Ireland are organised under the auspices of I-WeBS.

Greenland White-fronted Goose Census: Annual censuses of Greenland White-fronted geese are carried out in Ireland and Britain during spring and autumn each season, coordinated by NPWS staff in Ireland and the Greenland White-fronted Goose Study Group in the UK (Fox *et al.*, 2024).

Light-bellied Brent Goose Census: Special census counts of Light-bellied Brent geese (from the high arctic, north-east Canadian breeding population) have been carried out since 1996, with winter counts in Ireland going back to 1960. These are organised by the Irish Brent Goose Research Group (IBGRG), supported by the I-WeBS counter network in the Republic of Ireland. Counts are carried out over a weekend in October when most of the population has reached Ireland. The majority of Brent tend to congregate at Strangford Lough in Northern Ireland when they arrive initially, before moving to other coastal sites around Ireland in subsequent weeks. The census is therefore timed so that most of the population is easily countable at one site. Other well-known sites are also covered.

Non-Estuarine Coastal Waterbird Survey (NEWS): Few tracts of open coastline are surveyed during core I-WeBS counts. Several waterbird species, particularly those that use sandy, shingle and rocky shore substrates or inshore waters, are therefore poorly surveyed. The first thorough non-estuarine coastal waterbird survey was conducted in the Republic of Ireland during the 1997/98 season (Colhoun & Newton, 2000), a second survey was carried out during 2006/07 (Crowe *et al.*, 2012) and a third during the 2015/16 season (Lewis *et al.*, 2017).

These additional censuses and surveys play a crucial role in providing the most complete information possible on species population, distribution and changes over time.

2.5 Data analysis and interpretation

Individual species accounts have been prepared for regularly occurring non-breeding waterbird species that winter in the Republic of Ireland, following on from the previously reported period from winter 2009/10 to 2015/16 (Lewis *et al.*, 2019). For this report, a 'regularly occurring' species is defined as a species observed in at least five out of the seven seasons assessed (2016/17 - 2022/23), with a mean of seasonal peak counts of at least 10 individuals. Observed waterbird species that are not 'regularly occurring' or that are not considered well covered by I-WeBS (for example because they are predominantly on passage, vagrant, riverine or domesticated) are listed in Appendix 3.

Analyses of regularly occurring waterbird species were based on I-WeBS core count data unless species-specific census data were available. Species that are adequately monitored through I-WeBS or associated censuses and surveys received a full analysis. For species that I-WeBS cannot comprehensively survey, for example due to issues with detectability during core count surveys, a limited analysis was performed. The sources of data and those species with insufficient data for a full analysis in this report are summarised in Table 1. An explanation of the species account layout is provided in section 4.1.

For compatibility with complementary international surveys including WeBS, certain species have more than one I-WeBS species code. For example, Brent Goose may be initially recorded as 'BG' referring to "Brent Goose", 'PB' referring to "Light-bellied Brent Goose", or 'QN' referring to "Brent Goose (Light-bellied of Nearctic origin)". To allow a complete understanding of a species in this analysis to be formed, counts of all I-WeBS species codes deemed to refer to the same population have been amalgamated before analysis. The I-WeBS species names and species codes that have been merged for this report are listed in Appendix 4.

Although this report focuses on the seven winter seasons 2016/17 - 2022/23, core-count records dating back to the first season of I-WeBS in 1994/95 have been used in various aspects of the analysis. As per previous reports (*e.g*. Lewis *et al.*, 2019), some summary statistics such as the latest site mean counts and peak counts have been calculated over the five most recent winter seasons, 2018/19 - 2022/23.

Table 1 Regularly occurring wintering waterbird species in the Republic of Ireland for the period 2016/17 - 2022/23, and the main source of data for their analysis. In the case of those species where I-WeBS data is insufficient, a limited analysis is provided in the species account.

Family	Species-Specific Census	I-WeBS	Insufficient Data
Ducks, Geese, Swans	Barnacle Goose, Greylag Goose (Icelandic), Greenland White-fronted Goose, Bewick's Swan, Whooper Swan	Brent Goose, Canada Goose, Greylag Goose (resident), Mute Swan, Shelduck, Shoveler, Gadwall, Wigeon, Mallard, Pintail, Teal, Pochard, Tufted Duck, Scaup, Eider, Goldeneye, Goosander, Red-breasted Merganser	Pink-footed Goose, Common Scoter, Long-tailed Duck
Rails, Crakes, Coots		Coot	Water Rail, Moorhen
Grebes		Little Grebe, Great Crested Grebe	Slavonian Grebe
Oystercatchers		Oystercatcher	
Plovers		Lapwing, Golden Plover, Grey Plover, Ringed Plover	
Sandpipers, Snipes		Curlew, Bar-tailed Godwit, Black-tailed Godwit, Turnstone, Knot, Sanderling, Dunlin, Purple Sandpiper, Redshank, Greenshank	Ruff, Jack Snipe, Snipe
Gulls, Terns, Skimmers			Black-headed Gull, Mediterranean Gull, Common Gull, Great Black-backed Gull, Herring Gull, Lesser Black-backed Gull
Divers			Red-throated Diver, Great Northern Diver
Cormorants, Shags		Cormorant	Shag
Herons, Bitterns		Grey Heron, Little Egret	Cattle Egret

2.5.1 Waterbird population estimates

Obtaining estimates of the total number of waterbirds that winter in Ireland is important for several reasons. In addition to the scientific desire to obtain such estimates and understand how and why numbers are changing over time (see section 2.5.2 below), as a member of the European Union and signatory to EU Directive 2009/147/EC (the 'Birds Directive'), Ireland is obliged to monitor its waterbirds and provide for their conservation. Consequently, population estimates based on I-WeBS and other data are an important component of Ireland's reporting process under Article 12 of the Birds Directive.

For species subject to a species-specific census, the most recent census defined the population estimates for these species for All-Ireland, the Republic of Ireland, and SPA sites in the Republic of Ireland. This applied to Brent Goose (Kerry Mackie & Irish Brent Goose Research Group pers. comm.), Barnacle Goose (Kelly *et al.*, 2024), Icelandic Greylag Goose (Burke *et al.*, 2023), Greenland White-fronted Goose (Fox *et al.*, 2024), Bewick's Swan and Whooper Swan (Burke *et al.*, 2021).

For species sufficiently surveyed in the Republic of Ireland by I-WeBS and in Northern Ireland by WeBS, an updated method (relative to Lewis *et al.*, 2019) was used to calculate the population estimates.

All core count data from I-WeBS and WeBS for the months November through February from 1994/95 to 2022/23 were gathered for each species. If the species was recorded on a site by both an aerial survey and a ground-based survey in the same month, the highest count was retained for analysis. If a site was only counted by air in a particular month, then the aerial count was only retained for analysis if it was greater than zero. Due to the difficultly in observing many species from the air, a count of zero was not treated as a confirmed absence.

A level of count quality was assigned to every I-WeBS and WeBS site count in every month in every season. A site count was assigned a low quality if one or more subsites considered important (*e.g*. typically holding a large proportion of the birds recorded on the site, or a large proportion of a particular species) were not surveyed that month. A site count was also assigned a low quality if a counter reported issues that affected the accuracy of the count such as poor visibility, disturbance during the count, or a lack of access to a complete subsite.

As all I-WeBS and WeBS sites could not be surveyed in every month in every season since I-WeBS began, there were missing counts in the raw core-count data. To enable more useful analysis within and across all seasons of the survey, missing counts needed to be imputed. The Underhill Index technique (Underhill & Prŷs-Jones, 1994) was specifically developed to estimate missing counts in waterbird populations, and was employed in this analysis to impute all missing counts, as well as possible replacements for all low-quality counts. If an imputed count was greater than a low-quality count for a given site, month, season and species, the imputed count was adopted for analysis. The Underhill Index technique employs a multiplicative log-linear index model with site, season and month factors. The model takes into account the numbers recorded at a site in both previous and later counts, the effect of the month on numbers typically present, and the variation in total numbers across the seasons, for each species. It imputes a count for each species, at each site, in each month of each season where a good quality count is not available.

The possibility of performing multiple passes of the Underhill Index technique on ever-increasing sets of sites, starting with those sites with the highest number of good-quality counts, was investigated. No noticeable improvement was observed in overall results, however, and so a conventional, single pass of the Underhill Index technique was performed for each species, spanning all I-WeBS and WeBS sites ever surveyed.

This process resulted in a "complete" dataset containing a count (actual or imputed) for every species for every I-WeBS and WeBS site ever surveyed, for all months November through February for all seasons from 1994/94 to 2022/23.

This dataset allowed an I-WeBS (and WeBS) seasonal peak count to be calculated for each species for each season. The seasonal peak count was the highest monthly total count of a species across all sites within a season.

As some species occur on non-estuarine coastline not surveyed by I-WeBS or WeBS, but surveyed by NEWS, a final seasonal population total for each species for each season was calculated by adding the I-WeBS (and WeBS, where relevant) seasonal peak count to any total count recorded by the NEWS survey in the closest year to the season in question. Thus, totals from NEWS-I (Colhoun & Newton, 2000; Rehfisch *et al*., 2003) were added to the I-WeBS/WeBS seasonal peak counts from 1994/95 through 2001/02, totals from NEWS-II (Crowe *et al.*, 2012) were added to the seasonal peak counts from 2002/03 through 2010/11, and NEWS-III (Lewis *et al.*, 2017) counts were added to the seasonal peak counts from 2011/12 through 2022/23.

A final population estimate was then calculated as the mean of the five most recent seasonal population totals, consistent with the approaches used previously in Ireland (Burke *et al.*, 2018; Crowe & Holt, 2013; Crowe *et al.*, 2008). These final population estimates were rounded to the nearest 10 individuals.

The seasonal peak count and population calculations described above were calculated for two spatial scales: All-Ireland and Republic of Ireland. All-Ireland calculations included all I-WeBS and WeBS sites. The Republic of Ireland calculations includes all I-WeBS sites plus the border sites Lough Foyle and Carlingford Lough (as counted by WeBS). If reviewing Northern Ireland population estimates alongside Republic of Ireland and All-Ireland population estimates, it should be noted that large flocks of some species move between the Republic of Ireland and Northern Ireland within a season. Thus the peak count for All-Ireland can be expected to be less than the sum of the individual peak counts for the Republic of Ireland and Northern Ireland in the same season.

The numbers of each species associated with I-WeBS sites which overlap SPAs in the Republic of Ireland were also estimated, based on the numbers at those I-WeBS sites that fully or partially overlap with an SPA as per an analysis of SPA boundaries (NPWS, 2024). It should be noted that some species may have additional populations in other SPAs, such as non-estuarine coastal SPAs that are not recorded by I-WeBS.

The percentages of the total I-WeBS (and WeBS) seasonal peak counts that were imputed (via the Underhill Index technique), and the percentages of the final population estimates that were derived from NEWS data, are listed in Appendix 5.

Note that the approach used here deviates from that used in previous population estimate analyses in several ways. In previous analyses count data for the seven months from September through March was included for wildfowl and ally species (*e.g*. Burke *et al.*, 2018). Given that seasonal peak counts for these species always occur mid-winter, and that site coverage is highest in the mid-winter months, we reduced the months under consideration for these species to focus on the key period November through February. Another change to the method previously employed is that this analysis includes all sites and all seasons since winter 1994/95 in the Underhill modelling. Previous population estimate analyses for wintering waterbirds in Ireland using I-WeBS data considered only the most recent 5-year period, and only those sites surveyed within that given period (Burke *et al.*, 2018; Crowe & Holt, 2013; Crowe *et al.*, 2008). The previous approach essentially assumed species were absent at any sites not surveyed in the 5-year period they considered, and comparisons with periods previous to that therefore represented comparisons between slightly different groups of sites. Our updated approach considers the waterbirds at all sites ever surveyed across the I-WeBS and WeBS networks, and as it includes all seasons, comparisons across the seasons are as consistent as possible. The inclusion of all sites, rather than a subset of sites as in previous analyses, means that species totals calculated here for seasons covered under previous analyses (*i.e*. up to 2015/16; Burke *et al.*, 2018) have all been re-estimated and will almost certainly be higher than those previously published due to the inclusion of the additional sites. A clear example illustrating this would be a species that has remained stable in the short-term, but whose population estimate now exceeds that of the 2011/12 - 2015/16 estimate; such cases are not errors and are simply the result of the updated analyses employed here.

The merits of the changes to the methods employed in this analysis should be considered in their own right, and, in particular, population estimates calculated here should not be compared with those published in previous periods. For consistency, any comparison of population estimates over time should be based on the population indices and trends described in the following section. Although the methods for estimating populations have changed, the direction and magnitude of changes in population estimates remain largely consistent with previous analyses as coverage of the I-WeBS sites with greatest numbers of waterbirds has always been a priority.

For species that are without a national census and are insufficiently surveyed by the I-WeBS methodology, the population cannot be robustly estimated. For such species the most recent 5-year means and maximums of seasonal peak counts were calculated, based on actual count data across all I-WeBS sites and the WeBS sites, Lough Foyle and Carlingford Lough. No imputed counts were included in these calculations.

2.5.2 Trends and annual indices

A peak season count is determined for each species across all I-WeBS sites and the WeBS sites of Lough Foyle and Carlingford Lough as part of the process to calculate population estimates, as described in section 2.5.1. Although these peak season counts cannot be considered to be complete counts of all individual birds in the Republic of Ireland, they are considered representative of the national population, and relative changes in the peak season counts from season to season can be considered to be of the same magnitude and direction as relative changes in the total Republic of Ireland wintering population.

To allow relative changes (*i.e.* trends) in waterbird numbers over different periods to be generated, all peak season counts were rescaled relative to the final season (2022/23) which was indexed at 100. These annual indices were then smoothed by modelling using a Generalised Additive Model (GAM). GAMs are non-parametric and flexible extensions of the generalised linear model. Annual indices were assumed to follow an independent Poisson distribution with 0.3T degrees of freedom (following Atkinson *et al.*, 2006). The GAM methodology and resultant smoothed indices allow for the calculation of proportional change in population size between one season and another using the formula:

$$Change = \frac{I_y - I_x}{I_x} \times 100$$

I_y represents the index value at the final (most recent) season and I_x is the index value at the start of the duration to be compared. Note that the first and final seasons modelled using the GAM are avoided when reporting proportional changes due to the reduced robustness of the GAM at these edge locations (Underhill & Prŷs-Jones, 1994; Atkinson *et al.*, 2006). This method was used to calculate the 5-year change, 12-year change (corresponding to the short-term population trend in Article 12 reporting), and 26-year change.

Larger values for these trends indicate larger proportional changes in population size; positive values indicating relative increases, while negative values indicate relative decreases between the seasons compared. One final trend assessment was undertaken: 'historical change' for the Republic of Ireland (corresponding to the long-term population trend in Article 12 reporting), comparing the seasons 1984/85 and 2022/23. Population estimates of wintering waterbirds are available for the period 1984/85 - 1986/87 (Sheppard, 1993), however they were reported at an All-Ireland level. To enable a direct comparison of Republic of Ireland population estimates between the current timeframe and the mid-1980s, population estimates for the Republic of Ireland were generated for each species for the 1980s period based on the respective proportions of waterbirds occurring between the Republic of Ireland and Northern Ireland during the 2006/07 - 2010/11 period (as per Crowe & Holt, 2013), *i.e.* these proportions were applied to All-Ireland population estimates generated for the mid-1980s to derive Republic of Ireland estimates for the mid-1980s. Given that no equivalent to the Non-Estuarine Coastal Waterbird Survey (NEWS) was carried out in the 1980s, the resulting Republic of Ireland estimates for the mid-1980s were then increased to compensate for birds on non-estuarine sites that were not counted. The increase applied to each species matched the ratio of the I-WeBS peak season count in 1997/98 to the non-estuarine count for 1997/98 as reported in the NEWS-I survey (Colhoun & Newton, 2000). Finally, a calculation of percentage change (as described above) was then used to compare the derived mid-1980s population estimate with the current national population estimate.

Note that for Brent geese, because the annual census is carried out in October prior to the population dispersing across the island, those census results cannot be used to examine mid-winter trends for the species in the Republic of Ireland. Because of this, census totals are used for the All-Ireland population estimate but the Republic of Ireland population estimate and population trends are based on I-WeBS-based population estimates and analysis as described here.

As mentioned above, it is important to note that the analyses here include species counts and data from all sites in the I-WeBS network. Previous reports of national trends (*e.g*. Lewis *et al.*, 2019; Kennedy *et al.,* 2023a) have focused on sites with greater than or equal to 50% count coverage over the lifetime of the survey. Thus, the updated methodology described in this report represents the most comprehensive analysis of I-WeBS data to date, ensuring birds at all sites are represented in species totals and trends.

Many of the goose and swan species (*e.g*. Barnacle Goose and Greenland White-fronted Goose) were excluded from the trend analyses described above. Their populations are monitored by their species-specific surveys and in many cases, it is assumed that the entire (or close to entire) population is counted. Trends for these species were therefore calculated by a direct comparison of Republic of Ireland census figures over time. Several other species were also excluded from trend analyses as they are not robustly covered via I-WeBS. These include elusive species such as Water Rail *Rallus aquaticus*, Moorhen *Gallinula chloropus*, Jack Snipe *Lymnocryptes minimus*, and Snipe *Gallinago gallinago* (which all have a secretive nature and are not easily detected using I-WeBS methods) and marine species such as Long-tailed Duck *Clangula hyemalis* and Black-throated Diver *Gavia arctica* (which are difficult to survey from land). Gulls and terns were not considered for analysis as they are not routinely counted during I-WeBS core counts, and their distributions are generally too widespread outside the I-WeBS site network for adequate monitoring by these methods alone.

2.5.3 Site importance

The peak season count of each species in each site was calculated to allow the relative importance of I-WeBS sites to be assessed for each species. These peak season counts considered all available actual I-WeBS core counts from all months September to March inclusive (*i.e.* it did not include imputed counts). The mean of the peak season counts over the most recent 5-season period available (2018/19 - 2022/23) was then calculated to account for annual fluctuations in numbers. The peak count over the same period was also identified, along with the month(s) in which the peak season counts occurred.

I-WeBS sites were ranked for each species based on the aforementioned 5-year mean of the peak season counts. Following standard criteria adopted by the Ramsar Convention (Ramsar Convention Bureau, 2000), a site was deemed to support numbers of international importance if it regularly supported 1% or more of the flyway population of one species or subspecies of waterbird – *i.e*. the 5-year mean of peak season counts exceeded the 1% flyway (international) threshold. International, or flyway, thresholds were primarily based on the African-Eurasian Waterbird Agreement (AEWA) Conservation Status Review 8 (CSR8) (AEWA, 2022) international flyway population estimates. Any departures from this are detailed in the relevant species accounts.

Similarly, a site was deemed to support numbers of national importance if it regularly supported 1% or more of the All-Ireland population estimate of a species. The minimum threshold for national importance is 20 individuals (Crowe *et al.*, 2008), and the threshold is rounded to the nearest five individuals if the 1% threshold is below 100, or to the nearest 10 if above.

The Irish Mute Swan *Cygnus olor* population is considered resident, with only a very small number of records of individuals moving between the island of Ireland and elsewhere. As a result, the threshold for national importance is also used as the threshold for international importance for this species.

It should be noted neither imputed counts nor census counts were considered in any of these calculations regarding site importance. The relevant census publications may provide a more extensive assessment of site importance for individual species.

2.6 Pressures and threats

We are living in a rapidly changing world. The second half of the 20th century saw unprecedented growth in development, urbanisation and human population size. Unsurprisingly these over-arching changes, along with many and varied inter-related factors, have put the natural environment, including migratory waterbirds, under increasing pressure (IPBES, 2019). Predictions suggest that during the next 100 years, even greater changes will occur and this will put increasing pressure on wetlands and their biodiversity (O'Connell, 2000).

In relation to wintering waterbirds, pressures can be defined as the principal factors responsible for causing individual species to decline, suppress their numbers, or restrict their ranges (DG Environment, 2017). Regular assessments of the pressures facing wintering waterbirds are therefore fundamental to understanding not only why the numbers and distribution of our wintering waterbirds may be changing, but also to identify and inform conservation management measures at various spatial scales (site, region, national, flyway). This report provides an assessment of the current pressures and threats facing Ireland's wintering waterbirds. The assessment was undertaken for all regularly occurring wintering waterbird species in the Republic of Ireland monitored through I-WeBS and related surveys, including all wintering waterbirds listed on Annex I of the EU Birds Directive and other migratory waterbird species that trigger SPA designation nationally (DG Environment, 2023). The assessment relates to reporting under Article 12 of the Birds Directive for the 6-year period 2019-2024 (inclusive) and the future two reporting periods (*i.e.* within 12 years following the end of the current period). Pressures acting in the recent past (*i.e*. during the current reporting period; excluding those which were deemed only to be a future threat, and not a current pressure) were ranked as High, Medium or Low according to their influence (see DG Environment, 2023):

- **High**: A highly significant factor contributing to the decline of the population or the habitat of the species. It is an important direct or immediate influence on the population.
- **Medium**: Contributes to the decline of the population or the habitat of the species, but is not a high influence or a low influence pressure. It has a medium direct/immediate or indirect influence on the population.
- **Low**: Contributes to the decline of the population or the habitat of the species, although not the main contributor and in combination with other pressures and/or factors.

The process used to assign pressure categories and their influence was as follows:

1. Pressures & threats from previous Article 12 (for the period 2013 - 2018) reporting were used as a starting point, on the basis that the majority are likely still relevant to some extent. All pressure/threat codes and categories were reviewed and converted to new codes/categories as necessary to align with updates to the current Article 12 categories.
2. A literature review was carried out with searches focused on key species, groups and pressures, as well as additional searches in key journals such as Irish Birds, Wader Study and Wildfowl which tend to focus on waterbirds in Ireland and nearby countries. Species and species groups in decline were prioritised in searches. For those species stable or increasing, searches in addition to those key named journals were carried out where the I-WeBS team recalled or later found reference to relevant published material.
3. Other data sources such as government reports and bulletins (*e.g.* avian flu updates from DAFM; Department of Agriculture, Food and the Marine) and relevant legislation and legislation changes, such as the Open Seasons Order and recent review, were also collated.
4. A review was carried out of responses to a questionnaire circulated to I-WeBS counters annually since winter 2021/22 where they were asked to identify pressures and threats affecting the sites they monitor for I-WeBS. The categories provided in the questionnaire closely aligned with those used for Article 12 reporting and a comment box was included to capture any additional issues. At the time of analysis there had been circa 200 responses to the questionnaire.
5. The combined list of pressures per species from all of the above was reviewed first on a category-by-category basis, ensuring all relevant categories are included, that previous species/category combinations are still worthy of inclusion and removed if not, and adding new species/category combinations as necessary based on previous literature review and best expert opinion. An initial review of influence level formed part of this review stage, with further refinement later.
6. The list was then reviewed on a species-by-species basis, which was largely a repeat of the previous process (step 5) but approached from a different angle for thoroughness. There was then some further refinement of influence level.
7. A final refinement of influence levels was carried out based on the short-term trends of each I-WeBS species. This was done on a species-by-species basis.
8. An estimate of the proportion of the population affected by each pressure was then made based on best expert opinion.
9. The rationale/notes and sources/references for all species/pressure combinations were all updated on an ongoing basis throughout the process.

The focus throughout was on pressures affecting the wintering populations in Ireland and largely focused on pressures either in Ireland or on the species migration to Ireland. Problems facing the population on the breeding grounds were generally not included as these are rarely well known, described or quantified, and the varied origins of Irish-wintering birds mean it would be prohibitively difficult to fully account for pressures across all relevant breeding areas. A precautionary approach was taken to the influence level assigned to categories related to the hunting of species, and to the impacts of avian flu, given that both result in direct mortality and immediate loss of individuals from the population. Neither have been quantified in terms of the number of individuals affected, their geographic spread in Ireland, or in the case of avian flu there has been little in the way of data collection to understand the species most vulnerable or affected by recent outbreaks. This is in line with previous Article 12 submissions.

The Influence levels for each species/pressure combination were based on best expert opinion, taking into account:

- The proportion of the Irish population likely under that specific pressure.

- The direct impact that pressure likely has on individuals/flocks/the population. For example, gradual habitat change is likely to invoke a lower influence level than something like avian flu. Habitat change likely results in shifts in distribution and may result in carryover effects, but the impacts on population numbers (which can be highly significant) are likely only felt in the medium- and long-term. In the case of avian flu there is rapid mortality and therefore a more immediate impact on population numbers.
- The recent trend of the species. Species with positive or stable trends will generally have mostly low influence pressures, whereas those with negative trends are more likely to have some medium or high influence pressures associated with them.

The scope of each pressure in terms of the proportion of that species' population affected was categorised based on best expert opinion, informed my species distribution in I-WeBS. The categories used with regards the proportion of population affected were: Whole >90%, Majority 50-90%, Minority <50% (DG Environment, 2023).

3 Coverage

Given the large number of wetlands that support waterbirds in Ireland, and the limited pool of volunteer and professional observers, complete coverage of all sites within and between winters is not feasible. Continuous efforts are made to assign surveyors to those sites that can maximise the scientific value of data gathered. I-WeBS prioritises sites that overlap with waterbird SPAs, and other sites with large concentrations of waterbirds, for survey coverage. Otherwise, maintaining consistent coverage on sites with long-term coverage is preferred over assigning a surveyor to an infrequently covered site.

A total of 486 sites (comprising 1,539 subsites) of varying sizes were counted through I-WeBS between 2016/17 and 2022/23, with lakes comprising the largest proportion of sites covered, followed by estuaries and river/canals (Table 2). The location of these sites is illustrated in Figure 1. Of the 486 sites covered, 110 overlap or are within SPAs. Some sites are covered more regularly than others and 290 sites were surveyed with at least one count in at least three seasons during the period 2016/17 - 2022/23, as illustrated in Figure 2.

A total of 448 sites (1,523 subsites) were surveyed during the recent 5-season period (2018/19 - 2022/23), upon which the assessment of site importance in the species accounts is based. Of these, 238 were surveyed in at least three seasons during this period. All sites, their site codes and their grid references are listed in Appendix 2.

Table 2 Habitat types of sites surveyed between 2016/17 and 2022/23 and their relative percentage of all sites surveyed.

Habitat Type	Sites	Percentage (%)
Lake	231	47.5
Estuary	68	14.0
River/canal	53	10.9
Non-estuarine coast	40	8.2
Turlough	32	6.6
Grassland	28	5.8
Bog/marsh	12	2.5
Quarry/gravel pit	10	2.1
Reservoir	9	1.9
Lagoon	2	0.4
Arable	1	0.2

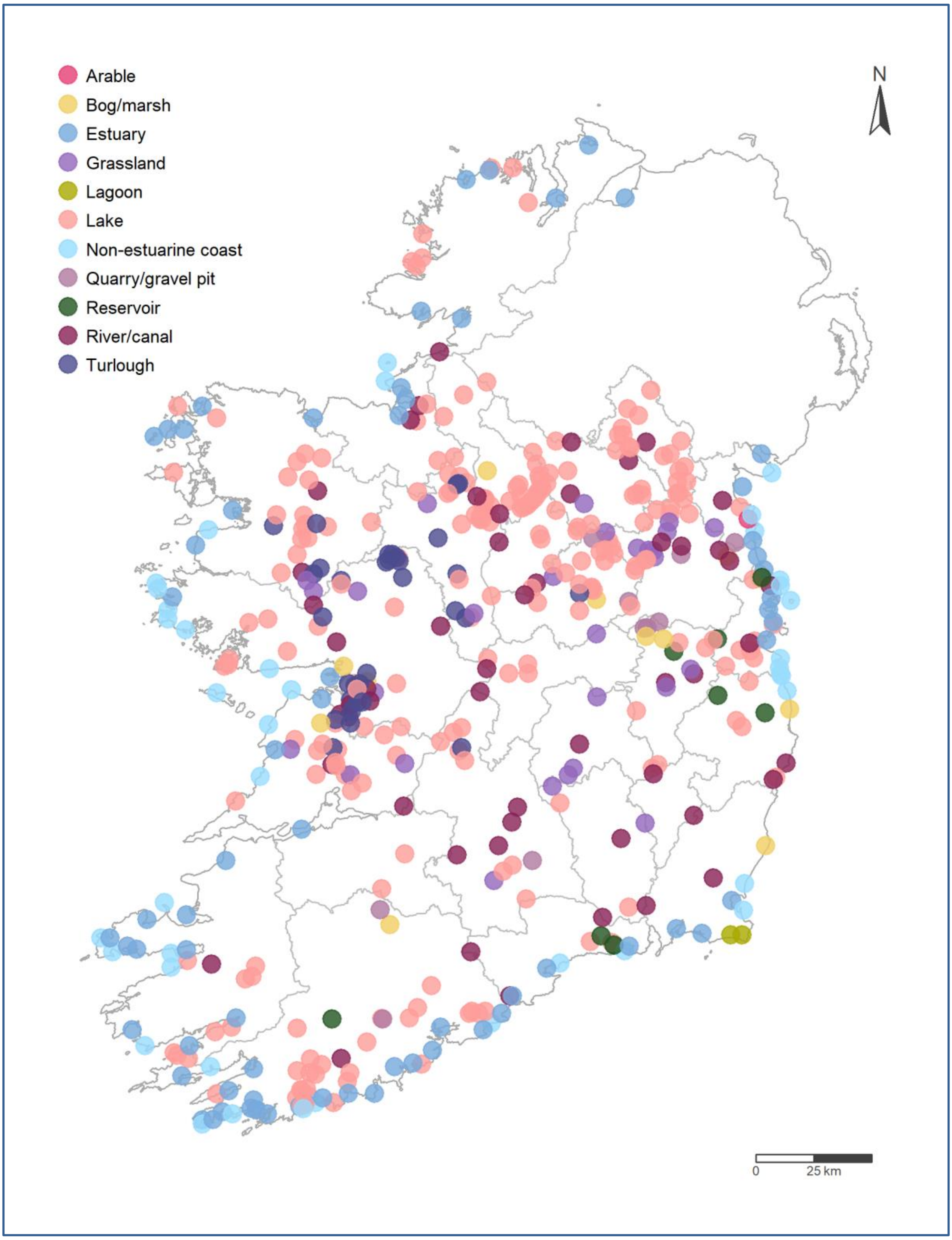


Figure 1 Habitat types for I-WeBS sites surveyed at least once in the period 2016/17 - 2022/23.

I-WeBS site coverage, illustrated in Figure 2, is broadly consistent with previous reports though coverage of some sites has changed (*e.g*. less coverage of Lough Corrib in recent years).

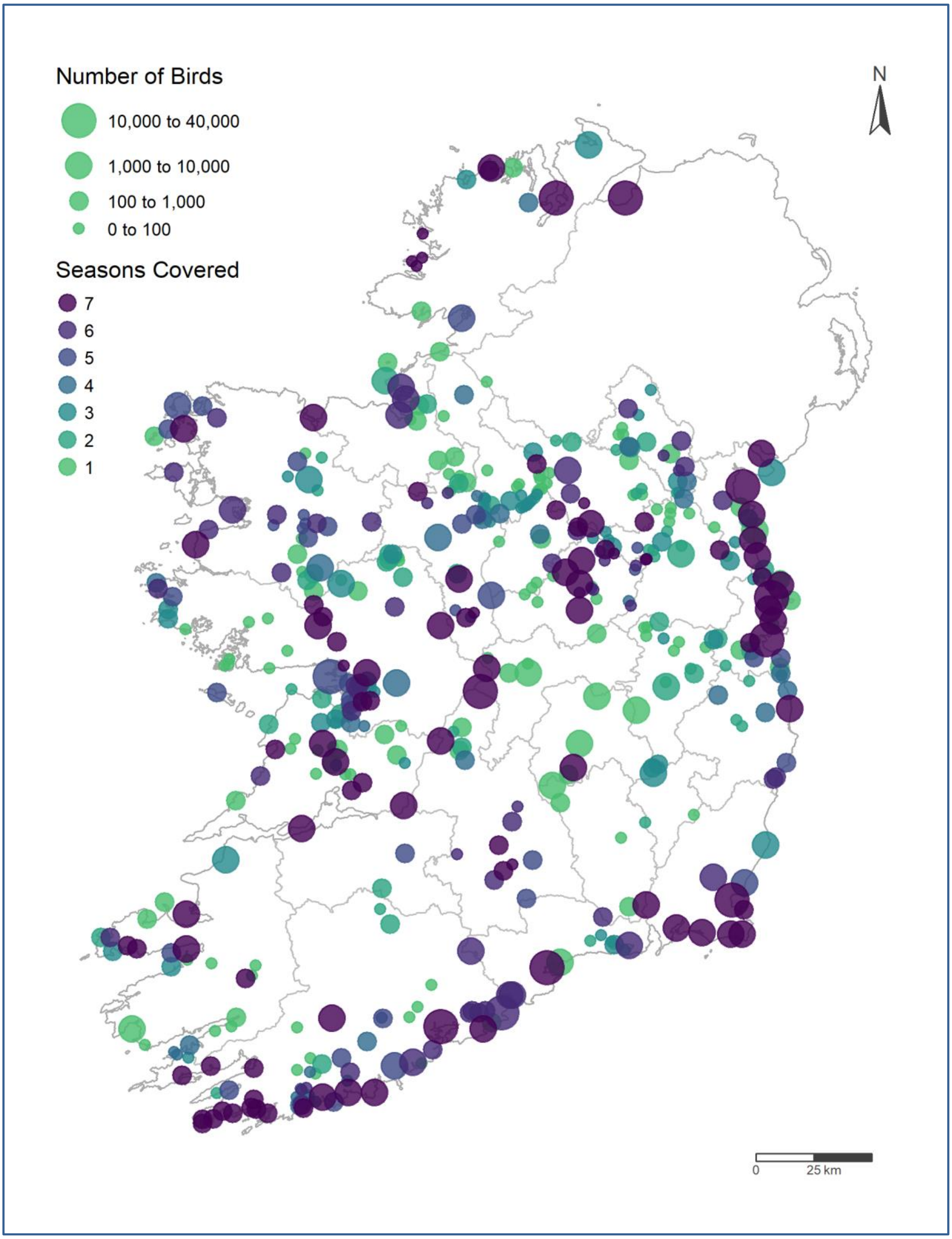


Figure 2 I-WeBS site coverage and numbers of birds for the period 2016/17 - 2022/23, illustrating the number of seasons that each site was counted at least once, and the mean of the peak number of birds each site supported each season.

4 Species Accounts

4.1 Layout of species accounts

Each species account begins with the species account name. Three forms of the name are given: the common name in English, the scientific name, and the name of the species in Irish.

The breeding range of the population that winters in Ireland is provided, detailed by subspecies for polytypic species. Population origins are based on the African-Eurasian Waterbird Agreement (AEWA) Conservation Status Review 8 (CSR8) (AEWA, 2022; Wetlands International, 2024). It typically is present in the format '*breeding range/wintering range*'.

Wintering population estimates of numbers of individual birds are given for All-Ireland, the Republic of Ireland (ROI), and for I-WeBS SPA sites in the Republic of Ireland ('ROI I-WeBS SPA Sites'). For species subject to a species-specific census, the results of the most recent census in the reporting period is given. For species well-covered by I-WeBS and WeBS, the mean of the population estimate for the five most recent seasons is presented.

The thresholds for classifying a site as being of international or national importance for the species are presented. The threshold for international importance is 1% of the flyway population. The threshold for National importance is 1% of the All-Ireland wintering population, or 20, whichever is higher.

Population change in the Republic of Ireland is given as a percentage for the most recent 5-year, 12-year, 26-year and historic (typically 38-year) periods, or as close to these as is possible in the case of species whose population estimates are based on census results. The average annual change in population for the 26-year period (*i.e*. since the beginning of I-WeBS) is also displayed. The 12-year and historic change population changes correspond to the required periods for short- and long-term population trends that are reported under Article 12 of the Birds Directive.

The season or season range that each number relates to is indicated. An individual season is represented by the calendar years it spans: the winter starting in 2022 is indicated as "2022/23". A range of seasons is indicated by the first calendar year of the first season and the final calendar year of the final season in the range, and so the five winters from winter 2018/19 to winter 2022/23 are indicated as "2018 - 2023". Noting that a 5-year population *change* spans 6 seasons and a 12-year population *change* spans 13 seasons, a 5-year population change from winter 2016/17 to winter 2021/22 is indicated as "2016 - 2022" and a 12-year population change from winter 2009/10 to winter 2021/22 is indicated as "2009 - 2022".

A graph displays national (ROI) population trends for species based on either census results or the I-WeBS wintering population index, as illustrated in Figure 3. The base index for the population index graph is 100 for the unsmoothed population in the most recent season. This allows percentage differences with all previous years to be readily observed from the *y* axis.

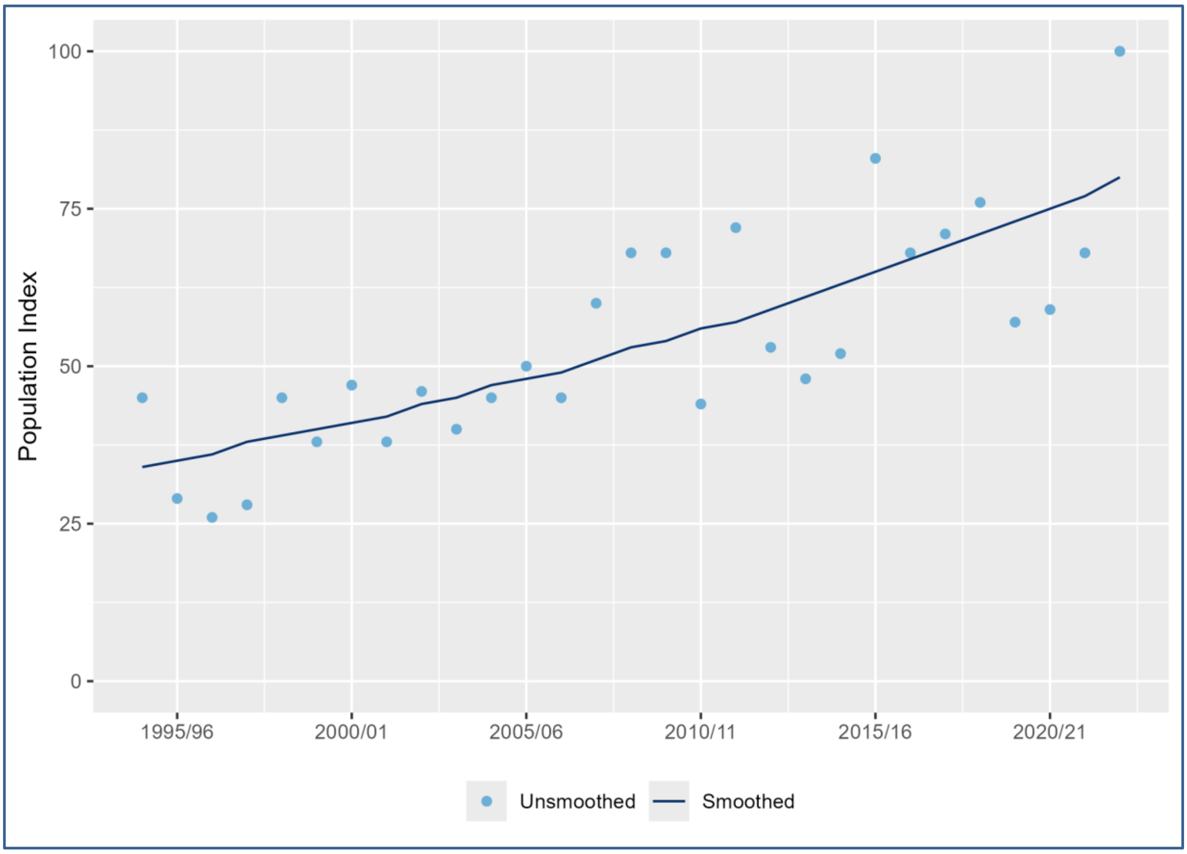


Figure 3 Example graph showing ROI population index for Black-tailed Godwit.

For regularly occurring waterbird species that cannot be comprehensively monitored by I-WeBS and related surveys, the threshold for international importance and the mean of the peak season counts and the peak of the peak season counts for the five seasons 2018/19 - 2022/23 are reported in lieu of the data and graph previously described.

The text “NA” in a species account indicates that a number cannot be calculated or is not applicable. This arises for historic population change percentages when there was no ROI population recorded in the 1980s (*e.g*. Little Egret), and for site thresholds for international or national importance when the population is considered essentially feral or of domestic origin (*e.g*. Canada Goose).

Notable findings from the analysis, or from previous or complementary analyses, are discussed in each species account, as well as relevant information linked to population changes in Ireland or elsewhere in the species’ range.

A map indicates those sites in the Republic of Ireland at which the species was observed over the reporting period, as illustrated in Figure 4. The size of each dot is in proportion to the mean of the seasonal peak populations at the site for the most recent five seasons. The colour of the dots indicates the importance of the site for the species as determined by the international and national thresholds for site importance.

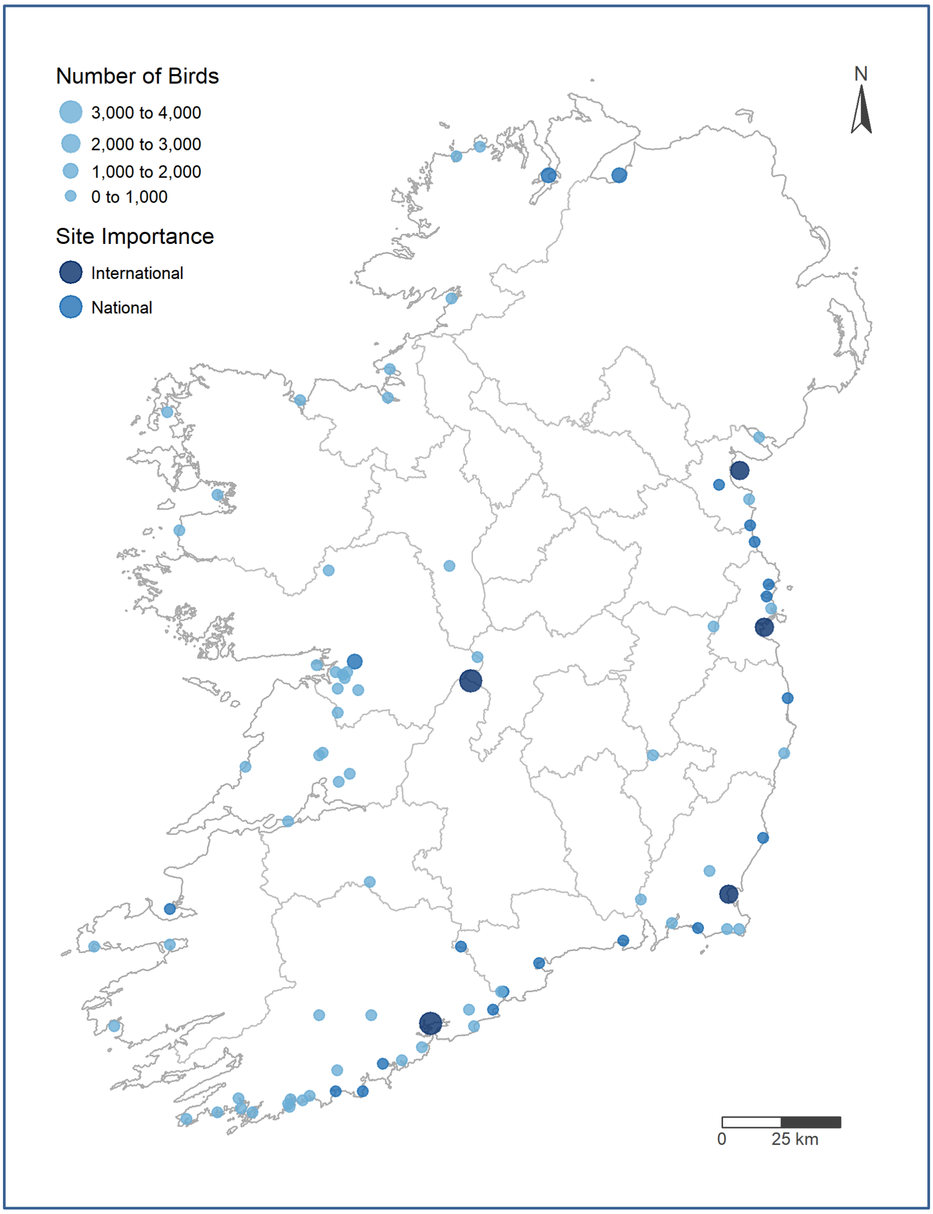


Figure 4 Example map showing I-WeBS sites where Black-tailed Godwit were recorded between 2018/19 and 2022/23.

A table lists sites in the Republic of Ireland of most importance for the species, based on the abundance of the species at the site, as demonstrated in Table 3. Peak counts (based on actual sightings rather than imputed counts) are presented for all seven seasons in the reporting period. A blank count indicates the site was not surveyed that season. A zero indicates that the site was surveyed that season, but the species was not recorded on site. An asterisk indicates the number includes a low-quality count and should be considered a minimum count. For the five most recent seasons the mean, peak and months of the peak season seasonal peak counts are presented.

Very large flocks are often recorded as estimates, due to the difficulty in getting a precise count (*e.g.* when dealing with a flock of thousands of Golden Plover in flight). This automatically classifies the count as being low quality. To avoid sites with low-quality peak counts from being ignored, the mean count should ideally include these low-quality counts. However, if the low-quality count is 0 or unusually low, for example due to poor visibility or extreme disturbance, these low-quality counts should ideally not be included in the mean. To handle these scenarios consistently, the mean displayed in the table is the higher of the two corresponding calculations: the mean of the good quality peak counts in the five seasons, and the mean of all peak counts in the five seasons, irrespective of quality.

Sites in the table are ranked by the 5-year mean of the peak season counts. Where any sites are of international or national importance, all such sites are displayed. Where none meet these thresholds, the 15 highest ranked sites are displayed, where their 5-year mean is greater than 1. Sites surveyed from the air are indicated by "(Aerial)" and sites Lough Foyle and Carlingford Lough which are on the border with Northern Ireland and surveyed by WeBS are indicated by "(WeBS)".

Table 3 Example table showing some of the I-WeBS sites supporting internationally and/or nationally important numbers of Black-tailed Godwit between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								**2018/19 - 2022/23**		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Little Brosna Callows	2280	3615	2510	1051	2445*	5000*	6760*	3553*	6760*	Nov, Jan, Feb, Mar
Cork Harbour	2210	3074	2559	3807*	2976*	2563*	3160*	3013*	3807*	Sep, Oct, Mar
Dundalk Bay	4227	3796	2260*	2447	2944	2216*	3596*	2696	3596*	Jan, Feb, Mar
Wexford Harbour & Slobs	3210	1590	3300	1785	1502*	1809	5000*	2679*	5000*	Nov, Dec, Jan
Dublin Bay	1274	1479	3369	2987	1499	2615	2343*	2618	3369	Oct, Dec, Jan, Feb
Lough Swilly	1200	1045	1134	1467	679	1572	2665	1503	2665	Sep,Dec, Feb, Mar
Lough Foyle (WeBS)	335	757	2213	862	1224	1001	1416*	1343*	2213	Oct, Nov, Feb, Mar
Rahasane Turlough	460	545	600	1800*	2500*	98	1332	1266*	2500*	Oct, Jan
Clonakilty Bay	613	732	1256	870	985	762	932*	968	1256	Oct, Nov, Dec
Ballymacoda	1040	434	1051	1236	489		731	877	1236	Oct, Feb
Blackwater Estuary	568	1147	1116	293	665		1412*	872*	1412*	Jan, Feb
Blackwater Callows	7	179		852	1195	500	875*	856*	1195	Nov, Mar
Dungarvan Harbour	1387	1109	1401	578	267	704*	985	808	1401	Nov, Dec, Feb
Tramore Back Strand	922	978	1201		17	468*	906	708	1201	Nov, Dec, Mar
Nanny Estuary & shore	345	239	332	796	166*	107*	164*	564	796	Oct
Braganstown		0	300	0	0	0	2500*	560*	2500*	Nov, Dec, Jan
Courtmacsherry Bay, Broadstrand Bay & Dunworley	461	574	646	572	412	521	522	535	646	Nov, Jan
Tralee Bay, Lough Gill & Akeragh Lough	57	10	300	114	163*	975*	1042*	519*	1042*	Sep, Nov, Dec, Jan
Broadmeadow (Malahide) Estuary	293	245	699	577	214*	186	489	488	699	Oct, Dec, Feb
Rogerstown Estuary	1113	1201	562	367	213*	525	402*	485	562	Oct, Nov, Feb
Cahore Marshes					171	385	825	460	825	Jan, Feb
Bandon Estuary	317	570	290	370			620	427	620	Nov, Dec, Jan
Little Brosna Callows (Aerial)			200		600			400	600	Dec, Jan
Boyne Estuary	360	428	316	425	211	358*	266	315*	425	Sep, Oct, Dec, Feb
Shannon Callows (Aerial)			0		600			300	600	Jan

Site								**2018/19 - 2022/23**		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
The Cull & Killag (Ballyteige)	136	166	60	398	330	415	131	267	415	Sep, Oct, Nov, Mar
North Wicklow Coastal Marshes	87	503	239	338	284*	381	64	261*	381	Nov, Mar

* includes a low-quality count *e.g*. estimate.

Note that levels of site coverage can vary both within and across winters. Thus, the trend for a species at a particular site cannot be determined from the tables presented here, nor can site-level increases or declines be inferred from comparisons between this report and its predecessor (Lewis *et al.*, 2019). Site trends require a separate analysis that accounts for varying levels of survey coverage over time (*e.g*. Kennedy *et al.*, 2023a).

4.2 Brent Goose *Branta bernicla hrota* Cadhan

hrota, Canada & Greenland/Ireland

Wintering Population

All-Ireland (2018-2023):	27,060
ROI (2018-2023):	25,630
ROI I-WeBS SPA Sites (2018-2023):	22,140

Site Threshold

International Importance:	360
National Importance:	270

Population Change (ROI)

5-year (2016-2022):	+22.1%
12-year (2009-2022):	-6%
26-year (1995-2022):	+104.3%
Historical (1984-2023):	+85.5%
Average annual change (1995-2022):	+4%

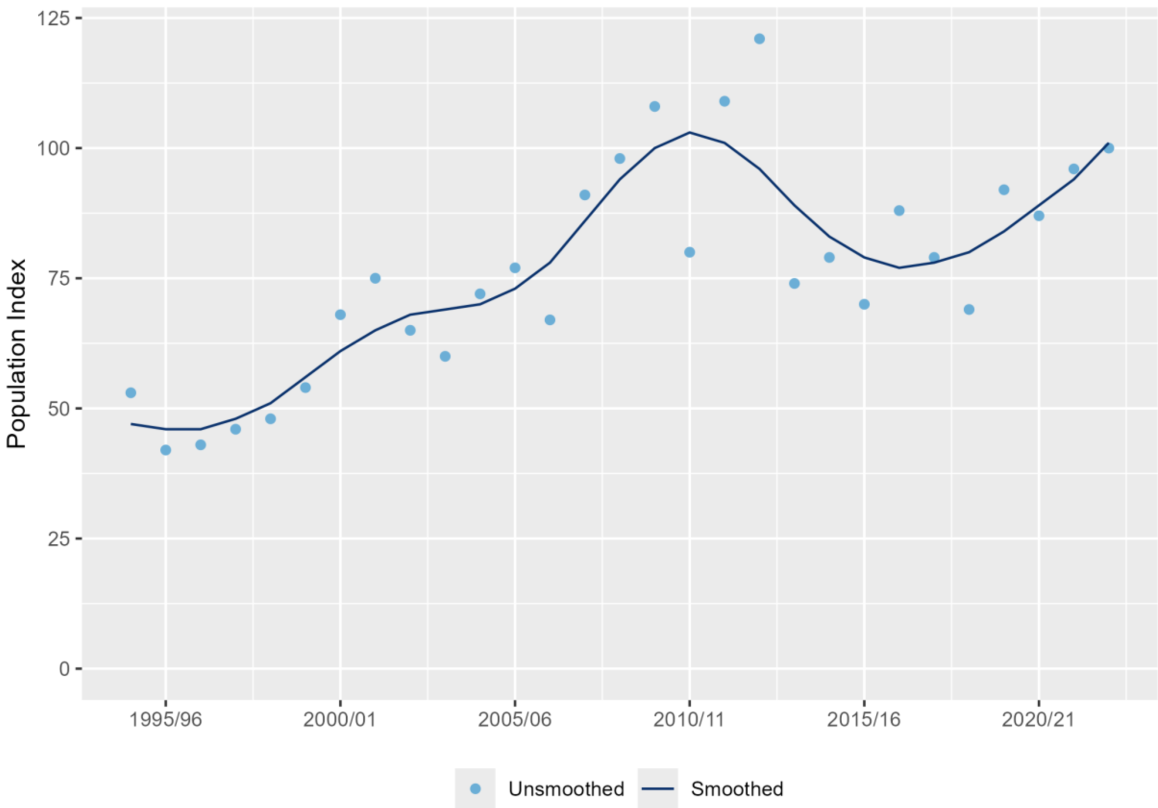


Figure 5 Calculated trends and graphed ROI population index for Brent Goose. Photo: John Fox.

There are three populations of the Light-bellied *hrota* subspecies of Light-bellied Brent Goose (Wetlands International, 2018) (Figure 5). The Light-bellied Brent geese (hereafter Brent geese) that winter in Ireland come from the Canadian eastern Queen Elizabeth Islands breeding population. Small numbers of this population also winter in Great Britain, France, the Chanel Islands and Spain. The Irish population has shown large increases in the short- and long-term, although some years of near complete breeding failure has resulted in a fluctuation of numbers in the medium-term, resulting in a 12-year decline of 6% despite an overall increase of 104.3% since the start of I-WeBS (1994/95). Census counts are organised by the Irish Brent Goose Research Group (Kerry Mackie pers. comm.), with additional support from the I-WeBS counter network. The census is carried out in October when the majority of the population has arrived in Ireland but are still largely congregated at Strangford Lough in Northern Ireland. In the weeks that follow they redistribute around the Irish coast for the remainder of the winter. For this reason, the All-Ireland population is based on a recent single-year census figure, but relevant totals and estimates of change are based on I-WeBS data (and are subject to the smoothing and trend change methodology as outlined in section 2.5.2). Note that the 1% threshold for international importance is based on the most recent census data.

Brent geese were recorded at 84 sites in the current survey period, all of which are on or adjacent to the coast (see Figure 6 and Table 4). Two of the three most important sites in Ireland, Lough Foyle and Wexford Harbour & Slobs, experienced increases since the former period – with the former recording a more-than 3-fold increase. The remaining sites of national importance are either stable or experienced declines from 2016/17 - 2022/23, though this should be considered in the context of considerable interannual fluctuation in numbers due to some years of near total breeding failure. Just over 8% of the ROI population estimate was derived from NEWS (Lewis *et al.*, 2017).

In early winter, Brent geese forage primarily on Eel Grass in the intertidal zone. As the winter progresses and supplies of Eel Grass dwindle, Brent geese are more frequently encountered inland where they feed on habitats such as recreational grasslands (*e.g*. Inger *et al.,* 2006; Handby, 2023). These recreational grasslands, including parks and sports pitches, are hugely important to a large percentage of the Irish population and pressure to develop these sites or convert them from grass to Astroturf is a frequent pressure, particularly in Dublin (e.g. Irish Times, 2024). Disturbance at feeding sites, through recreational activity and dog walking in particular, is also an ongoing issue that has the potential to become more impactful as the number of available feeding sites reduce.

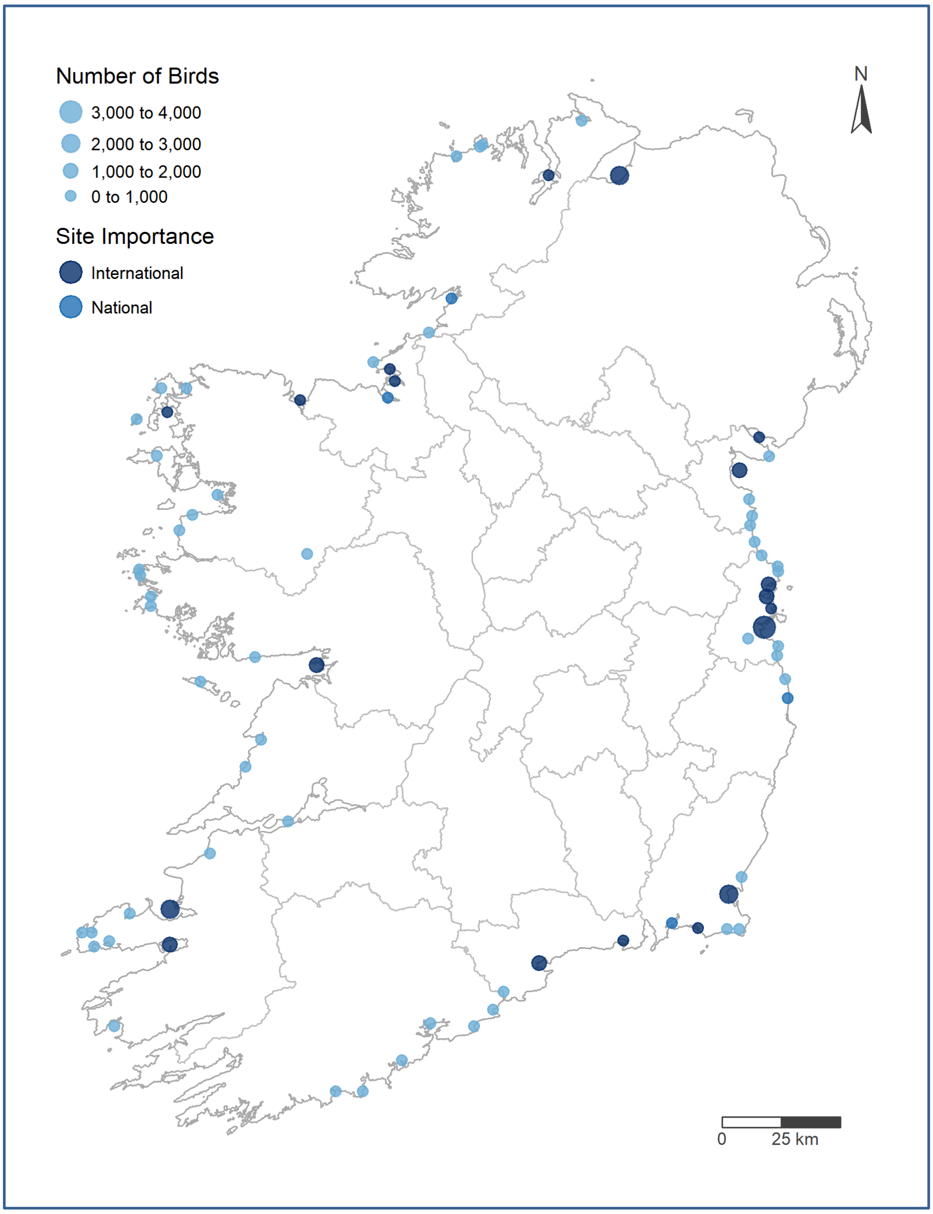


Figure 6 I-WeBS sites where Brent Goose were recorded between 2018/19 and 2022/23.

Table 4 I-WeBS sites supporting internationally and/or nationally important numbers of Brent Goose between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Dublin Bay	4420	3331	3662	5848	1472	5019	3687*	4000	5848	Dec, Jan
Lough Foyle (WeBS)	1473	3140	3679	3140	3128	1913	3095	2991	3679	Oct, Nov
Wexford Harbour & Slobs	2750*	2138	1901	3971	1767*	1619	2510*	2497	3971	Nov, Dec
Tralee Bay, Lough Gill & Akeragh Lough	2406*	3128	1278	1055*	3031*	3078*	3330*	2354*	3330*	Oct, Nov, Jan
Rogerstown Estuary	2829	2197	1795	1364	2043	1764	1188	1631	2043	Nov, Dec, Mar
Castlemaine Harbour & Rossbehy	1893	1492*	420*	1460*	1254*	2458*	2284*	1575*	2458*	
Dundalk Bay	1856	1332	2752	675	916	1088*	1397*	1448	2752	Jan, Feb
Dungarvan Harbour	1087	1034	977	1054	881	1498	1271	1136	1498	Nov, Dec, Jan, Mar
Inner Galway Bay	1469	959	613	1427		1343		1128	1427	Jan
Broadmeadow (Malahide) Estuary	1565	1000	1121	242*	1177*	1554	533	1069	1554	Nov, Dec
Tramore Back Strand	985	524	712		361	1460	1327	965	1460	Nov, Dec, Mar
Lough Swilly	692	578	770	717	656	848	478	694	848	Dec, Jan, Feb
Sligo Harbour	613	227	810	570		533	715	657	810	Nov, Dec, Jan
Killala Bay	485	636	274	479	654*	582	727	543*	727	Nov, Dec, Jan
Drumcliff Bay Estuary	634	299	405	363		700	344	453	700	Jan, Feb
Carlingford Lough (WeBS)	1033*	705*	448	1131*	0*	307*	147*	448	1131*	Oct, Nov, Jan, Feb, Mar
The Cull & Killag (Ballyteige)	284	554	600	354	800	233	125	422	800	Nov, Dec, Jan, Feb, Mar
Baldoyle Bay	753	663	366	404	422	518	212	384	518	Nov, Dec, Jan
Blacksod & Tullaghan Bays	509	560	277	680*	97*	461	108*	369	680*	Nov, Dec
Bannow Bay	1092	138	285	376	239	335	512	349	512	Nov, Jan
Donegal Bay	395	428	317	374			191*	346	374	Dec, Jan
Ballysadare Bay	368	283	120	416		541	221	324	541	Nov, Jan
North Wicklow Coastal Marshes	348	442	103	544*	650*	144	77*	304*	650*	Jan, Feb, Mar

* includes a low-quality count *e.g.* estimate.

4.3 Canada Goose *Branta canadensis* Gé Cheanadach

resident 'feral' population with small numbers (<1%) of wild migratory birds

Wintering Population

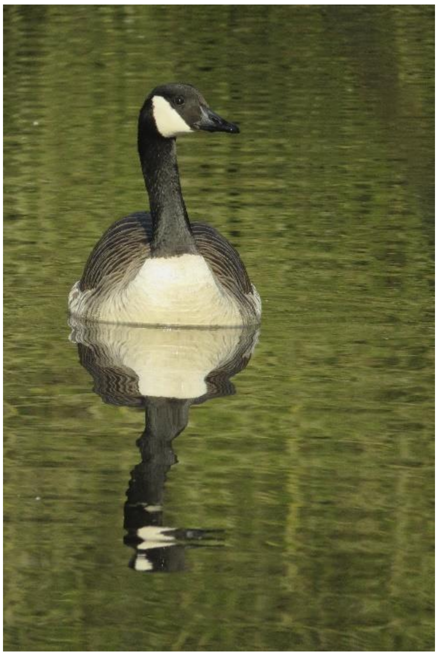
All-Ireland (2018-2023):	1,930
ROI (2018-2023):	490
ROI I-WeBS SPA Sites (2018-2023):	290

Site Threshold

International Importance:	NA
National Importance:	NA

Population Change (ROI)

5-year (2016-2022):	-6.1%
12-year (2009-2022):	+24.4%
26-year (1995-2022):	+148.8%
Historical (1984-2023):	NA
Average annual change (1995-2022):	+5.7%



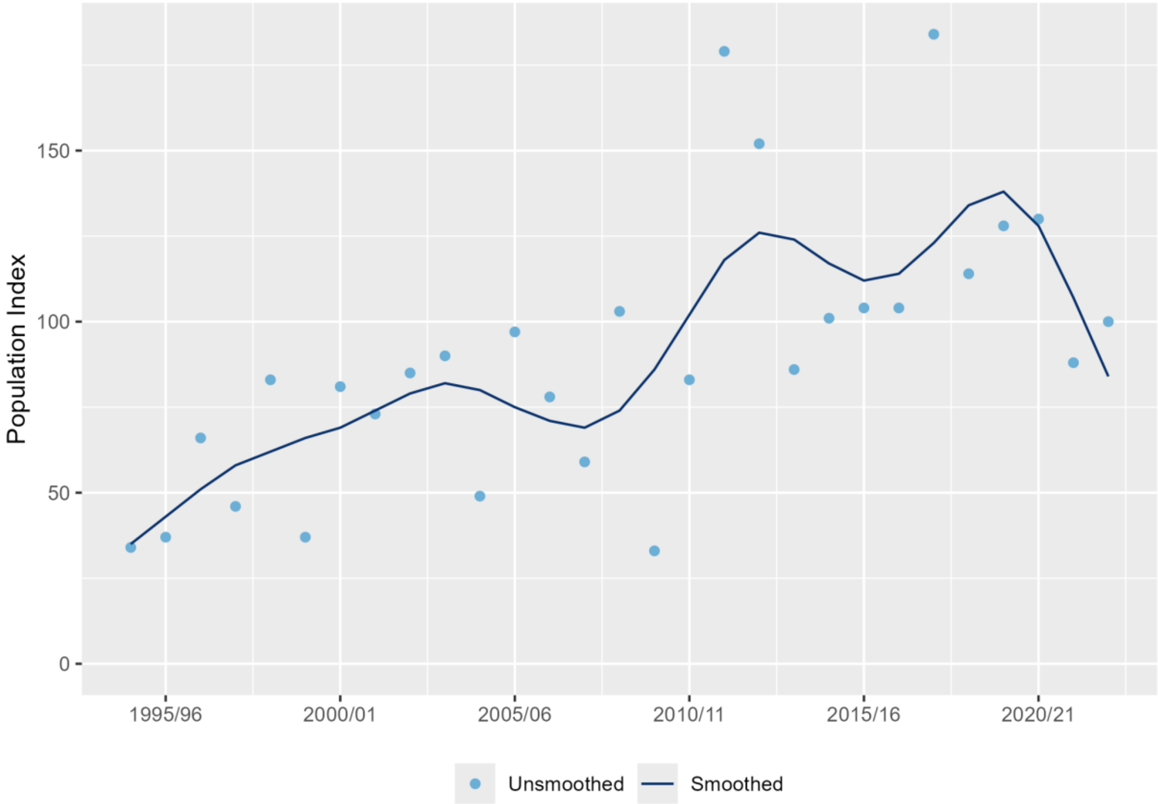


Figure 7 Calculated trends and graphed ROI population index for Canada Goose. Photo: Chelsie Jones.

Wetlands International (2018) recognise 14 populations of Canada Goose. Almost all of the Canada geese in Ireland are part of the resident feral population, with single individuals of truly wild North American origin occasionally joining goose flocks in the north-west (Figure 7). Full details of these birds and their likely origins are generally provided in the Irish Rare Bird Report (*e.g*. Clarke & O'Donaill, 2023). The Irish rare birds committee has accepted 13 records of Canada geese from 2016/17 - 2022/23, predominantly from the *interior* subspecies but a few records exist of the *parvipes* population (Clarke & O'Donaill, 2023). However, the similarity of the wild and feral populations that occur in Ireland makes it difficult to confidently assess a *canadensis* of North American origin unless it is ringed or through genetic analysis. The ROI population has more than doubled since the mid-1990s, increased in the medium-term, and slightly declined in recent years.

Canada geese were recorded at 29 sites during the current period but very few sites had them regularly or in numbers greater than one or two (see Figure 8 and Table 5). Lough Swilly hosts the largest numbers, comprising around a quarter of the All-Ireland population. Lake complexes in Leitrim and Cavan are the other reliable haunts, albeit with smaller numbers, and these counties, together with parts of Fermanagh, are where they are mostly found in the breeding season (Balmer *et al.*, 2013). The bulk of the All-Ireland wintering population resides at a few sites in Northern Ireland.

Canada Goose is listed on the Open Seasons Order, with hunting permitted from 1 September to 15 October throughout the state, and thereafter to 31 January only in parts of Cavan and Leitrim, despite their largest site being Lough Swilly in Donegal. There is no official or comprehensive bag data available to assess the extent of hunting.

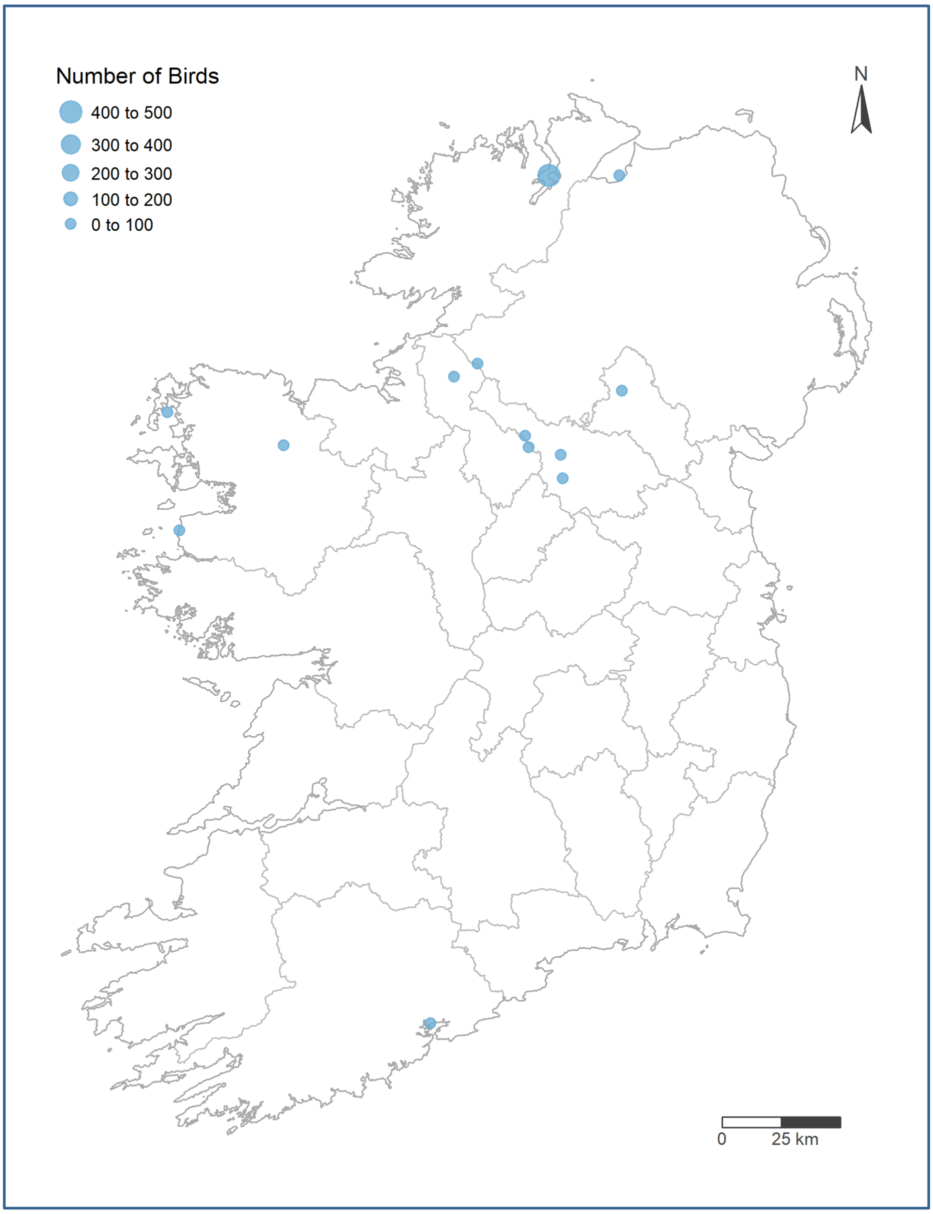


Figure 8 I-WeBS sites where Canada Goose were recorded between 2018/19 and 2022/23.

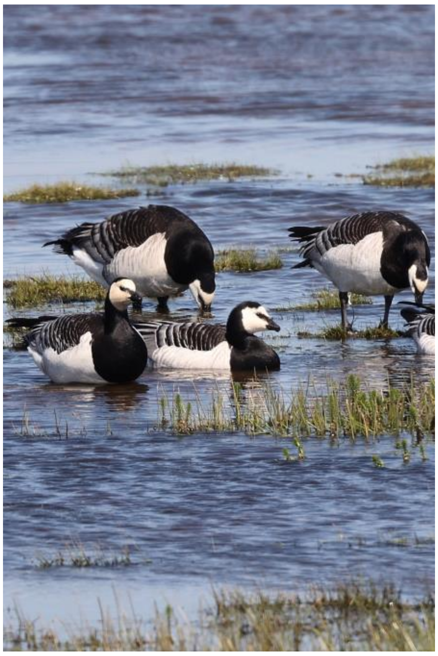
Table 5 All I-WeBS sites supporting Canada Goose with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Lough Swilly	418	549	514	626	407	451	426	485	626	Sep
East Ballinamore Lakes	30	5	31					31	31	Jan
Lough Oughter Complex	222*	15	6	2*	102*	2*		28*	102*	Jan, Feb
Ballinamore Lakes	0	4	8	23*	0*	22*	8*	12*	23*	Sep, Dec, Jan
Finn-Lacky Catchment	8	6	19		0*	0*	0	10	19	Dec, Jan
Lattone Lake							4	4	4	Mar
Lough Conn	0			0	2	0	8	2	8	Sep, Oct, Feb
South Mayo Coast	3	0	3	0	0*	2	3*	2	3	Sep, Feb
Cork Harbour	7	5	4	6	0	0	1*	2	6	Sep, Oct, Dec
Lough Foyle (WeBS)	0	0	0	0	0	0	6	1	6	Sep, Dec
North West Leitrim Mountain Lakes		14			0*	0*	3*	1*	3*	
Blacksod & Tullaghan Bays	1	1	0	1*	0*	2	1*	1	2	Oct, Nov
River Erne: Oughter - Gowna	0		1	0*	0*	0*	0*	1	1	Mar

* includes a low-quality count *e.g.* estimate.

4.4 Barnacle Goose *Branta leucopsis* Gé ghiúrainn

Eastern Greenland & Iceland/Scotland & Ireland



Wintering Population

All-Ireland (2022/23):	13,827
ROI (2022/23):	13,827
ROI I-WeBS SPA Sites (2022/23):	12,721

Site Threshold

International Importance:	620
National Importance:	140

Population Change (ROI)

5-year (2017-2023):	-14.8%
10-year (2012-2023):	-21%
24-year (1998-2023):	+59.6%
35-year (1987-2023):	+82.1%
Average annual change (1998-2023):	+2.5%

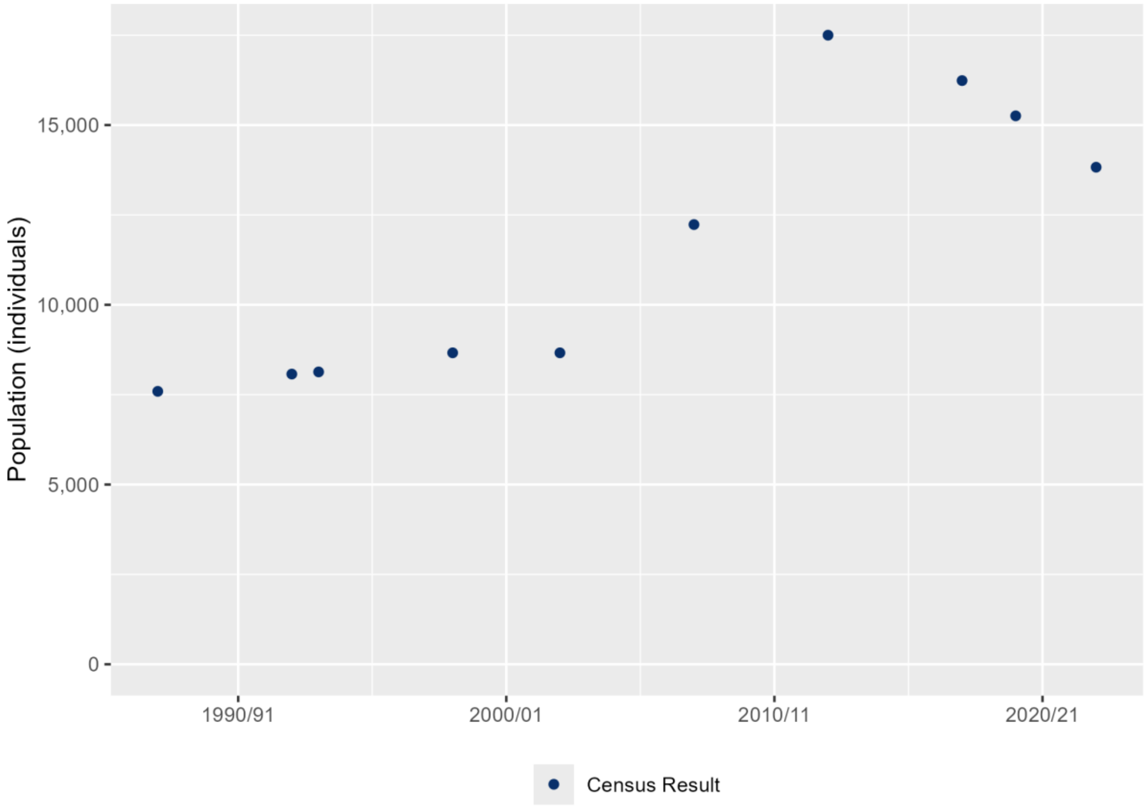


Figure 9 Calculated trends and graphed ROI population of Barnacle Goose based on census data. Photo: Ronnie Martin.

The Greenland-breeding Barnacle Goose population winters exclusively in Ireland and Scotland (Mitchell & Hall, 2013). Recently, a new breeding population has become established on historical staging grounds in south-east Iceland (Jensen *et al.,* 2018). In Ireland, they are found almost exclusively on coastal pasture fields and offshore islands in the north-west. The Irish-wintering population is censused on a regular basis through both aerial and ground counts (Kelly *et al.*, 2024). Note that the 1% threshold for international and national importance is based on the most recent census data. Mitchell & Hall (2018) reported a substantial increase in overall numbers of the Greenland/Iceland breeding population of Barnacle geese since a critical low in the 1950s. Despite this, numbers have since declined; Mitchell & Leitch (2024) found a 15.3% decrease in the overall flyway population since 2020, down to 62,159 individuals. The most recent Irish census recorded an estimated 15,256 individuals in 2020 and 13,827 in 2023 (Figure 9), indicating a 9.4% decline over the 3-year period (Kelly *et al.*, 2024).

Barnacle geese were recorded at 28 I-WeBS sites during the recent period, six of which supported internationally important numbers on a regular basis, and one with nationally important numbers. Those most important sites are all in the north-west, between Clew Bay in Mayo and Malin Head in Donegal. Note that the data in Table 6 and Figure 10 are based on available I-WeBS core count data only and do not include census data (Kelly *et al.*, 2024). Some sites such as the Inishkea Islands are not regularly surveyed for I-WeBS but are known to support large numbers of Barnacle Geese. Similarly, part of the flock at Drumcliff Bay are known to be missed during I-WeBS core counts.

Barnacle geese were one of the species worst affected by recent outbreaks of avian flu (H5N1), with an estimated loss of circa 20% of the population across Irish and Scottish wintering sites in winters 2021/22 and 2022/23 (Percival *et al.,* 2024). The flyway population has also likely been impacted as a result of direct control in Scotland and legal hunting in Iceland.

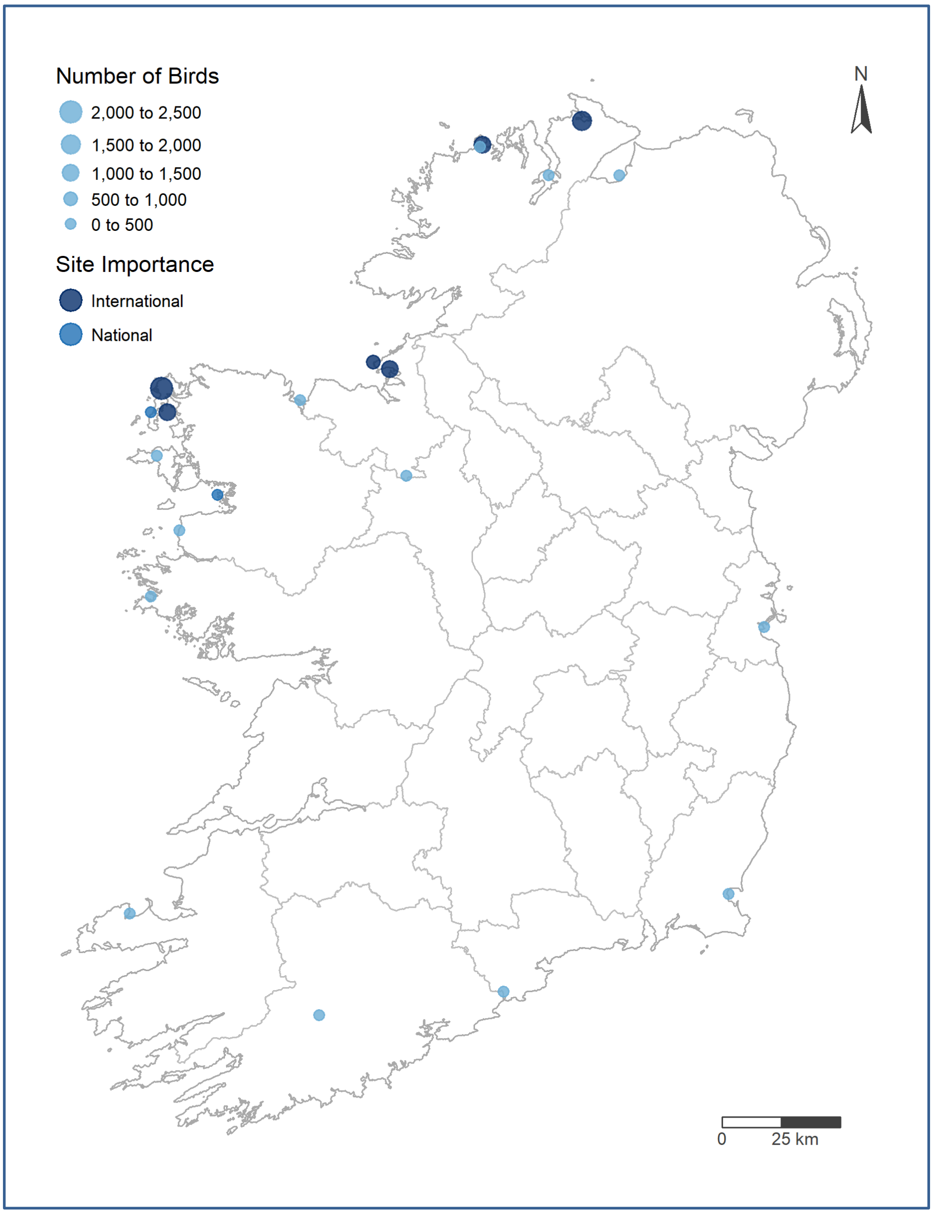


Figure 10 I-WeBS sites where Barnacle Goose were recorded between 2018/19 and 2022/23.

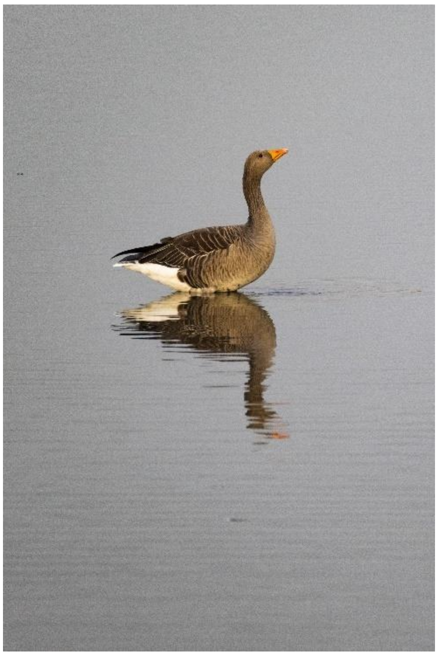
Table 6 I-WeBS sites supporting internationally and/or nationally important numbers of Barnacle Goose between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Termoncarragh & Annagh Marsh	1380	2125		1068*		1746	2550	2148	2550	Nov, Dec
Trawbreaga Bay		512		1380	1691			1536	1691	Nov, Feb
Drumcliff Bay Estuary	3700	2350	1400	1500		1220	1400	1380	1500	Nov, Jan, Feb
Blacksod & Tullaghan Bays	1440	1010	0	1858*	0*	2540	1450*	1270	2540	Oct, Nov
Dunfanaghy New Lake	840	1375	1480	1440	1090	960	1200	1234	1480	Nov, Jan, Feb, Mar
Outer Sligo Bay						0	1270*	635*	1270*	Oct, Jan
Mullet West	609	180		325*		70*	175*	190*	325*	
Clew Bay	0	77	70		182	261	236*	187*	261	Dec, Jan

* includes a low-quality count *e.g.* estimate.

4.5 Greylag Goose (Icelandic) *Anser anser* Gé ghlas

anser, Iceland/UK & Ireland



Wintering Population

All-Ireland (2018/19):	3,118
ROI (2020/21):	2,196
ROI I-WeBS SPA Sites (2020/21):	2,030

Site Threshold

International Importance:	590
National Importance:	30

Population Change (ROI)

3-year (2017-2021):	+59.4%
12-year (2008-2021):	-36%
Average annual change (2007-2021):	-3.8%

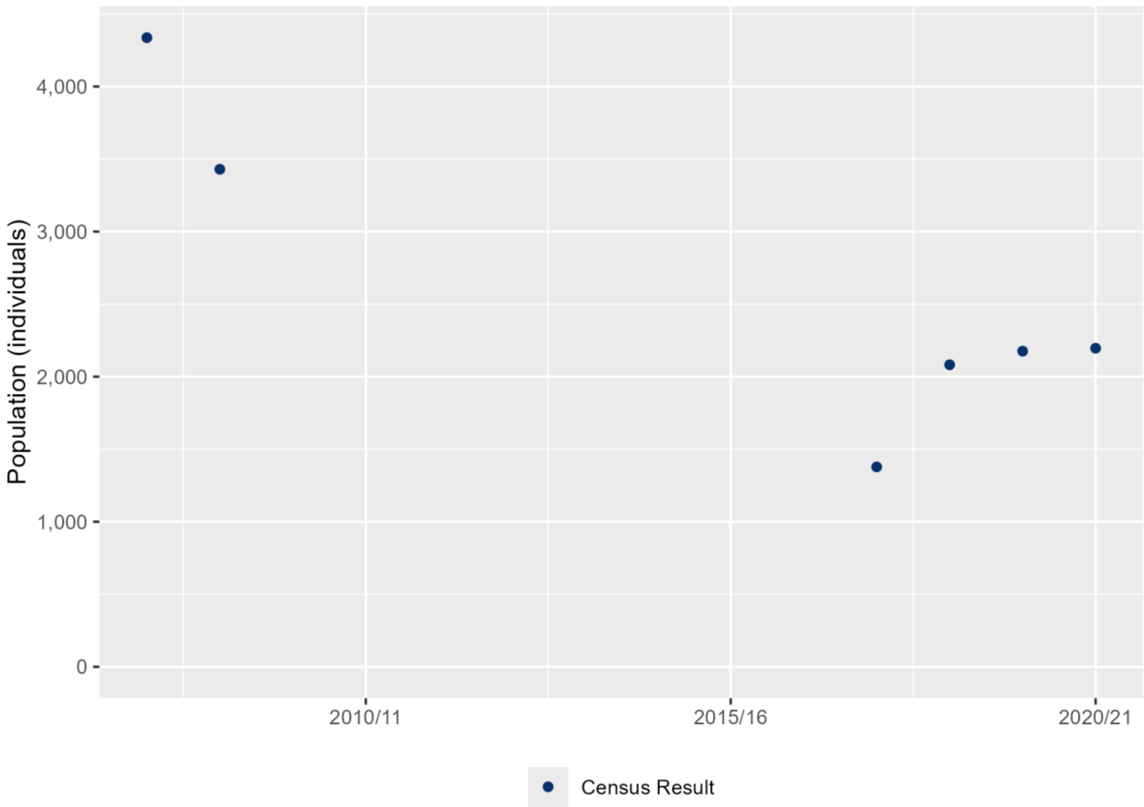


Figure 11 Calculated trends and graphed ROI population of Greylag Goose (Icelandic) based on census data. Photo: Sam Turley.

The Icelandic-breeding Greylag Goose population predominantly winters in northern Britain, with smaller numbers in Ireland, south-west Norway and the Faroe Islands, as well as some birds remaining in Iceland (Mitchell, 2015; Brides *et al.*, 2018). The I-WeBS counter network contributes to an annual autumn census of this population (Icelandic-breeding Goose Census, 'IGC') (Figure 11) across their wintering range, previously coordinated by the Wildfowl and Wetlands Trust (Brides *et al.*, 2018) and more recently by the British Trust for Ornithology

(Woodward *et al.*, 2024). Total autumn estimates have exceeded 80,000 geese for much of the last 40 years, with over 100,000 birds estimated during periods in the mid-1980s and mid-2000s, and occasional decreases below 80,000 in the late 1990s and early 2000s (Brides *et al.*, 2018). In recent years however the population has numbered considerably lower. The autumn 2016 census recorded more than 90,000 individuals but the six counts since then have ranged from 58,426-73,355 with a mean of 62,967 (Brides *et al.*, 2018; Brides *et al.*, 2021; Woodward *et al.*, 2024). The 25-year trend for Icelandic Greylag Goose in the UK therefore stands at -22% (1996/97 - 2021/22) and the 10-year trend at -41% (2011/12 - 21/22; Woodward *et al.*, 2024). The population estimates for Icelandic Greylags here are based on November census counts in ROI and WeBS data from NI, with August/September counts of resident flocks subtracted from totals in Donegal and Tyrone as necessary (see Boland & Crowe, 2008). Reliable and complete data for Icelandic Greylag geese in Ireland is patchy and somewhat limited to years where a concerted effort was made to census the population (*e.g*. Boland & Crowe, 2008; Burke *et al*., 2023), previous population estimate studies where the size of the population was determined (*e.g*. Crowe *et al.*, 2008; Crowe & Holt, 2013), or more recent years where efforts were coordinated to partake in the IGC. Comparisons in the short-, medium- and long-term are therefore made across periods where data is available and shows the population here has declined considerably, in line with the flyway-level decline in more recent years.

In ROI, Icelandic Greylag geese tend to rely on a small number of areas, namely Lough's Swilly and Foyle (both internationally important) and nearby sites in Donegal, Dundalk Bay in Louth, North Wicklow coast and Poulaphouca in Wicklow, and River Suir Lower in Kilkenny/Waterford (see Figure 12 and Table 7). They have previously used Rogerstown Estuary and Lambay Island in Dublin but have not been seen there in recent years. Though they have remained faithful to these sites for a long time, they are occasionally absent from these areas and they may have additional feeding areas in the vicinities that are as yet unknown.

In Iceland, annual autumn hunting of Greylag geese has ranged between 26,210 and 47,317 individuals from 2018 to 2022 (Statistics Iceland, 2025), which is thought to be the main pressure on the population as it continues to decline. The management of this population is expected to become a focus for the AEWA European Goose Management Platform in the near future.

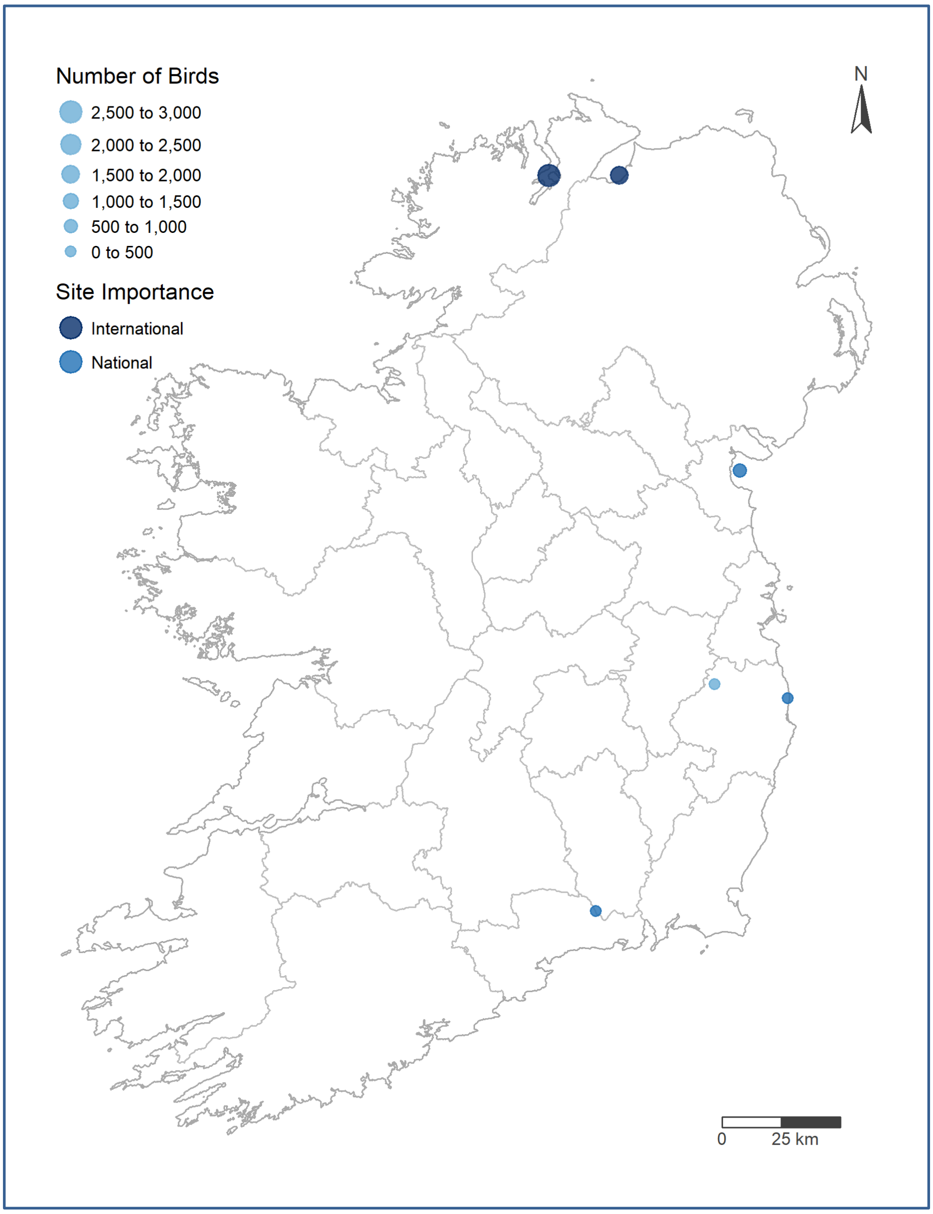


Figure 12 I-WeBS sites where Greylag Goose (Icelandic) were recorded between 2018/19 and 2022/23. The quantities for Donegal sites Lough Swilly and Lough Foyle include both Icelandic and resident Greylag geese.

Table 7 I-WeBS sites supporting internationally and/or nationally important numbers of Greylag Goose (Icelandic) between 2018/19 and 2022/23, ranked by the mean of peak season counts. The quantities for Donegal sites Lough Swilly and Lough Foyle include both Icelandic and resident Greylag geese.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Lough Swilly	2683	2802	2650	3382	1889	2486	2057*	2602	3382	Dec, Jan, Feb
Lough Foyle (WeBS)	596	696	1188	1298	414	3038	2476	1683	3038	Dec, Jan, Feb, Mar
Dundalk Bay	550	347	360	680	550	11*	53*	530	680	Jan, Feb
River Suir Lower	90	216	228	238*		148	148	190*	238*	Jan, Feb
North Wicklow Coastal Marshes	230	120	204	136*	284*	97	101	164*	284*	Dec, Jan, Feb, Mar

* includes a low-quality count *e.g*. estimate.

4.6 Greylag Goose (resident) *Anser anser* Gé ghlas (cónaithe)

Ireland (*resident/naturalised)*

Wintering Population

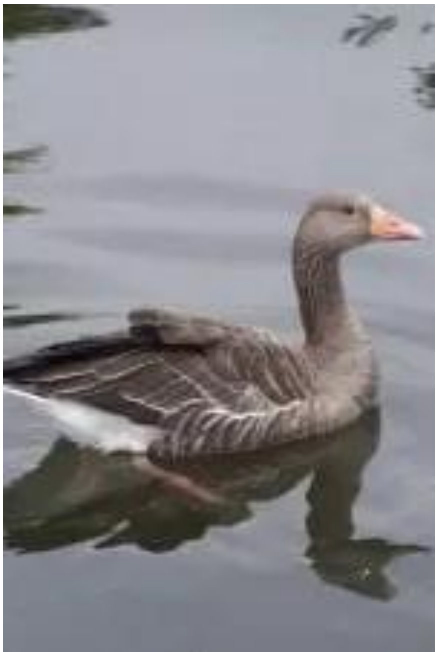
All-Ireland (2018-2023):	6,780
ROI (2018-2023):	3,480
ROI I-WeBS SPA Sites (2018-2023):	2,540

Site Threshold

International Importance:	NA
National Importance:	NA

Population Change (ROI)

5-year (2016-2022):	+9.9%
12-year (2009-2022):	+16.3%
26-year (1995-2022):	+44.9%
Historical (1984-2023):	+28.1%
Average annual change (1995-2022):	+1.7%



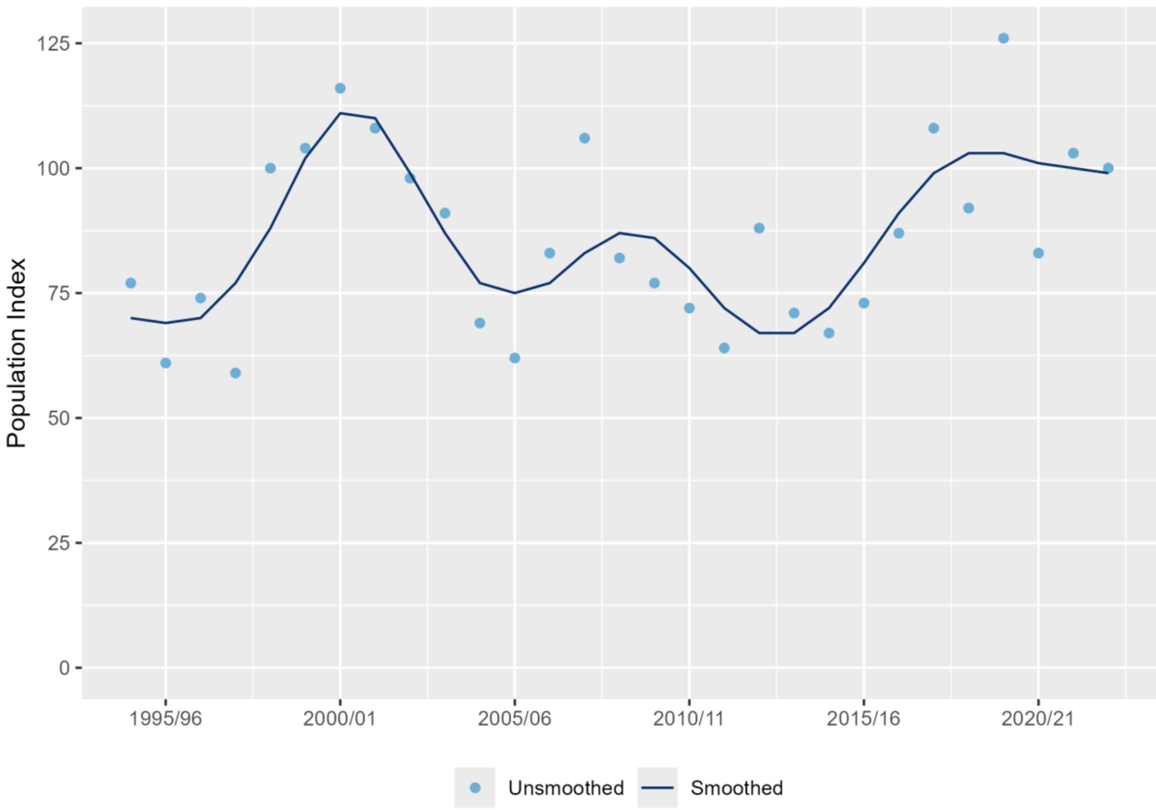


Figure 13 Calculated trends and graphed ROI population index for Greylag Goose (resident). Photo: Sarah Adams.

The population of Greylag geese that both breed and winter in Ireland have been referred to as 'feral' or 'naturalised' because some are known to be descended from birds released by wildfowlers in the 20th century (Boland & Crowe, 2008). We have opted for the term 'resident' here as there may be other sources of birds in this population that have yet to be identified, such as the north-west Scotland population (Burke *et al.*, 2023). Previous analyses have provided mean and peak data only for this population (Lewis *et al.*, 2019) but here we provide both estimates and trends for the ROI population. As with other goose species, their preference for grassland feeding means numbers are likely to be underestimated somewhat through the core count methodology but those estimates closely match a recent focused study which estimated the ROI resident Greylag Goose population at 3,579 - 4,218 individuals from 2017/18 to 2019/20 (Burke *et al.*, 2023). The trends calculated here suggest the population has fluctuated somewhat over the lifetime of I-WeBS but overall has shown significant growth (Figure 13).

A Greylag Goose flock has been identified as 'resident' through observations in the same or adjacent locations in the summer and early autumn before the Icelandic Greylag geese have arrived into Ireland (Boland & Crowe, 2008; Burke *et al.*, 2023). Resident Greylag geese were recorded at 100 I-WeBS sites in recent years which is almost double that of the previous period (Lewis *et al.*, 2019). Those sites show a broad distribution of mostly inland and some coastal sites, but with the most significant clusters of sites west of the Shannon in Clare, Galway and Mayo. In Donegal, principally at Lough Swilly but also Lough Foyle and other sites, Greylag geese from both the resident and Icelandic populations mix and are not readily separable. For this reason, both Figure 14 and Table 8 include combined counts of both populations at these sites. When calculating the population estimates, the normal modelling procedure was followed but including counts of all Greylag at these Donegal sites as well as in Tyrone in Northern Ireland. As a final step, the known number of Icelandic birds at those Donegal and Tyrone sites were subtracted from the total. In the previous period (Lewis *et al.*, 2019) from 2011/12 - 15/16, there were five sites that supported mean annual peaks of greater than 100 resident Greylag Goose, whereas in recent years that total has risen to 11 sites, with another four sites hosting 90 or more individuals. Though improved and targeted survey coverage may account for some of this, it highlights the growth and strength of the population at present.

The Open Seasons Order does not allow for the hunting of Icelandic Greylag geese but permits hunting of resident Greylag geese by specifying that hunting of this species can only be carried out throughout the state from 1 September to 15 October each year, before most of the Icelandic population have arrived. Thereafter, Greylags can only be hunted at Lady's Island (Wexford) and the Gearagh (Cork), up to 31st January. The number and distribution of resident Greylag geese has risen considerably since these stipulations were originally put into law and there are growing concerns of the potential impacts resident Greylag geese can have on scarce breeding waterbirds in the summer, and perhaps compete with other threatened geese in winter.

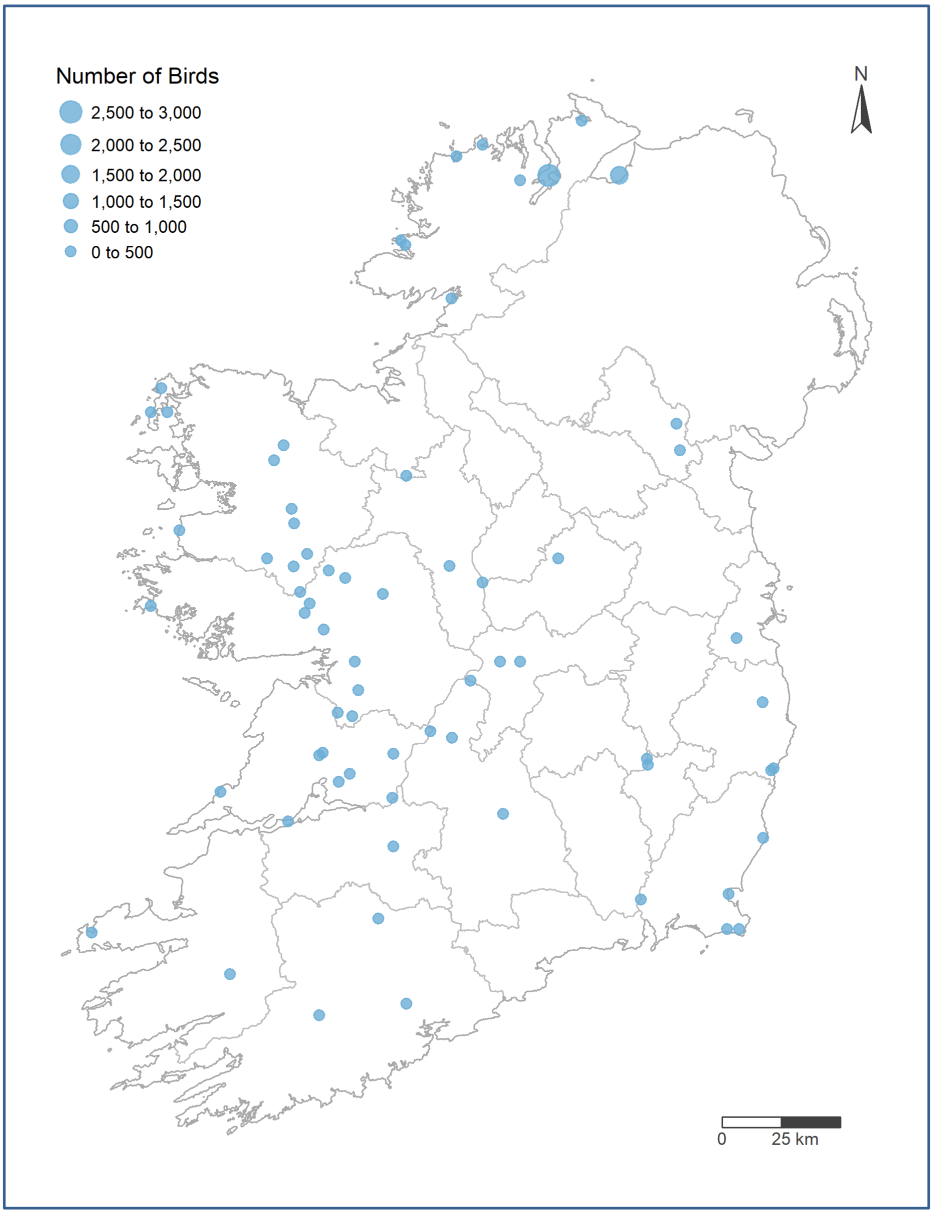


Figure 14 I-WeBS sites where Greylag Goose (resident) were recorded between 2018/19 and 2022/23. The quantities for Donegal sites Lough Swilly and Lough Foyle include both Icelandic and resident Greylag geese.

Table 8 The 15 top-ranked I-WeBS sites supporting Greylag Goose (resident) with a mean of peak season counts between 2018/19 and 2022/23 of at least one. The quantities for Donegal sites Lough Swilly and Lough Foyle include both Icelandic and resident Greylag geese.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Lough Swilly	2683	2802	2650	3382	1889	2486	2057*	2602	3382	Dec, Jan, Feb
Lough Foyle (WeBS)	596	696	1188	1298	414	3038	2476	1683	3038	Dec, Jan, Feb, Mar
Kilglassan Turlough/Greaghan's	110			26*		0*	260	260	260	Jan
North Central Galway Lakes	0			365*			25	195*	365*	Feb
Lough Fern			137	155	176		270	184	270	Dec, Jan
Inishcarra Reservoirs	135	120	168	70	180	250*	174	168*	250*	Sep, Oct, Nov
Lough Derg (Shannon)	67*	0*	0*	0*	16*	3*	165	165	165	Sep
Boora Lakes - Back Lakes Finnamores						132		132	132	Sep
Southern Roscommon Lakes	5*	42	106	18*	60*	0*	105*	106	106	Jan
Lough Derg (Shannon) (Aerial)					106			106	106	Jan
Lady's Island Lake	128	146	90	123	84	78	130	101	130	Sep, Oct, Dec
Shannon & Fergus Estuary	10*	4	42*	1*	165*	109*	171*	98*	171*	
Termoncarragh & Annagh Marsh	123	83		118*		64	110	97*	118*	Oct, Nov, Dec
Shannon & Fergus Estuary (Aerial)					95			95	95	Nov
Little Brosna Callows	0	23	3	55	31*	178	135	93	178	Oct, Dec, Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.7 Pink-footed Goose *Anser brachyrhynchus* Gé ghobghearr

Eastern Greenland & Iceland/UK

Site Threshold	
International Importance	5,400
I-WeBS Peak season counts	
ROI Mean (2018-2023):	471
ROI Peak (2018-2023):	804

Figure 15 Peak season counts of Pink-footed Goose at I-WeBS sites. Photo: John Fox.

The Pink-footed Goose (Figure 15) population that breeds in Iceland and East Greenland winters almost exclusively in Britain, with small but increasing numbers visiting Ireland (Brides *et al.*, 2021). Their numbers are monitored on the wintering grounds as part of the International Goose Census (IGC), previously coordinated by the Wildfowl and Wetlands Trust and now by the British Trust for Ornithology in Britain, and under the auspices of I-WeBS in ROI. Numbers have increased very significantly at flyway level in recent decades, with totals in Britain exceeding 500,000 individuals in three of the six years from 2015 to 2020 (Brides *et al.*, 2021). Since then numbers have declined and the most recent estimate for Britain was 443,048 in winter 2022/23 (Woodward *et al.*, 2024), though this represented a 6% increase from the previous winter and the species still stands at over 90% higher than it was in the 1990s. Pink-footed geese were scarce winter visitors to ROI until very recently. Between 2004/05 and 2008/09 they reached an annual peak of 86 geese (mean 30) (Boland & Crowe, 2012), increasing to a peak of 184 (mean 133) from 2009/10 to 2015/16 (Lewis *et al.*, 2019). Numbers here have almost quadrupled since, reaching a peak of 804 birds and a mean of 471 across the recent period.

Much of this increase has been reflected in large increases at previously used sites that are important for other geese, such as Dundalk Bay, Lough Swilly, Lough Foyle and Wexford Harbour and Slobs. They were recorded at 36 I-WeBS sites in recent years (compared to 33 in the previous period) (Lewis *et al.*, 2019) (see Figure 16 and Table 9).

Note that while numbers are monitored as part of the IGC, those totals presented here are based on I-WeBS core count data as this was deemed more representative for the recent period. A review of their numbers and distribution from 2017/18 to 2019/20 found that they were only recorded in a single month in 23 of the 30 I-WeBS sites they were recorded in during that period. This level of temporary site usage makes it difficult to adequately census the ROI population early in the winter.

Though no Irish cases have been discovered in recent years, 163 Pink-foot carcasses were recovered from the Solway Estuary in Scotland following an outbreak of Highly Pathogenic Avian Influenza (HPAI) in winter 2021/22 (Ross *et al.*, 2024). This incident and the known impact on Barnacle geese in Ireland and Scotland, as well as the fact that Greylag Goose are a somewhat regular casualty of avian flu outbreaks in Ireland, all highlight the potential vulnerability of species such as Pink-footed geese to another avian flu outbreak in Ireland.

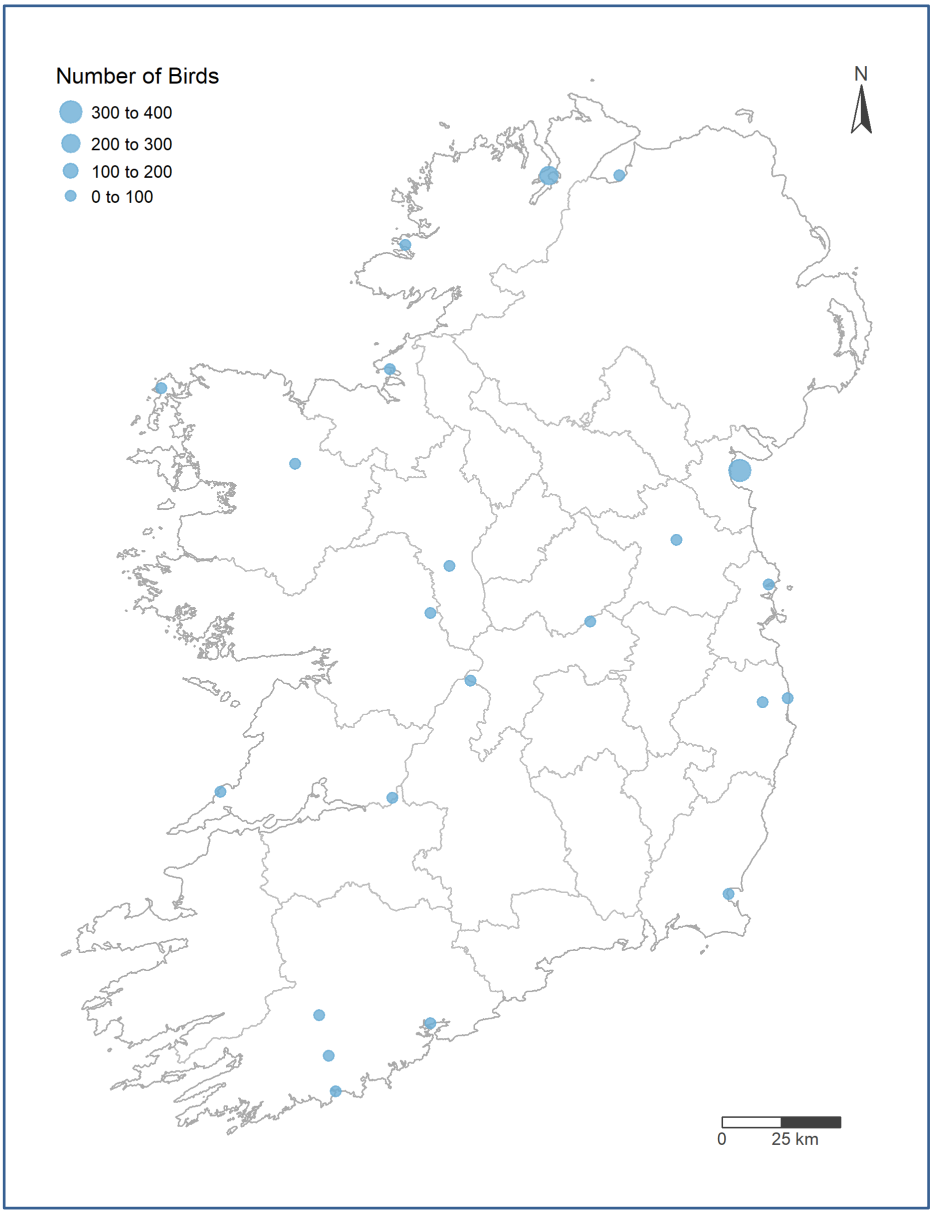


Figure 16 I-WeBS sites where Pink-footed Goose were recorded between 2018/19 and 2022/23.

Table 9 The 15 top-ranked I-WeBS sites where Pink-footed Goose was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Dundalk Bay	96	115	461	0	1	459*	590*	302*	590*	Oct, Nov, Feb, Mar
Lough Swilly	93	42	293	228	77	314	205	223	314	Dec, Feb, Mar
Wexford Harbour & Slobs	38	14	16	61	5*	32	13*	36	61	Dec, Jan, Feb
Lough Foyle (WeBS)	10	6	54	3	14	86	6	33	86	Sep, Nov, Dec, Jan
Termoncarragh & Annagh Marsh	3	0		1*		44*	18	21*	44*	Nov, Jan
Farrihy Lough					7			7	7	Jan
North Wicklow Coastal Marshes	0	0	0	1	3*	10	2	3	10	Sep, Oct, Nov
Lough Cullin	0	0	2					2	2	Feb
Southern Roscommon Lakes	0	0	5	0*	0*	0*	0	2	5	Dec, Jan
River Suck	0*	1	0*	0	0	10*	0	2*	10*	Nov, Dec, Jan, Feb
Vartry Reservoir	0				0	7	0	2	7	Sep, Oct, Dec
Sheskinmore Lough	0	0	0	0	0	0	4	1	4	Oct, Nov, Feb, Mar
Drumcliff Bay Estuary	1	0	0	0		3	1	1	3	Oct, Jan, Feb
River Shannon (Lower)	0	0	0	0	0	3	0	1	3	Sep, Oct
Inishcarra Reservoirs	0	1	0	0	1	2*	1	1*	2*	Oct, Dec, Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.8 Greenland White-fronted Goose *Anser albifrons flavirostris* Gé bhánéadanach

Greenland/UK & Ireland

Wintering Population

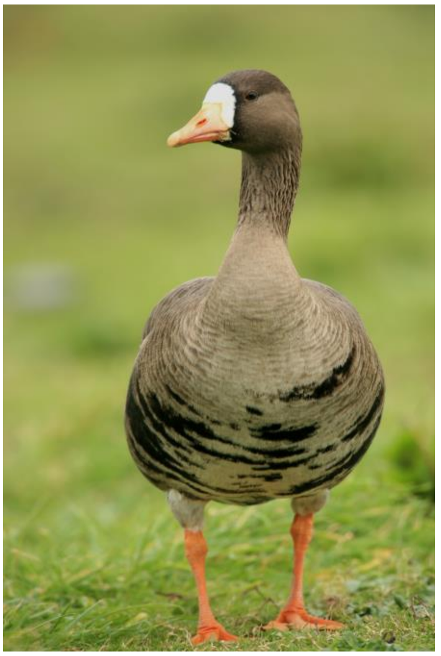
All-Ireland (2022/23):	7,792
ROI (2022/23):	7,775
ROI I-WeBS SPA Sites (2022/23):	7,461

Site Threshold

International Importance:	150
National Importance:	80

Population Change (ROI)

5-year (2017-2023):	-18.9%
12-year (2010-2023):	-37.5%
26-year (1996-2023):	-41.8%
40-year (1982-2023):	-14.5%
Average annual change (1996-2023):	-1.6%



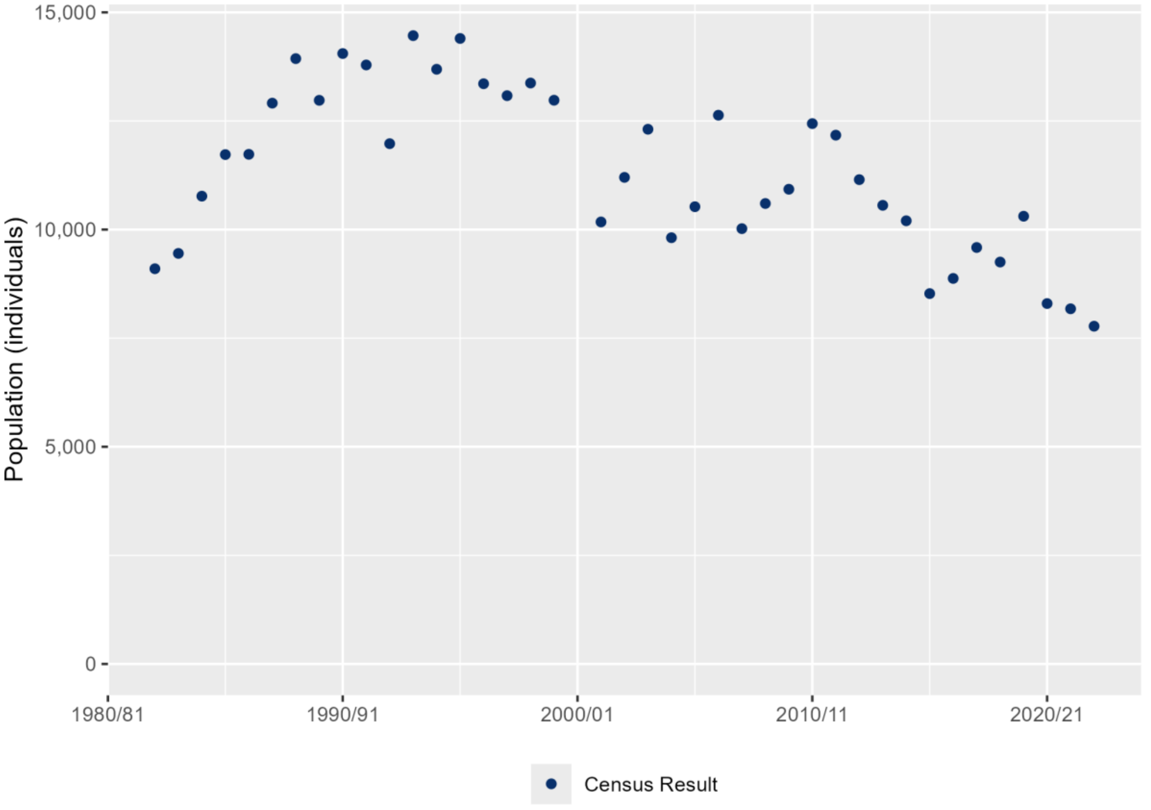


Figure 17 Calculated trends and graphed ROI population of Greenland White-fronted Goose based on census data. Photo: John Carey.

The Greenland White-fronted Goose (Figure 17), a subspecies of the Greater White-fronted Goose, breeds in Western Greenland and migrates to Ireland and Britain (predominantly Scotland) for the winter. Systematic annual censuses of this species in Ireland began in winter 1982/83, when the flyway population numbered 16,541 individuals. By winter 1998/99 the population had increased to 35,692 as a result of shooting moratoriums on the wintering grounds and site management and conservation efforts at their main wintering sites, particularly the Wexford Slobs in Ireland and on Islay in Scotland. Since that time the flyway population has undergone a major decline and stands at half of what it was at that peak, numbering 18,027 birds in the spring census of 2023 (Fox *et al.*, 2023). Those same increases and declines occurred in Ireland, with the population here now standing at 7,775 individuals in ROI. Importantly, the range of the species in Ireland was declining even as the national population was increasing in the 1980s and 1990s, exhibiting a north-eastwards shift (Schindler *et al.*, 2024a). Ireland previously supported over 50% of the flyway population up to 1990, but now supports approximately 43% (Fox *et al.*, 2023).

The sites and numbers of Greenland White-fronted Goose presented in Figure 18 and Table 10 are based on I-WeBS core count data only. More comprehensive data is gathered by NPWS and the Greenland White-fronted Goose Study Group as part of annual monitoring efforts (Fox *et al.*, 2023). Greenland White-fronted Goose was recorded at 44 sites through I-WeBS in recent years, an increase from 33 sites in the previous period (2009/10 - 2015/16) (Lewis *et al.*, 2019). Note that the 1% threshold for international and national importance is based on the most recent census data (Fox *et al.*, 2024). Wexford Harbour and Slobs continues to be by far their most important site in Ireland, but this has also acted as a population sink (Weegman *et al.*, 2017). Other sites of importance as evidenced by I-WeBS data continue to be Lough Swilly and Dunfanaghy New Lake in Donegal, Lough Iron in Westmeath, the Little Brosna Callows in Offaly/Tipperary and the Southern Roscommon Lakes. Additional data through census results show that Lough Gara in Sligo/Roscommon and the River Suck in Roscommon/Galway also continue to support numbers of national importance.

The predominant reason for the rapid population decline has been very poor productivity, thought to be due to conditions on the breeding grounds (Weegman *et al.*, 2017; Fox *et al.*, 2024), though investigations are ongoing into possible carryover effects that may influence later breeding outcomes (e.g. Schindler *et al.*, 2024b). Other pressures such as direct mortality as a result of illegal hunting are likely contributing to population declines or limiting population maintenance/recovery. In Iceland, numbers hunted annually ranged from 70 to 460 per year from 2018 to 2022 (Statistics Iceland, 2025) and these are likely underestimates. Disturbance on the wintering grounds also poses a threat that likely impact subsequent breeding efforts (Norriss & Wilson, 1988; Schindler *et al.*, 2024b). Furthermore, as such a high proportion of the Irish and flyway populations remain concentrated at so few sites, avian flu remains a significant threat, although the species has apparently not been significantly impacted by outbreaks in recent years.

Note: the All-Ireland population estimate for winter 2022/23 (Fox *et al.*, 2023) does not include a count for the Lower Lough Macnean flock (Northern Ireland) as no counts were received for that season, nor the preceding season. A flock of 108 were recorded in winter 2023/24 (see Fox *et al.*, 2024).

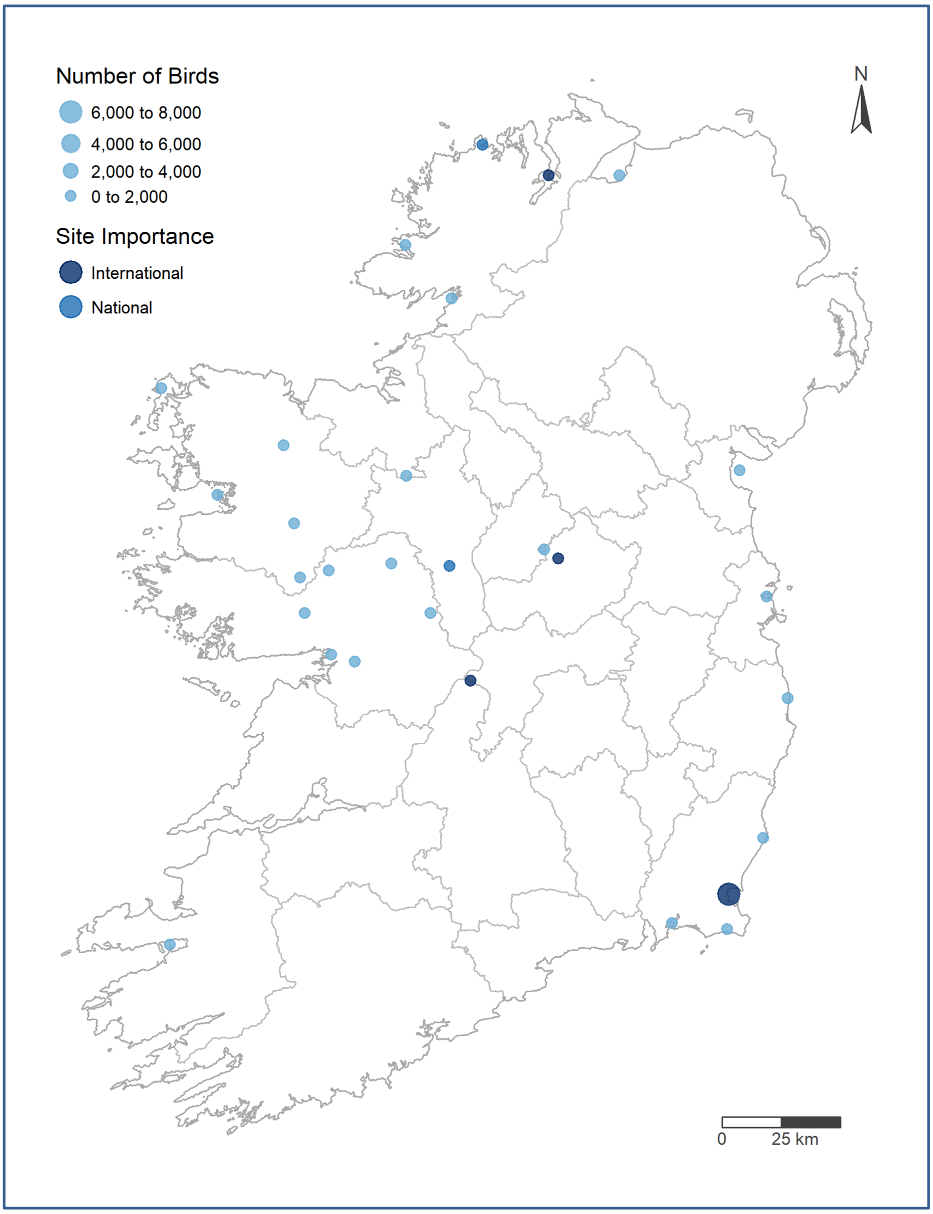


Figure 18 I-WeBS sites where Greenland White-fronted Goose were recorded between 2018/19 and 2022/23.

Table 10 I-WeBS sites supporting internationally and/or nationally important numbers of Greenland White-fronted Goose between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Wexford Harbour & Slobs	7646	7646	7183	8384	7296*	5359	4996*	6975	8384	Nov, Dec, Feb
Lough Swilly	684	745	922	721	412	912	1100	813	1100	Dec, Jan, Feb, Mar
Lough Iron	260	228	220	347*	270	280	226	269*	347*	Nov, Dec, Jan, Feb
Little Brosna Callows	171	145	140	198	138*	187	214	185	214	Dec, Jan
Little Brosna Callows (Aerial)			120		180			150	180	Nov, Feb
Southern Roscommon Lakes	48*	98	115	12*	0*	0*	96	106	115	Dec, Jan
River Suck (Aerial)			72*		90			90	90	Dec
Dunfanaghy New Lake	130	150	70	130	95	65	66	85	130	Dec, Feb, Mar

* includes a low-quality count *e.g.* estimate.

4.9 Mute Swan *Cygnus olor* Eala bhalbh

Ireland

Wintering Population

All-Ireland (2018-2023):	10,520
ROI (2018-2023):	7,940
ROI I-WeBS SPA Sites (2018-2023):	4,630

Site Threshold

International Importance:	110
National Importance:	110

Population Change (ROI)

5-year (2016-2022):	+10.5%
12-year (2009-2022):	+16.7%
26-year (1995-2022):	+8.2%
Historical (1984-2023):	-1.7%
Average annual change (1995-2022):	+0.3%

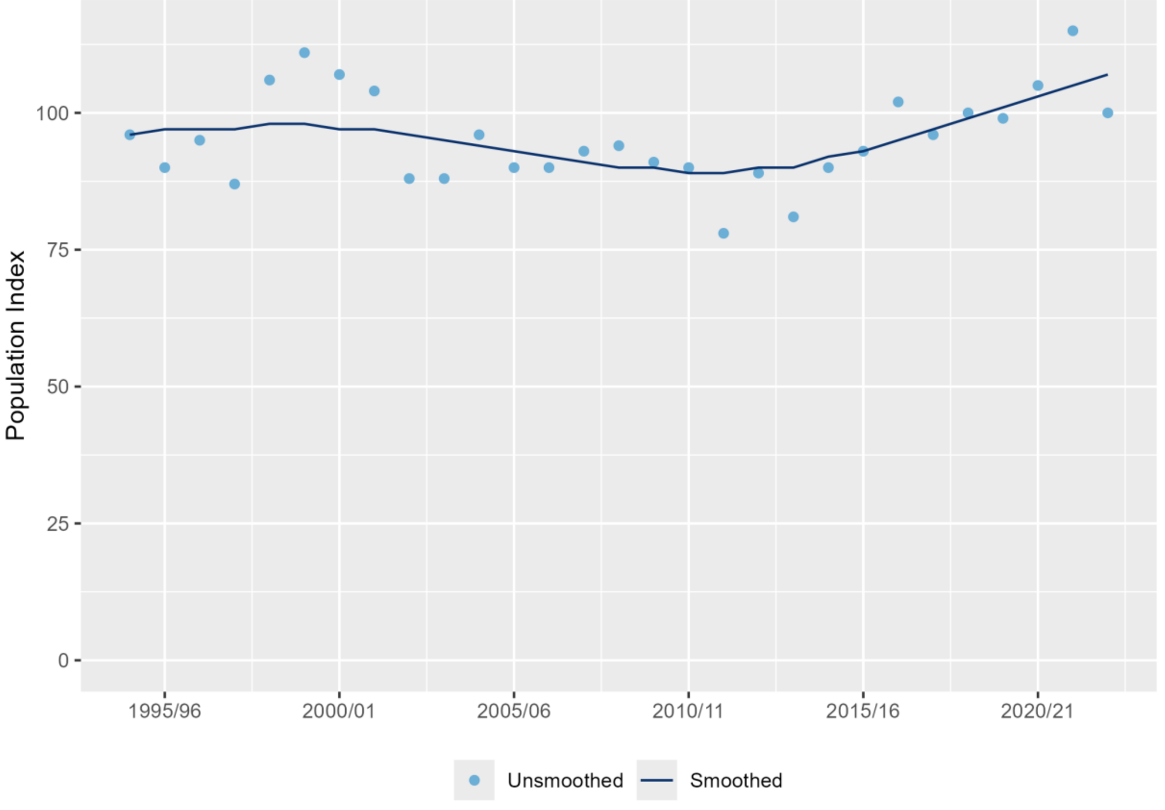


Figure 19 Calculated trends and graphed ROI population index for Mute Swan. Photo: Shay Connolly.

The Irish Mute Swan population (Figure 19) is sedentary and treated as distinct from those in either Britain or the rest of north-west Europe due to the very small amount of ringing records of birds moving across the Irish Sea. The national threshold for site importance is therefore the same as the international threshold.

Mute Swans in Ireland have increased across all time scales since the 1980s, albeit with some fluctuation meaning the level of increase in the short- and medium-terms exceeds that of the longer-term and historic comparisons. The UK has recorded a similar long-term increase, up 11% over 25 years, but a stable/negative trend over the last ten years (Woodward *et al.*, 2024).

Mute Swan were recorded at 366 sites during the recent period and 19 sites supported numbers of national, and therefore international, importance (see Figure 20 and Table 11). This compares to 23 sites supporting numbers of importance in the previous period. Some of the differences between periods may be due to levels of coverage, both between and within winters, with some of the largest Mute Swan flocks recorded at sites in September and October when broader I-WeBS coverage tends to be lower than mid-winter. Lough Corrib was one of the sites listed as supporting important numbers in the previous assessment (Lewis *et al.*, 2019) but this site has not been surveyed in full in recent years. Though many will join wintering flocks, some Mute Swans remain territorial in the winter months (Scott, 2008) and so it is likely that a proportion of the population is not covered by I-WeBS, particularly those remaining on urban ponds. Away from I-WeBS sites, 2.2% of the recent population estimate was comprised of individuals recorded via NEWS on non-estuarine coast (Lewis *et al.*, 2017).

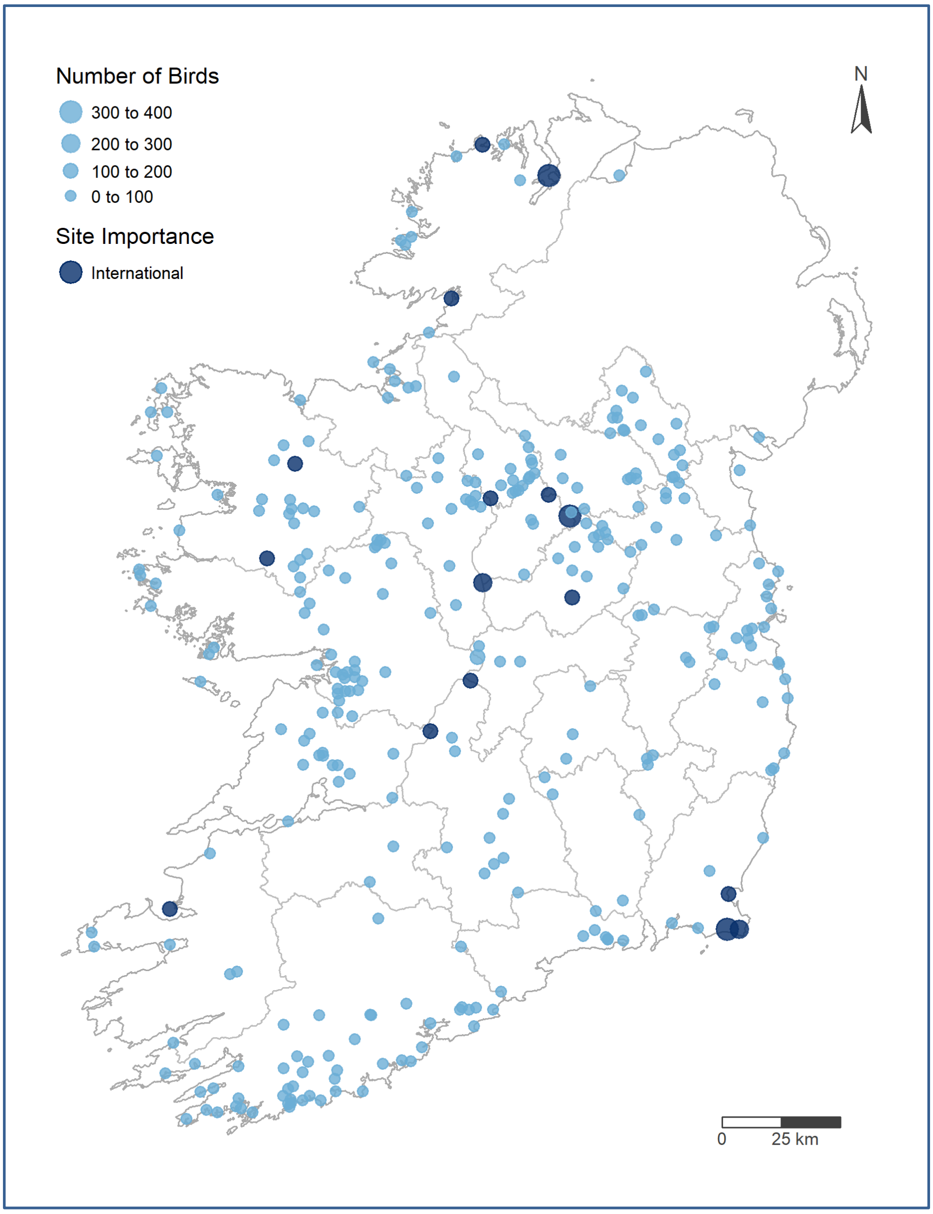


Figure 20 I-WeBS sites where Mute Swan were recorded between 2018/19 and 2022/23.

Table 11 I-WeBS sites supporting internationally and/or nationally important numbers of Mute Swan between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Tacumshin Lake	435	305	284	328	368	531	480	398	531	Sep, Oct, Nov, Dec
Shannon Callows (Aerial)			356		420			388	420	Jan, Feb
Lough Swilly	334	350	335	306	355	356	430	356	430	Sep, Oct, Nov
Lough Kinale & Derragh Lough	447	484		337	314	347	411	352	411	Sep, Nov, Jan
Lough Derg (Shannon) (Aerial)					233			233	233	Nov
Lough Ree	168*		343	133	136		206	204	343	Oct, Nov, Jan
Lady's Island Lake	363	449	377	273	143	87	118	200	377	Sep, Oct, Nov
Donegal Bay	167	210	245	156			132	178	245	Oct, Nov
River Suck (Aerial)			131*		162			162	162	Dec
Lough Derg (Shannon)	103*	98*	27*	51*	180*	142*	161	161	180*	Sep, Oct, Dec, Feb
Lough Ennell	216	190	296	144	88	137	125	158	296	Sep, Jan, Feb
Dunfanaghy New Lake	101	124	246	158	125	116	137	156	246	Oct, Dec, Mar
Wexford Harbour & Slobs	165	162	190	222	74*	56	116*	156	222	Dec, Feb
Lough Cullin	102	52	148					148	148	Sep
Tralee Bay, Lough Gill & Akeragh Lough	159	235	268	4	8*	271*	9*	136	271*	Sep, Oct, Nov, Dec
Lough Gowna	77	68	145	115*	123*	116	30*	130	145	Jan, Feb
Eslin River	51	61	127				10*	127	127	Jan
Little Brosna Callows	16	145	87	154	156*	64	109	114*	156*	Oct, Nov, Dec, Feb, Mar
Lough Mask	116	121	74	149		86*	80*	112	149	Sep, Oct

* includes a low-quality count *e.g.* estimate.

4.10 Bewick's Swan *Cygnus columbianus bewickii* Eala Bewick

bewickii, Western Siberia & North-east Europe/North-west Europe

Wintering Population

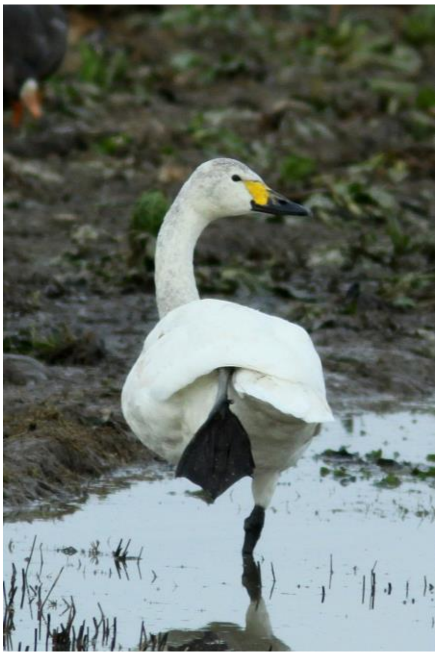
All-Ireland (2019/20):	12
ROI (2019/20):	12
ROI I-WeBS SPA Sites (2019/20):	11

Site Threshold

International Importance:	130
National Importance:	20

Population Change (ROI)

5-year (2014-2020):	-42.9%
10-year (2009-2020):	-85%
25-year (1994-2020):	-97.2%
30-year (1989-2020):	-99.2%
Average annual change (1994-2020):	-3.9%



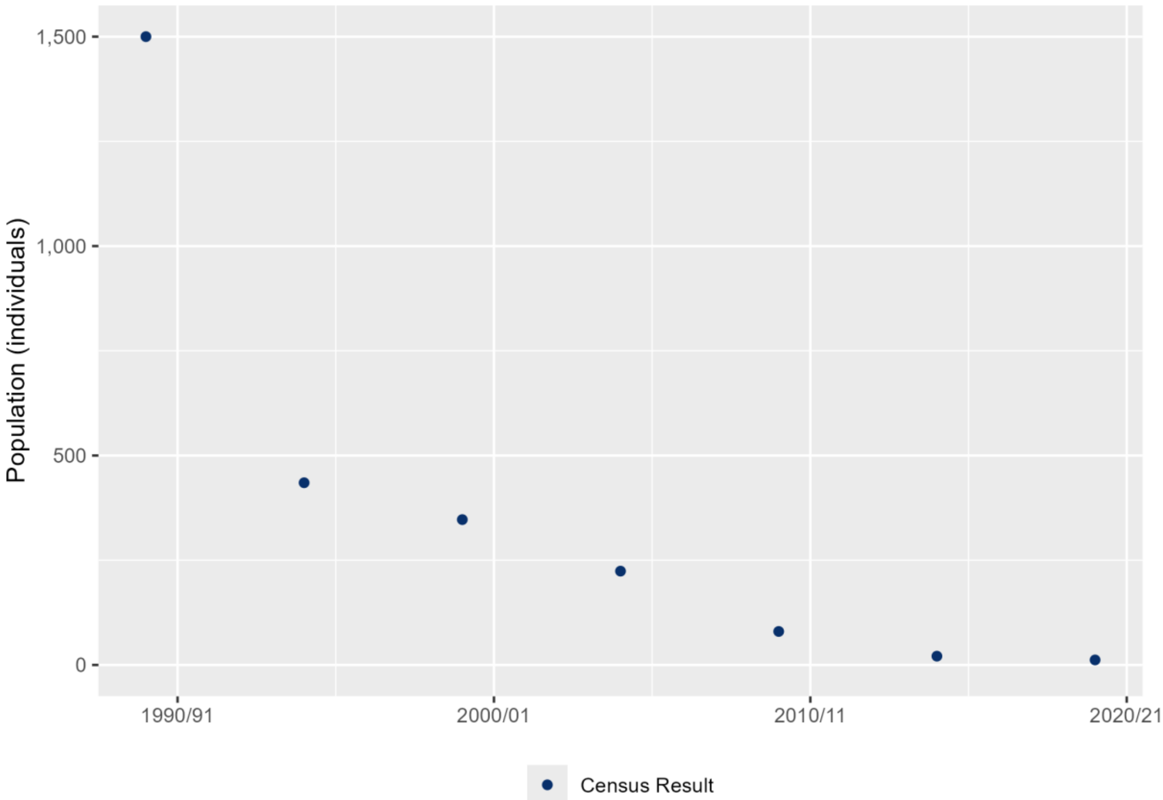


Figure 21 Calculated trends and graphed ROI population of Bewick's Swan based on census data. Photo: Dick Coombes.

There are three populations of Bewick's Swan (Wetlands International, 2018). Those that breed on the open maritime tundras of European Arctic Russia winter in north-west Europe (Rees & Beckman, 2010). Their wintering range includes the Netherlands, Germany, Denmark, Belgium, France, Britain and at the very western edge of their range, Ireland. A rapid decline in the Irish-wintering population has been evident for a long time (see Figure 21) and has been attributed to 'short-stopping' as the population shifts to wintering closer to the breeding grounds (Rees & Beekman, 2010). Numbers in Ireland fell below 100 by the time of the 2010 census, to 21 individuals five years later, and to 12 birds by January 2020 (Burke *et al.*, 2021). The downward trend in Ireland began at a time of relative stability in the flyway population, but in more recent years the latter has also been in rapid decline, dropping by 36% to 12,900 individuals between the 2015 and 2020 censuses (Rees & Clausen, 2024).

Of the 12 Bewick's Swans in Ireland during the 2020 census, one was in Roscommon associating with Whooper Swans and the remaining 11 were in Wexford. Subsequent to that census, only the Wexford birds have remained (see Figure 22 and Table 12). That group has peaked at 15 birds in 2022/23 and otherwise fluctuated in size in recent years but given the flyway-level declines it is expected that this flock will be the last one to winter regularly in Ireland. At the time of writing, only one Bewick's Swan was seen in Ireland in winter 2024/25 and that was just once at the start of November with no subsequent sightings.

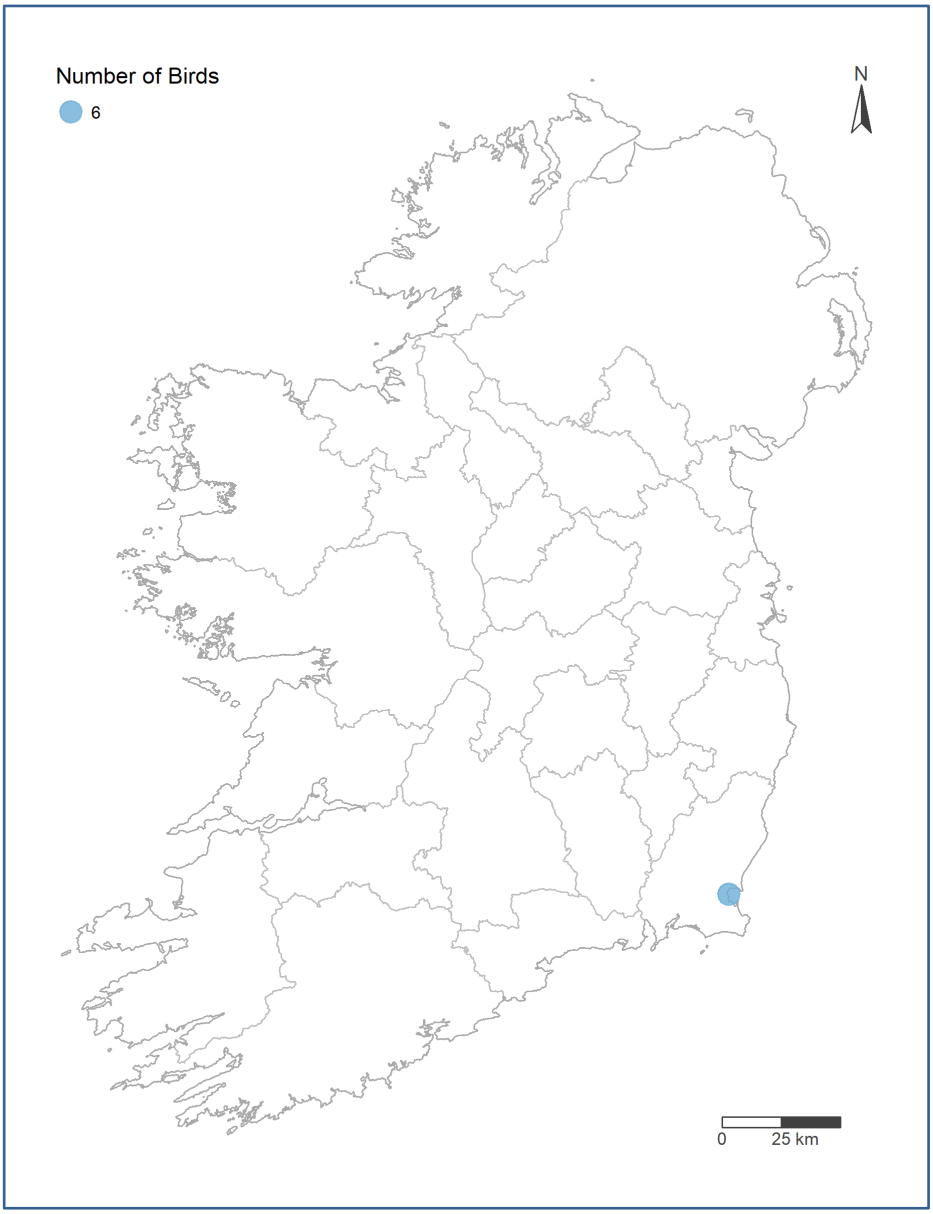


Figure 22 I-WeBS sites where Bewick's Swan were recorded between 2018/19 and 2022/23.

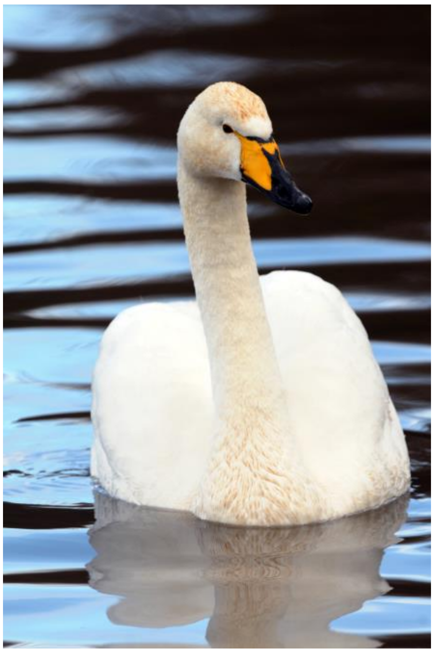
Table 12 All I-WeBS sites supporting Bewick's Swan with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Wexford Harbour & Slobs	13	5	2	14	0*	1	15*	6	15*	Oct, Dec, Jan, Feb

* includes a low-quality count *e.g*. estimate.

4.11 Whooper Swan *Cygnus cygnus* Eala ghlórach

Iceland/UK & Ireland



Wintering Population

All-Ireland (2019/20):	19,111
ROI (2019/20):	14,467
ROI I-WeBS SPA Sites (2019/20):	6,514

Site Threshold

International Importance:	430
National Importance:	190

Population Change (ROI)

5-year (2014-2020):	+22.1%
10-year (2009-2020):	+38.4%
25-year (1994-2020):	+104.6%
34-year (1985-2020):	+82.1%
Average annual change (1994-2020):	+4.2%

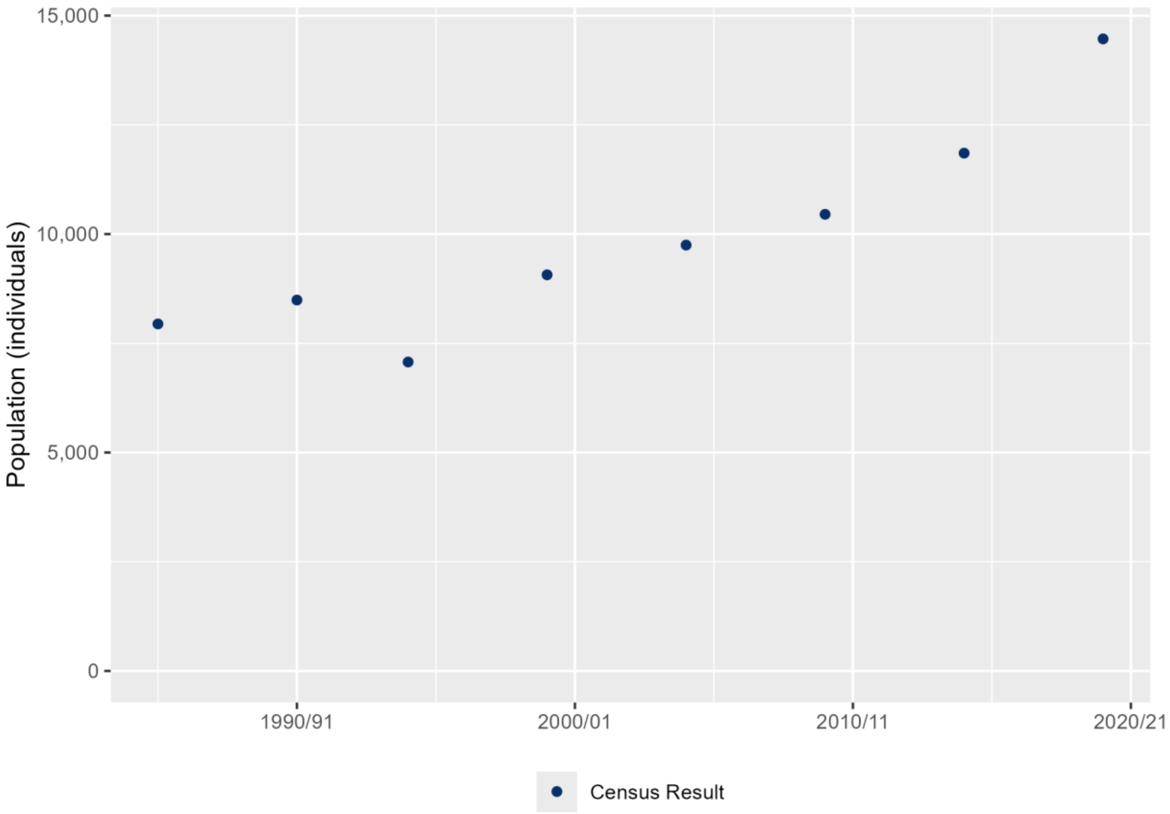


Figure 23 Calculated trends and graphed ROI population of Whooper Swan based on census data. Photo: Richard T Mills.

There are five populations of Whooper Swan (Wetlands International, 2018). Those that winter in Ireland are from the Icelandic-breeding population, this population also winters in Britain and, more recently, Iceland (Figure 23). A coordinated census of the Icelandic Whooper Swan population has been carried out on the wintering grounds at near 5-yearly intervals since January 1986. The first census recorded a total of 16,700 individuals across their wintering range, the most recent census in 2020 recorded a total of 43,255, the highest census total to date and an overall increase of 159% (Brides *et al.*, 2021). The Irish population increased from 15,370 in 2015 to 19,111 in 2020, yet the proportion of the total population over-wintering here decreased (Brides *et al.*, 2021). There has been a gradual shift in distribution of their wintering range to the south-east, with ever increasing numbers in Britain and, unlike in Ireland, an increase in the proportion of the population wintering there also (Hall *et al.,* 2016; Brides *et al.*, 2021). For the first time during a census, Whooper Swans were recorded in all 32 counties, with a noticeable shift away from the west and north-midlands into the south and midlands proper (Burke *et al.*, 2021). It should be borne in mind that the census represents a snapshot of Whooper Swan distribution however, and I-WeBS core count data provides useful additional information on their site usage. Counts in Table 13 are based on I-WeBS core count data only. Sites in Wexford, Donegal and along the Shannon system in the midlands continue to be the most important sites for Whooper Swans in recent years (see Figure 24).

Though the population has been increasing, Whooper Swans are seemingly vulnerable to avian flu. In all recent winters with avian flu there have been positive cases in Whooper Swans, with anecdotal reports of multiple carcasses associated with some flocks during the particularly bad outbreak of H5N1 in winter 2022/23. It is not yet clear what impact this might have had on the population here, but there is potential for worse outbreaks in the future.

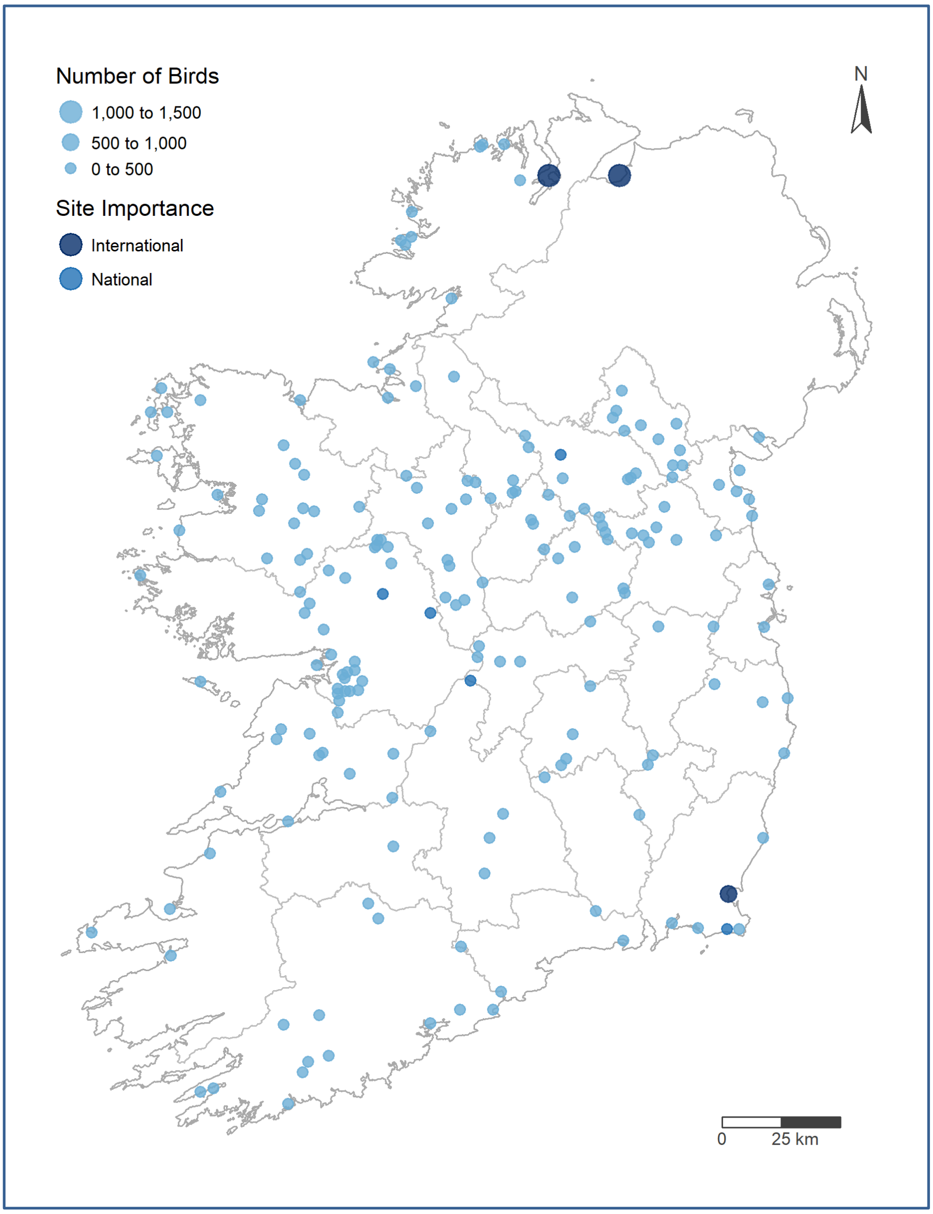


Figure 24 I-WeBS sites where Whooper Swan were recorded between 2018/19 and 2022/23.

Table 13 I-WeBS sites supporting internationally and/or nationally important numbers of Whooper Swan between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Lough Foyle (WeBS)	1147	3168	630	1018	1347	1976	670	1128	1976	Nov, Dec, Feb
Lough Swilly	645	1566	652	751	338	1258	2005	1001	2005	Oct, Nov, Dec, Mar
Shannon Callows (Aerial)			478		907			692	907	Jan
Wexford Harbour & Slobs	571	330	615	463	407*	426	692*	521*	692*	Nov, Dec, Feb
Little Brosna Callows (Aerial)			270		404			337	404	Nov, Feb
Shannon & Fergus Estuary (Aerial)					298			298	298	Jan
Lough Oughter Complex	102*	80	283	107*	104*	24*		283	283	Jan
Little Brosna Callows	84	375	278	263	593*	158	86	276*	593*	Nov, Jan
Tacumshin Lake	389	116	346	150	275	417	140	266	417	Oct, Jan, Feb
River Suck (Aerial)			265*		265			265	265	Nov
North East Galway Lakes	135	14*		75*	44*	14*	259	259	259	Feb
Lough Derg (Shannon) (Aerial)					230			230	230	Jan
River Suck	215*	293*	281*	166	125	190*	188	190*	281*	Nov, Jan, Feb

* includes a low-quality count *e.g*. estimate.

4.12 Shelduck *Tadorna tadorna* Seil-lacha

North-west Europe

Wintering Population

All-Ireland (2018-2023):	10,480
ROI (2018-2023):	7,120
ROI I-WeBS SPA Sites (2018-2023):	6,750

Site Threshold

International Importance:	3,100
National Importance:	100

Population Change (ROI)

5-year (2016-2022):	+2.5%
12-year (2009-2022):	-2.4%
26-year (1995-2022):	-30.9%
Historical (1984-2023):	-7.9%
Average annual change (1995-2022):	-1.2%

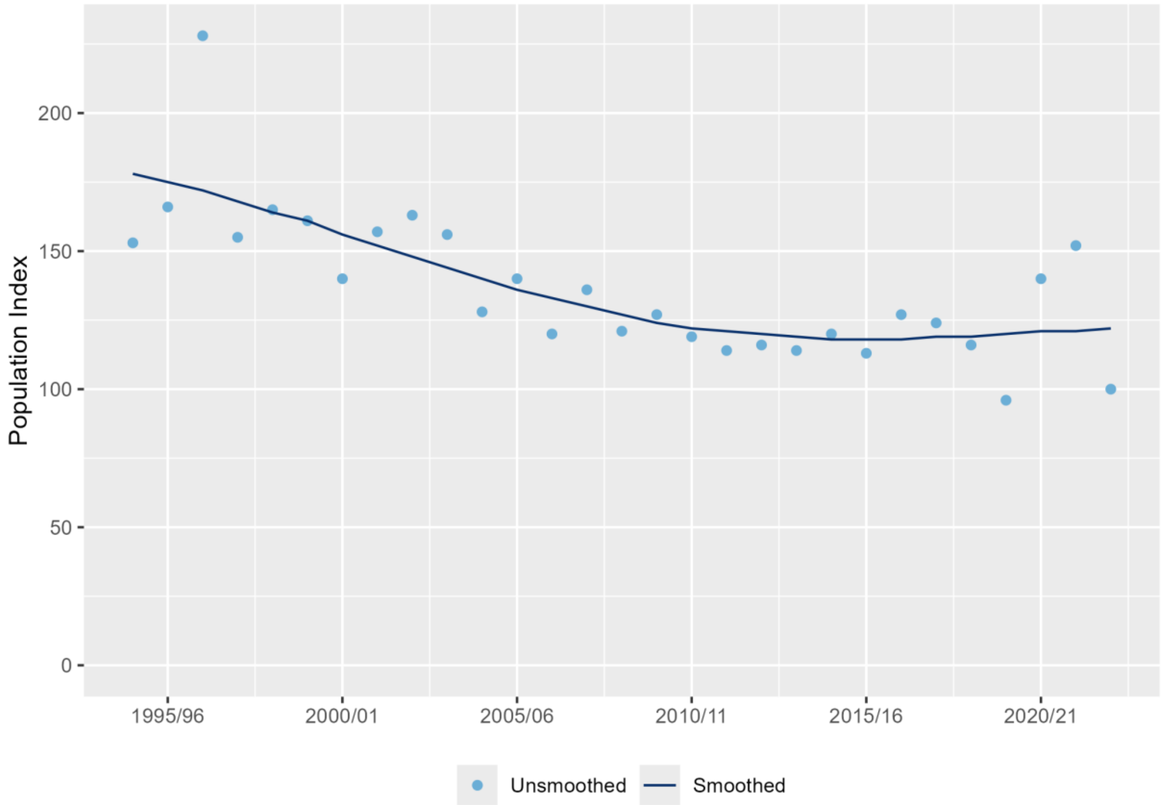


Figure 25 Calculated trends and graphed ROI population index for Shelduck. Photo: Ronnie Martin.

Common Shelduck in Ireland are part of the north-west European population (Figure 25). Breeding Shelduck in this population undertake a moult migration after the breeding season. Traditionally, it was believed that nearly all western European Shelducks migrated to the German Wadden Sea for moulting, where systematic counts have been conducted since the late 1980s. Recent surveys, however, indicate that approximately a quarter of the moulting

Shelducks in the Wadden Sea have shifted from Germany to the Dutch Wadden Sea (JMMB, 2013). Additionally, significant moulting gatherings in late summer are also found in the UK, particularly in areas such as the Humber Estuary, The Wash, Bridgwater Bay in the Severn Estuary, and the Firth of Forth (Patterson, 1982). There is evidence for a range of migration strategies within north-west European Shelduck, with some birds wintering near their breeding area, some at or near their moulting site, some wintering a great distance away from their breeding areas and some remaining sedentary (Cimiotti *et al.*, 2023). The European population is currently stable (Wetlands International, 2024). The ROI population has undergone a large decline since the mid-1990s, which has slowed in the medium-term and shown a small increase in recent years. There has been a similar trend in the UK, with a significant decline over 25-years but slowing more recently (Woodward *et al.*, 2024).

Shelducks were recorded at 95 sites in recent years, almost all of which were coastal. Though there are sites supporting numbers of national importance on all coasts, the concentration of four such sites in county Dublin is notable (see Figure 26 and Table 14). Less than 1% of the recent population estimate is from the 2015/16 Non-Estuarine Coastal Waterbird Survey (NEWS-III; Lewis *et al.*, 2017).

Given their reliance on estuarine habitat Shelduck are vulnerable to the many sources of recreational disturbance that occur in estuaries adjacent to urban areas. Disturbance from humans walking with/without dogs is consistently found to be the most disturbing activity at sites during assessments undertaken for SPA conservation objectives. Disturbance from sports, tourism and leisure activities was the most frequently cited pressure at I-WeBS sites for all species groups, in a survey of I-WeBS counters. In addition, research indicates that shallow-water species such as Shelduck have exhibited a north-eastward shift in distribution in Europe in response to higher North Atlantic Oscillation (NAO) index values (Pavón-Jordán *et al.*, 2018).

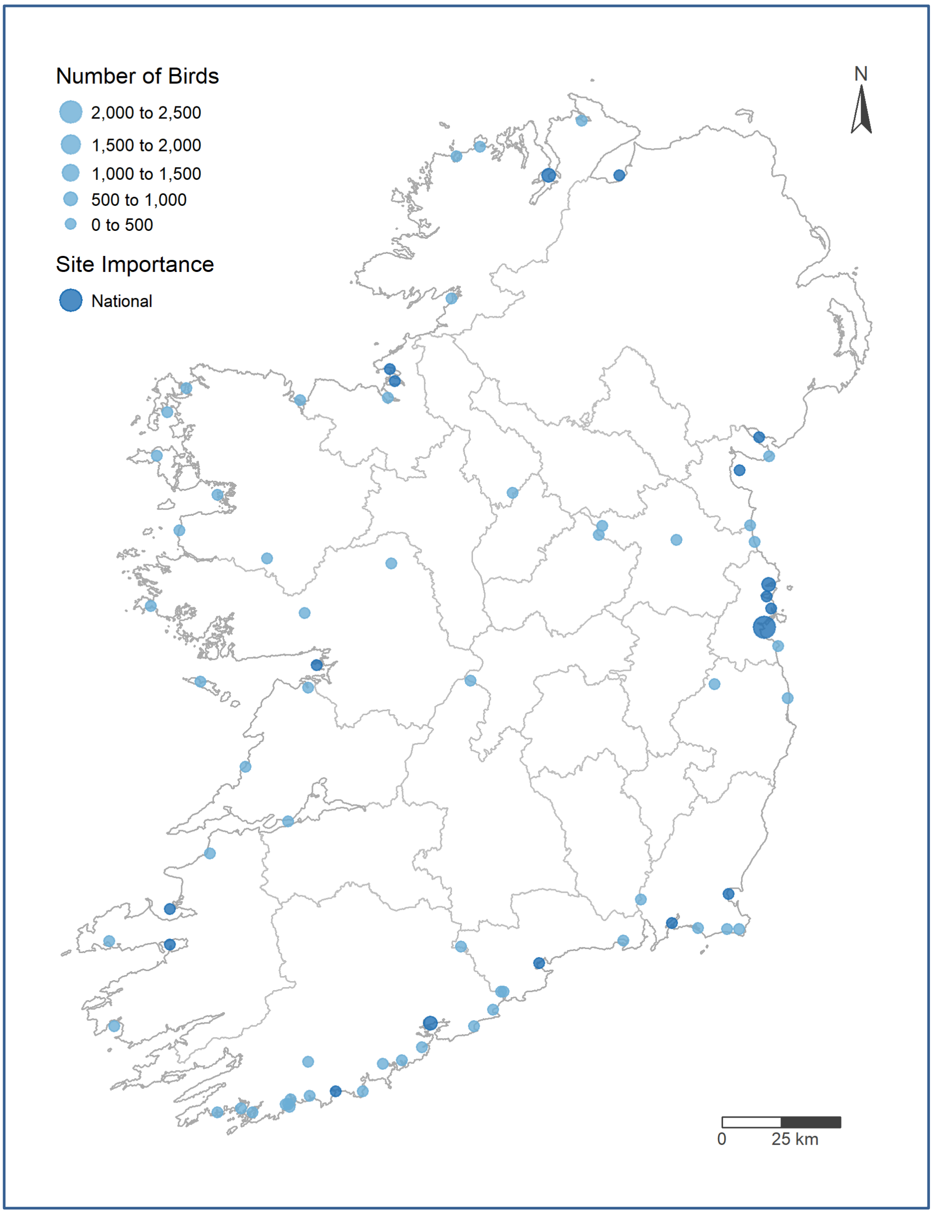


Figure 26 I-WeBS sites where Shelduck were recorded between 2018/19 and 2022/23.

Table 14 I-WeBS sites supporting internationally and/or nationally important numbers of Shelduck between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Dublin Bay	1811	1611	1632	1619	2586	2270	1478*	2027	2586	Nov, Dec, Jan
Lough Swilly	684	923	1251	526	471	853	884	797	1251	Dec, Jan, Feb, Mar
Cork Harbour	792	953	924	694	631	913	689	770	924	Dec, Jan, Feb
Rogerstown Estuary	687	531	513	502	812	390	441	532	812	Nov, Jan, Mar
Wexford Harbour & Slobs	385	506	401	523	399*	378	90*	434	523	Nov, Dec, Feb
Broadmeadow (Malahide) Estuary	569	321	416	9*	455*	667*	216*	416	667*	Nov, Dec, Jan, Feb
Carlingford Lough (WeBS)	8	579	366	15*	16*	392*	320*	366	392*	Oct, Nov, Jan, Feb
Lough Foyle (WeBS)	391	360	429	406	471	174	341	364	471	Nov, Dec, Jan, Mar
Dundalk Bay	356	360	338	186	493	273*	244*	339	493	Jan, Feb
Dungarvan Harbour	334	245	351	259	195	484	255	309	484	Dec, Jan
Shannon & Fergus Estuary (Aerial)					190			190	190	Jan
Bannow Bay	304	348	267	194	95	209	122	177	267	Nov, Dec, Jan, Feb
Baldoyle Bay	127	105	133	261	79	178	227	176	261	Dec, Jan, Feb
Castlemaine Harbour & Rossbehy	103	63	17*	190*	137	97*	120*	137	190*	Dec, Jan, Feb
Inner Galway Bay	128	156	94	130		183		136	183	Jan
Drumcliff Bay Estuary	186	124	198	72*		108	61	122	198	Jan
Sligo Harbour	127	112	161	126		76	111	118	161	Dec, Jan
Clonakilty Bay	72	133	74	124	107	105	143	111	143	Dec, Jan
Tralee Bay, Lough Gill & Akeragh Lough	102	120	93	97*	67*	113	140*	103	140*	Oct, Jan, Feb

* includes a low-quality count *e.g*. estimate.

4.13 Shoveler *Spatula clypeata* Spadalach

North-west & Central Europe (wintering)

Wintering Population

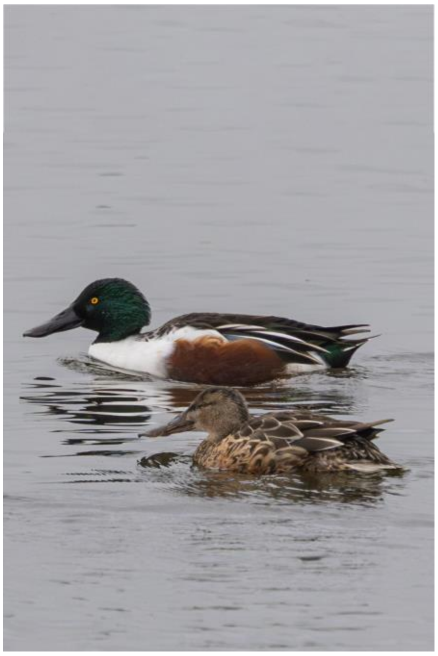
All-Ireland (2018-2023):	3,300
ROI (2018-2023):	3,130
ROI I-WeBS SPA Sites (2018-2023):	2,140

Site Threshold

International Importance:	750
National Importance:	35

Population Change (ROI)

5-year (2016-2022):	+50%
12-year (2009-2022):	+12.5%
26-year (1995-2022):	+14.3%
Historical (1984-2023):	-21.7%
Average annual change (1995-2022):	+0.6%



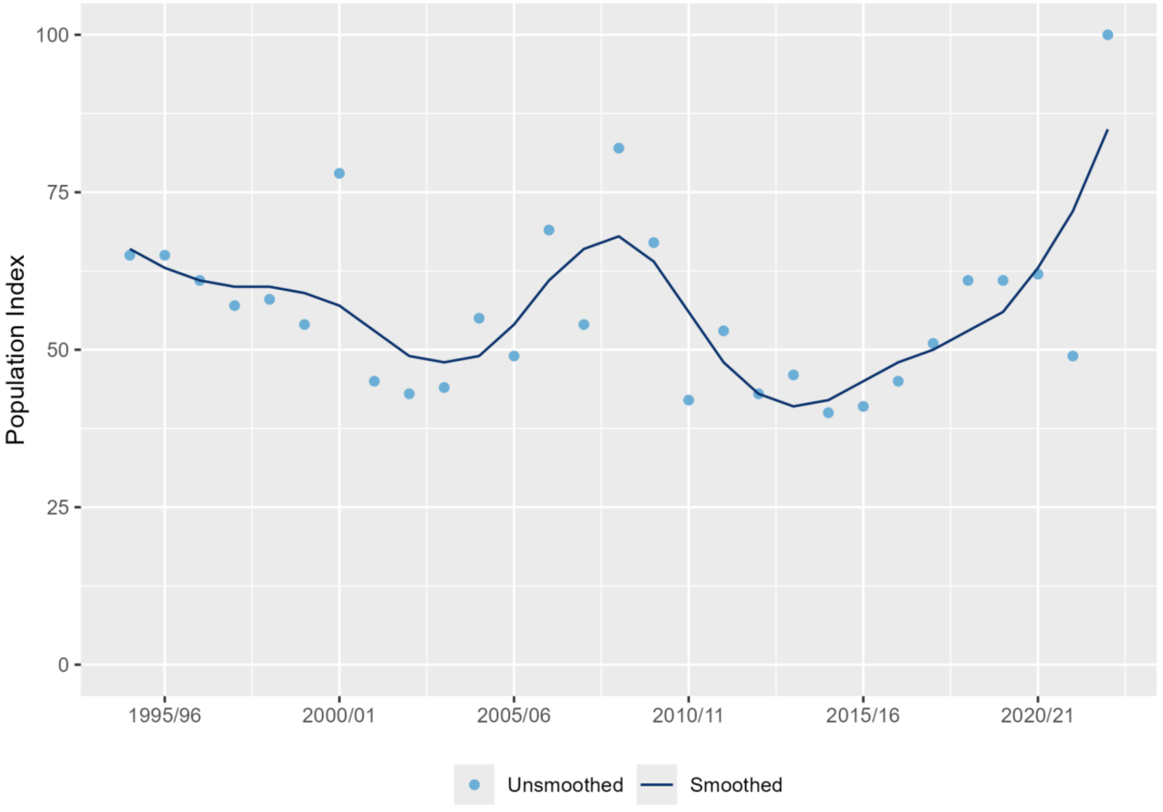


Figure 27 Calculated trends and graphed ROI population index for Shoveler. Photo: John Fox.

Wetlands International (2018) recognises three populations of the Northern Shoveler, with Irish birds, belonging to the north-western and central European (non-breeding) population, showing an increasing trend at the flyway level. In Ireland, Shoveler numbers have fluctuated since the start of I-WeBS and the 2022/23 season provided a particularly high total for the species here (Figure 27). The short-term trend is for a very high increase, with more modest gains over the medium- and long-term and recent numbers still falling short of those from the 1980s. In Northern Ireland, the overall trend had been declining since the early 1990s, but the most recent period shows an increase. In the UK, Shoveler have shown much higher and more consistent increases over the last 30 years (Woodward *et al.,* 2024).

Shoveler show a wide distribution across Ireland in a range of habitats, but their main strongholds are in the lakes and turloughs in Roscommon and Galway (Figure 28). They were recorded at 150 sites during the recent period, 24 of which supported numbers of national importance (Table 15). Given their preference for shallow waters and newly flooded turloughs and similar wetland habitats, a proportion of the population undoubtedly resides on smaller flooded areas and bogs away from I-WeBS-monitored sites, though these are likely to be areas with smaller concentrations.

Shoveler are on the Open Seasons Order as a species huntable from 1 September to 31 January each winter throughout the state, though no data is available on numbers harvested.

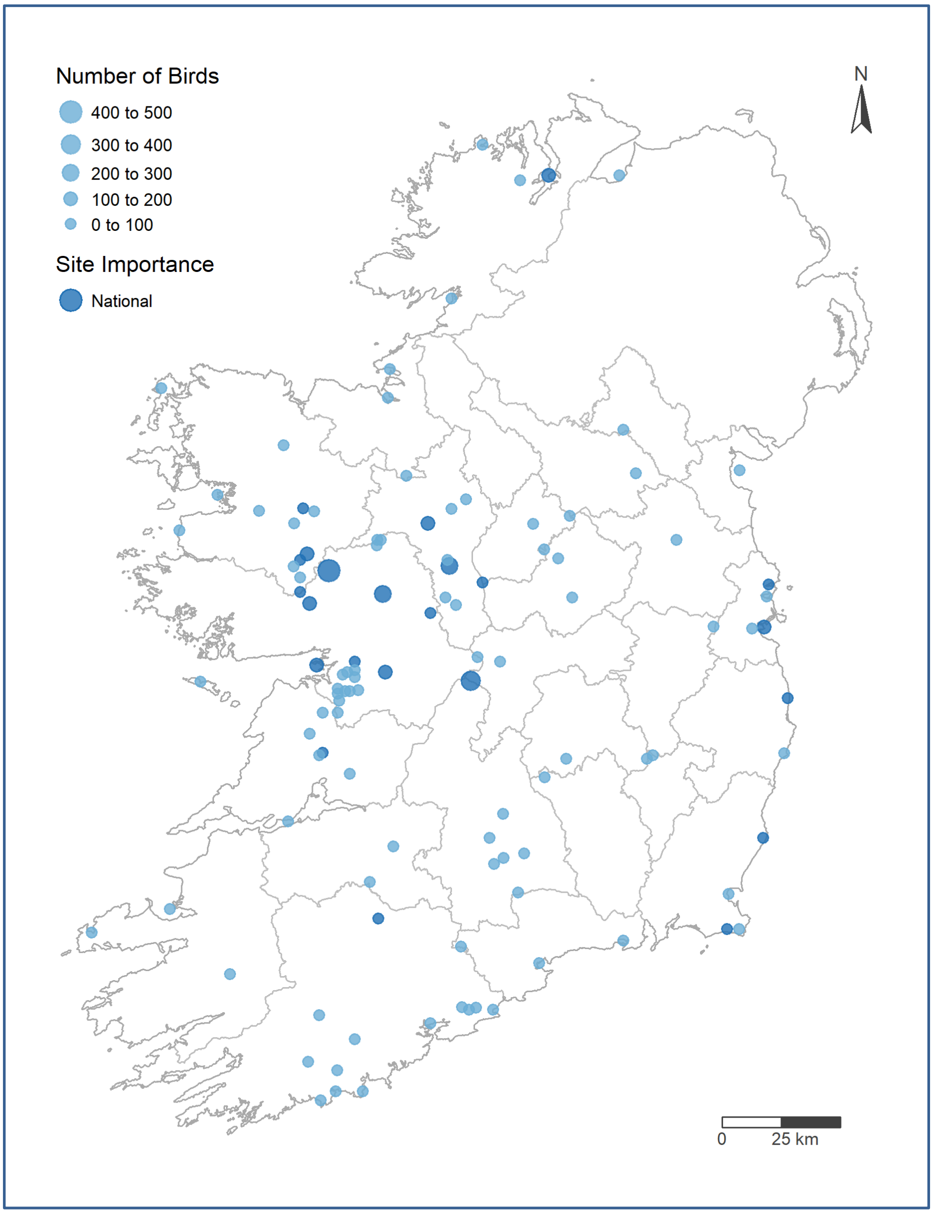


Figure 28 I-WeBS sites where Shoveler were recorded between 2018/19 and 2022/23.

Table 15 I-WeBS sites supporting internationally and/or nationally important numbers of Shoveler between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
North Central Galway Lakes	72			0*			450	450	450	Jan
Little Brosna Callows	46	239	299	233	429	241	662*	373*	662*	Jan, Feb
Southern Roscommon Lakes	158*	351	255	455*	300*	86*	274	274*	455*	Jan, Feb
North East Galway Lakes	37	39*		60*	76*	52*	250	250	250	Jan
Lough Swilly	170	175	249*	89	40	187	216	156*	249*	Nov, Dec, Jan
Lough Rea		128	313			103	0	139	313	Oct, Nov, Feb
Kilglassan Turlough/Greaghan's	87			50		0*	226	138	226	Feb, Mar
Castleplunket Turloughs	85	91	145	106				126	145	Dec, Jan
Dublin Bay	116	144	122	124	81	134	151*	122*	151*	Nov, Dec, Jan
Inner Galway Bay	13	82	73	215		63		117	215	Jan
Doolough Headford (Turloughcor)	57	90	70	150	60*	70	176	116	176	Dec, Jan, Feb
River Suck	120*	60*	86*	57*	84	70*	188*	97*	188*	Dec, Jan, Feb
North Wicklow Coastal Marshes	68	78	143	52	74*	90	104*	95	143	Nov, Jan
Cahore Marshes					55	64*	101	78	101	Feb
Ballyallia Lake	29	90	54	95	102	55	18	65	102	Nov, Dec
Tacumshin Lake	96	145	173	35	33	23	60	65	173	Dec, Jan
Little Brosna Callows (Aerial)			100		20			60	100	Dec, Jan
Lough Ree	2		16	8	114		85	56	114	Jan, Feb
Kilcolman Marsh	35		51					51	51	Jan
Balla Wetlands	26	36	49		4*	0*	14*	49	49	Feb
Rahasane Turlough	110	14	51*	3*	88*	49	26*	49	88*	Sep, Nov, Dec, Jan, Feb
Skealoghan Turlough						33	63	48	63	Jan, Feb
Rostaff Lake	10	60	43	60*	50*	20	40	43*	60*	Nov, Dec, Feb, Mar
Rogerstown Estuary	33	20	57	30	17	46	40	38	57	Nov, Jan

* includes a low-quality count *e.g.* estimate.

4.14 Gadwall *Mareca strepera* Gadual

strepera, North-west Europe

Wintering Population

All-Ireland (2018-2023):	980
ROI (2018-2023):	660
ROI I-WeBS SPA Sites (2018-2023):	340

Site Threshold

International Importance:	1,400
National Importance:	20

Population Change (ROI)

5-year (2016-2022):	-35.9%
12-year (2009-2022):	-3.2%
26-year (1995-2022):	+46.8%
Historical (1984-2023):	+97.3%
Average annual change (1995-2022):	+1.8%

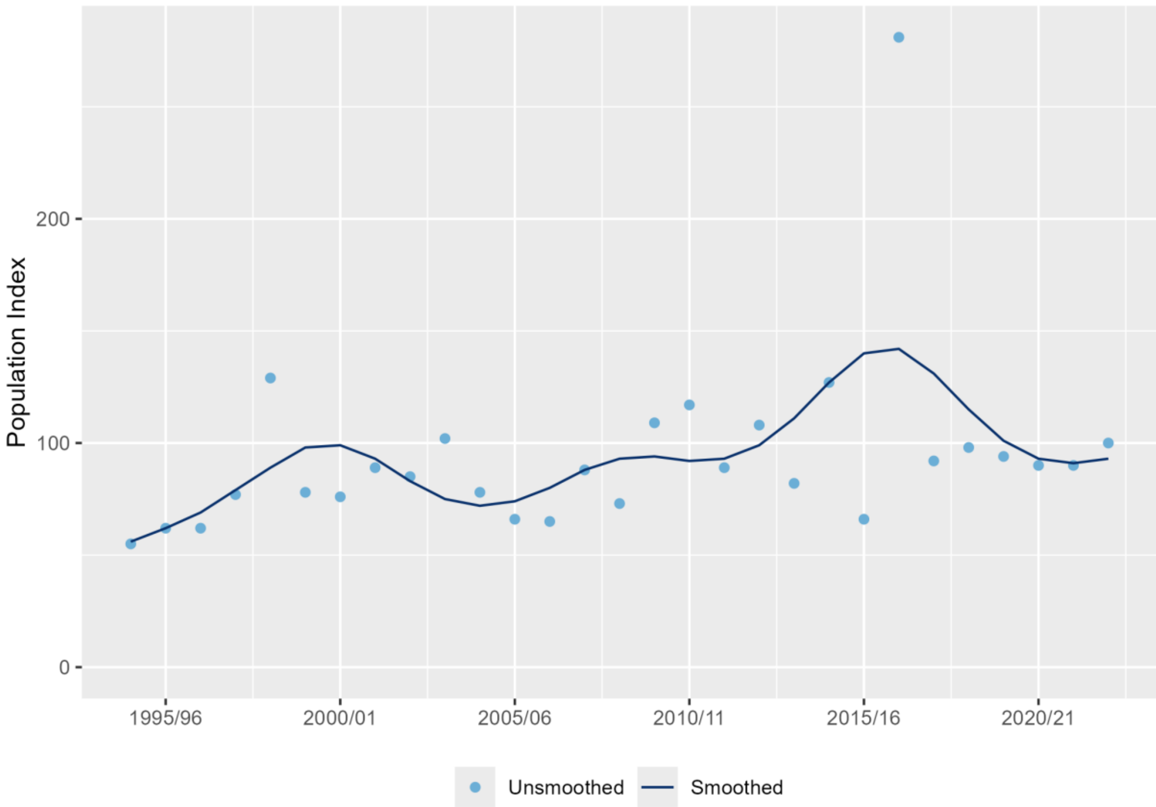


Figure 29 Calculated trends and graphed ROI population index for Gadwall. Photo: John Fox.

Gadwall in Ireland are part of the north-west European breeding population (Figure 29). The flyway population is showing an overall upward trend (Wetlands International, 2018). While Gadwall numbers in Ireland have generally risen over the long term, there has been a substantial decline over the last few years. This has occurred amidst a general flyway population increase as well as an increase in the Irish breeding population (Burke *et al.*, 2020). Since the late 1970s, Gadwall numbers in Britain have steadily increased, and in Northern

Ireland, the population has been recovering after a decline in the early 1990s (Woodward *et al.*, 2024).

In the current survey period, Gadwall were recorded at 86 predominantly inland sites. Of the sites listed as supporting the largest numbers, almost all have shown declines since the previous period, including many sites in different parts of the country which no longer support numbers of national importance (see Figure 30 and Table 16).

Gadwall are listed on the Open Seasons Order as a species huntable throughout the state from 1 September to 31 January each winter, though there is no available data on the number or distribution of birds harvested.

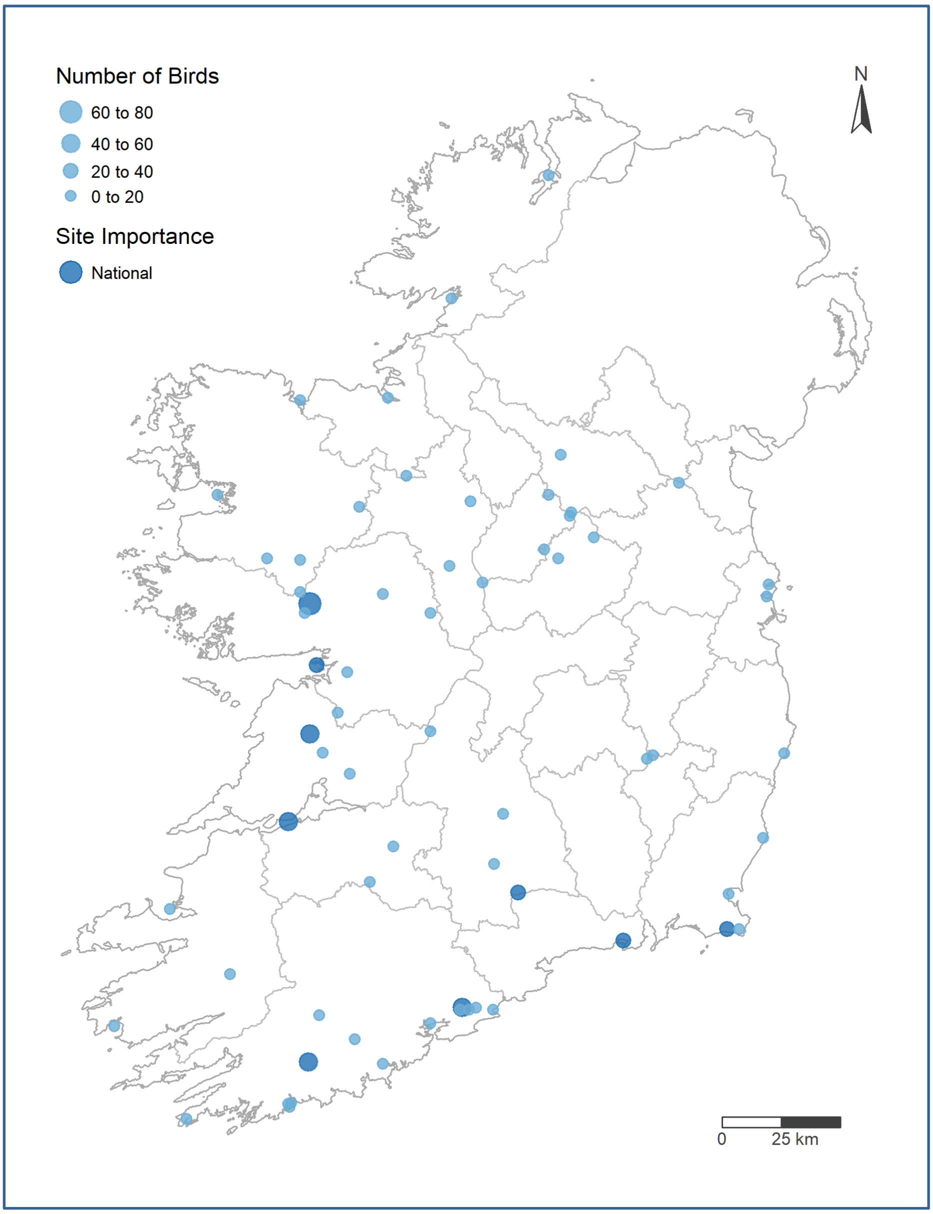


Figure 30 I-WeBS sites where Gadwall were recorded between 2018/19 and 2022/23.

Table 16 I-WeBS sites supporting internationally and/or nationally important numbers of Gadwall between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Doolough Headford (Turloughcor)	27	60	68	68*	40*	64	70	67	70	Feb, Mar
Corofin Wetlands	18	20	44*	60*	50*	60*	74*	58*	74*	
Shannon & Fergus Estuary	104*	42	60*	30*	99*	51*	39*	56*	99*	
Ballynacarriga Lake			0	82				41	82	Oct, Dec
Lough Aderry	75	56	54	30	21		55	40	55	Nov, Dec, Feb
Marlfield Lake	46	51	56	37		24		39	56	Oct, Jan
Tacumshin Lake	36	112	47	35	44	24	36	37	47	Nov, Dec, Jan
Tramore Back Strand	46	40	53		5	39	31	32	53	Nov, Dec, Feb, Mar
Inner Galway Bay	39	22	63	20		9		31	63	Jan

* includes a low-quality count *e.g.* estimate.

4.15 Wigeon *Mareca penelope* Rualacha

Western Siberia & North-east Europe/North-west Europe

Wintering Population

All-Ireland (2018-2023):	66,720
ROI (2018-2023):	60,890
ROI I-WeBS SPA Sites (2018-2023):	44,010

Site Threshold

International Importance:	14,000
National Importance:	670

Population Change (ROI)

5-year (2016-2022):	+4.2%
12-year (2009-2022):	0%
26-year (1995-2022):	-28.1%
Historical (1984-2023):	-33.3%
Average annual change (1995-2022):	-1.1%

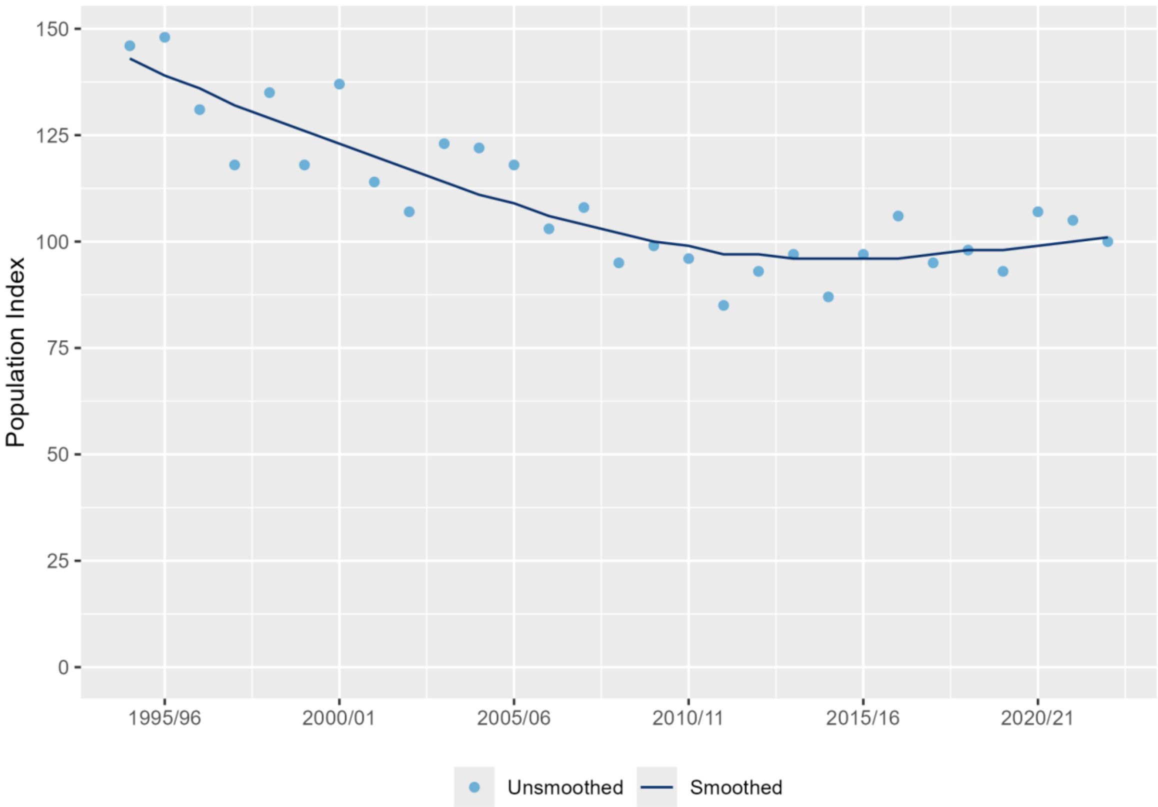


Figure 31 Calculated trends and graphed ROI population index for Wigeon. Photo: Richard T Mills.

The Eurasian Wigeon that winter in north-western Europe breed across both north-western and north-eastern Europe, reaching as far east as Western Siberia. This flyway population is currently stable after a period of decline (Wetlands International, 2018). The updated methodology used here has revised the Irish population upward from the previous estimates (Burke *et al.*, 2018). In Ireland, Wigeon have declined by a third since the 1980s and 1990s, but that has slowed in recent years and numbers have been stable in the short-term (Figure

31). In Britain by comparison they have decreased to a lesser extent since the mid-1990s, though continue to decline in the short-term (Woodward *et al.*, 2024).

Wigeon are the most numerous wintering duck in Ireland and are found in a wide variety of coastal and inland habitats in winter, with sightings recorded at 285 sites during the current period and numbers generally peaking in January (see Figure 32 and Table 17). Little Brosna Callows and Rahasane Turlough supported the largest numbers in recent years, both with mean peak counts above those of the previous period to 2015/16. By contrast, numbers at Tacumshin Lake have reduced considerably. As with other dabbling ducks there will be some Wigeon utilising small wetlands outside the I-WeBS network, though to a lesser extent than either Mallard or Teal based on their distribution in the most recent Bird Atlas (49% of 10 km squares; Balmer *et al.*, 2013). The most recent Non-Estuarine Coastal Waterbird Survey (NEWS-III; Lewis *et al.*, 2017) was carried out in 2015/16 and 3% of the current ROI population estimate for Wigeon came from that survey.

Since 1988, the European flyway population trends are mainly attributed to climatic effects impacting breeding productivity and over-winter survival (Fox *et al.,* 2016b). Declines in breeding numbers in Sweden and Finland may also result from reduced *Equisetum* (horsetail) stands on breeding sites, which, while not a food source, provide crucial foraging microhabitats (Pöysä *et al.,* 2017).

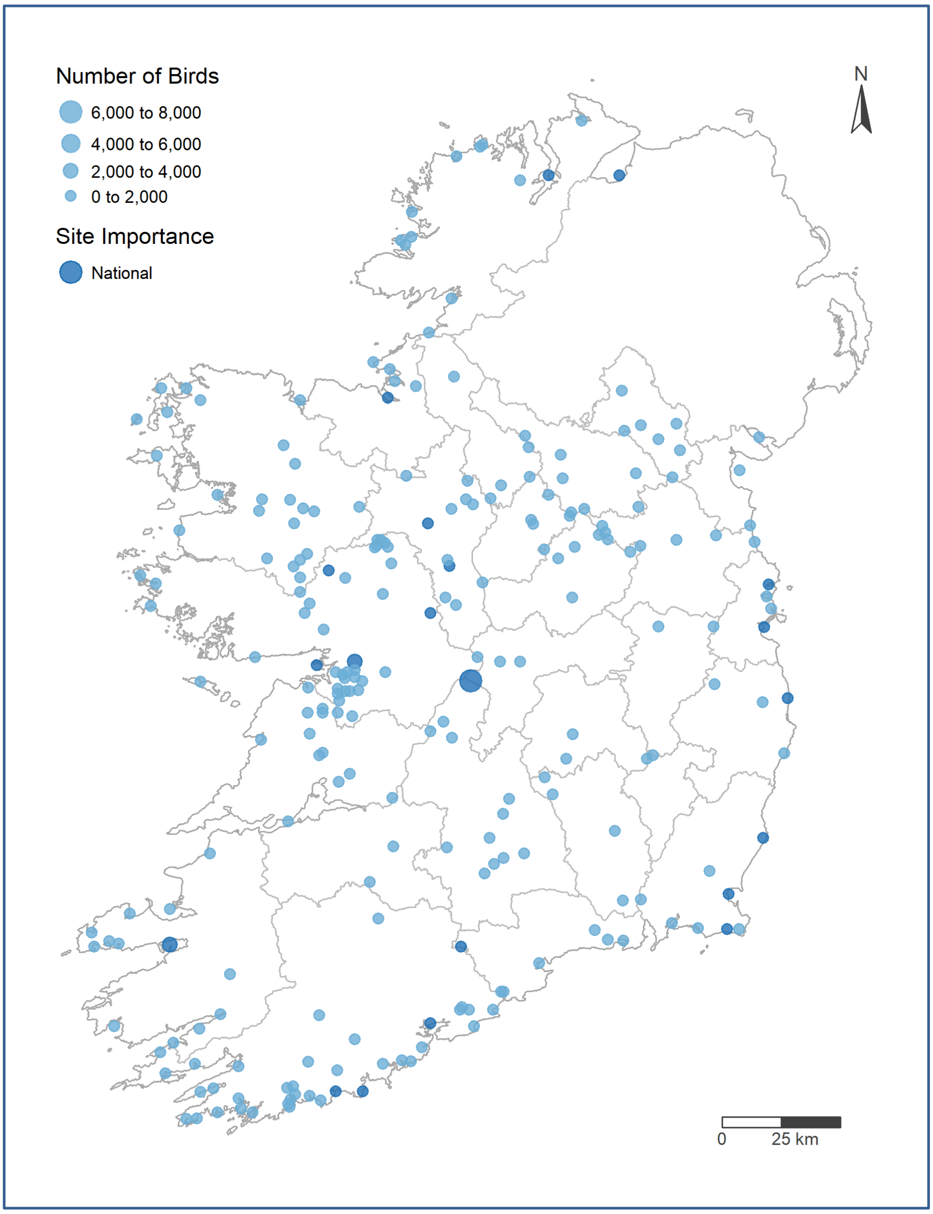


Figure 32 I-WeBS sites where Wigeon were recorded between 2018/19 and 2022/23.

Table 17 I-WeBS sites supporting internationally and/or nationally important numbers of Wigeon between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Little Brosna Callows	1970	6316	5330	7573	5036*	6024*	7900*	6452	7900*	Jan, Feb, Mar
Little Brosna Callows (Aerial)			4100		6770			5435	6770	Jan
River Suck (Aerial)			1540*		4306			4306	4306	Jan
Rahasane Turlough	3500	4500	3750*	3800*	4000*	5100	2159	3762*	5100	Jan, Feb
Shannon & Fergus Estuary (Aerial)					2982			2982	2982	Dec
Castlemaine Harbour & Rossbehy	13310*	1137*	3903*	1900*	2550*	3230*	3318*	2980*	3903*	
Shannon Callows (Aerial)			1655		3863			2759	3863	Jan
Tacumshin Lake	7500	4095	1700	1220	2000	3000	1750	1934	3000	Oct, Nov, Dec
Lough Swilly	4383	1964	2318*	1867	1656	1939	1630	1882*	2318*	Nov, Dec, Jan, Feb
Wexford Harbour & Slobs	3480	1392	1050	2290	967*	1724*	401*	1670	2290	Dec
Rogerstown Estuary	1094	1695	1451	1669	1158	2249	1290*	1632	2249	Nov, Dec, Feb
Inner Galway Bay	2051	1378	1600	1373		1584		1519	1600	Jan
Cahore Marshes					1258	2152	624	1345	2152	Nov, Jan, Feb
River Suck	987*	1923	1885*	840	1602	770*	1314*	1282*	1885*	Nov, Dec, Jan, Feb
Southern Roscommon Lakes	667	1621	520	634*	518*	783*	1972	1246	1972	Jan
Dublin Bay	1839	918	1314	1833	1082	730	738*	1240	1833	Nov, Dec
Cork Harbour	1605	1848	1242	1141	1115	1162	1171*	1166*	1242	Dec, Jan, Feb
Castleplunket Turloughs	1038	926	1315	961				1138	1315	Nov, Jan
Lough Foyle (WeBS)	1805	695	1666	1244	930	618	1090	1110	1666	Sep, Oct, Dec, Jan
North Central Galway Lakes	650			221*			1080	1080	1080	Jan
North Wicklow Coastal Marshes	1089	1231	983	801	1070*	871	833*	912*	1070*	Nov, Dec, Jan, Feb
Ballysadare Bay	503	702	1127	638		482*	754	840	1127	Nov, Jan
Courtmacsherry Bay, Broadstrand Bay & Dunworley	2136	750	1053	1204	654	580	367	772	1204	Nov, Dec
Blackwater Callows	334	264		519	670	1072	753*	754	1072	Dec, Jan
Lough Derg (Shannon) (Aerial)					728			728	728	Nov
Clonakilty Bay	1067	753	930	559	647	596	637*	683	930	Nov, Dec, Jan

* includes a low-quality count *e.g.* estimate.

4.16 Mallard *Anas platyrhynchos* Mallard

platyrhynchos, North-west Europe

Wintering Population

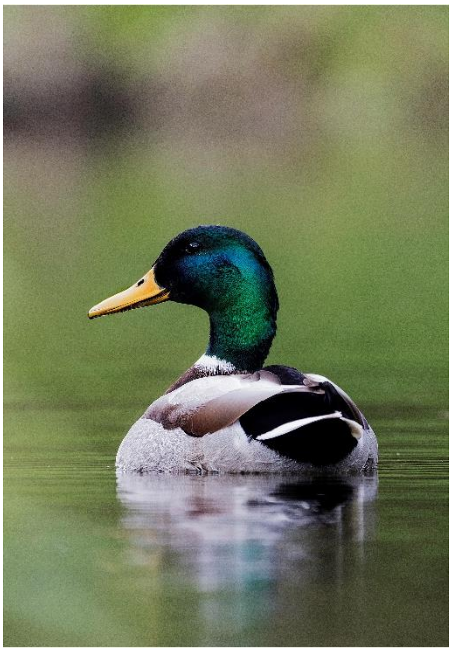
All-Ireland (2018-2023):	25,160
ROI (2018-2023):	17,560
ROI I-WeBS SPA Sites (2018-2023):	8,430

Site Threshold

International Importance:	53,000
National Importance:	250

Population Change (ROI)

5-year (2016-2022):	-5.7%
12-year (2009-2022):	-14.7%
26-year (1995-2022):	-29.3%
Historical (1984-2023):	-53%
Average annual change (1995-2022):	-1.1%



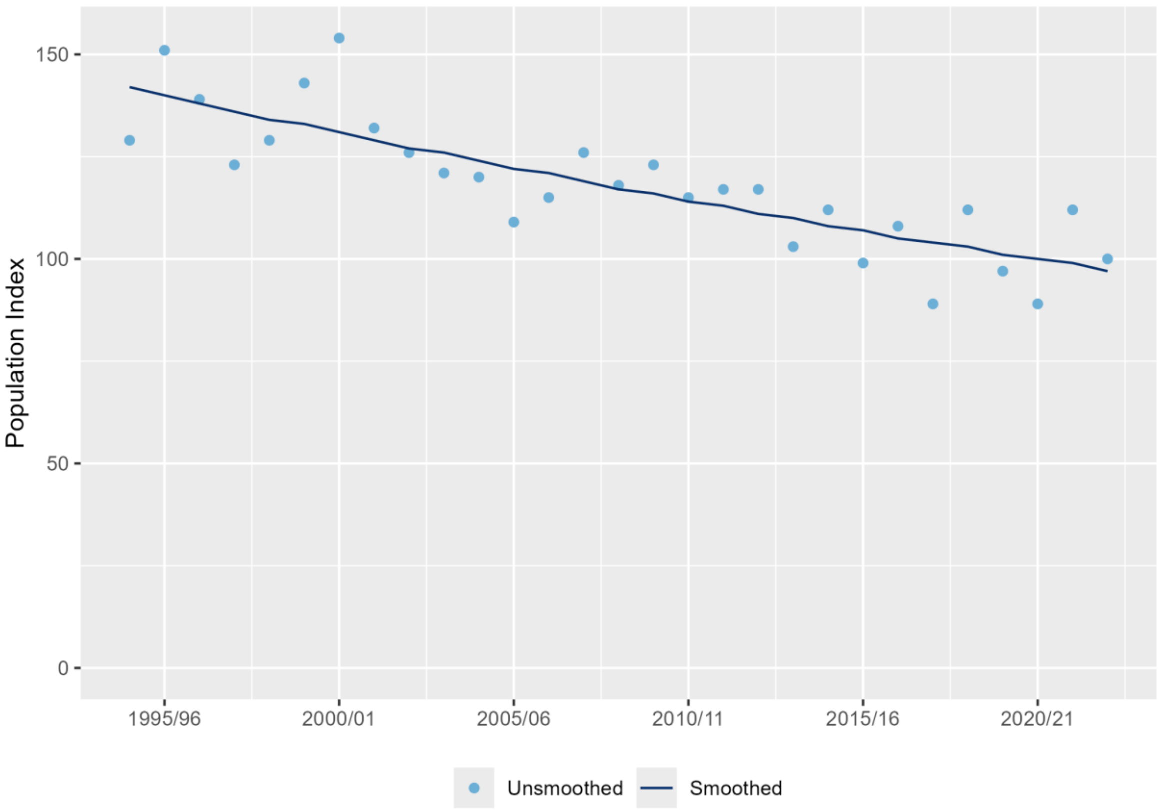


Figure 33 Calculated trends and graphed ROI population index for Mallard. Photo: Ita Martin.

Mallard in Ireland are part of a population that breeds across northern Europe, with a non-breeding range extending across north-western Europe and reaching as far east as the Baltic. This population is declining (Wetlands International, 2024). Irish-breeding Mallards are resident year-round, and their numbers are bolstered each winter by migrants from northern Europe and Britain (Wernham *et al.*, 2002). The Irish wintering population has been in decline since the 1980s, though the decline has slowed in more recent years (Figure 33). The UK population has showed similar declines over the same period (Woodward *et al.*, 2024).

Mallards are widely distributed across freshwater and coastal wetlands and were recorded at 387 sites during the recent period. Lough Swilly, Lough Foyle, Dundalk Bay, and Wexford Harbour & Slobs remain among the most significant sites, consistent with previous periods, though the available season peak counts suggest significant declines at the latter two. Recent data show Lough Ree to also be amongst the most important sites. Loughs Neagh & Beg (NI) continues to be the most important site complex on the island of Ireland for Mallards, where they have a stable population over the short-, medium- and long-term (El Haddad *et al.*, 2023).

Mallard are the most widespread wintering waterbird in Ireland, present in 86% of 10 km squares in the most recent Bird Atlas (Balmer *et al.*, 2013). As such, they are found in varying numbers in many ponds, streams, bogs and other small wetlands across the country that are not monitored as part of I-WeBS (see Figure 34 and Table 18). The I-WeBS site network includes many small, and most medium and large lakes, turloughs, estuaries, flooded rivers and other significantly sized wetlands, however, and given the consistency of the declining trend and the similar trajectory in other parts of their range, we can be confident that the trends here are representative of the broader population. Wiegers *et al.* (2022) identified low duckling survival as a key driver of Mallard declines in the Netherlands. Hill (1984) found similar for the UK and given the disproportionate declines in ground-nesting birds across Europe (McMahon *et al.*, 2024) it seems likely that this is a widespread problem. Frost *et al.* (2018) suggest that declines in UK wintering Mallard populations could be linked to fewer releases by shooting estates and/or possibly short-stopping by Russian birds. The harmful effects of ingesting lead gunshot may also be a factor (Green & Pain, 2016).

Mallard are a huntable species on the Open Seasons Order in Ireland, though no bag data is available to examine changes to the annual harvest over time. In Ireland hunters and gun clubs release large numbers of captive-reared Mallard annually, suggested at 12,000-13,000 in ROI in recent years (NARGC, 2024), though underlying data and long-term trends are not publicly available. Various studies have found that released Mallard have very low survival rates to the following breeding season (Champagnon *et al.*, 2016a; Söderquist *et al.,* 2021) and a low overall reproductive output, but can still form a significant part of the wild population and act as a useful buffer for the wild population with regards potential declines from harvesting (Champagnon *et al.,* 2016b).

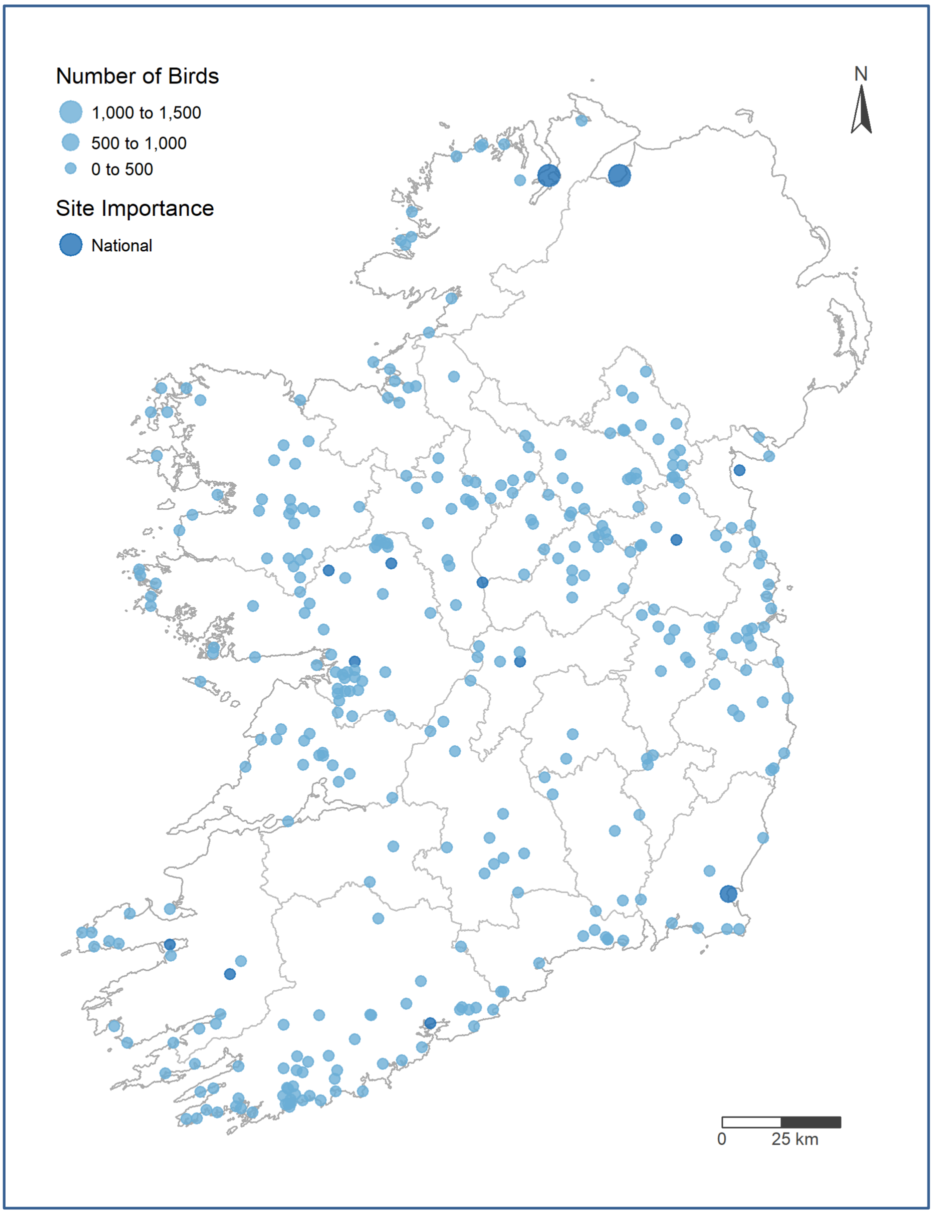


Figure 34 I-WeBS sites where Mallard were recorded between 2018/19 and 2022/23.

Table 18 I-WeBS sites supporting internationally and/or nationally important numbers of Mallard between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Lough Foyle (WeBS)	1190	919	1184	947	1312	1038	1550	1206	1550	Sep, Oct, Nov
Lough Swilly	1451	686	1372	877	1252	1190	1187	1176	1372	Sep
Wexford Harbour & Slobs	644	557	870	631	1044*	201*	210*	750	1044*	Nov, Dec
Lough Ree	87*		404	507*	209		654	444*	654	Dec, Jan
Dundalk Bay	1084	538	454	415	371	232*	292*	413	454	Jan
Boora Lakes - Back Lakes Finnamores						399		399	399	Sep
Cork Harbour	393	318	405	444	253*	302	406	389	444	Sep, Oct, Jan
Castlemaine Harbour & Rossbehy	262	171	164	200*	556*	607*	396*	385*	607*	Sep, Oct, Dec, Jan
Glenamaddy Turlough					22		709	366	709	Oct, Mar
North Central Galway Lakes	330			266*			290*	278*	290*	
Rahasane Turlough	120	230	106*	426*	373*	390*	95*	278*	426*	
Lough Leane & Killarney Valley	271	153	297	222	229	312	303	273	312	Sep, Oct, Dec
Tara Mines Tailings Ponds					327	192		260	327	Oct, Dec

* includes a low-quality count *e.g.* estimate.

4.17 Pintail *Anas acuta* Biorearrach

North-west Europe

Wintering Population

All-Ireland (2018-2023):	2,180
ROI (2018-2023):	1,470
ROI I-WeBS SPA Sites (2018-2023):	1,380

Site Threshold

International Importance:	740
National Importance:	20

Population Change (ROI)

5-year (2016-2022):	+40.9%
12-year (2009-2022):	+31%
26-year (1995-2022):	+8.1%
Historical (1984-2023):	+3.5%
Average annual change (1995-2022):	+0.3%

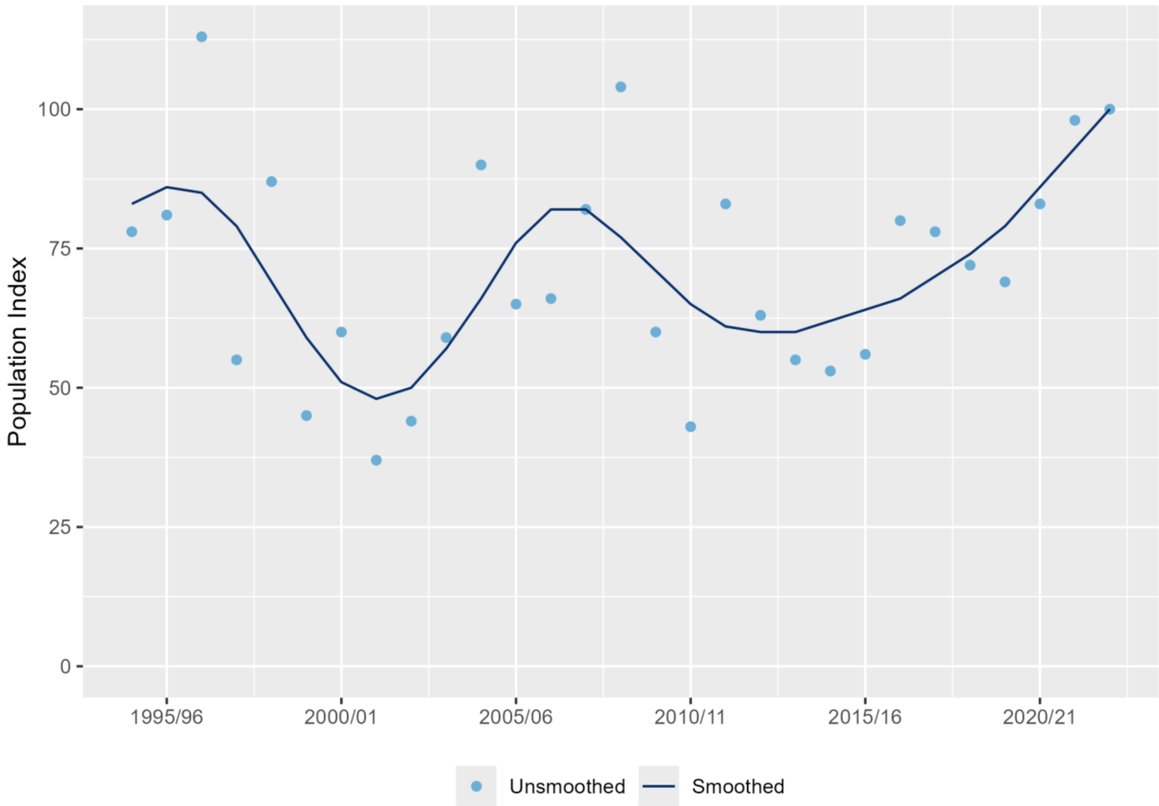


Figure 35 Calculated trends and graphed ROI population index for Pintail. Photo: John Fox.

Wetlands International (2018) recognises three populations of the Northern Pintail (hereafter Pintail). The population that breeds across northern Europe and Western Siberia, and winters in north-west Europe, including Ireland, has a stable/increasing population trend (AEWA, 2022). While there has been some inter-annual fluctuation in numbers, the overall trend in Ireland across the short-, medium- and long-term has been an increasing one, though the species is still present in relatively low numbers compared to other wintering ducks (Figure 35).

Pintail were recorded at 76 I-WeBS sites in the recent period. Little Brosna Callows, Dublin Bay and Dundalk Bay hold the most significant number of birds in the ROI, together hosting more than half of the all-Ireland population (see Figure 36 and Table 19). The distribution of wintering Pintail in Ireland in the most recent Bird Atlas was 10% of 10 km squares (Balmer *et al.*, 2013), most of which overlaps with the I-WeBS site network and so the vast majority of the population is likely monitored through this survey.

Pintail were recently removed from the Open Seasons Order in Ireland (NPWS, 2023).

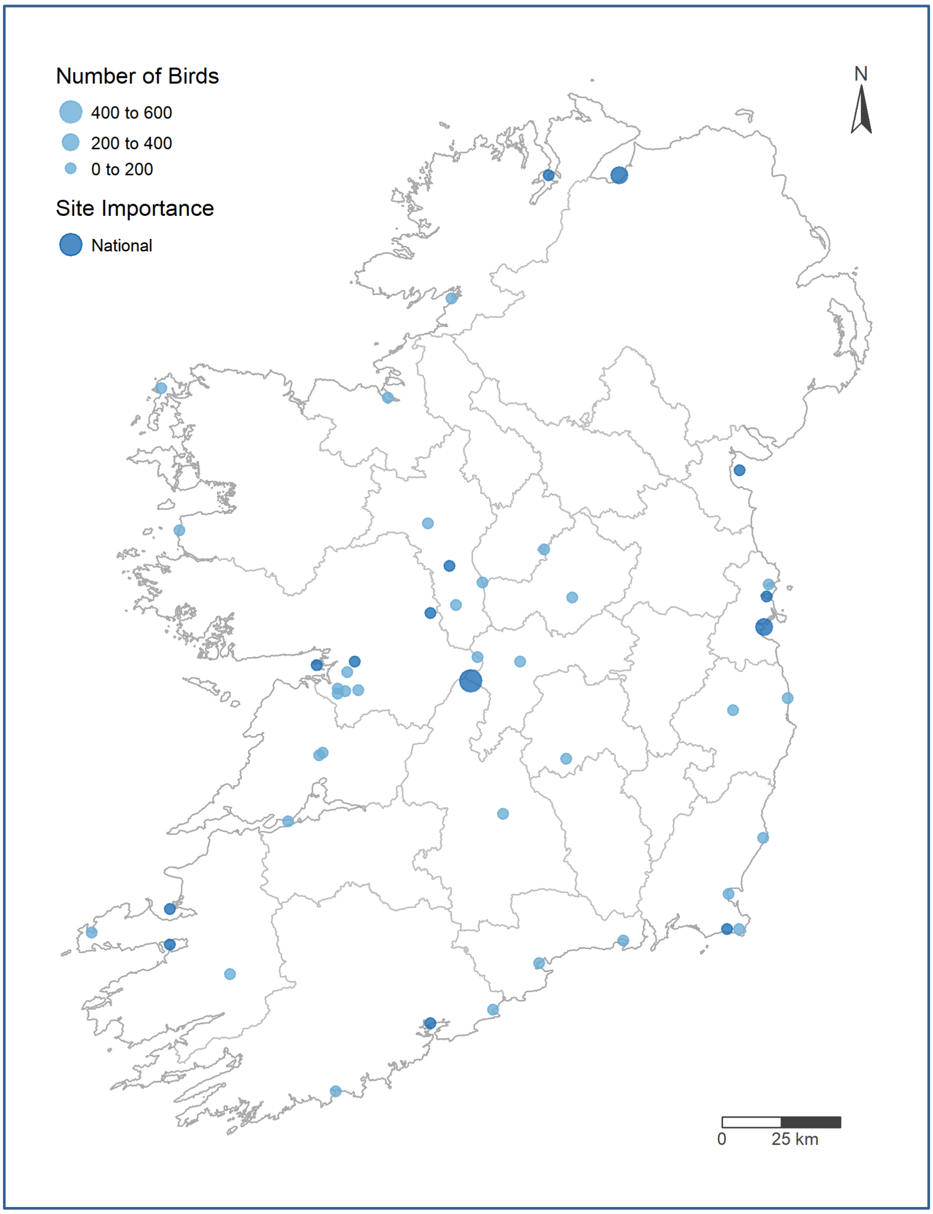


Figure 36 I-WeBS sites where Pintail were recorded between 2018/19 and 2022/23.

Table 19 I-WeBS sites supporting internationally and/or nationally important numbers of Pintail between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Little Brosna Callows	33	289	402	337	1519*	218	514*	598*	1519*	Dec, Jan, Mar
Dublin Bay	190	222	318	192	252	400	348*	302*	400	Dec, Jan, Feb
Lough Foyle (WeBS)	421	285	400	188	269	340	296	299	400	Dec, Jan, Mar
Dundalk Bay	302	223	111	91	226	57*	199*	143	226	Jan
Rahasane Turlough	156	7	70*	139*	48*	188	76	132	188	Jan, Feb
Castlemaine Harbour & Rossbehy	108	100	40	57*	90*	200*	90*	95*	200*	Dec, Jan, Feb
Tacumshin Lake	142	229	123*	158	74	15	100	94*	158	Nov, Dec
River Suck	130*	62	74*	50	34	50*	54	52*	74*	Nov, Jan, Feb
Lough Swilly	30	24	31	7	3	89	86	43	89	Nov, Dec, Jan, Feb, Mar
Inner Galway Bay	11	35	8	92		25		42	92	Jan, Mar
Tralee Bay, Lough Gill & Akeragh Lough	27	0	8	6	2*	91*	64*	34*	91*	Nov, Dec
Cork Harbour	36	1	51	20	26	25	20*	30	51	Dec, Jan, Feb
Southern Roscommon Lakes	56	47	31	25*	72*	4*	12	29*	72*	Jan, Feb
Broadmeadow (Malahide) Estuary	23	39	16	0	12*	41	28	21	41	Nov, Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.18 Teal *Anas crecca* Praslacha

crecca, North-west Europe

Wintering Population

All-Ireland (2018-2023):	44,350
ROI (2018-2023):	37,480
ROI I-WeBS SPA Sites (2018-2023):	25,440

Site Threshold

International Importance:	6,700
National Importance:	440

Population Change (ROI)

5-year (2016-2022):	+2.2%
12-year (2009-2022):	+9.2%
26-year (1995-2022):	-8.7%
Historical (1984-2023):	-22.1%
Average annual change (1995-2022):	-0.3%

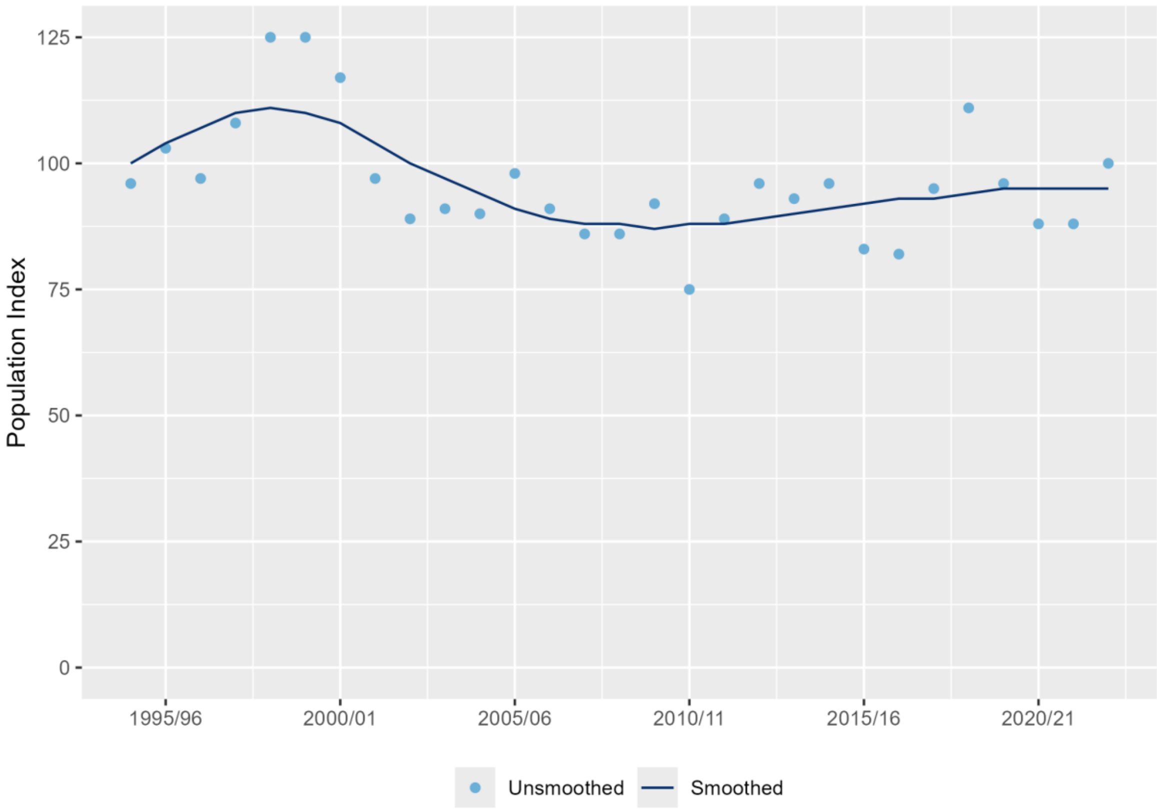


Figure 37 Calculated trends and graphed ROI population index for Teal. Photo: Richard T Mills.

Teal wintering in Ireland belong to the north-west European population, which has generally been increasing since assessments began across the flyway. Ireland has a small breeding population, as well as receiving large numbers of winter migrants. While the Irish-wintering numbers have generally remained stable over the long-term, a recent short-term decline has been evident (Figure 37). Similarly, Teal populations in the UK are on a long-term upward trajectory of 11% but have seen declines in the short-term of 4% (Woodward *et. al.,* 2023).

During the current period, Teal were observed at 305 sites, with 24 sites supporting numbers of national importance. The Little Brosna Callows and Loughs Foyle and Swilly continue to support the largest numbers, and an additional six sites hosted mean annual peak totals of over a thousand birds. The most important Irish sites for Teal are comprised of a similar mix of inland and coastal wetlands (see Figure 38 and Table 20).

Teal, similar to Mallard, are very widespread across Ireland in the winter (67% of 10 km squares) (Balmer *et al.*, 2013) and are known to utilise a variety of inland and coastal wetland habitats, from the largest lakes and estuaries to the smallest ponds, bogs and drainage ditches. I-WeBS analyses therefore do not fully account for the species total numbers in Ireland, though there is no reason to think that their population trend here is unrepresentative. In the UK, it is estimated that WeBS counts miss about 21% of Teal (Kershaw & Cranswick, 2003). A small proportion of the recent population estimate for ROI (3.3%) is from the Non-Estuarine Coastal Waterbird Survey in 2015/16 (Lewis *et al.*, 2017).

Teal is a huntable species on the Open Seasons Order. No data is available on the numbers harvested or distribution of hunting efforts each winter, though O'Keeffe (2023) noted that responses from hunters suggested that Teal was amongst the most hunted species on the order.

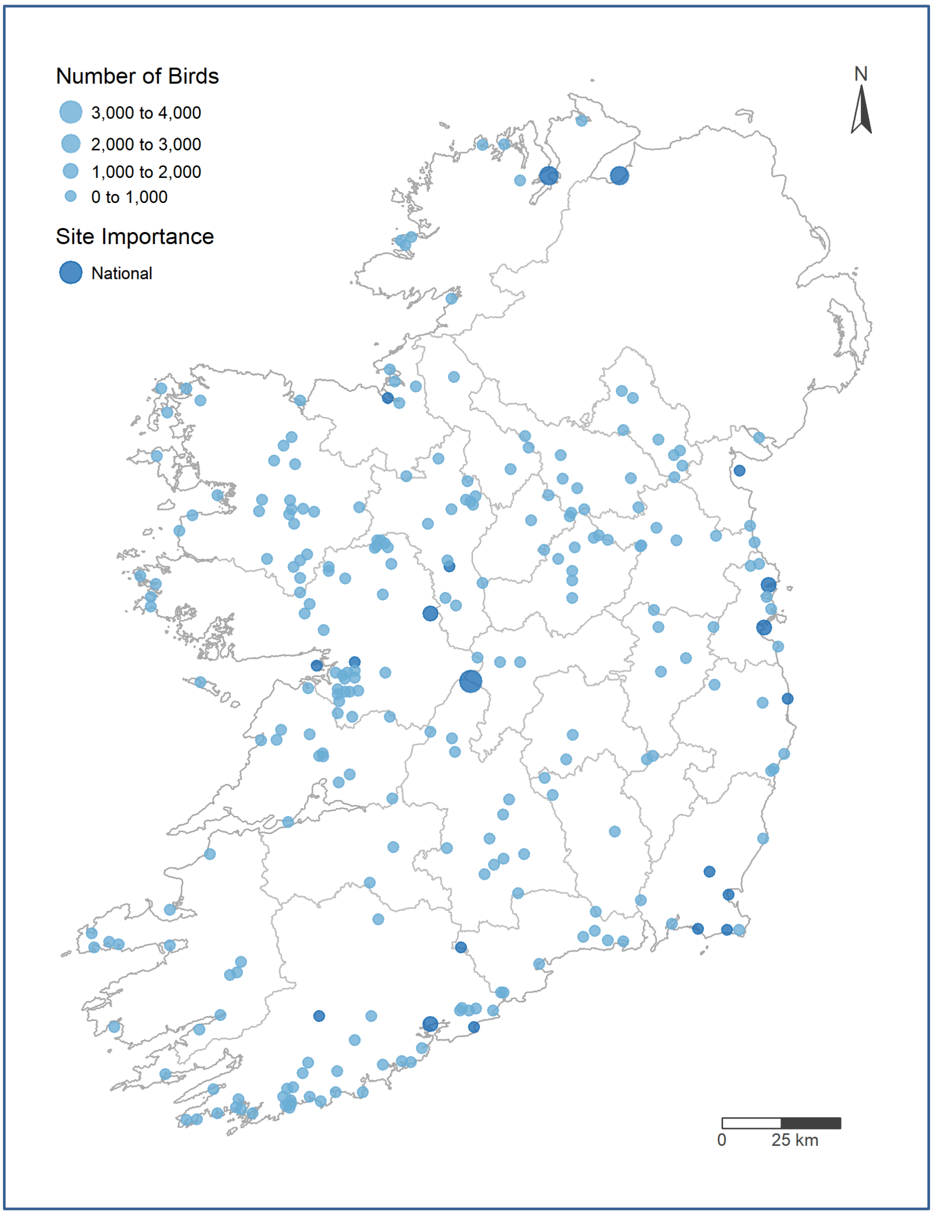


Figure 38 I-WeBS sites where Teal were recorded between 2018/19 and 2022/23.

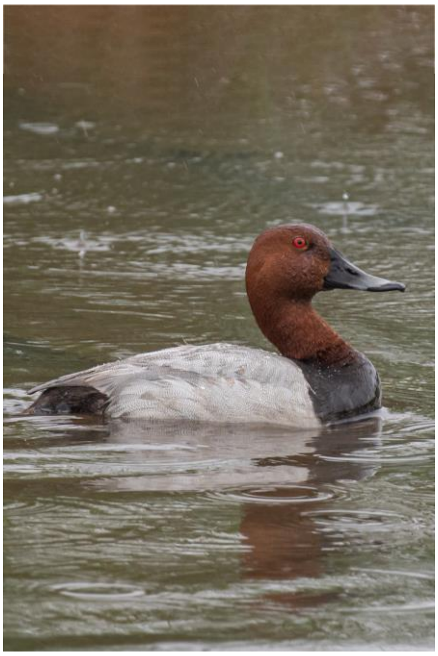
Table 20 I-WeBS sites supporting internationally and/or nationally important numbers of Teal between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Little Brosna Callows	710	2380	3350	3016	1616*	1085*	1570*	3183	3350	Jan
Lough Foyle (WeBS)	2288	2042	2471	2900	3013	1597	4092	2815	4092	Sep, Oct, Nov, Dec
Little Brosna Callows (Aerial)			3710		1650			2680	3710	Dec, Jan
Lough Swilly	2368	2779	2187*	1969	1292	2604	2483	2107*	2604	Oct, Dec, Jan
Cork Harbour	1343	1343	1791	1433	1411	1234*	1318	1488	1791	Dec, Jan, Feb
Dublin Bay	1654	1092	2187	1392	930	1274	1427*	1446	2187	Oct, Nov, Dec, Jan
Rogerstown Estuary	857	1280	754	1686	1439	1221	1722	1364	1722	Nov, Dec, Jan
River Suck (Aerial)			473*		1330			1330	1330	Jan
River Suck	363*	1166	1533*	1190	361	6*	1760	1104	1760	Nov, Jan, Feb
Shannon Callows (Aerial)			1155		867			1011	1155	Jan
Inner Galway Bay	1458	694	901	898		775		858	901	Jan
Southern Roscommon Lakes	207*	1210	823	816*	172*	816*	870	846	870	Jan
Tacumshin Lake	720	1128	2150	400	510	180	730	794	2150	Dec, Jan
Inishcarra Reservoirs	206	751	620	390	840	1400*	560	762*	1400*	Sep, Nov, Dec
The Cull & Killag (Ballyteige)	470	338	850	622	472	757	474	635	850	Oct, Dec, Jan
Dundalk Bay	656	600	667	687	320	343*	648*	558	687	Jan
Shannon & Fergus Estuary (Aerial)					516			516	516	Dec
Wexford Harbour & Slobs	404	365	1220	123	284*	201	100*	515	1220	Nov, Dec
Rahasane Turlough	210	64	540*	109*	1000*	387	277	463*	1000*	Sep, Dec, Jan, Feb
River Slaney	1126		379	543	180*	375*	250*	461	543	Jan
Blackwater Callows	77	133		267	492	486	596*	460*	596*	Nov, Dec, Jan
Ballycotton Shanagarry	457	577	826	489	247	198	476	447	826	Nov, Dec, Jan
Ballysadare Bay	416	537	467	418		335	558	444	558	Nov, Jan, Feb
North Wicklow Coastal Marshes	298	487	562	197	519*	587	335	440*	587	Nov, Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.19 Pochard *Aythya ferina* Póiseard cíordhearg

North-east Europe/North-west Europe



Wintering Population

All-Ireland (2018-2023):	6,860
ROI (2018-2023):	2,330
ROI I-WeBS SPA Sites (2018-2023):	1,860

Site Threshold

International Importance:	1,500
National Importance:	70

Population Change (ROI)

5-year (2016-2022):	-32.5%
12-year (2009-2022):	-74.8%
26-year (1995-2022):	-87.1%
Historical (1984-2023):	-84.5%
Average annual change (1995-2022):	-3.3%

Figure 39 Calculated trends and graphed ROI population index for Pochard. Photo: John Fox.

Wetlands International recognises three populations of Common Pochard, hereafter Pochard. Ireland is part of the wintering grounds for the north-east and north-west European breeding population. Pochard numbers have been in steep decline in Ireland since at least the 1980s, mirroring the broader downward trend observed in other diving ducks, such as Goldeneye and Tufted Duck (Figure 39). This decline is mirrored in the UK, where numbers have dropped by 74% between 1996/97 and 2021/22 (AEWA, 2022; Woodward *et al.*, 2024).

Pochard were recorded at 87 I-WeBS sites in recent years and only a third of the all-Ireland population is found in ROI. The five sites with nationally important numbers in recent years account for 30% of the ROI numbers. Lough Corrib was their most important wintering site in ROI in the previous assessment (Lewis *et al.*, 2019) but was not surveyed in full in the years since and hence does not appear in Table 21 and is vastly underestimated in Figure 40.

Several factors have been suggested as potential drivers of these declines. Climate change is a significant driver of diving duck declines, with milder winters causing wintering distributions to shift north-east, reducing the need for birds to migrate to Ireland, which lies at the western edge of their range (Pavón-Jordán *et al.*, 2018). Disproportionate survival in males was initially thought to contribute to Pochard declines. However, Folliot *et al.* (2020) found that decreasing survival of adult females due to predation pressure was not the primary cause. Instead, reduced juvenile recruitment and nest success were significant factors. Habitat degradation from nutrient pollution and changes in water quality have caused site-level issues at important wintering refuges such as Loughs Neagh and Beg. Human disturbance, predation, and competition with other species also contribute to declines (Maclean *et al.*, 2006; Fox *et al.*, 2016a). Pochard were removed from the Open Seasons Order in ROI in 2023 (NPWS, 2023).

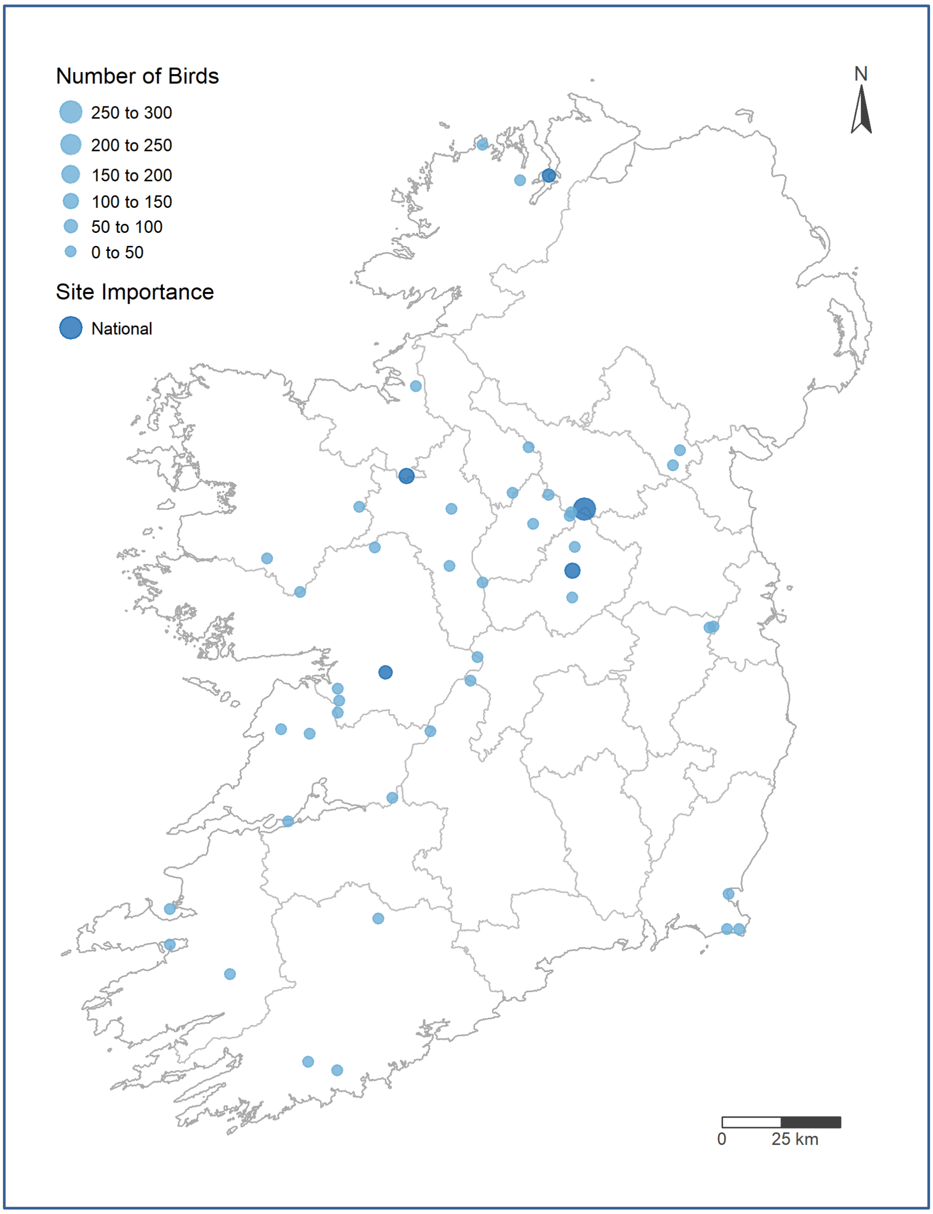


Figure 40 I-WeBS sites where Pochard were recorded between 2018/19 and 2022/23.

Table 21 I-WeBS sites supporting internationally and/or nationally important numbers of Pochard between 2018/19 and 2022/23, ranked by the mean of peak season counts

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Lough Sheelin	134	373	32	450	0*	280	550*	262*	550*	Nov, Dec, Jan, Feb
Lough Gara	0	5	0	0*	0*	155	187	114	187	Sep, Jan
Lough Owel	60	870	510	0	0	0	0	102	510	Nov, Dec, Jan
Lough Swilly	49	36	108	203	54	42	68	95	203	Sep, Oct, Nov
Lough Rea		70	114			76	80	90	114	Oct, Dec, Jan

* includes a low-quality count *e.g.* estimate.

4.20 Tufted Duck *Aythya fuligula* Lacha bhadánach

North-west Europe (wintering)

Wintering Population

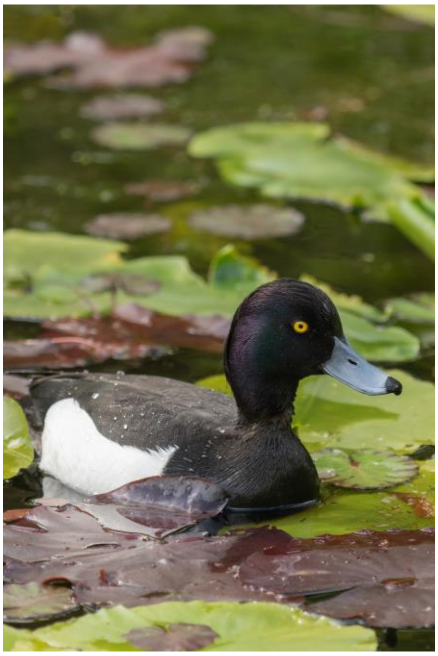
All-Ireland (2018-2023):	16,210
ROI (2018-2023):	9,830
ROI I-WeBS SPA Sites (2018-2023):	6,590

Site Threshold

International Importance:	8,900
National Importance:	160

Population Change (ROI)

5-year (2016-2022):	-30.6%
12-year (2009-2022):	-54.7%
26-year (1995-2022):	-54.9%
Historical (1984-2023):	-27.6%
Average annual change (1995-2022):	-2.1%



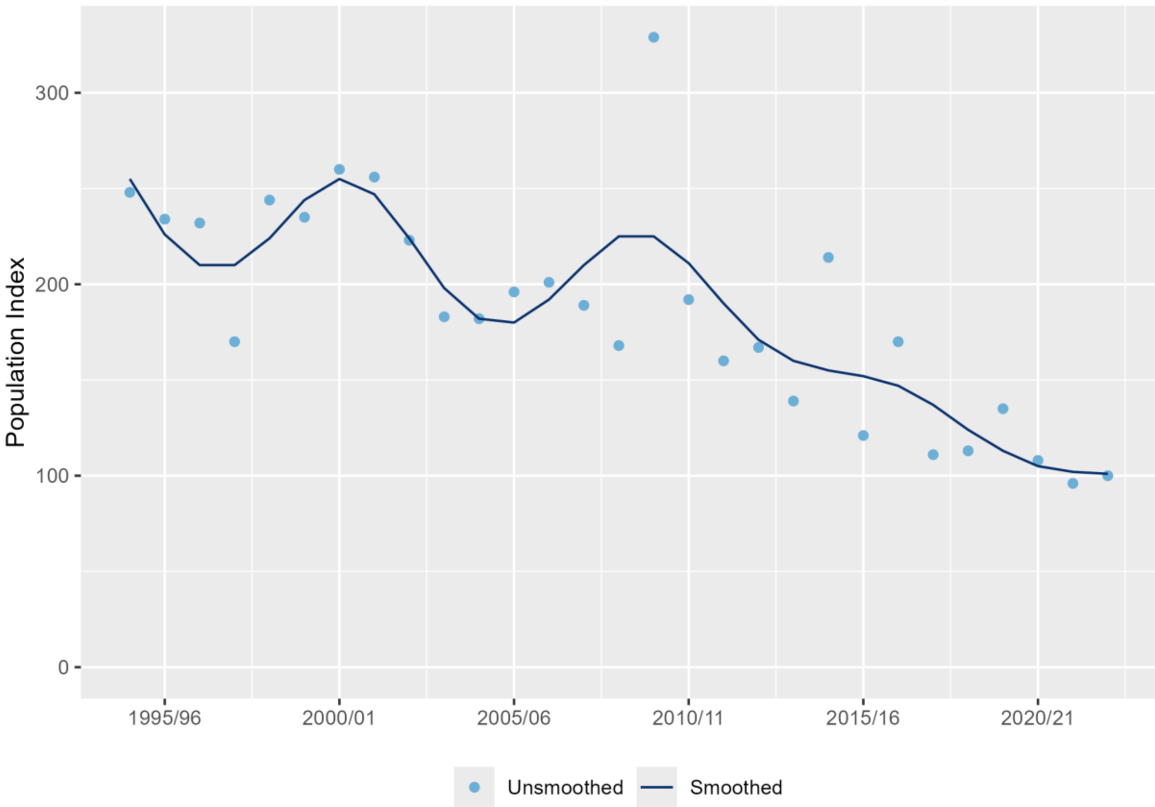


Figure 41 Calculated trends and graphed ROI population index for Tufted Duck. Photo: John Fox.

The population of Tufted Duck breeding and wintering in Ireland is part of the north-west European population. The flyway trend is uncertain, possibly declining (AEWA, 2022). Tufted Duck have declined by 55% in ROI since the 1990s, with a still very large decrease of over 30% in the last five years (Figure 41). The species has experienced declines of 15% over both 10- and 25-year time periods in the UK (Woodward *et al.*, 2024).

Tufted Duck were recorded at 224 sites during the recent period. A total of 19 sites supported nationally important numbers, many of which were concentrated in the north midlands and west. Lough Corrib was their most important wintering site in ROI in the previous assessment (Lewis *et al.*, 2019) but was not surveyed in full in the years since, and hence does not appear in Table 22 and is vastly underestimated in Figure 42.

Declines in Tufted Duck have been attributed to many factors such as habitat degradation, climate change, and food shortages. At Lough Neagh, a key over-wintering site for the species, significant declines are associated with a reduction in benthic macroinvertebrates, a primary food source for the ducks (Tománková *et al.*, 2013a). Research also indicates that Tufted Duck have declined more sharply in nutrient-rich, eutrophic, wetlands compared to oligotrophic ones, suggesting that nutrient pollution contributes to the degradation of these habitats (Lehikoinen *et al.*, 2013). Additionally, bycatch in fishing nets remains a considerable threat. Climate change has further impacted the distribution of Tufted Duck (along with other diving duck species), with milder winters leading to a north-eastward shift. In response to changing climate conditions, birds increasingly remain closer to breeding areas over winter (European Commission, 2018; Pavón-Jordán *et al.*, 2018). Tufted Duck are listed on the Open Seasons Order, though bag data is not currently available.

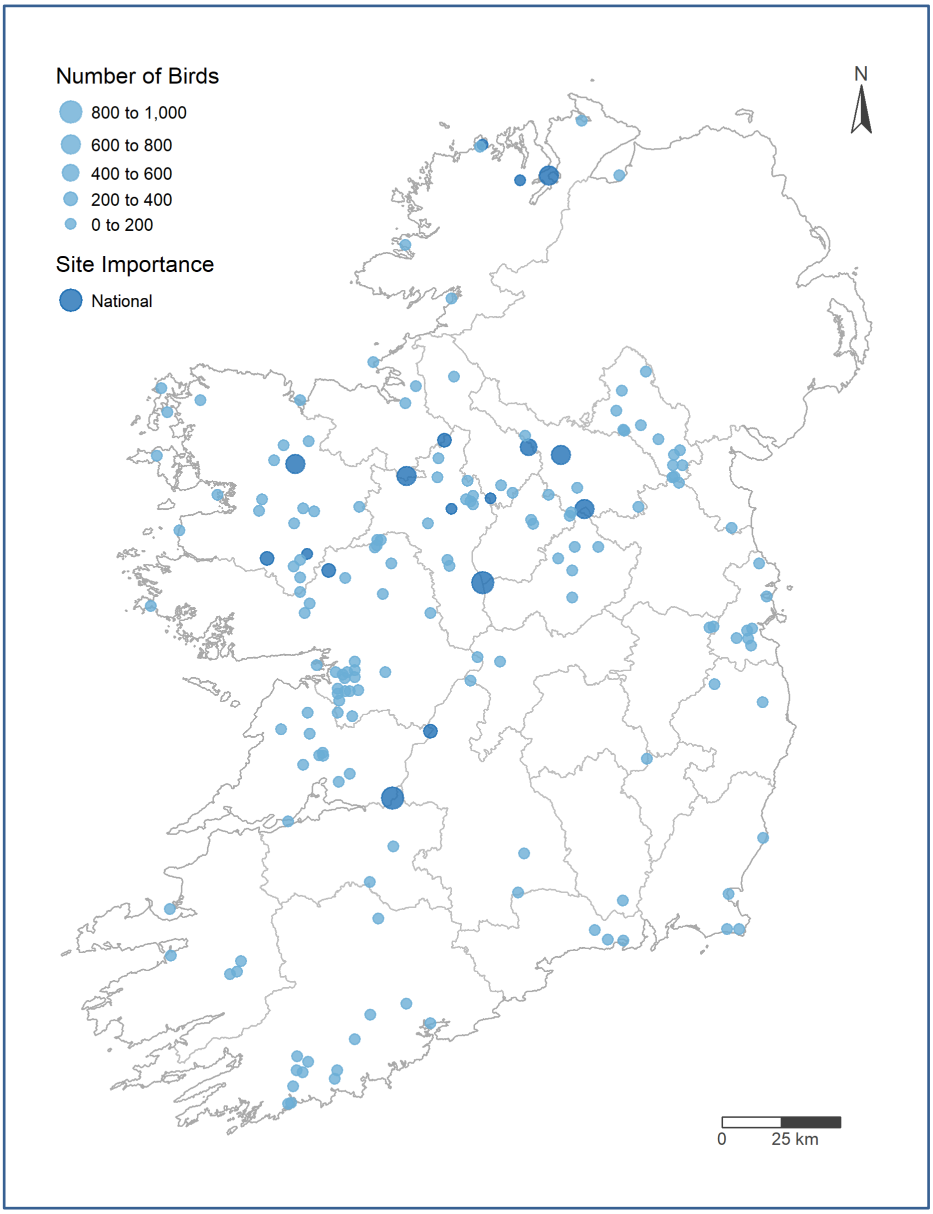


Figure 42 I-WeBS sites where Tufted Duck were recorded between 2018/19 and 2022/23.

Table 22 I-WeBS sites supporting internationally and/or nationally important numbers of Tufted Duck between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Lough Ree	108*		1710	484*	529		726	988	1710	Nov, Jan
River Shannon (Lower)	593	736	870	792	1208	574	1240*	937*	1240*	Oct, Nov, Dec
Lough Sheelin	5200*	579	770	369	1010*	532	616	659*	1010*	Nov, Dec, Feb
Lough Swilly	489	327	695	956	413	621	523	642	956	Sep, Oct, Nov
Lough Oughter Complex	2053*	323	172	1664*	401*	290*		632*	1664*	Jan, Feb
Lough Gara	34	434	114	41*	68*	838	893	615	893	Sep, Jan
Lough Cullin	1400	115	600*					600*	600*	
Ballinamore Lakes	431	605	525	90*	128*	113*	180*	525	525	Jan
Lough Mask	325	253	402	438		401	233	368	438	Oct, Nov, Dec, Jan
Lough Derg (Shannon)	376*	237*	230*	844*	158*	209*	362	362	844*	Sep, Nov, Mar
Lough Skean							350	350	350	Sep
North Central Galway Lakes	50			87			600	344	600	Jan, Mar
Lough Derg (Shannon) (Aerial)					311			311	311	Jan
Little Brosna Callows (Aerial)			0		500			250	500	Jan
Kilglassan Turlough/Greaghan's	50			150		0*	242	196	242	Jan, Mar
Lough Fern			0	0	410		369	195	410	Oct, Dec, Jan
Annaghmore Lakes	58	70		1*		190	44*	190	190	Jan
Eslin River	56	88	176				50*	176	176	Jan
Dunfanaghy New Lake	136	177	280	186	110*	125	82	168	280	Nov, Feb, Mar

* includes a low-quality count *e.g.* estimate.

4.21 Scaup *Aythya marila* Lacha iascán

marila, Northern Europe/ Western Europe

Wintering Population

All-Ireland (2018-2023):	880
ROI (2018-2023):	100
ROI I-WeBS SPA Sites (2018-2023):	90

Site Threshold

International Importance:	2,600
National Importance:	20

Population Change (ROI)

5-year (2016-2022):	-38%
12-year (2009-2022):	-84.6%
26-year (1995-2022):	-94.9%
Historical (1984-2023):	-69.8%
Average annual change (1995-2022):	-3.7%

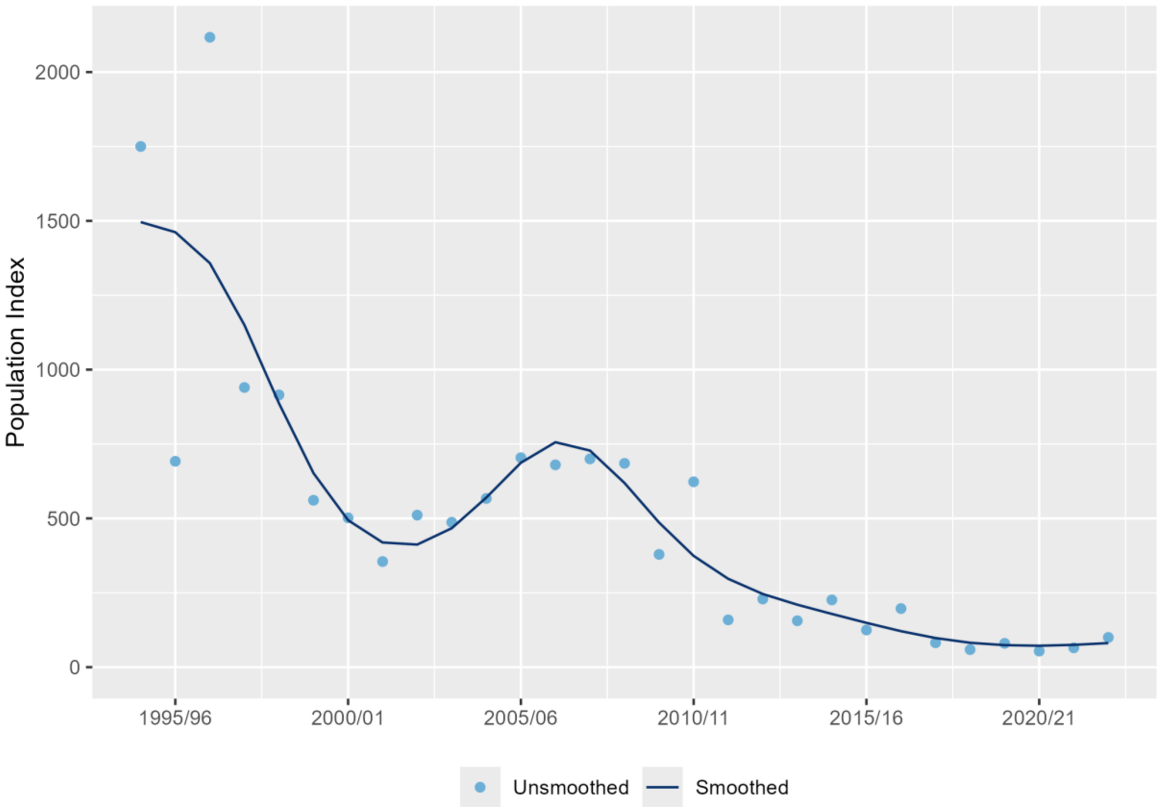


Figure 43 Calculated trends and graphed ROI population index for Scaup. Photo: John Fox.

The population of (Greater) Scaup wintering in Ireland and across Western Europe breeds in Northern Europe and Western Siberia. The flyway population is increasing (AEWA, 2022), but in Ireland and the UK numbers continue to decline significantly. Scaup in the Republic of Ireland have undergone massive declines, by 95% since the 1990s and by 38% in the last five years (Figure 43). Between 1996/97 - 2021/22, Scaup declined by 68% in the UK (Woodward *et al.*, 2024). Interestingly, in contrast to this, the species range expanded by 57% between the early 1980s and most recent 2007-11 Bird Atlas (Balmer *et al.*, 2013). Only around 11% of the all-Ireland population winters in ROI.

Scaup were recorded at 45 inland and coastal I-WeBS sites during the recent period (2016/17 - 2022/23), none of which supported numbers of national importance. Lough Swilly and Wexford Harbour & Slobs supported the highest numbers. Lough Swilly was the only site to record a peak of more than 20 birds during the 5-year period, 2018/19 - 2022/23 (see Figure 44 and Table 23).

Several key threats contributing to the decline of Scaup in north-west Europe have been identified. As with other diving duck species, there has been a shift in wintering distribution towards the east and north in response to warmer winters (migratory short-stopping). Declines in Ireland, the UK, and the Netherlands have accompanied this shift. Meanwhile, populations remain stable in Denmark and are increasing in Germany, Poland, Sweden, and Estonia, likely influenced by higher temperatures in these regions. The incidental drowning of Scaup in fishing gear (bycatch) remains a significant threat in parts of the species range, particularly where conservation measures are insufficient. Additionally, the deterioration of food resources (particularly in the Netherlands), the degradation of wintering habitat, pollution (*e.g*. from oil spills), and disturbance negatively impact wintering populations. The increasing concentration of birds in specific areas, such as coastal Poland and Germany, further heightens risks due to inadequate protection measures at these wintering grounds (Marchowski *et al.*, 2020). Scaup were listed on the Open Seasons Order until 2023 when they were removed due to the significant decline in their numbers here, and the small size of the remaining population. During the public consultation on the changes to the Open Seasons Order, submissions from hunters reported that Scaup was the second-least hunted species on the list (behind Ruddy Duck; O'Keeffe, 2023).

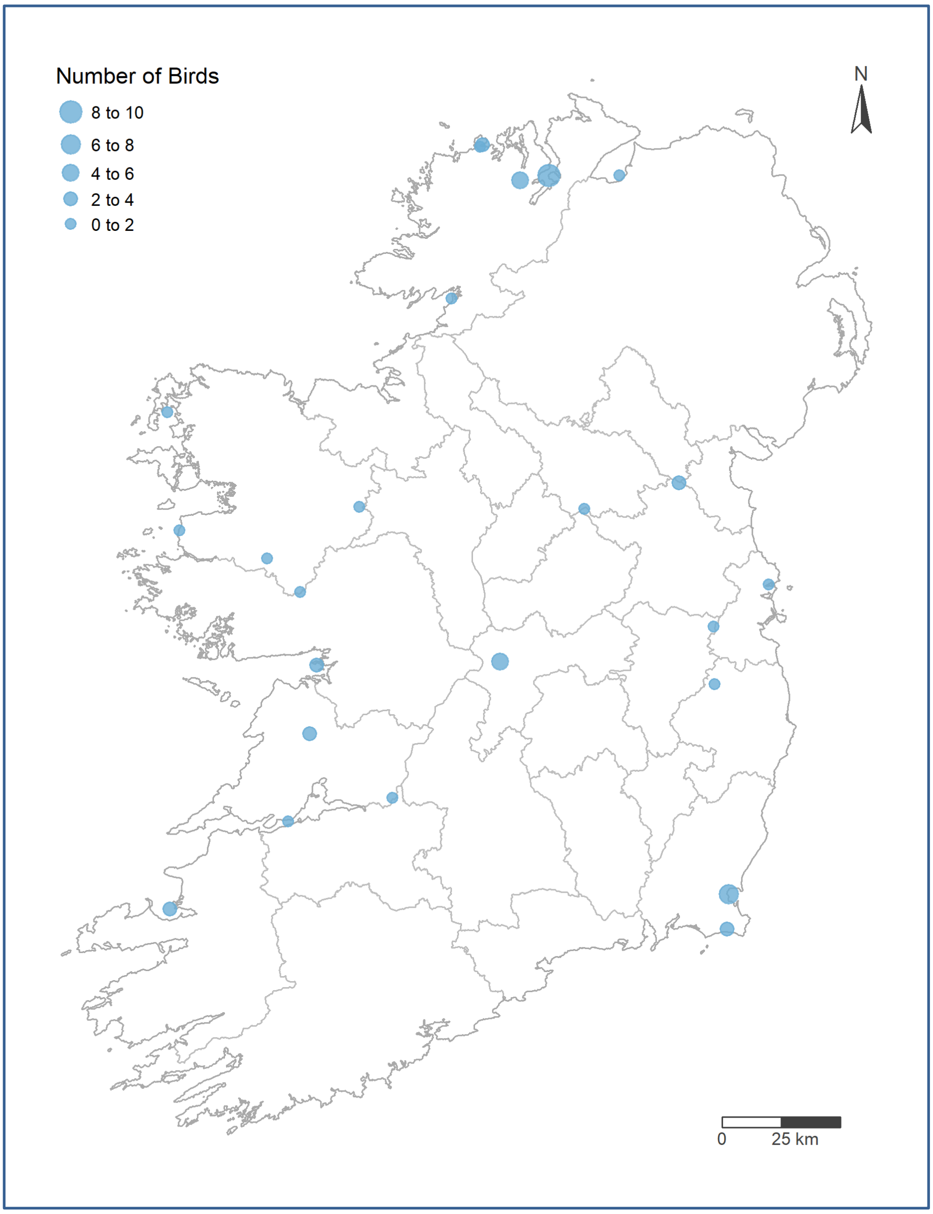


Figure 44 I-WeBS sites where Scaup were recorded between 2018/19 and 2022/23.

Table 23 The 15 top-ranked I-WeBS sites supporting Scaup with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Lough Swilly	61	15	28	5	1	4	7	9	28	Oct, Nov, Dec
Wexford Harbour & Slobs	26	0	15	3	4*	1	0*	6	15	Nov, Dec
Cloghanhill						5		5	5	Sep
Lough Fern			0	0	12		6	4	12	Oct, Dec, Jan
Inner Galway Bay	0	0	8	2		0		3	8	Jan, Mar
Corofin Wetlands	1	1	0*	4*	10*	0*	0*	3*	10*	
Dunfanaghy New Lake	2	6	4	2	1	1	3	2	4	Sep, Oct, Mar
Tralee Bay, Lough Gill & Akeragh Lough	120*	78	0	0	0*	8*	0*	2*	8*	Sep, Nov, Mar
Tacumshin Lake	0	1	0	3	6	3	0	2	6	Sep, Nov, Dec
Ballyhoe Lakes	0	0	0			3		2	3	Dec, Jan
Lough Foyle (WeBS)	1	1	3	0	0	0	0	1	3	Sep, Oct
Donegal Bay	15	2	2	0			0	1	2	Oct, Nov, Jan
Dunfanaghy Estuary	0	0	0	2	1	0	0	1	2	Sep
Ballyhaunis Lakes	0	0	1	0*	0*		0*	1	1	Oct
Lough Mask	0	1	1	2		0	0	1	2	Oct, Nov, Jan

* includes a low-quality count *e.g.* estimate.

4.22 Eider *Somateria mollissima* Éadar

mollissima, Baltic, North & Celtic Seas

Wintering Population

All-Ireland (2018-2023):	8,390
ROI (2018-2023):	1,440
ROI I-WeBS SPA Sites (2018-2023):	220

Site Threshold

International Importance:	7,200
National Importance:	85

Population Change (ROI)

5-year (2016-2022):	+2.2%
12-year (2009-2022):	+27.4%
26-year (1995-2022):	+82.4%
Historical (1984-2023):	+17.2%
Average annual change (1995-2022):	+3.2%

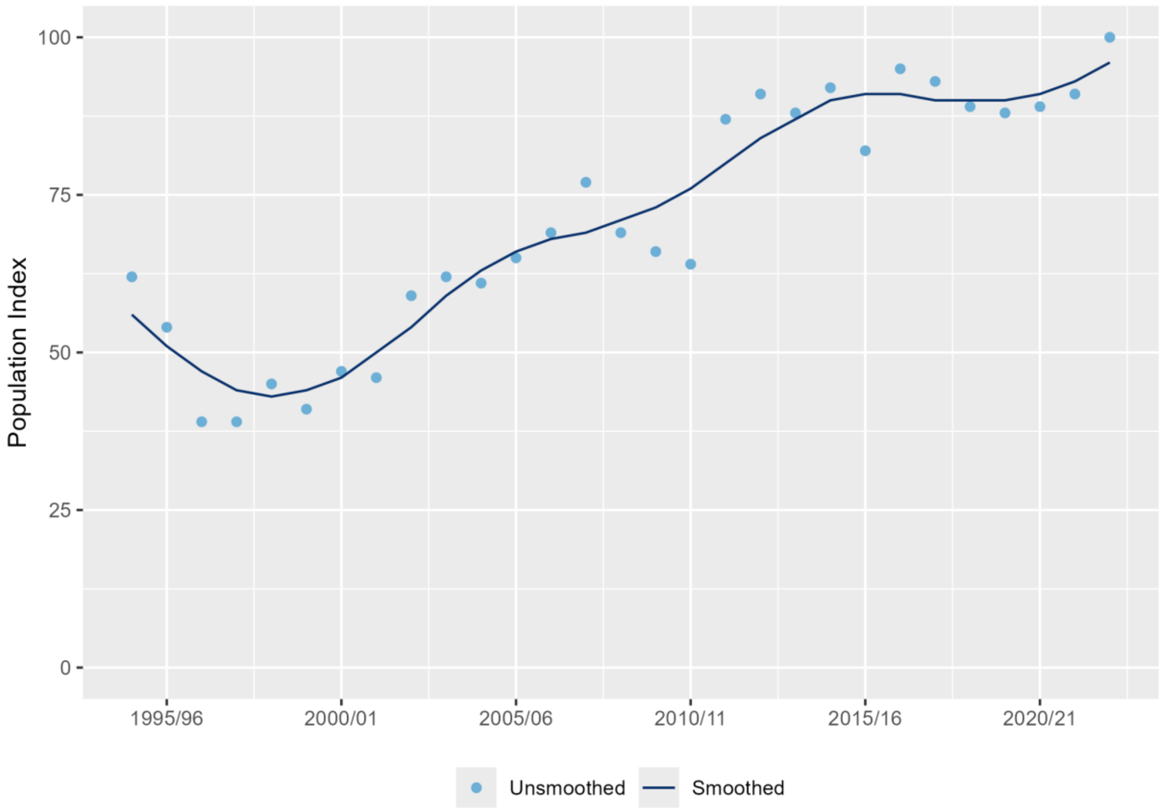


Figure 45 Calculated trends and graphed ROI population index for Eider. Photo: Ben Andrew.

Common Eider that occur in Ireland (Figure 45) belong to the nominate *mollissima* subspecies, and the Baltic, North, and Celtic Seas population, which is declining. The wintering distribution for Eider populations is not well understood. There are several neighbouring populations that may also occur in Irish waters. These include *mollissima* populations from Norway and north-west Russia and White Sea), and from the Baltic and Denmark & Netherlands, as well as the *borealis* population from Svalbard, Franz Josef Land and Iceland, and the *faeroeensis* population from Shetland, Orkney, and the Faroe Isles. Flyway trends vary across populations (AEWA, 2022).

These seaducks are often located far offshore, where weather conditions easily hamper count quality, so they may be undetected or underestimated during land-based counts. Hence numbers of Eider recorded via I-WeBS must be treated with great caution and very much represent minima in terms of both numbers and distribution.

Eider were recorded at 33 I-WeBS sites during the current period, with Donegal Bay and outer Sligo Bay supporting the greatest numbers (see Figure 46 and Table 24). Eider have a primarily north-westerly distribution in Ireland but were also recorded in Galway, and on the east coast in Dublin, Meath, and Louth. The bulk of the All-Ireland population (over 80%) occurs around the Northern Ireland coast. The majority of the ROI population was recorded along non-estuarine coast away from core I-WeBS sites, as part of NEWS-III (Lewis *et al.*, 2017) and the numbers recorded on non-estuarine coast have been increasing with each iteration of NEWS.

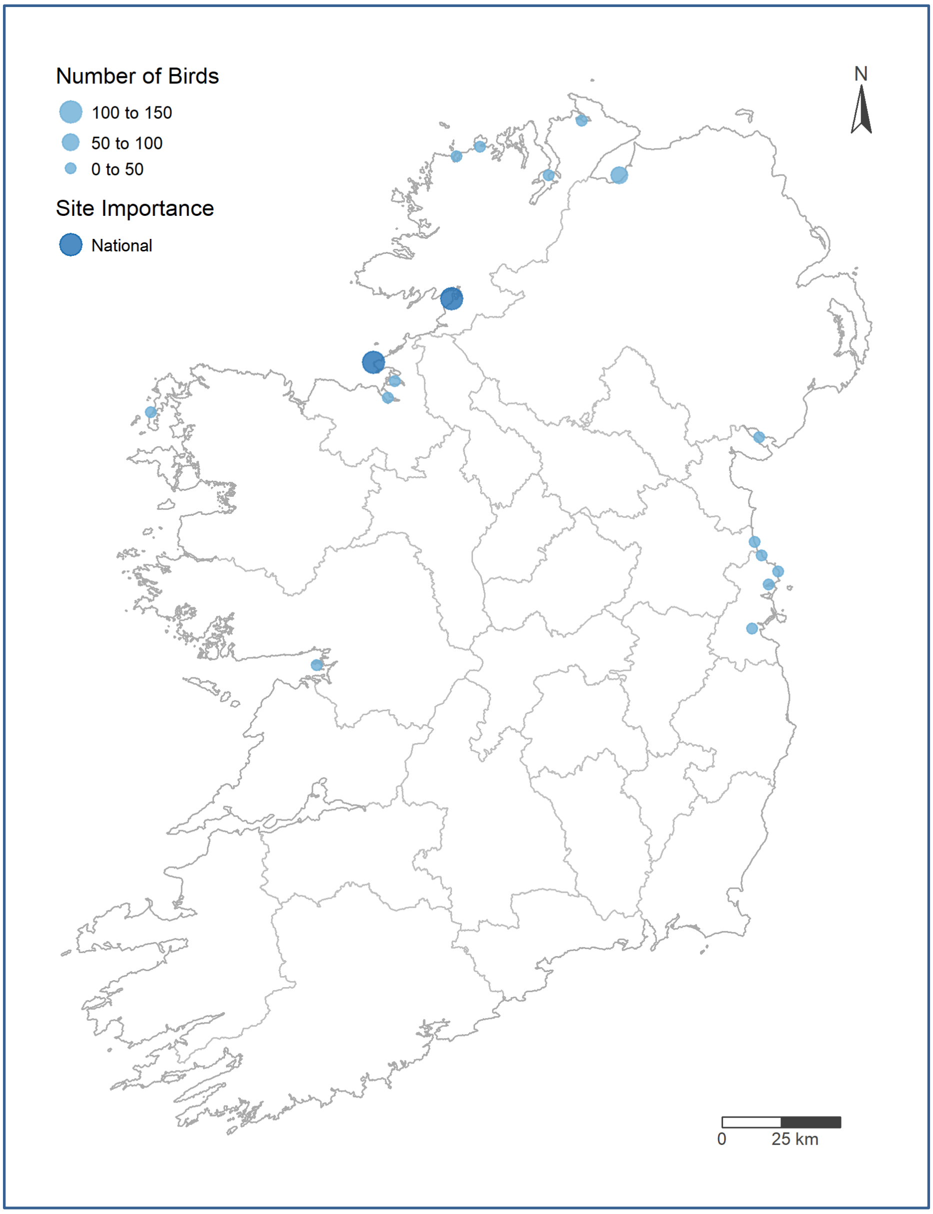


Figure 46 I-WeBS sites where Eider were recorded between 2018/19 and 2022/23.

Table 24 I-WeBS sites supporting internationally and/or nationally important numbers of Eider between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Donegal Bay	0	232	119	9			320	149	320	Oct, Dec
Outer Sligo Bay						78	171	124	171	Jan

* includes a low-quality count *e.g*. estimate.

4.23 Common Scoter *Melanitta nigra* Scótar

Eastern Greenland & Iceland/UK

Site Threshold

International Importance:	7,500

I-WeBS Peak season counts

ROI Mean (2018-2023):	2,435
ROI Peak (2018-2023):	4,627

Figure 47 Peak season counts of Common Scoter at I-WeBS sites. Photo: Richard T Mills.

The population of Common Scoter that winter in Ireland (Figure 47) has a large breeding range, spanning from Iceland to Western Siberia, including Scotland and a small breeding population in Ireland on Loughs Ree, Arrow, Conn and Cullin (Heffernan & Hunt, 2022). The flyway population is increasing (Wetlands International, 2024). Common Scoter often occur far offshore and are frequently undetected or underestimated during I-WeBS counts. Consequently, I-WeBS counts do not provide enough consistency to develop accurate trend data. I-WeBS counts do however provide an indication of the nearshore sites used by Common Scoter and their relative importance, particularly when multiple years of data are considered. Note that a population estimate was calculated for this species during the previous 2011-2016 period (Burke *et al.*, 2018), but we have adopted a more cautious approach here and provided mean and peak counts only. The figures from the recent and previous periods are therefore not directly comparable. An offshore aerial survey programme would likely be more appropriate to better monitor this species, as well as sea ducks and divers, in Irish waters.

Common Scoter were recorded at 45 I-WeBS sites around the coast, an increase of five compared to the last period. The most important wintering sites for the species here span a range of locations on the east, west and north coasts, but few in the south. Although Dunany Point – Clogherhead (Louth) was not significant in the previous analysis, it recorded the second-largest peak during the current period, with improved count coverage in recent seasons (see Figure 48 and Table 25).

Common Scoter are known to be vulnerable to displacement by offshore windfarms (Ramiro & Cummins, 2016) and so the imminent expansion of Ireland's offshore renewable energy sector is a potential threat to the species in the coming years. Studies from other parts of their range also demonstrate impacts from fisheries, with mortality as bycatch a known issue (Žydelis *et al.*, 2009).

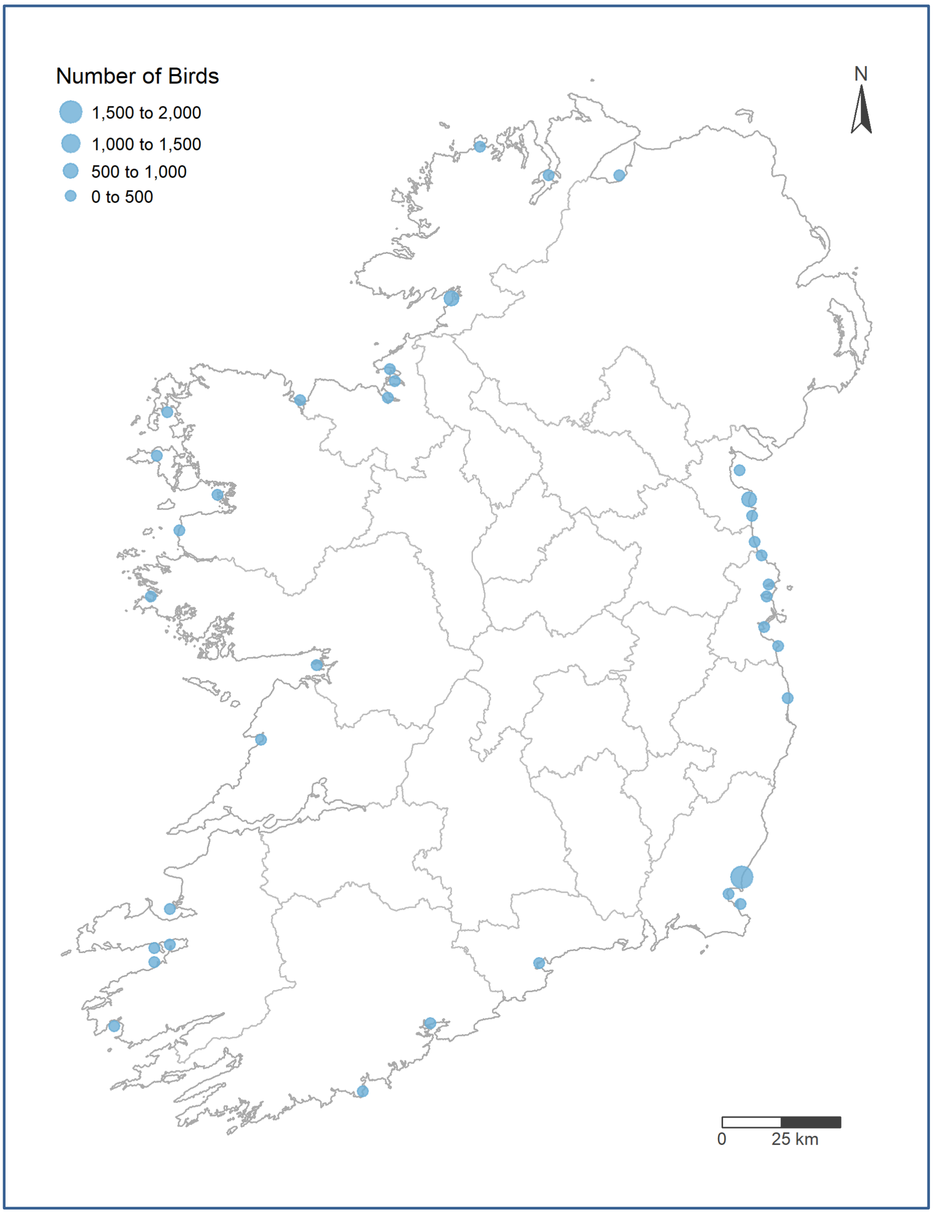


Figure 48 I-WeBS sites where Common Scoter were recorded between 2018/19 and 2022/23.

Table 25 The 15 top-ranked I-WeBS sites where Common Scoter was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Wexford Bay			2700	2479	2240	131	562	1622	2700	Nov, Dec, Jan
Dunany Point - Clogher Head	8	203	1750	755	240	411	16	634	1750	Oct, Dec, Jan, Mar
Donegal Bay	2049	933	854	231			129*	542	854	Nov, Dec
Blacksod & Tullaghan Bays	527	559	611	468*	400*	139	80*	375	611	Nov, Dec
Rosslare (Outer Bay)	1575*	1800	1000	550	120	20	0	338	1000	Oct, Dec, Feb
Dundalk Bay	2121	413	90	38*	174	46*	910*	252*	910*	Oct, Jan, Feb, Mar
Castlemaine Harbour & Rossbehy	18	230	450	0*	0	33*	12*	225	450	Oct, Nov
Castlemaine Outer: Kells Bay East - Rossbehy Beach					171*	46*	250*	156*	250*	
Nanny Estuary & shore	1040	550	300	1	345*	0	0*	129*	345*	Sep, Oct, Dec, Feb
Ballinskelligs Bay							123*	123*	123*	
Castlemaine Outer: Inch offshore		0		116	130*	55	60*	90*	130*	Sep, Dec, Jan
Inner Galway Bay	36	91	11	177		20		69	177	Nov, Mar
Drumcliff Bay Estuary	24	13	85	160		0	0	61	160	Oct, Jan
Liscannor Bay (Liscannor - Rinanoughter)	0	0	0	0	0	0	250	50	250	Oct, Nov, Mar
Killala Bay	0	502	30	26	0	130	40	45	130	Sep, Dec, Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.24 Long-tailed Duck *Clangula hyemalis* Lacha earrfhada

Iceland & Greenland

Site Threshold

International Importance:	600

I-WeBS Peak season counts

ROI Mean (2018-2023):	36
ROI Peak (2018-2023):	94

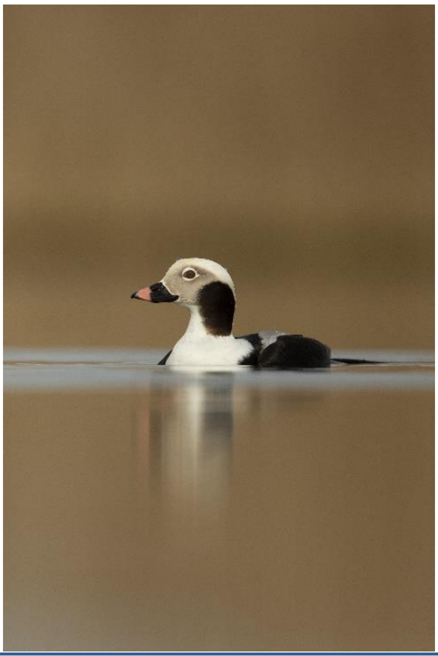


Figure 49 Peak season counts of Long-tailed Duck at I-WeBS sites. Photo: Ben Andrew.

Long-tailed Duck (Figure 49) that occur in Irish waters are from the Iceland and Greenland breeding population, which is considered to be stable in recent years (Wetlands International, 2024). As with other sea ducks, Long-tailed Ducks often occur at great distance from the shore and may be undetected or underestimated during I-WeBS surveys. For this reason, I-WeBS data cannot be used to produce population estimates or trends with confidence and so mean and peak numbers for the recent period are provided. An offshore aerial survey programme would likely be more appropriate to better monitor this species, as well as other sea ducks and divers, in Irish waters.

Long-tailed Ducks were recorded at 35 I-WeBS sites during the recent period. They were distributed along the west coast only, with the exception of just one site on the east coast (Dublin Bay) which supported very low numbers and inconsistently (see Figure 50 and Table 26). The mean number of birds for 2018 - 2022 was 36, compared to 71 for the previous period (2009/10 - 2015/16; Lewis *et al.*, 2019). Inner Galway Bay was the only site to support a mean in excess of 20 individuals in recent years.

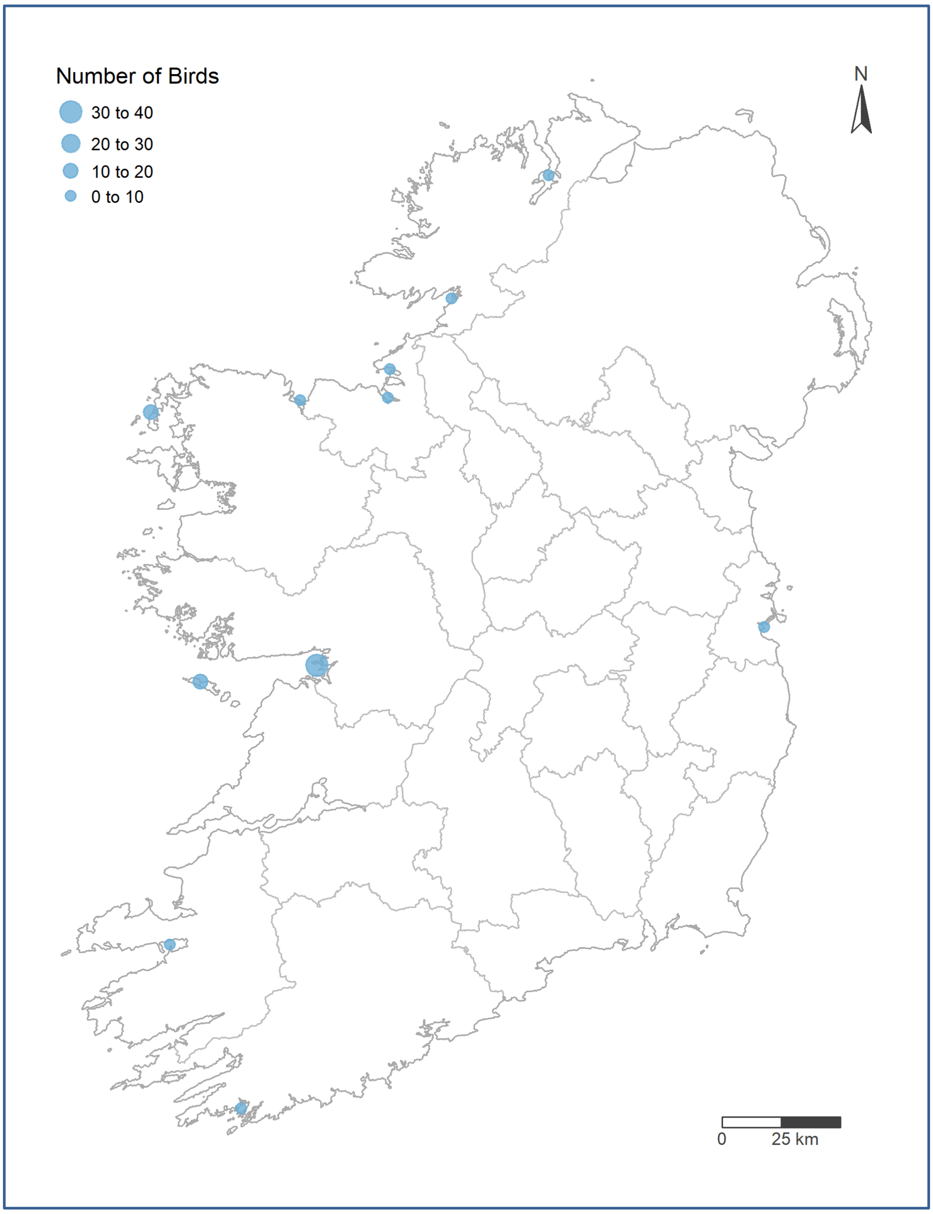


Figure 50 I-WeBS sites where Long-tailed Duck were recorded between 2018/19 and 2022/23.

Table 26 All I-WeBS sites where Long-tailed Duck was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Inner Galway Bay	5	11	2	75		15		31	75	Nov, Jan, Mar
Mullet West	1	9		23*		3*	22*	16*	23*	
Inishmore, Aran Islands	23	17	8	17	10			12	17	Dec, Jan
Donegal Bay	6	10	6	9			7*	8	9	Dec, Jan
Drumcliff Bay Estuary	10	5	14*	5		7	7	8*	14*	Dec, Jan, Feb
Killala Bay	0	0	0	3	2*	0	17	5	17	Sep, Oct, Jan, Mar
Lough Swilly	10	3	1	3	1	3	6*	3*	6*	Nov, Dec, Jan
Ballysadare Bay	6	8	3	5		5	0	3	5	Nov, Jan
Castlemaine Harbour & Rossbehy	0	1	0	0*	3	0*	0*	2	3	Oct, Dec
Roaringwater Bay	0	0	0	2*	0	1	0	1*	2*	Sep, Oct, Jan, Mar
Dublin Bay	2	0	0	0	1	2	0	1	2	Sep, Dec, Mar

* includes a low-quality count *e.g.* estimate.

4.25 Goldeneye *Bucephala clangula* Órshúileach

clangula, North-west & Central Europe (wintering)

Wintering Population

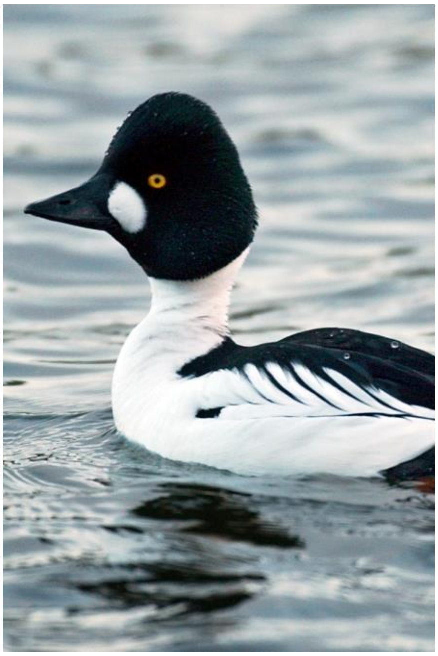
All-Ireland (2018-2023):	1,860
ROI (2018-2023):	730
ROI I-WeBS SPA Sites (2018-2023):	510

Site Threshold

International Importance:	11,400
National Importance:	20

Population Change (ROI)

5-year (2016-2022):	-25.9%
12-year (2009-2022):	-64.8%
26-year (1995-2022):	-80.9%
Historical (1984-2023):	-77.2%
Average annual change (1995-2022):	-3.1%



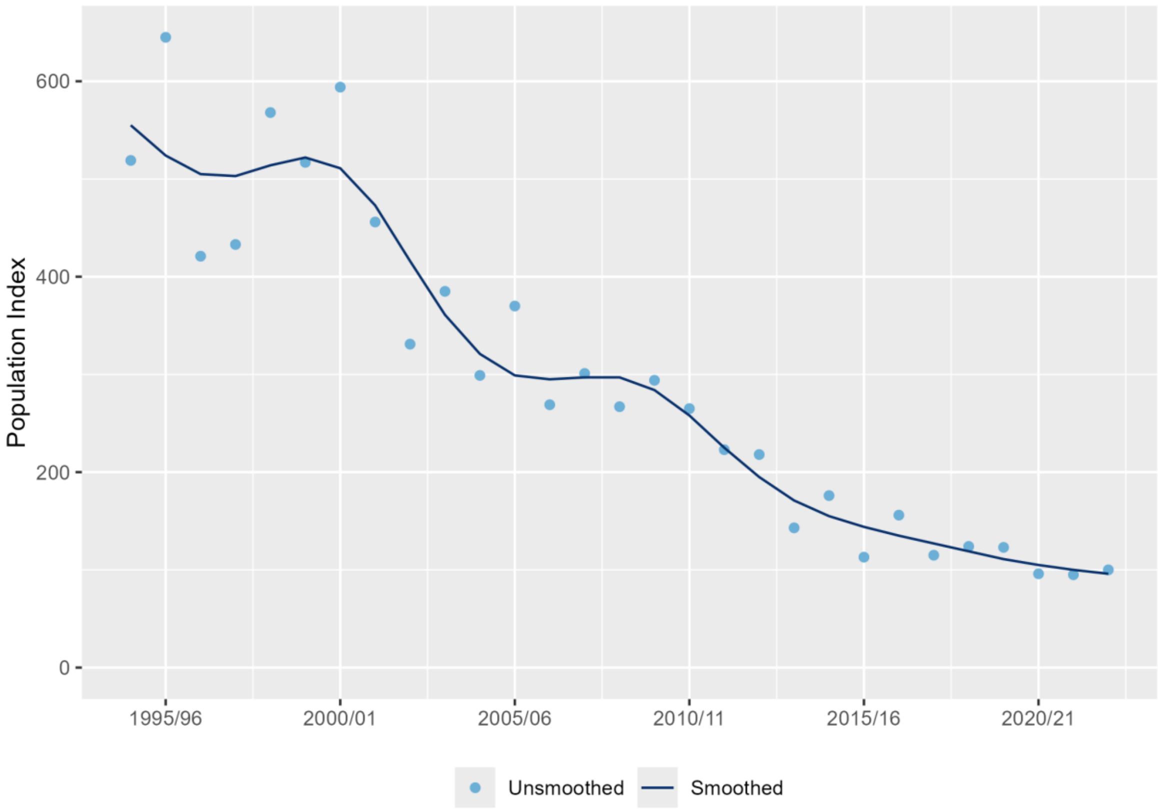


Figure 51 Calculated trends and graphed ROI population index for Goldeneye. Photo: Richard T Mills.

Wetlands International recognises four populations of Common Goldeneye. The population in Ireland breeds in north and north-west Europe and winters in north-west and central Europe and is currently in decline (AEWA, 2022). The Irish wintering population of Goldeneye has experienced consistent and very large declines since comprehensive waterbird monitoring started here in the 1980s, including more than a 25% decline over the last five years (Figure

51). Goldeneye numbers in the UK have declined by 54% between 1996/97 and 2021/22 (Woodward *et al.*, 2024).

During the current period, Goldeneye were recorded at 105 sites, with twelve sites supporting numbers of national importance (see Figure 52 and Table 27). Numbers at Lough Swilly remain relatively stable, with mean and peak counts higher than the previous period. However this was the only site in recent years to support more than 100 individuals, with the majority of even their most important wintering sites here hosting 5-year peaks of under 50. Lough Corrib was one of the sites listed as supporting nationally important numbers in the previous assessment (Lewis *et al.*, 2019), but this site has not been surveyed in full in recent years.

As with other diving duck species (*e.g*. Pochard, Tufted Duck, and Scaup), declines are widespread. Declines continue at Lough Neagh and Lough Beg (NI), one of the most important sites for the species in Ireland and the UK, and where the majority of the all-Ireland population winters. Site-level issues, for example high levels of nutrient input, have been recorded here for some time (Maclean *et al.*, 2006). Several other factors likely contribute to their declines, with climate change being a major driver. During milder winters, the species' distribution shifts north-east, as birds remain closer to their breeding grounds (Pavón-Jordán *et al.*, 2018). In light of the scale of the declines seen here, Goldeneye were removed from the Open Seasons Order in 2023 (NPWS, 2023). In submissions regarding changes in the Open Seasons Order, Goldeneye were identified by hunters as one of the species harvested the least (O'Keeffe, 2023) though no robust bag return statistics are available.

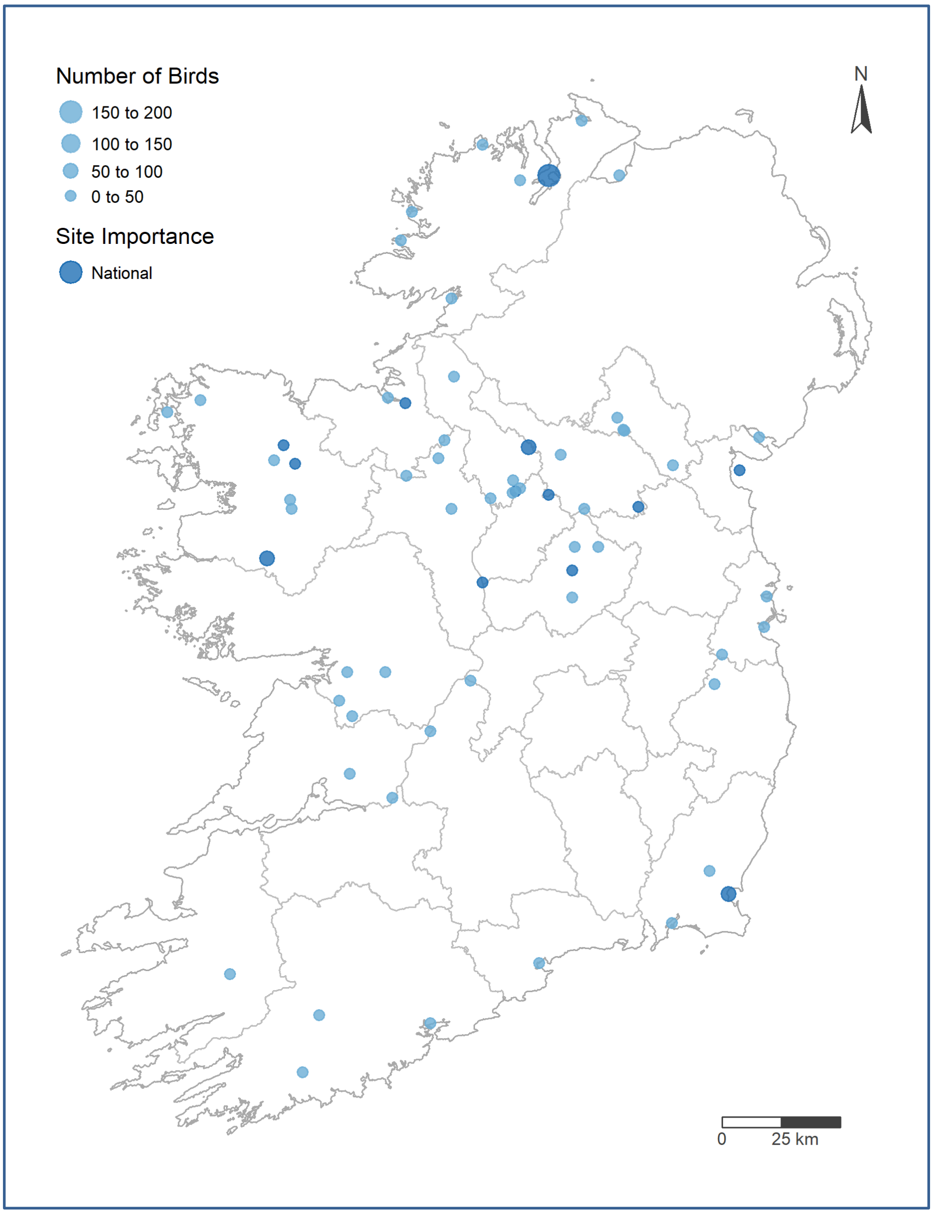


Figure 52 I-WeBS sites where Goldeneye were recorded between 2018/19 and 2022/23**.**

Table 27 I-WeBS sites supporting internationally and/or nationally important numbers of Goldeneye between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Lough Swilly	131	73	116	86	238	155	159	151	238	Dec, Jan, Feb
Ballinamore Lakes	38	48	71	9*	0*	7*	6*	71	71	Jan
Lough Derg (Shannon) (Aerial)					70			70	70	Nov
Lough Mask	50	212	59	93		38	25*	63	93	Dec, Jan
Wexford Harbour & Slobs	49	37	67	79	23*	27	29*	58	79	Nov, Dec, Feb
Lough Owel	24	28	54	54	16	33	18	35	54	Dec, Jan, Feb
Lough Ree	23*		39	3*	30		33	34	39	Nov, Jan
Lough Sallagh	2	21	31					31	31	Jan
Lough Gowna	42	26	38	15*	2*	24	0*	31	38	Dec, Feb
Dundalk Bay	34	57	28	24	31	19*	46*	30*	46*	Jan, Feb, Mar
Ballygawley Lough			26					26	26	Dec
Lough Conn	1			36	20	22	14	23	36	Dec, Feb, Mar
Mullagh Lough	34	1	18	27	40	23	3	22	40	Nov, Dec, Jan, Mar
Lough Cullin	74	33	20*					20*	20*	

* includes a low-quality count *e.g.* estimate.

4.26 Goosander *Mergus merganser* Síolta mhór

merganser, North-west & Central Europe (wintering)

Wintering Population

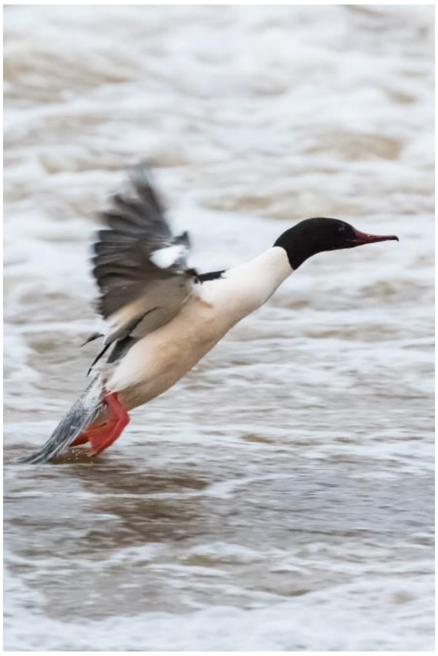
All-Ireland (2018-2023):	50
ROI (2018-2023):	40
ROI I-WeBS SPA Sites (2018-2023):	20

Site Threshold

International Importance:	2,100
National Importance:	20

Population Change (ROI)

5-year (2016-2022):	+31.5%
12-year (2009-2022):	+7.9%
26-year (1995-2022):	+23.1%
Historical (1984-2023):	NA
Average annual change (1995-2022):	+0.9%



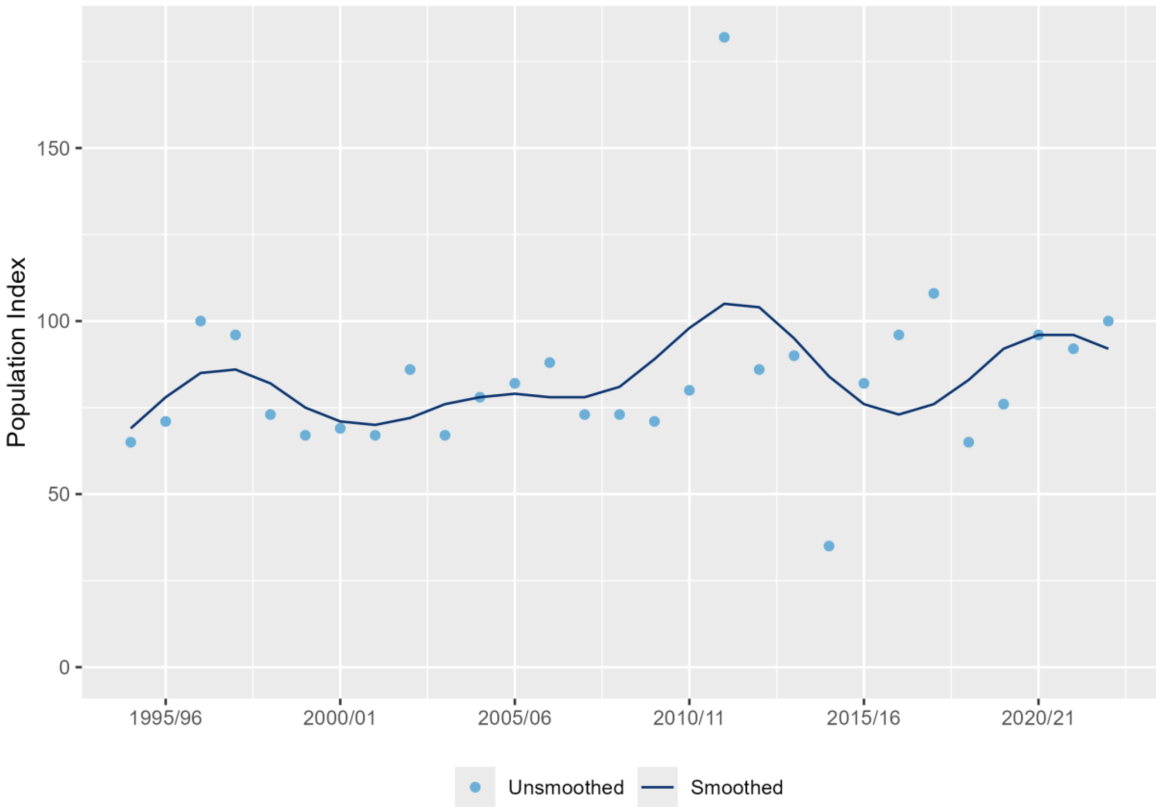


Figure 53 Calculated trends and graphed ROI population index for Goosander. Photo: John Fox.

Goosander in Ireland (Figure 53) are part of the north-west and central European population. Although Goosander have been recorded breeding in Ireland since 1969, their numbers and distribution remain very small (Burke *et al.*, 2020). Their flyway status is unclear but thought to be stable or increasing (AEWA, 2022). Wintering numbers in Ireland are seemingly increasing, albeit gradually, with little consistency in site usage between winters.

Goosander were recorded at 29 sites during the recent period but 'Glendalough Upper & Lower Lakes' was the only consistent site and the only site to support more than 10 individuals in successive years (see Figure 54 and Table 28). These lakes were only added to the I-WeBS site network in winter 2021/22. Notably this site is within the same area as the known breeding sites and is likely largely if not totally composed of Irish-breeding (and potentially non-breeding) individuals, though it may also contain migrants from Britain or Northern Europe.

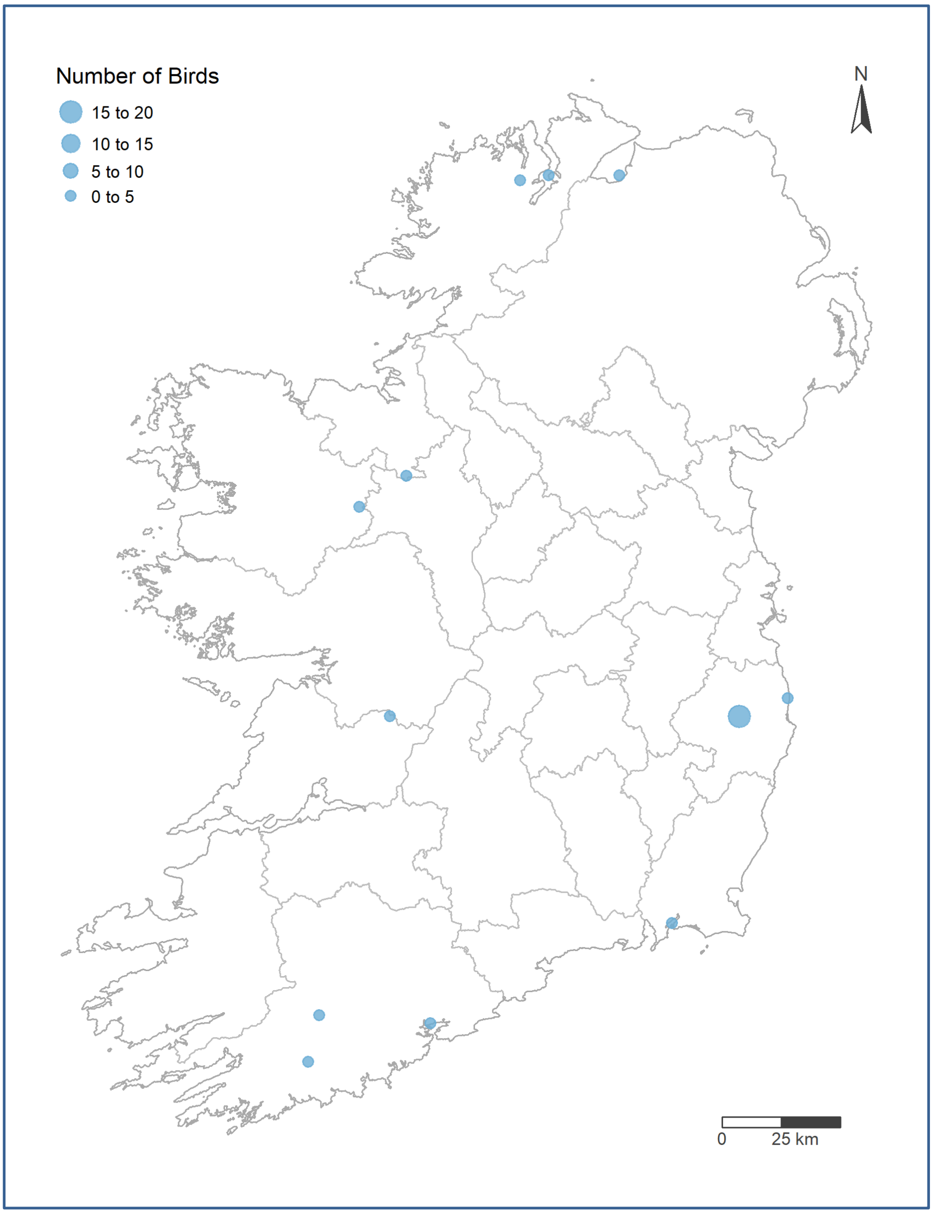


Figure 54 I-WeBS sites where Goosander were recorded between 2018/19 and 2022/23.

Table 28 All I-WeBS sites supporting Goosander with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Glendalough - Upper & Lower Lakes						16	19	18	19	Nov, Dec
Lough Fern			0	0	7		6	3	7	Oct, Dec, Jan
Lough Foyle (WeBS)	0	0	0	0	1	10	1	2	10	Sep
Lough Gara	0	4	0	0*	0*	5	0	2	5	Sep, Jan
Lough Atorick							2	2	2	Jan
North Wicklow Coastal Marshes	0	2	0	3	3*	1	1	2*	3	Sep, Nov
Lough Swilly	0	0	1	0	1	2	0	1	2	Sep, Dec, Jan
Ballyhaunis Lakes	0	0	1	0*	0*		0*	1	1	Jan
Inishcarra Reservoirs	1	1	0	0	2	2*	0	1*	2	Sep, Oct, Feb
Ballynacarriga Lake			0	2				1	2	Oct, Jan
Cork Harbour	0	0	0	0	0	0	3	1	3	Sep, Oct, Dec, Jan
Bannow Bay	0	0	0	0	3	0	0	1	3	Sep, Oct, Nov

* includes a low-quality count *e.g*. estimate.

4.27 Red-breasted Merganser *Mergus serrator* Síolta rua

North-west & Central Europe (wintering)

Wintering Population

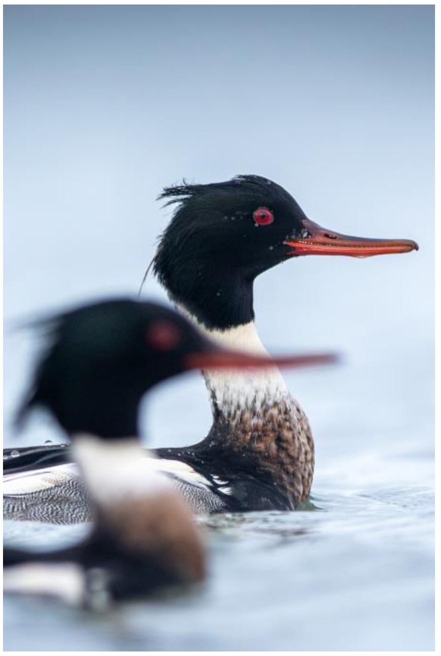
All-Ireland (2018-2023):	2,480
ROI (2018-2023):	1,920
ROI I-WeBS SPA Sites (2018-2023):	1,010

Site Threshold

International Importance:	1,300
National Importance:	25

Population Change (ROI)

5-year (2016-2022):	+4.5%
12-year (2009-2022):	+5.7%
26-year (1995-2022):	-19.1%
Historical (1984-2023):	-44.4%
Average annual change (1995-2022):	-0.7%



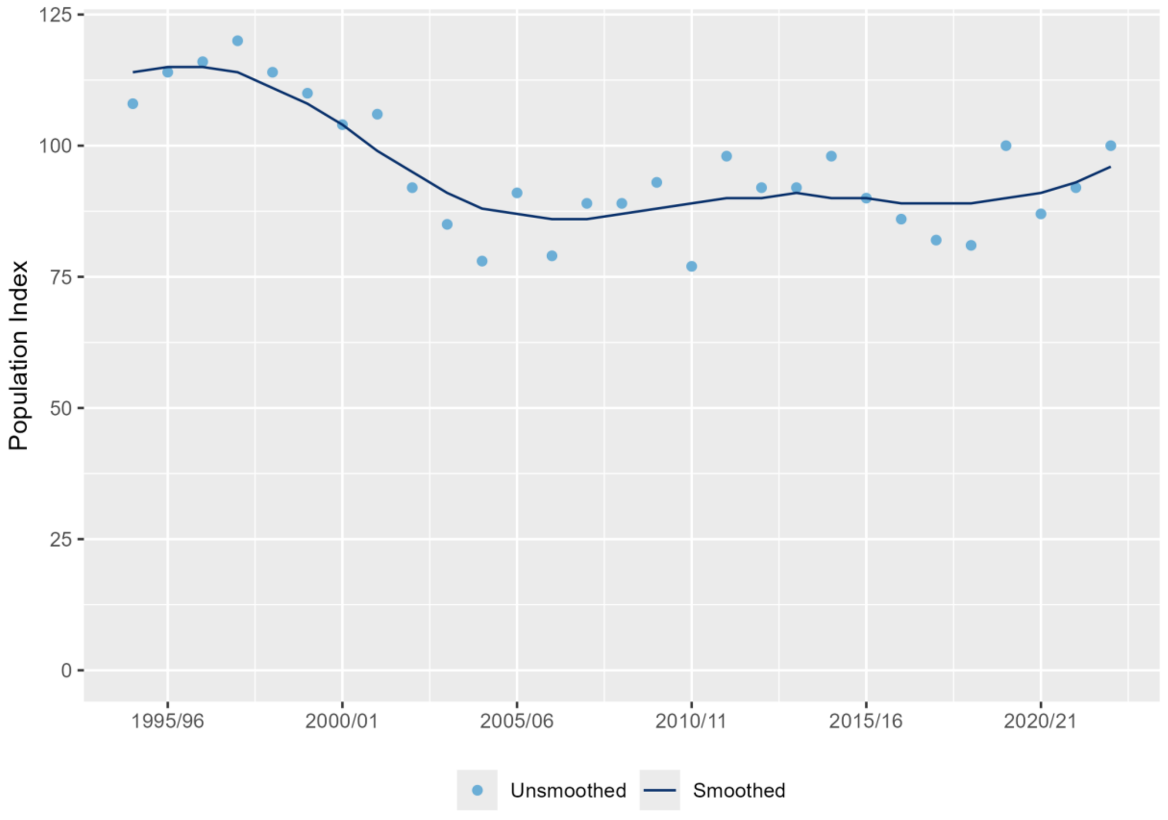


Figure 55 Calculated trends and graphed ROI population index for Red-breasted Merganser. Photo: John Murphy.

Red-breasted Merganser wintering in Ireland belong to the north-west and central European population. The flyway trend is unclear (stable/decreasing) (Wetlands International, 2024). The population trend for Red-breasted Merganser wintering in the Republic of Ireland has been of decline since both the 1980s and the 1990s, with a small positive trend in more recent years (Figure 55). The extent of decline in the UK is much greater, at 46% since 1996/97 and still declining by 24% in the 10 years to winter 2021/22 (Woodward *et al.*, 2024). Red-breasted Merganser often feed in deep water offshore and so are not always detected via the I-WeBS core count methodology, so estimates and trends presented here should be interpreted with that caveat in mind.

Red-breasted Merganser were recorded at 82 sites in recent years, reflecting an increase from the previous period, though survey coverage was not the same. A total of 20 sites, all around the coast, supported numbers of national importance (see Figure 56 and Table 29). Of the recent population estimate, 37.5% was from NEWS-III (Lewis *et al.*, 2017), carried out in 2015/16 and highlighting their extensive use of coastal waters outside I-WeBS sites.

It has been found that deep-water species such as Red-breasted Merganser shift their distribution north-eastwards in response to milder winters (Pavón-Jordán *et al.*, 2018). However, the disparity between trends in the UK and Ireland suggests that movement patterns may vary across the eastern and western ranges of the population.

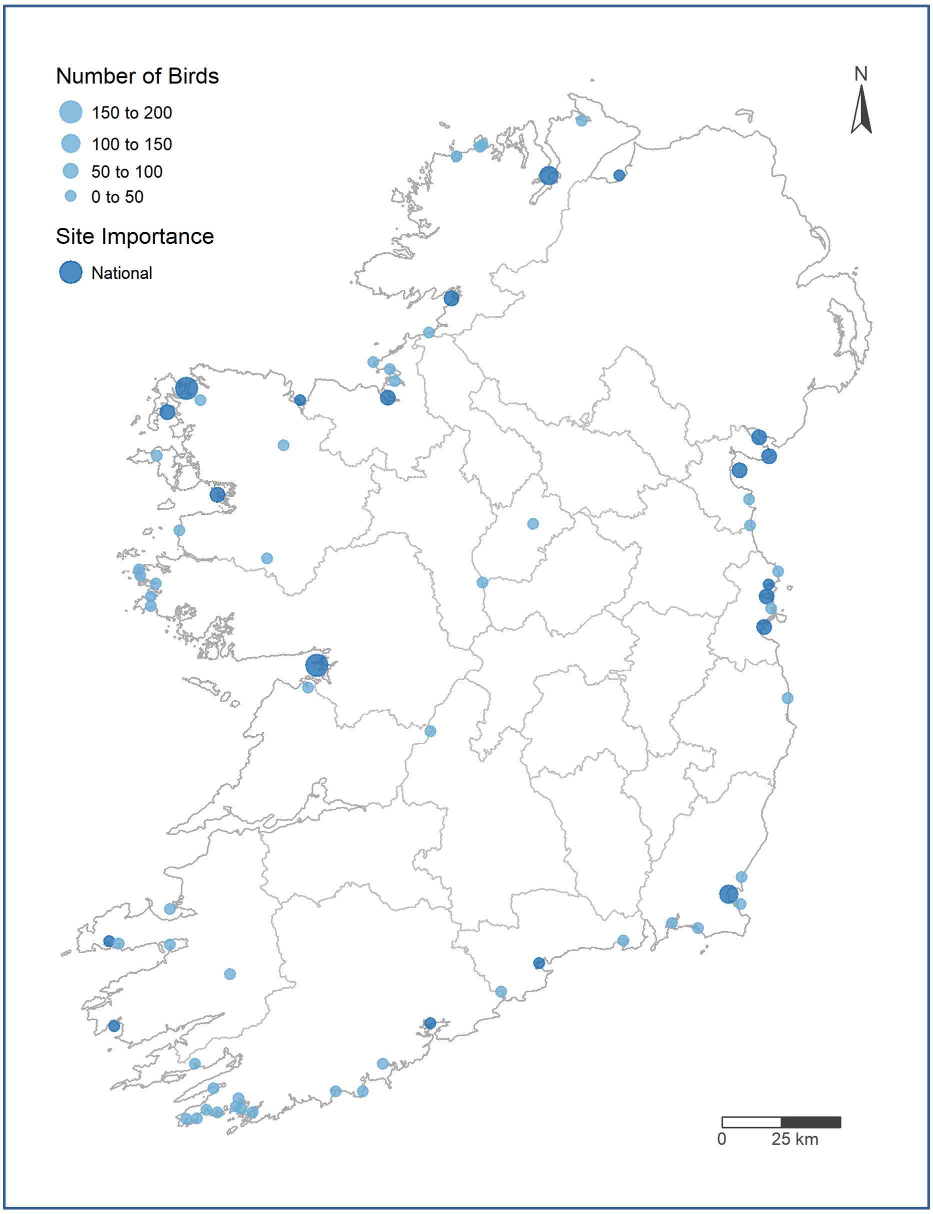


Figure 56 I-WeBS sites where Red-breasted Merganser were recorded between 2018/19 and 2022/23.

Table 29 I-WeBS sites supporting internationally and/or nationally important numbers of Red-breasted Merganser between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Inner Galway Bay	222	170	146	209		238		198	238	Jan
Broadhaven Bay	46	48		35*		27*	173	173	173	Nov
Lough Swilly	94	136	185	201	49	120	116	134	201	Dec, Jan, Feb, Mar
Wexford Harbour & Slobs	110	131	207	81	172*	100	79*	129	207	Nov, Dec, Feb
Blacksod & Tullaghan Bays	94	108	8	195*	100*	93	59*	91*	195*	Sep, Oct, Nov
Clew Bay	77	45	101		62	69	71*	77	101	Sep, Oct, Jan
Donegal Bay	40	64	88	60			71*	74	88	Oct, Nov
Dublin Bay	80	78	40	96	36	87	33*	65	96	Oct, Nov, Mar
Carlingford Lough (WeBS)	57	21*	26*	12*	0*	18*	59	59	59	Jan
Broadmeadow (Malahide) Estuary	237	23	37	33	74*	62	69	55*	74*	Nov, Dec
Ballysadare Bay	48	53	68	63		51	31	53	68	Nov, Jan, Feb
Dundalk Bay	132	26	83	28	11	26*	117*	53*	117*	Oct, Jan, Mar
Dundalk Bay Outer (North: Ballagan Point - Giles Quay)	47	32	52					52	52	Jan
Lough Foyle (WeBS)	51	67	33	53	56	49*	51	48	56	Oct, Nov
Cork Harbour	70	77	62	62	30	33	41	46	62	Nov, Dec, Jan
Dungarvan Harbour	41	27	34	40	36	26	41	35	41	Dec, Jan, Mar
Killala Bay	37	9	26	48	30*	28	35	34	48	Dec, Jan, Feb, Mar
Rogerstown Estuary	36	25	18	34	39	32	34	31	39	Nov, Dec, Feb
Ballinskelligs Bay							28*	28*	28*	
Dingle Harbour	25	26	24	27*	29	23	22	25*	29	Oct, Nov, Dec

* includes a low-quality count *e.g.* estimate.

4.28 Water Rail *Rallus aquaticus* Rálóg uisce

aquaticus, Europe & North Africa

Site Threshold

International Importance:	6400

I-WeBS Peak season counts

ROI Mean (2018-2023):	14
ROI Peak (2018-2023):	20

Figure 57 Peak season counts of Water Rail at I-WeBS sites. Photo: Ronnie Martin.

Irish Water Rail (Figure 57) belong to the population that winters in Western Europe, North Africa and south-west Asia and breeds in Europe, North Africa and west Asia. The status of this population is unknown (AEWA, 2022). Ringing recoveries show the population in Ireland is bolstered in the winter by birds from Fennoscandia and Western Europe (Wernham *et al.*, 2002).

Water Rail is a very secretive, skulking species and because of this it is extremely challenging to obtain accurate population estimates of this population across its range, and particularly difficult in winter. Their habitat requirements are extremely modest, amounting to wetlands with some cover and shallows. Water Rail were recorded at 91 sites between 2016/17 and 2022/23 (see Figure 58 and Table 30), undoubtedly a complete underestimate given that they were recorded across 28% of the island during the most recent Bird Atlas (Balmer *et al.*, 2013), and that in itself was a likely minimal figure.

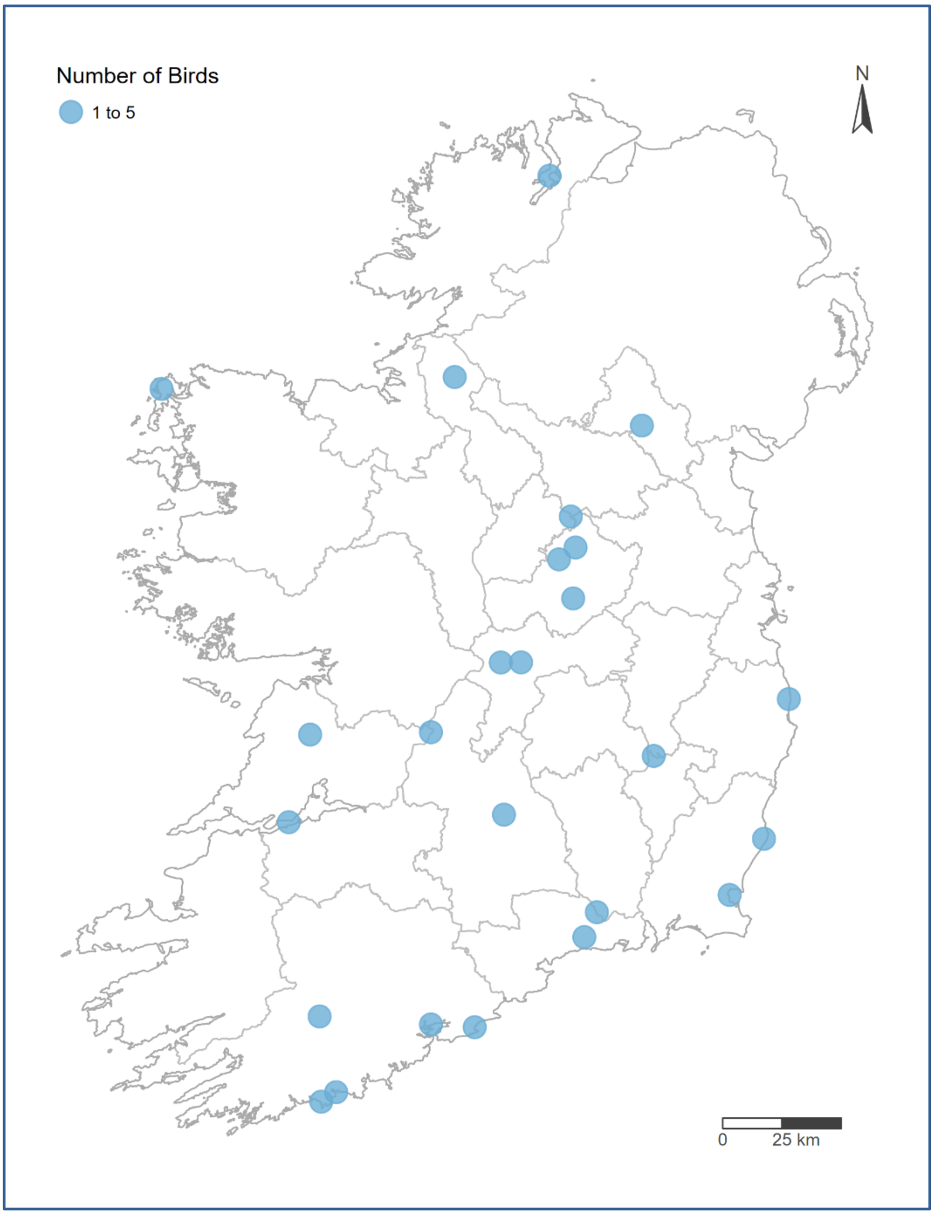


Figure 58 I-WeBS sites where Water Rail were recorded between 2018/19 and 2022/23.

Table 30 The 15 top-ranked I-WeBS sites where Water Rail was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Cabragh Wetlands	2	2		1	3	3	4	3	4	Sep, Nov, Mar
Wexford Harbour & Slobs	3	4	3	3	0*	4	4*	3	4	Nov, Dec, Feb
Boora Lakes - Back Lakes Finnamores						3		3	3	Oct
North West Leitrim Mountain Lakes		0			0*	4*	1*	2*	4*	
Shannon & Fergus Estuary	3*	2	0*	0*	3*	5*	2*	2*	5*	
Lough Derg (Shannon)	0*	0*	0*	0*	0*	0*	2	2	2	Jan
Cork Harbour	3	2	2	2	1	1	2*	2	2	Sep, Nov, Dec, Mar
River Suir Lower	0	0	3	0*		0	1*	2	3	Nov
Cloghanhill						2		2	2	Sep
North Wicklow Coastal Marshes	0	2	3	1*	0*	2	1	2	3	Sep, Mar
Lough Swilly	1	1	1	1	0	2	1	1	2	Sep, Oct, Nov, Dec
Termoncarragh & Annagh Marsh	1	1		2*		0	2	1	2	Dec, Mar
Lough Kinale & Derragh Lough	1	2		3	0	0	0	1	3	Sep, Oct
Corofin Wetlands	0	0	0*	0*	3*	0*	0*	1*	3*	
Inishcarra Reservoirs	3	0	1	0	2	0*	2	1	2	Oct, Nov, Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.29 Moorhen *Gallinula chloropus* Cearc uisce

Eastern Greenland & Iceland/UK

Site Threshold

International Importance:	NA

I-WeBS Peak season counts

ROI Mean (2018-2023):	332
ROI Peak (2018-2023):	441

Figure 59 Peak season counts of Moorhen at I-WeBS sites. Photo: John Fox.

Irish-wintering Moorhen (Figure 59) belong to the European and North African breeding population. The population is thought to be stable/declining (Wetlands International, 2018). The wintering population is likely largely composed of resident breeding birds, though the species is under-recorded via ringing efforts and there have been some exchanges of ringed birds with northern Europe.

Moorhen is a skulking species that is widely distributed across almost all wetlands habitats, including the smallest of ponds in the countryside and in urban areas. The size, trajectory and distribution of the species is therefore not well monitored through I-WeBS. Moorhen were recorded at 264 I-WeBS sites between 2016/17 and 2022/23 (see Figure 60 and Table 31) .

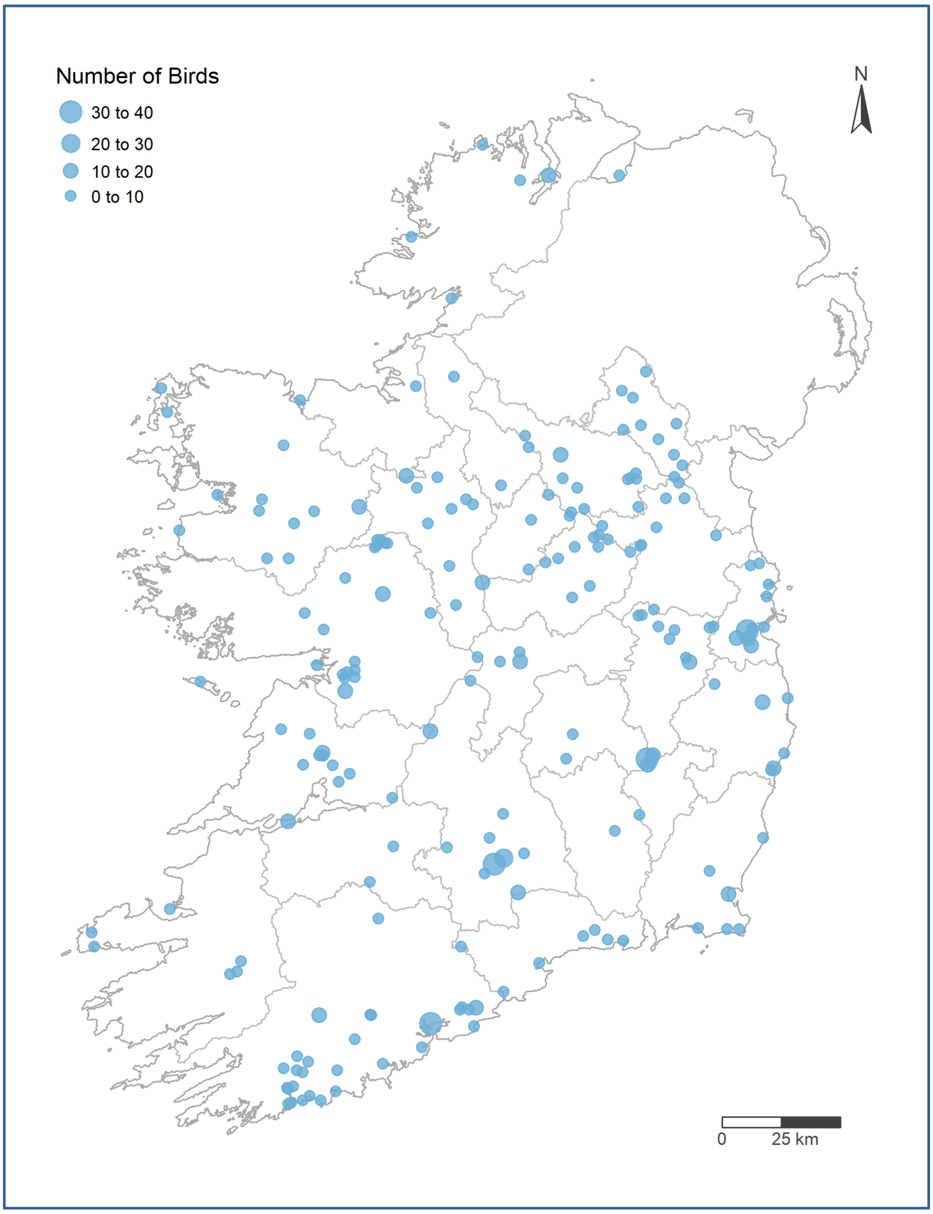


Figure 60 I-WeBS sites where Moorhen were recorded between 2018/19 and 2022/23.

Table 31 The 15 top-ranked I-WeBS sites where Moorhen was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Sugar factory settling ponds Carlow				11		57	48	39	57	Sep, Oct, Dec
Cork Harbour	29	21	19	22*	17	70*	54	36*	70*	Sep, Oct, Dec
Grand Canal (Dublin)	66	32	35	33	26	13*	38	33	38	Sep, Nov, Dec
Rockwell College Lake	16	7	20	39	26	28	38	30	39	Sep, Oct, Jan
Lyonstown Stud Farm	5	5	19	19	17	31	17	21	31	Sep, Oct, Nov
Boora Lakes - Back Lakes Finnamores						19		19	19	Sep
Arklow Ponds	11*	19	19	26		17	9	18	26	Nov, Dec, Jan
Lough Swilly	0	8	18	3	6	10	42	16	42	Sep, Dec, Jan
Shannon & Fergus Estuary	5*	22	11*	1*	19*	33*	16*	16*	33*	
Wexford Harbour & Slobs	19*	23	12	16	11*	10	30*	16*	30*	Nov, Dec, Jan
Bushy Park, Terenure						17	14	16	17	Jan, Mar
River Barrow (Goresbridge-Maganey Bridge)				13*		14*	15*	14*	15*	
Tymon Park				14				14	14	Feb
Ballyhaunis Lakes	0	2	13	4*	11*		5*	13	13	Feb
Lough Ree	3*		18	9*	6		15	13	18	Jan, Mar

* includes a low-quality count *e.g*. estimate.

4.30 Coot *Fulica atra* Cearc cheannann

atra, North-west Europe (wintering)

Wintering Population

All-Ireland (2018-2023):	21,510
ROI (2018-2023):	14,290
ROI I-WeBS SPA Sites (2018-2023):	12,570

Site Threshold

International Importance:	15,500
National Importance:	220

Population Change (ROI)

5-year (2016-2022):	+3.2%
12-year (2009-2022):	-24.3%
26-year (1995-2022):	-12.3%
Historical (1984-2023):	-42.1%
Average annual change (1995-2022):	-0.5%

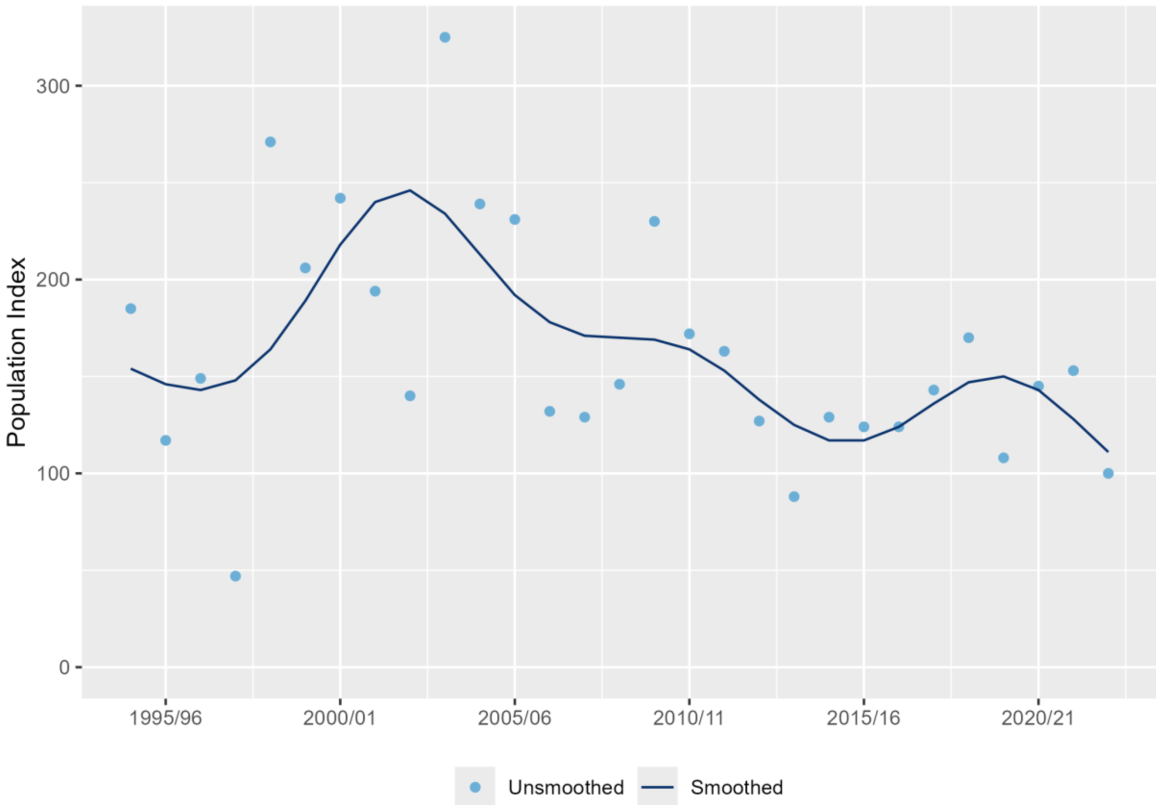


Figure 61 Calculated trends and graphed ROI population index for Coot. Photo: Richard T Mills.

Coot that winter in Ireland belong to the population that breeds in east, north and Western Europe, and winters in north-west Europe, of the nominate race *F. a. atra*. This population is in decline/stable (AEWA, 2022). The Irish wintering population consists of both resident breeding birds and migrants, with the few ringing records that exist for the species in Ireland showing movement with Denmark and indicates connectivity with other parts of northern Europe. Numbers of Coot have decreased considerably since the 1980s and subsequently throughout I-WeBS, albeit with some fluctuation (Figure 61). This trend is broadly consistent with the UK where a decline in the wintering population has been reported (Woodward *et al.*, 2024).

Coot distribution is determined by the accessibility of submerged vegetation for foraging. They were recorded at 185 sites during the current period, predominantly on inland wetlands in the midlands and west. Ten sites supported numbers of national significance (see Figure 62 and Table 32). Many sites recorded annual peak counts outside the core wintering period (November-February) and more restricted coverage of other formerly important sites might account for the lack of notably high counts in recent years. Lough Corrib was their third most important wintering site in ROI in the previous assessment (Lewis *et al.*, 2019) but was not surveyed in full in the years since, and hence does not appear in Table 32 and is vastly underestimated in Figure 62.

Research by Pavón-Jordán *et al.* (2018) indicates that deep-water species such as Coot have exhibited a north-eastwards shift in distribution in Europe in response to higher NAO index values. Research on Lough's Neagh and Beg in Northern Ireland highlighted the role of eutrophication in the local declines of species such as Coot (Tománkova *et al.*, 2013a; 2013b) and 46% of lakes in the ROI failed to achieve good biological quality in recent years (EPA, 2024).

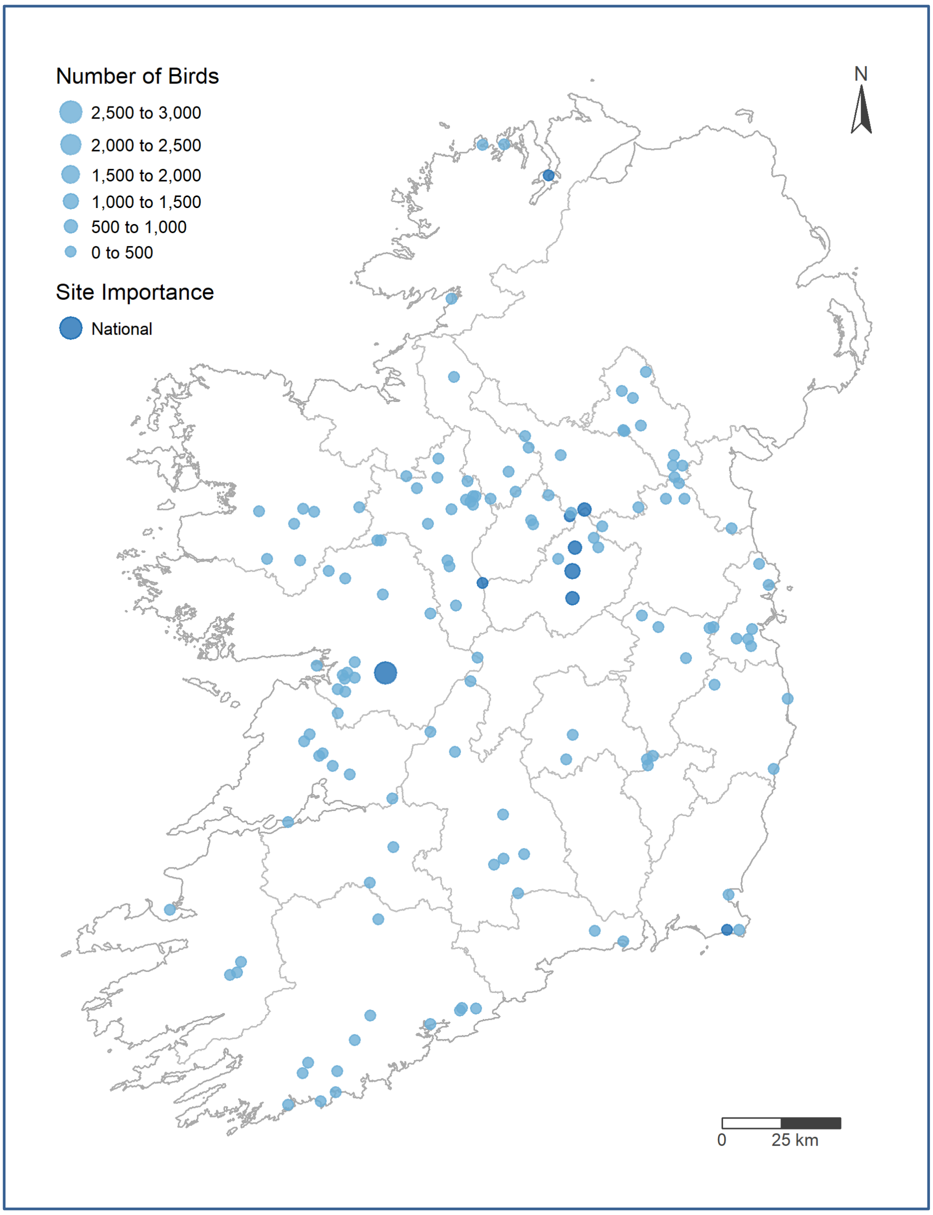


Figure 62 I-WeBS sites where Coot were recorded between 2018/19 and 2022/23.

Table 32 I-WeBS sites supporting internationally and/or nationally important numbers of Coot between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Lough Rea		2304	2660			2903	640*	2782	2903	Oct
Lough Owel	2650	2810	4700	260	73	1250	715	1400	4700	Nov, Dec, Jan
Lough Sheelin	1300*	678	800	926	4*	931	1300*	886	1300*	Nov, Dec, Jan, Feb
Lough Ennell	587	286	1475	719	357	655	511	743	1475	Sep, Dec, Jan, Feb
Lough Derravaragh	1184	1086	899	635	491	399	437	572	899	Sep, Jan
Lough Ree	297*		759	321	176		507	441	759	Oct, Nov, Jan
Lough Kinale & Derragh Lough	373	168		477	500	420	156	388	500	Sep, Nov, Dec
Lough Swilly	765	530	493	570	253	285	220	364	570	Sep, Oct, Nov
Tacumshin Lake	478	150	93	335	288	400	125	248	400	Nov

* includes a low-quality count *e.g.* estimate.

4.31 Little Grebe *Tachybaptus ruficollis* Spágaire tonn

ruficollis, Europe & North-west Africa

Wintering Population

All-Ireland (2018-2023):	3,000
ROI (2018-2023):	1,920
ROI I-WeBS SPA Sites (2018-2023):	1,080

Site Threshold

International Importance:	3,700
National Importance:	30

Population Change (ROI)

5-year (2016-2022):	-0.9%
12-year (2009-2022):	0%
26-year (1995-2022):	+39%
Historical (1984-2023):	-12.4%
Average annual change (1995-2022):	+1.5%

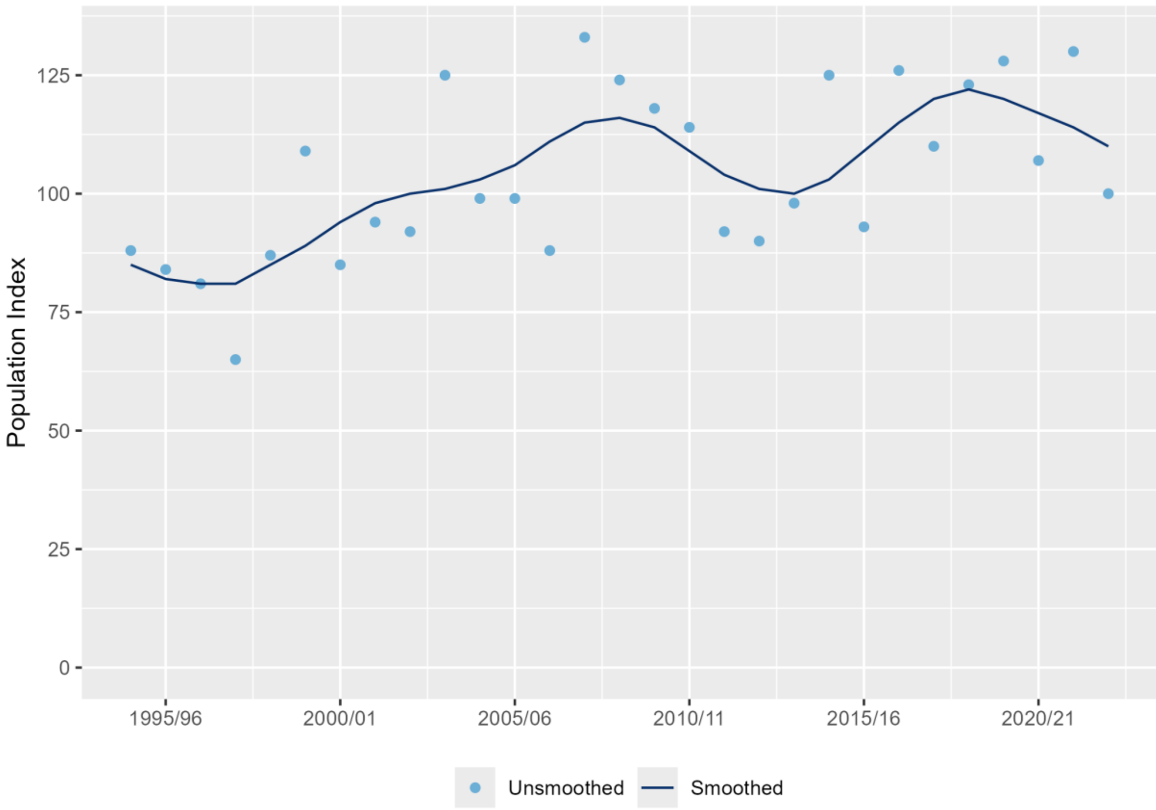


Figure 63 Calculated trends and graphed ROI population index for Little Grebe. Photo: Conor O'Brien.

Little Grebes in Ireland (Figure 63) are of the nominate subspecies, with a flyway population that encompasses most of Europe as well as North Africa. This population has been increasing in recent years (AEWA, 2022). There are no records of Little Grebe moving in to or out of Ireland, suggesting it is a resident population, though they are undoubtedly amongst the least studied waterbirds in Ireland and the UK. In Ireland, although numbers have undergone a small decline since the 1980s, there has been a considerable increase since the mid-to-late 1990s and a positive trend in the medium- and short-term also. The trend in the UK over the last 25- and 10-years has been almost identical.

Little Grebe are widely dispersed on a variety of coastal and inland wetlands and can be quite secretive and hence overlooked during counts, therefore population estimates and trends for this species should be treated with caution. Little Grebe were observed at 268 I-WeBS sites during the recent period, with a mix of coastal bays and large inland lakes across the country hosting numbers of national importance (see Figure 64 and Table 33). Lough Corrib was one of the sites listed as supporting nationally important numbers in the previous assessment (Lewis *et al.*, 2019), but it has not been surveyed in full in recent years. A small proportion of the recent population estimate for ROI (5.5%) was from individuals recorded during NEWS-III (Lewis *et al.*, 2017).

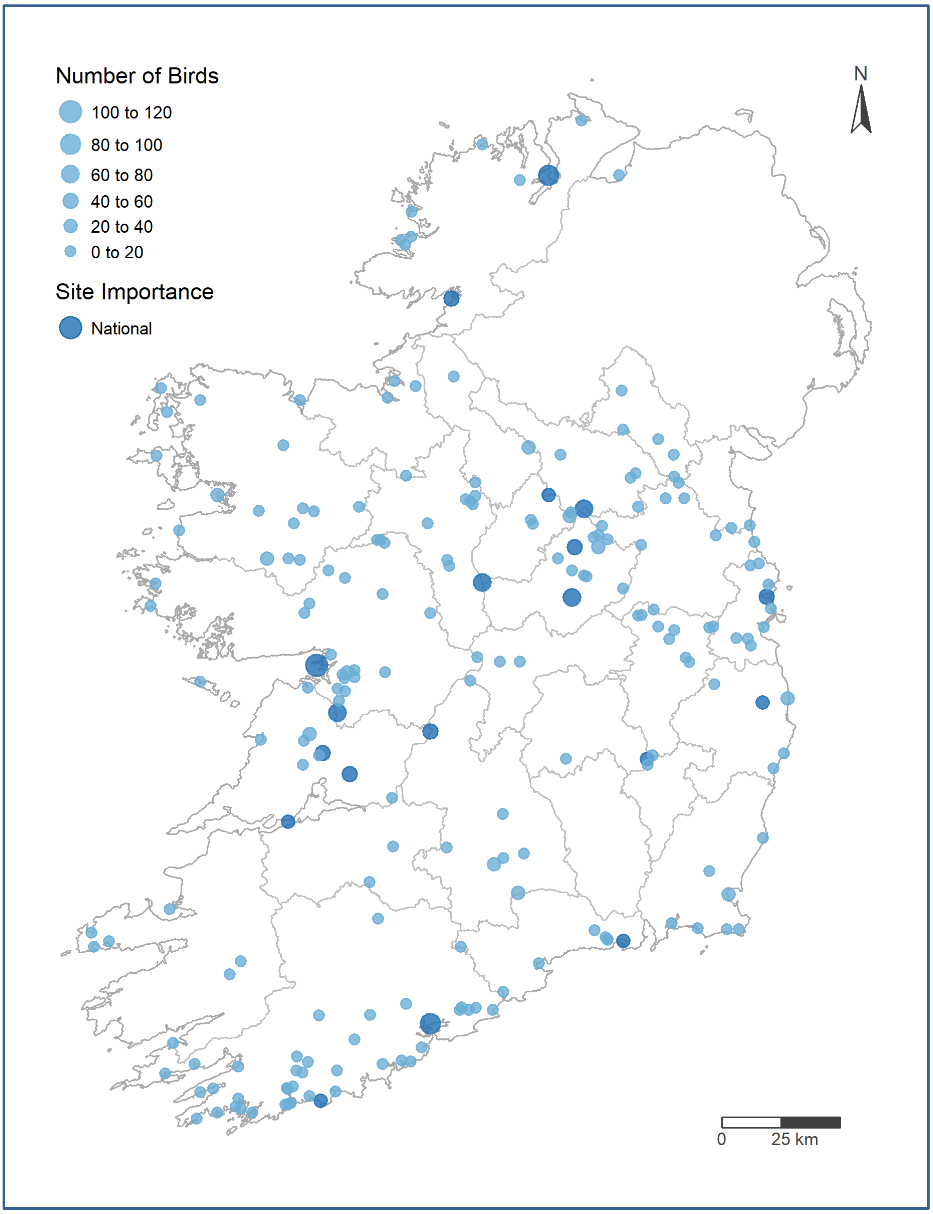


Figure 64 I-WeBS sites where Little Grebe were recorded between 2018/19 and 2022/23.

Table 33 I-WeBS sites supporting internationally and/or nationally important numbers of Little Grebe between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Inner Galway Bay	83	86	120	120		90		110	120	Nov, Jan
Lough Swilly	77	104	99	59	66	79	145	90	145	Sep, Nov
Cork Harbour	104	101	84	134	6	86*	109*	84*	134	Oct, Nov, Dec
Lough Sheelin	404	57	24	122	107*	92	46	78*	122	Nov, Dec, Feb
Lough Ree	27*		145	33	11		110	75	145	Nov, Jan, Feb
Termon Turloughs	3	1	68	64				66	68	Sep
Lough Ennell	129	14	121	178	8	3	16	65	178	Sep, Dec, Jan, Feb
Ballyallia Lake	40	58	52	75	99	31	36	59	99	Nov, Dec, Jan
Lough Derravaragh	66	92	60	31	78	67	42	56	78	Sep, Nov, Jan
Lough Derg (Shannon)	17*	43*	28*	50*	19*	51*	54	54	54	Sep
South East Clare Lakes	67*	65	45	50	59	4*	37*	51	59	Sep, Oct
Broadmeadow (Malahide) Estuary	33	84	39	52	35*	58	51	50	58	Oct, Nov, Dec
Donegal Bay	34	70	62	42			18	41	62	Oct, Nov
Kilkeran Lake	25		38	44	13	26		30	44	Sep, Oct, Jan
Lough Gowna	65	46	56	3	59*	66*	3*	37*	66*	Sep, Oct, Nov
Vartry Reservoir	21				19	51	38	36	51	Sep, Oct, Nov
Sugar factory settling ponds Carlow				28		24	48	33	48	Sep, Mar
Shannon & Fergus Estuary	33*	28	26*	32*	36*	35*	32*	32*	36*	
Tramore Back Strand	43	25	27		2	42	52	31	52	Nov, Dec, Mar

* includes a low-quality count *e.g.* estimate.

4.32 Great Crested Grebe *Podiceps cristatus* Foitheach mór

cristatus, North-west & Western Europe

Wintering Population

All-Ireland (2018-2023):	2,820
ROI (2018-2023):	1,430
ROI I-WeBS SPA Sites (2018-2023):	1,040

Site Threshold

International Importance:	6,300
National Importance:	30

Population Change (ROI)

5-year (2016-2022):	+10.6%
12-year (2009-2022):	-9.6%
26-year (1995-2022):	-16.8%
Historical (1984-2023):	+22.1%
Average annual change (1995-2022):	-0.6%

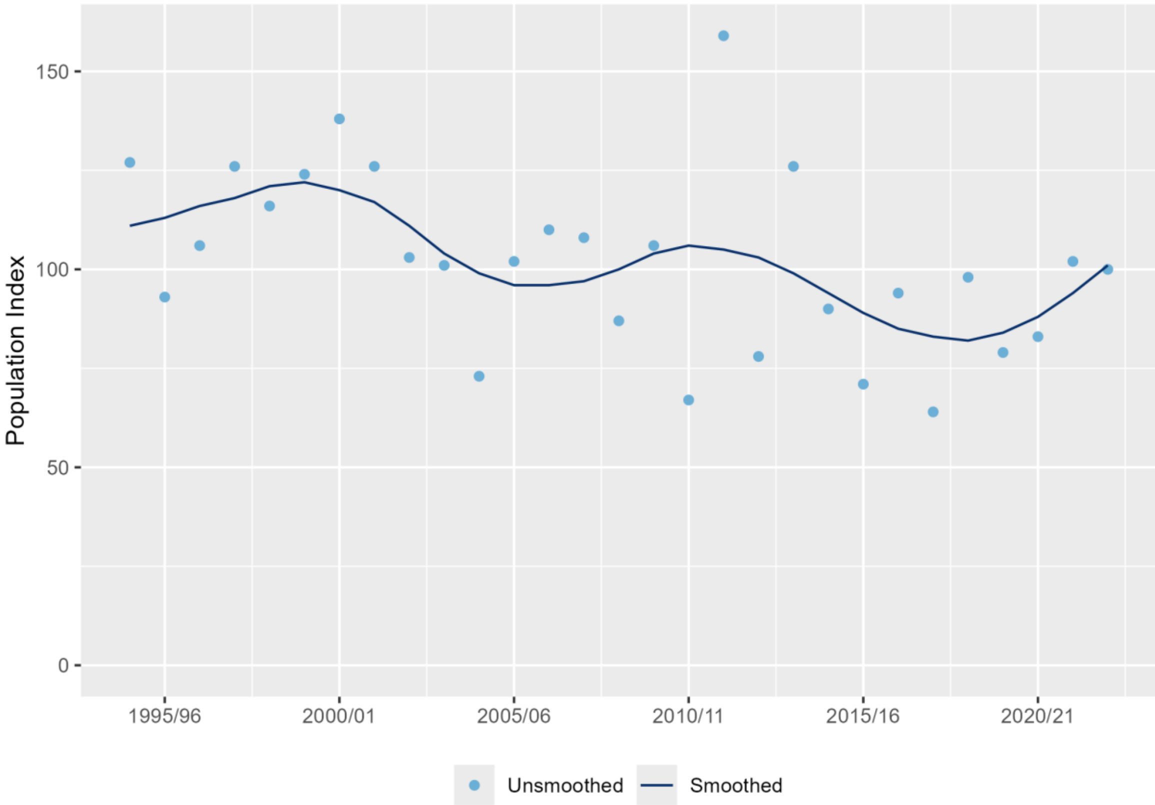


Figure 65 Calculated trends and graphed ROI population index for Great Crested Grebe. Photo: John Fox.

Wetlands International (2018) recognises five populations of Great Crested Grebe. Birds occurring in Ireland belong to the population that breeds across north and west Europe, including Scandinavia, Germany and Italy. The flyway population trend of this species is stable (AEWA, 2022). In Ireland, Great Crested Grebe have declined by a modest amount in the medium- and long-term, as they have in the UK (Woodward *et al.*, 2024), but they increased in ROI in more recent years and overall numbers are above their 1980s levels (Figure 65).

Great Crested Grebe are relatively widespread in Ireland and have been recorded at 173 sites during the recent period. Most records are from inland lakes in the west and north midlands, though they have also been frequently encountered along the east coast (see Figure 66 and Table 34). Of the sites that supported numbers of national importance in recent years, most are coastal estuaries. In addition, the Non-Estuarine Coastal Waterbird Survey in 2015/16 (NEWS-III; Lewis *et al.*, 2017) contributed 7.4% to the ROI population estimate.

Though there is little information available, Great Crested Grebes can form nocturnal roosts at some sites, meaning there can be higher numbers at dawn and dusk that may not be recorded during I-WeBS core counts. Gittings (2017) identified a number of primary and secondary nocturnal roost locations in Cork, Dungarvan and Wexford Harbours. In the case of Cork Harbour, roost counts were 1.6-4.3 times greater than the numbers recorded during the I-WeBS counts for the same periods, in all but one month. Dusk roost counts are therefore recommended to fully account for the importance of a site to the Great Crested Grebe population, and their use of the site.

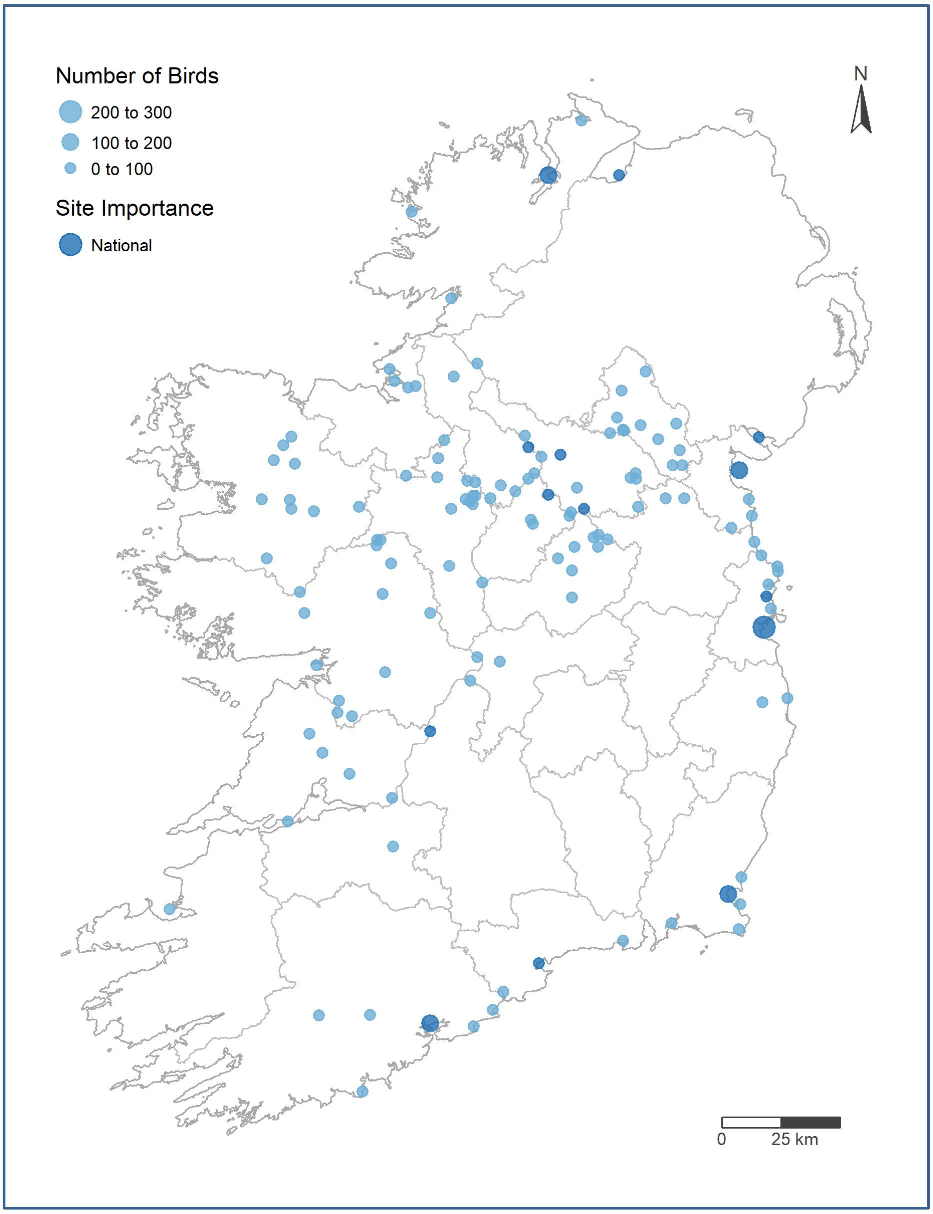


Figure 66 I-WeBS sites where Great Crested Grebe were recorded between 2018/19 and 2022/23.

Table 34 I-WeBS sites supporting internationally and/or nationally important numbers of Great Crested Grebe between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Dublin Bay	192	60	388	107	262*	380*	302*	288*	388	Nov, Mar
Wexford Harbour & Slobs	127	163	154	158	59*	70	129*	127	158	Dec
Cork Harbour	159	174	62	249	0	133	118*	112*	249	Nov, Dec, Jan
Dundalk Bay	113	10	171	14	9	135*	226*	111*	226*	Jan
Lough Swilly	124	158	102	112	54	116	122*	101*	122*	Sep, Oct, Nov, Dec, Jan
Lough Sheelin	86	25	45	85	10*	73	110	78	110	Dec, Jan, Feb
Lough Derg (Shannon)	58*	25*	14*	26*	57*	31*	75	75	75	Sep
Lough Foyle (WeBS)	43	55	35	43	24	32	181	63	181	Sep, Oct, Dec, Jan
Broadmeadow (Malahide) Estuary	83	54	29	26	15*	115	65	59	115	Nov, Dec, Feb
Carlingford Lough (WeBS)	100	72	28	90	0*	2*	31	50	90	Sep, Jan
Dungarvan Harbour	84	14	29	16	59	89	37	46	89	Dec, Jan
Lough Gowna	34	24	59	3	56*	69	3*	44	69	Sep, Oct
Lough Oughter Complex	54*	9	10*	3*	103*	16*		33*	103*	
Ballinamore Lakes	15	12	32	16*	6*	13*	15*	32	32	Jan

* includes a low-quality count *e.g.* estimate.

4.33 Slavonian Grebe *Podiceps auritus* Foitheach cluasach

auritus, North-west Europe (large-billed)

Site Threshold

International Importance:	50

I-WeBS Peak season counts

ROI Mean (2018-2023):	18
ROI Peak (2018-2023):	36

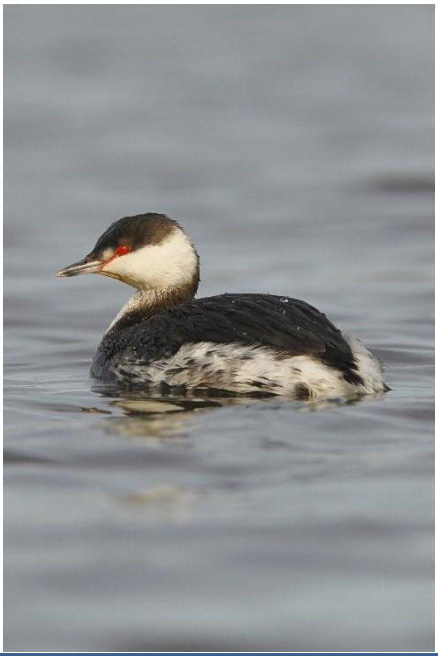


Figure 67 Peak season counts of Slavonian Grebe at I-WeBS sites. Photo: Ben Andrew.

Slavonian Grebe (Figure 67) that occur in Irish waters are part of the north-west European population, the current population trend of which is uncertain (Wetlands International, 2024). They are relatively scarce in Ireland and are likely underestimated through the standard I-WeBS methodology as they can occur some distance offshore, so no trend estimate is provided, and counts should be treated with caution. They were recorded at 22 I-WeBS sites in the recent survey period, four of which had peak counts of greater than 10 individuals in the last five years (see Figure 68 and Table 35).

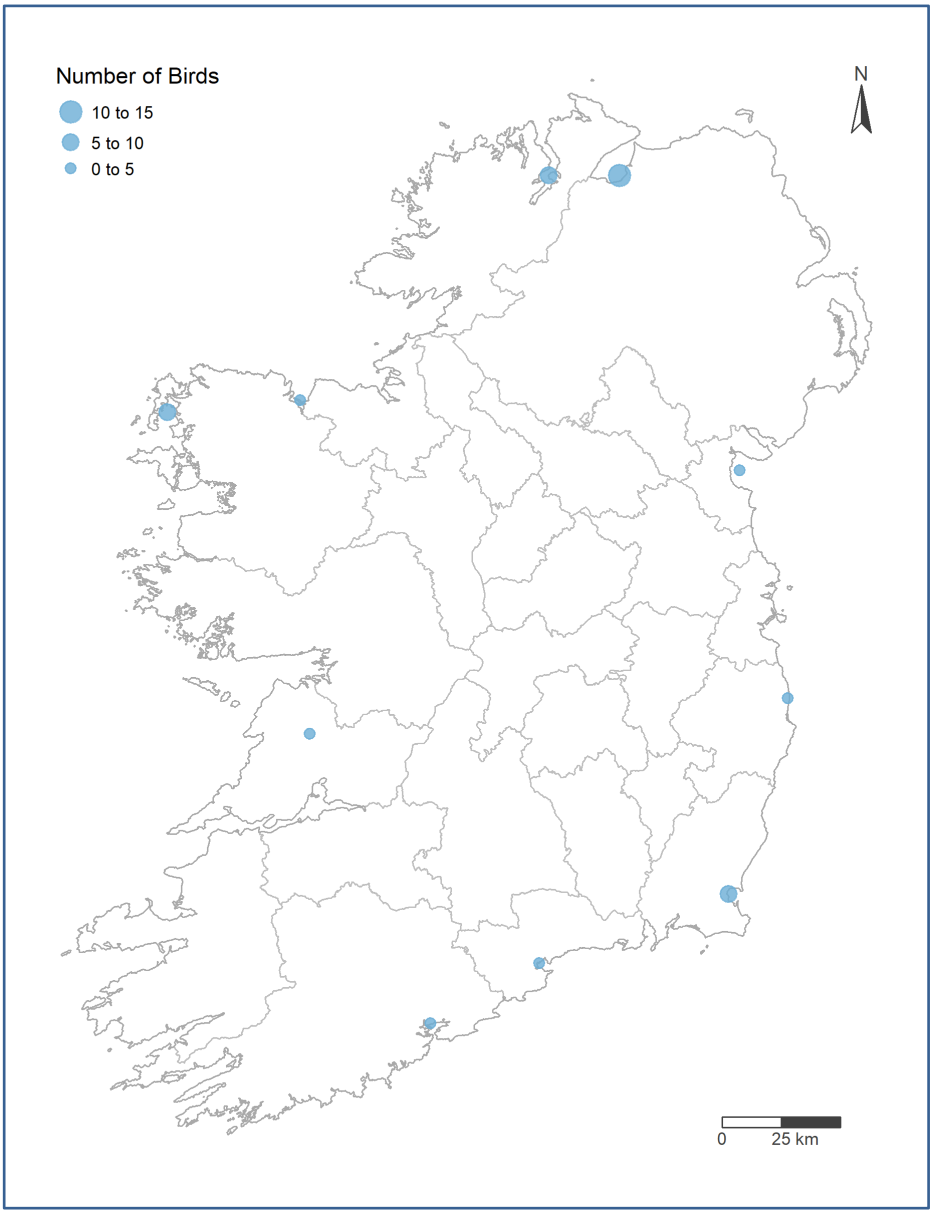


Figure 68 I-WeBS sites where Slavonian Grebe were recorded between 2018/19 and 2022/23.

Table 35 All I-WeBS sites where Slavonian Grebe was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Lough Foyle (WeBS)	6	10	14	3	7	5	34	13	34	Oct, Dec, Jan, Mar
Blacksod & Tullaghan Bays	12	21	6	16*	6*	7	7*	8*	16*	Sep, Nov, Dec
Wexford Harbour & Slobs	11	14	15	6	1*	0	2*	7	15	Nov, Jan
Lough Swilly	1	5	5	13	0	11	2	6	13	Sep, Nov, Jan, Mar
Dundalk Bay	5	4	6	2	0	0*	1*	3	6	Jan, Feb
Corofin Wetlands	0	1	4*	4*	0*	0*	2*	2*	4*	
Killala Bay	1	1	0	1	1	0	1	1	1	Sep, Oct, Nov, Dec
Cork Harbour	0	0	1	1	0	1	0	1	1	Sep, Nov, Dec, Feb, Mar
Dungarvan Harbour	0	1	0	0	0	2	2	1	2	Nov, Dec
North Wicklow Coastal Marshes	0	0	0	0	3*	0	0	1*	3*	Sep, Nov

* includes a low-quality count *e.g.* estimate.

4.34 Oystercatcher *Haematopus ostralegus* Roilleach

ostralegus, Europe/Southern & Western Europe & North-west Africa

Wintering Population

All-Ireland (2018-2023):	57,220
ROI (2018-2023):	40,130
ROI I-WeBS SPA Sites (2018-2023):	21,920

Site Threshold

International Importance:	8,200
National Importance:	570

Population Change (ROI)

5-year (2016-2022):	-9.4%
12-year (2009-2022):	-21.3%
26-year (1995-2022):	-14.3%
Historical (1984-2023):	-45.3%
Average annual change (1995-2022):	-0.6%

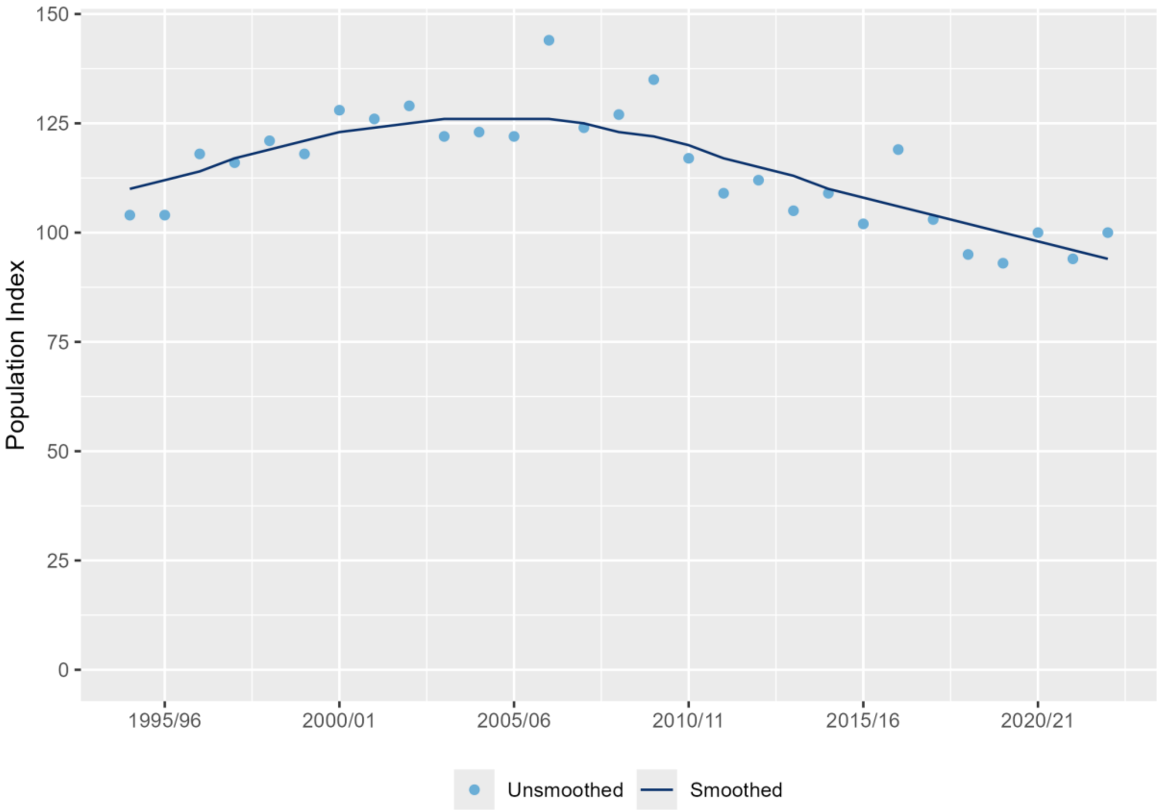


Figure 69 Calculated trends and graphed ROI population index for Oystercatcher. Photo: Brian Burke.

Ireland's wintering Eurasian Oystercatcher are of the nominate population that breeds in northern and Western Europe, and that winters in Western Europe and northern and western Africa (Delany *et al.*, 2009). The majority of Oystercatcher wintering here are from Iceland, the Faroes and Scotland, as well as an unknown proportion of the Irish-breeding population. At flyway level this Oystercatcher population is thought to be stable or decreasing (Wetlands International, 2024). The ROI population is also in decline, despite an increase from the mid-1990s to early 2000s, and numbers in recent years are the lowest they have been since I-WeBS began, and very significantly lower than in the 1980s (Figure 69). The UK has experienced broadly similar patterns of decline, down by 21% since 1996/97 and 9% since 2011/12 (Woodward *et al.*, 2024), though notably the UK hosts a greater proportion of birds from Scandinavia and Northern Europe.

Despite breeding at some large lakes inland, Oystercatcher maintain a strictly coastal distribution in Ireland in winter (Figure 70). Though they will spend some time feeding on grassland, these are usually a few kilometres from the coast at most and they return to the coast to roost. Oystercatcher were recorded at 118 I-WeBS sites in recent years. Most of the sites that supported numbers of national importance in recent years were on the north-east coast and in Donegal/Sligo in the north-west (Table 36). The majority of important Oystercatcher sites have experienced declines and a number of sites which previously supported numbers of national importance (Lewis *et al.*, 2017) and which have received good levels of I-WeBS survey coverage in recent years, no longer meet the 1% national threshold. These include Wexford Harbour & Slobs, Tralee Bay, Lough Gill & Akeragh Lough, Castlemaine Harbour & Rossbehy, and Bannow Bay. Numbers at Tramore Back Strand have increased to the point that it supported numbers of national importance in recent years and Carlingford Lough also recorded a significant increase. In addition to those estuarine and coastal habitats covered under I-WeBS, non-estuarine coast is also very important for Oystercatchers and 36% of the recent population estimate stems from individuals recorded during NEWS-III (Lewis *et al.*, 2017).

Regarding the pressures faced by wintering Oystercatcher in Ireland, disturbance from sports, tourism and leisure activities was the most frequently cited pressure at I-WeBS sites for all species groups, in a survey of I-WeBS counters. Of those, dog walking was by far the most frequently cited activity causing disturbance to wintering waterbirds, as well as disturbance from boats and kayaks, from hunting, aquaculture, angling and walkers, depending on the site. Lewis & Adcock (2017) found that waterbird activity decreased as recreational disturbance (walkers, dogs, kite surfers *etc*.) increased on Dollymount Strand (Dublin Bay). One previous study found feeding rates of Oystercatcher reduced by 33%-50% because of human disturbance (Goss-Custard & Verboven, 1993). Contrastingly, Collop *et al.* (2016) found wintering waders on The Wash (UK) were unlikely to be significantly impacted by human disturbance and expect that to be the case at other estuaries with similar conditions. The issue of disturbance and its impact is therefore highly complex and likely site and species specific, and necessitates much further study in an Irish context.

Separately, there is a high degree of overlap between sites relied upon by wintering Oystercatchers and those where aquaculture and shellfish harvesting is carried out. Atkinson *et al.* (2010) found that the removal of mussel beds in The Wash led to major shifts in the water assemblage, including declines in Oystercatcher. As well as the direct loss of food or habitat, harvesting activities have the potential to greatly increase disturbance. The impact of aquaculture is likely to vary by site, scale and the level of regulation of disturbance.

Lastly, a recent study by Goss-Custard *et al.* (2024) examined reasons for a disproportionate decline of Oystercatchers in the Exe estuary in the south-west of England and determined that kleptoparasitism by Carrion Crows *Corvus corone* and Herring Gulls was the most likely driver. Hooded Crows are abundant in many Irish estuaries, as are Herring Gulls, and while these effects might be site specific they at least highlight the sort of novel problems faced by species in these contexts, and the potential for significant levels of impact from sources that have as yet received little attention.

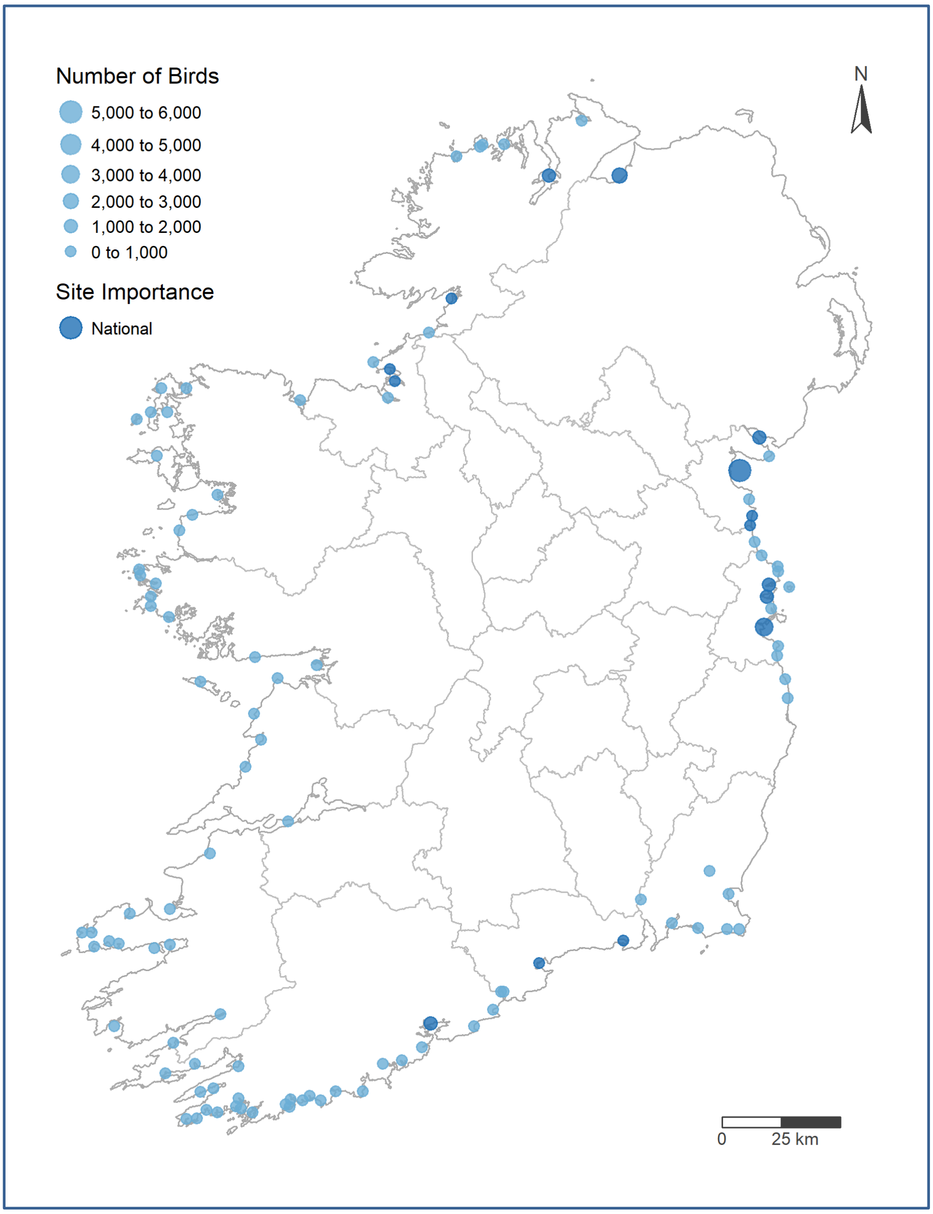


Figure 70 I-WeBS sites where Oystercatcher were recorded between 2018/19 and 2022/23.

Table 36 I-WeBS sites supporting internationally and/or nationally important numbers of Oystercatcher between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Dundalk Bay	9660	6113	5586	3976	7120	2936*	6504*	5561	7120	Jan
Dublin Bay	4042	3740	3378	3313	2466	3878	4238*	3455*	4238*	Oct, Nov, Dec, Jan
Lough Foyle (WeBS)	3979	3139	2721	2793	2722	2718	2575	2706	2793	Nov, Dec, Feb
Lough Swilly	2157	2126	1826	1467	1190	1456	1522	1492	1826	Sep, Dec, Jan
Carlingford Lough (WeBS)	1314	1557*	1448	626*	1*	710*	1476	1462	1476	Jan
Broadmeadow (Malahide) Estuary	1523*	1242	1150	1863*	1438*	1247	1538	1447*	1863*	Sep, Oct, Nov, Dec, Jan
Cork Harbour	1397	1087	1333	997*	1025	1438	1560	1339	1560	Sep, Oct, Dec, Jan
Rogerstown Estuary	1057	1161	852	984	1304	1224	912	1055	1304	Sep, Oct, Nov
Clogher Head - Baltray						810		810	810	Oct
Donegal Bay	1266	924	870	658			642	723	870	Oct, Nov
Boyne Estuary	704	1042	944	1188	549	181	204*	716	1188	Sep, Oct
Dungarvan Harbour	790	849	704	693	509	943	644	699	943	Nov, Dec, Jan
Sligo Harbour	685	614	434	293		983	723	608	983	Oct, Jan
Tramore Back Strand	818	699	580		409	657	689	584	689	Nov, Jan, Feb, Mar
Drumcliff Bay Estuary	901	838	758	728*		579	264	582*	758	Nov, Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.35 Lapwing *Vanellus vanellus* Pilibín

Europe, Western Asia/Europe, Northern Africa & South-west Asia

Wintering Population

All-Ireland (2018-2023):	81,580
ROI (2018-2023):	67,700
ROI I-WeBS SPA Sites (2018-2023):	47,740

Site Threshold

International Importance:	72,300
National Importance:	820

Population Change (ROI)

5-year (2016-2022):	-8.4%
12-year (2009-2022):	-27.9%
26-year (1995-2022):	-72.9%
Historical (1984-2023):	-62.7%
Average annual change (1995-2022):	-2.8%

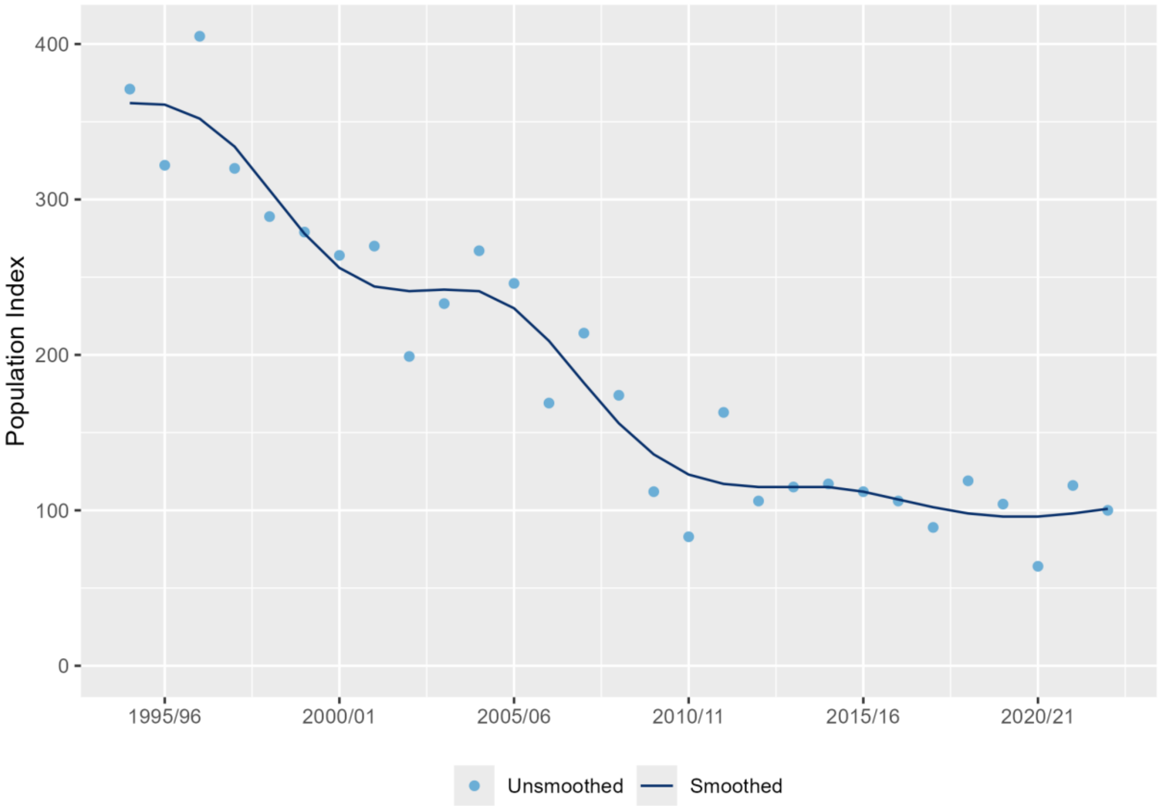


Figure 71 Calculated trends and graphed ROI population index for Lapwing. Photo: John Fox.

Wetlands International (2018) now recognises a single population of Northern Lapwing (hereafter Lapwing) that breeds across Europe and western Asia, and winters across Europe, Asia minor, North Africa, south-west and central Asia and the Caspian coast. This population has been decreasing in recent years (Wetlands International, 2024). Those Lapwing wintering in Ireland come from the Irish, British, Northern European and Scandinavian breeding areas. Lapwing are sensitive to severe winters, and movements south to France and Iberia during particularly cold periods are known (Wernham *et al.,* 2002). They have undergone very large declines since the 1980s and 1990s, with continuing significant losses in the last 12 years, and a more modest but clear decline since 2016/17 (Figure 71). The UK has reported similar losses, with a decline of 46% since 1996/97 and 10% since 2011/12.

Wintering Lapwing are widespread across coastal and inland wetlands all over Ireland throughout the winter. Balmer *et al.* (2013) reported their presence in 72% of squares on the island of Ireland in winter. They will also leave bigger wetlands during the day to feed on agricultural grassland and other habitats that are not well monitored through I-WeBS. For this reason, numbers estimated within the I-WeBS site network are an underestimate of the true population size, though the trends are reliable. Lapwing were recorded at 251 sites during the recent period, with 23 of these exceeding the 1% threshold of national importance (Figure 72). Though levels of survey coverage will have varied compared to the previous period (Lewis *et al.*, 2017) it is noteworthy that some of the sites that supported the greatest number of Lapwing have remained stable or increased amidst an overall population decline. This is the case for Little Brosna Callows, Wexford Harbour & Slobs, Tralee Bay, Lough Gill & Akeragh Lough, Southern Roscommon Lakes, Bannow Bay and others, some of which have been consistently well surveyed over the years (Table 37).

As with Curlew, there is an abundance of evidence to suggest that low levels of breeding success as a result of habitat loss and degradation across much of the range of Lapwing is the main driver for the population decline (*e.g.* Wilson *et al.*, 2005; Milsom, 2005; Bellebaum & Bock, 2009; Robinson *et al.*, 2014). There is also evidence of a shift in non-breeding distribution in response to increased winter temperatures (Jukema *et al.*, 2001; Rehfisch *et al.*, 2004; Gillings *et al.*, 2006).

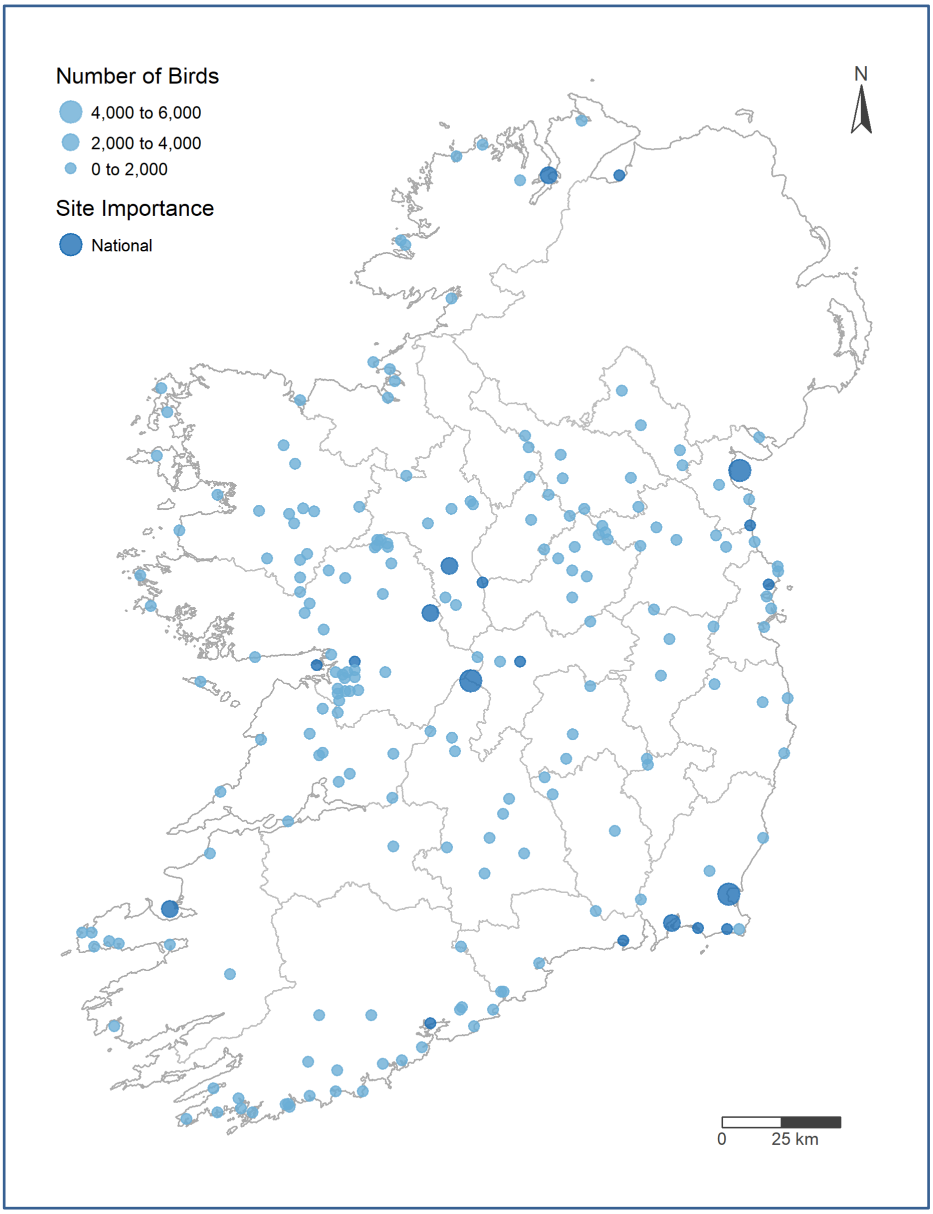


Figure 72 I-WeBS sites where Lapwing were recorded between 2018/19 and 2022/23.

Table 37 I-WeBS sites supporting internationally and/or nationally important numbers of Lapwing between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Little Brosna Callows	2770	3463	4470	5048	1721*	6924	10023*	5637*	10023*	Nov, Dec, Jan, Feb
Wexford Harbour & Slobs	3810	2950	6880	3994	3460*	2957*	2400*	5437	6880	Dec, Jan
Dundalk Bay	6732	4460	4281	5545	2250	1340*	2827*	4025	5545	Jan
Tralee Bay, Lough Gill & Akeragh Lough	130	436	3500	800*	1071*	2047*	345*	3500	3500	Dec
Shannon & Fergus Estuary (Aerial)					3435			3435	3435	Dec
Southern Roscommon Lakes	1513*	1861	3660	472*	60*	2300*	2143	2902	3660	Jan
Little Brosna Callows (Aerial)			2801		2100			2450	2801	Dec, Jan
Bannow Bay	1240	1380	2860	1000	1850	1480	4500	2338	4500	Dec, Jan, Feb
Lough Swilly	2604	2019	3829	1870	950	2290	1362	2060	3829	Nov, Dec
River Suck	2230*	1430*	3505*	1705	19*	333*	2342	2024	3505*	Oct, Nov, Jan
Rogerstown Estuary	2845	1290	2112	1720	3204*	764	2189	1998*	3204*	Jan, Feb
River Suck (Aerial)			653*		1740			1740	1740	Dec
Shannon Callows (Aerial)			1284		2127*			1706*	2127*	Nov, Jan
Lough Foyle (WeBS)	4427	2515	2400	1417	960	1474	1529*	1563	2400	Nov, Dec, Jan
Tacumshin Lake	3000	1770	3250	1800	520	1030	800	1480	3250	Nov, Dec, Jan
The Cull & Killag (Ballyteige)	1300	1003	1900	1570	1000	1680	1050	1440	1900	Dec, Jan
Boyne Estuary	1861	1514	1490	1434	93	2635	917	1314	2635	Oct, Nov, Jan
Boora Lakes - Back Lakes Finnamores						1258*		1258*	1258*	
Inner Galway Bay	1748	2020	1126	1500		803		1143	1500	Jan
Cork Harbour	982	1658*	1384	1058	857	828*	1309*	1100	1384	Nov, Dec, Jan
Lough Ree	1823*		1695	506	1085		635	980	1695	Nov, Jan, Feb
Rahasane Turlough	1329	650	450*	1000*	258*	1400	275	838	1400	Oct, Jan
Tramore Back Strand	1251	1454	996		0	1255	1091	836	1255	Nov, Dec, Mar

* includes a low-quality count *e.g.* estimate.

4.36 Golden Plover *Pluvialis apricaria* Feadóg bhuí

altifrons, Iceland & The Faroes/East Atlantic Coast

Wintering Population

All-Ireland (2018-2023):	90,770
ROI (2018-2023):	82,190
ROI I-WeBS SPA Sites (2018-2023):	57,640

Site Threshold

International Importance:	12,000
National Importance:	910

Population Change (ROI)

5-year (2016-2022):	-12.3%
12-year (2009-2022):	-20.9%
26-year (1995-2022):	-48.1%
Historical (1984-2023):	-39.7%
Average annual change (1995-2022):	-1.9%

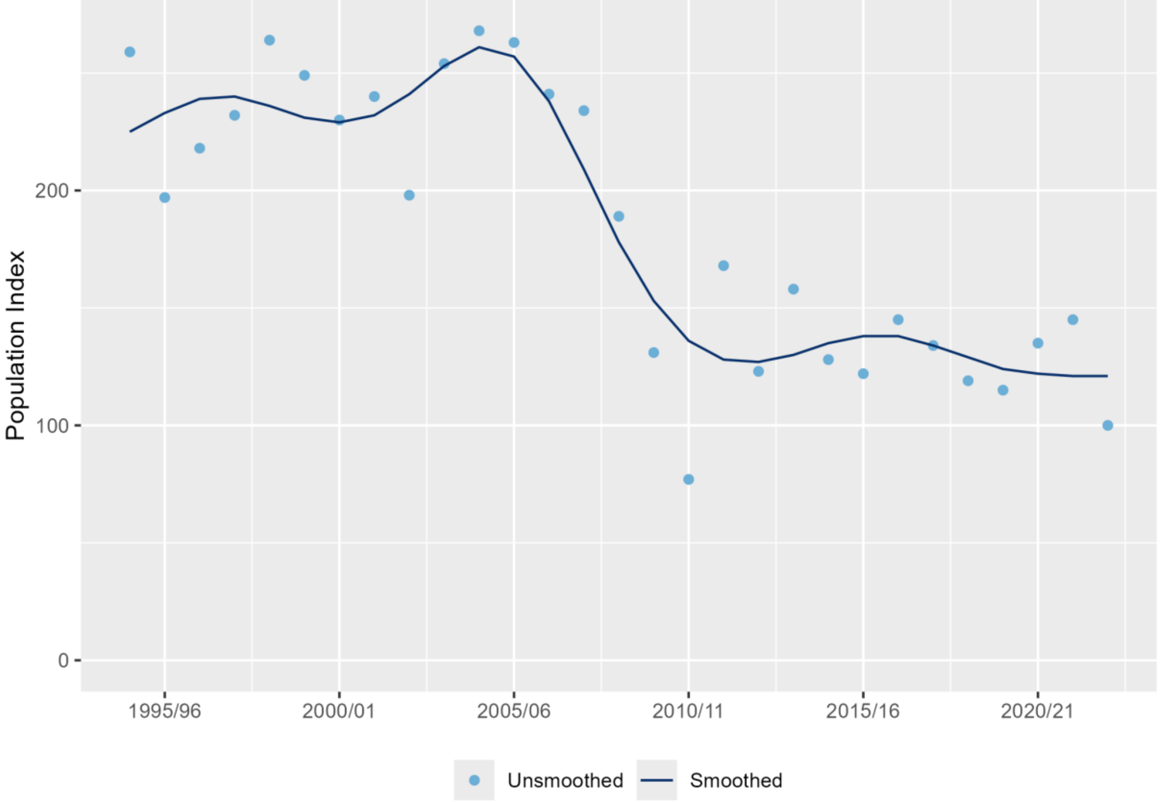


Figure 73 Calculated trends and graphed ROI population index for Golden Plover. Photo: Denis Cachia.

The majority of Eurasian Golden Plover that winter in Ireland are from the *altifrons* population that breed in Iceland, the Faroes and Greenland. This population winters in Ireland, Britain, France, Iberia and north-west Africa. It is unknown where the *apicaria* population, which breeds in Ireland, migrates to spend winter, but it is likely that a proportion remain in the country, with the rest moving to winter elsewhere (Wernham *et al.,* 2002). The flyway population is in decline

(AEWA, 2022). The ROI population has undergone a large decline since I-WeBS began and even over the last five years there has been a significant decrease in numbers here (Figure 73). In the UK they have declined by 21% since the mid-1990s and by only 7% since 2011/12, but comparisons are complicated by the fact that Britain hosts both the Icelandic and Northern European populations of Golden Plover. Wintering Golden Plover are widely distributed throughout Ireland, both inland and along the coast. It is important to note that they often feed on grasslands during the day and so there is potential for them to be missed during counts at I-WeBS wetlands. The most recent Bird Atlas (Balmer *et al.*, 2013) found Golden Plover present across 51% of Ireland in the winter. With this in mind, the population estimates here should be considered representative of the cohort of the population using I-WeBS sites but slightly underestimates the entire national population, though there is sufficient representative data to be confident of the direction and scale of the trends.

Golden Plover were recorded at 159 I-WeBS sites in recent years, including 29 sites supporting numbers of national importance (See Figure 74 and Table 38). Based on the available data, three fewer sites in this period had a 5-year mean that exceeded 5,000 individuals, namely Ballymacoda, Lough Foyle and Boyne Estuary, though aerial surveys of the Shannon Callows found numbers above that. There is a broad distribution of sites supporting the largest numbers of Golden Plover, but with some clusters along the south coast, the midlands and Galway, and to a lesser degree elsewhere. Lough Corrib was one of the sites listed as supporting nationally important numbers in the previous assessment but which has not been surveyed in full in recent years.

The reason for the declines in wintering Golden Plover here are not well known. A substantial eastward shift was noted in the British population suggesting that short-stopping is a possible factor at play there (Gillings *et al.*, 2006) though it is not clear how that might relate to Ireland and the Icelandic-breeding population.

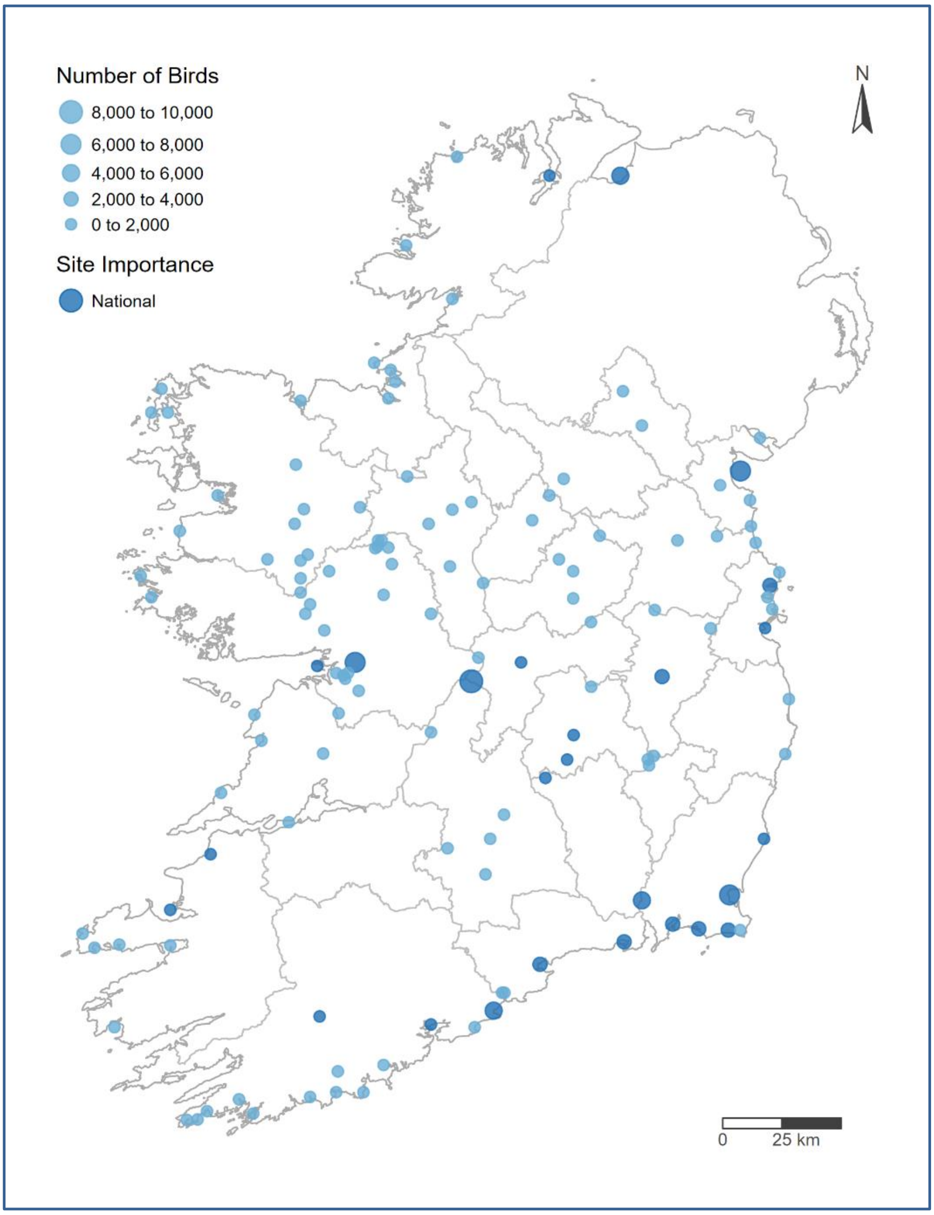


Figure 74 I-WeBS sites where Golden Plover were recorded between 2018/19 and 2022/23.

Table 38 I-WeBS sites supporting internationally and/or nationally important numbers of Golden Plover between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Little Brosna Callows	5101	5600	6800	7050	6220*	13892	5500*	9247	13892	Dec, Jan
Wexford Harbour & Slobs	6931	5800*	7700	6800	5040*	9133	6850*	7878	9133	Nov, Dec, Jan
Dundalk Bay	11200	6840	6964	10560	5730	5558*	7802*	7751	10560	Jan, Mar
Little Brosna Callows (Aerial)			4400		10580			7490	10580	Nov, Feb
Rahasane Turlough	2600	2000	4000*	4000*	2000*	6850	3000*	6850	6850	Jan
Shannon Callows (Aerial)			6500		2860*			6500	6500	Feb
Lough Foyle (WeBS)	5000	4940	8201	2202	2198	5505	4600	4541	8201	Oct, Nov, Feb, Mar
Ballymacoda	9250	4200	7650	5200	74		3750	4168	7650	Oct, Nov
River Barrow (Cheekpoint-New Ross)	4000	5500	5000	5000*	6000*	3000	1200	4040*	6000*	Oct, Nov
Tacumshin Lake	5000	1200	4000	2500	4000	3000	5000	3700	5000	Nov, Dec, Jan, Feb
Rogerstown Estuary	2152	700	3683	85	4000*	2000*	6400*	3234*	6400*	Nov, Jan, Mar
Dungarvan Harbour	2750	4104	2501	2750	1	6216*	3800*	3054*	6216*	Nov, Dec, Feb
Tramore Back Strand	333	3000	3500		5	3007	5000*	2878*	5000*	Dec, Feb, Mar
Kildare Curragh	3000					2800		2800	2800	Oct
Bannow Bay	5000	5200	5000	1000	3030	700	4000	2746	5000	Oct, Nov, Dec
Shannon & Fergus Estuary (Aerial)					2600			2600	2600	Dec
The Cull & Killag (Ballyteige)	3000	2500	2500	700	5000	3000	1500	2540	5000	Nov, Dec, Mar
Boora Lakes - Back Lakes Finnamores						1950*		1950*	1950*	
River Nore							1850	1850	1850	Oct
Baun							1700	1700	1700	Nov
Tralee Bay, Lough Gill & Akeragh Lough	5500*	3800	600	4*	2*	3420*	3300*	1465*	3420*	Sep, Oct, Dec, Mar
Cork Harbour	600*	1450	2650	2000*	36*	2500*	110	1459*	2650	Oct, Jan
Cahore Marshes					661	3050*	650	1454*	3050*	Dec, Jan, Feb
Dublin Bay	1010	2501*	4420*	1610	95	35	490	1330*	4420*	Oct, Nov, Dec, Mar
Cashen River & Estuary	900	970	1200					1200	1200	Jan
Inishcarra Reservoirs	2000	1214	2000	1000	600	600*	600*	1200	2000	Nov, Dec, Jan

Site								**2018/19 - 2022/23**		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Durrow Curragh (River Erkina)	1	60	0	2300	400	2150	500	1070	2300	Sep, Oct, Nov, Jan, Feb
Lough Swilly	2316	2600	1600	888	45	1405	779*	984	1600	Sep, Nov, Feb
Inner Galway Bay	1437	2486	1264	1325		319		969	1325	Nov, Mar

* includes a low-quality count *e.g*. estimate.

4.37 Grey Plover *Pluvialis squatarola* Feadóg ghlas

squatarola, Western Siberia/Western Europe & Western Africa

Wintering Population

All-Ireland (2018-2023):	2,220
ROI (2018-2023):	2,030
ROI I-WeBS SPA Sites (2018-2023):	1,810

Site Threshold

International Importance:	2,000
National Importance:	20

Population Change (ROI)

5-year (2016-2022):	-14.3%
12-year (2009-2022):	-30.8%
26-year (1995-2022):	-66%
Historical (1984-2023):	-52.5%
Average annual change (1995-2022):	-2.5%

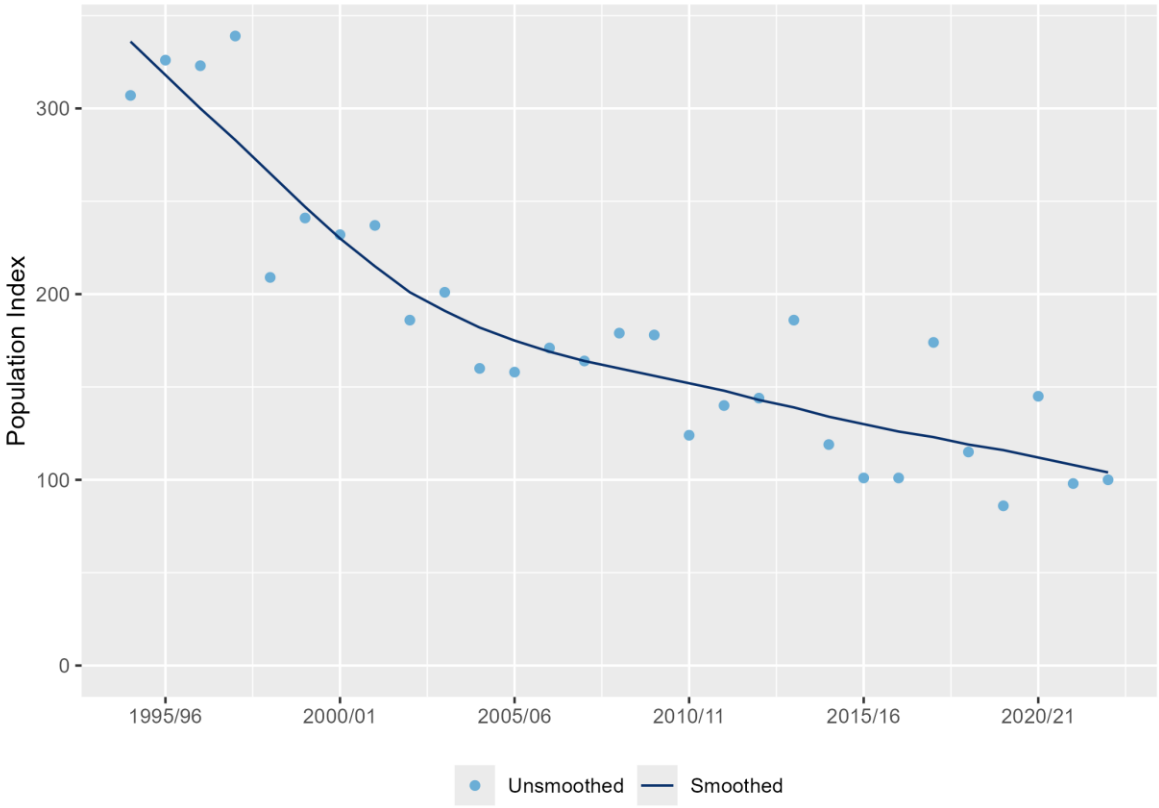


Figure 75 Calculated trends and graphed ROI population index for Grey Plover. Photo: Richard T Mills.

Grey Plover that winter in Ireland are of the nominate subspecies *squatarola* which breeds across Arctic Russia east to the Taymyr Peninsula & north-east Canada. The non-breeding range extends from the Wadden Sea, Ireland and Britain to South and West Africa (Wetlands International, 2024), which has recently been revealed through satellite tracking (Exo *et al.*, 2019). Since the start of I-WeBS, the wintering population of Grey Plover in Ireland have undergone a very large decline which has continued into the medium- and short-term (Figure 75). They have declined significantly in the UK over a similar time period; by 35% since 1996/97 and by 7% since 2011/12 (Woodward *et al.*, 2024).

Grey Plover are exclusively found along the coast in Ireland and were recorded at 66 I-WeBS sites in recent years (see Figure 76 and Table 39). Though they were recorded at sites all around the Irish coast there is a concentration of sites in the east and south. The majority of the population uses estuarine habitats within the I-WeBS network but 8.9% of the recent ROI population estimate came from NEWS-III data (Lewis *et al.*, 2017). Despite the national decrease, the wintering population in Dublin Bay has increased considerably (coverage largely the same between the recent and previous periods), and there has been a modest increase at Dundalk Bay. Declines have been evident at well-covered sites including a disproportionately large decline at Wexford Harbour & Slobs, Rogerstown Estuary and Dungarvan Harbour amongst many others. Possible reasons for the discrepancy in the trends between sites warrant further investigation.

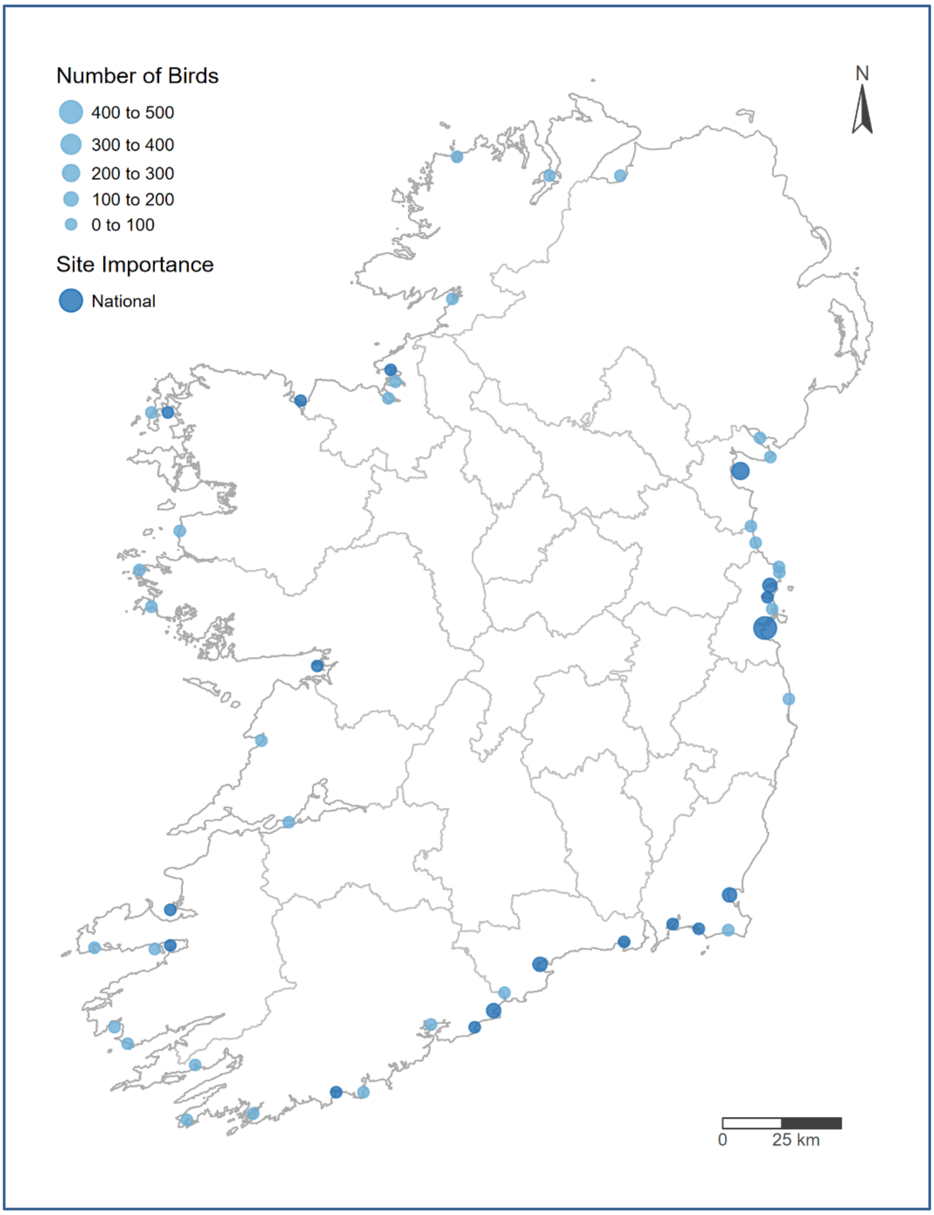


Figure 76 I-WeBS sites where Grey Plover were recorded between 2018/19 and 2022/23.

Table 39 I-WeBS sites supporting internationally and/or nationally important numbers of Grey Plover between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Dublin Bay	245	248	499	560	208	380	346*	412	560	Sep, Oct, Jan, Feb
Dundalk Bay	187	227	157	254	385	193*	260*	265	385	Jan, Feb
Ballymacoda	249	50	114	226	84		290	178	290	Oct, Nov, Feb
Wexford Harbour & Slobs	223	1172	229	111	316*	48	4*	142*	316*	Nov, Dec, Jan
Dungarvan Harbour	263	210	215	160	112	136	80	141	215	Dec, Jan, Feb
Rogerstown Estuary	199	192	227	39	71	82	164	117	227	Sep, Dec, Mar
Inner Galway Bay	29	164	17	102		96		72	102	Nov, Jan, Mar
Broadmeadow (Malahide) Estuary	38	82	50	2*	85*	77	78	68	85*	Nov, Dec, Jan
The Cull & Killag (Ballyteige)	56	35	76	92	32	68	34	60	92	Nov, Dec, Jan
Blacksod & Tullaghan Bays	113	136	113	112*	55*	4	6*	58	113	Nov, Jan
Tramore Back Strand	105	110	90		8	64	65	57	90	Dec, Jan, Feb, Mar
Tralee Bay, Lough Gill & Akeragh Lough	247	20	0	192*	19*	24	42*	55*	192*	Sep, Dec, Jan, Feb
Killala Bay	43	1	0	26	50*	52*	32	32*	52*	Sep, Nov, Jan, Feb
Bannow Bay	58	46	61	21	57	11	11	32	61	Nov, Jan, Feb
Castlemaine Harbour & Rossbehy	46	0	0	66*	21	46*	19*	30*	66*	Oct, Dec, Jan, Mar
Ballycotton Shanagarry	34	39	29	26	25	21	51	30	51	Dec, Jan
Clonakilty Bay	13	29	55	25	2	30	29*	28	55	Dec, Jan
Drumcliff Bay Estuary	48	11	8	13		40	18	20	40	Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.38 Ringed Plover *Charadrius hiaticula* Feadóg chladaigh

hiaticula, Northern Europe/Europe & Northern Africa

Wintering Population

All-Ireland (2018-2023):	12,900
ROI (2018-2023):	11,420
ROI I-WeBS SPA Sites (2018-2023):	3,610

Site Threshold

International Importance:	540
National Importance:	130

Population Change (ROI)

5-year (2016-2022):	+1%
12-year (2009-2022):	-12.9%
26-year (1995-2022):	+5.2%
Historical (1984-2023):	-37.6%
Average annual change (1995-2022):	+0.2%

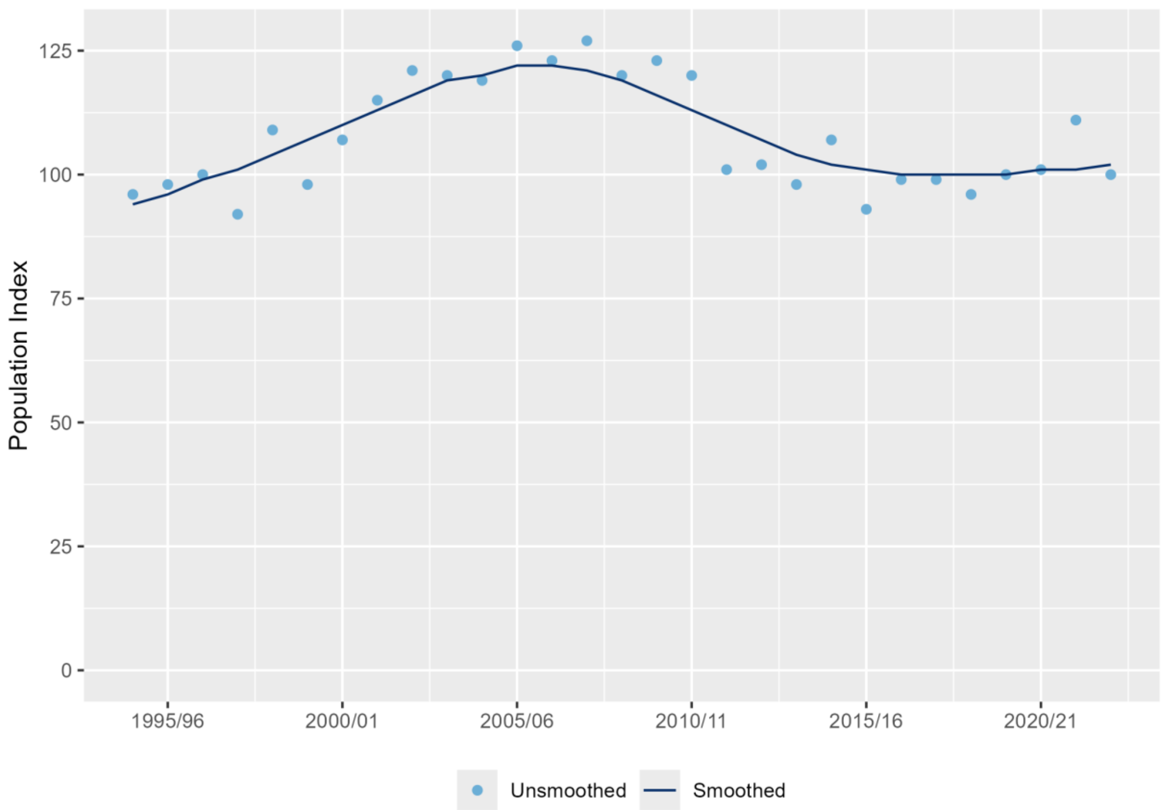


Figure 77 Calculated trends and graphed ROI population index for Ringed Plover. Photo: Ronnie Martin.

Wintering Ringed Plover in Ireland are of the nominate *hiaticula* population that breeds in Northern Europe and winters in Western Europe, the Mediterranean and North Africa (Delaney *et al.*, 2009; Wetlands International, 2024). The Irish wintering population is composed of resident birds as well as migrants from Britain and Northern Europe (Germany, Denmark, Norway, Sweden *etc*.). Birds of the *psammodromus* subspecies breeding in east Canada, Greenland, Iceland and Fennoscandia also stop in Ireland *en route* to wintering areas in Africa (Wernham *et al.,* 2002; Delaney *et al.,* 2009). The flyway population of Northern European *hiaticula* Ringed Plover is increasing/stable (Wetlands International, 2024). The wintering population of Ringed Plover in ROI has fluctuated since the start of I-WeBS, with a small increase compared to the mid-1990s (Figure 77). By comparison, the UK population has declined by 46% over a similar period but is stable over the 10 years to 2021/22 (Woodward *et al.*, 2024).

Ringed Plover were recorded at 98 I-WeBS sites during the recent period, almost all of which were coastal but included some inland areas that are likely breeding sites. They were recorded in 197 sectors (29.4%) in the most recent Non-Estuarine Coastal Waterbird Survey (NEWS-III; Lewis *et al.*, 2017). In total, 51% of the recent population estimate for the ROI was from NEWS-III. There were sites supporting numbers of national importance on all coasts, but with a notable concentration in the north-west (see Figure 78 and Table 40).

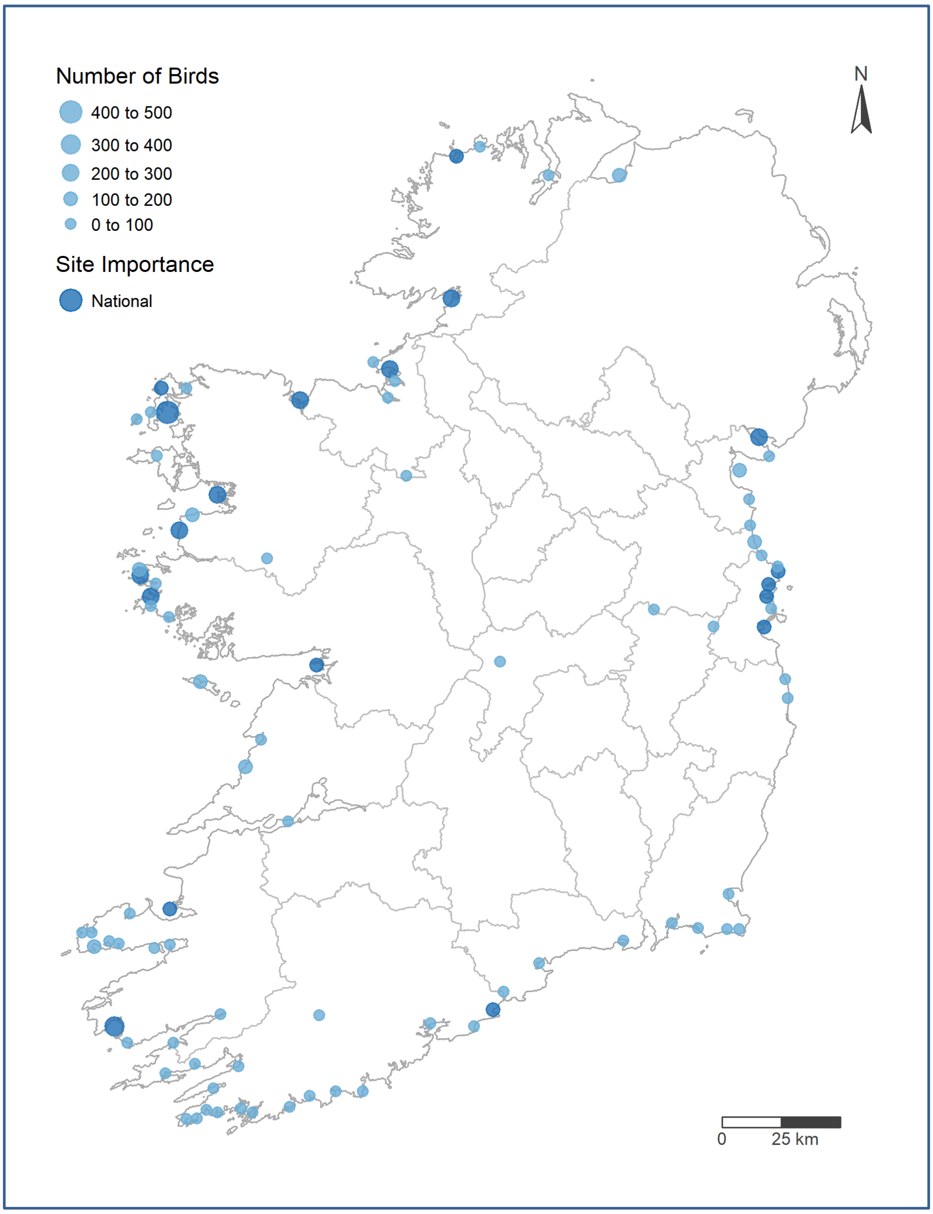


Figure 78 I-WeBS sites where Ringed Plover were recorded between 2018/19 and 2022/23.

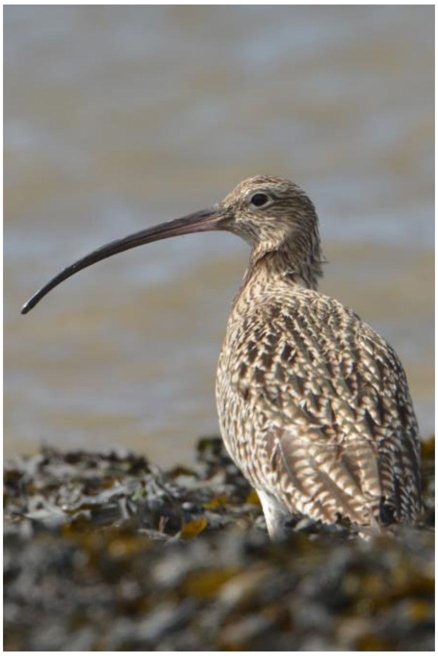
Table 40 I-WeBS sites supporting internationally and/or nationally important numbers of Ringed Plover between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Blacksod & Tullaghan Bays	857	558	450	357*	147*	364	174*	407	450	Nov
Ballinskelligs Bay							315*	315*	315*	
South Mayo Coast	261	202	260	193	0*	395	214*	283	395	Nov, Dec, Jan
Omey Strand	312	274	275	238	324		285	280	324	Nov, Dec
Killala Bay	125	78	152	401*	270	213	264*	260*	401*	Sep, Oct, Nov, Dec, Feb
Donegal Bay	91	129	205	331			191	242	331	Oct, Dec, Jan
Carlingford Lough (WeBS)	64	214*	103	527	0*	86*	54	228	527	Sep, Oct, Jan
Mannin Bay	168	109			217			217	217	Nov
Drumcliff Bay Estuary	136	77	251	152		309	117	207	309	Oct, Jan, Feb
Clew Bay	150	189	169		227	226	204*	207	227	Nov, Dec, Jan
Rogerstown Estuary	144	215	181	248	212	163	144	190	248	Sep, Nov, Feb
Broadmeadow (Malahide) Estuary	152	240	160	170*	72*	215	100*	188	215	Sep, Oct
Tralee Bay, Lough Gill & Akeragh Lough	356	230	17	58*	64*	515*	236*	178*	515*	Sep, Nov, Dec, Feb
Skerries Coast	169	178	142	144	145*	207*	216	171*	216	Oct, Nov, Dec
Termoncarragh & Annagh Marsh	143	185		176*		187*	127	163*	187*	Oct, Nov, Jan
Dublin Bay	208	285	148	131	70	230	141*	145	230	Nov, Dec
Inner Galway Bay	234	209	203	96		128		142	203	Nov, Mar
Ballyness Bay			0	165		230		132	230	Nov, Jan
Ballymacoda	207	157	96	141	166		126	132	166	Sep, Oct

* includes a low-quality count *e.g.* estimate.

4.39 Curlew *Numenius arquata arquata* Crotach

arquata, Europe/Europe, North & West Africa



Wintering Population

All-Ireland (2018-2023):	38,320
ROI (2018-2023):	31,710
ROI I-WeBS SPA Sites (2018-2023):	16,650

Site Threshold

International Importance:	7,600
National Importance:	380

Population Change (ROI)

5-year (2016-2022):	-2.9%
12-year (2009-2022):	-13.2%
26-year (1995-2022):	-41.1%
Historical (1984-2023):	-69.6%
Average annual change (1995-2022):	-1.6%

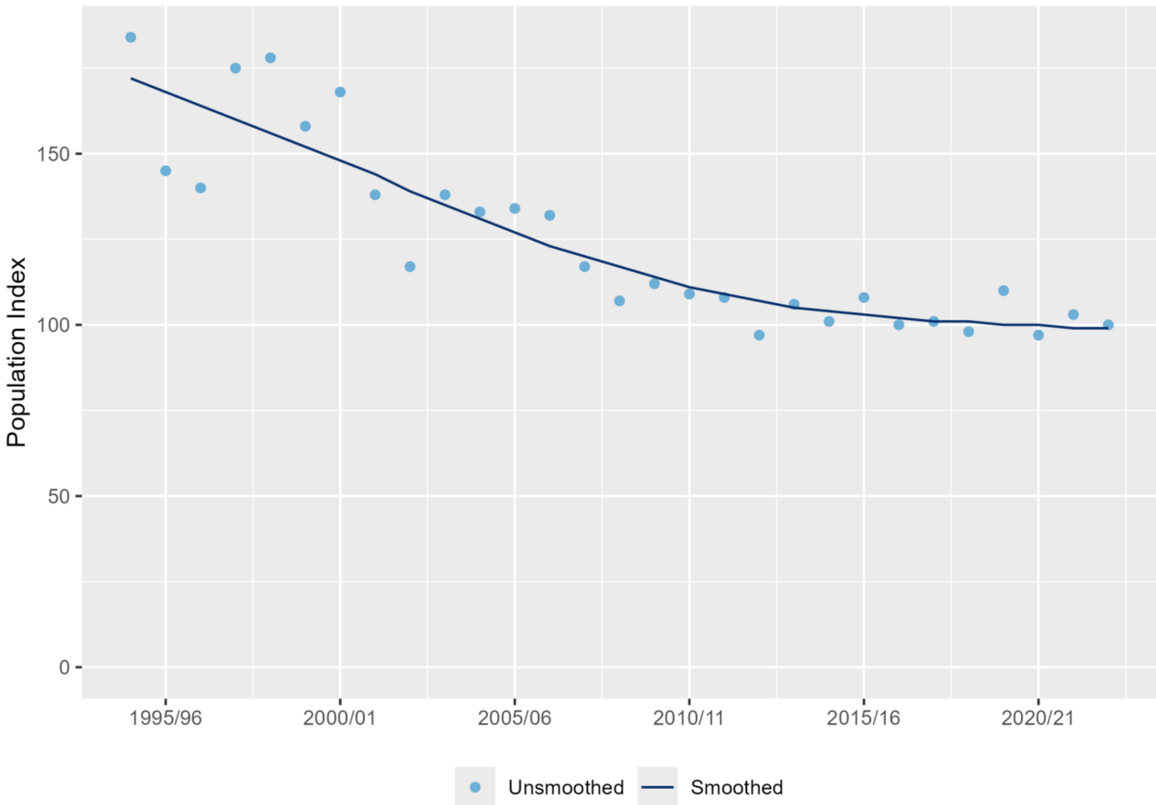


Figure 79 Calculated trends and graphed ROI population index for Curlew. Photo: Richard T Mills.

Eurasian Curlew (hereafter Curlew) over-wintering in Ireland belonging to the nominate *arquata* subspecies which breeds in Europe and winters mainly in Europe and Western Africa (Delaney *et al.,* 2009). This population is currently decreasing/stable (Wetlands International, 2024). The Irish-wintering population is mainly composed of birds from the breeding populations in Ireland, Britain and Scandinavia. Wintering numbers in Ireland have undergone very large and consistent declines since I-WeBS began, though this has slowed in recent years. The current ROI wintering population is approximately 70% lower than in the 1980s (Figure 79). Declines in the UK-wintering population have been somewhat less, but still significant, with a decline of 32% since the late 1990s and a decline of 20% since 2011/12 (Woodward *et al.*, 2024).

Curlew are one of our most widespread wintering waders and were recorded at 245 I-WeBS sites in recent years, including 18 coastal sites supporting numbers of national importance but also a wide distribution at inland lakes, rivers, turloughs and other wetlands (see Figure 80 and Table 41). The most recent Bird Atlas showed a winter distribution across 60% of Ireland (Balmer *et al.*, 2013). They often feed on grasslands away from wetland sites during the day and so a certain proportion are likely missed in I-WeBS, and total numbers are likely underestimates as a result. Despite this, the direction and scale of change over time are thought to be representative and accurate. In addition to those birds recorded on I-WeBS sites, 28% of the recent ROI population is from birds recorded on non-estuarine coast during the most recent survey in 2015/16 (NEWS-III; Lewis *et al.*, 2017).

The global population of Curlew is classified as 'near threatened' by the IUCN due to sustained and rapid population declines (BirdLife International, 2017). The Irish breeding population has declined by 98% since the 1980s (Colhoun *et al.,* 2022). The UK supports between 19% and 27% of the global breeding population of Curlew and is in rapid decline (Brown *et al.*, 2015), and at European level they have declined by 38% since the 1980s and by 6% since 2014 (PECBMS, 2025). Research has shown that poor productivity is the main driver of the decline and is below that needed to sustain the population (Cook *et al.*, 2021; Woodward *et al.*, 2021; Viana *et al.*, 2023; Pakanen & Kylmänen, 2023).

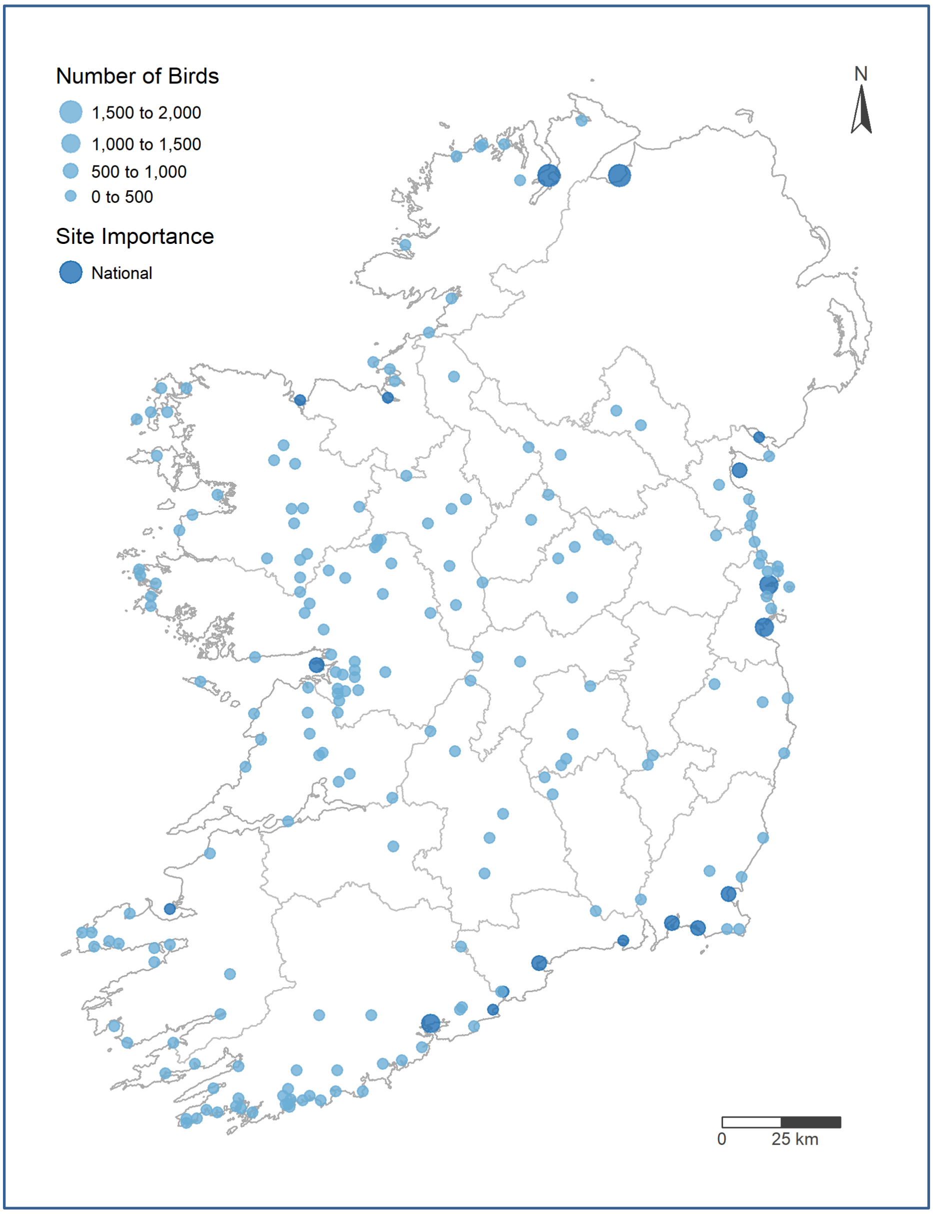


Figure 80 I-WeBS sites where Curlew were recorded between 2018/19 and 2022/23

Table 41 I-WeBS sites supporting internationally and/or nationally important numbers of Curlew between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Lough Swilly	1738	1862	1662	1916	1183	1441*	1616	1594	1916	Dec, Jan, Feb
Lough Foyle (WeBS)	2947	1919	2207	1869	1087	1454	1211	1566	2207	Sep, Nov, Dec, Feb
Rogerstown Estuary	530	888	687	1150	1330*	1466	1899*	1306*	1899*	Oct, Dec, Jan
Cork Harbour	1082	983	1172	1153	650*	1256	948	1132	1256	Sep, Oct, Jan
Dublin Bay	834	526	1323	1162	715	884	445*	1021	1323	Sep
Wexford Harbour & Slobs	1240	676	1067	1162	917*	691	635*	973	1162	Nov, Jan, Feb
Dundalk Bay	1322	612	922	868	460	583*	464*	750	922	Jan
Inner Galway Bay	669	540	542	778		734		685	778	Jan
Bannow Bay	947	236	730	946	294	244	706	584	946	Sep, Oct, Nov, Dec, Jan
Dungarvan Harbour	576	477	610	951	263	629*	445	580*	951	Nov, Dec, Feb
The Cull & Killag (Ballyteige)	451	300	345	893	384	629	346	519	893	Dec, Jan
Ballymacoda	553	516	531	514	379		513	484	531	Oct, Nov, Jan
Tralee Bay, Lough Gill & Akeragh Lough	555	221	240	144*	224*	700	770*	470	770*	Sep, Dec, Jan, Feb
Ballysadare Bay	537	377	459	588		440	375	466	588	Nov, Jan
Blackwater Estuary	517	565	833	235	326		169*	465	833	Sep, Oct
Tramore Back Strand	331	457	728		78	594	365	441	728	Nov, Dec, Jan, Mar
Carlingford Lough (WeBS)	636*	258*	592	143*	2*	189*	262	427	592	Jan
Killala Bay	266	171	233	419	376*	545	359	389	545	Sep, Dec, Jan

* includes a low-quality count *e.g.* estimate.

4.40 Bar-tailed Godwit *Limosa lapponica* Guilbneach stríocearrach

lapponica, Northern Europe/Western Europe

Wintering Population

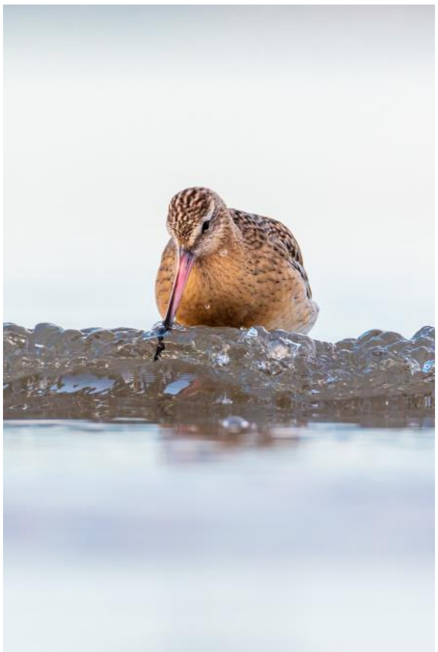
All-Ireland (2018-2023):	14,380
ROI (2018-2023):	11,740
ROI I-WeBS SPA Sites (2018-2023):	10,720

Site Threshold

International Importance:	1,500
National Importance:	140

Population Change (ROI)

5-year (2016-2022):	+22.4%
12-year (2009-2022):	-3.7%
26-year (1995-2022):	+8.3%
Historical (1984-2023):	-38.9%
Average annual change (1995-2022):	+0.3%



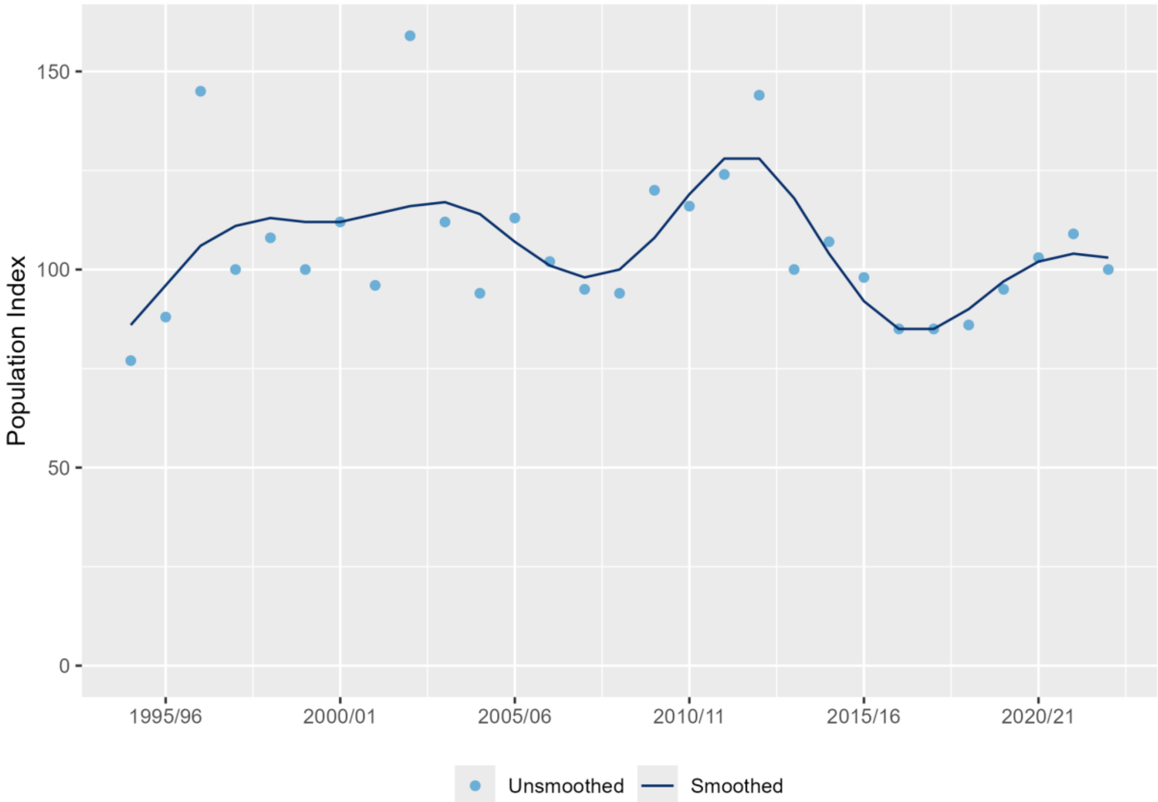


Figure 81 Calculated trends and graphed ROI population index for Bar-tailed Godwit. Photo: John Murphy.

Bar-tailed Godwit that winter in Ireland are from the nominate *lapponica* subspecies that breeds in high arctic Scandinavia and north Russia. This population has been increasing at flyway level in recent years (Wetlands International, 2024). Numbers in ROI have fluctuated since regular monitoring began, with a significant decline since the 1980s, a modest increase since the initial years of I-WeBS in the 1990s, a small decline over the last 12 years, and finally a substantial increase in the five years to winter 2021/22 (Figure 81). In the UK there has been a more consistent decline, of 37% since the late 1990s and 29% since the early 2010s (Woodward *et al.*, 2024).

Bar-tailed Godwit in Ireland have an almost exclusively coastal distribution and were recorded at 83 I-WeBS sites between 2016/17 to 2022/23. Lough Foyle (WeBS), Dundalk Bay and Dublin Bay continue to support numbers of international importance (see Figure 82 and Table 42). In addition to those birds at I-WeBS sites, 5.4% of the recent ROI population estimate came from birds recorded on non-estuarine coast during NEWS-III (Lewis *et al.*, 2017).

Given the reliance of the majority of the Irish wintering population on estuarine coastline habitats and the overlap of these habitats with urban areas, disturbance has the potential to affect a large proportion of the population. Disturbance from humans walking with/without dogs is consistently found to be the most disturbing activity at sites during assessments undertaken for SPA conservation objectives. Disturbance from sports, tourism and leisure activities was the most frequently cited pressure at I-WeBS sites for all species groups, in a survey of I-WeBS counters. Of those, dog walking was by far the most frequently cited activity causing disturbance to wintering waterbirds. Disturbance from boats and kayaks, from hunting, aquaculture, angling and walkers were also amongst the causes of disturbance cited at multiple I-WeBS sites. Lewis & Adcock (2017) found that waterbird activity decreased as recreational disturbance (*e.g.* walkers, dogs, kite surfers) increased on Dollymount Strand (Dublin Bay). A range of studies have found Bar-tailed Godwits to be more sensitive than other waders in their reactions to disturbance (*e.g*. Kirby *et al.*, 1993; Cutts *et al.*, 2009). Cutts *et al.* (2009) ranked Bar-tailed Godwit as moderate in their sensitivity to disturbance.

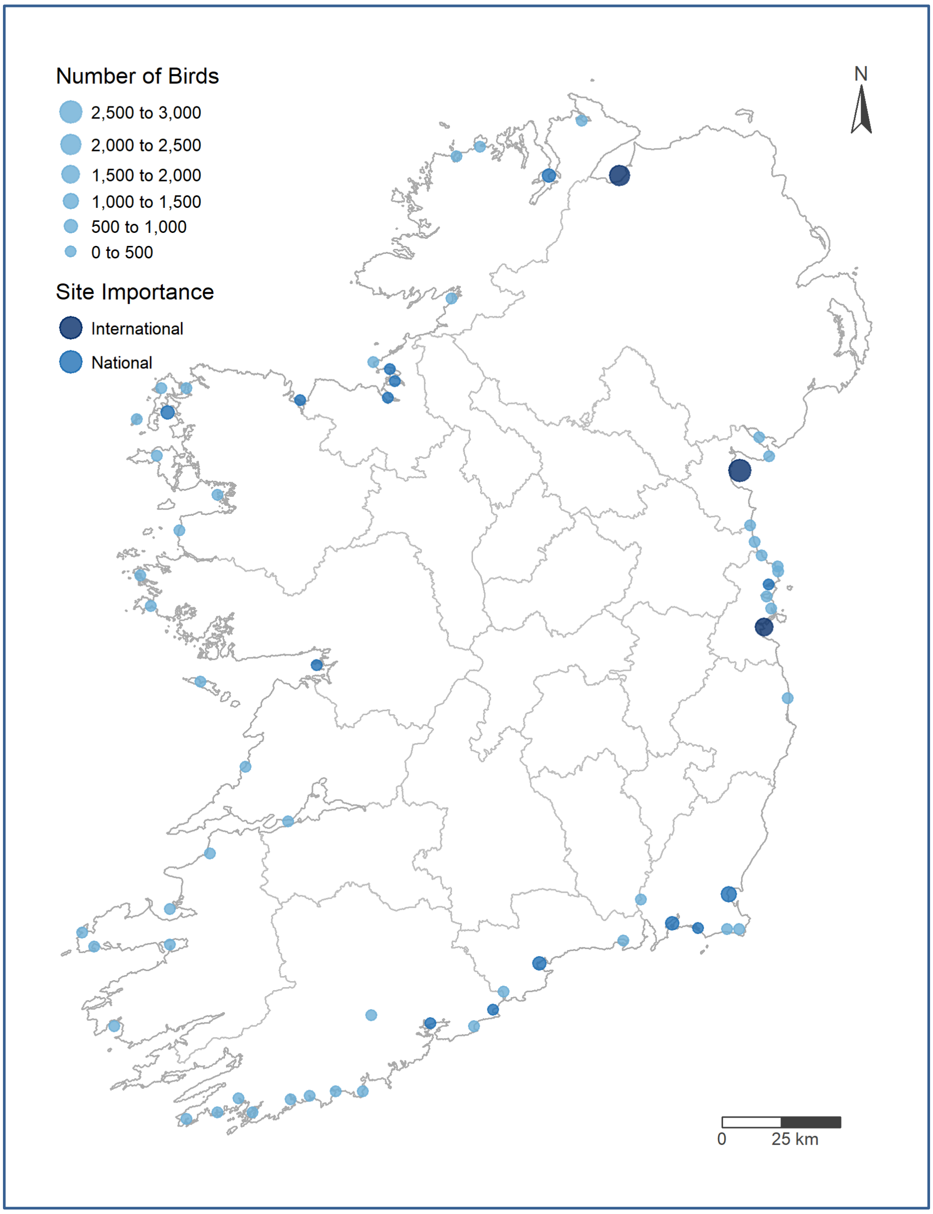


Figure 82 I-WeBS sites where Bar-tailed Godwit were recorded between 2018/19 and 2022/23.

Table 42 I-WeBS sites supporting internationally and/or nationally important numbers of Bar-tailed Godwit between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Dundalk Bay	1417	1958	2034	2240	2535*	5201*	1307*	2663*	5201*	Nov, Jan
Lough Foyle (WeBS)	2891	3140	2470	2095	2350	2055	1723	2139	2470	Oct, Dec, Jan, Feb
Dublin Bay	2653	1934	1773	2736	1833	1401	1666*	1936	2736	Sep, Oct, Jan, Feb
Wexford Harbour & Slobs	946	622	1476	1280	544*	429	37*	1062	1476	Dec, Jan, Feb
Dungarvan Harbour	673	806	851	817	294	375	583	584	851	Dec, Feb
Bannow Bay	928	537	840	396	381	450	812	576	840	Nov, Jan, Feb
Blacksod & Tullaghan Bays	953	1035*	670	856*	807*	373	128*	567*	856*	Nov, Dec, Feb
Lough Swilly	785	627	364	570	505	468	644	510	644	Sep, Nov, Feb, Mar
Drumcliff Bay Estuary	513	308	304	598		512*	265	420*	598	Jan
Ballysadare Bay	128	130	167	186		334	828	379	828	Jan, Feb
Ballymacoda	472	158	485	550	71		376	370	550	Oct, Nov, Dec, Jan
Cork Harbour	172	241	430	490	154	283*	212*	358	490	Sep, Nov, Dec
Inner Galway Bay	485	296	366	301		397		355	397	Nov, Jan
Killala Bay	192	127	15	200	235*	211	326	197*	326	Oct, Jan, Feb
Sligo Harbour	133	30	54	36		209	362	165	362	Oct, Dec, Jan
Rogerstown Estuary	676	100	209	74	95	82	323	157	323	Oct, Nov, Dec, Jan, Mar
The Cull & Killag (Ballyteige)	120	160	100	147	82	260	113	140	260	Nov, Dec, Jan

* includes a low-quality count *e.g.* estimate.

4.41 Black-tailed Godwit *Limosa limosa* Guilbneach earrdhubh

islandica, Iceland/Western Europe

Wintering Population

All-Ireland (2018-2023):	24,790
ROI (2018-2023):	22,900
ROI I-WeBS SPA Sites (2018-2023):	20,840

Site Threshold

International Importance:	1,700
National Importance:	250

Population Change (ROI)

5-year (2016-2022):	+14.9%
12-year (2009-2022):	+42.6%
26-year (1995-2022):	+120%
Historical (1984-2023):	+201%
Average annual change (1995-2022):	+4.6%

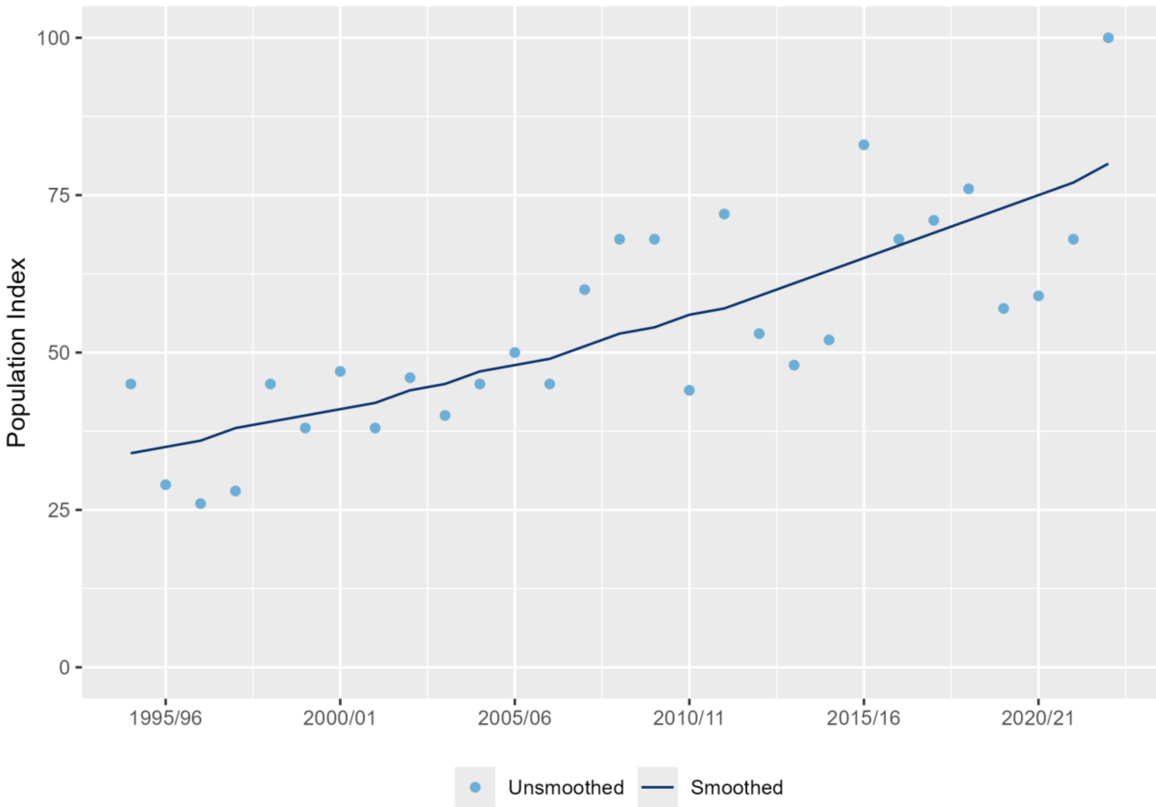


Figure 83 Calculated trends and graphed ROI population index for Black-tailed Godwit. Photo: John Fox.

Black-tailed Godwits wintering in Ireland are of the *islandica* subspecies that breeds in Iceland, the Faroes, Shetland and Lofoten Island and winters in Ireland, Britain, France, Portugal, Spain and Morocco. The sustained increase and range expansion of this population over the last century (Gill *et al.,* 2007; Gunnarson *et al.*, 2011; Alves *et al.,* 2019; Wetlands International, 2024) has been reflected in significant and sustained increases in numbers wintering in Ireland

(Figure 83). In the UK they have undergone a similar increase, by 138% in the 25 years since 1996/97 and by 19% in the ten years since 2011/12 (Woodward *et al.*, 2024).

Black-tailed Godwits are found primarily on estuaries across Ireland but also at a small selection of inland sites. They were recorded at 100 sites during the recent period including five that supported numbers of international importance and a further 22 that supported numbers of national importance (see Figure 84 and Table 43). Their distribution is skewed towards the east and south coasts, the most significant exceptions to which are in south Galway, Loughs Swilly and Foyle in Donegal, and inland on the Little Brosna Callows. The peak count of 98 individuals at Rahasane in 2021/22 highlights the relevance of the months that counts are carried out in recording peak numbers of key species. In this instance there were four full counts of the site that winter, but crucially no count in October when the big Black-tailed Godwit flock usually stops over at the site.

Productivity of Black-tailed Godwits breeding in Iceland has been linked to spring temperatures, with the increases in the population likely due to the ongoing rapid warming of the climate facilitating earlier and more successful breeding as well as breeding range expansion (Gunnarsson *et al.*, 2017; Alves *et al.*, 2019).

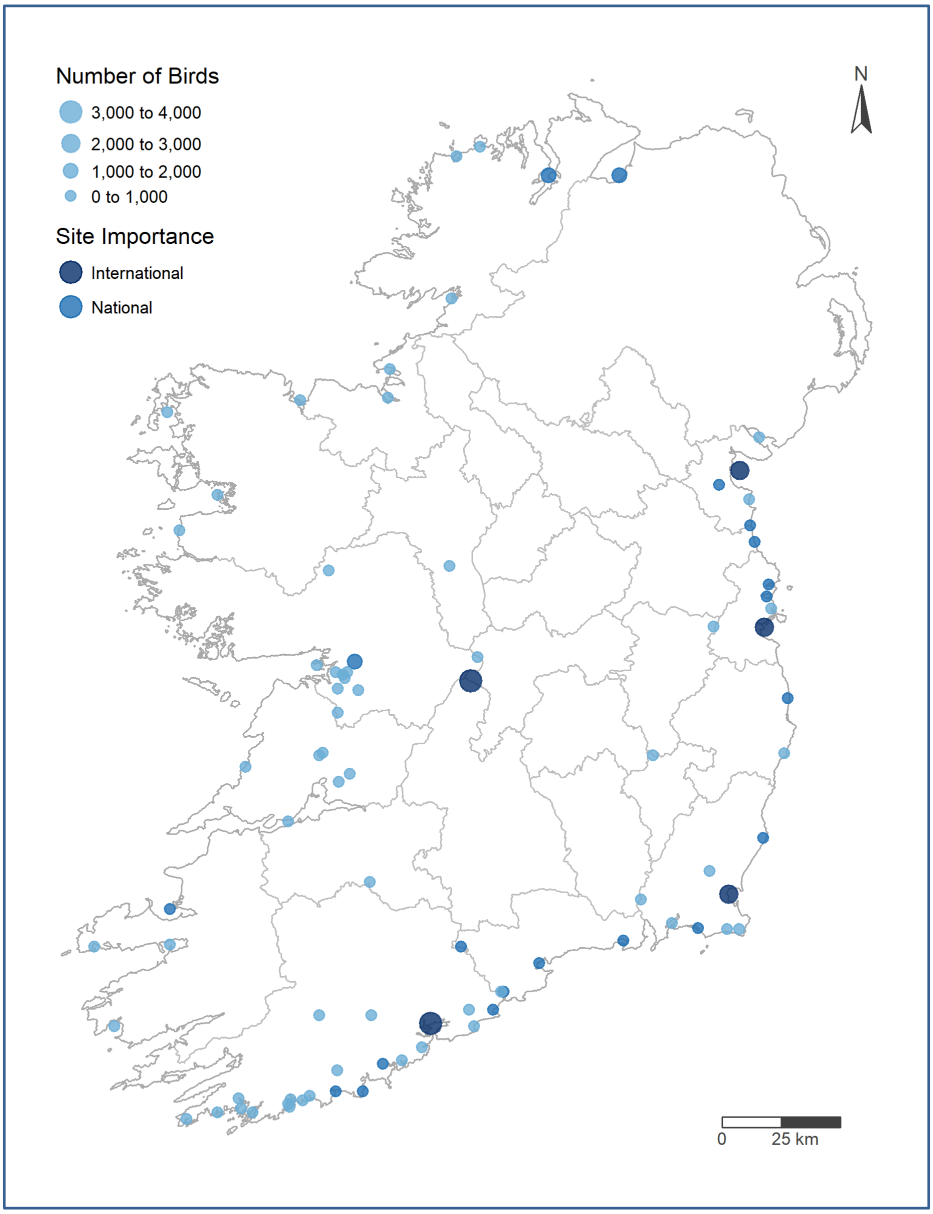


Figure 84 I-WeBS sites where Black-tailed Godwit were recorded between 2018/19 and 2022/23.

Table 43 I-WeBS sites supporting internationally and/or nationally important numbers of Black-tailed Godwit between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Little Brosna Callows	2280	3615	2510	1051	2445*	5000*	6760*	3553*	6760*	Nov, Jan, Feb, Mar
Cork Harbour	2210	3074	2559	3807*	2976*	2563*	3160*	3013*	3807*	Sep, Oct, Mar
Dundalk Bay	4227	3796	2260*	2447	2944	2216*	3596*	2696	3596*	Jan, Feb, Mar
Wexford Harbour & Slobs	3210	1590	3300	1785	1502*	1809	5000*	2679*	5000*	Nov, Dec, Jan
Dublin Bay	1274	1479	3369	2987	1499	2615	2343*	2618	3369	Oct, Dec, Jan, Feb
Lough Swilly	1200	1045	1134	1467	679	1572	2665	1503	2665	Sep, Dec, Feb, Mar
Lough Foyle (WeBS)	335	757	2213	862	1224	1001	1416*	1343*	2213	Oct, Nov, Feb, Mar
Rahasane Turlough	460	545	600	1800*	2500*	98	1332	1266*	2500*	Oct, Jan
Clonakilty Bay	613	732	1256	870	985	762	932*	968	1256	Oct, Nov, Dec
Ballymacoda	1040	434	1051	1236	489		731	877	1236	Oct, Feb
Blackwater Estuary	568	1147	1116	293	665		1412*	872*	1412*	Jan, Feb
Blackwater Callows	7	179		852	1195	500	875*	856*	1195	Nov, Mar
Dungarvan Harbour	1387	1109	1401	578	267	704*	985	808	1401	Nov, Dec, Feb
Tramore Back Strand	922	978	1201		17	468*	906	708	1201	Nov, Dec, Mar
Nanny Estuary & shore	345	239	332	796	166*	107*	164*	564	796	Oct
Braganstown		0	300	0	0	0	2500*	560*	2500*	Nov, Dec, Jan
Courtmacsherry Bay, Broadstrand Bay & Dunworley	461	574	646	572	412	521	522	535	646	Nov, Jan
Tralee Bay, Lough Gill & Akeragh Lough	57	10	300	114	163*	975*	1042*	519*	1042*	Sep, Nov, Dec, Jan
Broadmeadow (Malahide) Estuary	293	245	699	577	214*	186	489	488	699	Oct, Dec, Feb
Rogerstown Estuary	1113	1201	562	367	213*	525	402*	485	562	Oct, Nov, Feb
Cahore Marshes					171	385	825	460	825	Jan, Feb
Bandon Estuary	317	570	290	370			620	427	620	Nov, Dec, Jan
Little Brosna Callows (Aerial)			200		600			400	600	Dec, Jan
Boyne Estuary	360	428	316	425	211	358*	266	315*	425	Sep, Oct, Dec, Feb
Shannon Callows (Aerial)			0		600			300	600	Jan

Site							2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
The Cull & Killag (Ballyteige)	136	166	60	398	330	415	131	267	415	Sep, Oct, Nov, Mar
North Wicklow Coastal Marshes	87	503	239	338	284*	381	64	261*	381	Nov, Mar

* includes a low-quality count *e.g*. estimate.

4.42 Turnstone *Arenaria interpres* Piardálaí trá

interpres, North-eastern Canada & Greenland/Western Europe & North-west Africa

interpres, Northern Europe/West Africa

Wintering Population

All-Ireland (2018-2023):	9,020
ROI (2018-2023):	5,900
ROI I-WeBS SPA Sites (2018-2023):	1,950

Site Threshold

International Importance:	620
National Importance:	90

Population Change (ROI)

5-year (2016-2022):	-3.9%
12-year (2009-2022):	-31%
26-year (1995-2022):	-30%
Historical (1984-2023):	-59.6%
Average annual change (1995-2022):	-1.2%

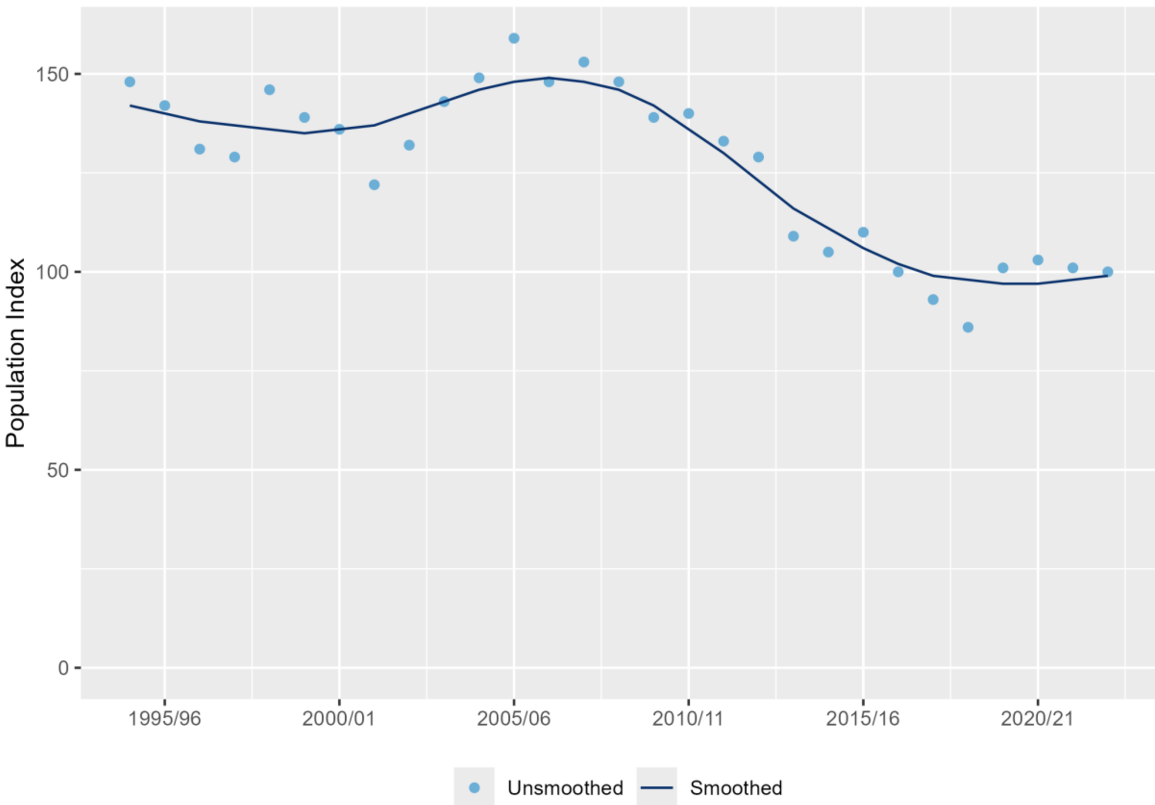


Figure 85 Calculated trends and graphed ROI population index for Turnstone. Photo: Shay Connolly.

Ireland's wintering Ruddy Turnstone (hereafter Turnstone) population originates from north-eastern Canada and northern and eastern Greenland, with their non-breeding range extending across coastal Western Europe and some reaching West Africa. The flyway population has declined in recent years (Wetlands International, 2024). In ROI they have declined across all periods examined, with numbers now slightly lower than in the 1980s but a more significant decrease since the 1990s and early 2000s (Figure 85). In Britain, Turnstone numbers have declined by 21% since the 1990s but have been relatively stable over the last 10 years (Woodward *et al.*, 2024).

Turnstone were recorded in 98 coastal I-WeBS sites in recent years. In addition, 53% of the recent population estimate stems from the 2015/16 Non-Estuarine Coastal Waterbird Survey (NEWS-III; Lewis *et al.*, 2017), underscoring the importance of this habitat for Turnstone. Eight sites supported numbers of national importance in recent years, five of which are on the east coast (see Figure 86 and Table 44).

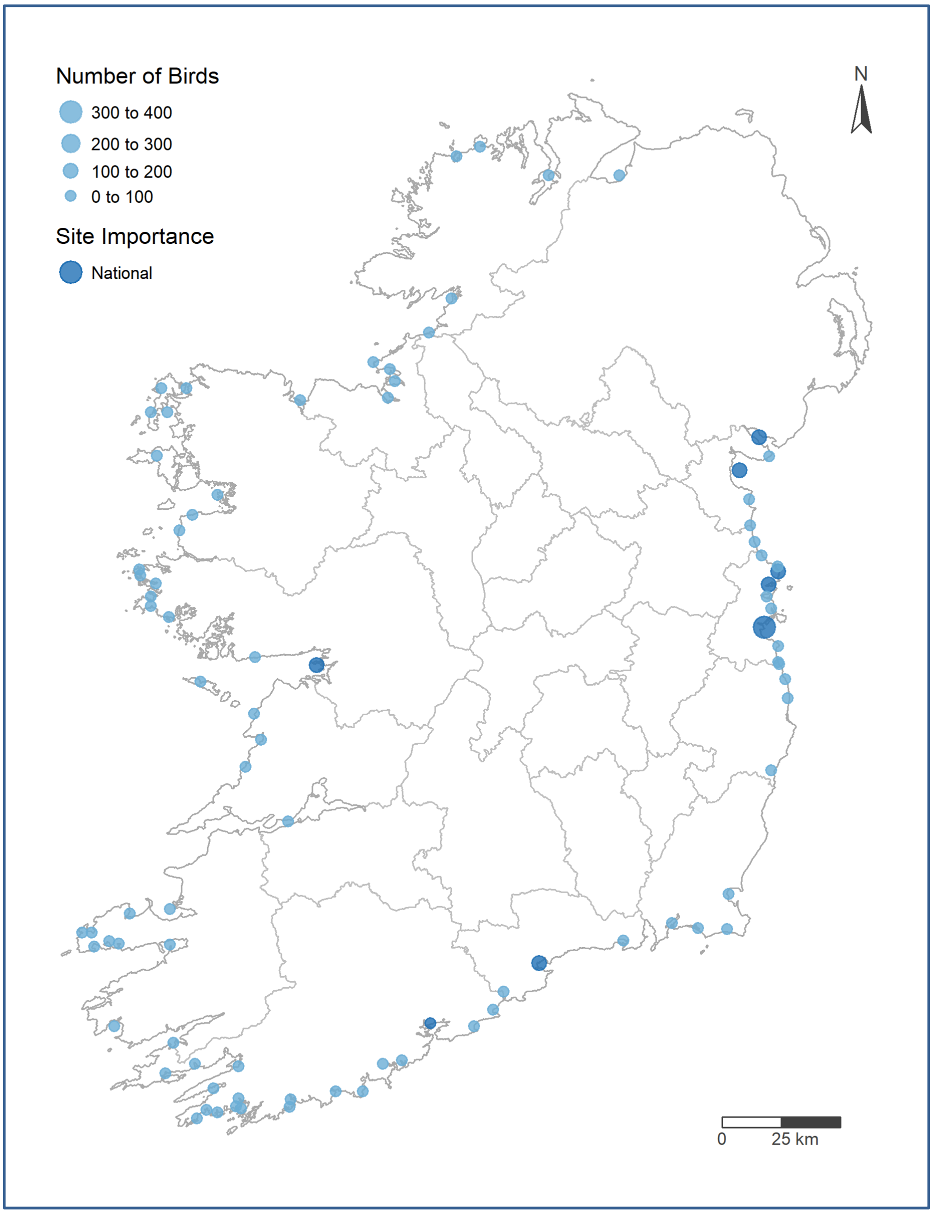


Figure 86 I-WeBS sites where Turnstone were recorded between 2018/19 and 2022/23.

Table 44 I-WeBS sites supporting internationally and/or nationally important numbers of Turnstone between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Dublin Bay	286	334	216	445	259	445	163*	341	445	Oct, Dec, Jan
Inner Galway Bay	192	147	102	228		200		177	228	Nov, Mar
Skerries Coast	104	101	101	146	136*	148	102	127*	148	Sep, Oct
Dungarvan Harbour	240	140	100	160	91	159	71	116	160	Dec, Jan, Feb
Carlingford Lough (WeBS)	241	180	158	67*	0*	97*	61	110	158	Jan
Rogerstown Estuary	84	173	61	129	79	126	136	106	136	Sep, Oct, Mar
Dundalk Bay	71	75	87	194	34	51*	161*	105	194	Jan, Mar
Cork Harbour	87	84	95*	124	108	84	79	99	124	Oct, Dec, Jan

* includes a low-quality count *e.g.* estimate.

4.43 Knot *Calidris canutus* Snaidhm

islandica, North-east Canada & Greenland/Western Europe

Wintering Population

All-Ireland (2018-2023):	19,990
ROI (2018-2023):	16,410
ROI I-WeBS SPA Sites (2018-2023):	15,800

Site Threshold

International Importance:	3,300
National Importance:	200

Population Change (ROI)

5-year (2016-2022):	+32.7%
12-year (2009-2022):	-31.1%
26-year (1995-2022):	-21.5%
Historical (1984-2023):	-18.2%
Average annual change (1995-2022):	-0.8%

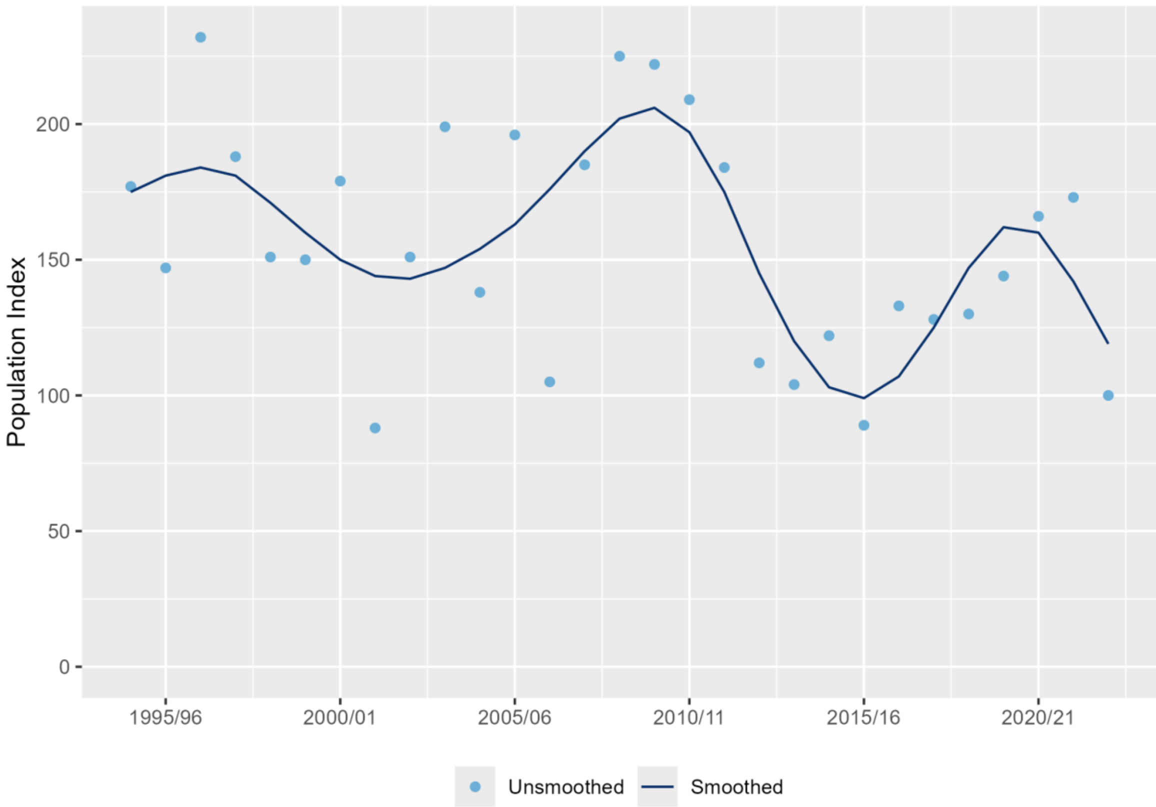


Figure 87 Calculated trends and graphed ROI population index for Knot. Photo: John Fox.

The Red Knot (hereafter Knot) that winter in Ireland and Britain are predominately of the *islandica* population, which has been stable in recent years (Wetlands International, 2024). This population breeds in the islands of high Arctic Canada and Greenland, and spends winter in Western Europe, particularly the Wadden Sea, Britain and Ireland. Their trend in ROI had been one of decline, with lower numbers now than in each of the 1980s, 1990s and 2010s, though these comparisons mask some fluctuation over the intervening years and the most recent 5-year trend is for a significant increase (Figure 87). In the UK, comparisons over 25 years and 10 years indicate a stable population (+1% and -3% respectively) (Woodward *et al.*, 2024).

Knot were found at 58 coastal I-WeBS sites during the recent period, with two sites supporting numbers of international importance, both on the east coast (see Figure 88 and Table 45). Their main concentrations are in the north-east and on the south coast, though there were sites supporting numbers of national importance in counties Kerry, Sligo and Donegal also. Mean and peak totals at Dundalk Bay both fell considerably since the previous period (Lewis *et al.*, 2019) despite consistent coverage, while numbers in Dublin Bay underwent a large increase. Outside I-WeBS sites they have a minor presence on non-estuarine coast, with 3% of the recent ROI population estimate from NEWS-III (Lewis *et al.*, 2017).

Cutts *et al.* (2009) found that Knot are highly sensitive to disturbance, especially at roost sites. Gittings & O'Donoghue (2014) carried out a literature review of the potential impacts of pedestrian disturbance to waterbirds and found that species that mainly occur in large flocks may have higher levels of sensitivity to disturbance than most other species. Disturbance was cited as the most common pressure at I-WeBS sites for all species groups, in a recent survey of I-WeBS counters, and disturbance is consistently found to be the most disturbing activity at sites during assessments undertaken for SPA conservation. Given that Knot are exclusively coastal in Ireland and congregate in very large numbers at estuarine sites which are prone to increasing disturbance, this is seen as one of their main threats in an Irish context.

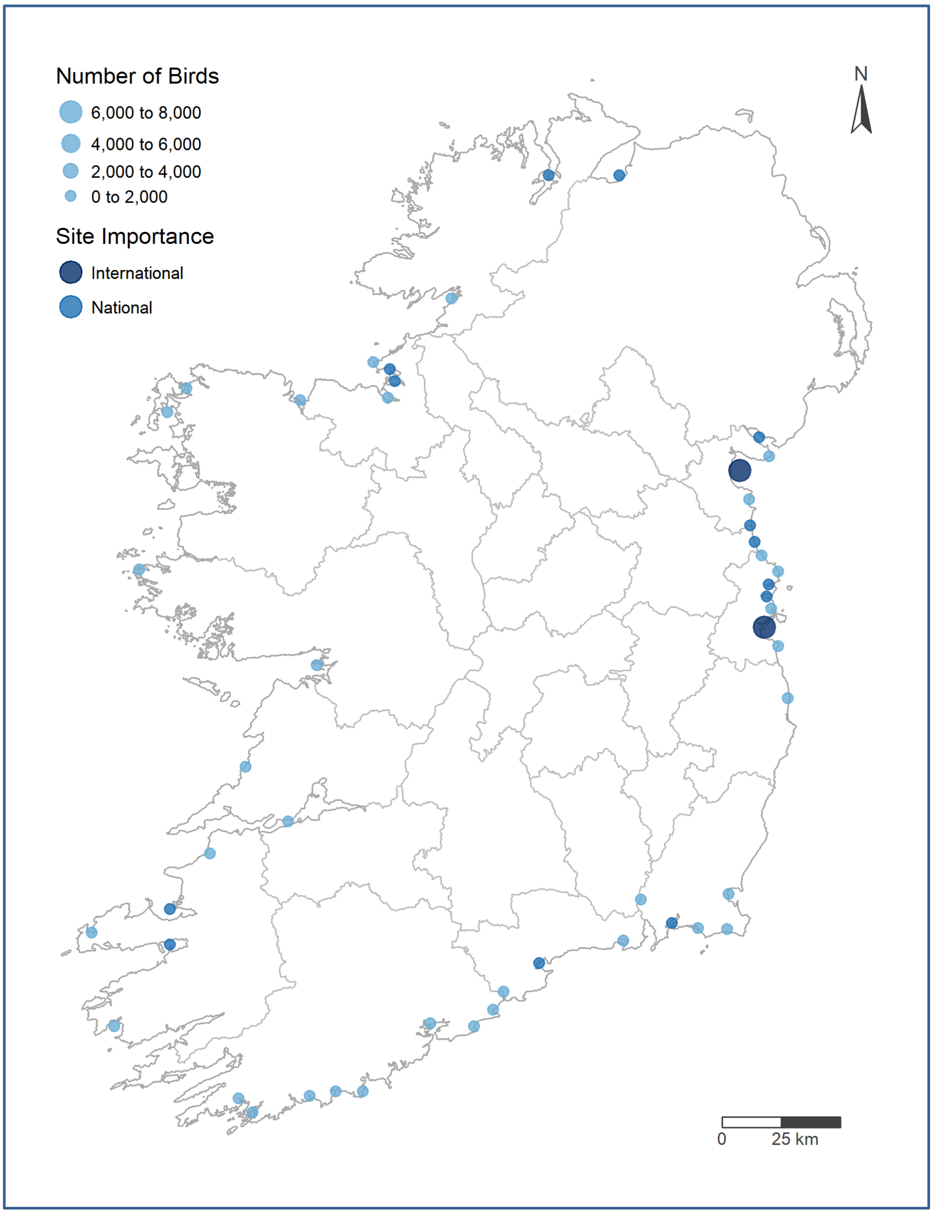


Figure 88 I-WeBS sites where Knot were recorded between 2018/19 and 2022/23.

Table 45 I-WeBS sites supporting internationally and/or nationally important numbers of Knot between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Dublin Bay	5850	6555	7256	5781	5946	8325	3925*	6827	8325	Dec, Jan, Feb
Dundalk Bay	7404	4470	7856	2007*	4228	1360*	1580*	6042	7856	Jan, Mar
Nanny Estuary & shore	200	600	2500	1965	356	160	0*	1245	2500	Oct, Jan
Lough Swilly	775	1036	900	740	377	2133*	730	976*	2133*	Sep, Dec, Feb, Mar
Rogerstown Estuary	12	175	3000*	377	600*	134	250	872*	3000*	Dec, Jan, Feb, Mar
Lough Foyle (WeBS)	697	121	293	701	1101	310	403*	601	1101	Sep, Nov, Dec, Jan
Broadmeadow (Malahide) Estuary	202*	800	950	200	156*	811*	238*	575	950	Dec, Feb
Dungarvan Harbour	267	312	336	780	405	163*	242	441	780	Dec, Feb
Bannow Bay	406	220	200*	412	402	250	220	321	412	Nov, Jan
Shannon & Fergus Estuary (Aerial)					275			275	275	Jan
Boyne Estuary	1290	1317	57	1200	4	83	0	269	1200	Sep, Oct, Nov, Jan
Tralee Bay, Lough Gill & Akeragh Lough	180	54	340	230*	270*	65	291*	239*	340	Dec, Jan
Sligo Harbour	240	37	8	93		536	263	225	536	Oct, Dec, Jan
Castlemaine Harbour & Rossbehy	191	0	0	714*	25*	90*	284*	223*	714*	Oct, Nov, Jan
Carlingford Lough (WeBS)	0	40*	200	200*	0*	80*	54*	200	200	Jan
Drumcliff Bay Estuary	173	388	11	359		389	40	200	389	Nov, Jan

* includes a low-quality count *e.g.* estimate.

4.44 Ruff *Calidris pugnax* Rufa

Northern Europe & Western Siberia/Western Africa

Site Threshold

International Importance:	42,400

I-WeBS Peak season counts

ROI Mean (2018-2023):	29
ROI Peak (2018-2023):	43

Figure 89 Peak season counts of Ruff at I-WeBS sites. Photo: Richard T Mills.

Ruff (see Figure 89) occur in small numbers in Ireland during the non-breeding season, most often in autumn or spring but they also over-winter at some sites. The Northern Europe and Western Siberia/West Africa flyway population has declined in recent years (Wetlands International, 2024).

Ruff were recorded at 35 inland and coastal I-WeBS sites in recent years. Both mean and peak counts for ROI in recent years were considerably lower than the previous period (mean 62, peak 121; Lewis *et al.*, 2019). Wexford Harbour and Slobs, Lough Swilly, Dundalk Bay and Rahasane Turlough were the sites that most consistently supported Ruff in recent years, albeit only Wexford Harbour consistently had double-digit counts over the years (see Figure 90 and Table 46).

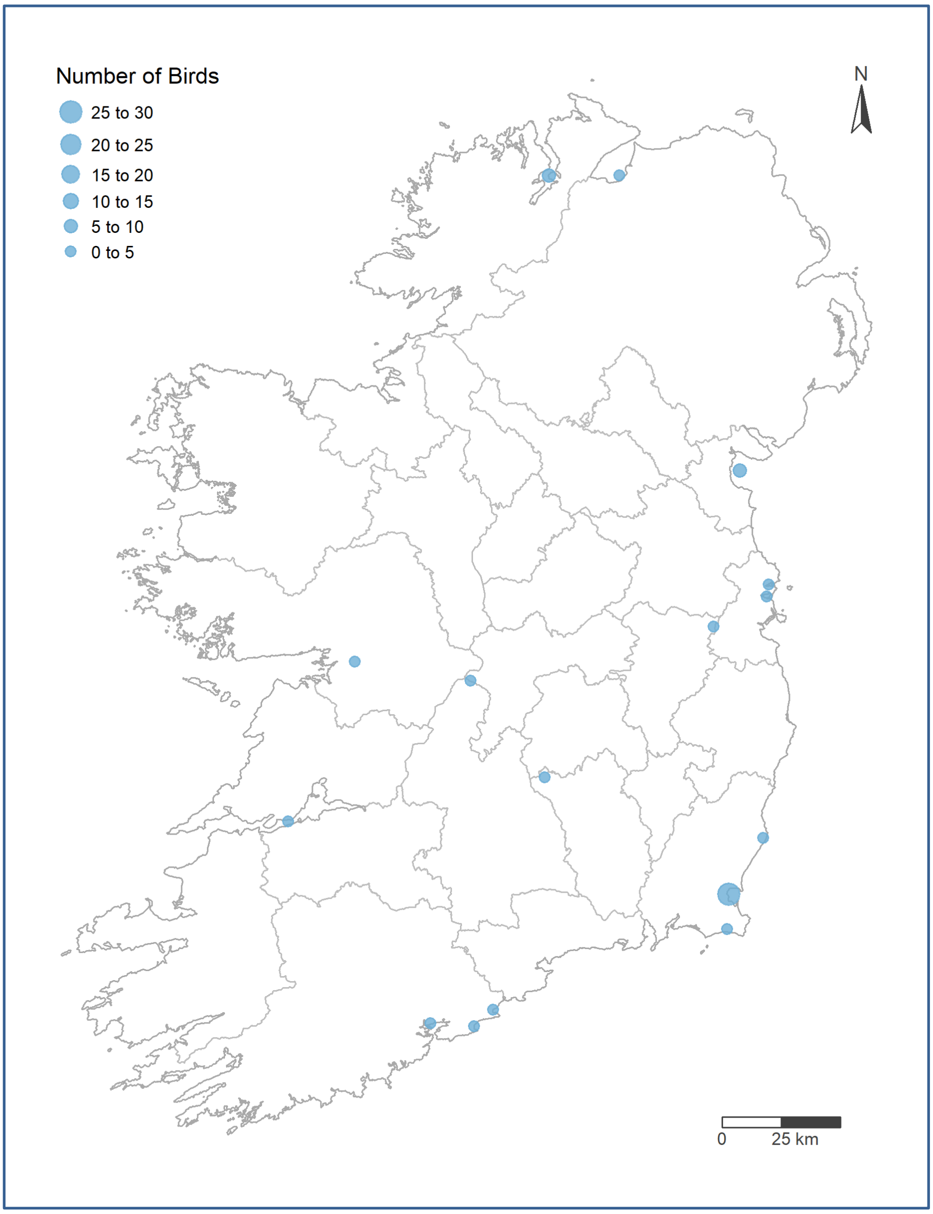


Figure 90 I-WeBS sites where Ruff were recorded between 2018/19 and 2022/23.

Table 46 The 15 top-ranked I-WeBS sites where Ruff was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Wexford Harbour & Slobs	17*	15	43	32	0*	8	18*	28	43	Nov, Dec
Lough Swilly	8	14	8	5	4	10	6	7	10	Sep, Oct, Dec
Dundalk Bay	9	11	5	6	6	10*	6*	7*	10*	Oct, Jan, Feb, Mar
Rahasane Turlough	5	0	4*	3*	10*	0	1	4*	10*	Sep, Oct, Nov
Leixlip Reservoir						4	2	3	4	Oct
Cahore Marshes					0	2	4	2	4	Dec, Jan, Feb
Broadmeadow (Malahide) Estuary	0	1	2	0	3*	1	3	2	3	Sep, Nov, Jan, Feb
Lough Foyle (WeBS)	1	3	4	0	0	2	0	1	4	Sep
Shannon & Fergus Estuary	0*	0	1*	0*	0*	3*	0*	1*	3*	
Ballymacoda	0	2	1	4	0		0	1	4	Sep, Oct
Cork Harbour	0	0	0	0	0	3	0	1	3	Sep, Oct, Dec
Ballycotton Shanagarry	0	2	3	0	0	0	2*	1	3	Sep, Dec, Jan
Baun							1	1	1	Nov
Tacumshin Lake	0	18	1	0	0	3	1	1	3	Sep, Oct
Little Brosna Callows	0	0	0	0	4*	1	0	1*	4*	Sep, Oct, Dec, Feb

* includes a low-quality count *e.g.* estimate.

4.45 Sanderling *Calidris alba* Luathrán

alba, East Atlantic Europe, West & Southern Africa (wintering)

Wintering Population

All-Ireland (2018-2023):	8,610
ROI (2018-2023):	7,550
ROI I-WeBS SPA Sites (2018-2023):	3,190

Site Threshold

International Importance:	2,000
National Importance:	85

Population Change (ROI)

5-year (2016-2022):	+21.3%
12-year (2009-2022):	+12.3%
26-year (1995-2022):	+127.5%
Historical (1984-2023):	+92.9%
Average annual change (1995-2022):	+4.9%

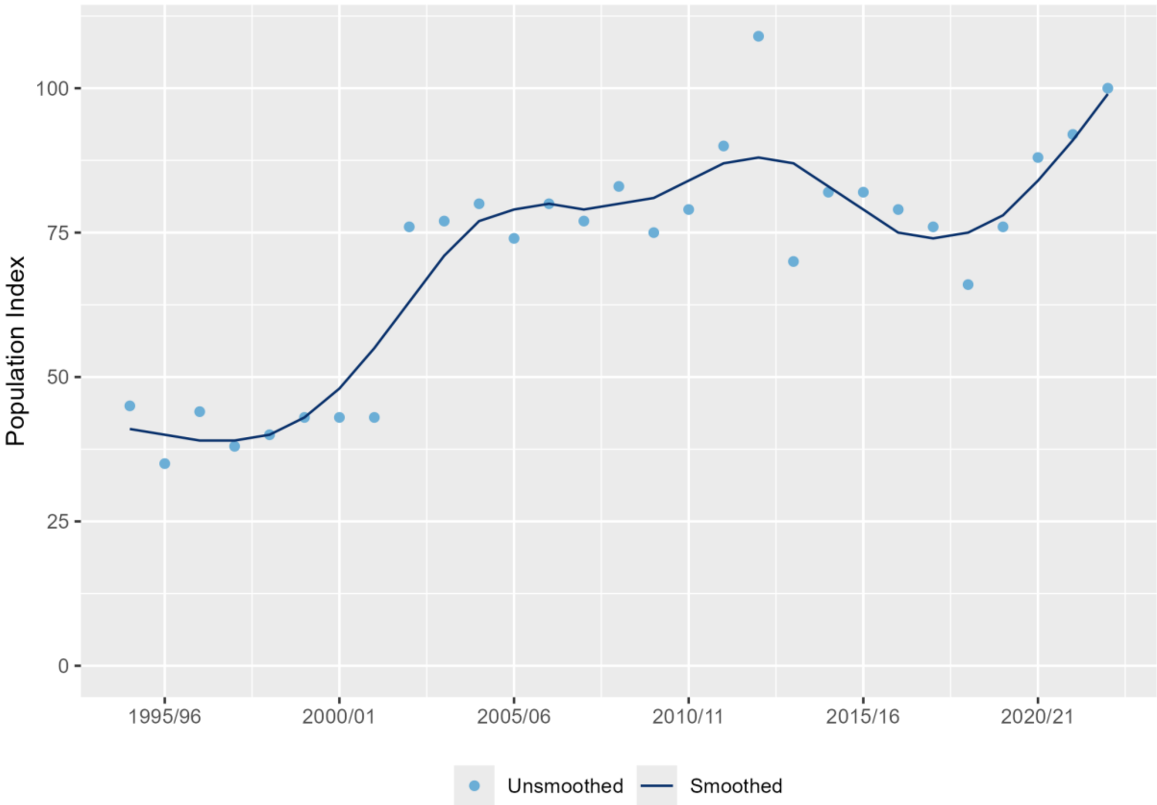


Figure 91 Calculated trends and graphed ROI population index for Sanderling. Photo: Shay Connolly.

Sanderling in Ireland are of the nominate subspecies which breed across north-east Canada, north and north-east Greenland, Svalbard and western Taymyr (Wetlands International, 2024). At flyway level, this population is increasing (AEWA, 2022). The population in Ireland is also increasing and is now seemingly triple what it was in the 1980s, double the size it was in the 1990s and still experiencing significant growth in the medium- and short-term (Figure 91). In the UK they have increased by 47% since the mid-1990s and 18% over the last 10 years (Woodward *et al.*, 2024).

Sanderling were recorded at 70 coastal I-WeBS sites during the recent period. In addition, their use of sandy beaches means that a large proportion of the population occurs outside the I-WeBS site network and 44% of the recent ROI population estimate was from NEWS-III (Lewis *et al.*, 2017). Note that the significant jump in the population in Figure 91 from 2001/02 to 2002/03 is due to the addition of NEWS-I data to the I-WeBS total in the former season, and NEWS-II to the latter, with the number of Sanderling recorded in NEWS-II more than double the total from the original survey.

Twenty-two sites supported Sanderling in numbers of national importance in recent years (see Figure 92 and Table 47). Both Dublin Bay and Lough Foyle had peak numbers in excess of 1,000 individuals. Mean annual peak numbers in Dublin Bay were considerably higher than the previous period (mean 487, 2011/12 - 15/16; Lewis *et al.*, 2019), whereas many sites saw decreases in their means, though survey coverage at some sites will have varied. A number of sites that previously supported nationally important numbers have fallen below this threshold in recent years despite being surveyed frequently, including Wexford Harbour & Slobs, Lough Swilly, Rogerstown estuary and Skerries Coast amongst others. Sites not previously known (Lewis et al, 2019) to support numbers of national importance, include Killala Bay, Clogher Head – Baltray, Drumcliffe Bay Estuary, Ballycotton Shanagarry and Mannin Bay.

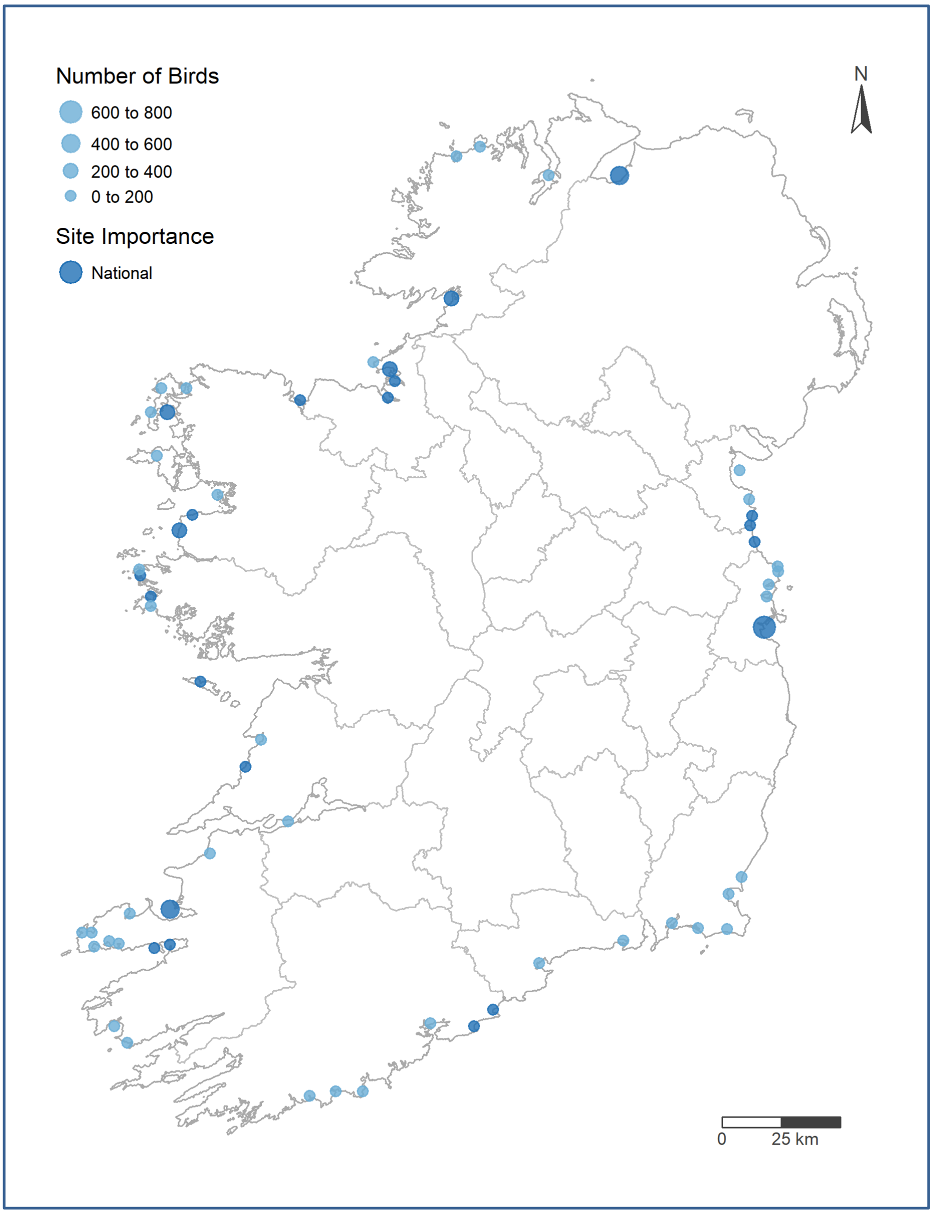


Figure 92 I-WeBS sites where Sanderling were recorded between 2018/19 and 2022/23.

Table 47 I-WeBS sites supporting internationally and/or nationally important numbers of Sanderling between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Dublin Bay	374	800	736	588	748	1040	863*	795*	1040	Sep, Oct, Jan
Lough Foyle (WeBS)	1487	75	595	455	0*	328	1057*	487*	1057*	Sep, Oct, Dec, Jan, Mar
Tralee Bay, Lough Gill & Akeragh Lough	481	910	96	691*	297*	649*	450*	437*	691*	Dec, Jan, Feb
Blacksod & Tullaghan Bays	393	240*	243	145*	128*	282*	74*	243	282*	Sep, Oct, Jan
South Mayo Coast	123	256	145	335	45*	210*	103*	240	335	Sep, Dec
Drumcliff Bay Estuary	218	112	250	309		263	108	232	309	Jan, Feb
Donegal Bay	1	224	191	159			314*	221*	314*	Oct, Dec, Mar
Nanny Estuary & shore	117	164	56	183	81	470*	107*	179*	470*	Sep, Oct, Dec, Jan
Killala Bay	64	90	21	67	245*	121	374*	166*	374*	Oct, Jan, Mar
Carrowmore Beach	166	167	84	195		284	87	162	284	Oct, Nov, Jan
Ballysadare Bay	134	90	147	149		15	248	140	248	Jan
Mid-Clare Coast (Mal Bay - Doonbeg Bay)	247	26		50*	35*	79*	350*	128*	350*	
Clogher Head - Baltray						111		111	111	Oct
Castlemaine Outer: Inch offshore		129		200	32	160*	38	108*	200	Oct, Dec, Jan
Boyne Estuary	100	400	30	500	0	0	0	106	500	Sep, Nov
Ballymacoda	117	182	131	108	3		156	100	156	Sep, Oct, Nov, Dec
Sligo Harbour	92	120	210	74		0	106	98	210	Nov, Dec, Jan
Inishmore, Aran Islands	148	154	124	81	88			98	124	Nov, Dec, Jan
Ballycotton Shanagarry	96	101	118	179	69	59	67	98	179	Nov, Jan, Feb
Omey Strand	137	122	104	61	108		105	94	108	Sep, Oct, Jan, Feb
Castlemaine Harbour & Rossbehy	345	420	80	103*	21	105*	127*	87*	127*	Nov, Dec, Feb
Mannin Bay	71	50			85			85	85	Oct

* includes a low-quality count *e.g.* estimate.

4.46 Dunlin *Calidris alpina* Circín trá

alpina, North-east Europe & North-west Siberia/West Europe & North-west Africa

Wintering Population

All-Ireland (2018-2023):	62,010
ROI (2018-2023):	51,270
ROI I-WeBS SPA Sites (2018-2023):	42,960

Site Threshold

International Importance:	13,300
National Importance:	620

Population Change (ROI)

5-year (2016-2022):	+23.9%
12-year (2009-2022):	+16.9%
26-year (1995-2022):	-47.8%
Historical (1984-2023):	-38.5%
Average annual change (1995-2022):	-1.8%

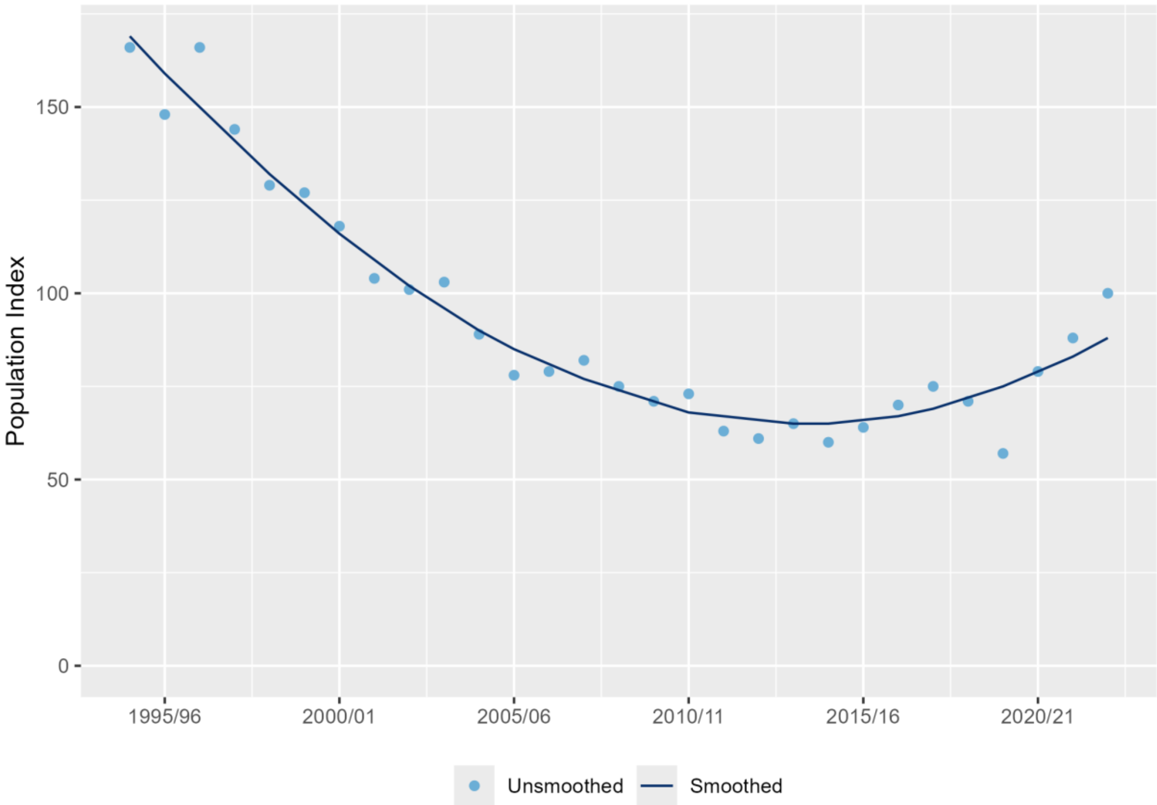


Figure 93 Calculated trends and graphed ROI population index for Dunlin. Photo: Brian Burke.

The Dunlin that winter in Ireland are primarily of the *alpina* subspecies which breed in northern Scandinavia, northern Russia, and north-western Siberia. This population winters in Western Europe, the Mediterranean and northern and western Africa (Wetlands International, 2024). The *schinzii* population breeds in Ireland and Britain but winters in north-western Africa and south-western Europe. During spring and autumn passage the *arctica* subspecies, which breeds in north-east Greenland, also occurs in Ireland in unknown proportions *en route* to wintering grounds in Africa. The flyway population of the *alpina* subspecies has been stable in recent years (Wetlands International, 2024). In Ireland, wintering Dunlin have undergone a significant decrease since the 1980s and 1990s which seemingly bottomed out in the early 2010s and they have increased since (Figure 93). The British population has experienced a similar trend, with a decline of 34% since the 1990s but a more recent 10-year increase of 6% (Woodward *et al.*, 2024).

Wintering Dunlin primarily occur around Ireland's coast but can also be found in small numbers at inland sites. Dunlin were recorded at 132 sites during the recent period, 18 of which supported numbers of national importance (see Figure 94 and Table 48). Numbers at Dublin Bay, Lough Swilly and Dundalk Bay, now the three top ranked sites across Ireland, have all increased significantly since the former period. All three were surveyed consistently across both recent and previous periods, meaning these are genuine increases rather than an artefact of changes in survey coverage.

Studies in the early 2000s identified winter temperature and conditions as being influential in Dunlin distribution, with colder winters leading to a greater proportion of the population wintering in the south-west (Austin & Rehfisch, 2005) and conversely warmer winters causing a shift in the population towards the north-east (Maclean *et al.*, 2008).

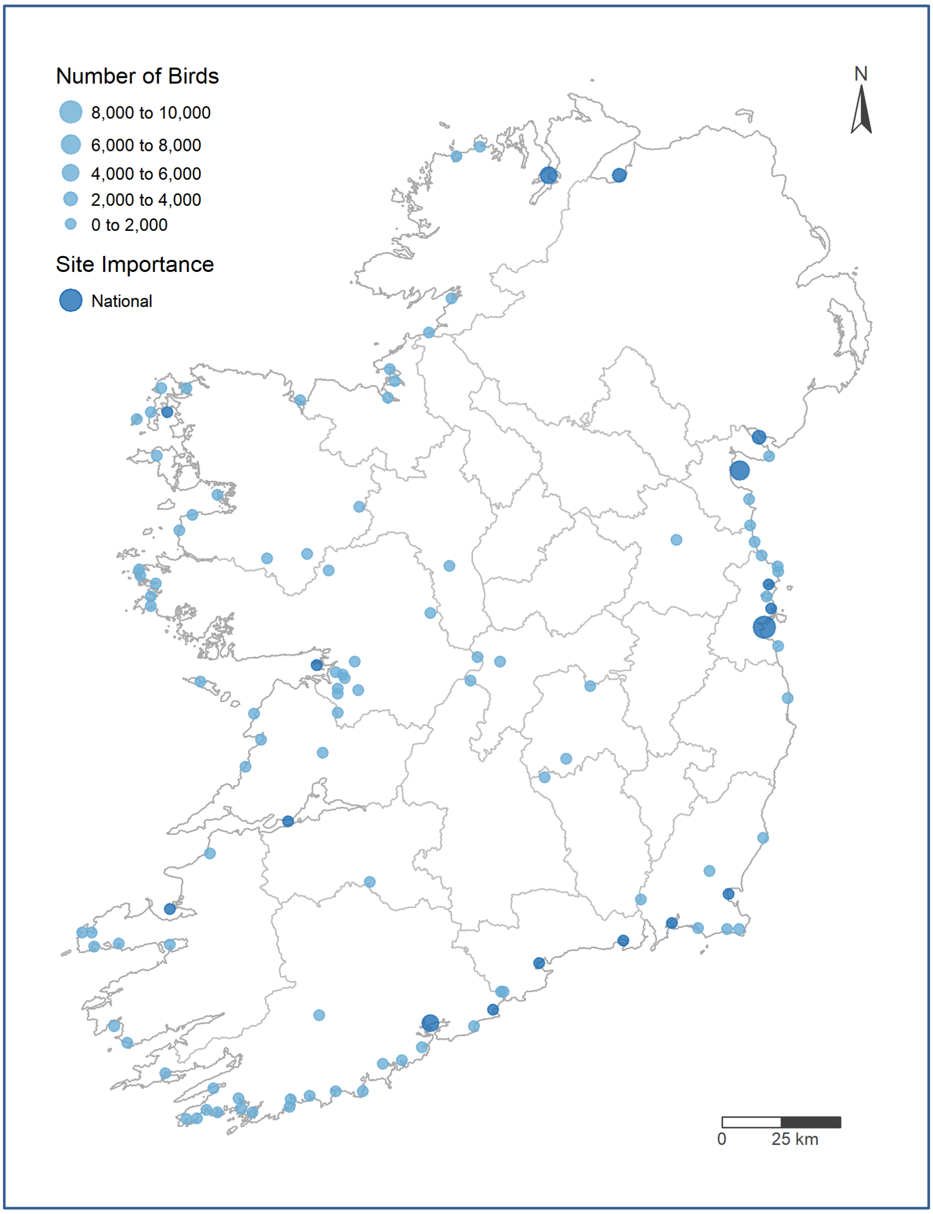


Figure 94 I-WeBS sites where Dunlin were recorded between 2018/19 and 2022/23.

Table 48 I-WeBS sites supporting internationally and/or nationally important numbers of Dunlin between 2018/19 and 2022/23, ranked by the mean of peak season counts.

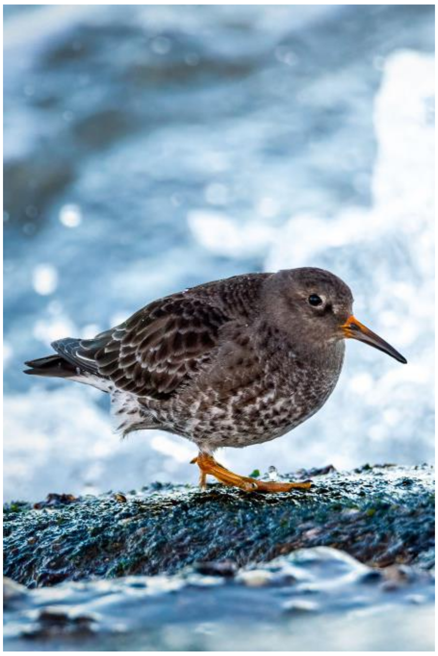
Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Dublin Bay	8280	7484	7474	6017	10362	8355*	13092*	9060*	13092*	Nov, Dec, Jan, Mar
Dundalk Bay	3653	5280	6890	3659*	4807*	1629*	6526*	6890	6890	Feb
Lough Swilly	5019	4293	5606	3554	6234	6467	6042	5581	6467	Nov, Dec, Jan
Cork Harbour	1006*	3286*	3965	4249	1565	5171	6798*	4350*	6798*	Nov, Dec, Jan
Lough Foyle (WeBS)	2774	2839	2297	4871	1880	2099	3853	3000	4871	Dec, Jan, Feb
Carlingford Lough (WeBS)	384*	457*	636*	975*	20*	3020*	2978	2978	3020*	Nov, Dec, Jan, Feb
Shannon & Fergus Estuary (Aerial)					1932			1932	1932	Dec
Rogerstown Estuary	2356	1381	1508	539	3427	1131*	1212*	1825	3427	Dec, Feb
Dungarvan Harbour	2988	2197	2510	1596	644	1760*	2492	1810	2510	Nov, Dec, Jan
Ballymacoda	2277	433	2281	1614	182		1962	1510	2281	Oct, Nov, Jan
Wexford Harbour & Slobs	1495	1020	889	1230	3122*	750	860*	1370*	3122*	Nov, Dec, Jan, Feb
Shannon & Fergus Estuary	100*	6098	18*	1000*	659*	1132*	3236*	1209*	3236*	
Inner Galway Bay	1507	2474	1325	1206		858		1130	1325	Jan, Mar
Bannow Bay	1812	850	840	808	1500	890	1510	1110	1510	Nov, Dec, Jan
Baldoyle Bay	403	537	93	30	291	1785	1815*	803*	1815*	Oct, Dec, Jan, Feb
Blacksod & Tullaghan Bays	1003	914*	959*	614*	384*	715	48*	715	959*	Oct, Nov, Dec
Tralee Bay, Lough Gill & Akeragh Lough	545	585	309*	101*	437*	1167*	1515*	706*	1515*	
Tramore Back Strand	850	632	350		198	1001	1263	703	1263	Nov, Dec, Mar

* includes a low-quality count *e.g.* estimate.

4.47 Purple Sandpiper *Calidris maritima* Gobadán cosbhuí

Northern Europe & Western Siberia

North-east Canada & Northern Greenland



Wintering Population

All-Ireland (2018-2023):	750
ROI (2018-2023):	530
ROI I-WeBS SPA Sites (2018-2023):	150

Site Threshold

International Importance:	110
National Importance:	20

Population Change (ROI)

5-year (2016-2022):	+11.9%
12-year (2009-2022):	-31.1%
26-year (1995-2022):	-39.6%
Historical (1984-2023):	-82.6%
Average annual change (1995-2022):	-1.5%

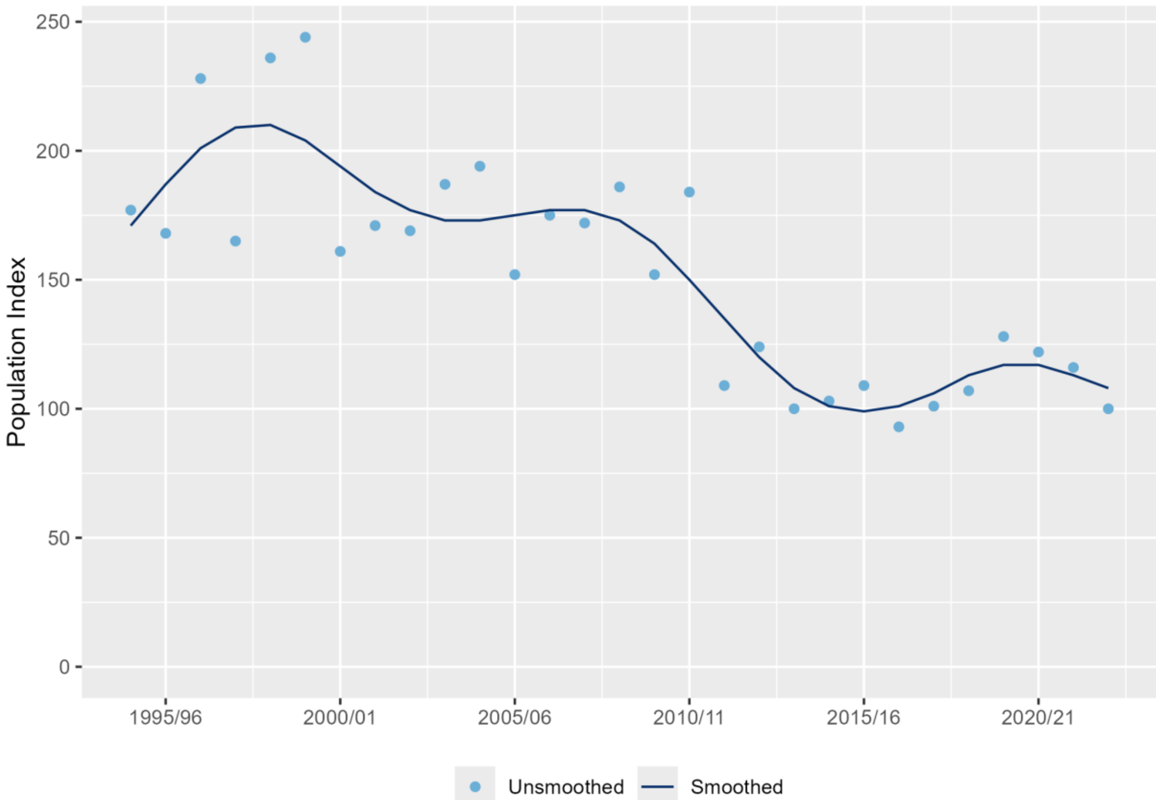


Figure 95 Calculated trends and graphed ROI population index for Purple Sandpiper. Photo: John Murphy.

The breeding range of Purple Sandpiper extends across the western part of the Arctic, from north-east Canada, eastward to Greenland, Iceland, Svalbard, Scandinavia and the Taymyr Peninsula. Wetlands International (2018) recognises two breeding populations of Purple Sandpiper. Ringing data for this species in an Irish context is very limited, however, the

Canadian/Greenland breeding population, typically longer billed (Nicoll *et al.,* 1988), is thought to be the primary wintering population in Ireland (Foster *et al.,* 2010; Summers *et al.,* 2014) and is in decline (AEWA, 2022). The population, which breeds across Northern Europe, including Norway, and Western Siberia, and are more likely to be encountered in the UK, is thought to be stable (AEWA, 2022). In Ireland, Purple Sandpipers have shown a consistent and significant decline until very recently (Figure 95). In the UK they have declined by 15% since the mid-1990s but remained stable (+2%) since 2011/12 (Woodward *et al.*, 2024).

Caution is advised when interpreting trends for this species as they are poorly monitored through core I-WeBS methodology alone, due to their preference for rocky shores. There was an increase in both numbers and distribution between NEWS-II (Crowe *et al.,* 2012) and NEWS-III (Lewis *et al.,* 2017), and it should be noted that NEWS-III was carried out prior to the recent I-WeBS period being analysed here, so updated data are needed. Of the recent population estimate for Purple Sandpipers in ROI, just under 65% of the total is derived from NEWS-III (Lewis *et al.*, 2017).

Purple Sandpiper were reported at 26 I-WeBS sites during the recent period, with the greatest concentration on the west coast of Galway and Mayo, and sites in Dublin (see Figure 96 and Table 49). No sites supported numbers of national importance and the data suggests an inconsistent presence at most of these sites at the time of day and tidal stages that I-WeBS counts are generally conducted.

Climate change may be an important driver of population trend in Purple Sandpiper, with some studies linking winter distribution retraction in the direction of the breeding grounds in relation to increased temperature on the wintering grounds (Rehfisch *et al*., 2004). Predictions based on future climate change scenarios also suggest a reduction in suitable breeding habitat is likely (Wauchope *et al*., 2016).

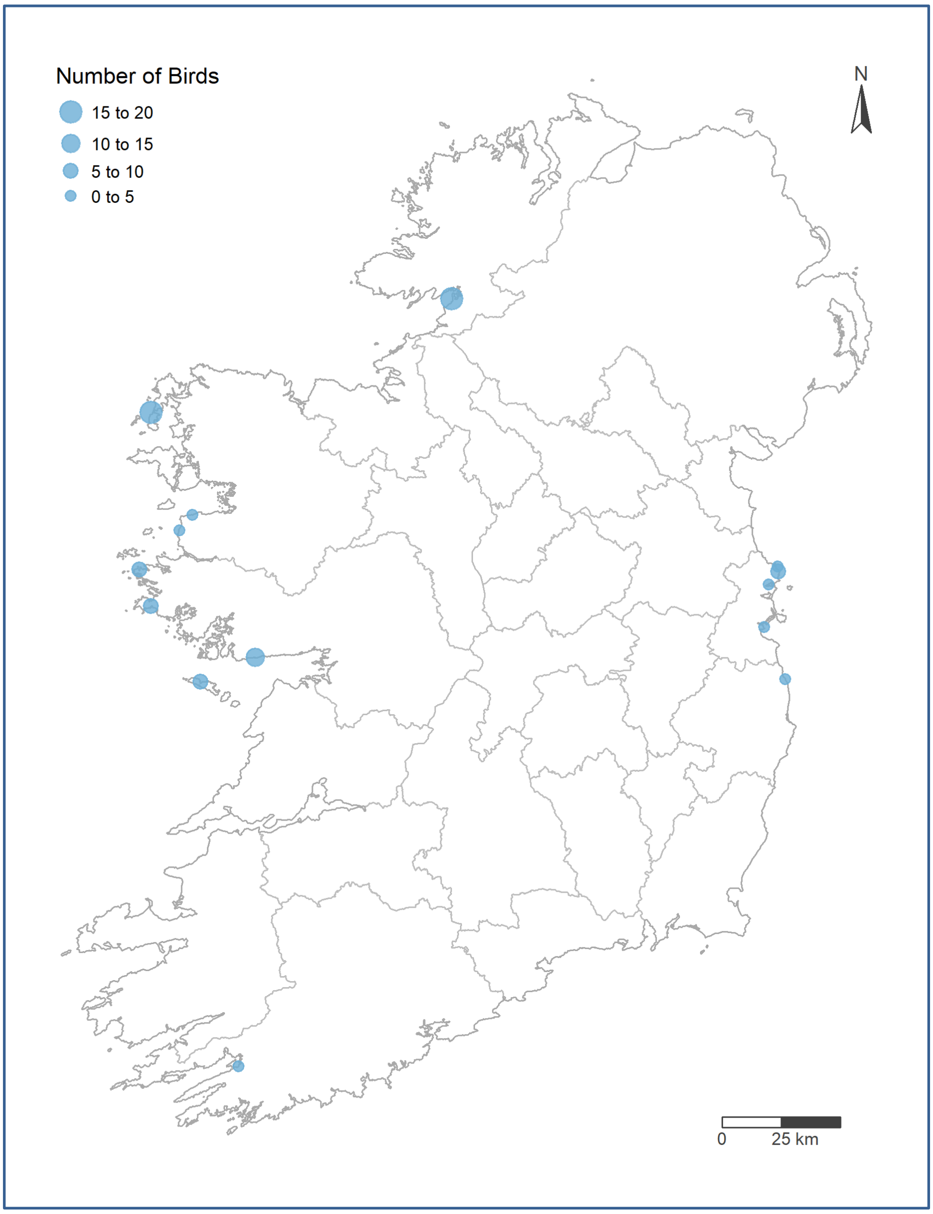


Figure 96 I-WeBS sites where Purple Sandpiper were recorded between 2018/19 and 2022/23.

Table 49 All I-WeBS sites supporting Purple Sandpiper with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Mullet West	4	0		5*		40*	12*	19*	40*	
Donegal Bay	15	14	14	23			2*	18	23	Jan
Trá na Rón (Inveran)							13*	13*	13*	
Rossadillisk	30	5	0		17			8	17	Sep, Nov
Ballyconneely Bay	1	2			6			6	6	Feb
Skerries Coast	2	8	1	2	14*	6	8	6*	14*	Nov, Dec, Jan, Mar
Inishmore, Aran Islands	0	0	0	15	0			5	15	Oct, Nov, Dec
South Mayo Coast	1	0	0	4	0*	0	5*	2*	5*	Sep, Oct, Feb
Bantry Bay	0	0	0	0	0*	8*	3	2*	8*	Sep, Jan, Feb
Dublin Bay	0	0	0	1	1	6	1*	2	6	Sep, Nov, Dec, Mar
Rogerstown Estuary	3	0	4	4	0	3	0	2	4	Sep, Nov, Dec
Skerries Islands						2*		2*	2*	
Carrowmore Beach	0	0	3	0		0	0	1	3	Sep, Nov
Greystones		0	0			0	4	1	4	Nov, Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.48 Jack Snipe *Lymnocryptes minimus* Naoscach bhídeach

Northern Europe/Southern & Western Europe & Western Africa

Site Threshold

International Importance:	20,000

I-WeBS Peak season counts

ROI Mean (2018-2023):	8
ROI Peak (2018-2023):	14

Figure 97 Peak season counts of Jack Snipe at I-WeBS sites. Photo: Dick Coombes.

Jack Snipe are a winter visitor and a passage migrant to Ireland from Northern Europe (Figure 97). The flyway population is believed to be stable, though the quality of the trend analysis is poor (Wetlands International, 2024). They are a challenging species to monitor due to their secretive nature (Jackson, 2004) and the I-WeBS survey methodology is not suitable to provide meaningful data on their numbers or distribution. Furthermore, they use a range of wetland and farmland habitats away from I-WeBS sites.

Jack Snipe were recorded at 27 I-WeBS sites during the recent period (see Figure 98 and Table 50). Tellingly, no site had records of them every year, underscoring the fact that records via I-WeBS represent chance encounters by keen observers. In the most recent Bird Atlas, Jack Snipe were recorded in 20% of 10 km squares in Ireland in winter (Balmer *et al.*, 2013), and this in itself is likely to be an underestimate.

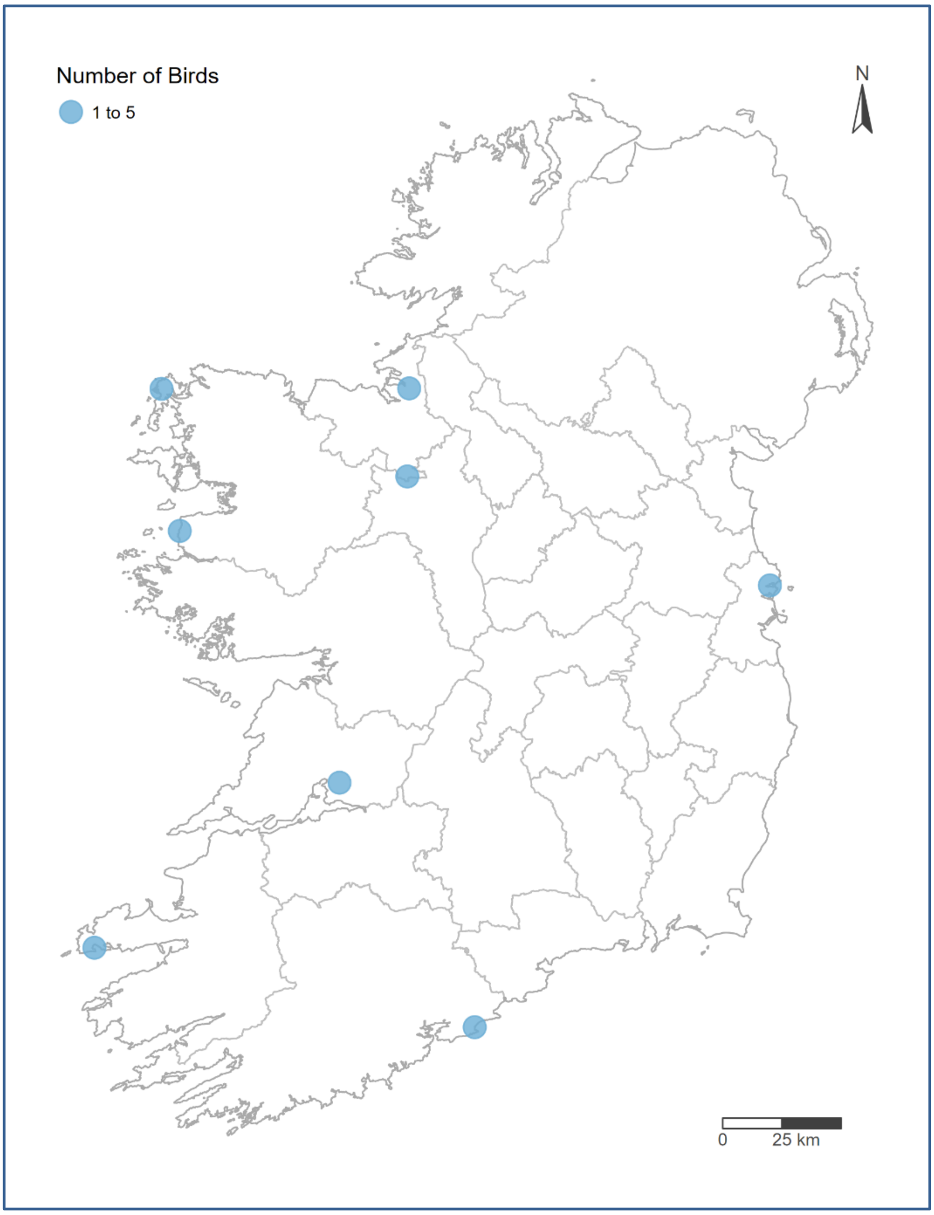


Figure 98 I-WeBS sites where Jack Snipe were recorded between 2018/19 and 2022/23.

Table 50 All I-WeBS sites where Jack Snipe was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least 1.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Lough Gara	0	16	0	0*	0*	0	13	4	13	Sep, Jan
Termoncarragh & Annagh Marsh	0	2		0*		7	0	4	7	Oct, Dec
Ventry Harbour					0	7	0	2	7	Sep, Jan
Ballycotton Shanagarry	2	2	5	3	0	0	2	2	5	Nov, Dec, Jan, Feb
Garvogue River							1	1	1	Dec
South Mayo Coast	0	0	0	4*	0*	0	0*	1*	4*	Sep, Feb
Ballycar Lough	0	0	0	0	0	0	7	1	7	Sep, Oct, Nov, Dec
Rogerstown Estuary	2	0	1	1	0	3	0	1	3	Sep, Dec, Jan, Mar

* includes a low-quality count *e.g.* estimate.

4.49 Snipe *Gallinago gallinago* Naoscach

gallinago, Europe/South & West Europe & North-West Africa

faeroeenis, Iceland, Faroes & Northern Scotland, Ireland

Site Threshold

International Importance:	11,000

I-WeBS Peak season counts

ROI Mean (2018-2023):	579
ROI Peak (2018-2023):	835

Figure 99 Peak season counts of Snipe at I-WeBS sites. Photo: John Fox.

Ireland's wintering Common Snipe (hereafter Snipe) (see Figure 99) comprise residents and migrants from the nominate *gallinago* race which breeds across Northern Europe, as well as the majority of the *faeroeensis* population which breeds in Iceland, the Faroes, and the Shetland and Orkney Islands (Wernham *et al.*, 2002; Delaney *et al.,* 2009). Numbers of the former have been stable in recent years while the latter is thought to have decreased (Wetlands International, 2024). In winter Snipe are widely distributed across Ireland, present in 90% of 10 km squares in the most recent Bird Atlas (Balmer *et al.*, 2013). They utilise all manner of wetlands and grasslands and the majority of the population likely occur away from I-WeBS sites. In addition, their cryptic, skulking behaviour mean they are rarely detected through the typical I-WeBS core count methodology. As a result, I-WeBS cannot provide indicative population estimates or reliable trends for wintering Snipe.

Despite the fact that the I-WeBS core count methodology is not designed to account for Snipe, they were recorded in 212 inland and coastal I-WeBS sites in recent years. Peak counts of more than 100 individuals were recorded at Termoncarragh & Annagh Marsh in Mayo, Cork Harbour and Clonakilty Bay in Cork (see Figure 100 and Table 51).

Snipe are listed on the Open Seasons Order as a species huntable throughout the state from 1 September to 31 January each winter. There is no widely available data on the level or distribution of harvesting. The recent consultation for the Open Seasons Order confirmed that the status of Snipe is very data-deficient (O'Keeffe, 2023).

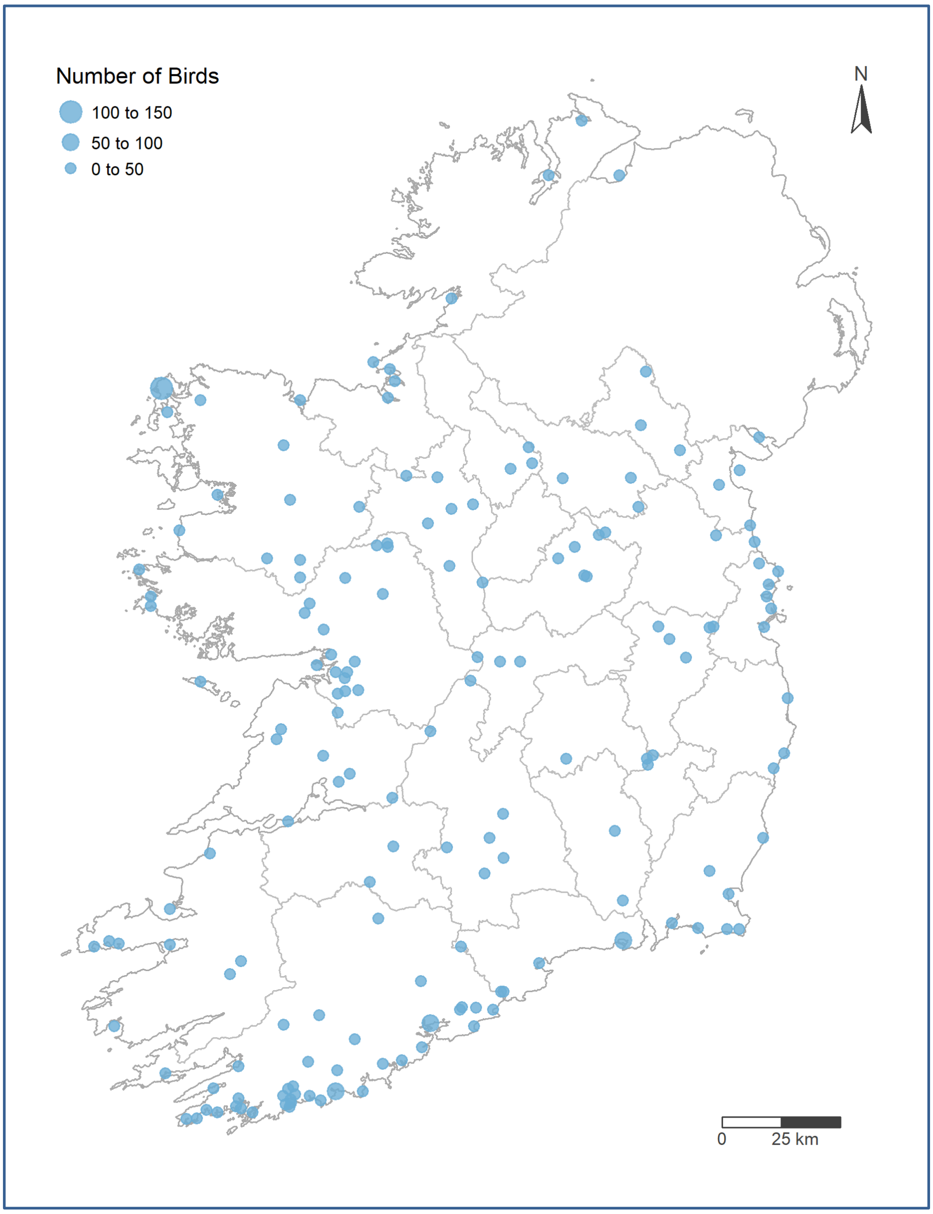


Figure 100 I-WeBS sites where Snipe were recorded between 2018/19 and 2022/23.

Table 51 The 15 top-ranked I-WeBS sites where Snipe was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Termoncarragh & Annagh Marsh	66	83		45*		184	88	136	184	Oct, Dec
Cork Harbour	66	98	133	58	35	56	97*	76*	133	Dec, Jan
Clonakilty Bay	31	113	26*	25	19	41	151	59	151	Oct, Nov, Dec, Feb
Tramore Back Strand	49	55	63		0	83	72	54	83	Nov, Jan, Feb, Mar
Ballydehob Estuary	4	7	3	90*	32*	85*	32	48*	90*	Nov, Dec, Jan
Ballymacoda	33	11	48	50	6		38	36	50	Oct, Nov
Lower Blackwater River	8	18	35	1*		0*	0*	35	35	Dec
Glandore Harbour/Union Hall				35	0	45	54	34	54	Oct, Dec, Jan
Dingle Harbour	11	7	5	11	23	46	78	33	78	Nov, Dec, Feb, Mar
Ballycotton Shanagarry	31	31	57	41	8	37	20	33	57	Nov, Dec, Jan
Dungarvan Harbour	34	29	21	97	8	4	34	33	97	Dec, Feb
Shannon & Fergus Estuary	4*	77	6*	16*	93*	9*	24*	30*	93*	
Blackwater Estuary	10	12	18	21	38		15*	26	38	Nov, Dec, Jan
Castletown Lakes		1		48		4		26	48	Oct, Jan
Lough Swilly	29	34	37	18	7	18	47*	25*	47*	Sep, Dec

* includes a low-quality count *e.g.* estimate.

4.50 Redshank *Tringa totanus* Cosdeargán

totanus, Britain & Ireland/Britain, Ireland, France

robusta Iceland & Faroes/Western Europe

Wintering Population

All-Ireland (2018-2023):	24,420
ROI (2018-2023):	16,280
ROI I-WeBS SPA Sites (2018-2023):	12,080

Site Threshold

International Importance:	2,400
National Importance:	240

Population Change (ROI)

5-year (2016-2022):	-8.4%
12-year (2009-2022):	-22.2%
26-year (1995-2022):	-15.5%
Historical (1984-2023):	-16.6%
Average annual change (1995-2022):	-0.6%

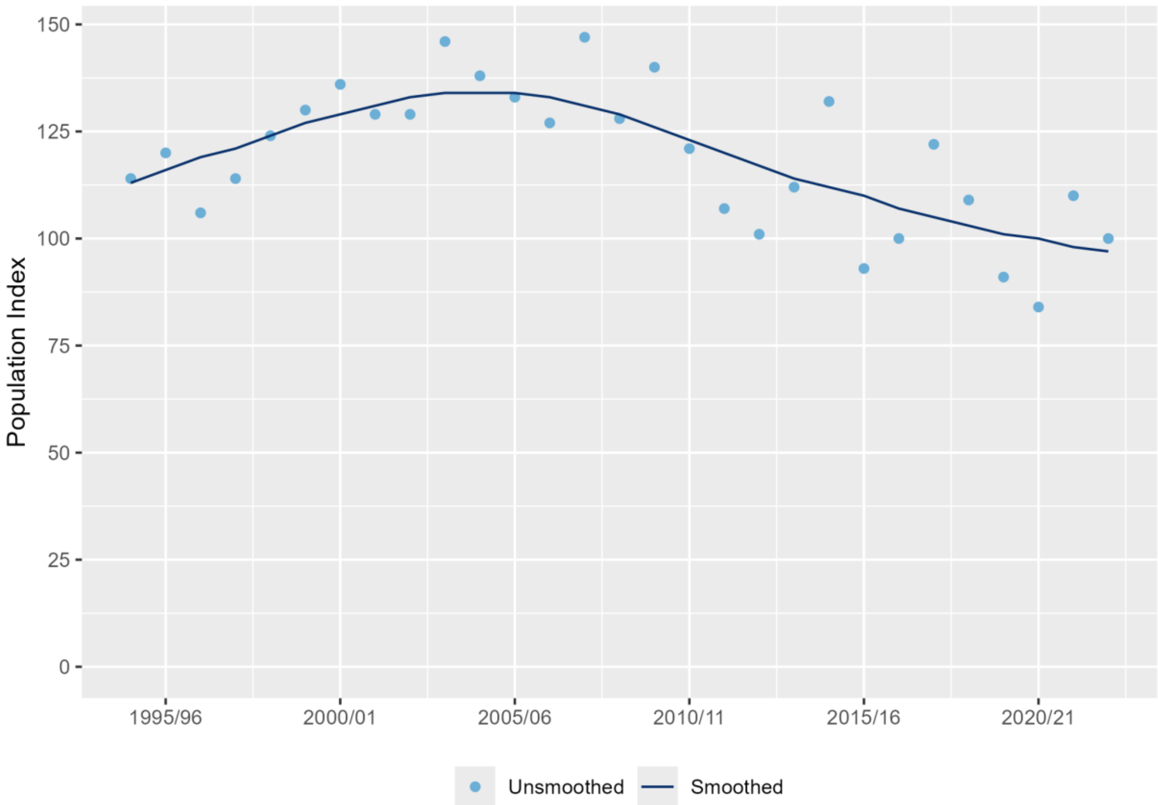


Figure 101 Calculated trends and graphed ROI population index for Redshank. Photo: Fintan McTiernan.

Ireland's wintering Common Redshank primarily come from two populations: the *robusta* subspecies, which breeds in Iceland and the Faroe Islands, and the *totanus* subspecies, which breeds in Britain and Ireland (Delany *et al.*, 2009). The *robusta* population is stable, while the *totanas* population is declining at the flyway level (Wetlands International, 2024). The relative proportions of these populations wintering, or passing through Ireland in the non-breeding season is not well known. After a modest increase from the late 1990s into the early 2000s, wintering Redshank in ROI have undergone a significant decline (Figure 101). In the UK, Redshank have declined by 20% over the 25 years (1995/96 - 2020/21) and by 3% in the current 10-year period (2010/11 - 2020/21) (Woodward *et al.*, 2024). The long-term trend here is similar to that in the UK (down 19% in 26 years) but the trend in the UK over the last 10 years has been stable/positive (+3% 2011/12 - 2021/22; Woodward *et al.*, 2024).

Redshank predominantly winter on the coast in Ireland, though with small numbers at inland sites along the Shannon system and further west. They were recorded at 152 I-WeBS sites in recent years, with Dublin Bay recently supporting numbers of international importance and a further 23 sites around the coast supporting nationally important numbers (see Figure 102 and Table 52). Of the recent ROI population, 16% were from non-estuarine coast surveyed in 2015/16 (NEWS-III; Lewis *et al.*, 2017).

Given that the majority of the population rely on coastal estuaries in the winter, there is a lot of overlap with areas of high recreational disturbance. Cutts *et al.* (2009) ranked Redshank as highly sensitive to disturbance. Disturbance from sports, tourism and leisure activities was the most frequently cited pressure at I-WeBS sites for all species groups, in a survey of I-WeBS counters. Of those, dog walking was by far the most frequently cited activity causing disturbance to wintering waterbirds. Lewis & Adcock (2017) found that waterbird activity decreased as recreational disturbance (walkers, dogs, kite surfers *etc*.) increased on Dollymount Strand (Dublin Bay).

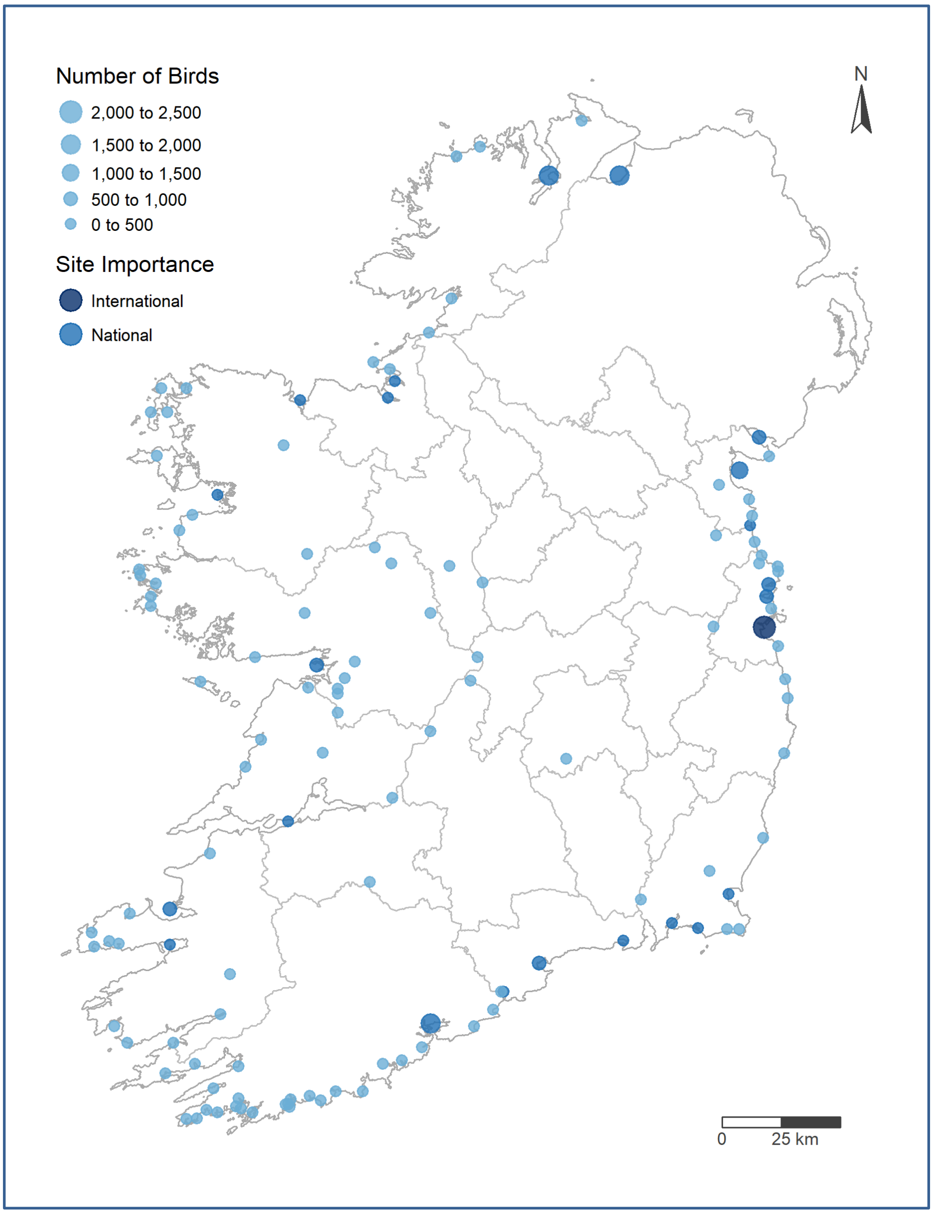


Figure 102 I-WeBS sites where Redshank were recorded between 2018/19 and 2022/23.

Table 52 I-WeBS sites supporting internationally and/or nationally important numbers of Redshank between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Dublin Bay	1430	2561	2312	2299	2517	2587	1322*	2429	2587	Sep, Oct
Cork Harbour	1521	1653	1493	1597*	1417	1748*	2222*	1695*	2222*	Sep, Oct, Nov, Dec
Lough Foyle (WeBS)	1232	1353	1357	2087	1538	1931	1553	1693	2087	Oct, Nov, Jan
Lough Swilly	2230	1483	1848	1374	1154	1885	1951	1642	1951	Sep, Oct, Dec, Mar
Dundalk Bay	1337	1072	2025	856	771	809*	959*	1217	2025	Jan, Mar
Dungarvan Harbour	818	1165	1121	763	617	763	582	769	1121	Nov, Dec, Feb
Rogerstown Estuary	597	880	861	568	464	850*	471	643*	861	Sep, Oct, Mar
Carlingford Lough (WeBS)	788	1173	607	541*	210*	462*	919*	607	919*	Nov, Dec, Jan
Broadmeadow (Malahide) Estuary	487	575	410	331*	355*	677	478	522	677	Sep, Oct
Inner Galway Bay	637	561	422	495		609		509	609	Nov, Jan, Mar
Tralee Bay, Lough Gill & Akeragh Lough	570	297*	151*	201*	486*	437*	1268*	509*	1268*	
Castlemaine Harbour & Rossbehy	674	551	350*	146*	596*	923*	348*	473*	923*	
Wexford Harbour & Slobs	483	645	677	312	235*	193	91*	394	677	Nov, Dec
Clew Bay	427	244	396		400	323	416*	384*	416*	Oct, Nov
Boyne Estuary	427	570	414	465	280	356	339*	379	465	Sep, Oct
The Cull & Killag (Ballyteige)	418	484	411	316	120	403	588	368	588	Sep, Oct, Dec
Ballysadare Bay	327	404	197	266		351	391	301	391	Nov, Jan
Killala Bay	191*	232	73	350	375	257	441	299	441	Sep, Oct, Feb, Mar
Shannon & Fergus Estuary (Aerial)					265			265	265	Nov
Blackwater Estuary	266	320	300	204	250		156*	251	300	Sep, Oct, Dec
Bannow Bay	492	158	153	390	154	287	262	249	390	Sep, Oct, Nov, Jan
Shannon & Fergus Estuary	135*	2733	136*	96*	112*	220*	675*	248*	675*	
Tramore Back Strand	237	211	158		158	404*	273	248*	404*	Nov, Jan, Feb, Mar
Sligo Harbour	699	317	178	185		291	309	241	309	Oct, Dec, Jan

* includes a low-quality count *e.g.* estimate.

4.51 Greenshank *Tringa nebularia* Laidhrín glas

Northern Europe/South-West Europe, North-west & Western Africa

Wintering Population

All-Ireland (2018-2023):	1,590
ROI (2018-2023):	1,440
ROI I-WeBS SPA Sites (2018-2023):	800

Site Threshold

International Importance:	2,900
National Importance:	20

Population Change (ROI)

5-year (2016-2022):	+12.3%
12-year (2009-2022):	+31.9%
26-year (1995-2022):	+78.4%
Historical (1984-2023):	+125.3%
Average annual change (1995-2022):	+3%

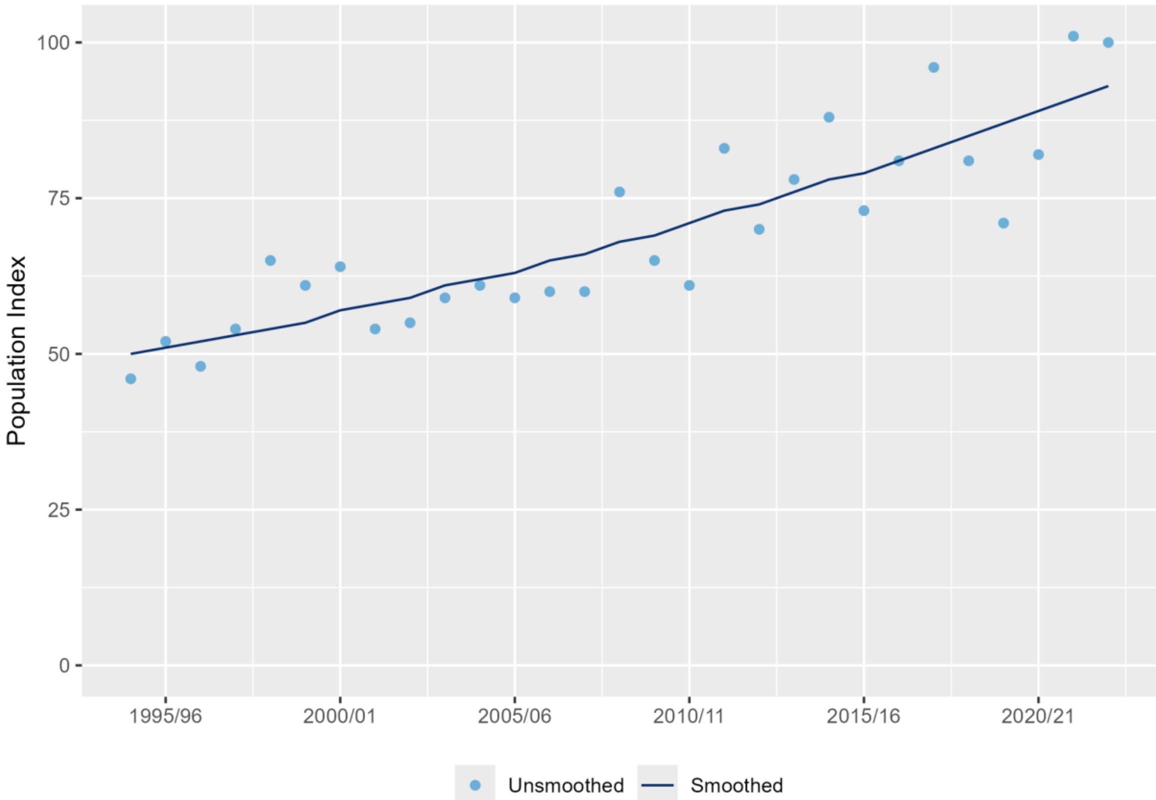


Figure 103 Calculated trends and graphed ROI population index for Greenshank. Photo: John Fox.

Greenshank wintering in Ireland are part of the Northern European breeding population that winter in south-west Europe and north-west Africa. The limited available ringing data suggests most of the Irish-wintering population comes from Scotland (Nethersole-Thompson & Nethersole-Thompson, 1979; Wernham *et al.*, 2002; Summers *et al.*, 2020). The flyway population has most recently been evaluated as stable/increasing (Wetlands International, 2024). Greenshank numbers in Ireland have increased significantly across all periods (Figure 103). Similar growth has been observed in the UK wintering Greenshank population though the trend is not considered robust (Woodward *et al.*, 2024).

Greenshank are almost exclusively found along the coast and were recorded at 132 I-WeBS sites in the recent period. They also have a significant presence on non-estuarine coast outside of the I-WeBS site network and 30% of the recent population estimate is from NEWS-III (Lewis *et al.*, 2017). Twenty-one sites supported numbers of national importance in recent years, including sites on every coast. Cork Harbour and Lough Swilly continue to support the largest numbers each winter (see Figure 104 and Table 53).

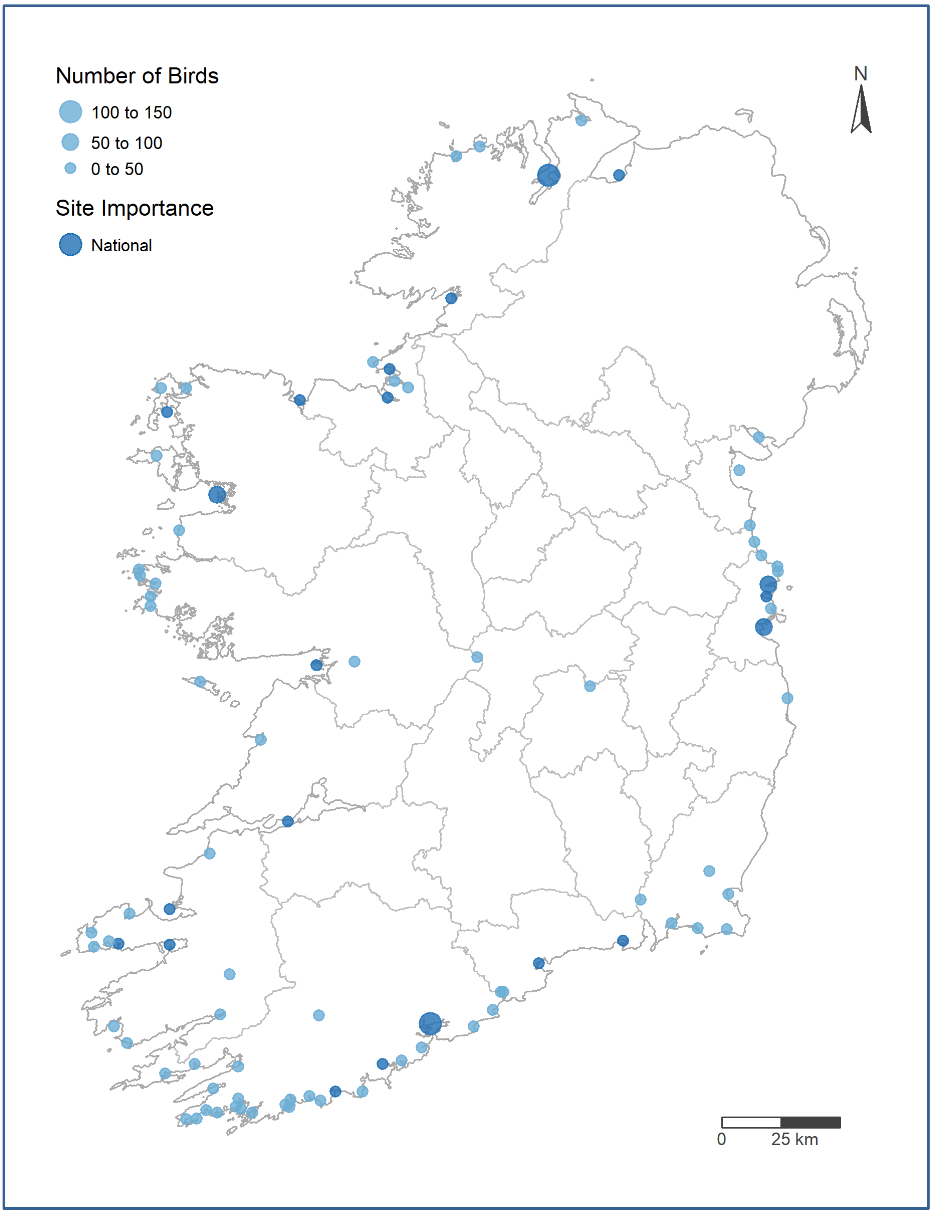


Figure 104 I-WeBS sites where Greenshank were recorded between 2018/19 and 2022/23.

Table 53 I-WeBS sites supporting internationally and/or nationally important numbers of Greenshank between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Cork Harbour	150	87	103	120*	73*	178	145	142	178	Oct, Nov, Dec
Lough Swilly	106	59	136	140	49	100	94	104	140	Sep, Oct
Clew Bay	52	31	45		70	68	39*	61	70	Sep, Oct
Rogerstown Estuary	64	48	56	49	46	58	61	54	61	Sep, Oct, Nov
Dublin Bay	35	47	44	51	48	58	29*	50	58	Sep, Oct
Shannon & Fergus Estuary	31*	202	5*	9*	15*	9*	207*	49*	207*	
Broadmeadow (Malahide) Estuary	46	43	61	25	35*	33	65	46	65	Sep, Oct, Dec
Inner Galway Bay	58	41	31	50		47		43	50	Jan
Castlemaine Harbour & Rossbehy	32	34	29	3*	70*	20*	44*	33*	70*	Sep, Nov, Dec
Ballysadare Bay	25	22	35	35		22	38	32	38	Nov, Jan
Clonakilty Bay	45	25	36	38	17	48	19	32	48	Sep, Oct, Nov, Dec, Jan
Blacksod & Tullaghan Bays	34	23	31	21*	14*	23*	12*	31	31	Nov
Killala Bay	16	13	7	22*	40	44	27	30	44	Oct, Nov
Tralee Bay, Lough Gill & Akeragh Lough	10	75	7	7*	40*	45*	53*	30*	53*	Sep, Oct, Jan, Feb
Tramore Back Strand	14	15	12		13	38	52	29	52	Nov, Dec, Mar
Lough Foyle (WeBS)	29*	9	19	31	26	20	38*	27*	38*	Sep, Nov
Dungarvan Harbour	25	31	26	25	28	29	22	26	29	Nov, Dec, Feb
Bandon Estuary	30	67	22	17			35	25	35	Jan
An Trá Beg	26	26	31	22	22	12	32	24	32	Sep, Oct, Jan
Donegal Bay	29	28	17	24			29*	23*	29*	Nov, Jan
Drumcliff Bay Estuary	4	11	10	31		19	31	23	31	Oct, Nov, Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.52 Black-headed Gull *Larus ridibundus* Sléibhín

Western Europe/Western Europe, Western Mediterranean, Western Africa

Site Threshold

International Importance:	31,000

I-WeBS Peak season counts

ROI Mean (2018-2023):	19,165
ROI Peak (2018-2023):	22,716

Figure 105 Peak season counts of Black-headed Gull at I-WeBS sites. Photo: John Fox.

Black-headed Gull (Figure 105) is the most widespread and numerous gull species in Ireland during the winter months, commonly found in both inland and coastal wetlands. However, since recording gulls is optional during I-WeBS counts, it is difficult to draw definitive conclusions about their population trends or total numbers in winter. Additionally, this species often feeds away from wetland areas, on agricultural grassland, in urban areas, and on small wetland sites that may not be surveyed by I-WeBS at present. Based on colour-ring resighting, the Irish wintering population consists of a mix of Irish-breeding birds, along with individuals from the UK, Scandinavia, and the Baltic states (Wernham *et al.*, 2002). While most Irish-breeding Black-headed Gulls remain in Ireland year-round, a small number, mostly juveniles, migrate south to Europe or North Africa (Wernham *et al.*, 2002; McGreal, 2014).

The population of Black-headed Gulls in West Europe is believed to be declining (Wetlands International, 2018). A recent survey of the UK and Irish breeding population found an overall 29% decline since the turn of the century, amounting to a loss of 40,000 breeding pairs in a circa 20-year period (Burnell *et al.*, 2023).

A comparison of data between the recent period (2018 - 2023) and the previous one (2011 - 2016; Lewis *et al.*, 2017) shows a decrease of over 30,000 in both the mean and peak numbers of Black-headed Gulls recorded through I-WeBS, though difficulties in counting gulls in this manner may play a role in these differences. The number of sites where they were recorded has risen from 247 in the previous period to 305 in the recent period, suggesting differences in coverage are not responsible for the differing mean and peak counts between periods. Mid-winter gull roost counts in Dublin Bay in winter 2021/22 found more than 13,000 individuals in November and just under 26,000 in February, far exceeding the peak count for the site in recent years as recorded through I-WeBS (see Figure 106 and Table 54). The Republic of Ireland still lacks a focused gull roost survey in the manner of the 'Winter Gull Survey' (WinGS) in the UK (Banks *et al.*, 2009).

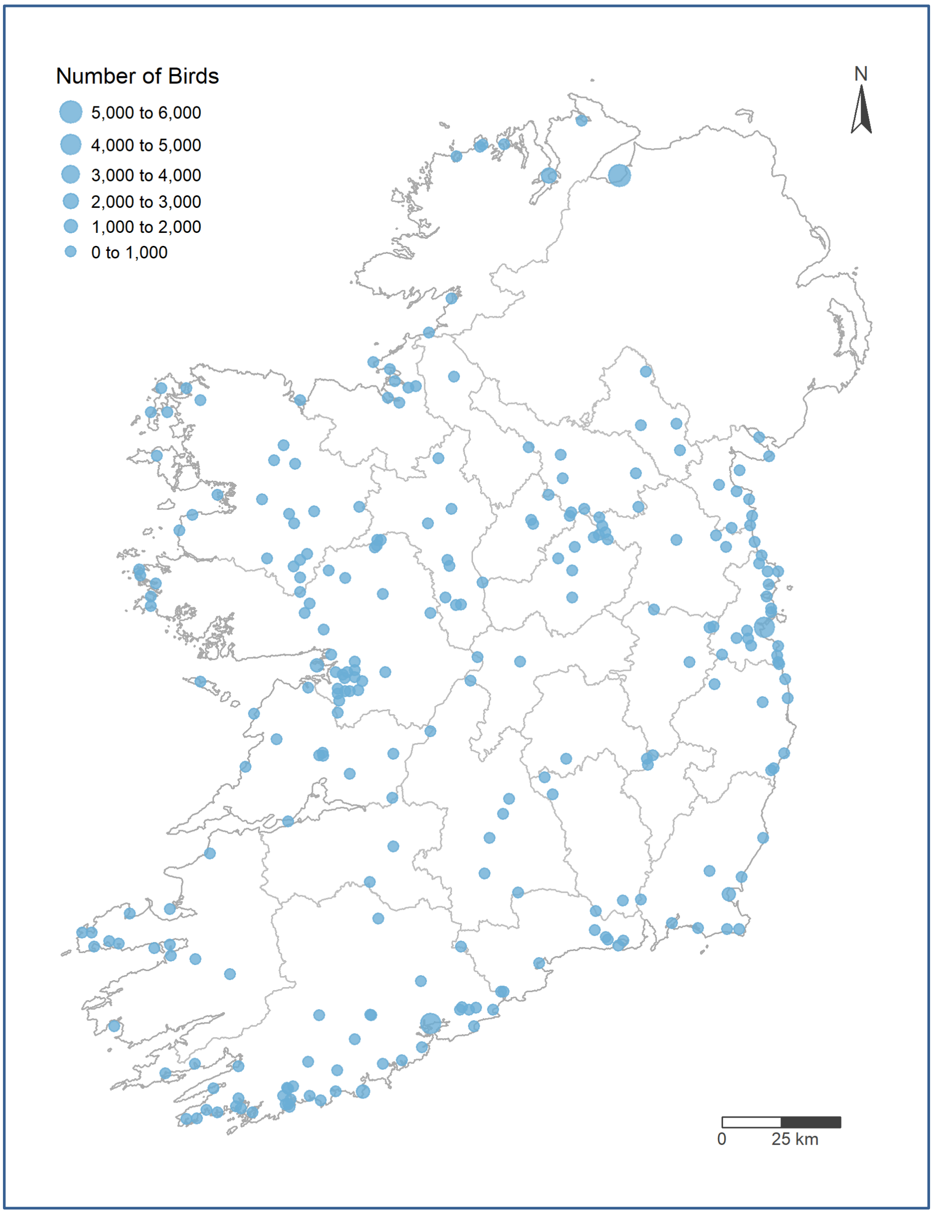


Figure 106 I-WeBS sites where Black-headed Gull were recorded between 2018/19 and 2022/23.

Table 54 The 15 top-ranked I-WeBS sites where Black-headed Gull was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Lough Foyle (WeBS)	4306	5706	4693	6773	2034	4170	7353	5005	7353	Sep, Oct, Nov
Dublin Bay	2731	3802	3597	3803	4842	5342	3949*	4396	5342	Sep, Jan, Mar
Cork Harbour	3722	3060	4044	3768*	4356*	3908	4054	4026*	4356*	Sep
Shannon & Fergus Estuary (Aerial)					3005			3005	3005	Dec
Lough Swilly	2178	2166	3276*	2987	2649	2552	1876	2668*	3276*	Sep, Oct, Nov, Mar
Inner Galway Bay	2094	1563	2578	1601		1098		1759	2578	Nov, Jan
Wexford Harbour & Slobs	732	431	1665	1042	3256*	970	309*	1448*	3256*	Nov, Jan, Feb
Courtmacsherry Bay, Broadstrand Bay & Dunworley	1374	1044	1665	862	873*	820	961	1077	1665	Sep, Dec, Jan
Shannon Callows (Aerial)			581		1273*			927*	1273*	Nov, Feb
Dundalk Bay	492*	1680	1170	706	870	555*	562*	915	1170	Jan
Shannon & Fergus Estuary	500*	8314	260*	365*	1204*	1930*	564*	865*	1930*	
Ballymacoda	780	504	574	725	1256*		535	772*	1256*	Oct, Nov
River Barrow (Cheekpoint-New Ross)	48	40	0	100*	0*	863	1198	687	1198	Nov
Lady's Island Lake	1419	1302	245	403	249	422	1824	629	1824	Oct, Nov, Dec, Feb, Mar
Bannow Bay	760	525	720	387	900	650	309	593	900	Sep, Nov, Feb

* includes a low-quality count *e.g.* estimate.

4.53 Mediterranean Gull *Larus melanocephalus* Sléibhín meánmhuirí

Western Europe, Mediterranean & North-west Africa

Site Threshold

International Importance:	2,400

I-WeBS Peak season counts

ROI Mean (2018-2023):	247
ROI Peak (2018-2023):	431

Figure 107 Peak season counts of Mediterranean Gull at I-WeBS sites. Photo: Richard T Mills.

Mediterranean Gulls (see Figure 107) throughout their range in Europe, west Asia and North Africa are considered to be part of the same population. They have expanded their breeding range across Europe, from the Black Sea, since the 1950s (Mitchell *et al.,* 2004). Across the flyway they are thought to be stable/decreasing (Wetlands International, 2024). The breeding population in Ireland is small (less than 100 pairs) but increasing (Burnell *et al.*, 2023; Stubbings *et al.*, 2024) and the UK breeding population is now circa 2,300 pairs. The mean and peak numbers recorded via I-WeBS in recent years is broadly similar to the previous period, and as with other gull species I-WeBS data cannot be used to calculate population estimates or trends with confidence as recording of gulls is optional and they frequently feed at locations away from I-WeBS sites.

Mediterranean Gull were recorded at 55 I-WeBS sites during the recent period (see Figure 108 and Table 55). Cork Harbour was the only site with a mean or peak greater than 100 birds, and broadly speaking they were more numerous in the south-west and Dublin than elsewhere. Notably most peak counts were recorded in September, October and March, with most Mediterranean Gulls spending the winter in Iberia and North Africa.

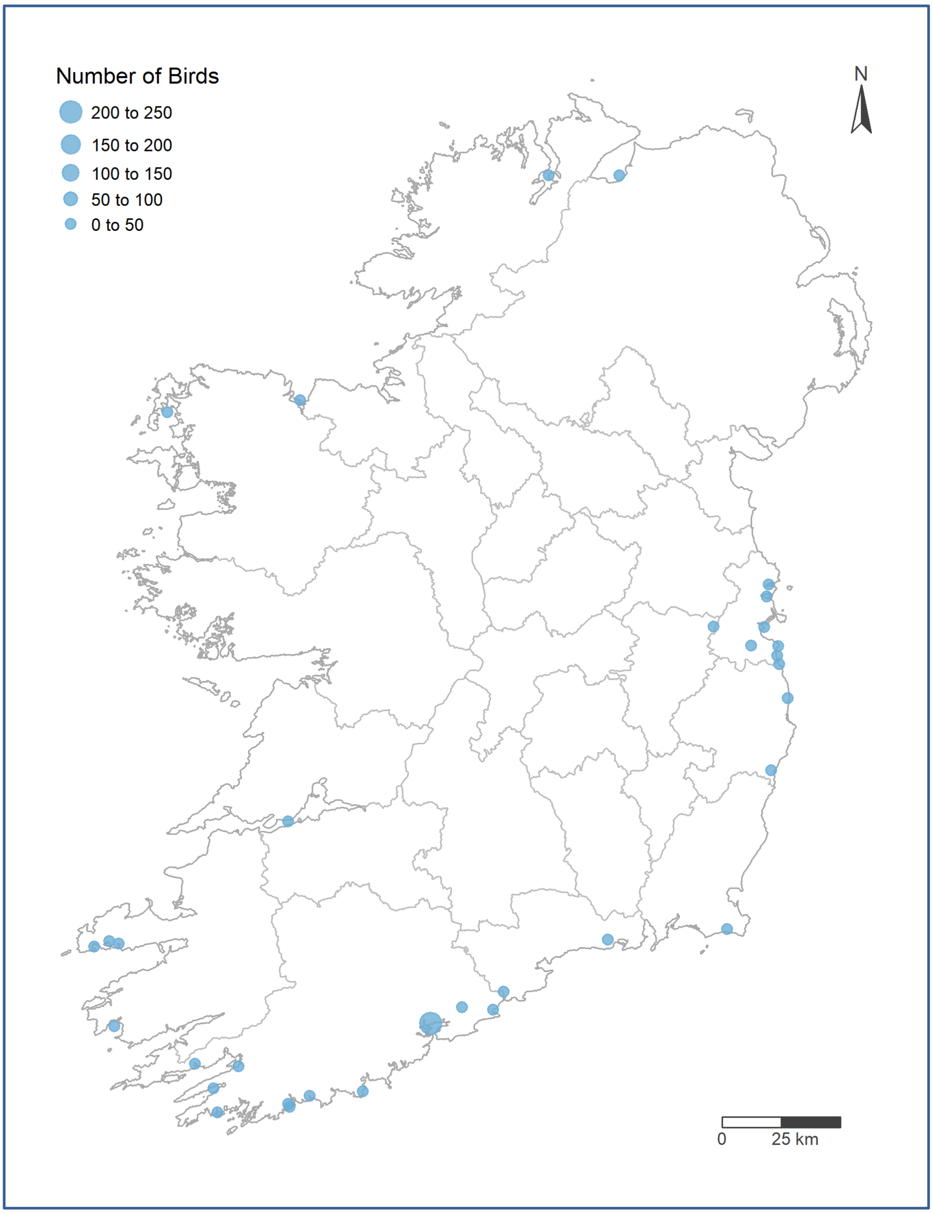


Figure 108 I-WeBS sites where Mediterranean Gull were recorded between 2018/19 and 2022/23.

Table 55 The 15 top-ranked I-WeBS sites where Mediterranean Gull was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Cork Harbour	114	93	152	56*	237*	184	297	211	297	Oct, Dec, Jan
Dublin Bay	68	6	14	32	7*	81	29*	42	81	Sep, Oct, Nov
Ventry Harbour					22	12*	41	32	41	Sep, Oct
Bantry Bay	0	1	3	10	34*	18*	15	16*	34*	Sep, Oct
Lough Foyle (WeBS)	5	0	11	6	0	1	52	14	52	Sep
Ballinskelligs Bay							12*	12*	12*	
Myross Island & Inlet (Blind Harbour)	0	0	0	0	0	0	35	7	35	Sep, Oct
Croagh Bay	0	1	2	4	12	7	9	7	12	Sep, Oct
Dingle Harbour	0	0	0	0	0	24	6	6	24	Sep
Killala Bay	0	0	0	0	0	21*	0	4*	21*	Sep, Mar
Rosscarbery	8	4	12	1	0	4	1	4	12	Sep, Dec
Shannon & Fergus Estuary	4*	0	5*	8*	1*	1*	2*	3*	8*	
Lough Cluhir	0		0	0	0	11	0	2	11	Sep, Oct
Ballyshunnock Reservoir				6		0	0	2	6	Oct, Feb, Mar
Leixlip Reservoir						0	5	2	5	Sep, Feb

* includes a low-quality count *e.g.* estimate.

4.54 Common Gull *Larus canus* Faoileán bán

canus, North-west & Central Europe/Atlantic coast & Mediterranean

Site Threshold

International Importance:	16,400

I-WeBS Peak season counts

ROI Mean (2018-2023):	6,834
ROI Peak (2018-2023):	8,625

Figure 109 Peak season counts of Common Gull at I-WeBS sites. Photo: John Fox.

The nominate form of the Common Gull (also known as the Mew Gull) (see Figure 109) breeds in Iceland, the Faroes, Ireland, Britain, France, Belgium, the Netherlands, Scandinavia, and the Baltic States, extending as far east as the White Sea. Common Gulls are migratory or partially migratory, with birds from Scandinavia and Europe migrating south and west toward Ireland, Britain, and the Bay of Biscay (Wernham *et al.*, 2002) for the winter. Common Gulls breeding in Ireland are partial migrants (Radford, 1960; Wernham *et al.*, 2002; McGreal, 2014). The All-Ireland breeding population was recently estimated at 2,741 pairs, an increase of 73% since *Seabird 2000* (Burnell *et al.,* 2023); this population is relatively small compared to the likely true total wintering population in Ireland. The UK population fell by 52% to 23,540 pairs over the same period. The flyway population is thought to be decreasing (Wetlands International, 2018). As with other gull species, I-WeBS cannot reliably inform on their wintering population number or trend as they often forage away from I-WeBS sites during the day, and recording of gull is optional during I-WeBS counts.

Common Gulls were recorded at 192 I-WeBS sites in the recent period, most of which were coastal sites with the exception of inland wetlands in Mayo and Galway, in areas with breeding colonies (see Figure 110 and Table 56). Though coverage levels will have differed, it is notable that they were recorded at 160 I-WeBS sites in the previous period (Lewis *et al.*, 2019). Despite the increase in the number of sites at which they were recorded, the mean and peak site counts in recent years are down by around 15,000 and 22,000 individuals respectively. Despite the difficulties and caveats with comparing these figures, it still suggests a significant decrease in the wintering population of Common Gulls in the Republic of Ireland, tallying with the greatly reduced breeding population in the UK and overall flyway-level decline.

Loughs Foyle and Swilly in Donegal remain the most important wintering sites for Common Gull in the ROI, with increased mean of peak season counts and similar overall peak counts to the previous period (Lewis *et al.*, 2019). As with other gull species, I-WeBS counts likely underestimate the true wintering numbers at national and site level and a coordinated dusk roost survey, akin to the Winter Gull Survey in the UK (Banks *et al.*, 2009) would be needed to better account for their true numbers here, and changes over time.

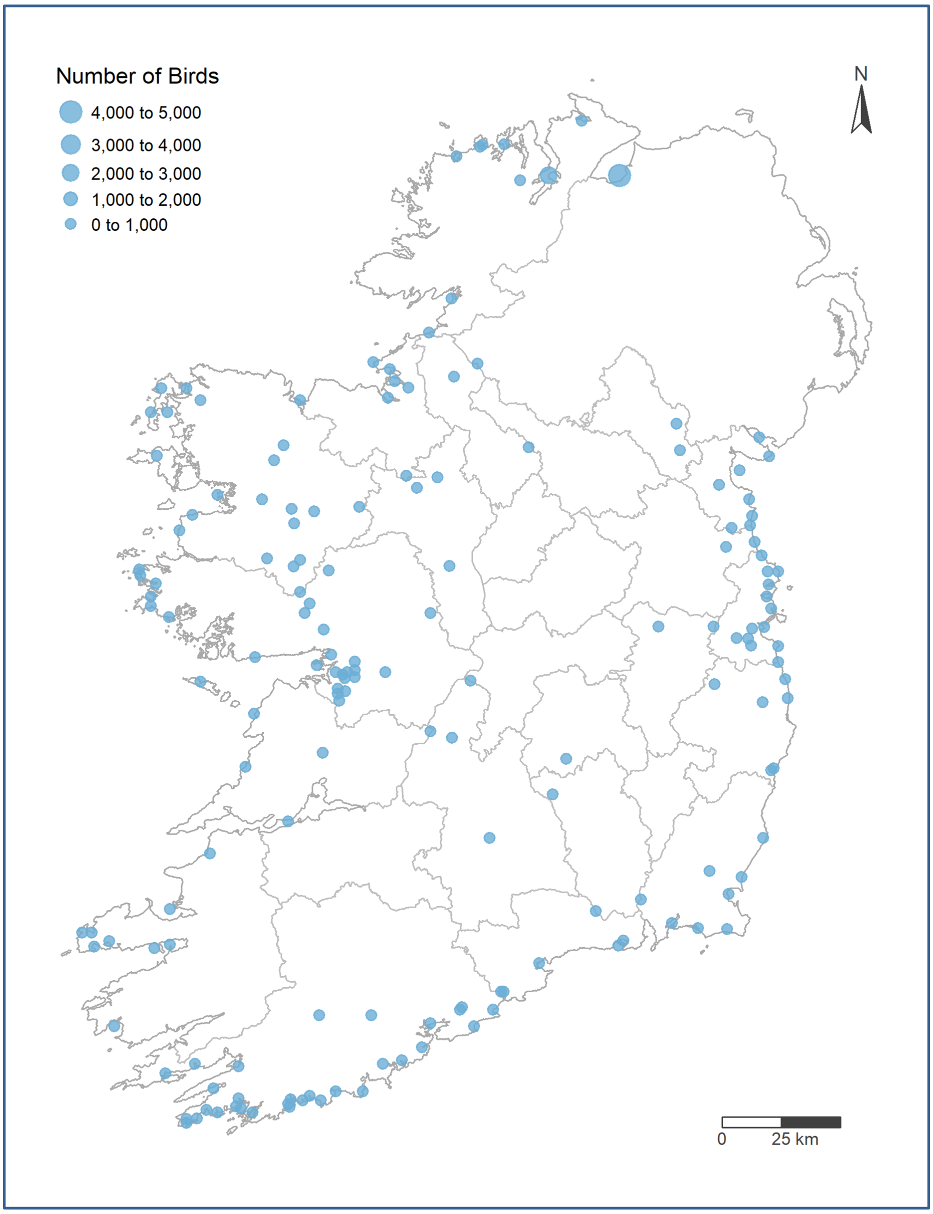


Figure 110 I-WeBS sites where Common Gull were recorded between 2018/19 and 2022/23.

Table 56 The 15 top-ranked I-WeBS sites where Common Gull was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Lough Foyle (WeBS)	5682	6355	5426	5416	4984	4130	4633	4918	5426	Sep, Oct, Dec, Jan
Lough Swilly	1321	1096*	1002	3110*	1481	3007	2289	2178*	3110*	Sep, Nov, Dec, Feb
Inner Galway Bay	1804	496	1465	759		537		920	1465	Jan, Mar
Courtmacsherry Bay, Broadstrand Bay & Dunworley	498	188	520	1203	769	1205	704	880	1205	Sep, Nov, Jan, Feb
Dundalk Bay	602*	957	671	1363*	281*	223*	739*	671	1363*	Oct, Dec, Jan, Mar
Drumcliff Bay Estuary	455	435	693	1093*		265	491	636*	1093*	Oct, Jan, Feb
Delvin River - Hampton Cove	0						550	550	550	Dec
Clew Bay	1029	677	632		259	734	320*	542	734	Sep, Jan, Mar
Dublin Bay	213	321	397	538	286	550	834*	521*	834*	Sep, Feb, Mar
Donegal Bay	433	423	593	446			340	460	593	Oct, Jan
Killala Bay	268*	294	678	342	425*	244	398	417*	678	Sep, Jan, Feb
Ballinskelligs Bay							415*	415*	415*	
South Mayo Coast	402*	286	180	357	120*	408	220*	315	408	Dec, Mar
Rostaff Lake	400	140	350	400	0	250	550	310	550	Sep, Jan, Feb
Tralee Bay, Lough Gill & Akeragh Lough	741	829	309	61*	19*	102*	409*	309	409*	Dec, Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.55 Great Black-backed Gull *Larus marinus* Droimneach mór

Northern & Western Europe

Site Threshold

International Importance:	2,700

I-WeBS Peak season counts

ROI Mean (2018-2023):	1,519
ROI Peak (2018-2023):	1,850

Figure 111 Peak season counts of Great Black-backed Gull at I-WeBS sites. Photo: Richard T Mills.

Great Black-backed Gulls in Ireland (see Figure 111) are part of the north and west European population, though it is thought that the vast majority of individuals over-wintering here are from the Irish and UK breeding populations (Wernham *et al*., 2002). Globally the species has declined by 43-48% since the 1980s (Langlois Lopez *et al.*, 2022), though that decline was worse in North America than in Europe (28% for the latter). Recent surveys for *Seabirds Count* found that the UK-breeding population had declined by 52% since *Seabird 2000*, but the All-Ireland breeding population was up by 43%, though the net difference is still a loss of 8,474 breeding pairs across Ireland and the UK (Burnell *et al.*, 2023). Counting of gulls during I-WeBS is optional, therefore it is not possible to estimate their wintering numbers in Ireland with any degree of accuracy. In addition, they often forage out at sea, or on non-estuarine coastal habitats so can be missed during I-WeBS counts. With these important caveats in mind, the mean and peak Great Black-backed Gull counts from I-WeBS in recent years is around 2,500 lower than the previous period (Lewis *et al.*, 2017).

Great Black-backed Gull were recorded at 187 sites during the recent period, compared to 144 during the former. Of this, only nine sites regularly supported 100 or more wintering individuals compared to 15 during the former period (Lewis *et al.*, 2017). In the most recent Non-Estuarine Coastal Waterbird Survey (NEWS) in 2015/16, 3,528 Great Black-backs were recorded in 427 sectors (Lewis *et al.*, 2017), showing that this is an important habitat for this species, though it seems likely numbers will be lower in the next NEWS due to recent declines in the UK population (Burnell *et al.*, 2023). Though they are predominantly coastal, some pairs breed inland and similarly small numbers (often single individuals) are recorded on inland lakes in the early and late parts of the non-breeding season. See Figure 112 and Table 57 for I-WeBS sites where Great Black-backed Gull were recorded between 2018/19 and 2022/23.

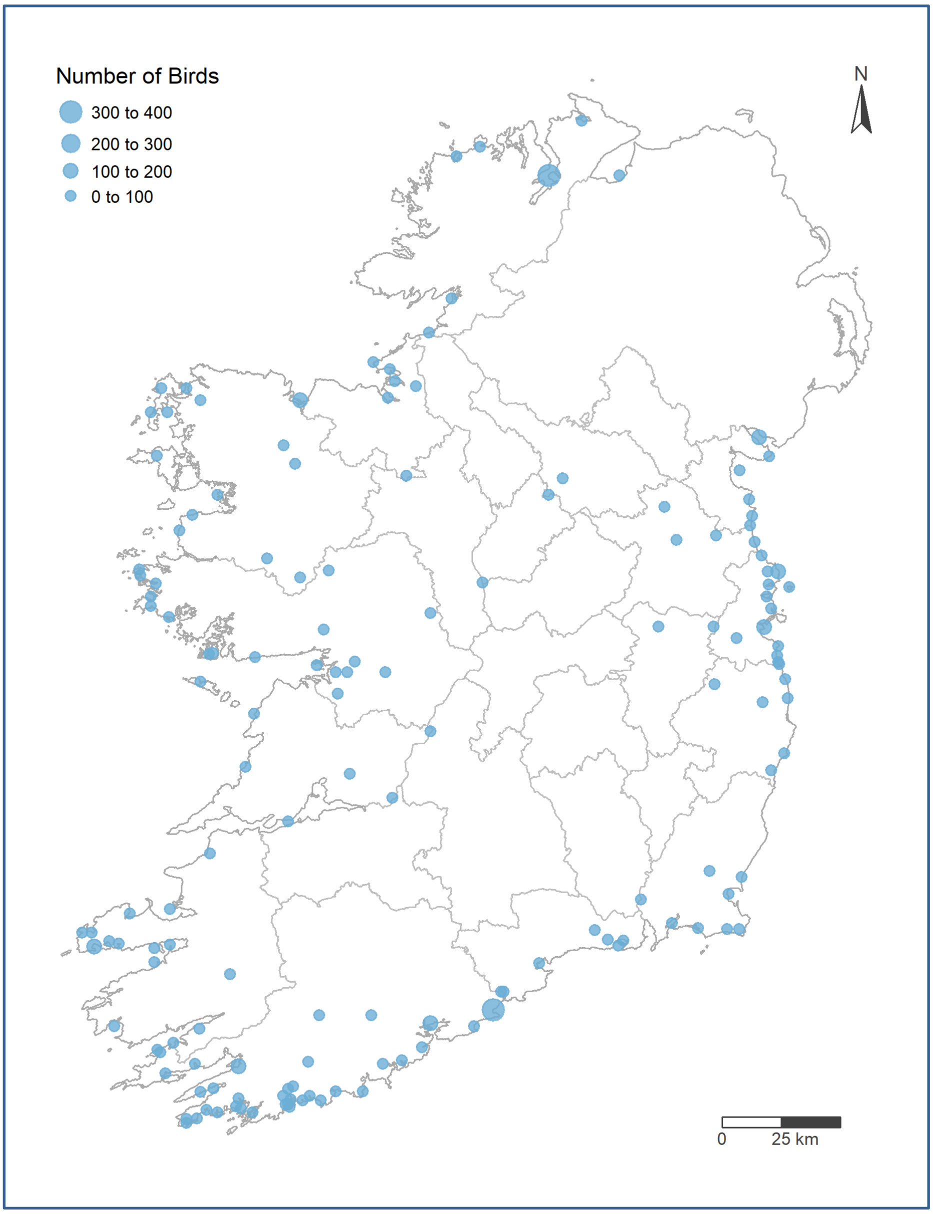


Figure 112 I-WeBS sites where Great Black-backed Gull were recorded between 2018/19 and 2022/23.

Table 57 The 15 top-ranked I-WeBS sites where Great Black-backed Gull was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Ballymacoda	174	98	74	279	796		323	368	796	Oct
Lough Swilly	351	292	466	653	131	115	90*	341	653	Sep, Oct, Nov
Carlingford Lough (WeBS)	94	234*	193	61*	0*	40*	87*	193	193	Jan
Dublin Bay	151	115	139	145	119	197	118*	150	197	Sep, Oct, Dec, Mar
Ventry Harbour					131	138*	166	148	166	Sep
Cork Harbour	155	92	179	136*	95*	131	104	138	179	Sep, Oct
Killala Bay	35	55	476	55	34	51	46	132	476	Sep, Oct, Nov
Bantry Bay	20	41	29	240	10*	80*	46	105	240	Oct, Feb
Skerries Coast	145	80	101	122*	99*	162	31	103*	162	Sep, Oct
Donegal Bay	61	157	74	101			71	82	101	Oct, Nov, Dec
Ballycotton Shanagarry	137	206	73	121	61	30	80	73	121	Sep, Nov, Dec, Jan, Mar
Inner Galway Bay	88	95	84	83		44		70	84	Nov, Jan, Mar
Courtmacsherry Bay, Broadstrand Bay & Dunworley	168	172	53	63	43*	115	38	67	115	Sep, Oct
Termoncarragh & Annagh Marsh	65	38		42*		110*	42	65*	110*	Nov
Ilen Estuary	51	97	117	88*	5*	26	53	65	117	Dec, Feb

* includes a low-quality count *e.g.* estimate.

4.56 Herring Gull *Larus argentatus* Faoileán scadán

argenteus, Iceland & Western Europe

Site Threshold

International Importance:	7,600

I-WeBS Peak season counts

ROI Mean (2018-2023):	6,259
ROI Peak (2018-2023):	7,146

Figure 113 Peak season counts of Herring Gull at I-WeBS sites. Photo: John Fox.

The population of *argenteus* European Herring Gulls (see Figure 113) in Iceland and Western Europe (Ireland, Britain, France to Germany) is declining (Wetlands International, 2018). Most of the Irish wintering population is thought to consist of birds from breeding populations in Ireland and the UK (Wernham *et al.*, 2002). Recent censuses have found the population breeding in natural sites in the UK has decreased by around 50,000 pairs since *Seabird 2000*, while the Irish breeding population in natural sites increased by around 6,000 pairs (Burnell *et al.*, 2023). Urban-nesting pairs are more difficult to census, and comparisons with *Seabird 2000* are not currently possible, but this cohort of the population has undoubtedly increased considerably and now accounts for over 70% of the UK and Irish breeding population (Burnell *et al.*, 2023).

Since gull counts during the I-WeBS are optional, and Herring Gulls will forage in urban areas, agricultural habitats, non-coastal estuary and offshore, it is not possible to determine the actual size or trends of the wintering population through the I-WeBS core count methodology. Nevertheless, the average and peak numbers of Herring Gulls recorded during the recent period via I-WeBS have declined by almost half since the previous period (2011 - 2016; Lewis *et al.*, 2017).

Herring Gulls were recorded at 215 I-WeBS sites in recent years, compared to 138 in the previous period (Lewis *et al.*, 2017), though note that survey coverage will have differed. The majority of sites were coastal, with some exceptions inland in the east of the country, which likely reflect the expansion of their urban breeding range, and occasional records of small numbers at some of the larger lakes in the west. In the 2015/16 Non-Estuarine Coastal Waterbird Survey (NEWS-III; Lewis *et al.*, 2017) Herring Gull were recorded in 566 sectors (84.5%), amounting to 19,681 individuals and such stretches of coastline are clearly an important habitat for them. Four sites supported peak counts of over 1,000 Herring Gulls during the recent period, but numbers varied considerably from year to year. Peak counts at many sites occur outside the core mid-winter period, usually in September and October. See Figure 114 and Table 58 for I-WeBS sites where Herring Gull were recorded between 2018/19 and 2022/23.

In order to better account for their numbers and changes over time, a dusk roost census, akin to the Winter Gull Survey ('WinGS'; Banks *et al.*, 2009) in the UK would be needed. Such roost counts are carried out annually in Dublin Bay as part of the 'Dublin Bay Birds Project', and counts in November and February 2021/22 found 1,983 and 2,561 Herring Gulls roosting respectively. By comparison, the peak number of Herring Gulls as recorded through I-WeBS in Dublin Bay in winter 2021/22 was 1,044 individuals.

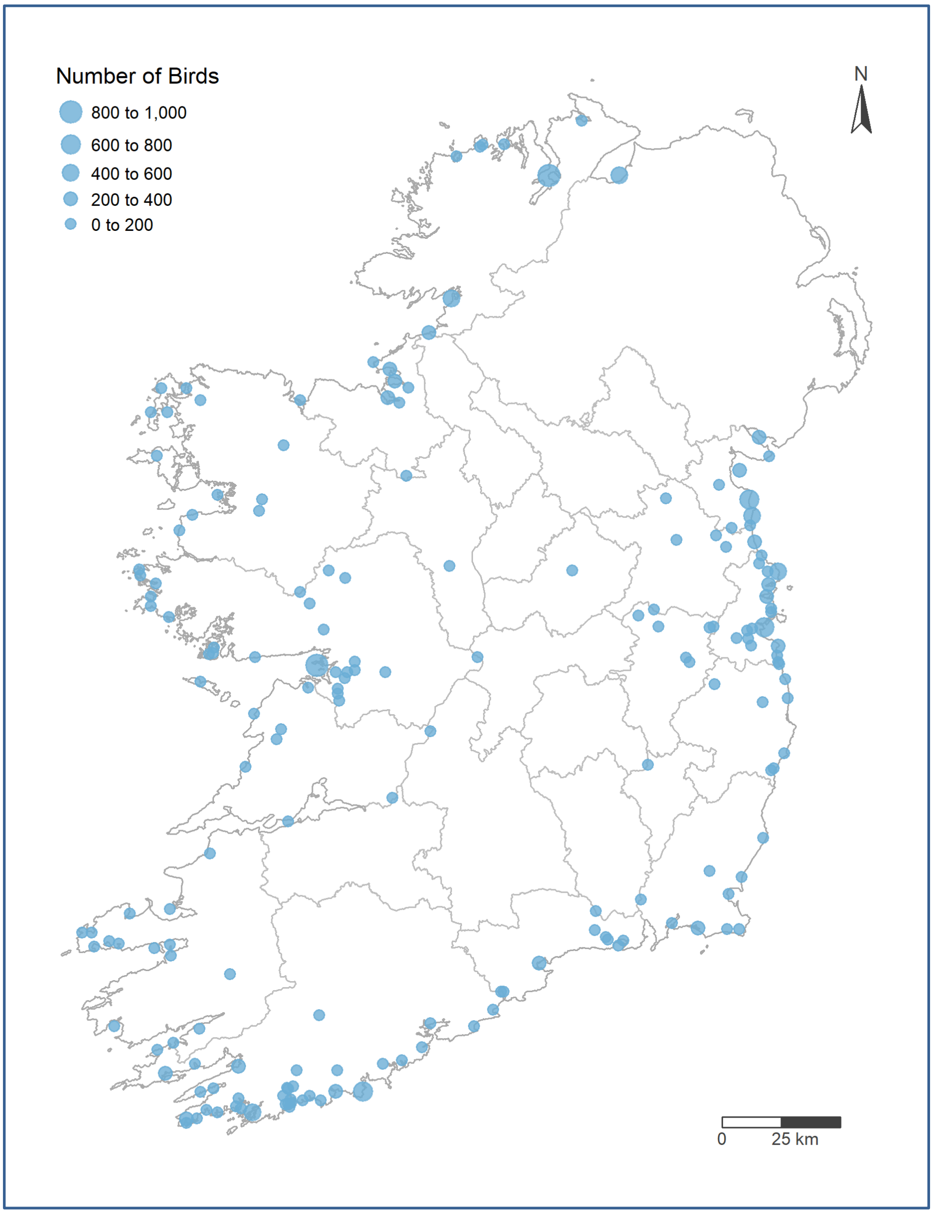


Figure 114 I-WeBS sites where Herring Gull were recorded between 2018/19 and 2022/23.

Table 58 The 15 top-ranked I-WeBS sites where Herring Gull was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Lough Swilly	717	1184	817	2569*	202	783	276	929*	2569*	Sep, Oct, Nov
Inner Galway Bay	991	903	790	827		1016		878	1016	Nov, Jan
Dunany Point - Clogher Head	1572	1650	290	2030	290	292	664	713	2030	Oct, Jan, Mar
Dublin Bay	461	607	483	374	694	1044	462*	649	1044	Sep, Oct
Courtmacsherry Bay, Broadstrand Bay & Dunworley	402	755	320	596	938	628	706	638	938	Sep, Oct, Dec
Lough Foyle (WeBS)	519	297	742	349	535	632	462	544	742	Sep, Oct
Clogher Head - Baltray						528		528	528	Oct
Ilen Estuary	259	601	804	566*	1*	151*	127	466	804	Nov, Feb
Donegal Bay	233*	573	350	494			381	408	494	Oct, Nov, Jan
Skerries Coast	458	343	476	502	326*	305	334	404	502	Sep
Bear Haven	570	426	437	434	411	344	214	368	437	Oct, Dec, Jan, Feb, Mar
Rogerstown Estuary	488	1405	258	221	448	372	517	363	517	Sep, Oct, Dec
Drowes River Bundrowes Bridge							351	351	351	Feb
South Dublin Coastline			315	308	424	281	171*	332	424	Sep, Nov, Mar
Dundalk Bay	930*	9245	379	392*	243	219*	399*	326*	399*	Oct, Dec, Jan, Mar

* includes a low-quality count *e.g.* estimate.

4.57 Lesser Black-backed Gull *Larus fuscus* Droimneach beag

graellsii, Western Europe/Mediterranean & Western Africa

Site Threshold

International Importance:	4,900

I-WeBS Peak season counts

ROI Mean (2018-2023):	3,548
ROI Peak (2018-2023):	5,464

Figure 115 Peak season counts of Lesser Black-backed Gull at I-WeBS sites. Photo: John Fox.

Lesser Black-backed Gull (see Figure 115) that winter in Ireland consist of the *graellsii* subspecies, which breeds in south-west Greenland, Iceland, the Faroes, Ireland, Britain, Belgium and France, and some of the south Scandinavian and central European breeding *intermedius* subspecies (Wernham *et al.,* 2002). The majority of birds from both populations travel further south to Portugal, Spain and North Africa to winter. Only a very small proportion of the Irish-breeding population winter in Ireland. The *graellsii* population is thought to be decreasing while the *intermedius* population is stable (Wetlands International, 2024). The size and trend direction of the wintering population in Ireland cannot be accurately estimated as counts of gulls are optional during I-WeBS and individuals feed in areas not routinely counted for I-WeBS such as urban areas, farmland, non-estuarine coast. They also forage offshore.

Lesser Black-backed Gulls were recorded at 207 I-WeBS sites during the recent period. For much of the mid-winter period they are only found in the southern half of the island, predominantly along the coast, appearing further north and inland in February as they start to return to breeding sites. In addition to those birds recorded in I-WeBS sites, Lesser Black-backed Gulls were recorded in 77 non-estuarine coastal sectors in NEWS-III (Lewis *et al.*, 2017), amounting to 944 individuals counted. As with other wintering gull species, a winter dusk roost survey akin to the 'Winter Gull Survey' (WinGS) in the UK (Banks *et al.*, 2009) is needed to fully understand the distribution and changing numbers of Lesser Black-backed Gulls wintering in Ireland. Note that the 'Slaney Upper' site which supported large numbers of Lesser Black-backed Gulls in the previous period (Lewis *et al.*, 2019) is still actively used as a night roost by thousands of individuals (B. Power, pers. comm.), but I-WeBS data was not available for recent years. See Figure 116 and Table 59 for I-WeBS sites where Lesser Black-backed Gull were recorded between 2018/19 and 2022/23.

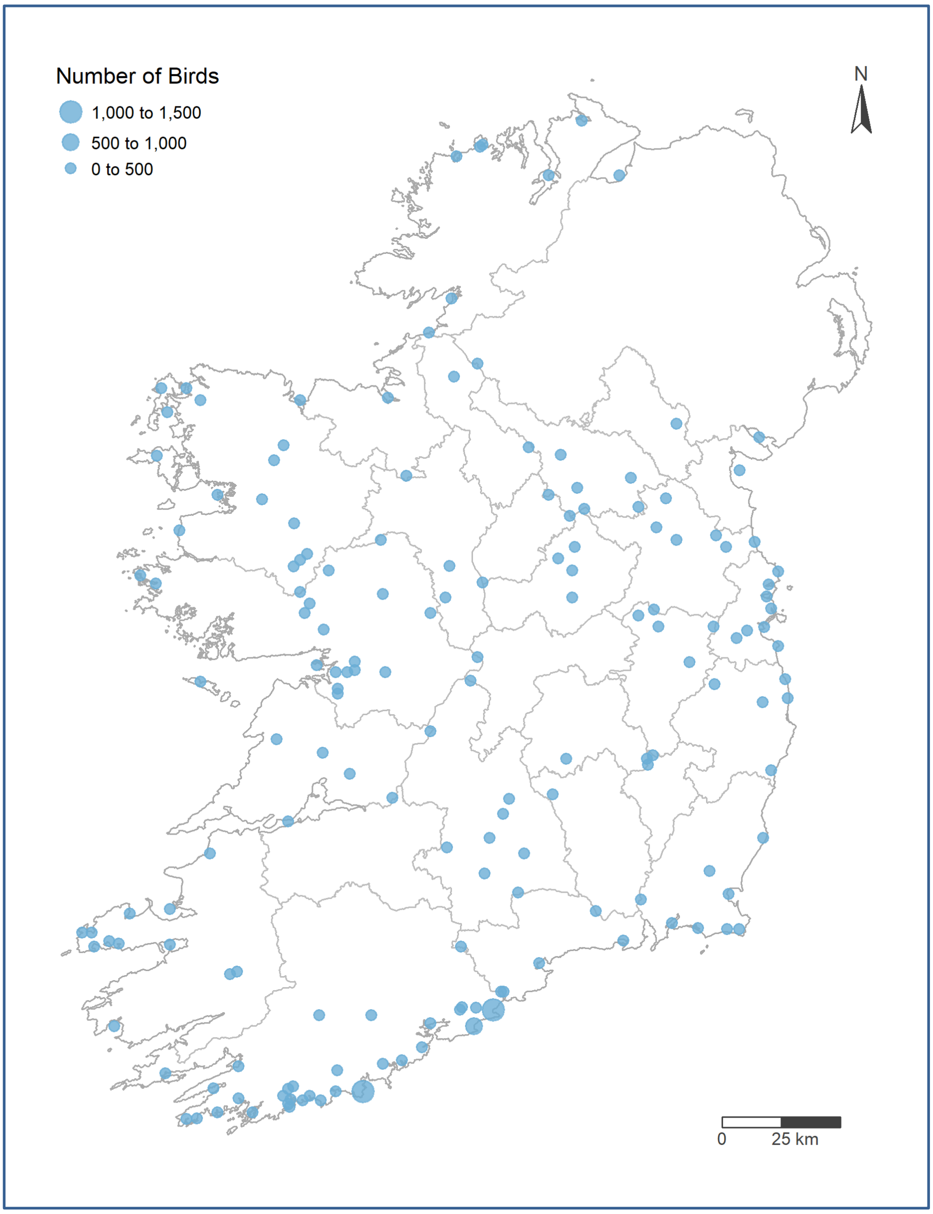


Figure 116 I-WeBS sites where Lesser Black-backed Gull were recorded between 2018/19 and 2022/23.

Table 59 The 15 top-ranked I-WeBS sites where Lesser Black-backed Gull was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Ballymacoda	749	483	328	1456	651		3108	1386	3108	Sep, Oct
Courtmacsherry Bay, Broadstrand Bay & Dunworley	1147	1170	1004	855	1550*	1584	1217	1242*	1584	Sep, Nov
Ballycotton Shanagarry	761	425	445	1544	143	52*	821*	711	1544	Sep, Feb, Mar
Lower Blackwater River	53	10	275	2*		0*	2*	275	275	Jan
Inishcarra Reservoirs	1250	340	400	200	203	254*	150	241*	400	Oct, Nov, Jan
River Barrow (Cheekpoint-New Ross)	4	20	0	10*	0*	399	216	205	399	Oct, Nov
Cork Harbour	153	217	220	124	153*	307*	178	196*	307*	Sep, Oct, Nov
Durrow Curragh (River Erkina)	96	30	110	194	7*	34	437	194	437	Nov, Dec, Mar
The Loughane (nr. Urlingford)							190*	190*	190*	
Rosscarbery	118	150	185	75	330	115	220	185	330	Sep, Oct, Nov
Lissagriffin Lake	410	261	355	195	16	140	130	167	355	Sep, Dec, Feb
River Suir Middle	0	16	160	5*	25*	17*	55*	160	160	Dec
Lough Swilly	56	89	32	519	50	120	24	149	519	Sep, Oct
Clonakilty Bay	163	525	95	154	2	248	195	139	248	Sep, Oct, Nov, Dec
South East Clare Lakes	37*	18	70	243	101	0*	13*	138	243	Sep

* includes a low-quality count *e.g.* estimate.

4.58 Red-throated Diver *Gavia stellata* Lóma rua

North-west Europe (wintering)

Site Threshold

International Importance:	3,000

I-WeBS Peak season counts

ROI Mean (2018-2023):	193
ROI Peak (2018-2023):	288

Figure 117 Peak season counts of Red-throated Diver at I-WeBS sites. Photo: Dick Coombes.

The north-west European wintering population of Red-throated Diver (see Figure 117) breeds across Arctic and boreal west Eurasia and Greenland; the flyway population status is thought to be decreasing (AEWA, 2022). In Ireland, the species exhibits a widespread coastal distribution during winter and may occur many tens of kilometres offshore; and flocks are often located some distance from the shoreline with the result that detection from the mainland is extremely difficult, though increased numbers are recorded when weather or feeding conditions bring them closer to shore. This still likely represents a fraction of the population in Irish waters however. As a result I-WeBS does not produce consistent enough data from which to base population estimates or trends. For context, digital aerial surveys in January 2024 recorded up to 212 individuals offshore from the Wexford coast (Marine Institute, unpublished data). An offshore aerial survey programme would likely be more appropriate to better monitor this species, as well as other divers and sea ducks, in Irish waters.

Red-throated Divers were recorded at 68 I-WeBS sites during the recent period, similar to previous years (61 sites 2011/12 - 15/16; Lewis *et al.*, 2018). Six sites had mean annual peak counts of greater than 20 individuals, three on the east coast and three in the north-west (see Figure 118 and Table 60). In addition to those recorded via I-WeBS core counts, 310 Red-throated Divers were recorded in 82 sectors (12.2%) in the Non-Estuarine Coastal Waterbird Survey in 2015/16 (NEWS-III; Lewis *et al.*, 2017).

The available evidence suggests Red-throated Divers are highly sensitive to disturbance and displacement from offshore windfarms (Ramiro & Cummins, 2016; Garthe *et al.*, 2025) and so the development of offshore renewable energy projects, particularly on the east coast, poses a potential risk to the species.

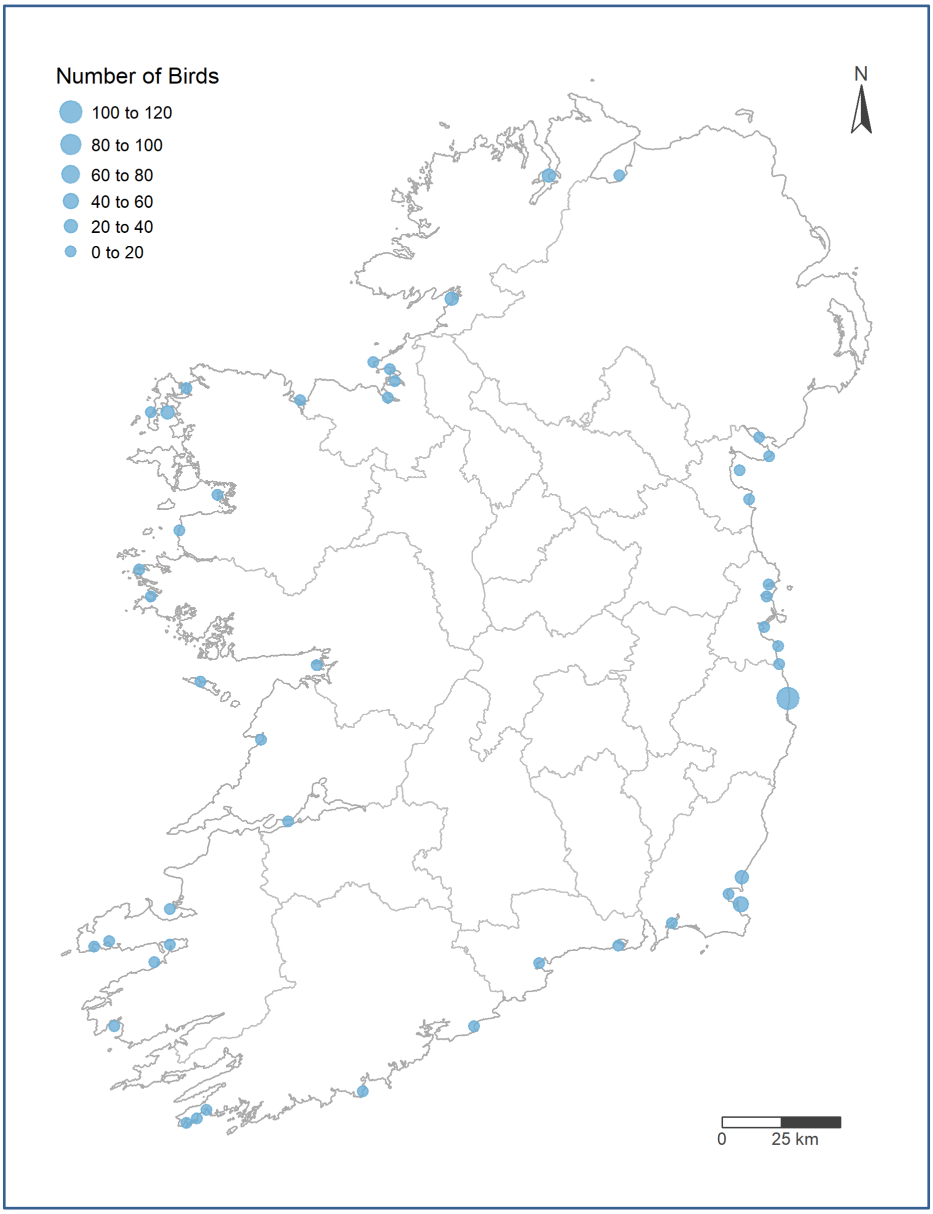


Figure 118 I-WeBS sites where Red-throated Diver were recorded between 2018/19 and 2022/23.

Table 60 The 15 top-ranked I-WeBS sites where Red-throated Diver was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
North Wicklow Coastal Marshes	23	33	66	215*	35*	74	127*	103*	215*	Nov, Dec
Rosslare (Outer Bay)	122	35	22	100	21	40	24	41	100	Oct, Nov, Feb
Lough Swilly	29	16	50	21	10	35	46	32	50	Nov, Dec, Mar
Blacksod & Tullaghan Bays	47	24	6	32*	97*	10	11*	31*	97*	Sep, Nov
Donegal Bay	49*	46	35	30			20	28	35	Oct, Nov
Wexford Bay			31	43	15	0	18	21	43	Nov, Dec
Barley Cove Bay	12	5	15	5	0	59	0	16	59	Sep, Jan, Mar
Dundalk Bay	39	17	31	13	1	5*	10*	15	31	Jan
Outer Tramore Bay	5				14			14	14	Mar
Crookhaven	0	2	1	35	0	10	20*	13*	35	Sep, Jan, Mar
Ventry Harbour					0	4	20*	8*	20*	Sep, Jan
Broadhaven Bay	3	16		6*		2*	7	7	7	Nov
Bannow Bay	5	2	4	8	3	17	4	7	17	Nov, Jan
Broadmeadow (Malahide) Estuary	0	3	0	8*	2*	14	7*	7	14	Sep, Nov
Ballysadare Bay	1	2	6	12		3	1	6	12	Nov, Jan

* includes a low-quality count *e.g.* estimate.

4.59 Great Northern Diver *Gavia immer* Lóma mór

Europe (wintering)

Site Threshold

International Importance:	95

I-WeBS Peak season counts

ROI Mean (2018-2023):	398
ROI Peak (2018-2023):	585

Figure 119 Peak season counts of Great Northern Diver at I-WeBS sites. Photo: John Fox.

Great Northern Divers (see Figure 119) that breed in parts of north-east Canada, Greenland, Iceland and Bear Island spend winter in coastal north-west Europe. This population is increasing (AEWA, 2022). They often feed a great distance offshore, although inclement weather as well as suitable feeding opportunities can bring them closer to land. Because of this limitation, neither a population estimate, nor population trends have been calculated for this species, and the mean and peak of numbers recorded by I-WeBS in recent years have been calculated instead. I-WeBS is not suited to the surveying or monitoring of this wintering population due to its highly offshore nature. As an example, aerial surveys commissioned as part of an offshore windfarm planning application recorded peak estimates of 382 Great Northern Divers in January 2022 and 567 individuals in February 2023 in a 10 km survey area off county Galway (MKO, 2024). An offshore aerial survey programme would therefore be more appropriate to better monitor this species, as well as other divers and sea ducks, in Irish waters.

Great Northern Diver were recorded at 110 I-WeBS sites during the recent survey period. Though they are seen on all parts of the coast, the most important sites for this species are on the west coast, and mostly in the north-west, with Inner Galway Bay hosting numbers of international importance (see Figure 120 and Table 61). Their distribution is almost completely coastal with a small number of exceptions of inland lakes in the west and north midlands, and Great Northern Divers are occasionally seen on other inland lakes during particularly stormy periods. On sites not surveyed by I-WeBS, in 2015/16 the Non-Estuarine Coastal Waterbird Survey (NEWS-III) recorded 903 individuals across 264 sectors (39.4%).

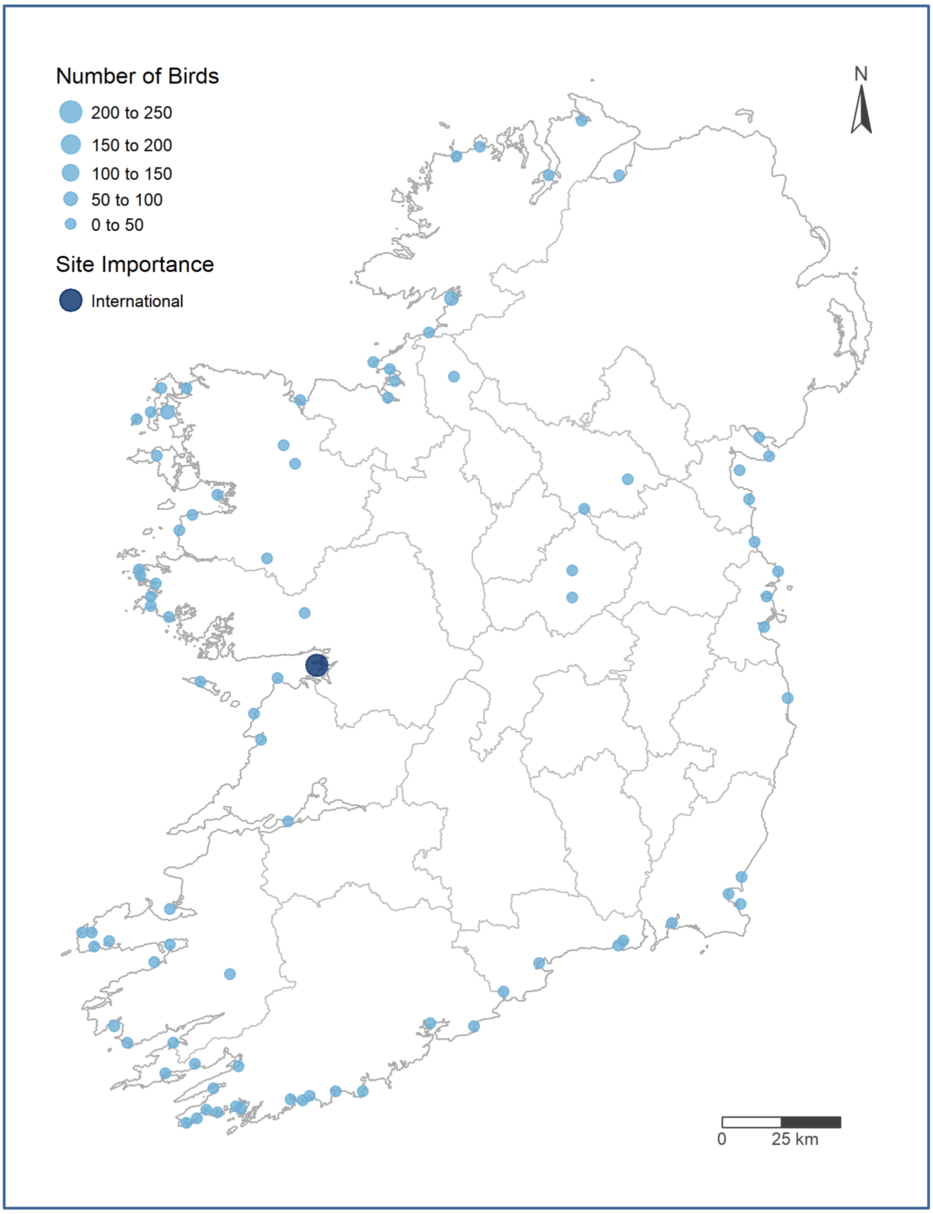


Figure 120 I-WeBS sites where Great Northern Diver were recorded between 2018/19 and 2022/23.

Table 61 The 15 top-ranked I-WeBS sites where Great Northern Diver was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Inner Galway Bay	214	332	72	265		302		213	302	Nov, Mar
Donegal Bay	147*	136	70	82			82*	78*	82	Dec, Jan
Blacksod & Tullaghan Bays	66	102	36	124*	36*	70	105*	74*	124*	Nov, Dec
Mannin Bay	24	9			43			43	43	Dec
Clew Bay	21	43	19		28	74*	29*	38*	74*	Dec, Jan, Feb
Broadhaven Bay	24	56		41*		24*	38	38	41*	Dec, Jan, Mar
Courtmacsherry Bay, Broadstrand Bay & Dunworley	19	28	31	50	29	29	24	33	50	Nov, Dec, Feb, Mar
Sligo Harbour	13	15	23	26		27	28	26	28	Dec, Jan
Ballinskelligs Bay							25*	25*	25*	
Dungarvan Harbour	4	6	32	31	19	19	17	24	32	Dec, Mar
Lough Swilly	13	56	23	22	10	36	23	23	36	Dec, Jan, Feb, Mar
Killala Bay	7	11	11	18	29*	25	14	19*	29*	Dec, Jan, Feb
Ballyconneely Bay	6	8			19			19	19	Dec
Crookhaven	5	8	10	28	16	13	14	16	28	Dec, Jan, Feb, Mar
Dundalk Bay	33	26	31	15	0	3*	17*	15	31	Jan, Feb

* includes a low-quality count *e.g.* estimate.

4.60 Cormorant *Phalacrocorax carbo carbo* Broigheall

carbo, North-west Europe

Wintering Population

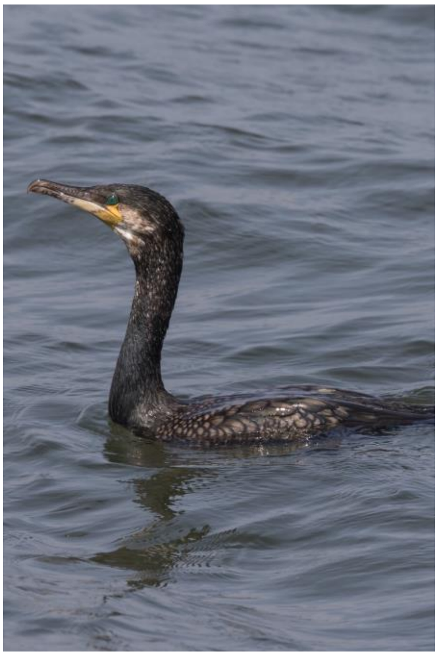
All-Ireland (2018-2023):	12,310
ROI (2018-2023):	8,670
ROI I-WeBS SPA Sites (2018-2023):	3,790

Site Threshold

International Importance:	970
National Importance:	120

Population Change (ROI)

5-year (2016-2022):	+15.1%
12-year (2009-2022):	+3.1%
26-year (1995-2022):	+32%
Historical (1984-2023):	-27.3%
Average annual change (1995-2022):	+1.2%



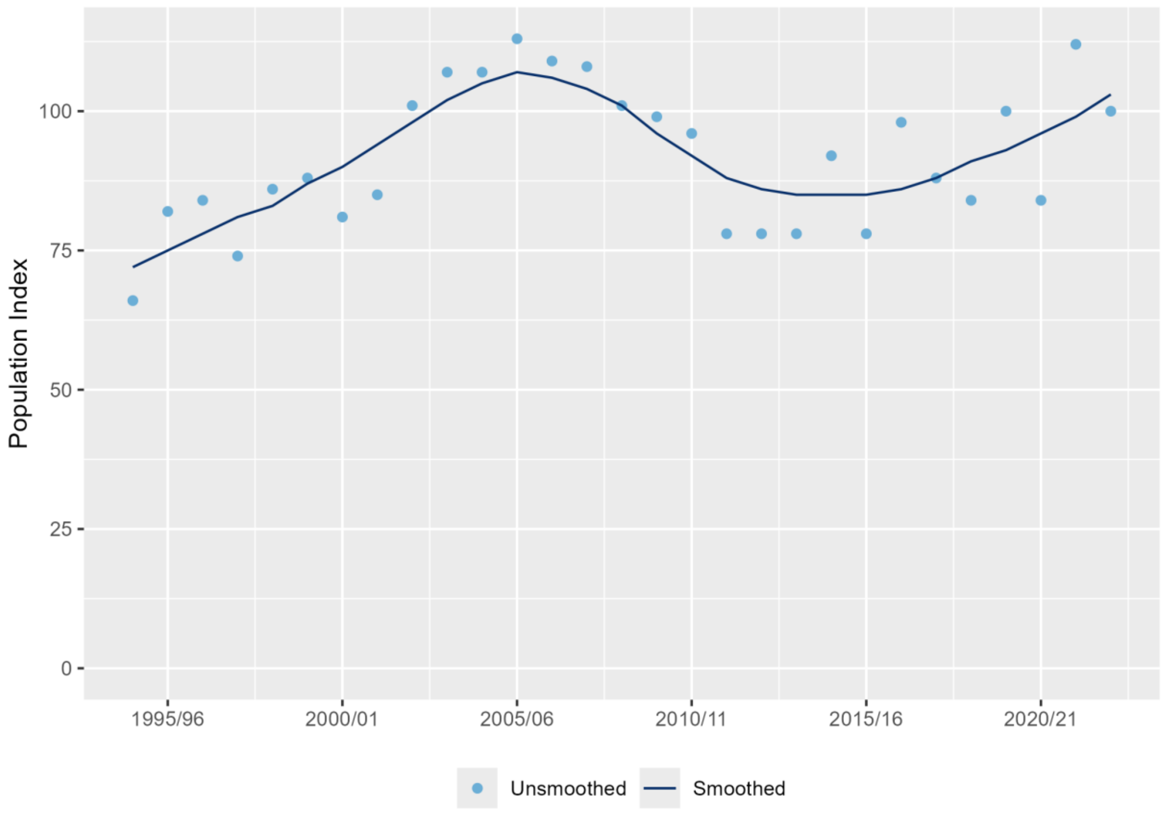


Figure 121 Calculated trends and graphed ROI population index for Cormorant. Photo: John Fox.

There are 15 distinct populations of Great Cormorant worldwide (Wetlands International, 2018), spanning Europe, Africa, Asia, America, and Australia. In Ireland, the population primarily consists of the subspecies *carbo*, which is shared with Norway, Iceland, and Britain, while the continental subspecies *sinensis* is also present in unknown but likely significant numbers (Newson *et al.*, 2004). Although Irish-breeding Cormorants are mainly resident, some migrate southward in winter, reaching as far as northern France and southern Portugal (Wernham *et al.*, 2002). The Irish population has broadly increased in recent decades, with some short-term fluctuations (Figure 121). UK populations have shown significant growth of 58% over 25 years and 28% over 10 years (Woodword *et al.,* 2024),

In Ireland, Cormorants are found both in coastal bays, where their largest winter concentrations occur, and inland waters, particularly on major lakes and in regions with abundant waterbodies in the north midlands and west. The 2007 - 2011 Bird Atlas (Balmer *et al.*, 2013) revealed an 18% expansion in winter range since 1981 - 84, mostly involving inland sites. However, standard I-WeBS counts likely underestimate Cormorant numbers, especially in coastal areas, where they can move offshore to feed during the day. During recent surveys, Cormorants were documented at 317 sites, with 15 locations (all coastal) supporting internationally or nationally important numbers (see Figure 122 and Table 62). Some of the most important Cormorant sites have shown very large increases since the previous period which do not appear to be linked to any change in survey coverage. In addition to the I-WeBS site network, 32% of the ROI population estimate of Cormorants consisted of individuals recorded during the most recent Non-Estuarine Coastal Waterbird Survey (NEWS-III; Lewis *et al.*, 2017).

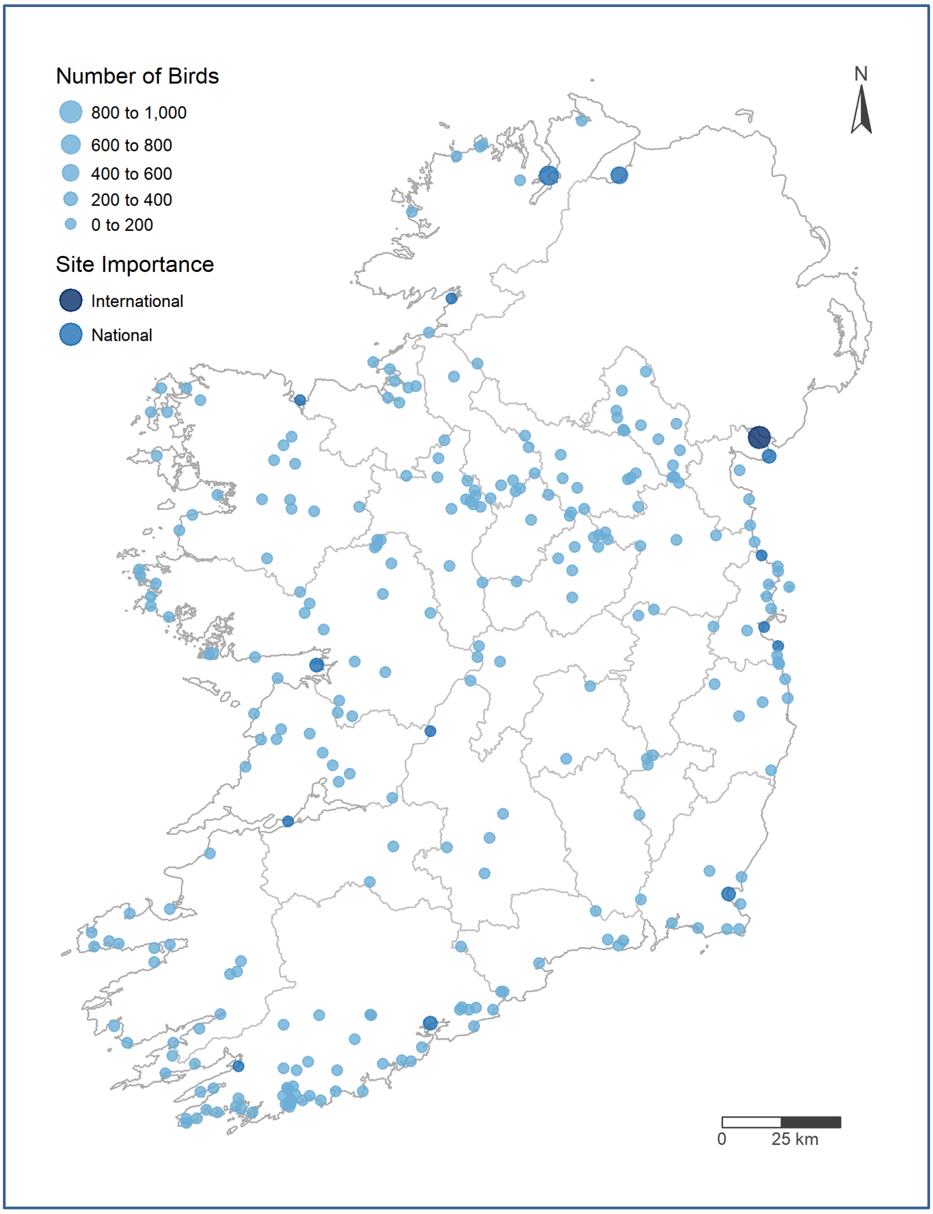


Figure 122 I-WeBS sites where Cormorant were recorded between 2018/19 and 2022/23.

Table 62 I-WeBS sites supporting internationally and/or nationally important numbers of Cormorant between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Carlingford Lough (WeBS)	598	185	58*	43*	1*	1512	435	974	1512	Jan
Lough Swilly	178	488	793	630	246	1214	552	687	1214	Nov, Dec, Jan, Feb
Lough Foyle (WeBS)	128	118	556	183	810	437	795	556	810	Oct, Nov, Jan
Cork Harbour	466	300	189	342	26	401*	728*	337*	728*	Sep, Oct, Nov, Dec, Jan
Dundalk Bay Outer (North: Ballagan Point - Giles Quay)	598	500	254					254	254	Mar
Wexford Harbour & Slobs	190	210	258	271	243*	130	165*	220	271	Dec, Jan
Inner Galway Bay	437	197	272	302		80		218	302	Nov, Jan
Delvin River - Hampton Cove	0						177	177	177	Feb
Killala Bay	133	170	140	116	102	148	325*	166*	325*	Sep, Oct, Dec
Dublin Bay	170	199	100	183	183	150	56*	154	183	Sep
Shannon & Fergus Estuary	9*	321	6*	328*	184*	78*	86*	136*	328*	
Bantry Bay	47	65	122	80	3*	251	87	135	251	Nov, Dec, Jan
Lough Derg (Shannon)	13*	169*	136*	70*	158*	160*	135*	132*	160*	
Shannon & Fergus Estuary (Aerial)					131			131	131	Jan
South Dublin Coastline			147	162	144	51	68*	126	162	Sep, Nov, Dec
Donegal Bay	72	207	110	129			121*	120	129	Nov

* includes a low-quality count *e.g.* estimate.

4.61 Shag *Gulosus aristotelis* Seaga

Iceland/UK & Ireland

Site Threshold

International Importance:	NA

I-WeBS Peak season counts

ROI Mean (2018-2023):	716
ROI Peak (2018-2023):	991

Figure 123 Peak season counts of Shag at I-WeBS sites. Photo: Brian Burke.

The *aristotelis* subspecies of European Shag (see Figure 123) inhabits Northern European coastlines, including Ireland. These birds are notably sedentary, with winter sightings around Irish shores typically representing individuals that breed within approximately 100 kilometres of the area (Wernham *et al.*, 2002). While I-WeBS counts do not effectively capture Shag populations due to their seafaring nature, substantial numbers are observed at various coastal locations. Shag were recorded at 88 sites all around the coast during the recent period.

Recent breeding population monitoring as part of *Seabirds Count* (Burnell *et al.*, 2023) found the total breeding Shag population in Britain, Ireland, the Channel Islands and Isle of Man had fallen by 20% since *Seabird 2000* and was at its lowest number since large-scale seabird censusing began in the late 1960s. Despite this however, the breeding population of ROI increased by 40% to approximately 4,750 apparently occupied nests. See Figure 124 and Table 63 for I-WeBS sites where Shag were recorded between 2018/19 and 2022/23.

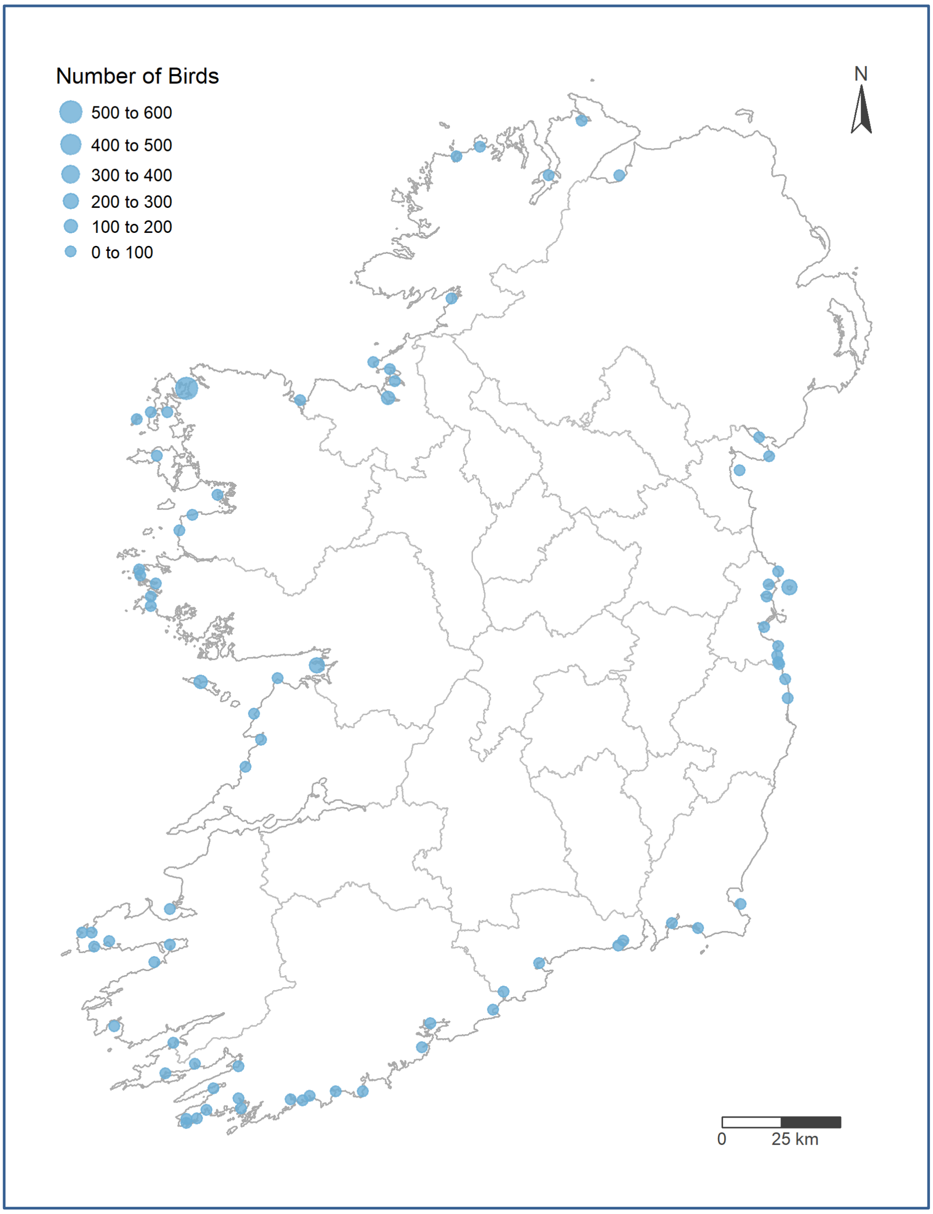


Figure 124 I-WeBS sites where Shag were recorded between 2018/19 and 2022/23.

Table 63 The 15 top-ranked I-WeBS sites where Shag was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site	16/17	17/18	18/19	19/20	20/21	21/22	22/23	2018/19 - 2022/23 Mean	Peak	Month(s)
Broadhaven Bay	88	85		72*		128*	512	512	512	Nov
Inner Galway Bay	253	404	222	260		202		228	260	Nov, Jan, Mar
Lambay Island						202		202	202	Sep
Ballysadare Bay	126	251	155	133		120	103	128	155	Nov, Jan, Feb
Inishmore, Aran Islands	78	72	119	123	83			108	123	Oct, Nov, Jan
Donegal Bay	91	146	105	103			62	90	105	Oct, Nov
North Wicklow Coastal Marshes	26	25	63	71*	69*	61	113	79	113	Jan
Killala Bay	65	40	0	4	43*	145*	158	70*	158	Sep, Nov, Jan
Achill Island	15	5		95	34	3*	6*	64	95	Sep
Rogerstown Estuary	10	17	62	94	14	23	106	60	106	Sep, Oct, Nov, Jan
Dundalk Bay Outer (North: Ballagan Point - Giles Quay)	54	100	58					58	58	Mar
Blacksod & Tullaghan Bays	34	47	1	80*	136*	30	37*	57*	136*	Sep, Nov
Ballinskelligs Bay							50	50	50	Jan
Skerries Coast	2	1	1	1*	3*	40	200*	49*	200*	Nov, Jan
Dungarvan Harbour	30	8	90	54	29	26	41	48	90	Nov, Dec

* includes a low-quality count *e.g.* estimate.

4.62 Cattle Egret *Bubulcus ibis* Éigrit eallaigh

South-west Europe/North-west Africa

Site Threshold

International Importance:	NA

I-WeBS Peak season counts

ROI Mean (2018-2023):	10
ROI Peak (2018-2023):	16

Figure 125 Peak season counts of Cattle Egret at I-WeBS sites. Photo: Richard T Mills.

Wetlands International recognises 13 populations of the nominate *ibis* subspecies of Cattle Egret (see Figure 125). The population that winters in Ireland is part of the south-west Europe/north-west Africa population, has a breeding range that extends from north-western Africa, including Tunisia, Algeria and Morocco, to south-western Europe, and through recent range expansions this area now includes France, the Netherlands and the UK (Wetlands International, 2018; Keller *et al.,* 2020). This population is stable/increasing (Wetlands International, 2018).

Increased sightings of Cattle Egret in recent years have led to the inclusion of this species in this report; a once rare migrant it is now regularly encountered in Ireland during the winter. Ireland may represent the northernmost extent of this subspecies' range, which has expanded considerably in the past 30 years (Keller *et al.,* 2020), possibly as a result of climate change.

Cattle Egret was recorded at 15 sites from 2016/17 to 2022/23 (see Figure 126 and Table 64). Recordings are generally constrained to coastal or estuarine sites along the south coast, although there are recordings on Inishmore (Co. Galway) off the west coast. There are no sites with consistent annual observations of Cattle Egret throughout the entire survey period (2016/17 to 2022/23).

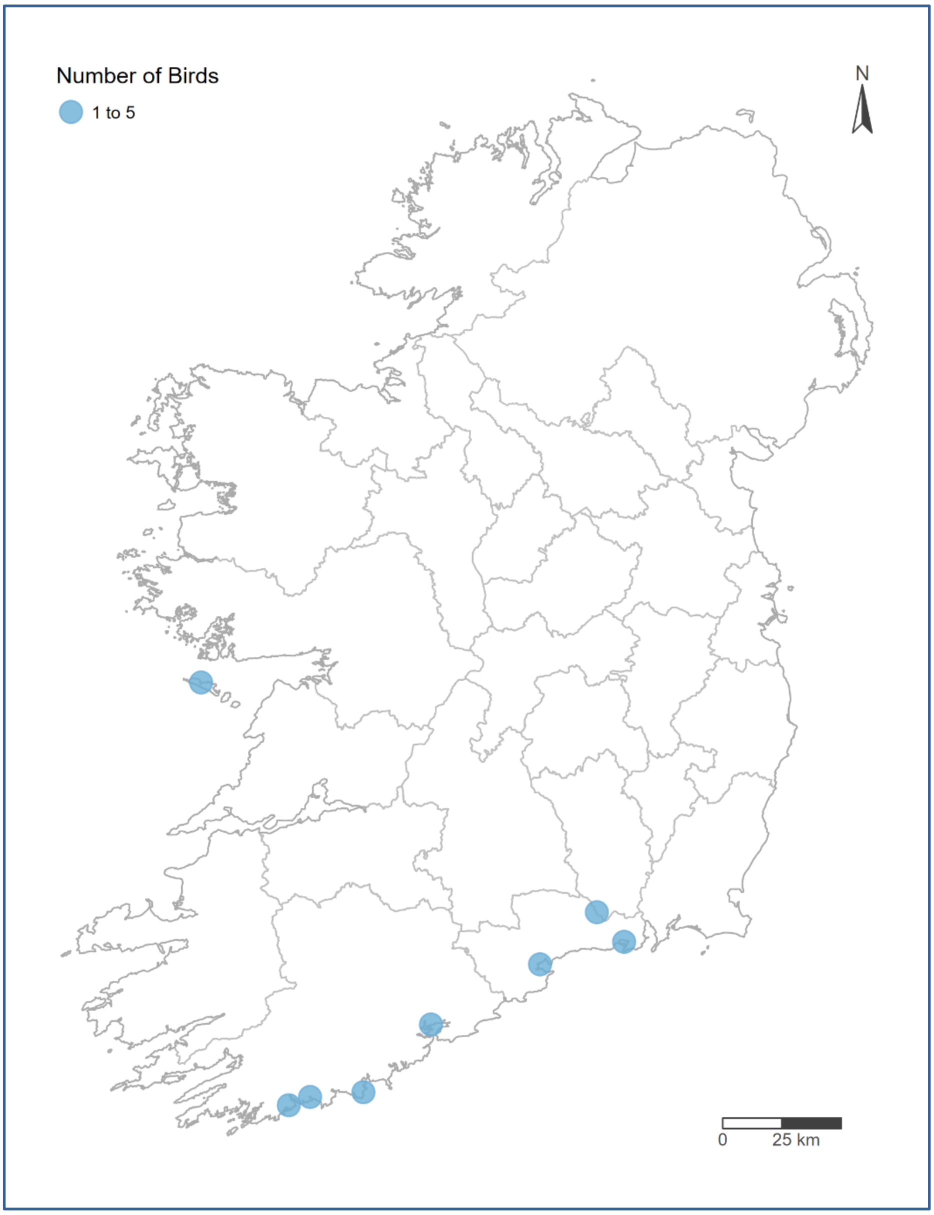


Figure 126 I-WeBS sites where Cattle Egret were recorded between 2018/19 and 2022/23.

Table 64 All I-WeBS sites where Cattle Egret was recorded with a mean of peak season counts between 2018/19 and 2022/23 of at least one.

Site								2018/19 - 2022/23		
	16/17	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**Mean**	**Peak**	**Month(s)**
Courtmacsherry Bay, Broadstrand Bay & Dunworley	0	0	0	6	12	8	0	5	12	Sep, Oct, Nov
Dungarvan Harbour	0	0	12	1	0	0	1	3	12	Nov, Dec, Mar
Lough Cluhir	0		0	5	0	0	3	2	5	Sep, Feb
Inishmore, Aran Islands	0	0	0	3	0			1	3	Oct, Nov, Dec
Cork Harbour	17	0	4	2	0	0	0	1	4	Sep, Oct, Dec
Rosscarbery	0	0	0	0	0	0	4	1	4	Sep, Nov
River Suir Lower	0	0	0	0*		0	2	1	2	Nov
Tramore Back Strand	0	1	3		0	2	0	1	3	Nov, Dec, Jan, Mar

* includes a low-quality count *e.g.* estimate.

4.63 Grey Heron *Ardea cinerea* Corr réisc

cinerea, Northern & Western Europe

Wintering Population

All-Ireland (2018-2023):	2,490
ROI (2018-2023):	1,930
ROI I-WeBS SPA Sites (2018-2023):	760

Site Threshold

International Importance:	3,500
National Importance:	25

Population Change (ROI)

5-year (2016-2022):	0%
12-year (2009-2022):	-4.7%
26-year (1995-2022):	+2%
Historical (1984-2023):	-86.6%
Average annual change (1995-2022):	+0.1%

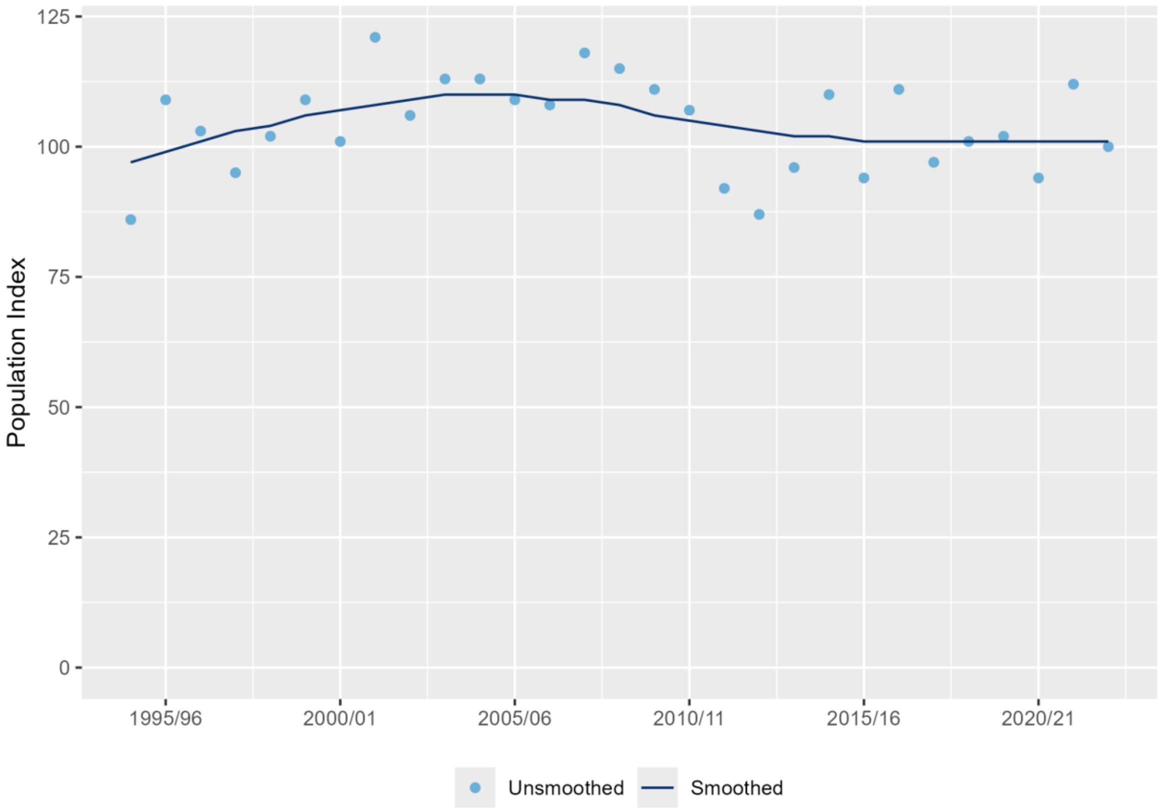


Figure 127 Calculated trends and graphed ROI population index for Grey Heron. Photo: Shay Connolly.

Grey Herons are found across Europe, Asia and Africa. Those in Ireland are of the nominate race and are part of the northern and Western European population. This population has been evaluated as stable/decreasing at flyway level in recent years (Wetlands International, 2024). In Ireland, resident Grey Heron numbers are supplemented in winter by migrants from the north and east (Wernham *et al.*, 2002). While the estimates and trends presented here are deemed accurate and representative of the cohort of the population on I-WeBS sites, it should be borne in mind that Grey Heron are very frequently found on small freshwater wetlands such as urban and farmland ponds, stretches of river not covered under I-WeBS, ditches and temporary wetlands such as flooded fields. In the most recent (2007-2011) Bird Altas they were recorded in 89% of 10 km squares on the island of Ireland in winter, demonstrating how widespread they are. With this in mind, there is a significant cohort outside I-WeBS sites, though there is no reason to expect the population trend presented here is not representative of the full population. The Grey Heron population in ROI has had a relatively stable trend since the mid-1990s, although current numbers are still much lower than those from the 1980s (Figure 127). They are reported to have increased in the UK in recent years (Woodward *et al.*, 2024).

During the recent period Grey Herons were recorded at 344 I-WeBS sites, with eight coastal sites identified as supporting nationally important numbers (see Figure 128 and Table 65). Approximately one third of the recent ROI population estimate is from birds recorded during the 2015/16 Non-Estuarine Coastal Waterbird Survey (NEWS-III), when 523 individuals were recorded across 237 sectors (35.4%) (Lewis *et al.*, 2017).

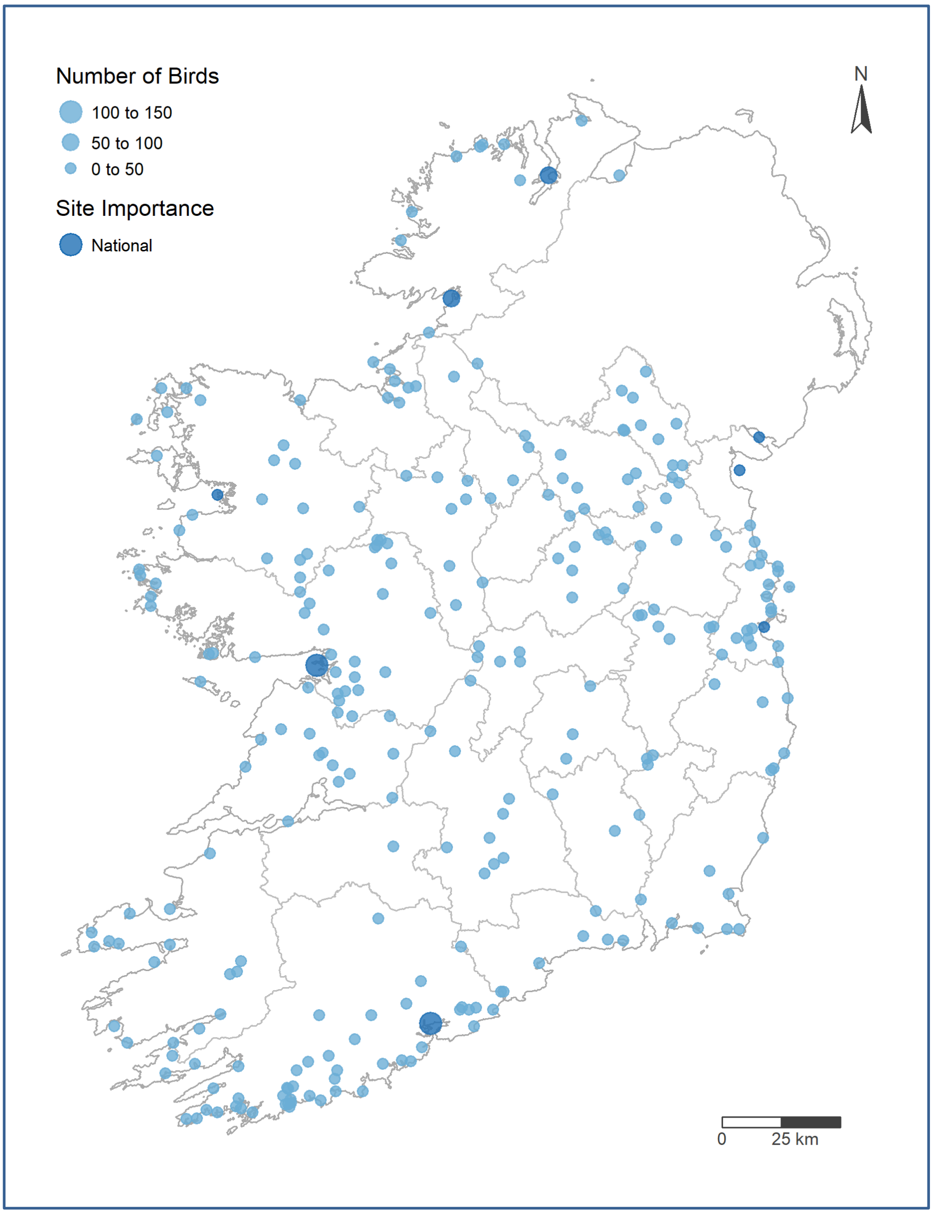


Figure 128 I-WeBS sites where Grey Heron were recorded between 2018/19 and 2022/23.

Table 65 I-WeBS sites supporting internationally and/or nationally important numbers of Grey Heron between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Inner Galway Bay	243	90	149	193		84		142	193	Nov, Jan
Cork Harbour	122	115	100	99	105	103	94	100	105	Oct, Dec
Lough Swilly	93	64	90	67	61	82	55	71	90	Sep, Nov, Dec
Donegal Bay	39	46	66	49			41	52	66	Oct, Dec, Jan
Clew Bay	46	23	33		41	45	48*	42*	48*	Sep, Oct
Carlingford Lough (WeBS)	60	35	33	21*	3*	49*	49	41	49	Jan
Dublin Bay	30	35	27	82	19	31	16*	40	82	Sep, Oct
Dundalk Bay	55	31	24	55	6	26*	30*	28	55	Jan

* includes a low-quality count *e.g.* estimate.

4.64 Little Egret *Egretta garzetta* Éigrit bheag

garzetta, Western Europe, North-west Africa

Wintering Population

All-Ireland (2018-2023):	1,340
ROI (2018-2023):	1,140
ROI I-WeBS SPA Sites (2018-2023):	700

Site Threshold

International Importance:	1,100
National Importance:	20

Population Change (ROI)

5-year (2016-2022):	+40%
12-year (2009-2022):	+102.2%
26-year (1995-2022):	+4450%
Historical (1984-2023):	NA
Average annual change (1995-2022):	+171.2%

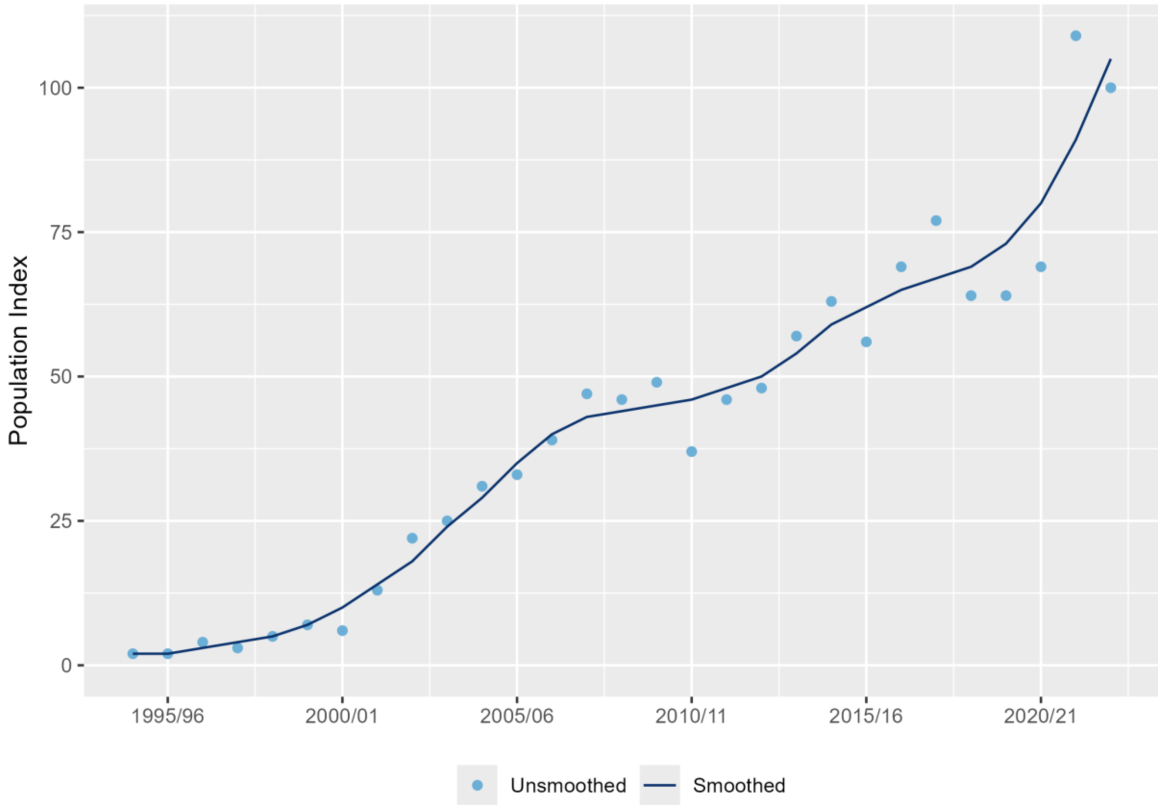


Figure 129 Calculated trends and graphed ROI population index for Little Egret. Photo: Clive Timmons.

Little Egrets in Ireland (see Figure 129) are part of a population that spans their Western European and North-West African range (Wetlands International, 2024). They did not breed or regularly winter in Ireland when I-WeBS began in winter 1994/95 (Smiddy & Duffy, 1997; Smiddy & O'Sullivan, 1999) but are now widespread throughout the year. This colonisation and range expansion is considered one of the most remarkable among birds in Ireland and

Britain in recent history (Balmer *et al.*, 2013). The growth of breeding and wintering populations in France and Spain during the 1980s and 1990s likely facilitated their spread into Britain and Ireland (Balmer *et al.*, 2013). Their recent trend at flyway scale is an increase, with the greatest increases in Ireland and Britain as they enhance their presence here. As with Grey Heron, Little Egrets often utilise very small inland wetlands including urban and farmland ponds, ditches and small temporary floods, and so I-WeBS will not account for the entire population, though the trend is likely representative of the national population.

During the recent period, Little Egrets were observed at 210 I-WeBS sites (up from 140 sites in the previous period, though survey coverage varies; Lewis *et al.*, 2019). Though the sites that support the largest numbers are all coastal, they are frequently encountered inland (see Figure 130 and Table 66). They were recorded in 38% of 10 km squares on the island of Ireland in winter during the most recent Bird Atlas (Balmer *et al.*, 2013) and all indications are that it has increased since then. Nearly 14% of the current ROI population estimate is of individuals recorded during the 2015/16 Non-Estuarine Coastal Waterbird Survey (NEWS-III; Lewis *et al.*, 2017) when 101 individuals were recorded across 81 sectors (12.1%).

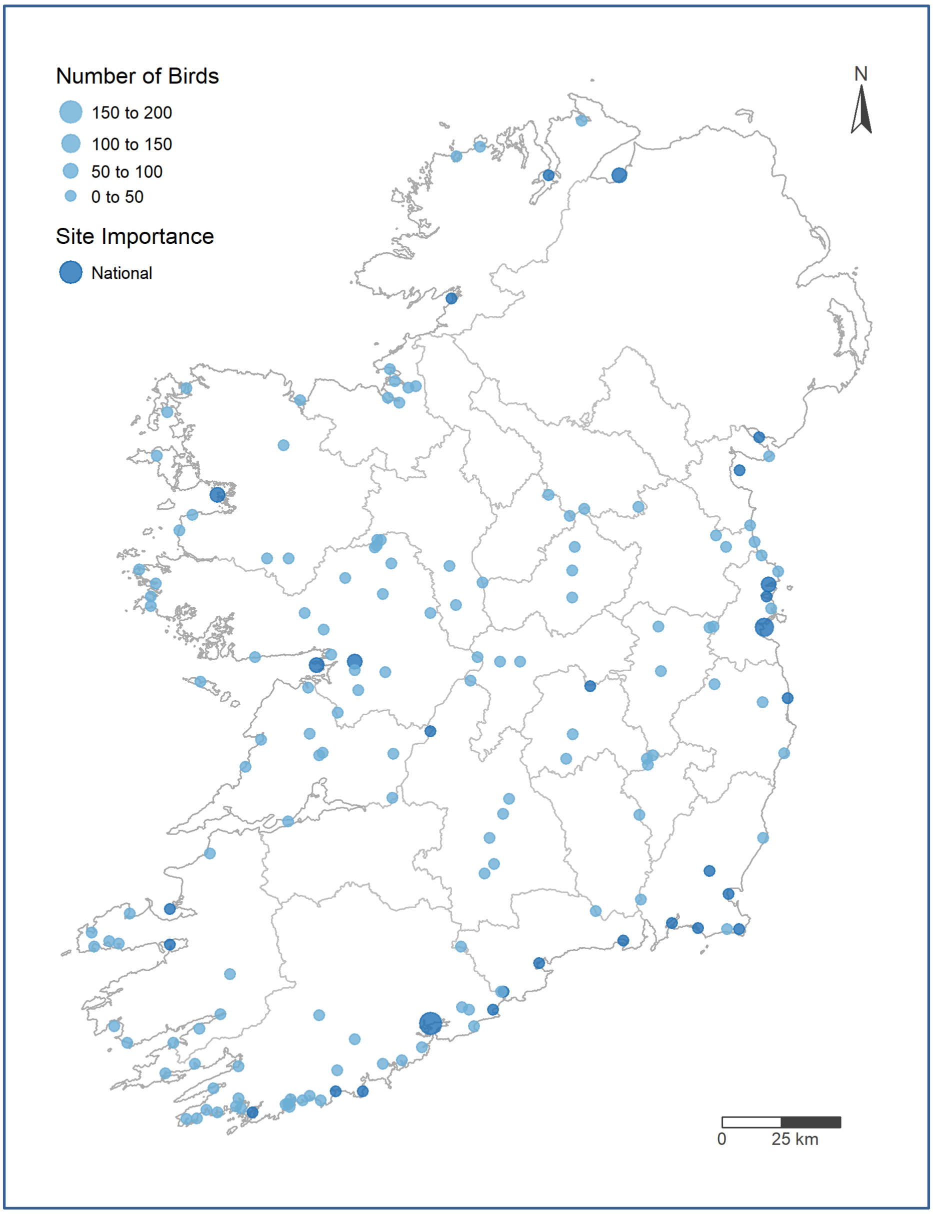


Figure 130 I-WeBS sites where Little Egret were recorded between 2018/19 and 2022/23.

Table 66 I-WeBS sites supporting internationally and/or nationally important numbers of Little Egret between 2018/19 and 2022/23, ranked by the mean of peak season counts.

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Cork Harbour	160	69	134	127*	145*	113*	190	162	190	Sep, Oct
Dublin Bay	71	96	71	130	140	94	54*	109	140	Sep
Lough Foyle (WeBS)	42	59	64	118	52	147	88	94	147	Sep, Oct
Inner Galway Bay	88	36	92	100		59		84	100	Nov, Mar
Rogerstown Estuary	43	52	35	51	57	51*	147	72	147	Sep, Oct
Rahasane Turlough	11	6	10*	2*	12*	46	84	65	84	Feb, Mar
Clew Bay	19	26	37		31	80	59*	52*	80	Oct
River Slaney	24		16	0	33*	97*	48*	39*	97*	Sep, Oct, Jan
Castlemaine Harbour & Rossbehy	32	35	20	10*	56*	57*	46*	38*	57*	Sep, Oct, Nov
North Wicklow Coastal Marshes	11	56	37	45	55*	33	21	38*	55*	Sep, Oct
Tralee Bay, Lough Gill & Akeragh Lough	10	36	12	9*	24*	55*	72*	34*	72*	Sep, Oct, Jan
River Barrow: Mountmellick(Clonterry)							33	33	33	Oct
Broadmeadow (Malahide) Estuary	35	22	20	17*	15*	52	25	32	52	Sep, Oct
Dundalk Bay	61	56	37	37	12	44*	22*	30*	44*	Oct, Jan, Mar
Wexford Harbour & Slobs	30	33	39	16	36*	33	8*	29	39	Nov, Dec
The Cull & Killag (Ballyteige)	38	13	16	39	5	15	71	29	71	Sep, Oct, Nov, Jan
Clonakilty Bay	27	19	16	20	5	40	51	26	51	Sep, Dec, Jan, Mar
Courtmacsherry Bay, Broadstrand Bay & Dunworley	32	20	15	29	32	39	17	26	39	Sep, Oct
Carlingford Lough (WeBS)	42	29*	60*	15*	0*	17*	32*	25*	60*	
Lough Derg (Shannon)	4*	1*	0*	1*	4*	5*	25	25	25	Oct
Ballymacoda	44	21	15	18	28		39	25	39	Sep, Oct
Blackwater Estuary	49*	33	29	22	23		14*	25	29	Sep, Oct
Tramore Back Strand	12	15	23		19	29	23	24	29	Nov, Feb, Mar
Lady's Island Lake	23	21	48	17	20	14	23	24	48	Sep
Dungarvan Harbour	6	31	9	16	6	62	21	23	62	Nov, Dec, Jan, Mar
Ilen Estuary	29	11	9	14*	4*	23	34	22	34	Sep, Nov
Lough Swilly	9	10	10	14	16	29	34	21	34	Sep, Oct, Nov
Donegal Bay	9	20	19	11			34	21	34	Oct, Nov

Site								2018/19 - 2022/23		
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Mean	Peak	Month(s)
Bannow Bay	44	39	9	30	4	49	12	21	49	Sep, Oct, Nov, Jan

* includes a low-quality count *e.g*. estimate.

5 Pressures and Threats

Migratory waterbirds face significant challenges across their range throughout the year, with pressures on the breeding grounds, across their migratory route and on their wintering grounds; all potentially contributing to decreased productivity and/or increased mortality which ultimately leads to population declines. On the wintering grounds in Ireland, waterbirds are sensitive to changes that may reduce the area of suitable habitat to feed or roost without disturbance, which may impact their ability to survive the winter or refuel in advance of their lengthy northward migration in the spring. Large-scale climatic changes continue to cause shifts in distribution meaning birds from the north-east no longer need to travel as far as Ireland to find suitable wintering grounds. Discussed below are some of the most well understood and significant issues facing wintering waterbirds in Ireland. For the purposes of this discussion the term ‘pressure’ is used to describe issues negatively affecting waterbird populations currently and in the recent past, and the term ‘threat’ describes those issues likely to affect waterbirds populations negatively in the coming years. It is important to note that the current assessment relates to the period as per reporting under Article 12 of the Birds Directive, in that pressures relate to the 6-year period 2019 - 2024 inclusive, while future threats relate to the future two reporting periods (*i.e*. within 12 years following the end of the current period). Though Article 12 reporting for this period no longer uses the term ‘threat’, preferring to categorise pressures according to timing, we find it useful to continue to use the term here for clarity. The pressures and threats are discussed in rank order by the number of species considered to have been affected by them or might potentially be affected by them in the near future. It is important to acknowledge that not all pressures and threats are known or well understood, but the below is based on the best information available.

Pressures and threats are grouped as follows: (1) avian influenza; (2) disturbance; (3) energy production and related infrastructure; (4) water quality; (5) fisheries and aquaculture; (6) climate change; (7) hunting, shooting and incidental killing; (8) urbanisation and development; (9) agriculture and forestry; (10) invasive alien species; (11) problematic native species and natural processes. Note, the list is not exhaustive, as there are likely many current and future threats which have not yet been identified.

5.1 Avian influenza

Relevant species: Red-throated Diver, Great Northern Diver, Little Grebe, Great Crested Grebe, Slavonian Grebe, Cormorant, Little Egret, Grey Heron, Mute Swan, Bewick's Swan, Whooper Swan, Pink-footed Goose, Greenland White-fronted Goose, Greylag Goose (Icelandic), Barnacle Goose, Light-bellied Brent Goose, Shelduck, Wigeon, Gadwall, Teal, Mallard, Pintail, Shoveler, Pochard, Tufted Duck, Scaup, Eider, Long-tailed Duck, Common Scoter, Velvet Scoter, Goldeneye, Smew, Red-breasted Merganser, Coot, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Purple Sandpiper, Dunlin, Ruff, Jack Snipe, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Spotted Redshank, Redshank, Greenshank, Turnstone, Little Gull, Mediterranean Gull, Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull, Iceland Gull, Glaucous Gull.

Avian influenza is a disease of birds caused by a Type A influenza virus. Most of these viruses cause either no clinical disease or only mild symptoms in the infected birds and are called Low Pathogenic Avian Influenza (LPAI). These LPAI strains are not unusual in waterfowl (ducks, swans and geese) around the world. However, a characteristic of the influenza virus family is their ability to mutate rapidly and for new strains to appear. Some of the mutants have the ability to cause more severe disease and these are called Highly Pathogenic Avian Influenza (HPAI), an example of which is the highly pathogenic H5N1 strain which arose in South-east Asia and has since spread around the world (Sims *et al.,* 2005; Xie *et al*., 2023).

It is generally the case that such highly pathogenic strains of avian influenza evolve and spread in domestic poultry in Asia in the first instance (*e.g*. H5N1 in late 1990s and early 2000s; Sims *et* al., 2005). The resultant strains of avian influenza are subsequently brought to Europe by migratory waterbirds moving westwards in autumn and winter (Gilbert *et al.*, 2006; Studds *et al*., 2016). There have tended to be outbreaks of avian flu in wintering waterbirds in Ireland every couple of years, often affecting low numbers of individuals but a range of species and across the entire island. The species most often detected with avian flu have tended to be waterfowl (mostly swans and dabbling ducks), raptors, corvids and gulls. In winter 2021/22 a total of 80 individual wild birds tested positive across 16 counties, most of which were raptors, geese, swans and corvids (DAFM, 2021 and 2022). Testing was not exhaustive with regards to wild birds and so provide an indication of the species affected, timing and distribution rather than a quantitative assessment. A similar suite of species were affected in Northern Ireland (Owens, 2024). The species that most clearly suffered population-level mortality that winter was the Barnacle Goose *Branta leucopsis* (Kelly *et al.,* 2024) and estimates suggest 20% or more of the flyway population died as a result of HPAI infection (Percival *et al.*, 2024). The virus was still in circulation the following winter, albeit seemingly at a lower level and with fewer reported mortalities. In late winter/spring 2023 there were mass mortality events of Black-headed Gulls at inland lake breeding sites and the breeding population continued to be impacted into the summer (Burke *et al*., 2024). Between the summers of 2022 and 2023 the H5N1 virus in circulation in Europe had reassorted with a low pathogenic strain of avian influenza, which was primarily circulating in gull populations, with Black-headed Gulls subsequently representing the most affected species (Fusaro *et al.,* 2024). The H5N1 outbreak that started in 2021 also severely impacted Ireland's breeding populations of Terns (*e.g*. loss of ~50% breeding pairs of Common Tern at some sites; Burke *et al.*, 2024), Gannets (Lane *et al.*, 2023) and other seabirds. It should be noted that there is no reliable or complete data regarding the species or number of individuals affected in this recent ongoing outbreak of avian flu, particularly with respect to wintering waterbirds. This outbreak has demonstrated the potential for very significant impacts on Irish bird populations in a sudden and unpredictable manner and those species which are known to have suffered mortality to avian flu in the past should all be considered vulnerable to future outbreaks and mutations. Furthermore, as the virus mutates, other waterbird species may become more susceptible and suffer greater impacts.

5.2 Disturbance

Relevant species: Red-throated Diver, Great Northern Diver, Little Grebe, Great Crested Grebe, Slavonian Grebe, Cormorant, Little Egret, Grey Heron, Mute Swan, Bewick's Swan, Whooper Swan, Pink-footed Goose, Greenland White-fronted Goose, Greylag Goose (Icelandic), Light-bellied Brent Goose, Shelduck, Wigeon, Gadwall, Teal, Mallard, Pintail, Shoveler, Pochard, Tufted Duck, Scaup, Eider, Long-tailed Duck, Common Scoter, Velvet Scoter, Goldeneye, Red-breasted Merganser, Coot, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Purple Sandpiper, Dunlin, Ruff, Jack Snipe, Snipe, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Spotted Redshank, Redshank, Greenshank, Turnstone, Mediterranean Gull, Black-headed Gull, Common Gull, Herring Gull.

5.2.1 Land-based recreational disturbance

Disturbance relates to any activity that results in a waterbird being displaced from an area. Moving in response to disturbance, especially if frequent, can exert pressures upon a waterbird’s foraging success as well as exerting an energetic cost due to flying to an alternative foraging area. Disturbance can also act upon roosting habitat thereby increasing a bird’s energy expenditure in the same way. Recreational use of coastal and inland wetlands provides perhaps the most visually obvious form of disturbance to waterbirds, as birds generally move, often taking flight, in response. The species most impacted by recreational disturbance are those with small distributions (*e.g.* Greenland White-fronted Goose) or those restricted to habitats such as coastal estuaries where there is a high degree of overlap with a variety of recreational activities. Almost all wintering waterbird species suffer from disturbance to varying extents however. Most recreational disturbance events are incidental, however there are examples of intentional disturbance linked to recreational activity such as the deliberate disturbing of Brent geese from sports pitches.

The effects of disturbance upon waterbirds have been a topic of interest, research and concern to ecologists, wildlife managers and wildlife surveyors for many years. Waterbird behavioural responses to disturbance can vary from subtle declines in food intake rates to more serious changes such as avoidance of entire areas or sites (Mitchell *et al.*, 1989). Waterbirds have been found to exhibit different behavioural responses to various disturbance types (Lafferty, 2001; Kirby *et al.*, 1993). However, repeatedly across studies (*e.g*. Phalan & Nairn, 2007; Adcock *et al.*, 2018) dogs on and off lead and people walking (especially within intertidal areas) are found to elicit the highest levels of response behaviour from waterbirds. Indeed, a recent study found that consistent recreational use of shorelines, particularly by dogs, has a negative impact on waterbird numbers (Stigner *et al.*, 2016). This is perhaps because while some waterbird species in areas with levels of recreational activity have been found to habituate to some activity types (Nairn, 2005), birds typically do not habituate to dogs running off lead because canids represent a seemingly genuine predator threat (Lafferty, 2001; Sastre *et al.*, 2009). In addition to disturbance from dog walking, illegal hare coursing is an annual occurrence on the North Slob in Wexford and is a source of disturbance for Greenland White-fronted geese at their largest and most important wintering resort, as well as other grassland-feeding waterbird species there.

The true significance of any disturbance impact is hard to quantify or predict. For example, the fact that a bird flies away from a disturbance does not automatically imply a serious negative effect if the bird has alternative habitat to go to, of similar quality and/or if birds return to the former area once the disturbance event has finished. In this context, it becomes impossible to distinguish between animals that do not respond to disturbance because they are unaffected by it and those that are constrained to stay in the area but may suffer severe costs (*e.g*. reduced foraging time or nest defence) as a result (Gill, 2007). However, it is important to note that even a short-term displacement can be of significance, if the birds have no similar quality habitat to move to, or if displacement leads to knock-on ecological effects such as increased competition within and/or between different species for a common food source, or increased risk of predation. Birds will also suffer more of an impact when already under pressure, for example, in cold weather events when struggling to feed enough to survive. Ultimately, if the effects of disturbance reduce species fitness (*i.e.* reduced survival or reproductive success) then consequences at population level may result, and numbers of birds may decline, at site-level and beyond. Providing recreational spaces while simultaneously protecting the sensitive ecology of a site will continue to be a challenge for conservation managers (Batey, 2013) and ultimately acceptable levels of human disturbance may need to be determined and then managed (*e.g*. Beale, 2007; Gill, 2007). For example, a recent study has suggested that by restricting dogs in areas in use for recreation, waterbird numbers can be significantly increased overall (Stigner *et al.*, 2016).

Disturbance from sports, tourism and leisure activities was the most frequently cited pressure at I-WeBS sites for all species groups, in a survey of I-WeBS counters (unpublished data). Of those, dog walking was by far the most frequently cited activity causing disturbance to wintering waterbirds. Disturbance from boats and kayaks, hunting, angling and walkers were also amongst the causes of disturbance cited at multiple I-WeBS sites. Lewis & Adcock (2017) found that waterbird activity decreased as recreational disturbance (walkers, dogs, kite surfers *etc*.) increased on Dollymount Strand (Dublin Bay). Studies such as Evans & Day (2001) examining shooting disturbance and Goss-Custard *et al.* (2020) concluded that disturbance was having a minimal impact on the waterbird populations at their study sites. Collop *et al.* (2016) found wintering waders on The Wash (UK) were unlikely to be significantly impacted by human disturbance and expect that to be the case at other estuaries with similar conditions. The issue of disturbance and its impact is therefore highly complex and likely site and species specific and necessitates further study in an Irish context.

5.2.2 Water-based disturbance

Waterbird species that occur on the water are also subject to disturbance events from a variety of sources. Many coastal and inland wetlands play host to a wide variety of recreational activities including boat trips, kayaking, windsurfing and paddle boarding, although many of these are more prevalent during summer months and outside of the wintering waterbird period. That said, a study of the effects of kite-surfing on waterbirds outside of the winter months indicated that kitesurfing does affect the behaviour of waterbirds but to a lower extent than some other activities (Adcock *et al.*, 2018), and that cumulative levels of disturbance at some sites may already be at a serious level. Given the increase in outdoor recreational activities in recent years and the continuing proposals for new coastal walkways, greenways and blueways, recreational activities around coastal and inland wetlands will continue to increase. As ever, the potential for cumulative impacts will need to be addressed adequately.

Disturbance from boat traffic (shipping lanes, ferry operations *etc*.) also presents a problem for marine species such as grebes, divers and sea ducks. An Irish study found that Red-breasted Mergansers have a high degree of behavioural sensitivity to disturbance from marine traffic, while similar studies featuring Great Northern Diver suggested that this species is less sensitive (Gittings *et al.*, 2015; Gittings & O'Donoghue 2016b). Red-throated Divers are known to be highly sensitive to boat traffic however (Burger *et al*., 2019). In Belfast Lough, observations of Eider identified marine traffic as the predominant cause of potential disturbance events (93% of incidences), caused by ferries, commercial shipping, industrial boats and fishing vessels (mostly mussel boats), though in most cases Eider were not observed to react (Booth Jones *et al*., 2022).

5.2.3 Other disturbance

Disturbance of Greenland White-fronted geese by aircraft has been recorded at the Midland lakes, Lough Derg, and Lough Ree in the past. Any increase in aircraft activity at these or other sites could potentially have a significant impact on flocks, especially those with poor quality range.

5.3 Energy production and related infrastructure

Relevant species: Red-throated Diver, Black-throated Diver, Great Northern Diver, Great Crested Grebe, Slavonian Grebe, Cormorant, Mute Swan, Bewick's Swan, Whooper Swan, Pink-footed Goose, Greenland White-fronted Goose, Greylag Goose (Icelandic), Barnacle Goose, Light-bellied Brent Goose, Shelduck, Wigeon, Gadwall, Teal, Mallard, Pintail, Shoveler, Pochard, Tufted Duck, Scaup, Eider, Long-tailed Duck, Common Scoter, Velvet Scoter, Goldeneye, Smew, Red-breasted Merganser, Coot, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Purple Sandpiper, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank, Turnstone, Little Gull, Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull, Iceland Gull, Glaucous Gull.

5.3.1 Onshore wind energy

As the environmental and economic threats of climate change become more evident, governments across much of the world have set ambitious targets to decarbonise their economies. Many have also recognised the potential economic opportunities that come with rapidly developing sectors such as the renewable energy industry. Wind energy from onshore windfarms is currently the largest contributing source of renewable energy in Ireland, providing 33.7% of our total electricity demand (SEAI, 2024). The first commercial windfarm in Ireland was established in 1992 and by the end of 2023 Ireland had 4.86 GW of installed wind power capacity, almost all of which was onshore (WindEurope, 2025). The bulk of Irish wind energy projects are in upland and coastal areas, although developments are expanding into other areas. Onshore windfarm capacity in Ireland grew by 333 MW in 2023 (WindEurope, 2025). Increased production of renewable energy will be vital in reducing greenhouse gas emissions and reducing our climate impact, but it is important that renewable energy developments are located sensitively so as to avoid deleterious ecological impacts.

Existing onshore windfarms have been considered a low-level pressure to Irish waterbirds to date, though there is still no formal compilation of pre-, during- or post-construction windfarm survey datasets at a national level on which any analysis can be carried out, and future expansion may increase the threat to particular species and waterbird communities at particular sites.

The EU Renewable Energy Directive (EU/2023/2413) requires the EU to meet at least 42.5% of its energy needs with renewables by 2030, but with an aim for 45%. Each country was set individual targets based on their existing and potential renewable energy resources and Ireland was set the target of producing 43% of its energy needs from renewable sources by 2030. Since 2021, Ireland's Climate Action Plan has included a target to increase the share of electricity generated from renewable sources up to 80% in 2030.

The main potential hazards to birds from windfarms are collision mortality, disturbance (displacement, exclusion, barriers to movement) and loss of habitat (Langston & Pullan, 2003). It should be noted that the relationship between windfarms and birds is complex. The potential for impacts is dependent on a number of factors including the extent, type and timing of the development, local topography, habitats at the site and in the vicinity, numbers and species of birds present, and their distribution in the local area (Drewitt & Langston, 2006; McGuinness *et al.*, 2015). The processes for acquiring planning permissions in Ireland for such developments should protect designated SPA sites and their listed waterbirds from the impacts of windfarm developments. However, there are potential risks from windfarms situated outside designated wetlands but adjacent to grassland feeding sites for geese (especially Greenland White-fronted Goose), Whooper Swans and some wading birds (mostly Curlew, Lapwing, Golden Plover). There are also potential risks from windfarms being placed between important wetland sites resulting in waterbirds coming into contact with windfarms as they move between different wetlands or during migration, or having their movement impeded.

5.3.2 Offshore wind energy

While Ireland's renewable energy supply largely comes from onshore windfarms at present, a number of offshore windfarms in the Irish Sea (Louth, Dublin, Wicklow) have been submitted for planning permission and the 'Tonn Nua' offshore site (Wexford, Waterford) will be auctioned in late 2025. Significant interest and development in developing windfarms on other parts of the coast are expected to quickly follow in the coming years. Ireland's only offshore windfarm to date was deployed as a demonstrator project in 2004 at the Arklow Bank on the east coast.

Much of the concern surrounding the ecological impacts of offshore renewable devices is centred around seabirds, including seaducks, divers, grebes, cormorants, gulls and terns, which are all recorded during I-WeBS. Ramiro & Cummins (2016) determined scores for Irish seabird species based on their relative sensitivities to collision with offshore windfarms, displacement by offshore windfarms, and impacts from wave and tidal devices. Based on their results, in combination with I-WeBS data on population sizes and distribution and the projected developments in the coming years, offshore renewable energy may pose a threat to species such as Common Scoter, Herring Gull, Lesser Black-backed Gull, Cormorant, Red-breasted Merganser, and both Great Northern Diver and Red-throated Diver.

5.3.3 Collision risk with associated infrastructure

As the number and footprint of renewable energy developments increases in Ireland, so too does the potential for cumulative impacts that may negatively affect local waterbird populations. The development of associated grid infrastructure should be given due consideration in combination with proposed renewable energy developments. For example, the development of the above-ground cable network to transmit electricity may increase the risk of collision mortalities in some areas, particularly to species such as Whooper Swan, Mute Swan, Greenland White-fronted Goose, Greylag Goose, Pink-footed Goose, Light-bellied Brent Goose and Barnacle Goose. Although occasional incidents are known, collision mortality from overhead cables has represented only a low-level pressure to these species in recent years, though there is a lack of coordinated recording and documentation of such incidents.

5.4 Water quality

Relevant species: Greenland White-fronted Goose, Little Grebe, Great Crested Grebe, Cormorant, Little Egret, Grey Heron, Wigeon, Gadwall, Teal, Mallard, Pintail, Shoveler, Pochard, Tufted Duck, Scaup, Goldeneye, Coot, Red-throated Diver, Black-throated Diver, Great Northern Diver, Slavonian Grebe, Light-bellied Brent Goose, Shelduck, Eider, Long-tailed Duck, Common Scoter, Velvet Scoter, Smew, Red-breasted Merganser, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Purple Sandpiper, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank, Turnstone, Little Gull, Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull, Iceland Gull, Glaucous Gull.

5.4.1 Mixed source water pollution

This category includes all types of water pollution including agricultural and urban sources and the threat of oil spills. Though these types of events are rare, there is potential for very significant impacts if they were to occur at certain sites. For example, an incident such as an oil spill near Wexford could potentially result in the majority of the Irish flock of Greenland White-fronted Goose being exposed when at roost. This would have a significant impact on the Irish and global population.

5.4.2 Eutrophication – freshwater bodies

Eutrophication, which is caused by nutrient enrichment, remains by far the most significant issue for surface waters in Ireland and mainly comes from agriculture and wastewater discharges (EPA, 2022). High levels of nitrates and phosphates impact the ecological health of the water body in question by stimulating excessive plant growth with resulting knock-on effects for macroinvertebrate fauna, fish and waterbirds. The latest assessment by the Environmental Protection Agency (EPA, 2022) found that 43% of river sites have unsatisfactory nitrate concentrations and 30% have unsatisfactory phosphate levels. Excess nitrogen in the east and south-east continues to affect river water quality and high phosphate concentrations in parts of the east, north-east, south-east and south-west mean that many rivers in these regions are in unsatisfactory condition (EPA, 2022). Around a third of lakes have unsatisfactory phosphorus levels. Lakes in the north-east have the highest total phosphorus concentrations (that are also rising) and many have a historical legacy store of phosphorus in their sediments that are slowly being released over time, posing a significant challenge to restoring them to good status (EPA, 2022).

The pathways by which nutrient loading affects waterbird communities in freshwater systems are similar to those in coastal waters, although diffuse sources (especially agricultural run-off) may be relatively more important, as point sources are less prevalent at freshwater sites (Pringle & Burton, 2017). Møller and Laursen (2015) explored long-term associations between changes in fertiliser use and winter population indices of 50 freshwater and coastal waterbird species across Europe. The numbers of 14 species were positively related to agricultural fertiliser use, while numbers of 36 species showed negative relationships with fertiliser use. Freshwater systems, and shallow lakes in particular, may be more sensitive to changes in nutrient loading than coastal systems, due to lower flushing and dilution of the system (MacDonald, 2006). Declines in waterbird numbers have at least been partially attributed to eutrophication of freshwater habitats. For example, high levels of nutrient input at Lough Neagh and Lough Beg SPA in Northern Ireland were implicated in the decline of wintering diving duck populations at the site. Previous studies suggested that the nutrient input caused hyper-trophic conditions, with detrimental effects on the chironomid larvae that constitute the major dietary component for Pochard, Scaup, Tufted Duck and Goldeneye (*e.g.* Maclean *et al.*, 2006). However, climate change and migratory short-stopping are now also considered a contributing factor to the observed declines in wintering numbers at this SPA (Tománková *et al.*, 2013b).

Eutrophication of freshwater bodies is considered to pose a medium-level pressure to Goldeneye, Pochard, Scaup, Tufted Duck and Coot in this assessment.

5.4.3 Eutrophication – coastal waters

The most recent report on the water quality in Ireland (EPA, 2022) found that a significant proportion of sites were affected by nutrient enrichment; 64% of transitional water bodies (estuaries & lagoons) were in moderate or worse ecological status, primarily in the south and south-east, and 19% of coastal waters were in moderate or worse condition. A fifth of estuarine and coastal water bodies assessed exceeded established nitrogen thresholds (winter dissolved inorganic nitrogen; DIN), with six of those analysed showing an upward trend and five showing a downward trend. Only two of 108 water bodies assessed (Maigue estuary and Deel estuary in Limerick) exceeded winter phosphorus thresholds, though some breached phosphorous thresholds in the summer. Overall, since 2014, nutrient inputs to the marine environment have increased. High levels of these nutrients impact the ecological health of the water body in question by stimulating excessive plant growth with resulting knock-on effects for macroinvertebrate fauna, fish and waterbirds. As for freshwater bodies, the main sources of excessive amounts of phosphates in transitional and coastal waters are industrial and sewage discharges, as well as through the application of animal manure and inorganic fertilisers to agricultural lands.

One of the obvious signs of eutrophication of Irish estuaries is increased primary productivity and excessive growth of green macroalgae (*Ulva* spp.). Green macroalgal blooms or 'mats' generally develop in spring, persist throughout the summer and continue to cover intertidal flats into late autumn and early winter before decaying or being broken up by storms. At low cover and biomass, negative effects upon mud-dwelling macroinvertebrates appear negligible, with some invertebrate species being attracted into the algae themselves as epifauna (*e.g.* Raffaelli *et al.*, 1998). At high algal cover and biomass however, most burrowing mud dwellers are inhibited while hypoxic or anoxic conditions can occur at the mud-weed interface. The knock-on effects upon foraging waterbirds are complex. While the macroalgae may be a food source for herbivorous species such as Wigeon or Light-bellied Brent Goose, some studies have shown waterbird distribution to be negatively correlated with algal mat coverage (*e.g.* Cabral *et al.*, 1999; Raffaelli, 1999; Lewis *et al.*, 2014). In particular, wading birds appear to be affected differently based on their foraging strategies and prey preferences. An Irish study found that Redshanks may be constrained in obtaining their required daily energy intake on algal covered mudflats in contrast to Black-tailed Godwits that appear to not be adversely affected (Lewis *et al.*, 2014).

For the period being assessed, eutrophication of coastal waters is considered to be a low-level pressure and threat to Ireland's waterbirds, though it should be noted as an area currently lacking in focused research in an Irish context.

5.4.4 Cessation of sewage discharges

While organic enrichment and the resulting macroalgal mats may have some deleterious effects on certain waterbird species, organic enrichment, fuelled by emissions from wastewater treatment plants and combined sewer overflows (CSOs), may have served to benefit many foraging waterbirds due to proliferations of macroinvertebrates, principally detritivores, close to the locations of discharges (*e.g.* Lewis *et al.*, 2002; Alves *et al.*, 2012). While many areas around Ireland still require upgrades to existing wastewater treatment plants, over time many estuaries are likely to have reductions in the amount of organic nutrients entering them as improvements are made. This is likely to lead to reductions in the macroinvertebrate prey base, at least in parts of the site where they had previously flourished due to enrichment (Lewis & Kelly, 2012). Such implications of improvements to wastewater treatment have been noted previously (*e.g.* Burton *et al.*, 2002), as have a reduction in bird numbers. A more recent review of the literature by Pringle & Burton (2017) identified a number of studies that had investigated the effects of nutrient loading of coastal waters on bird communities. Although results from many studies were correlative rather than causative, they do suggest that the effects of changes in water quality are somewhat site- and species-specific in many instances, but may lead to, and have been implicated in, both waterbird population increases and declines. Given that nutrients, in particular phosphorus, can be stored in sediment, reversal of the effects of eutrophication is likely to take considerably longer than the time over which the effects of eutrophication built up (Møller & Laursen, 2015). Hence, improvements to organic loading should be considered a future threat to waterbirds (their numbers and distribution), at least at some sites; however, given the wider ecological and environmental impacts of organic loading, measures to address this issue should be progressed. The species likely to be affected are: Bar-tailed Godwit, Black-tailed Godwit, Curlew, Dunlin, Grey Plover, Knot, Redshank, Ringed Plover, Purple Sandpiper and Turnstone.

5.5 Fisheries and aquaculture

Relevant species: Red-throated Diver, Black-throated Diver, Great Northern Diver, Great Crested Grebe, Slavonian Grebe, Cormorant, Greenland White-fronted Goose, Light-bellied Brent Goose, Shelduck, Wigeon, Teal, Mallard, Pintail, Shoveler, Pochard, Tufted Duck, Scaup, Eider, Long-tailed Duck, Common Scoter, Velvet Scoter, Goldeneye, Smew, Red-breasted Merganser, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank, Turnstone, Little Gull, Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull, Iceland Gull, Glaucous Gull.

5.5.1 Aquaculture and shellfish harvesting

Aquaculture output has declined recently in Ireland, though still amounted to circa 36,000 tonnes of sales and >€182 M in total income in 2023 and the industry maintains it has the potential for recovery, growth and diversification into products such as seaweed (BIM, 2024). Intertidal and shallow subtidal habitats of coastal bays and estuaries are widely used for various types of aquaculture, including seed mussel nurseries/intertidal on-growing (bottom culture) (*e.g*. Castlemaine Harbour, Carlingford Lough), and the cultivation of the Pacific Oyster *Crassostrea gigas* (*e.g*. Dungarvan Harbour, Ballymacoda Bay, Bannow Bay, Galway Bay). This category includes the dredging of shellfish as the final product (*e.g*. Cockle *Cerastoderma edule*), or the dredging and subsequent relaying of seed (*e.g*. Mussel *Mytilus edulis*) for on-growing and later harvesting by dredging. The harvesting of Cockles is confined largely to Dundalk Bay, Carlingford Lough, Waterford and Tramore. The growing of Pacific Oysters using the bag and trestle system is the most widespread activity within SPAs and occurred in 16 SPAs in 2012, occupying a total area of 2,262 ha (Gittings & O'Donoghue, 2012). These figures may well have now increased. Impacts upon waterbirds include habitat loss (*e.g*. some species will not feed under or near oyster trestles), competition for a common resource (*i.e*. the shellfish is also a waterbird prey item), damage to benthic sediments and impacts upon non-target benthic species which may ultimately impact waterbird prey availability and abundance, and the associated disturbance that occurs in association with the activities and infrastructure used in cultivation and harvesting.

Intertidal trestles can cover extensive areas of intertidal and shallow subtidal habitat. For waterbirds, the presence of trestles can therefore be equivalent to habitat loss as the habitat becomes unsuitable due to the cover itself, and the deleterious effects on the benthic prey due to the smothering of the habitats with faecal and pseudofaecal material, as well as other detritus generated by the culture process. Extensive research on the potential impacts of this activity upon waterbirds has been undertaken within Ireland in the past. Gittings & O'Donoghue (2012) categorised species responses to these activities and reported considerable variation: Oystercatcher, Curlew, Redshank, Greenshank and Turnstone exhibited a neutral/positive response; Light-bellied Brent Goose, Black-headed Gull, Common Gull and Herring Gull exhibited a variable response (*i.e*. response varied between sites); Shelduck, Ringed Plover, Lapwing, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Great Black-backed Gull exhibited negative responses; while Grey Plover and Knot exhibited an exclusion response (*i.e*. they were completely excluded from oyster trestle blocks).

The species that show the strongest negative patterns of association with trestles appear to be those that tend to feed in large flocks of tightly packed individuals (*e.g*. Knot, Sanderling, Dunlin). Gittings & O'Donoghue (2016a) suggest that the negative behavioural response may be due to the oyster trestles interfering with the flocking behaviour by making it difficult for individuals in large flocks to remain in contact as they become dispersed across several lines of trestles. Another possible reason for waterbirds to avoid trestles is that the perceived predation risk may be higher within the trestle blocks due to the trestles interfering with sightlines. In contrast, the Grey Plover showed a strongly negative pattern of association with trestles, but is a species that tends to feed as widely dispersed individuals rather than flocks. However, individual Grey Plover require open areas to detect prey at the surface over a wide area, and then make short runs to catch the prey and it was suggested that the presence of oyster trestles may interfere with this behaviour (Gittings & O'Donoghue, 2016a). Research at Dungarvan found that Grey Plover actively avoided trestle areas, including wider 'corridors' between them that had been created as potential mitigation (Marine Institute, 2020).

5.5.2 Marine fisheries

Commercial fisheries in Irish waters are diverse, with many different techniques employed: eight main groups which include demersal otter trawls, beam trawls, demersal seines, gill and trammel nets, longlines, dredges, pots and pelagic trawls (Cummins *et al.*, 2016). Pressures on the environment from fishing arise from the over-harvesting of target species and the unintentional catching of non-target fish species and other species such as cetaceans, seals, seabirds and benthic organisms (see 'bycatch' below). Fishing activities such as trawling and dredging can injure or kill benthic organisms and can result in the damage or destruction of habitats (Wall *et al.*, 2016). Over-fishing is a consistent problem. Larger, longer-lived species (*e.g*. tuna, cod) have been significantly depleted leading to fishing fleets increasingly concentrating on catching smaller, shorter-lived, plankton-eating species such as mackerel, sardine and sandeel, mostly known as 'forage fish,' as well as invertebrates such as mussels, prawn and shrimp, which are nearer the bottom of the food chain. This has major implications for marine food webs and ultimately marine food webs risk collapse if over-fishing is not addressed (Pauly *et al.*, 1998). Recent concerns have arisen over the practice of pair trawling in sheltered inshore bays and estuaries such as Cork Harbour, Kenmare Bay, Roaringwater Bay, Galway Bay, Shannon Estuary, Donegal Bay and more. This is a practice whereby two boats drag a single large net between each other. Pair trawling, which is banned in the UK, targets sprat, which is processed into fish meal. Sprat is a small shoaling fish and is a keystone of the marine ecosystem as it is prey for larger fish such as cod, as well as sea birds and piscivorous waterbirds. Not only does the activity appear unsustainable, it potentially reduces prey biomass available to piscivorous waterbirds. There is also a risk of by-catch and disturbance.

5.5.3 Bycatch

The incidental killing of marine birds in gillnets, trammel nets and other fishing gear has long been known as a problem across much of the world. In Irish waters, the highest densities of static nets that may be cause for concern for birds are off the south coast (Gerritsen & Lordan, 2014). Žydelis *et al.* (2013) reviewed the feeding ecology of marine birds species to determine their susceptibility to bycatch in gillnets and found that I-WeBS species including Common Scoter, Long-tailed Duck and Eider were vulnerable. Diver and grebe species in coastal and offshore waters are also considered susceptible to bycatch (Žydelis *et al.*, 2013) and gulls are also occasionally netted. Ramírez *et al.* (2024) reviewed marine bird bycatch across Europe and estimated that around 3,600 Eider, 1,100 Cormorants, 368 Greater Scaup, 326 Goldeneye, 126 Red-throated Divers and 63 Long-tailed Ducks are killed as fishing bycatch in the north-east Atlantic each year.

In light of increasing trends for some vulnerable species such as Eider and Cormorant, and a lack of data on the size and distribution of our offshore populations of the relevant vulnerable species, mortality as fishing bycatch is generally scored as a low pressure for the species considered, though it is an area requiring further research and monitoring.

5.6 Climate change

Relevant species: Little Grebe, Great Crested Grebe, Cormorant, Bewick's Swan, Greenland White-fronted Goose, Barnacle Goose, Light-bellied Brent Goose, Shelduck, Wigeon, Teal, Mallard, Pintail, Shoveler, Pochard, Tufted Duck, Scaup, Goldeneye, Coot, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Purple Sandpiper, Dunlin, Ruff, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Spotted Redshank, Redshank, Greenshank, Turnstone.

Climate change is arguably the most significant threat facing wild bird populations, particularly those that migrate long distances (Robinson *et al.*, 2009). Migratory waterbirds are dependent upon the right habitat being available in the right place at the right time, with the timing and patterns of migration having evolved over millennia. Rapid changes in temperature, precipitation levels and sea levels all greatly increase the risk of a temporal or spatial ecological mismatch occurring, which may have deleterious effects on bird populations (Robinson *et al.*, 2009; Reneerkens *et al.*, 2016) as well as affecting the range and distributions of species.

Given that Ireland is at the western edge of the wintering range for many waterbird species that breed in Scandinavia, Northern Europe and Arctic Russia, it is likely that the effects of climate change and associated increasing winter temperatures continue to make it disadvantageous for many species to migrate as far as Ireland for the winter. The most notable example of this is the Bewick's Swan, whose numbers have been declining here since at least the 1980s despite flyway population increases until the early 2000s. In the most recent International Swan Census in January 2020, only 12 Bewick's Swans were recorded in Ireland and at the time of writing there was only one sighting of a single Bewick's Swan in Ireland in winter 2024/25, making it the first winter without any regular over-wintering Bewick's Swans. In the case of the Bewick's Swan and many other species, there is now suitable wintering habitat closer to their breeding grounds than before, so the excess energy demand of flying as far as Ireland is now unnecessarily costly. Rising temperature has therefore been a high-level pressure for Ireland's Bewick's Swan population.

Based on research by Gillings *et al.* (2006), Lehikoinen *et al.* (2013) and Pavón-Jordan *et al.* (2018), in combination with the observed population trends for the respective species in Ireland as outlined here, climate change-related temperature changes have been ranked as a pressure and a threat for 18 waterbird species, with those thought likely to be most affected as follows:

High-level: Bewick's Swan, Goldeneye, Pochard, Tufted Duck, Scaup.

Medium-level: Shelduck, Wigeon, Coot, Golden Plover, Lapwing, Purple Sandpiper.

Gillings *et al.* (2006) found that the winter distribution of Golden Plover and Lapwing in Britain has shifted east since the mid-1980s, which correlated with increased mean winter temperatures and a reduction in the frequency of cold spells which in turn allows waders to winter closer to their breeding grounds. Lehikoinen *et al.* (2013), using data from I-WeBS and WeBS amongst other datasets from the International Waterbird Census (IWC), demonstrated strong north-eastwards shifts in the centres of gravity of the wintering range of three diving duck populations along the North-West European flyway in response to changes in temperature since 1980. Numbers of Tufted Duck, Goldeneye and Goosander increased by over 140,000 in the north-east part of their wintering range (Finland, Sweden), as rising temperatures have provided more ice-free habitat closer to their breeding grounds. Over the same period, countries such as Ireland, France, the Netherlands and Switzerland in the south-west of the flyway have lost in the region of 128,000 individuals (Lehikoinen *et al.*, 2013). Pavón-Jordán *et al.* (2018), also using I-WeBS data as well as other datasets from the IWC, identified changes in wintering waterbird distributions at large geographical scales in response to short- and long-term changes in weather conditions. Again, the pattern was for a shift to the north-east as conditions in Northern Europe became more favourable (*i.e*. more mild and wet). The study shows a long-term north-east shift of populations of species preferring deep waters. Shallow-water species also showed a north-east shift during the 1990s and early 2000s but shifted to the south-west again after the mid-2000s in response to several consecutive harsh winters. Although they did not exhibit a similar shift south-westward again in response to the harsh winters in the mid-2000s, the rapid north-east increases in abundance of deep-water species ceased at this time. Climate change projections show shorter and milder winters in temperate zones (IPCC, 2022) which suggests that continued north-east shifts of the ranges of many of Ireland's wintering waterbirds are likely (Pavón-Jordán *et al.*, 2018). The results of this study also illustrate the different reactions of waterbird species to changes in weather and climate, with individual ecology and habitat requirements being important factors. Purple Sandpiper is included here based on expert opinion and there is no literature focused on this species in this part of its range linking changes in number or distribution to climate change, however previous research on their migration has described them as flying to "…the nearest ice free coast…." (Summers, 1994) and given their recent declines here and the context of other species declining due to short stopping, this seems like a viable explanation. More research is undoubtedly needed however.

The effects of temperature changes on waterbird populations are not just felt on the wintering grounds. Arctic-breeding wading birds are becoming increasingly negatively affected by changes in temperatures on their breeding grounds. For example, researchers reported in 2018 that summer temperatures in Zackenburg (north-east Greenland) have increased steadily over the last few decades which has led to an ecological mismatch between the timing of peak insect availability and the timing of shorebird chicks (Team Piersma, 2018). Furthermore, climatic models have shown that the amount of snow is a key driver of this mismatch, and while snow melts quicker with higher summer temperatures, climate models also predict that the amount of winter precipitation (and snow) will increase. During summer 2018 the amount of snow was so excessive that shorebirds such as Sanderling flocked together in snow-free areas and failed to breed, while many also perished. Despite the Sanderling breeding range extending beyond north-east Greenland, such failures on the breeding grounds may well result in changes to overall population size in the future, especially if such patterns are repeated with more regularity. Similarly, increased snow cover during spring and early summer on the breeding grounds has impacted Greenland White-fronted geese, their ability to nest and overall productivity (Boyd & Fox, 2008). This is likely one of the key drivers of their population decline, particularly the Irish cohort of the flyway population, in recent years (Ozsanlav-Harris *et al*., 2023).

Other issues facing these birds on the breeding grounds as a result of climate change include suitable habitat shifting, contracting and declining (Wauchope *et al.*, 2016) and timing mismatches between chick hatching and peak food abundance (*e.g*. McKinnon *et al.*, 2012; Reneerkens *et al.*, 2016). Along the migration route there is a risk that climate change will reduce the availability of suitable habitat at stopover sites and a bird's ability to build up adequate nutrients and fat stores, thus reducing survival (Studds *et al.*, 2017) or impacting an adult's ability to reproduce successfully following spring migration (Drent *et al.*, 2007). In addition to the immediate and short-term impacts of climate change at specific life history stages or locations along the migratory flyway, there are also cumulative effects to consider as well as the likelihood of negative carryover effects manifesting later in the year, or in subsequent years (O'Connor & Cooke, 2015). Nagy *et al.* (2022a) identified Arctic-breeding waders as a group at particular risk due to climate-change and the resultant loss of habitat in the coming decades. Johnson *et al.* (2013) projected future abundance of wintering waterbirds in north-west Europe under a scenario of increased global mean temperature of 2.8°C by 2050 and 4.4°C by 2080. They found that climate change has already been a significant driver of large-scale population trends and that most species are likely to undergo large population declines under the projected scenarios, with mean population trends of -33% to 2080 across 45 species. Interestingly, there were projected to be 58% more birds in the entire wintering waterbird assemblage in 2080, with a small number of species benefitting significantly from the changes. Based on the UK SPA network, they predicted that the existing network of protected sites is likely to support significant populations of wintering waterbirds in the future, although that is not to say that the network will protect each species from climate change impacts (Johnson *et al.*, 2013).

Sea level rise and wave exposure changes due to climate change have been categorised as a threat to 17 wader and 11 wildfowl species, albeit to varying extents. At coastal sites, storm surges and flooding events can temporarily result in intertidal areas being unavailable for foraging waterbirds. Over time these events can affect the shape of estuaries and the nature and distribution of sediments (*e.g*. Stevens, 2010; Jang *et al.*, 2013) with knock-on effects on the distribution and abundance of invertebrates, thus potentially affecting the numbers and composition of waterbirds supported by an estuary. Total Global mean sea level rise for 1902 - 2015 is 0.16 m (likely range 0.12 - 0.21 m). Though the rate of increase from 2006 - 2015 is unprecedented, 2.5 times higher than the rate for 1901 - 1990 (Oppenheimer *et al*., 2019). Predicted changes to the Irish coastline are expected to result from a combination of sea level rise, increasing frequency of storm surge events and from coastal erosion. Flooding at coastal locations is likely to be exacerbated by predicted increases in rainfall and consequent enhanced river flow (Crowe *et al.*, 2013). An average sea level rise of 0.5 m to 1 m by the end of the century, in combination with storm surge events, could result in approximately 300 km^2 to over 1,000 km^2 of coastal lands around Ireland being inundated by the sea (DeVoy, 2008). A rise of 1 m in sea level would see 30% of existing coastal wetlands disappear (DeVoy, 2008). The habitats most at risk include low-lying coastal lagoons, saltmarsh and estuaries, and of particular vulnerability are those that are prevented from extending landward because of the presence of some fixed or artificial boundary (Wall *et al.*, 2016). Crowe *et al.* (2013) identified a total of 71 sites that regularly support significant concentrations of waterbirds and that are low-lying and vulnerable to increasing sea levels. In response to winter flooding and predicted future sea level rise there continues to be focus on flood defence and relief schemes around the country, with some coastal works under construction, others at planning stage, as well as plans to modify rivers, lakes and turloughs in the midlands and west. In many cases this involves dredging to deepen the river channel, removal of trees, building concrete walls, constructing earth embankments and pumping stations and other similar solutions. These hard engineering responses to flooding have the potential to significantly impact waterbirds at previously suitable wetland sites. On the coast, man-made structures prevent natural habitats (*e.g.* saltmarsh, intertidal habitat) from moving landward as sea level rises, squeezing them up against the hard defences. This is known as 'coastal squeeze' and means the extent and functioning of the coastal habitats reduce over time, along with the habitats and species that they support; effectively a form of habitat loss (Pontee, 2013). Impacts from hard flood defences are not unique to the coast however; for example, works to relieve or prevent flooding in the midlands on the River Shannon, its tributaries and nearby lakes and turloughs could significantly reduce the suitable available habitat for dabbling duck species in the region. Finally, outside the wintering season in Ireland, prolonged drought conditions may impact the amount of suitable foraging habitat available for species on their return here in the autumn. This is most relevant to species with limited distribution such as Barnacle geese.

5.7 Hunting, shooting and incidental killing

Relevant species: Cormorant, Grey Heron, Mute Swan, Bewick's Swan, Whooper Swan, Pink-footed Goose, Greenland White-fronted Goose, Greylag Goose (Icelandic), Barnacle Goose, Light-bellied Brent Goose, Shelduck, Wigeon, Gadwall, Teal, Mallard, Pintail, Shoveler, Pochard, Tufted Duck, Scaup, Goldeneye, Golden Plover, Jack Snipe, Snipe.

5.7.1 Hunting and shooting

The E.U. Birds Directive recognises the legitimacy of hunting of wild birds as a form of sustainable use, providing social, cultural, economic and environmental benefits, and lists species on Annex II of the directive, which may be hunted in member states. The Wildlife (Wild Birds) (Open Seasons) Orders 1979 to 2023 specify the waterbird species which may be hunted in Ireland, when they may be legally hunted and, in some cases, exactly where hunting is permitted (https://www.npws.ie/legislation/irish-law/open-seasons-order).

Two goose species (Canada and Greylag), seven ducks (Mallard, Teal, Gadwall, Wigeon, Shoveler, Tufted Duck, Ruddy Duck) and four waders (Golden Plover, Snipe, Jack Snipe and Woodcock) may be legally hunted in the Republic of Ireland. Most species with an open season may be taken throughout the state between 1st September and 31st January each winter, although there are greater restrictions around the hunting of Greylag and Canada geese in Ireland, to ensure that birds from the resident feral/naturalised populations rather than the migratory populations are hunted. In Ireland, it is currently not mandatory to record and submit the number of birds harvested by an individual or group during the open season. Some data is gathered by the National Association of Regional Game Councils (NARGC) from their members, but results are not publicly available. It is therefore impossible to quantify the number of individuals of species listed on the Open Seasons Orders that are harvested each year. As a result of this lack of data and given the fact that hunting results in the direct removal of individuals from the population, hunting is considered a medium pressure/threat upon these species. In 2023, four duck species were removed from the Open Seasons Order due to a significant decline in their population numbers and the small size of their populations (Wildlife Wild Birds Open Seasons Amendment S.I. No. 421 of 2023; NPWS, 2023). The species removed were Pintail, Scaup, Pochard and Goldeneye.

In Iceland, annual autumn hunting of Greylag geese has ranged between 26,210 and 47,317 individuals (2018-2022; Statistics Iceland, 2025), constituting a direct and high-level pressure and threat on the declining flyway population. In the case of Pink-footed Goose, 22,871-26,198 individuals have been hunted per annum over the same period, though the flyway population and Irish populations are both considered to be increasing, so this is considered a medium level pressure/threat. Barnacle geese are hunted in both Greenland and Iceland, but the numbers involved are low (*c*.3,000 per annum in Iceland; Statistics Iceland, 2025), so this is likely to only constitute a low-level pressure and threat for Barnacle geese, with harvest numbers being proactively managed under an adaptive flyway management programme (Nagy *et al*., 2021).

The potential impacts of hunting are complex. For instance, hunting of certain wild bird species may be a source of compensatory mortality, reducing population density through harvesting which in turn benefits other individuals within the population leading to their increased survival and/or increased reproductive output. However, hunting may also be a source of additive mortality and have a direct negative impact on the numbers and conservation status of the target species, with the population unable to compensate for the removal of individuals through increased survival rates or higher reproductive output. There is a significant lack of research into the effects of hunting on Irish and European waterbird populations and research is further hampered by a lack of comprehensive reliable bag return data. In addition to the direct mortality of individuals, legal hunting is a source of unquantifiable disturbance which may have a negative impact on flocks and populations of both quarry and non-quarry species through energy loss and an inability to meet nutritional needs. The potential for these indirect impacts underscores the importance of having a network of suitable wildfowl sanctuaries where flocks that are flushed from one site can rest and feed at another site nearby without the risk of further shooting disturbance. Other complexities relating to hunting of waterfowl in Ireland include the benefits and drawbacks of large-scale release of captive-bred Mallard each year, how much these are represented in hunting returns and what contribution they might make to the population in subsequent years. Various studies have found that released Mallard have very low survival rates to the following breeding season (Champagnon *et al.*, 2016a; Söderquist *et al.*, 2021) and a low overall reproductive output, but can still form a significant part of the wild population and act as a useful buffer for the wild population with regards potential declines from harvesting (Champagnon *et al.,* 2016b), but research in an Irish context would be desirable.

5.7.2 Illegal shooting and killing

An entirely separate issue to the above is the intentional illegal shooting and killing of species not on the quarry list, although this is impossible to quantify accurately. Hunting of Greenland White-fronted geese is illegal in Ireland, but a small number of poaching incidents have occurred in recent years, and many incidents are likely to go unnoticed and unreported. A similar ban is in place in Iceland but over 1,500 Greenland White-fronted geese are known to have been mistakenly shot in the five years from 2018 to 2022 (range 70 to 460 per annum; Statistics Iceland, 2025) and this is generally considered an underestimate. Given the declines this species has undergone both at flyway level and in Ireland in recent decades, additional mortality of birds constitutes a medium-level threat to their wintering numbers and range in Ireland as it may be limiting population maintenance or recovery.

Perceived conflicts between fishermen and Cormorants means this species is illegally persecuted in many parts of the country, despite evidence that their impact on salmonids is minimal (Tierney *et al.*, 2011). In some areas, birds are suspected to have been illegally killed due to conflicts such as agricultural impacts from geese (Brent, Barnacle, White-front, Pink-foot) and Whooper Swans. Such cases are likely to be limited in number and distribution, although cases are often difficult to substantiate or quantify.

Some cases of illegal shooting of Grey Herons are known to have occurred in the recent past (*e.g*. NPWS, 2013), the motivations behind which are not clear. Although cases of illegal shooting of waterbird species in Ireland are undoubtedly largely under-recorded, it is suggested that, at current levels of persecution they are unlikely to impact the conservation status of the respective species (*i.e*. they are a low-level pressure).

5.7.3 Poisoning through lead gunshot and angling weights

In Europe, it is estimated that three million waterbirds suffer sub-lethal effects and a further one million die annually because of lead gunshot ingestion (Andreotti *et al.,* 2018). Angling weights, accidently lost or discarded, are another important source of lead in the environment (Wood & Newth, 2024). Studies in Europe have found high levels of lead toxicity and/or mortality when examining lead toxicity in swans (*e.g*. Newth *et al.*, 2016), geese (*e.g*. Mudge, 1983) and both dabbling and diving ducks (*e.g*. Pain, 1990; Mateo *et al.*, 1998), although levels can vary considerably between species within those groups and again depending on the site in question. Newth *et al.* (2013) found that lead poisoning continued to affect a wide range of British waterbirds long after legal restrictions were introduced, noting that lead may persist and accumulate in the environment for tens or hundreds of years and remain accessible to feeding waterbirds long after deposition (Rooney *et al.*, 2007). Pain *et al.* (2015) estimated that in the UK 50,000 to 100,000 wildfowl (*c.* 1.5 to 3% of the wintering wildfowl population) die each winter as a direct result of lead poisoning. A 2018 report (Lead Ammunition Group, 2018) estimated that a further 150,000 to 300,000 wildfowl in the UK may suffer sub-lethal poisoning annually from lead shot ingestion. In Ireland, O'Halloran *et al.* (1991) investigated lead toxicity levels in Irish Mute Swans and found that almost 70% of dead birds examined died directly from lead poisoning, and others are likely to have died due to sub-lethal effects resulting in collisions. At some sites, spent gunshot was the source of lead poisoning, but at others it was discarded anglers' weights. Three Whooper Swans were also found to have died from lead poisoning as part of the study (O'Halloran *et al.*, 1991). While O'Connell *et al.* (2009) reported a marked decrease in Mute Swan blood lead levels in Co. Cork from 1983 to 2006, they also determined that a small percentage of the study population still had significantly elevated lead levels, likely resulting in sublethal effects. Butler (1990) found a 2.5% prevalence of lead shot in the gizzards of Irish wildfowl, and more recent unpublished data from the NARGC suggests prevalence in a similar sample size is even lower in more recent years, though the details of these analyses are not available (NARGC, 2020) and other recent data or research in an Irish context is lacking.

Since 2023, new restrictions have been introduced in Ireland and the rest of the EU to greatly reduce the amount of lead added to wetlands through shooting. It is now prohibited to fire lead shot in or within 100 m of a wetland (EU Commission Regulation 2021/57). Further restrictions on lead shot and lead angling weights have been proposed by the European Chemicals Agency (ECHA) and are being considered as of early 2025. The extent of lead pollution and risk to waterbirds is likely to be site-specific, dependent upon both the level of hunting and fishing and the number of waterbirds aggregated at the site. This risk may be lower in Ireland compared to elsewhere Europe given the lower densities of anglers and shooters in Ireland (*e.g*. see www.face.eu/members/). Thus, given the limited available information, the recently imposed restrictions and seemingly likely upcoming further restrictions, the current pressure and predicted threat of lead poisoning from gunshot and angling weights to wildfowl in Ireland was identified as of low impact.

5.8 Urbanisation and development

<u>Relevant species</u>: Mute Swan, Greenland White-fronted Goose, Light-bellied Brent Goose, Wigeon, Oystercatcher, Ringed Plover, Golden Plover, Lapwing, Knot, Sanderling, Purple Sandpiper, Dunlin, Ruff, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Spotted Redshank, Redshank, Greenshank, Turnstone.

Given that many of Ireland's most important coastal and inland wetlands are located close to centres of human settlement and industry, pressures and threats from increased development are an ongoing source of conflict, habitat loss and fragmentation. For example, figures from the 2016 census published by the Central Statistics Office revealed that 1.9 million people, or 40% of the Irish population, reside within 5 km of the coast, and of these, some 40,000 people live less than 100m from the nearest coastline. Major cities such as Dublin, Cork, Limerick and Galway are located beside major coastal wetlands of international importance, and infrastructure development such as roads, port developments, industry and flood defence schemes (note that flood defence schemes are considered further under 'climate change' above) all have potential to impact wetlands and waterbirds directly and indirectly.

Ireland has been experiencing a significant shortage of housing in recent years and the government has a target of >300,000 new homes by 2030 across the state. This scale of development has potential for significant direct and indirect impacts on waterbirds through habitat loss and fragmentation, increased disturbance and pollution. Species such as Light-bellied Brent geese, Oystercatcher, Black-tailed Godwit and Curlew feed on urban grasslands in Dublin and other cities and these sites are increasingly being utilised for housing developments. This pressure will undoubtedly grow in the coming years.

Implementation of the European Union (EU) Birds and Habitats Directives has resulted in the creation of a comprehensive network of sites for habitat and species protection, the Natura 2000 network, including SPAs and SACs. Where plans or projects have the potential to impact these sites, provisions arising from Articles 6 (3) and (4) of EU Council Directive 92/43/EEC (Habitats Directive) and transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations S.I. No 477 of 2011 (Appropriate Assessment) come into play, aiming to establish whether a proposed plan or project either alone or in combination with others, could have significant negative effects on a Natura 2000 site, in view of the site's conservation objectives. In the future it may be that more projects will pass to Stage 4 of this assessment, where compensatory measures to effectively offset the damage to the Natura site will be necessary. Across all assessments, the challenge remains to adequately assess cumulative (in-combination) impacts with the necessary robustness.

5.9 Agriculture and forestry

Relevant Species: Bewick's Swan, Whooper Swan, Pink-footed Goose, Greenland White-fronted Goose, Greylag Goose (Icelandic), Barnacle Goose, Light-bellied Brent Goose, Golden Plover, Lapwing, Jack Snipe, Snipe, Curlew.

Almost 70% of Ireland's land area is under agricultural use (EPA, 2025) and farmland borders most inland wetlands that are relied upon by migratory waterbirds during the winter. Our migratory swan and goose species feed directly on agricultural grasslands, stubble fields and winter cereals, often returning to nearby waterbodies to roost at night. Waders such as Lapwing, Golden Plover and Curlew are also heavily reliant on agricultural lands away from wetlands where they can feed on soil-dwelling invertebrates. These species are therefore particularly vulnerable to changes in agricultural land use and management. Note, agricultural impacts on water quality are discussed in the water quality section above.

For most swans and geese in Ireland the main threat is likely to be conversion of improved pasture and semi-improved grasslands to other crop types or to forestry. In the past, conversion of grasslands to biomass crops around Lough Foyle made previously popular feeding areas unsuitable for swans and geese, although many of these areas have since reverted to grass. Over-wintering geese such as Icelandic Greylag Goose and Greenland White-fronted Goose are highly site faithful (Wilson *et al.*, 1991), so changes to habitats at a few key sites could have a significant negative impact on local populations and regional distribution as a result. Other species vulnerable to changes in agricultural land use include Light-bellied Brent geese, Whooper and Bewick's Swans and grassland-feeding waders. For Barnacle geese, the coastal and offshore island grassland sites they prefer are considered unlikely to be converted into anything else in the coming years, but will require continued agricultural management to maintain the existing habitat.

Ireland's Forestry Strategy (2023 - 2030) aims to "…urgently expand the national forest estate on both public and private land…" (DAFM, 2023). Many of the sites favoured by grassland-feeding species such as Greenland White-fronted Goose, Whooper Swan, Curlew, Lapwing, Golden Plover, Snipe and Jack Snipe in the north-west and midlands in particular are on marginal agricultural land of modest value, which are typical of sites that have been afforested in recent decades. Planning regulations should help avoid negative impacts upon important grasslands within SPAs, while grasslands outside of SPAs will be at higher risk of conversion in land use. There is also the threat that afforestation will take place on lands neighbouring those areas used by these species, which may deter them from feeding even if suitable foraging habitat remains in the area. Smaller scale modifications to agricultural habitats including division of fields by fencing, or tree planting on field boundaries, may also deter geese and swans from feeding on previously preferred sites. Given that the majority of the Irish population of Greenland White-fronted Goose now resides on sites in Wexford that are unlikely to be further impacted by forestry in the near future, and their protection status with regards SPAs and Annex I listing, forestry is currently considered here to represent a low-level threat to this species. Other grassland-feeding species such as Whooper Swan and Golden Plover, which are also Annex I listed, as well as Lapwing, Curlew, Snipe and Jack Snipe, have such large wintering ranges in Ireland that pressure from afforestation is regarded as low at present. The recently produced farmland bird hotspot map (Kennedy *et al.*, 2023b) highlights hotspots in the recent distributions of red- and amber-listed species of conservation concern (Gilbert *et al.*, 2021) such as wintering Greenland White-fronted, Brent, Barnacle and Greylag Goose, Whooper and Bewick's Swans, Curlew, Dunlin, Lapwing, Redshank, Golden Plover and Snipe. This tool is increasingly being used in relation to site selection for afforestation and other agri-environment measures.

Changes to grassland management can also significantly reduce the suitability of important sites for grassland-feeding waterbirds. Greenland White-fronted geese prefer longer grass heights than other goose species, whereas Barnacle geese show preference for swards of <10 cm in height, and Light-bellied Brent geese prefer even shorter swards (<5 cm for Dark-bellied Brent, likely similar for Light-bellied Brent) (Vickery & Hill, 1999). Given that Greenland White-fronted geese in most of the 'down-country' flocks (*i.e.* outside Wexford) feed on marginal land that is already grazed at low intensity, there is a threat of agricultural abandonment in many areas which would quickly lead to a tall sward height that would exclude the geese from feeding. This represents a low-level threat that may impact White-fronts at specific feeding sites in their range outside Wexford and may also be problematic for grassland-feeding waders such as Curlew, in the same areas. For Barnacle geese, agricultural abandonment also poses a threat, particularly on offshore islands where maintaining grazing is logistically difficult (*e.g*. has occurred in Scotland, see McKenzie, 2014), though any immediate risk is thought to be low. Lapwing and Golden Plover may be similarly impacted, although given their widespread distribution, the threat to the Irish populations of these species remains low overall. Conversely, overgrazing by sheep, particularly in years of poor grass growth or when sheep continue to graze fields into the winter, also threatens to deplete the foraging resource below a minimum sward height considered unprofitable for Barnacle geese to feed (Vickery & Gill, 1999), though again the threat in the immediate future is likely to be of a low-level. For Light-bellied Brent geese that prefer a short sward, the cessation of mowing at urban greenfield sites can quickly result in sites becoming unusable. In recent years there has been a trend for managing sections of parklands for pollinating invertebrates, which requires a reduced frequency of mowing to allow wildflowers to grow amongst longer grass (National Biodiversity Data Centre, 2015). Care should be taken to ensure a balance is achieved between positive conservation actions such as this and the requirements of the local Light-bellied Brent Goose populations that favour the same parklands, albeit generally at a different time of year than pollinators.

Grazing by geese and swans also leads to conflict with some landowners who are unhappy at the loss of forage that was intended for livestock. Such conflicts tend to be localised in Ireland and pale in significance compared to the high levels of conflict on the island of Islay in Scotland, where the financial impacts of estimated agricultural damage have risen greatly over the last 20 years as goose numbers have increased dramatically to over 50,000 (mostly Barnacle Goose, smaller numbers of Greenland White-fronted Goose and Greylag Goose) (McKenzie & Shaw, 2017). In Ireland, agri-environment measures such as those available under ACRES (Agri-Climate Rural Environment Scheme) and the NPWS Farm Plan Scheme provide financial supports to famers and landowners in priority areas to manage their lands for the benefit of over-wintering geese. This does not always provide a solution however and deliberate scaring continues at some sites, often through the use of gas-bangers. Intentional scaring of geese and swans, although not necessarily common, is widespread throughout their respective wintering ranges in Ireland. Disturbance results in increased energy expenditure as the birds seek refuge and suitable feeding habitat elsewhere. Depending on the availability of habitat in the wider area, this could potentially be very energetically costly for birds attempting to build resources over the winter and in advance of migration. At present this is deemed a low-level pressure for these goose (White-fronted, Brent, Barnacle, Greylag) and swan (Whooper, Bewick's) species in Ireland.

5.10 Invasive alien species

<u>Relevant species</u>: Light-bellied Brent Goose, Wigeon, Redshank

Common Cord-grass *Spartina anglica* is a perennial saltmarsh grass that is the product of a hybridisation event that occurred on the south coast of England some 100 years ago (McCorry *et al.*, 2003). Being more vigorous than its parents, the grass rapidly colonised coastal areas and stabilised mudflats. Its potential use as a tool to reclaim mudflats led to the grass being planted on many sites around the coasts of Britain, Ireland and Northern Europe during the 1920s. Common Cord-grass was first planted in 1925 in Cork Harbour (Cummins, 1930) and subsequent plantings occurred along many other coastal stretches. A number of negative impacts of this introduction were subsequently identified (Stokes *et al.*, 2004). The spread of *S. anglica* on coastal mudflats and saltmarsh results in a less diverse, monospecific sward and reduces both the intertidal feeding area and invertebrate prey base for foraging waders and other birds as it matures (Stokes *et al.*, 2004). It also causes the loss of macroalgae and eelgrass (*e.g. Zostera* spp.) beds which may impact waterfowl including Light-bellied Brent geese and Wigeon (Robinson & Colhoun, 2006; Percival *et al.*, 1998). Research elsewhere has found that Redshank and other waders readily feed in areas where invasive spartina species have been removed (*e.g.* Evans, 1986; Frid *et al*., 1999) However, in some areas the grass has been observed to provide shelter and roosting areas for some bird species (*e.g*. Redshank, Snipe).

The spread of Common Cord-grass is listed as one of the three main threats upon Atlantic Saltmarsh, an Annex I habitat (McCorry & Ryle, 2009). However, some studies and observations suggest that negative impacts may not be as serious as previously predicted and the spread of the species and subsequent effects appear to vary on a site by site basis. There are some concerns that *S. anglica* may benefit from warmer spring temperatures as a result of climate change (Nehring & Hesse, 2008).

5.11 Problematic native species & natural processes

Relevant species: Greenland White-fronted Goose, Oystercatcher

An investigation into the steep decline of the Oystercatcher population in the Exe Estuary in south-west England linked the decline to an increase in the frequency of kleptoparisitism by Carrion Crows *Corvus corone* and Herring Gulls (Goss-Custard *et al.*, 2024). By stealing mussels from Oystercatchers they were reducing the Oystercatchers foraging success, reducing over-winter survival of adults and possibly deterring prospecting immature Oystercatchers from choosing the estuary as their wintering site. Though this was a site-specific study and it remains to be seen how relevant it might be elsewhere, Hooded Crow *Corvus cornix* have increased significantly in Ireland (Kennedy *et al.*, 2025) and so there is potential for similar level of impacts at sites in Ireland.

Competition for grazing between Greenland White-fronted geese and resident Greylag geese has been noted in the north-west and is likely to continue and may spread to other sites given the expansion in resident Greylags (Burke *et al.*, 2023).

6 Discussion

This report provides a comprehensive overview of the status of Ireland's wintering waterbird populations and their key sites in recent years, based on data from the Irish Wetland Bird Survey and associated surveys. Overseen and funded by NPWS and coordinated and managed under contract by BirdWatch Ireland, the data and information herein inform Ireland's reporting under Article 12 of the EU Birds Directive for the period 2019 to 2024. It also serves to underpin a wide range of ecological assessments relating to planning decisions, research and conservation actions at local, regional and national level in the years to come.

This comprehensive analysis of over 50 waterbird species has been possible due to the tremendous efforts of over 1,100 diligent and passionate counters – from the recently expanding ranks of NPWS, from BirdWatch Ireland, but mostly notably from volunteers – who have all dedicated their time, skills, and resources to submit their scientific observations from the total of over 1,000 wetland sites across the Republic of Ireland that have been surveyed since 1994. Benefitting from the significant recruitment into NPWS in recent years and the very welcome uptick in waterbird monitoring that this has enabled, the importance and value of this nationwide long-running survey is increasing with every observation submitted.

6.1 Overall Short-term and Long-term Trends

To summarise the short-term population trends covering the seasons between 2016 and 2022, 15 species have declined by more than 5%, 18 have increased by more than 5%, and 11 have remained relatively stable.

Of the wildfowl, 10 species have declined, eight have increased and five are stable. The declines include Bewick's Swans reaching the point of near extinction in Ireland, as well as the continuing rapid decline of diving ducks (Scaup, Pochard, Tufted Duck, and Goldeneye). The decline of Greenland White-fronted Goose numbers continues and they are now at their lowest point since 1982/83 (Fox *et al.*, 2024). The recent increases of 41% and 50% for Pintail and Shoveler respectively are welcome for two species that exist in modest numbers in the Republic of Ireland. Brent Geese and Whooper Swans continue to grow despite a litany of pressures on their wintering grounds.

Of the 15 wader species assessed, five declined and seven have increased since 2016. That is in stark contrast to the previous assessment (Lewis *et al.*, 2019) where almost all had declined, representing a significant improvement. Golden Plover and Lapwing are still our two most numerous waders but continue to fall in number. Grey Plover have undergone the largest recent decline amongst the waders, at -14%, while each of Sanderling, Bar-tailed Godwit, Dunlin and Knot have increased by over 20%.

Reliable population estimates and trend data were calculated for six 'wildfowl allies', including two herons, two grebes, Coot and Cormorant. Each of these showed a stable or growing trend over the last five years.

Looking at the longer-term, comparing recent population estimates with those from the mid-1990s when I-WeBS began, 24 wintering waterbird species have declined and 18 have increased (including our two 'resident' goose populations). Diving ducks such as Pochard, Goldeneye, Scaup and Tufted Duck have suffered large declines of over 50% in the long-term, with other waterfowl species such as Shelduck, Mallard, Wigeon, Greenland White-Fronted Goose experiencing more moderate declines of between 25-50%. Conversely, several over-wintering geese including Brent Goose, Barnacle Goose, and Canada Goose have increased by more than 50% in the long-term, as have other waterbirds such as Little Egret, Whooper Swan and Eider. Species such as Little Grebe, Cormorant and Gadwall have experienced a more moderate increase of 25-50% during the same period.

6.2 Coverage and Gaps

Over a thousand wetland sites across the Republic of Ireland are surveyed under I-WeBS in the same way that WeBS is used to document the wintering waterbirds of Northern Ireland and Great Britain, and almost identical surveys are run in other countries in Europe and further afield, all contributing to the International Waterbird Census each year. The great strength of the survey here is how comprehensively these sites have been surveyed, between and within winters, over the last 30 years. This survey effort is not easily achieved however, and there are inevitable gaps. From a coordination point of view, the largest and most important sites tend to be prioritised for counting, meaning we have near-complete data for sites such as Dundalk Bay, Wexford Harbour and Slobs, Cork Harbour and Lough Swilly, despite these being challenging sites at which to count waterbirds. The sites with very little I-WeBS data tend to be smaller and much less significant in terms of the absolute number of waterbirds they host. There are always exceptions however, and in the recent period under consideration there have been no complete, good-quality counts of Lough Corrib for example, a site which supported nationally important numbers of Mute Swan, Pochard, Tufted Duck, Goldeneye, Little Grebe, Coot and Golden Plover between 2011/12 and 2015/16 (Lewis *et al.*, 2019).

When calculating population estimates and trends for species, 'missing' counts can be imputed and the methodology used here is widely accepted and commonly used for waterbird and other count data in other countries (Nagy *et al.*, 2022b). Absence of data for prolonged periods at important sites does decrease the reliability of these imputation methods, however. It also prevents any evaluation of accurate and up to date site trends at those locations. The Shannon and Fergus Estuary is the largest wetland system in the I-WeBS site network and the most important wintering waterbird site in the country (NPWS, 2015) as the site supports well in excess of 50,000 waterbirds, but it has always been incredibly difficult to achieve good count coverage there. The entire site was counted by a commercial ecological consultancy however (MKO, 2019) and the data made available to I-WeBS by the funders (Clare County Council, under the auspices of the Shannon Integrated Framework Plan 2013-2020), thus filling a significant gap in the I-WeBS dataset and maximising the use of the data gathered. A wealth of similar waterbird count data exists for sites across Ireland, gathered for example as part of ecological assessments by professional ornithologists and ecological consultancies on behalf of a range of funders. If more of this historic data was made available to I-WeBS it would help enhance the calculation of population estimates and trends that are in turn used and relied upon in those ecological assessments, as well as benefit future research into the underlying causes and patterns of change.

Even where sites are regularly surveyed in multiple months every winter, some species simply cannot be surveyed accurately through the I-WeBS methodology, including skulking species like Moorhen and Water Rail, and cryptic species such as Snipe and Jack Snipe. Species such as Mallard and Grey Heron have a particularly wide distribution in Ireland, and will use even the smallest of wetlands, pools and streams throughout the country. The population estimates produced for these species therefore relate to the totals within the I-WeBS site network and are lower than the true (unknown) total of individuals in the entire country; however, given the extent of the I-WeBS site network and the inclusion of many of the largest wetland sites across a variety of habitat types, we can be confident that the trends observed are representative of the national population.

The additional censuses for goose and swan species and the non-estuarine waterbird survey (NEWS) do a good job of accounting for particular species groups and habitats, but other groups such as gulls are still poorly enumerated. A gull roost survey along the lines of the UK's 'WinGS' (Winter Gull Roost Survey; Burton *et al.*, 2013) should be considered for development, to better understand the numbers, changes and key sites for Ireland's wintering gull species. For other species that are more difficult to detect such as Snipe and Jack Snipe, a regular sampling approach may be necessary if more complete surveying isn't possible. In the case of NEWS, it is unfortunate that more recent data was not available for this analysis, given the importance of non-estuarine habitats to many of our wader species. Another notable gap in our knowledge is the importance of sites for summering non-breeding waterbirds (*e.g.* Cooney, 2024). The 2009/10 - 11/12 Low tide surveys (Lewis & Tierney, 2014) and data collected by the Dublin Bay Birds Project (Adcock & Boland, 2022) also highlighted the differing subsite and site use by waterbirds at coastal sites at low tide compared to the rising tide counts undertaken for I-WeBS. Increased survey effort and data collation on this should be a priority for the future as some sites likely support greater numbers of waterbirds than I-WeBS data alone can show. This may have knock-on effects for site protection and conservation efforts.

6.3 Statistical Analysis

While the statistical models used in the analyses presented here are the same as have been used in previous years (*i.e.* imputation using the Underhill method; Underhill & Prŷs-Jones, 1994), some key improvements were made. In previous analyses of I-WeBS data to produce population estimates and trends, the Underhill model was applied to data from the preceding seven years only and the outputs compared to previous analyses that focused on similar blocks of time. A limit of this approach is that it necessitates the exclusion of sites not counted within the recent years and therefore is 'incomplete' with regards representation of the birds relying on the entire I-WeBS site network. This has been true each time this analysis has been done and means that comparisons were made between results based on different numbers and combinations of sites and therefore not a complete 'like for like' comparison. In practical terms, the sites known to support the greatest number of waterbirds have always been prioritised for surveying under I-WeBS, so the list of sites with actual count data every seven years or so has been very similar. Those sites rarely counted tend to be ones with small numbers of waterbirds and are probably more likely to be small inland waterbodies rather than coastal sites, so the impact on coastal species was likely minor. However, in a significant improvement, this analysis has included all I-WeBS sites across all years since the survey began in winter 1994/95. The resulting combination of actual and imputed count data for all sites in all months and all years means that these results are as complete as possible. It also means that the trends presented are based on 'like with like' comparisons of the same full list of sites between years. It does mean however that the population estimates and trends presented here are not directly comparable with previous publications.

This improved approach of analysing I-WeBS data includes all available data and additional monthly species totals for all I-WeBS sites via imputation where a count wasn't carried out, leading to significantly improved estimates of population size and trends over time. To give an example, here we have identified a recent short-term decline in Curlew of 2.9% since 2016/17 and estimate that the current all-Ireland population in the I-WeBS/WeBS site network is 38,320 individuals. Despite the decline, this estimate is 8.7% higher than the results of the 2011/12 - 15/16 waterbird population estimates (Burke *et al.*, 2018); however, the Burke *et al.* (2018) study only included data for sites surveyed in a 5-year period, whereas we have included estimates from all sites monitored since 1994/95. The short-term trend method used here then compares the recent population estimate to the population back in 2016/17, both of which were generated using the new method outlined here. Curlew is cited as a representative example for outlining the increased accuracy of this new approach as the species is widespread, not only at coastal sites but also at inland lakes, rivers, turloughs and other wetlands, some of which may have been lacking in count coverage previously.

Although more comprehensive and consistent than previous analyses, this approach does involve a lot of imputation and may require a shift in priorities for monitoring I-WeBS sites in future to help reduce data gaps in priority areas. Given that the statistical model considers the factors of site, year and month when determining a number to impute for missing data, the greater the spread of years for which data is available for a site, and greater representation of different months in the actual count data for each site, the more grounded the imputed values for that site will be. One approach might be to ensure every I-WeBS site is counted every five to seven years at least once, though ideally multiple times. Given limited resources of counters and time this may necessitate reducing coverage at some well-covered sites in the future. There may also be opportunities to fill historic data gaps through data gathered for environmental impact assessments by ornithological consultancies, or from data submitted to projects such as BirdTrack and eBird.

6.4 Shifts in Range and Distribution

Many of Ireland's wintering waterbirds come from breeding populations in Northern Europe, Scandinavia and Russia. Given Ireland's position at the western edge of the wintering distribution of those populations, we are particularly vulnerable to shifts in their range. 'Short-stopping' (Rees & Beekman, 2010) refers to the phenomenon characterised by a change in range due to the increase in suitable habitat, due to warmer conditions, closer to their respective breeding grounds. As a result, wintering birds that once travelled as far west as Ireland may now stop to winter in countries they would previously have passed through in Europe, where increased winter temperatures and the resultant lack of snow and ice cover have left sufficient food to sustain increased numbers of over-wintering birds.

Research has identified eastward shifts in distribution for species such as Goldeneye, Tufted Duck (Lehikoinen *et al.*, 2013), Pochard, Coot (Pavón-Jordán *et al.*, 2018) and Bewick's Swan (Rees & Beekman, 2010) amongst others, each of which has shown drastic declines in Ireland in recent decades. Trends for diving ducks have ranged from -25.9% to -38% in the short-term and -54.9% to -94.9% in the long-term. Bewick's Swan numbers in Ireland fell below 100 birds during the 2010 census, to 12 birds by 2020 and, at the time of writing, only one Bewick's Swan was recorded in Ireland in 2024/25. It seems likely that other species distributions may also be affected by climate to varying extents and other studies have demonstrated similar shifts within individual countries (*e.g*. Lapwing and Golden Plover shifting east in UK; Gillings *et al.*, 2006). Conversely, the same climatic warming may be responsible for some wintering waterbirds increasing in Ireland. The most clear example is Little Egret (+40% short-term and +4450% long-term increases), where climate change is widely considered to have facilitated a major expansion in breeding and wintering range (Balmer *et al.*, 2013). Furthermore, Cattle Egret are now being recorded with such regularity that they have been included in this report for the first time. In the case of the Black-tailed Godwit, increases in the ROI-wintering population of +14% in the short-term and +120% in the long-term are at least in part due to improved breeding conditions in much of Iceland due to increased temperatures (Gill *et al.*, 2007). The success of these species demonstrates that not all populations are responding in the same way to changes in the climate. As resource availability shifts across the flyway, our conservation strategies and site protection may need to shift to better align with changing species distributions (Gaget *et al.*, 2020; Pavón-Jordán *et al.*, 2020). Long-term monitoring surveys such as I-WeBS can provide the data to show shifts in habitat use and range, both within Ireland and internationally. Given the likely significant role these range changes are playing in the numbers and trends of Irish wintering waterbirds, the influence of climate change should be the focus of much greater study in the coming years to allow for Ireland to adapt and ensure we continue to provide suitable habitat and protection for migratory waterbirds into the future. However, climate change is not alone in impacting Ireland's waterbirds.

6.5 Pressures and threats

The pressures that have caused the declines in Ireland's wintering waterbirds in recent years and decades are many and complex. There is no single pressure driving the decline or limiting the growth of any of these species or populations, but rather each faces a complex multitude of challenges ranging from international-level climatic changes to site-specific habitat loss or disturbance. Very few of these pressures have immediate effects on the population (*i.e*. mortality) but rather each act to very slightly reduce the odds of an individual surviving or reproducing successfully, or in some cases of returning to Ireland to winter. These slight impacts, acting on large areas, and thereby affecting large numbers of individuals can have a very significant cumulative impact over time. Many of these pressures are well known and few have changed since the previous assessment (Lewis *et al.*, 2019). The main exception is perhaps the threat from avian flu. The threat from highly pathogenic avian influenza has long been known, and specifically the vulnerability of waterbirds as the virus is known to be spread to different countries and flyways by migrating waterfowl. The recent outbreak of H5N1 since 2021 has been unprecedented in its scale, global spread and the number of species (birds and mammals) impacted. In Ireland, Barnacle Geese are known to have suffered significant losses in a single winter (Percival *et al.*, 2024), and other well-monitored taxa such as breeding terns (Burke *et al.*, 2024) suffered similar drastic and sudden losses. Other species may have suffered significant losses in recent years but casualties were less detectable and so we remain unaware of the true impact of avian flu (*e.g*. Gadwall or Lapwing in the UK; Johnston *et al.*, 2025). Though this recent outbreak was the worst in recorded history, it is possible that worse strains could develop in the coming years and take an even worse toll on waterbird populations, including on species that have hitherto appeared to be unaffected. Greater documenting of cases, testing of individuals across species and locations, and ideally research into species vulnerability and immunity, are all needed to better understand avian flu at a minimum. Mitigative measures such as implementing a coordinated regional plan for the swift removal of carcasses in major outbreaks would also likely be beneficial in limiting the spread of the virus.

There have been relatively few changes to the Open Seasons Order in Ireland in recent decades, but since the last publication (Lewis *et al.*, 2019) four waterbird species (Scaup, Goldeneye, Pochard, Pintail) have been removed from the order and cannot be legally hunted in the Republic of Ireland. They were removed from the hunting list due to the large scale of their declines, to small numbers, in this country in recent decades. In general, there is a lot to be learnt about the interaction between hunting and birds in Ireland. For example, no publicly available bag data is formally or comprehensively gathered and so there is no reliable information on the numbers hunted or when and where they are taken, against which hunting impact or sustainability might be estimated. This remains a critical knowledge gap. Furthermore, we know very little about other aspects such as the effects of large-scale captive-reared Mallard releases on the 'wild' population, or the effects of shooting disturbance or efficacy of the existing wildfowl sanctuary network in alleviating disturbance pressure. In recent years Irish hunting organisations have been financially supporting duck conservation efforts in countries such as Finland, with a view to improving the reproductive output of huntable species that winter in Ireland. Greater understanding of the links between Ireland and the breeding grounds of these species and the productivity and survival rates of birds in the breeding population, would be hugely beneficial in modelling the likely future trajectory of these populations.

The relationship between pressures such as avian influenza or hunting and waterbird populations are not the only existing knowledge gaps, and in general there is a paucity of recent research into pressures and how they influence waterbird numbers, distribution, behaviour and population change in Ireland in recent years. While it is not unusual to refer to and rely on research from neighbouring countries or carried out at international level, our understanding of what is happening with our increasing and decreasing waterbirds is hampered by the lack of investigation at national level. Ultimately, I-WeBS and related monitoring programmes are a starting point. They tell us how waterbird populations have changed over time and offer the baseline dataset needed to identify patterns of change and explore correlations with environmental, ecological or anthropogenic variables, in order to identify causes of these changes. We would like to emphasise the fact that the I-WeBS dataset is available for research and welcome contact from researchers who are keen to work towards the goal of better understanding our waterbird populations to help inform conservation management and policy.

6.6 Conclusion

In summary, this is the most comprehensive assessment of the status of Irish wintering waterbirds ever undertaken, and the Irish Wetland Bird Survey will continue to provide a framework to monitor waterbirds and their wetland sites across the country. Monitoring is only the first step however, and it is of vital importance that the results of these analyses and the I-WeBS dataset are used to further the conservation of Ireland's wintering waterbirds in the coming years. We are keen to discuss the potential of the data and the questions that urgently need to be answered with researchers, we hope to hear from professional ornithologists who may be able to feed historic data into the I-WeBS database, and we are always keen to welcome new participants into the I-WeBS counter network.

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Appendix 1 - Participants

We extend our sincere thanks to all the following I-WeBS counters and contributors who have participated in the scheme over the past 30 years, with apologies to those we may have inadvertently omitted.

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Morris, D. Morrissey, S. Muldoon, P. Mulhern, K. Mullarney, A. Mulvihill, A. Mulvihill, R. Mundy, B. Murphy, B. Murphy, C. Murphy, C. Murphy, F. Murphy, G. Murphy, J. Murphy, J. Murphy, J. Murphy, O. Murphy, P. Murphy, C. Murray, E. Murray, K. Murray, S. Murray, S. Murray, T. Murray, T. Murray, G. Murtagh, T. Murtagh, L. Myers, T. Nagle, R. Nairn, P. Neavyn, D. Nesbitt, A. Newton, S. Newton, T. Newton, M. Ní Ceallaigh, T. Ni Fhloinn, Á. Ní Shúilleabháin, D. Nicholls, R. Nicholson, R. Nigfhlionn, A. Nolan, B. Nolan, J. Noonan, T. Nowlan, L. Nuttall, S. Ó Faoláin, S. Ó Mainín, T. O Rourke, J. O'Boyle, B. O'Brien, C. O'Brien, D. O'Brien, E. O'Brien, E. O'Brien, I. O'Brien, J. O'Brien, L. O'Brien, M. O'Brien, P. O'Brien, S. O'Brien, M. O'Brien Moran, M. O'Callaghan, S. O'Carroll, C. O'Ceallaigh, T. Ó'Ceallaigh, M. O'Clery, M. O'Coilleain, M. Ó'Conghaile , B. O'Connell, D. O'Connell, J. O'Connell, M. O'Connell, P. O'Connell, P. O'Connell, A. O'Connor, A. O'Connor, B. O'Connor, D. O'Connor, F. O'Connor, J. O'Connor, K. M. O'Connor, M. O'Connor, T. O'Connor, A. O'Dónaill, C. O'Donnell, G. O'Donnell, P. O'Donnell, S. O'Donnell, A. O'Donoghue, B. O'Donoghue, P. O'Donoghue, S. O'Donoghue, S.

O'Donoghue, T. O'Donoghue, F. O'Donovan, G. O'Donovan, J. O'Donovan, S. O'Donovan, R. O'Driscoll, F. O'Duffy, R. O'Dwyer, C. O'Flaherty, C. O'Gibne, P. de C. O'Grady, J. O'Halloran, S. O'Halloran, W. O'Halloran, F. O'Hanlon, A. O'Hara, J. O'Hare, S. O'Hehir, D. O'Higgins, D. O'Keefe, G. O'Keefe, M. O'Keefe, D. O'Keeffe, K. O'Leary, P. O'Leary, B. O'Loughlin, D. O'Loughlin, B. O'Mahony, C. O'Mahony, D. O'Mahony, M. O'Mahony, L. O'Malley, N. O'Malley, F. O'Marcaigh, C. O'Neill, F. O'Neill, V. O'Neill, F. O'Reilly, M. O'Reilly, A. O'Rourke, K. O'Rourke, M. O'Rourke, B. O'Shea, D. O'Sullivan, F. O'Sullivan, L. O'Sullivan, M. O'Sullivan, M. O'Sullivan, M. O'Sullivan, M. O'Sullivan, O. O'Sullivan, P. O'Sullivan, P. O'Sullivan, R. O'Sullivan, D. O'Teangana, L. O'Toole, S. O'Toole, I. Oakes, D. Osborne, P. Osterrieth, G. & F. Owens, J. Palmer, E. Patrick, L. Peacock, G. Pearson, J. Pedrana, C. Peppiatt, D. Perry, K. Perry, B. Phalan, A. Phillip, P. Phillips, G. Phipps, S. Pierce, M. Pierrel, M. Pollitt, C. Pollock, S. Pooley, B. Porter, C. Powell, S. Powell, B. Power, B. Power, G. Power, J. Power, F. Prendergast, H. Preston, A. Prins, G. Prole, E. Quinn, F. Quinn, J. Quinn, J. Quinn, S. Quinn, J. Quirke, N. Raftery, V. Raine, T. Ramage, T. Rea, P. Reaney, S. Redican, T. Redmond, T. Reed, D. Rees, S. Rees, L. R. Regaldo Rocha, E. Regan, A. Reichstein, B. Reidy, D. Reidy, M.Reilly, M. Reilly, M. Reilly, S. Rekab, N. Reynolds, P. Reynolds, Á. Rickard, F. Rigo, A. Robb, B. Robson, C. Roche, J. Roche, J. Roche, M. Roche, P. Rocke, T. Roderick, J. Roe, G. Rogan, N. Rooney, M. Roper, A. Rosner, D. Roycroft, M. Ruane, K. Ruge, B. Ryan, D. Ryan, F. Ryan, J. Ryan, L. Ryan, L. Ryan, M. Ryan, M. Ryan, M. Ryan, P. Ryan, P. Ryan, P. Ryan, C. Saich, K. Schertenleib, J. Schulte, D. Scott, G. Scott, L. Scott, C. Seale, J. Shackleton, J. Shackleton, J. Shannon, M. Sharkey, N. Sharkey, M. & W. Sheehan, M. Sheehan, W. Sheehan, L. Shelley, H. Shepherd, E. Sheppard, R. Sheppard, H. Sheridan, K. Sheridan, P. Sheridan, A. Sherington, C. Shiel, J. Shine, C. Shoebridge, M. Shorten, J. Shorten, T. Siekaniec, D. Silke, J. Simms, D. Skehan, J. Small, C. Smiddy, P. Smiddy, A. Smith, R. Smith, C. Smyth, M. Somers, M. Souter, K. Spain, A. Speer, T. Spillane, M. Stack, J. Stanley, S. Stapleton, M. Starr, R. Steed, R. Stephens, G. Stewart, R. Stirling, C. Stockdale, D. Storey Branagh, B. Strickland, W. Stringer, D. Strong, L. Stuart, D. Suddaby, K. Sullivan, V. Swan, M. Swann, C. Sweeney, E. Sweeney, O. Sweeney, M. Sylvia, K. Tapp, T. Tarpey, P. Taylor, R. Taylor, T. Tedstone, R. Teesdale, M. ten Cate, H. Tennyson, C. Thomas, G. Thomas, R. Thompson, M. Tickner, D. Tierney, N. Tierney, E. Timoney, E. Timoney, V. Toal, A. Toland, J. Toland, R. Towe, M. Toye, D. Treacy, M. Trewby, P. Troake, V. Tully, C. Tweney, E. Twomey, P. Twomey, R. Twoomey, P. Tyndall, M. UiLéime, M. Van Aelst, H. van Pesch, P. Vaughan, R. Vaughan, B. Vennemann, M. Viney, E. Virkki, Y. von Cramon, E. Wallace, J. Wallace, B. Walls, A. Walsh, A. Walsh, M. Walsh, P. Walsh, G. Walshe, P. Walton, S. Walton, E. Ward, G. Ward, G. Ward, N. Ward, P. Warner, T. Waterman, S. & T. Waters, T. Watkins, B. Watson, P. Watson, R. Watson, R. Watson, N. Watts, A. Webb, P. Webb, N. Weissenfels, J. Wells, G. Weyman, F. Wheeldon, R. Wheeldon, R. Whelan, C. White, G. White, P. White, S. White, A. Whyte, T. Whyte, G. Wilkinson, J. Willans, G. Williams, T. Williams, M. Willis, C. Wilson, G. Wilson, J. Wilson, J. Wilson, M. Wilson, C. Winkler, F. Wolstenholme, P. Wolstenholme, W. Woodrow, K. & L. Woods, R. Woodward, P. Woodworth, J. Wray, M. Wycherley, J. Wyllie, A. Wynne, and G. Zoli.

Appendix 2 - I-WeBS Sites

Site	Site Code	Grid Ref.
County Carlow		
Ballykealey Lake, Ballon	0P010	S823670
Golf Club Ponds	0P001	S743788
Oak Park Lake	0P002	S740800
River Barrow (Goresbridge-Maganey Bridge)	0P301	S720760
Slaney Upper	0P310	S895580
Sugar factory settling ponds Carlow	0P003	S715785
County Cavan		
Adra Lough	0XS04	H300003
Annaghierin Lake	0X051	H700034
Annalee River	0X320	H6111
Bailieborough Lough	0X586	N671967
Barnagrow Lough	0X039	H670070
Bracklagh Lough	0X009	N395826
Castle Lough	0X554	N669990
Clonty Lake	0X528	H275123
Corfeehone Lough	0X523	H490060
Cornagrow Lough	0X543	N510932
Corraghy Lough	0X050	H690050
Corraneary Lough	0X518	H650052
Corratinner Lough	0X520	N617925
Druminnick Lough	0X534	H688057
Dunmurry Lough	0X524	H523137
East Ballinamore Lakes	0X575	H200150
Evvey Lake Kingscourt	0X585	N763941
Fartagh Lough	0X551	H601021
Field nr County Bridge	0X303	N3583
Galloncurra Lough: Bailieborough	0X038	N6396
Garty Lough: Arvagh	0X033	N279978
Glasshouse Lough	0X020	H270060
Green Lough	0X074	H425035
Guinikin Lough: Arvagh	0X034	N272966
Hollybank Lake: Arvagh	0X503	N265975
Kilbrackan Ho./Bridge River	0X533	H260043
Killynenagh Lough	0X525	H532161
Kilmore Lough	0X058	N610917
Kilnaleck Lakes	0X546	N4389
Lavey Lough	0X023	H500022
Lisgrea Lough	0X085	N593899
Lisnananagh Lough	0X022	H495031
Lough Acanon	0X550	H570030
Lough Acurry	0X581	N585990
Lough Asturrall	0X549	H570005
Lough Dargan (Cavan)	0X057	N605930
Lough Naglare	0X548	H585022
Lough Oughter Complex	0X001	H350070
Lough Ramor	0X002	N600860
Lough Sheelin	0X003	N450840
Lough Sillan	0X054	H700066
Lough Tacker	0X053	H690080
Lower Lough: Arvagh	0X035	N262980
Mass Rock Field (near Arvagh)	0XS15	N300990
Milltown Lough (Cavan)	0X055	H710039
Mullagh Lough	0X043	N680850
NW Cavan Lakes	0X560	H055308
Nadreegeel Loughs	0X531	N550937
Parkers Lough: Bailieborough	0X024	N648972
Pleasure (Portaliff) Lake	0X532	H315060
River Erne & lakes north of Belturbet	0X388	H365195
River Erne (S. Cavan) North of Kilnaleck	0X588	N420930
River Erne: Oughter - Gowna	0X389	N360970
Rockfield Lake	0X026	H274035
Roosky Lough	0X025	H647045
Shinan Lough	0X046	H710050
Steepletons Lough	0X084	H728053
Swellan Lough	0X598	H412040
Tonymore Marsh	0X301	H3903
Town Lough, Cootehill	0X059	H610150
Tullylorcan Lough	0X541	H635037
White Lough (near Shercock)	0X540	H669043
Woodford River	0X390	H243140
Woodford River Lakes	0X056	H300200

Site	Site Code	Grid Ref.
County Clare		
Ballyallia Lake	0H001	R345810
Ballycar Lough	0H085	R414687
Bell Harbour	0H456	M2808
Black Head	0H907	M1512
Carran Polje	0H801	R282980
Castlelough	0H012	R345980
Cloonmackan Lake	0H009	R195805
Corofin Wetlands	0H003	R290890
Doo Lough	0H024	R120720
Doolin	0H901	R055974
Dromoland Lough	0H084	R387757
Dromore Lakes (Clare)	0H031	R3586
Drumcliff	0H304	R330800
Farrihy Lough	0H007	Q914644
Gortaganniv Lough	0H083	R262759
Illaunonearaun Isl.	0H905	Q834570
Inagh River	0H325	R175840
Kilfenora	0H306	R180940
Kilkee	0H305	Q880600
Kilkee Reservoir	0H600	Q900618
Knockaunroe/ Rinnamona	0H320	R310938
Lavarheen, Ennistymon	0HS99	R150866
Lickeen Lough	0H040	R170910
Liscannor Bay (Liscannor - Rinanoughter)	0H478	R0886
Loop Head Coast	0H910	Q7550
Lough Atorick	0H022	R630965
Lough Burke	0H035	R236778
Lough Dhean	0H011	R320970
Lough Girroge	0H029	R347797
Lough Graney	0H023	R556930
Lough O'Grady	0H013	R610840
Lough Raha	0H079	R267860
Mid-Clare Coast (Mal Bay - Doonbeg Bay)	0H902	R020750
Poulataggle	0H315	M403007
Pouleenacoona	0H316	M365018
Quin/Keevagh	0HS05	R410756
River Fergus	0H026	R330890
River Shannon (Lower)	0H301	R640620
River Shannon (Lower) (Aerial)	0H351	R640620
Rosconnell Lough	0H037	R222793
Ruan Turlough	0H310	R3387
Rushaun Lough	0H036	R253790
Scarriff area	0HS20	R6480
Shannon & Fergus Estuary	0H401	R200520
Shannon & Fergus Estuary (Aerial)	0H410	R200520
South East Clare Lakes	0H050	R460720
Travaun Lough	0H025	R355966
Tulla Turlough	0H307	M360020
Tullaher Bog	0H303	Q955619
Tullaher Lough	0H008	Q955620
Turloughmore (Clare)	0H078	R345995
Wetlands NE of Ennis	0H075	R400850
County Cork		
Adrigole Harbour	0L907	V805495
Ardgroom Harbour	0L414	V7158
Argideen River	0L390	W330467
Ballin Lough	0L011	W200390
Ballincollig Gravel Pits	0L201	W550700
Ballybranagan	0L950	W9161
Ballybutler (Butlerstown) Lake	0L002	W9272
Ballycotton Shanagarry	0L467	W9865
Ballycrenane/Warren	0L923	X020683
Ballydehob Estuary	0L475	V990350
Ballyhea Gravel Pit	0L203	R538172
Ballyhonock Lough	0L022	W993733
Ballymacoda	0L401	X0672
Ballynacarriga Lake	0L013	W285503
Bandon Estuary	0L402	W600495
Bandon River	0L301	W370530
Bantry Bay	0L468	V990485
Barley Cove Bay	0L911	V770245
Bear Haven	0L470	V680455
Blackwater Valley	0L303	W600999
Blarney Fen - Clogheenmilcon	0L320	W625755
Blarney Lake	0L040	W605745
Bogaghard Lakes	0L031	W760845
Carrigillihy Lake	0L029	W212330
Castlemartyr Lake	0L021	W9672
Castlenalact Lake	0L025	W480600
Charleville Lagoons	0L003	R5426

Site	Site Code	Grid Ref.
Classes Lake West	0L044	W546703
Classes Lakes/Gravel Pits	0L204	W555702
Clonakilty Bay	0L497	W400380
Cloonties Lake	0L010	W230366
Cloyne	0L309	W920670
Cork Harbour	0L403	W800666
Corran Lake	0L009	W220400
Courtmacsherry Bay, Broadstrand Bay & Dunworley	0L499	W515380
Croagh Bay	0L925	V900290
Crookhaven	0L915	V815265
Cullenagh Lake	0L024	W190485
Curraghlicky Lake	0L026	W235467
Derryvegall Lake	0L017	V648555
Dunmanus Bay	0L952	V885391
Dunmanway Lake	0L015	W237528
Farranamanagh Lough	0L033	V830377
Gallanes Lough, Clonakilty	0L005	W396431
Garranes Lake	0L023	W180477
Garryhesta Gravel Pit	0L202	W533697
Glandore Harbour/Union Hall	0L477	W210345
Glenbeg Lake	0L016	V710530
Gortaroo nr Youghal	0L389	X050750
Ilen Estuary	0L408	W050290
Inch Strand (Powerhead Bay)	0L951	W8760
Inishcarra Reservoirs	0L007	W330700
Kilcolman Marsh	0L020	R580109
Kilkeran Lake	0L008	W337340
Lissagriffin Lake	0L412	V770263
Lough Aderry	0L001	W9373
Lough Allua	0L006	W180660
Lough Atarriff	0L012	W260460
Lough Cluhir	0L028	W200325
Lough Fadda	0L018	V660543
Lough Gal	0L030	W700750
Lough Gorm	0L042	W195394
Madame Lake (Bateman's Lough)	0L019	W407468
Mahona Lough	0L014	W232507
Mill Cove & Tralong Cove	0L901	W260340

Site	Site Code	Grid Ref.
Myross Island & Inlet (Blind Harbour)	0L903	W205313
Nohoval Lake	0L032	W718506
Rineen	0L957	W190003 2500
Ringabella Creek	0L423	W7656
Roaringwater Bay	0L459	W001307
Rosbrin Cove	0L461	V980315
Rosscarbery	0L476	W290360
Sherkin Island	0L902	W002250
Shreeland Lakes (incl. Lough Doo)	0L043	W178359
Stick Estuary (Oysterhaven)	0L464	W680510
The Lough Cork	0L004	W665706
Toormore Bay	0L410	V855300
County Derry		
Lough Foyle (WeBS)	04401	C599250
County Donegal		
Ballincrick grasslands	0A601	B770015
Ballyness Bay	0A412	B910330
Black Lough, Carrowmeenagh	0A084	C569435
Clooney Lough	0A013	G720990
Cruit Strand	0A404	B740190
Culdaff	0A409	C533494
Donegal Bay	0A405	G890730
Dunfanaghy Estuary	0A493	C010370
Dunfanaghy New Lake	0A099	C020380
Dunglow Bay	0A995	B760110
Fanad North Coast	0A992	C190445
Glen Lough (Donegal)	0A019	G945687
Gola Island	0A996	B770270
Gweebarra Bay	0A469	G780994
Gweedore Bay	0A905	B805265
Gweedore Bay Islands	0A998	B780300
Inishfree Bay	0A411	B760215
Inishmeane	0A993	B7828
Inishtrahull Island	0A909	C480650
Killybegs Harbour	0A450	G715760
Kiltooris Lough	0A020	G675975
Kinny Lough	0A029	C204442
L. Aleane (Creeslough)	0A031	C042282
L. More (Creeslough)	0A030	C064307
L. Natooey	0A032	C148303
Lough Acapple	0A073	G998671

Site	Site Code	Grid Ref.
Lough Alaan	0A015	H153960
Lough Aleen (Donegal)	0A024	C169339
Lough Derg (Donegal)	0A097	H080740
Lough Doo, Buncrana	0A083	C359394
Lough Effish	0AS21	L573438
Lough Fad	0A064	G725980
Lough Fern	0A014	C180230
Lough Inn	0AS23	C517387
Lough Naminn	0AS19	C398418
Lough Natooey South (Creeslough)	0A060	C057295
Lough Sallagh (Donegal)	0A080	B814090
Lough Shivnagh	0A004	B955028
Lough Shivnagh (Tully)	0A082	H005673
Lough Swilly	0A401	C300250
Loughs Akibbon & Nacally	0A003	C060180
Magheradrumman Lough	0A028	C205450
Maghery Beaches	0A907	B715095
Maghery Lake	0A006	B722095
Malin Head	0A901	C399599
Mintiags Lough	0A005	C3840
Narin	0A994	G710995
Rath Lough	0A018	G965688
River Foyle	0A301	C350100
Rosapenna Lough	0A025	C112381
Rosguill	0A904	C1203037 988
Sessiagh Lake	0A023	C043362
Shannagh Lough	0A027	C213453
Sheskinmore Lough	0A011	G695956
Tawny Lough (Donegal)	0A026	C200389
Tory Sound Islands	0A997	B895380
Trawbreaga Bay	0A402	C440480
Trawenagh Bay	0A410	B780045
County Down		
Carlingford Lough (WeBS)	01406	J188143
County Dublin		
Baldoyle Bay	0U403	O240420
Ballyrea, Skerries	0U302	O260600
Bog of the Ring	0U303	O182605
Brittas Pools	0U009	O032225

Site	Site Code	Grid Ref.
Broadmeadow (Malahide) Estuary	0U408	O220470
Bushy Park, Terenure	0U005	O142293
Delvin River - Hampton Cove	0U405	O200643
Dublin Bay	0U404	O210340
Dublin Zoo Ponds	0U011	O128355
Grand Canal (Dublin)	0U310	O138326
Hick's Tower & Robswall	0U415	O250435
Hynestown Lake Naul	0U003	O153601
Ireland's Eye	0U951	O290410
Knock Lake	0U101	O190610
Lambay Island	0U903	O315510
Marlay Park, Rathfarnham	0U004	O155262
Mountseskin/Gortlum	0U910	O0422
Portmarnock Marsh	0U800	O241421
Rockabill	0U950	O322625
Rogerstown Estuary	0U407	O230520
Seagrange Park	0U001	O240405
Skerries Coast	0U904	O270575
Skerries Islands	0U905	O268598
Skerries, Baldongan	0U320	O225575
South Dublin Coast	0U901	O265220
South Dublin Coastline	0U915	O270260
St Stephen's Green	0U002	O160335
Tymon Park	0U010	O0929
County Galway		
Ballindeereen Turlough	0G319	M400150
Ballinduff Turlough & Grassland	0G322	M460070
Ballyboy	0G335	M481129
Ballyconneely Bay	0G990	L620430
Ballynakill Harbour	0G914	L6758
Ballynakill Lake	0G045	L640582
Ballynakill Lough (Gorumna Isl.)	0G024	L865226
Bertraghboy Bay	0G996	L789375
Birmore Island	0G921	L804265
Brackloon	0G325	M438126
Caherglassaun Lough	0G314	M410060
Cahermore Turlough	0G307	M410080
Camus Bay, Connemara	0G411	L940325

Site	Site Code	Grid Ref.
Caranavoodaun Turlough	0G321	M450150
Castleboy Grassland	0G323	M513112
Clynagh Bay	0G421	L964273
Coolcam Turlough	0G329	M577710
Coole Lough - Newtown Turlough	0G309	M415030
Coollisduff	0DS08	M222597
Corralough	0G008	M618694
Cregaclare (E of Ardrahan)	0GS06	M483130
Creganna Marsh	0G350	M382225
Croaghill Turlough	0G330	M592710
Crump Island	0G906	L680653
Curragh Turlough	0G327	M565677
Dogs & Gorteen Bay	0G980	L695383
Doolough Headford (Turloughcor)	0G317	M290440
Finish Island, Galway	0G915	L790288
Flooded area E of Blindwell	0GS01	M370597
Glenamaddy Turlough	0G341	M635610
Grassland at Ardacong	0GS24	M440549
Headford Road	0G316	M320320
Inishbofin	0G983	L550650
Inishmore, Aran Islands	0G998	L830110
Inishmuskerry	0G922	L783266
Inner Galway Bay	0G403	M320180
Inner Streamstown Bay	0G422	L640525
Kiltiernan Turlough	0G320	M430140
Kiltullagh Lough	0G026	M6159
Knockatogher Turlough	0G324	M590270
L. Coy - Blackrock - Bullaunagh - Ballylee	0G308	M495075
Lisrivis & Pollshask Turloughs	0G337	M620680
Lough Adrehid	0GS28	M052429
Lough Aughawoolia	0G040	L971414
Lough Corrib	0G004	M270400
Lough Cutra - Ballynakill L.	0G007	R470965
Lough Hibbert (Gorumna Isl.)	0G023	L883232
Lough Illauntrasna (Gorumna Isl.)	0G022	L887254

Site	Site Code	Grid Ref.
Lough Mannagh Turlough	0G318	M400010
Lough Poll	0G020	M136291
Lough Rea	0G001	M610150
Loughaunavneen/Loch Tanaí (Camus)	0G025	L950305
Lydacan Castle Turlough	0G315	M440070
Mannin Bay	0G916	L620470
Murvey Machair Beach	0G994	L658392
Mweenish Island	0G995	L768299
North Central Galway Lakes	0G005	M370580
North East Galway Lakes	0G006	M600480
Omey Strand	0G903	L575560
Oorid Lough	0G041	L926459
Polleagh Turlough	0G328	M575685
Pollnagarragh Marshes	0G326	M480160
Raford River	0G390	M6327
Rahasane Turlough	0G301	M480195
Rinvyle Strand	0G905	L670645
River Clare	0G302	M350330
Rossadillisk	0G902	L570585
Termon Turloughs	0G347	R410980
Trá na Rón (Inveran)	0G920	M059214
Tullaghnafrankagh Lough	0G012	M430150
Turloughmore (Galway)	0G310	M430370
Tynagh Mines Lake	0G201	M750110
County Kerry		
An Trá Beg	0K435	Q485003
Ardagh Lough	0K020	V9888
Ballinskelligs Bay	0K410	V4665
Brandon Bay - Inner Brandon Bay	0K464	Q530130
Cashen River & Estuary	0K423	Q870385
Castlemaine Harbour & Rossbehy	0K401	Q700000
Castlemaine Outer: Inch offshore	0K903	V6398
Castlemaine Outer: Kells Bay East - Rossbehy Beach	0K901	V6392
Cloonee Loughs	0K005	V8264
Derrynane Bay	0K910	V520585

Site	Site Code	Grid Ref.
Dingle Harbour	0K430	Q4401
Dinish Bog	0K801	V9384
Dromoghty Lake	0K006	V8966
Ferriters Cove	0K912	Q330050
Ferta River Estuary, Cahirciveen	0K408	V4881
Glanmore Lake	0K004	V775540
Kenmare Estuary	0K422	V9170
Kilmakilloge Harbour	0K489	V7559
Lake Yganavan	0K007	V705953
Lixnaw Canal	0KS04	Q8930
Lockagh & Kilbrean Loughs	0K019	W000930
Lough Caragh	0K003	V7290
Lough Leane & Killarney Valley	0K009	V9587
Magharees Islands	0K905	Q6020
Portmagee Channel	0K906	V372732
R. Laune	0KS01	V808937
Smerwick Harbour	0K432	Q370050
Tralee Bay, Lough Gill & Akeragh Lough	0K403	Q700150
Ventry Harbour	0K911	V380990
County Kildare		
Ballynafagh Lake (Prosperous)	0S101	N810290
Castletown Lakes	0S005	N980339
Derryoughter West	0S007	N648033
Donadea Forest	0S501	N8320832 827
Drehid	0SS08	N764343
Friarstown Straffan	0S006	N946306
Kildare Curragh	0S398	N775135
Kilglass Quarry	0S204	N680390
Lakelands Naas	0S397	N895193
Leixlip Reservoir	0S102	N9974734 442
Lullybeg	0SS09	N689354
Millennium Park	0S600	N881212
Pollardstown Fen	0S303	N7715
Red Bog	0S304	N9717
River Barrow (Monasterevin-Athy)	0S302	N660030
River Barrow (Monasterevin-Portarlington)	0S301	N610130
The Mill Pond	0S203	N694392

Site	Site Code	Grid Ref.
Togheorymore	0SS11	N879229
Waterstown near Sallins	0SS10	N879229
County Kilkenny		
Avonmore Ponds, Ballyragget	0N004	S432719
Baun	0NS99	S283707
Bishop's Lough Tullaherin	0N305	S580480
Goresbridge	0NS98	S684548
Holly Lake (aka L. Cullin)	0N001	S613185
Newpark Marsh	0N003	S510573
Pond Carrigeen	0N002	S545134
Portnascully	0N303	S510137
River Blackwater (Kilkenny)	0N399	S560180
The Loughane (nr. Urlingford)	0NS01	S317635
County Laois		
Durrow Curragh (River Erkina)	0Q310	S3778
Grantstown Lake	0Q001	S334800
Landfill Ponds N80 North of Portlaoise	0Q002	N450033
North of Borris in Ossary	0Q302	S250880
Raheenleagh	0Q600	S3530075 700
River Barrow: Mountmellick (Clonterry)	0Q003	N476092
River Nore	0Q300	S402888
County Leitrim		
Acres Lake (Drumshanbo)	0B003	G967099
Annaghmaconway Lough	0B053	N131999
Ballinamore Lakes	0B001	H215100
Ballinamore/Ballyconnell Canal	0B801	H0030407 081
Beaghmore Lough	0B006	N225987
Calloughs Lough	0B508	H226049
Canal nr Drumshanbo	0B393	G960100
Carrigallen Lakes	0B521	H230033
Clooncorick Lough	0B528	H240044
Clooncose Lough	0B010	N180927
Cullies Lough	0B529	H260015
Derryhallagh Lough	0B004	G985112

Site	Site Code	Grid Ref.
Drowes River Bundrowes Bridge	0B389	G795585
Drumshanbo Lough	0B012	N148909
Dumb Lough	0B530	H255046
Eslin River	0B300	N055885
Fearglass Lough	0B011	N173919
Glencar Lough	0B038	G749434
Gortermone Lough	0B008	N216967
Gulladoo Lough	0B005	N240990
Keeldra Lough	0B014	N149962
Killananima	0B048	G813305
Killylea Lough	0B518	H139010
Kilmaddaroe Lough	0B519	G977018
Kilnamar Lough	0B532	H259060
Laheen Lough	0B533	H260071
Lattone Lake	0B046	H000454
Lough Cam	0B021	H161038
Lough MacNean (Upper)	0B044	H040390
Lough Nabelwy	0B009	N191938
Lough Sallagh	0B013	N160914
Mullanadarragh Lough	0B535	H212014
North West Leitrim Mountain Lakes	0B002	G900400
Rinn Lough Wetlands	0B015	N100940
River Shannon Upper (Drumsna - Carrick-on-Shannon)	0B304	M958960
Shannon-Erne Waterway	0B309	G9604
Tully South Lough	0B007	N220977
County Limerick		
Ballingarry (Limerick)	0I308	R430340
Barnakyle River	0I325	R5251
Camoge River	0I340	R6243
Galey River	0I315	R126351
Lough Gur	0I001	R6441
Morningstar River	0I320	R5836
Raheenagh Lagoons	0I600	R288258
River Deel	0I309	R340430
River Maigue	0I322	R4846
County Longford		
Annagh Lough (Longford)	0F005	N217923
Center Parcs Longford Forest	0F500	N1959556 336
Cordara Turlough	0F303	N030635

Site	Site Code	Grid Ref.
Corglass Lough (Longford)	0F020	N216947
Currygrane Lough	0F011	N234777
Doogary Lough	0F014	N205952
Fortwilliam Turlough	0F302	N015633
Gorteen Lake	0F010	N227795
Inny River	0F311	N2158
Leebeen Lough	0F004	N265893
Lough Forbes	0F006	N080820
Lough Gowna	0F001	N300900
Lough Kinale & Derragh Lough	0F003	N390811
Lough Ree	0F002	N020530
Lough Ree (Aerial)	0F050	N020530
Rinn River	0F399	N088830
Turreen Turlough	0F301	N018650
County Louth		
Boyne Estuary	0Z402	O150770
Braganstown	0Z301	O020943
Clogher Head - Baltray	0Z902	O160810
Dunany Point - Clogher Head	0Z901	O146880
Dundalk Bay	0Z401	J106003
Dundalk Bay Outer (North: Ballagan Point - Giles Quay)	0Z450	J232062
Fane River Plain	0Z396	J040005
Keenan's Cross Pond	0Z002	O0991
Killineer Quarry, Drogheda	0Z201	O072760
Parsanstown, near Clogher Head	0ZS04	O130862
Port Oriel: Collon	0ZS02	N9882
River Glyde	0Z390	O065945
County Mayo		
Achill Island	0D041	F6406
Aghamore Flood	0D342	M460880
Attymass Lakes	0D061	G286126
Balla Wetlands	0D019	M264842
Ballybackagh	0DS30	M250550
Ballyglass Wetlands	0D016	M225780
Ballyhaunis Lakes	0D004	M500850
Blacksod & Tullaghan Bays	0D499	F690250
Brees Wetlands	0D540	M310830
Broadhaven Bay	0D498	F770350
Bulkan River	0DS95	M201632

Site	Site Code	Grid Ref.
Callow Lakes	0D057	G313037
Carras Lough	0D010	M315625
Carrowmore Beach	0D908	L796816
Carrowmore Lake	0D062	F830300
Carrowmore Lough	0D507	M232885
Carrownacon Lakes	0D537	M200775
Cashel Turlough	0D095	M077833
Castlebar Lakes/ Islandeady chain	0D007	M090880
Clew Bay	0D405	L900900
Cloonagh Lough (Mayo)	0D059	G205218
Cuiltybo Lough	0D024	M335861
Curraghfin Lough	0D505	G194343
Derrymannin Lake	0D060	G214114
Doocastle Turlough	0D332	G5808
Duvillaun Islands	0D922	F580160
Garrets Lake	0D044	G106143
Inishkea Islands	0D920	F560220
Keel Lough	0D064	F650060
Kilglassan Turlough/Greaghan's	0D017	M280650
Killala Bay	0D407	G250300
Killaturly Lake	0D022	M411985
Kilnalag Turlough	0G300	M609696
Knappaghbeg Lough	0D538	M010805
Lough Alick	0D056	G214145
Lough Carra	0D098	M180710
Lough Conn	0D002	G180110
Lough Cullin	0D001	G230030
Lough Levally	0D013	G140045
Lough Mask	0D005	M110630
Lough Muck (Mayo)	0D058	G305032
Lough Nacorralea	0D503	M116765
Lough Nahaltora	0D545	L792743
Manulla Lakes	0D008	M208878
Mullet West	0D921	F620250
Nambrackkeagh, Middle & Crocknacloy Loughs	0D023	M422940
Pollbeg Turlough	0D344	M217516
River Moy	0D320	G249121
River Robe (near Brikeens, E of N17)	0D018	M400730
Rostaff Lake	0D305	M250490
Shrule Turlough	0D304	M275520

Site	Site Code	Grid Ref.
Skealoghan Turlough	0D303	M250625
South Mayo Coast	0D406	L740750
Sruwaddacon Bay	0D497	F8300037 000
Straide River	0DS14	M268985
Tawnyard Lough	0D544	L915673
Termoncarragh & Annagh Marsh	0D020	F663350
Toormore River	0D340	M2395
Washpool Lough	0D506	M215841
Wetland near Drumcarrabaun (Belcarra/Ballyglass Road)	0D015	M203820
County Meath		
Balgeeth	0VS14	N700728
Ballyhoe Lakes	0V004	N850950
Baltrasna	0V008	N527769
Black Lough (Drewstown)	0VS11	N687684
Boyne Estuary - Skerries	0V901	O2070
Breakey Lough	0V010	N736902
Clooney Lough (Castletown)	0V003	N830820
Croboy Lough & fields	0VS23	N622485
Crossakeel	0VS24	N652736
Cruicetown	0VS21	N790850
Donore Bog	0V801	O0400070 000
Fordstown	0VS08	N724698
Gravelstown	0VS17	N780808
Kells (Meath)	0VS02	N720724
Kilmore Greenway	0V203	N744416
Lough Bane	0V099	N550711
Lough Brackan	0V001	N8788
Moat, Oldcastle	0VS20	N514804
Murphy's Quarry, Gormanston	0V202	O156686
Nanny Estuary & shore	0V401	O170700
Newcastle Lough	0V011	N795908
River Blackwater (Meath)	0V311	N755763
River Boyne	0V301	O007728
River Nanny	0V303	O050680
Tara Mines Tailings Ponds	0V201	N840710

Site	Site Code	Grid Ref.
Wetlands at Greenan/ Garrynabolie	0V005	N540740
White Lough	0V012	N692688
Whitewood Lough	0V002	N7988
Yellow River	0V304	N842744
County Monaghan		
Annaghmakerig Lough	0Y091	H585205
Annagose Lough	0Y090	H585255
Baraghy Lough	0Y003	H6663012 530
Bawn area	0Y016	H7111
Blackwater Catchment	0Y012	H710420
Carlougharoe Lough	0Y035	H570225
Carrickaslane Lakes	0Y032	H806242
Creeve Lakes	0Y007	H7316
Creevy Lough (Monaghan)	0Y038	H830070
Derrygoony & Black Loughs	0Y501	H6952911 143
Descart Lough	0Y041	N822973
Dromore Lakes (Monaghan)	0Y001	H620170
Dromore River	0Y390	H690195
Drum Lakes	0Y037	H560160
Drumgole Lough	0Y015	H590190
Drumhay Lake	0Y036	H580180
Drumillard Lake	0Y034	H818213
Fane River	0Y380	H874142
Finn-Lacky Catchment	0Y017	H610340
Gortnawinny Lake	0Y047	H5128
Inner Lough Dartrey	0Y009	H6117
Killy Lough (Monaghan)	0Y515	H6303541 876
Killygola Lake	0Y031	H8221
Lakelands	0Y033	H773242
Lough Avaghon	0Y004	H6813
Lough Egish	0Y011	H7914
Lough Fea (Monaghan)	0Y050	H8202
Lough Laragh	0Y030	H800220
Lough Lisanisk	0Y043	H850033
Lough Morne	0Y005	H7613
Lough Nagarnaman	0Y514	H820110
Lough Naglack	0Y040	H855024
Lough Ross	0Y044	H8816
Lough Smiley, Castleblaney	0Y045	H8222

Site	Site Code	Grid Ref.
Loughs Feagh & Drumate	0Y010	H590226
Monalty Lough	0Y013	H8602
Moylan Lough	0Y059	H855088
Muckno Lough	0Y082	H840200
Muckno Mill Lough	0Y088	H842222
Rahans Lake	0Y039	N832976
Rossmore Forest Park	0Y018	H655310
Slieve Beagh Lakes	0Y029	H560430
County Offaly		
Blackwater Railway Lake	0R001	N005260
Boora Lakes - Back Lakes Finnamores	0R006	N180195
Charleville Pond	0R015	N312225
Cloghanhill	0RS03	N0919
Derryarkin	0RS07	N475365
Derryounce (Lough Lurgan)	0R309	N530148
Kilmore	0R010	N259208
Little Brosna Callows	0R301	M970115
Little Brosna Callows (Aerial)	0R306	M970115
Raheen Lough	0R020	N465180
Shannon Callows	0R303	N000215
Shannon Callows (Aerial)	0R302	N000215
Turraun Nature Reserve	0R002	N178236
County Roscommon		
Annaghmore Lakes	0E001	M890840
Ballinagard (S. of Roscommon)	0ES29	M872625
Ballintober East Turlough	0E311	M737748
Ballintober Turlough	0E312	M727747
Black Lough/ Rat Island	0E525	M992895
Boyle River	0E372	G880040
Brideswell	0ES30	M945455
Cartron Lough	0E008	M991952
Castleplunket Turloughs	0E304	M790780
Cavetown Lough	0E005	M831973
Clogher Lough	0E006	M842982
Corkip Lough	0E526	M930437
Drumalough	0E037	M633824
Drumcunny Lough	0E031	G915070

Site	Site Code	Grid Ref.
Farramagalliagh East Turlough	0E028	G877016
Feacle Turlough	0E319	M908434
Fields north of Bellagh Lough	0ES24	M956947
Fin Lough (Roscommon)	0E016	G865040
Frenchpark	0ES17	M743929
Grange Lough	0E502	M9710787 243
Kilglass Lough	0E012	M980860
Kiltybranks	0ES31	M595915
Lough Acrick	0E013	N012850
Lough Boderg	0E024	N015920
Lough Drumharlow	0E018	G910020
Lough Key	0E017	G8305
Lough Meelagh	0E015	G890120
Lough Skean	0E014	G860130
Lowfield Lough	0E007	M992946
Lung River	0E330	M6595
NW of Kilglass (adjoining L. Boderg)	0E026	M970860
Oakport Lough	0E019	G885047
Rinnafarna Lough (Drumman Beg Lough)	0E003	N031889
River Shannon (Termonbarry-Lanesborough)	0E350	N052762
River Suck	0E305	M800400
River Suck (Aerial)	0E309	M800400
Shanballybaun Lough	0E042	G928049
Southern Roscommon Lakes	0E020	M880600
Stream/ grasslands near Clogher Bridge	0ES04	M986943
Thomas Street Turlough	0E316	M865465
Tully Lough	0E009	M987919
Turlough South of L. Key	0E367	G870010
Wetland at Cloongasny Beg	0E520	M981895
Wetlands east of Elphin	0E040	M950880
County Sligo		
Ardboy Lough	0C002	G755223
Ardline Lake	0C026	G855145
Ardrea Lough	0C036	G683165
Ballyconnell Bog	0C310	G570450

Site	Site Code	Grid Ref.
Ballygawley Lough	0C004	G695287
Ballysadare Bay	0C498	G620310
Ballysadare River	0C302	G670290
Bellanascarrow Lough	0C035	G680155
Bunduff Lakes	0C005	G710550
Carrowmore (Coen's) Lough	0C097	G673340
Cleavry Lough	0C006	G746147
Cloghcor	0C301	G602438
Cloonagh Lough (Sligo)	0C007	G582465
Colgagh Lough	0C008	G740360
Drumcliff Bay Estuary	0C497	G630430
Drumcliff River/Collinsford	0C303	G710410
Easky River/Letterunshin	0C304	G400250
Feenagh Lough	0C096	G695120
Fin Lough (Sligo)	0C011	G598207
Garvogue River	0C306	G708352
Greenan, Bricklieve Mtns	0C307	G729106
Inishmurray	0C935	G5710054 000
Killoran North Lough	0C012	G587216
Knocknawhishoge	0CS04	G689137
Lough Agh	0C013	G809139
Lough Anelteen	0C014	G765363
Lough Arrow	0C095	G790115
Lough Bo	0C015	G795181
Lough Dargan (Sligo)	0C003	G724282
Lough Daven	0C016	G691128
Lough Gara	0C001	M700980
Lough Gill	0C017	G750335
Lough Gowra	0C019	G727113
Lough Meharth	0C021	G749196
Lough Minnaun	0C022	G522272
Lough Nasool	0C023	G794175
Lough Talt	0C024	G400150
Loughmeenaghan	0C025	G743161
North Sligo Coast	0C909	G710580
Outer Sligo Bay	0C930	G560460
Riverstown Swallow Hole	0C311	G739174
Sligo Harbour	0C492	G650380
Streedagh Estuary	0C490	G660520
Templevanny Lough	0C027	G735096

Site	Site Code	Grid Ref.
Toberscanavan Loughs	0C028	G680235
West Sligo Coast	0C929	G515357
County Tipperary		
Ardcrony Turlough	0J303	R891873
Ballingarry	0JS03	R9896
Cabragh Wetlands	0J307	S108552
Clover River	0J390	S215578
Drangan Beg	0JS08	S030300
Gortdrum	0J309	R870410
Lough Aran	0J009	R855940
Lough Derg (Shannon)	0J008	R800900
Lough Derg (Shannon) (Aerial)	0J011	R800900
Lough Duff	0J010	R905817
Lough Eorna	0J006	R880860
Lyonstown Stud Farm	0J004	S110365
Marlfield Lake	0J001	S170220
Moanbeg (south of Nenagh)	0J310	R860770
Pat Reddan's Lake	0J005	R890960
River Suir Middle	0J301	S050450
River Suir Upper	0J302	S133616
Rockwell College Lake	0J003	S070340
Walsh's Sandpit Rathcool	0J201	S196385
County Waterford		
Annestown Bog	0M307	S500000
Ballinlough	0M002	S447035
Ballyscanlan Lake	0M004	S541030
Ballyshunnock Reservoir	0M101	S550020
Belle Lake	0M001	S663045
Blackwater Callows	0M302	W930990
Blackwater Estuary	0M404	X110800
Boatstrand-Annestown	0M905	X490989
Carrickavrantry Reservoir	0M103	S549022
Clonea Strand	0M906	X317942
Dungarvan Harbour	0M402	X260920
Garrarus & Kilfarrassy	0M908	X535980
Kilmeaden Cream (Blackknock)	0M005	S5108
Knockaderry Reservoir	0M102	S495060
Lower Blackwater River	0M304	X100800
Mid-Waterford Coast	0M901	X4097

Site	Site Code	Grid Ref.
Monaneea Lake	0M502	X2184
Outer Tramore Bay	0M492	X595995
Pouldrew Pond	0M003	S509115
River Barrow (Cheekpoint-New Ross)	0M305	S690190
River Bride	0M306	W975940
River Suir Lower	0M301	S500140
Tramore Back Strand	0M405	S615015
Waterford Harbour	0M403	S703070
Whiting Bay	0M907	X152777
Whiting Bay Marsh	0M801	X153783
County Westmeath		
Ballinlough (Westmeath)	0W024	N645658
Crowinstown Lough	0W023	N640640
Glen Lough	0W005	N282670
Grasslands near Ballynacarrigy	0WS04	N287613
Lough Derravaragh	0W010	N410680
Lough Drin	0W015	N455568
Lough Ennell	0W007	N400465
Lough Glore	0W009	N490720
Lough Iron	0W012	N340630
Lough Lene	0W008	N510680
Lough Owel	0W004	N400580
Lough Sewdy	0W017	N220500
Lough Sheever	0W006	N460554
Plunkett's Quarry, Castletown	0W201	N458779
Quarry site at Croboy/Derrymore	0W202	N6150
Royal Canal	0W801	N4751
Slevin's Lake	0W013	N451560
Tang River	0W300	N1653
Walshestown South Turlough	0W022	N400540
White/Annagh Lough	0W011	N512730
County Wexford		
Ballyteige Marsh	0O801	T200425
Bannow Bay	0O405	S820090
Barrow Estuary	0O492	S670165
Cahore Marshes	0O803	T205450
Keeragh Islands	0O902	S866059
Lady's Island Lake	0O402	T1006
North Wexford Coast	0O999	T200548
River Slaney	0O301	S980310

Site	Site Code	Grid Ref.
Rosslare (Outer Bay)	0O903	T110170
Tacumshin Lake	0O010	T0506
The Cull & Killag (Ballyteige)	0O406	S930070
Wexford Bay	0O901	T115285
Wexford Harbour & Slobs	0O401	T060213
County Wicklow		
Arklow Harbour	0T912	T250730
Arklow Ponds	0T002	T250744
Avoca River/Arklow	0T399	T240736
Ballyduff & Knockadreet Bogs	0T304	O230005
Bray Beach	0T913	O274185
Bray Harbour	0T907	O270193
Brittas Bay & Mizen Head	0T908	T306809
Buckroney Fen	0T302	T295808
Carriggower Bog	0T301	O225075
Glendalough - Upper & Lower Lakes	0T010	T1096
Greystones	0T905	O300120
Lough Bray	0T008	O135160
Lough Nahanagan	0T006	T080990
Lough Tay & Dan	0T003	O157056
Mizen Head	0T909	T309804
North Wicklow Coastal Marshes	0T401	O310040
Poulaphouca Reservoir	0T198	O000100
Vartry Reservoir	0T199	O2002

Appendix 3 - Other Waterbirds

As per section 4.5, the following waterbird species do not have a dedicated species account in this report but were recorded during the period 2016/17 - 2022/23 on core counts on I-WeBS sites or on Lough Foyle (WeBS) or Carlingford Lough (WeBS). The number of count records and the number of seasons each species was recorded over these seven seasons is presented. For the five most recent seasons, 2018/19 - 2022/23, the number of sites and the peak season count for each species are also provided.

Species	Scientific name	2016/17 - 2022/23		2018/19 - 2022/23	
		Records	**Seasons**	**Sites**	**Peak**
Fulvous Whistling Duck	*Dendrocygna bicolor*	1	1	0	0
Brent Goose (Black Brant)	*Branta bernicla nigricans*	1	1	1	1
Brent Goose (Dark-bellied)	*Branta bernicla bernicla*	10	5	5	12
Snow Goose	*Anser caerulescens*	4	1	3	2
Bean Goose	*Anser fabalis*	3	3	2	2
White-fronted Goose (European/Russian)	*Anser albifrons albifrons*	3	2	2	3
Black Swan	*Cygnus atratus*	41	7	2	5
Egyptian Goose	*Alopochen aegyptiaca*	8	3	3	2
Ruddy Shelduck	*Tadorna ferruginea*	6	2	0	0
Mandarin Duck	*Aix galericulata*	9	4	3	7
Garganey	*Spatula querquedula*	5	3	5	2
American Wigeon	*Mareca americana*	2	2	1	1
Green-winged Teal	*Anas carolinensis*	17	6	8	5
Ring-necked Duck	*Aythya collaris*	48	7	21	11
Lesser Scaup	*Aythya affinis*	5	3	3	1
King Eider	*Somateria spectabilis*	2	1	0	0
Surf Scoter	*Melanitta perspicillata*	6	3	3	1
Velvet Scoter	*Melanitta fusca*	23	5	9	7
Smew	*Mergellus albellus*	8	4	2	1
Hooded Merganser	*Lophodytes cucullatus*	1	1	1	1
Ruddy Duck	*Oxyura jamaicensis*	2	1	1	2
Red-necked Grebe	*Podiceps grisegena*	1	1	1	1
Black-necked Grebe	*Podiceps nigricollis*	16	6	4	5
Avocet	*Recurvirostra avosetta*	6	3	4	2
American Golden Plover	*Pluvialis dominica*	6	6	3	2
Little Ringed Plover	*Charadrius dubius*	1	1	1	5
Whimbrel	*Numenius phaeopus*	218	7	46	169
Curlew Sandpiper	*Calidris ferruginea*	54	7	23	58

Species	Scientific name	2016/17 - 2022/23		2018/19 - 2022/23	
		Records	Seasons	Sites	Peak
Baird's Sandpiper	*Calidris bairdii*	1	1	1	1
Little Stint	*Calidris minuta*	26	6	11	11
Least Sandpiper	*Calidris minutilla*	1	1	1	1
White-rumped Sandpiper	*Calidris fuscicollis*	4	3	3	8
Buff-breasted Sandpiper	*Calidris subruficollis*	4	3	2	1
Pectoral Sandpiper	*Calidris melanotos*	6	5	5	7
Semipalmated Sandpiper	*Calidris pusilla*	3	2	0	0
Long-billed Dowitcher	*Limnodromus scolopaceus*	3	1	1	1
Woodcock	*Scolopax rusticola*	8	4	5	3
Terek Sandpiper	*Xenus cinereus*	1	1	1	1
Grey Phalarope	*Phalaropus fulicarius*	1	1	1	1
Common Sandpiper	*Actitis hypoleucos*	198	7	48	71
Spotted Sandpiper	*Actitis macularius*	2	2	2	1
Green Sandpiper	*Tringa ochropus*	95	7	31	14
Lesser Yellowlegs	*Tringa flavipes*	7	3	5	1
Wood Sandpiper	*Tringa glareola*	3	3	2	1
Spotted Redshank	*Tringa erythropus*	51	7	14	6
Kittiwake	*Rissa tridactyla*	45	7	20	200
Little Gull	*Hydrocoloeus minutus*	11	5	6	17
Ross's Gull	*Rhodostethia rosea*	1	1	1	1
Ring-billed Gull	*Larus delawarensis*	50	7	12	4
Glaucous Gull	*Larus hyperboreus*	53	7	11	2
Iceland Gull	*Larus glaucoides*	89	7	21	6
Yellow-legged Gull	*Larus michahellis*	31	7	8	4
Sandwich Tern	*Thalasseus sandvicensis*	196	7	50	1,126
Little Tern	*Sternula albifrons*	8	5	2	11
Roseate Tern	*Sterna dougallii*	4	3	2	1
Common Tern	*Sterna hirundo*	48	7	18	411
Arctic Tern	*Sterna paradisaea*	18	5	7	35
Forster's Tern	*Sterna forsteri*	10	5	2	1
Black Tern	*Chlidonias niger*	2	2	1	2
Black-throated Diver	*Gavia arctica*	39	6	17	19
Pacific Diver	*Gavia pacifica*	2	2	0	0
Glossy Ibis	*Plegadis falcinellus*	14	6	8	4
Spoonbill	*Platalea leucorodia*	13	4	3	2
Great White Egret	*Ardea alba*	40	7	7	5
Great White Pelican	*Pelecanus onocrotalus*	15	4	1	2
Kingfisher	*Alcedo atthis*	486	7	105	41
Belted Kingfisher	*Megaceryle alcyon*	1	1	1	1

Species	**Scientific name**	**2016/17 - 2022/23**		**2018/19 - 2022/23**	
		Records	**Seasons**	**Sites**	**Peak**
Dipper	*Cinclus cinclus*	44	7	16	6
Grey Wagtail	*Motacilla cinerea*	143	6	56	29

Appendix 4 - Species Codes

The following species have dedicated species accounts within this report. The Natura 2000 species code and the corresponding I-WeBS species code or codes are listed for each species.

Species	Scientific name	Species codes	
		Natura 2000	I-WeBS
Brent Goose	*Branta bernicla hrota*	A674-A	BG - Brent Goose PB - Light-bellied Brent Goose QN - Brent Goose (Light-bellied of Nearctic origin)
Canada Goose	*Branta canadensis*	A044-X	CG - Canada Goose
Barnacle Goose	*Branta leucopsis*	A045-A	BY - Barnacle Goose YN - Barnacle Goose (Greenland)
Greylag Goose (Icelandic)	*Anser anser*	A043-A	JI - Greylag Goose (Icelandic)
Greylag Goose (resident)	*Anser anser*	A043-B	GJ - Greylag Goose (resident) JE - Greylag Goose (naturalised) JH - Greylag Goose (native Scottish)
Pink-footed Goose	*Anser brachyrhynchus*	A040-B	PG - Pink-footed Goose
Greenland White-fronted Goose	*Anser albifrons flavirostris*	A395	NW - Greenland White-fronted Goose WG - Greater White-fronted Goose
Mute Swan	*Cygnus olor*	A036	MS - Mute Swan
Bewick's Swan	*Cygnus columbianus bewickii*	A037	BS - Bewick's Swan
Whooper Swan	*Cygnus cygnus*	A038	WS - Whooper Swan
Shelduck	*Tadorna tadorna*	A048	SU - Shelduck UJ - Shelduck (juvenile)
Shoveler	*Spatula clypeata*	A857	SV - Shoveler
Gadwall	*Mareca strepera*	A889	GA - Gadwall
Wigeon	*Mareca penelope*	A855	WN - Wigeon
Mallard	*Anas platyrhynchos*	A053	MA - Mallard
Pintail	*Anas acuta*	A054	PT - Pintail
Teal	*Anas crecca*	A052	T. - Teal
Pochard	*Aythya ferina*	A059	PO - Pochard
Tufted Duck	*Aythya fuligula*	A061	TU - Tufted Duck
Scaup	*Aythya marila*	A062	SP - Scaup
Eider	*Somateria mollissima*	A063	E. - Eider
Common Scoter	*Melanitta nigra*	A900	CX - Common Scoter
Long-tailed Duck	*Clangula hyemalis*	A064	LN - Long-tailed Duck
Goldeneye	*Bucephala clangula*	A067	GN - Goldeneye
Goosander	*Mergus merganser*	A070	GD - Goosander
Red-breasted Merganser	*Mergus serrator*	A069	RM - Red-breasted Merganser

Species	Scientific name	Species codes	
		Natura 2000	I-WeBS
Water Rail	*Rallus aquaticus*	A118	WA - Water Rail
Moorhen	*Gallinula chloropus*	A123	MH - Moorhen
Coot	*Fulica atra*	A125	CO - Coot
Little Grebe	*Tachybaptus ruficollis*	A004	LG - Little Grebe
Great Crested Grebe	*Podiceps cristatus*	A005	GG - Great Crested Grebe
Slavonian Grebe	*Podiceps auritus*	A007	SZ - Slavonian Grebe
Oystercatcher	*Haematopus ostralegus*	A130	OC - Oystercatcher
Lapwing	*Vanellus vanellus*	A142	L. - Lapwing
Golden Plover	*Pluvialis apricaria*	A140	GP - Golden Plover
Grey Plover	*Pluvialis squatarola*	A141	GV - Grey Plover
Ringed Plover	*Charadrius hiaticula*	A137	RP - Ringed Plover
Curlew	*Numenius arquata arquata*	A768	CU - Curlew
Bar-tailed Godwit	*Limosa lapponica*	A157	BA - Bar-tailed Godwit
Black-tailed Godwit	*Limosa limosa*	A156	BW - Black-tailed Godwit
Turnstone	*Arenaria interpres*	A169	TT - Turnstone
Knot	*Calidris canutus*	A143	KN - Knot
Ruff	*Calidris pugnax*	A861	RU - Ruff
Sanderling	*Calidris alba*	A144	SS - Sanderling
Dunlin	*Calidris alpina*	A149	DN - Dunlin
Purple Sandpiper	*Calidris maritima*	A148	PS - Purple Sandpiper
Jack Snipe	*Lymnocryptes minimus*	A152	JS - Jack Snipe
Snipe	*Gallinago gallinago*	A153	SN - Snipe
Redshank	*Tringa totanus*	A162	RK - Redshank
Greenshank	*Tringa nebularia*	A164	GK - Greenshank
Black-headed Gull	*Larus ridibundus*	A179	BH - Black-headed Gull
Mediterranean Gull	*Larus melanocephalus*	A176	MU - Mediterranean Gull
Common Gull	*Larus canus*	A182	CM - Common Gull
Great Black-backed Gull	*Larus marinus*	A187	GB - Great Black-backed Gull
Herring Gull	*Larus argentatus*	A184	HG - Herring Gull
Lesser Black-backed Gull	*Larus fuscus*	A489	LB - Lesser Black-backed Gull
Red-throated Diver	*Gavia stellata*	A001	RH - Red-throated Diver
Great Northern Diver	*Gavia immer*	A003	ND - Great Northern Diver
Cormorant	*Phalacrocorax carbo carbo*	A683	CA - Cormorant
Shag	*Gulosus aristotelis*	A018	SA - Shag
Cattle Egret	*Bubulcus ibis*	A025	EC - Cattle Egret
Grey Heron	*Ardea cinerea*	A028	H. - Grey Heron
Little Egret	*Egretta garzetta*	A026	ET - Little Egret

Appendix 5 - Population Estimate Contributions

Species not subject to a census have their population estimated with I-WeBS actual counts supplemented by imputation and NEWS data as discussed in section 4.5.1. The following table lists the mean of the percentage of I-WeBS peak season count that was imputed, and the mean of the percentage of the total seasonal count that was contributed from NEWS, for the five seasons 2018/19 - 2022/23.

		Average Contribution (%)			
Species	Scientific name	Imputation to I-WeBS Count		NEWS to Total Population Estimate	
		ROI	All-Ireland	ROI	All-Ireland
Brent Goose	*Branta bernicla hrota*	34.4	NA	8.1	NA
Canada Goose	*Branta canadensis*	61.8	60.2	0.0	0.0
Greylag Goose (resident)	*Anser anser*	30.6	33.3	0.9	0.9
Mute Swan	*Cygnus olor*	61.3	53.5	2.2	1.7
Shelduck	*Tadorna tadorna*	22.2	17.7	0.9	1.2
Shoveler	*Spatula clypeata*	50.0	49.6	0.0	0.0
Gadwall	*Mareca strepera*	57.4	44.1	0.0	0.0
Wigeon	*Mareca penelope*	49.1	47.5	3.0	2.8
Mallard	*Anas platyrhynchos*	61.9	51.5	9.4	8.5
Pintail	*Anas acuta*	32.5	24.2	0.0	0.0
Teal	*Anas crecca*	49.5	43.5	3.3	5.3
Pochard	*Aythya ferina*	74.0	28.4	0.0	0.0
Tufted Duck	*Aythya fuligula*	56.0	36.8	0.0	0.0
Scaup	*Aythya marila*	83.5	11.6	0.0	0.0
Eider	*Somateria mollissima*	84.4	13.6	69.9	17.7
Goldeneye	*Bucephala clangula*	42.0	33.9	0.0	0.6
Goosander	*Mergus merganser*	72.4	70.0	0.0	0.0
Red-breasted Merganser	*Mergus serrator*	35.4	33.1	37.5	31.2
Coot	*Fulica atra*	69.0	55.5	0.0	0.0
Little Grebe	*Tachybaptus ruficollis*	55.8	48.4	5.5	3.7
Great Crested Grebe	*Podiceps cristatus*	39.4	40.4	7.4	3.8
Oystercatcher	*Haematopus ostralegus*	34.2	30.9	36.2	31.7
Lapwing	*Vanellus vanellus*	52.0	45.9	4.4	7.0
Golden Plover	*Pluvialis apricaria*	52.9	50.6	2.1	4.7
Grey Plover	*Pluvialis squatarola*	45.1	43.6	8.9	9.5
Ringed Plover	*Charadrius hiaticula*	53.2	54.4	51.0	49.3
Curlew	*Numenius arquata arquata*	48.4	44.0	27.9	27.9
Bar-tailed Godwit	*Limosa lapponica*	37.9	34.1	5.4	4.6
Black-tailed Godwit	*Limosa limosa*	41.1	39.5	0.0	0.0
Turnstone	*Arenaria interpres*	56.9	46.0	53.3	51.7

Species	Scientific name	Average Contribution (%)			
		Imputation to I-WeBS Count		NEWS to Total Population Estimate	
		ROI	All-Ireland	ROI	All-Ireland
Knot	*Calidris canutus*	41.2	33.9	3.1	2.6
Sanderling	*Calidris alba*	54.8	53.9	44.3	44.4
Dunlin	*Calidris alpina*	31.9	30.3	9.5	10.2
Purple Sandpiper	*Calidris maritima*	84.4	70.9	64.8	66.7
Redshank	*Tringa totanus*	35.5	32.9	15.5	16.0
Greenshank	*Tringa nebularia*	39.8	37.2	29.5	27.0
Cormorant	*Phalacrocorax carbo carbo*	61.3	48.1	32.2	30.0
Grey Heron	*Ardea cinerea*	51.1	44.0	34.1	32.0
Little Egret	*Egretta garzetta*	49.2	44.1	13.7	12.7

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