

# An assessment of the distribution range of Greylag (Icelandic-breeding & feral populations) in Ireland



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## **Summary**

- Each winter, Ireland supports over 5,000 Greylag Geese, most of which migrate from breeding areas in Iceland, the remainder of which are resident feral birds descended from birds released during the 20th century.
- This assessment was carried out with the intention of confirming the current number and distribution range of Icelandic and feral birds in Ireland, and identifying movements of Icelandic birds between roosts and feeding areas.
- All sites known to be used by Greylag Geese were surveyed at least twice during the winter of 2007/08 and again during the early autumn (August and September), and efforts were made to ensure that coverage at site complexes was fully coordinated to minimise duplication of counts. Sites known to be used by migratory (Icelandic-breeding) geese were surveyed as close as possible to the November weekend scheduled as part of the international Icelandic Goose survey (10th/11th), and were surveyed in greater detail in December in an attempt at identifying regularly used feeding and roosting areas, and at defining goose movements.
- Some, 405 visits were made during the winter survey by over 50 observers to 86 sites, comprising 187 subsites, while 196 visits were made to 74 sites comprising 134 subsites during the autumn.
- A total of 6,316 birds was counted in November, 3,583 in January and 1,747 during the autumn. The total number of Greylag Geese of Icelandic origin present during the winter of 2007/008 was estimated at 4,761, and occurred in nine main flocks. This represents a decline in numbers compared with recently published estimates. Some 1,555 feral birds were estimated the following autumn (2008), representing an increase in that population.
- Largest numbers were recorded at the Lough Swilly/ River Foyle/ Lough Foyle complex during both the winter and autumn censuses. Other relatively large flocks were recorded at Loughs Neagh and Beg, Dundalk Bay and Strangford Lough during the winter, and at Greaghans, Lady's Island Lake, the Mullet Peninsula and Belfast Lough during the autumn.
- The Swilly/ Foyle complex appears to support most geese of Icelandic origin which winter in Ireland upon arrival, prior to dispersal as the winter progresses. It is possible that this complex also supports some birds which later winter in Scotland.
- Recommendations included attempts at controlling the increasing feral population, especially at sites where numbers are large and increasing, efforts to catch and mark birds, and increased efforts at resighting marked birds to help clarify the origins and movements of some flocks, and implementation of management measures for geese at designated sites.

## Introduction

The Icelandic-breeding population of Greylag Geese winters almost exclusively in Britain and Ireland. It has fluctuated markedly over the past century, increasing from 30,000 birds in 1960 to the mid/late 1980s when almost 120,000 birds were estimated, and then declining by approximately 20% during the 1990s (Hearn and Mitchell 2004), largely due to unsustainable hunting in Iceland. As a result, there has been a lot of effort in Iceland to encourage voluntary restraint when shooting Greylag Geese. This has met with moderate success, and the population appears to have since remained relatively stable, although there are still large proportions of the Greylag Goose population shot there every autumn.

Presently, the Icelandic population has been estimated at roughly 90,000 birds, with 85,000 wintering in Britain and 5,000 in Ireland. However, our ability to accurately estimate this population in the last 5-10 years has been hampered by shifts in distribution, later arrivals from Iceland, and increases in other resident populations of Greylag Geese. The resident Greylag Goose population in Ireland has descended from released birds, mainly in the 20th century. Unlike Britain, there is little evidence to suggest that Ireland was once part of the former breeding range of the present-day Icelandic-breeding population. Thus, we refer to this resident population as feral.

With the recent cessation on hunting of Greenland White-fronted Geese in Iceland, which commenced in autumn 2006, it is possible that there may once again be increased pressure on Greylag Geese by hunters in Iceland. Furthermore, there have been substantial increases in several wintering swan and goose species in Ireland over the past 10 years (Crowe *et al.* 2008). This appears to have resulted in increased conflicts with farmers.

This project was targeted at:

- Confirming the number and distribution range of Icelandic birds in Ireland.
- Providing an updated assessment of the number and distribution range of feral breeding populations of geese.
- Identifying roost sites used by Icelandic geese.
- Assessing appropriate methods for controlling the spread of feral geese in Ireland. This will include a review of the number of feral birds harvested each year, and the timing and location of hunting Greylag Geese in Ireland.

## Methods

This work was carried out by a combination of BirdWatch Ireland, National Parks and Wildlife Service and Environment and Heritage Service staff, and I-WeBS and WeBS observers. All sites known to be used by Greylag Geese were surveyed at least twice during the winter of 2007/08; the first visit was carried out in November (Republic) and December (Northern Ireland), and a second visit was conducted in January (all sites). These sites were re-surveyed the following autumn (between 11 August and 30 September), i.e. prior to the arrival of migratory geese from Iceland. All efforts were made to ensure that coverage at site complexes was fully coordinated to minimise duplication of counts. A full list of all sites and subsites covered, together with grid references, is provided in Appendix 1.

Sites known to be used predominantly by Icelandic geese were surveyed in greater detail in December 2007 in an attempt at identifying regularly used feeding and roosting areas, and at defining goose movements. These included the following sites/ site complexes:

1. *Swilly/ Foyle* - Loughs Swilly & Foyle/ River Foyle/ Lough Fern in Donegal
2. *Lough Neagh* – Loughs Neagh and Beg
3. *Strangford Lough*
4. *Dundalk Bay complex* - Dundalk Bay/ Braganstown/ Fane River/ River Glyde in Louth
5. *North Dublin* – Rogerstown/ Skerries/ Lambay Island
6. *Poulaphouca* – Poulaphouca Reservoir in west Wicklow/ Mountseskin & Gortlum in southwest Dublin
7. *North Wicklow Coastal Marshes*
8. *Lower River Suir* in Waterford

Contact was made with locally-based I-WeBS and WeBS counters and any additional NPWS / Northern Ireland Environment Agency staff in the first instance seeking information on areas regularly used by the geese. Thereafter, a series of observations were made at dawn and/ or dusk from a variety of vantage points, and observations of movements between feeding and roosting areas were made.

Totals were compiled for both of the main winter census months November and January (2007/08 winter survey) and for August/ September (peak count, 2008 autumn survey). Additional counts made during the 2007/08 season, and in other seasons as part of I-WeBS and WeBS were also used to help explain movements, and annual changes.

## **Results**

### *Coverage*

During the winter survey (2007/08), some 405 visits were made by over 50 observers to 86 sites, comprising 187 subsites (Fig. 1). The following autumn, 196 visits were made by roughly 20 observers to 74 sites comprising 134 subsites (Fig. 1).

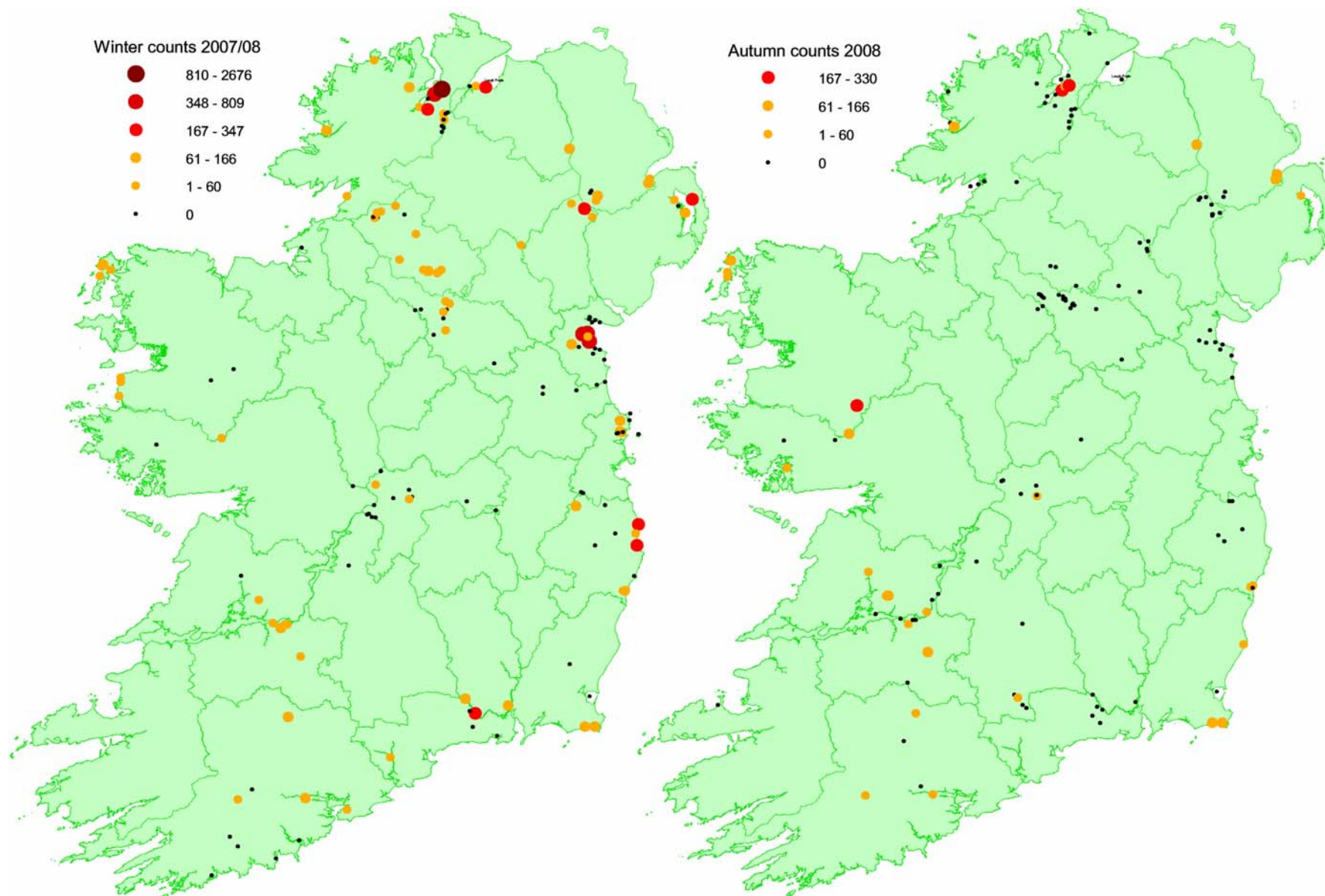


Figure 1. Coverage in winter 2007/08 and autumn 2008 showing maximum counts of Greylag Geese (red and orange dots) and sites where no Greylag Geese were present (black dots).

## Distribution

Some 39 Greylag Goose flocks were estimated overall, including 33 during the winter census and 22 during the subsequent autumn census (Table 1). More specifically, Greylag Geese were recorded at 52 sites and 110 subsites during the winter census, and at 23 sites and 29 subsites in autumn (Fig. 1).

Totals of 6,316 and 3,583 birds were counted in November (RoI)/ December (NI) 2007 and January 2008 respectively. The total number recorded during the autumn was considerably lower, at 1,747 birds overall. The largest winter flock was recorded at Swilly/ Foyle at 3,599 birds in November. Numbers there had declined considerably by January (Table 1). Other large winter flocks, of between 455 and 501 birds, were recorded at Loughs Neagh & Beg in County Antrim, Dundalk Bay in Louth and Strangford Lough in Down. Largest numbers during the autumn were recorded at Swilly/ Foyle (440 birds), Greaghans in Mayo (175), Lady's Island Lake (136), on the Mullet peninsula (134) and at Belfast Lough (132) (Table 1).

Table 1. Greylag Goose distribution in winter 2007/08 (November and January) and in autumn 2008 (August/ September).

Site	Main county	Nov	Jan	Aug/ Sep	Origin**
Strangford Lough	Down	263	455	54	I
Belfast Lough	Antrim	131		132	F
Loughs Neagh and Beg	Antrim	161	501	79	I
Swilly/ Foyle	Donegal	3,599	1,029	440	I
Dunfanaghy New Lake	Donegal	1			I
Ballincrick grasslands	Donegal			115	F
Donegal Bay	Donegal		3		F
Lough Macnean Lower: Cushrusheen	Fermanagh		4		F
Upper Lough Erne	Fermanagh		64		F
Lower Lough Erne	Fermanagh	38	14		F
Lough Oughter Complex	Cavan		8		F
River Erne & associated lakes	Cavan	7	5		F
Annaghroe	Armagh	50			F
Dundalk Bay complex	Louth	497	434		I
Rogerstown Estuary. Skerries grasslands/ Lambay Island	Dublin	120	23		I
North Wicklow Coastal Marshes	Wicklow	191	202		I
Poulaphouca Reservoir / Mountseskin/Gortlum	Wicklow	107	144		I
Avoca River/Arklow Harbour/ Arklow Ponds	Wicklow	73	75	59	F
Cahore Marshes	Wexford	59*	59*	21	F
Lady's Island / Tacumshin	Wexford	121	92	136	F
Barrow Estuary	Wexford	156			I
River Suir Lower	Waterford	201	166		I
Lower Blackwater River	Waterford	3			F
River Suir Middle	Tipperary			7	F
Cork Harbour	Cork	1			F
The Lough Cork	Cork	82		41	F
Inishcarra Reservoirs	Cork	42		26	F
Kilcolman Marsh	Cork	111	68	24	F
Lough Gur	Limerick	24		66	F
Shannon & Fergus Estuary	Clare	116	139	30	F
River Shannon (Lower)	Clare			1	F
Ballyallia Lake	Clare			6	F
South East Clare Lakes	Clare		9	82	F
Turraun/ Boora Lakes/ Blackwater Railway Lake	Offaly		18	26	F
Camus Bay, Connemara	Galway			7	F
Rostaff Lake	Mayo	17		86	F
South Mayo Coast	Mayo	6			F
Greaghans	Mayo			175	F
The Mullet, Broadhaven & Blacksod Bays	Mayo	139	71	134	F
<b>Total count</b>		<b>6,316</b>	<b>3,583</b>	<b>1,747</b>	
<b>Total sites</b>	<b>39</b>	<b>27</b>	<b>22</b>	<b>22</b>	

\* No data received at the time of writing, mean I-WeBS annual peak between 2003/04 and 2006/07 used.

\*\* Flock origins (F = Feral, I = Icelandic).



During the winter, there were considerable differences between months in the counts of Greylag Geese. The November count comprised one single, and very large, count of 3,599 at Swilly/ Foyle. The next highest November counts were 497 at Dundalk and 401 on the Lower River Suir. In January, 1,029 birds were recorded at Swilly/ Foyle. Just 123 birds were recorded at Dundalk, although a higher count of 434 was recorded towards the end of the month (26 January). Numbers recorded at the Lower River Suir were also lower, at 166 birds. In contrast, numbers occurring at Lough Neagh in Northern Ireland and the North Wicklow Coastal Marshes in the Republic were much higher in January than in November.

Patterns of movements at individual sites appear to have remained relatively consistent throughout I-WeBS, and a selection of examples is presented in Figure 2. Numbers at Lough Swilly, which supports the largest numbers, appear to increase to a peak in November or December, and decline thereafter. At most other sites, numbers build up, and are sustained through the mid-winter period.

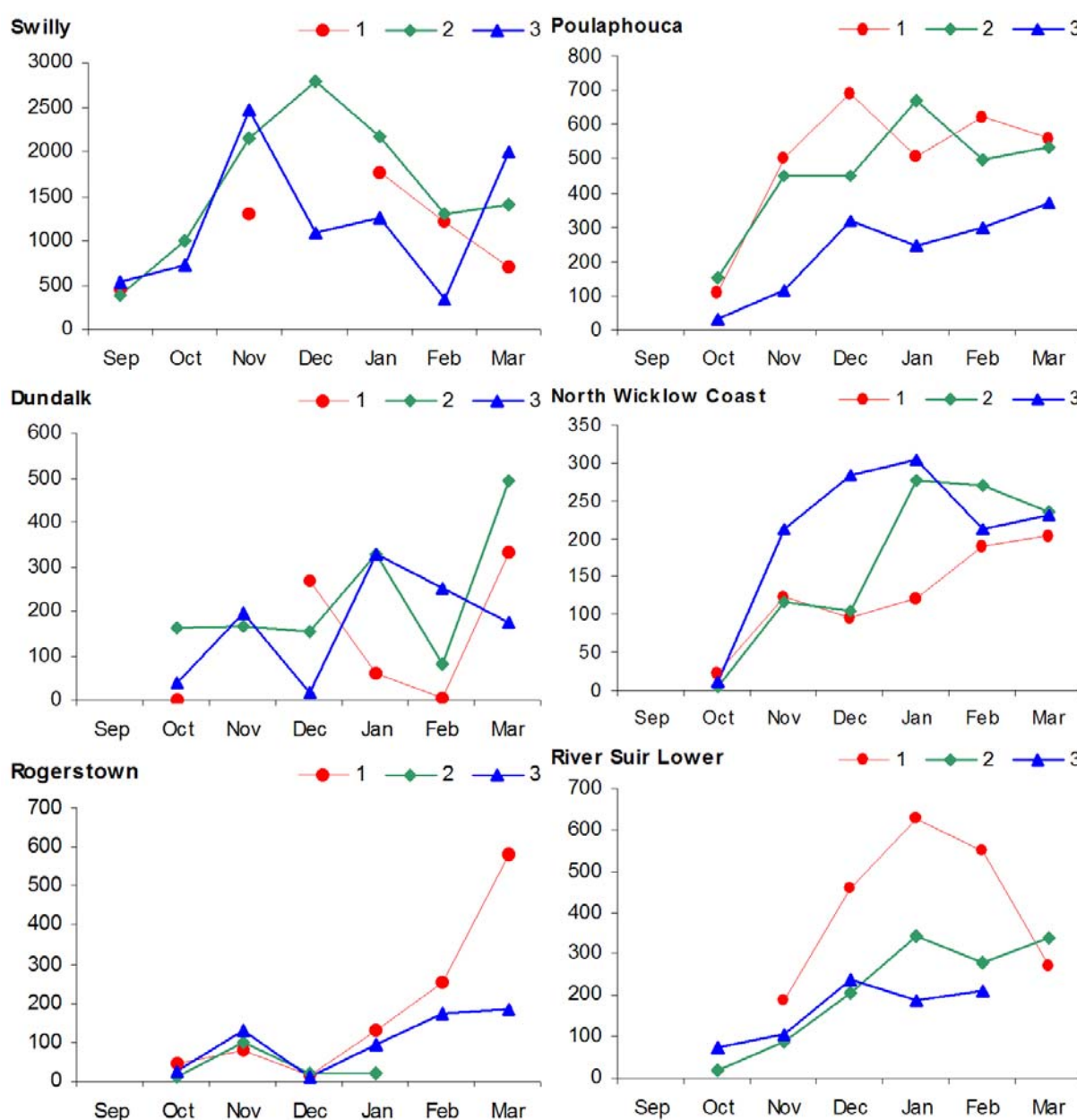


Figure 2. Mean change each month in numbers of Greylag Geese occurring at six sites known to support predominantly birds of Icelandic origin. Three 5-year means are presented, 1994/95-1998/99 (red), 1998/99-2002/03 (green) and 2002/03-2006/07 (blue).



## Site accounts

### Strangford Lough (mixed, predominantly Icelandic)

The mid-winter count of 455 birds is relatively consistent with that reported during WeBS counts over the past five winters (to 2005/06, Musgrove *et al.* 2007). Numbers recorded there during the autumn were considerably lower, and rarely exceed the maximum of 54 birds recorded during this survey. Several of these (non-wintering) birds have been marked with darvic rings at Strangford, although very few have been resighted at other sites (K. Mackie pers. comm.). However, despite there being much larger numbers of birds wintering at this site, few rings have been sighted. It is likely that most wintering birds are of Icelandic origin.

Greylag Geese were recorded at four areas during the winter survey, including Greyabbey Lake, Ardmillan West, Castle Espie Lakes during daytime counts, and Islands Mid Lough at dusk. They were recorded at the Castle Espie Lakes during the autumn survey.

### Belfast Lough (feral)

Totals recorded during the winter and autumn were remarkably consistent, and with the totals counted during regular WeBS counts (Musgrove *et al.* 2007). Thus, it is likely that these birds are of feral origin. During this survey, geese were recorded at three subsites, all located in the mouth of the estuary.

### Loughs Neagh & Beg (mixed, predominantly Icelandic)

The overall total recorded during this survey (501) was considerably lower than the most recent five-season mean available from WeBS, at 1,092 birds (Musgrove *et al.* 2007). However, the winter survey was based on counts in November and January only. Larger counts appear to occur consistently later in the season (February or March) (Collier *et al.* 2005, Cranswick *et al.* 2005, Musgrove *et al.* 2007). A peak WeBS count for the 2007/08 season of 846 birds was recorded in February 2008.

Greylag Geese were recorded at 18 subsites during the winter survey (Table 2). During the autumn, birds were recorded at The Creagh only (located at the southern end of Lough Beg), although numbers were lower (peak of 79 compared with 149 during the winter).

Table 2. Subsites of Loughs Neagh and Beg where Greylag Geese were recorded together with peak counts (in brackets).

The Creagh (149)	Shallow Flat (386)
Lough Beg (Creagh) (53)	Ardmore Point (55)
Pollan Bay (94)	Ardmore Rectory (77)
McCann's Farm (68)	Oxford Island (300)
Drumaul and Cranfield swan fields (10)	Moss Vale (Diamond Lane) (36)
Brookend (1)	Portmore swan fields (500)
Killycolpy (1)	Portmore Lough (138)
Charlestown (1)	Lurgan Park Lake (7)
Reedy Flat (241)	Lagan (Flatfield) swan fields (232)

Greatest numbers were recorded at/ adjacent to Portmore Lough, located to the southeast of Lough Neagh. This flock is known to roost on Portmore Lake. Small numbers were recorded heading south from this roost at dawn, possibly moving to feed on fields adjacent to the River Lagan, near Flatfield. Birds were also recorded at several other locations around Portmore Lough, including in the fields between Portmore Lough and Lady Bay, at Lady Bay and at Tunny Point. Other locations where relatively large numbers were recorded include Oxford Island further south (at the Closet meadows). Along the southern shore, largest numbers were recorded at Reedy Flat, and feeding in a ryegrass field at The Shallow Flat. This latter group of birds remained on the field at dusk but was not present the following day. Further north, Greylag Geese were found roosting at McGrogans Hole, a small lake located to the southwest of Lough Beg. These geese were recorded feeding on ryegrass fields bordering this lake.

### Swilly/ Foyle (mixed, predominantly Icelandic)

This is the largest flock of Icelandic birds present in Ireland. It seems that the majority of geese of Icelandic origin congregate at the Swilly/ Foyle complex upon arrival. Numbers build up in November and appear to be sustained up to early December, and decline thereafter, presumably as birds move on to other sites within Ireland, or possibly elsewhere (Britain). This pattern of movement was consistent with that observed during the winter 2007/08, with the overall total declining from a peak of 3,599 in November to 1,029 in January.

Lough Swilly also supports the largest flock of feral Greylag Geese. The total of 440 birds estimated during the autumn survey represents a substantial decrease compared with previous years; this flock was once estimated as large as 800 birds (I-WeBS data unpublished). It is not likely that hunting pressure has served to reduce their numbers, as numbers of Canada Goose, which is also on the hunting list, increased to a record high of 204 birds.

It is likely that this feral Greylag Goose flock supports the relatively small flock which breeds at Inch Lough & Levels at Lough Swilly (R. Sheppard pers. comm.), combined with the much larger numbers of between 150 and 200 birds (D. McDonagh, *in litt.*) present at Lough Derg (Donegal), during the breeding period. No geese were reported at Lough Derg during the autumn census, and they may well have dispersed by that stage. However, it is also possible that some geese were missed; the lake is large, and birds tend to congregate on Inishgoosk Island, which is of very limited visibility from the shore.

During this survey, birds were present at 12 subsites (Table 3), with largest numbers at Lough Swilly, at the Inch Lough & Levels and Blanket Nook. The geese are known to roost at Inch Lough and Blanket Nook on Lough Swilly and on the River Foyle; during observations in December 2007, almost three-quarters of the flock was recorded roosting at Inch Lake, with the remainder roosting at Blanket Nook. It is also possible that some birds roost near Big Isle. The geese were recorded feeding at several locations, again predominantly at Blanket Nook and on the Inch Levels, especially the area west of Trady Point (C3421), the winter cereal at Black Bridge and Mullen House (C3320), and on potato stubble near Moness (C344205). Other areas which have been used include Skeoge (C3822) on the Inch Levels and Cole Hill (C315175) at Blanket Nook. Birds were seen feeding on winter cereal, ryegrass pasture, potato stubble and at the margins of their roosting sites. Birds at Inch appeared to prefer organic pasture to other areas that were within a management agreement (and subject to heavy applications of organic and inorganic fertiliser).

Table 3. Subsites where Greylag Geese were recorded at the Swilly/ Foyle complex together with peak counts (in brackets).

Lough Foyle
Black Brae and Donnybrewer (218)
Longfield to Faughnavale (206)
Myroe (4)
Lough Fern
Lough Fern (162)
River Foyle
St Johnson's Gap & Port Lough (470)
Drummeny - Grange - Gribben (31)
Lough Swilly
Blanket Nook (850)
Ballymoney (270)
Leannan Estuary (62)
Big Isle (130)
Inch Lough & Levels (2671)
Inland: West of Dooish (Sallybrook - Galdonagh) (213)

Away from Lough Swilly, birds were found roosting on the River Foyle near Carrickmore (C3505) and feeding at Grange (C358060), a feeding site which has traditionally supported large numbers of birds. Other roosting areas on the river include the area to the north of Corkan Isle (C357037) (A. Speer pers. comm.). Birds were also recorded feeding in a variety of habitats near Magherabuoy (at C3612). At Lough Foyle, birds were located on the levels along the southern

shore, between Black Brae & Faughanvale, and along the east shore at Myroe. It is likely that birds roost on the lake adjacent to these feeding areas, and possibly also adjacent to other known feeding areas along the western shore, at Quigleys Point (C518313). Birds from this flock were also recorded at Lough Fern (west of Lough Swilly) during this survey, and have also been occasionally reported in various locations on the Inishowen Peninsula (E. Johnson pers. comm.).

#### Other Donegal sites

Ballincrick grasslands (feral) – This flock, recorded near Cor Point in Lettermacaward during the autumn survey, is thought to be of feral origin, and is also known to feed to the north of Dungloe Bay. They breed on Inishkeeragh and Illancrone (E. Magee pers. comm.).

Dunfanaghy New Lake (Icelandic) – Just one bird was recorded, during the winter survey. Numbers using this site are typically low; a peak of just 12 birds was recorded in January 1999. Furthermore, Greylag Geese are seldom recorded there, and they have been recorded on just 11 out of the 65 counts that have been conducted during I-WeBS. It is likely that these birds are of Icelandic-breeding origin given the location of this site along the north coast, and its proximity to the Swilly/ Foyle complex.

Donegal Bay – Three birds were recorded at Durnesh Lough in December and January during the winter survey. This site was not checked during autumn. However, it is seldom that birds have been recorded at Donegal Bay (just twice during I-WeBS, peak count of four birds). Furthermore, given its proximity, it is likely that these birds are part of the flock occurring at Lough Erne.

#### Lough Erne, River Erne, Lough Oughter (Feral)

It is possible that birds occurring at lower Lough Macnean, at upper and lower Lough Erne, along the River Erne and at Lough Oughter, all located in Counties Fermanagh and Cavan, are all part of, or at least originated from, the same flock; a recent report suggested that Greylag Geese recorded in County Cavan are from feral stock in County Fermanagh (Lovatt 2006).

A peak count of 95 birds was made during the winter census. Largest numbers were recorded at Upper Lough Erne in Fermanagh, where birds were concentrated at Inishcreeny and at Corraslee Point, located on the east and west shores respectively, in January 2008 (Table 4). Smaller numbers were also recorded at a further 17 locations within this complex.

No birds were recorded in these areas during the autumn survey. In Cavan, previous records of Greylag Geese outside the main winter period have been few, and include small numbers of between one and six birds occurring at just three sites between 1997 and 2002. Furthermore, some 69 sites in Cavan were surveyed between 27 May and 17 July 2000 as part of a national survey of naturalised geese (I-WeBS data unpublished), and no Greylag Geese were recorded.

Thus it seems that this flock, or collection of sub-flocks, was either not recorded, or may possibly have merged with some other feral flock (possibly Lough Swilly) during the autumn census.

Table 4. Subsites where Greylag Geese were recorded in Fermanagh and north Cavan, together with peak counts (in brackets).

Lower Lough Erne	Lough Macnean Lower
Sector 15 (7)	Cushrusheen (4)
Sector 4 (2)	Adra Lough
Sector 50 (8)	Adra Lough (2)
Sector 51 (4)	Lough Oughter
Sector 54 (6)	Commons Lake (4)
Sector 58 (10)	Derrybrick Lough (8)
Sector 59 (3)	River Erne
Sector 65 (28)	Belturbet (7)
Upper Lough Erne	Bellahillan Bridge-Carr's Lough (5)
Corraslee Point (40)	
Inishcollan (1)	
Ross Lough (27)	
Inishcreeny (59)	
Sector 25 (15)	

### Annaghroe (Feral, UK re-established population)

Annaghroe, on the Monaghan/ Armagh county boundary, is an area of wet meadows where, after heavy rains, sluice gates dictate the amount of flooding in the meadows. Thus wildfowl numbers fluctuate considerably, and birds are usually absent during dry winter periods (J. Shannon pers. comm.). A small flock of 50 birds was reported here during the winter, while no birds were reported during the autumn census. A ringed bird was sighted on 18 January 2008 whose origins were from the re-established population (the bird was originally ringed as a juvenile in 2004 at Loch Eye in Northeast Scotland). Thus it is possible that this flock may comprise feral birds combined with some from the UK re-established population, which possibly occurs when conditions are suitable during the winter. This site has been monitored on several occasions during WeBS counts, and seldom have Greylag Geese been recorded. There are relatively few sites in either county which support Greylag Geese.

### Dundalk Bay complex (Icelandic)

A peak of 497 birds was estimated during the winter census (November). Numbers using this complex are much lower than previous counts during the early 2000s, when a peak of 1,847 birds was recorded at Braganstown in January 2000. This site is presently seldom used, and a peak of just 50 birds was recorded here in November 2007.

Largest numbers were recorded between Annagassan and Lurgangreen and at Lurgangreen North in Dundalk Bay, and on the nearby Fane River Plain. Geese were also recorded at a further seven subsites (Table 5), including as far south as the Boyne Estuary (February 2008).

Table 5. Subsites where Greylag Geese were recorded at the Dundalk Bay complex, together with peak counts (in brackets).

Annagassan - Lurgangreen (650)	Keenan's Cross Pond (15)
Lurgangreen Fields (1)	Dunany Point - Clogher Head (87)
Lurgangreen North (497)	Braganstown (50)
Lurgangreen South (204)	Mapastown Upper (122)
Fane River Plain (650)	Boyne Estuary (Entire Site) (46)

Birds were recorded roosting to the east and south of Lurgangreen in Dundalk Bay, and were seen at dawn on nearby mudflats and in salt marsh, from where they flew to their feeding areas by the Fane River. They were seen returning from feeding areas to roost in the bay at dusk. Birds from Lurgangreen were seen feeding in large numbers on winter cereal beside the Fane River (near J052002) and on winter cereal inland from the salt marsh at Lurgangreen. Other feeding areas used included Mapastown Upper, where the N52 road crosses the River Glyde. Numbers recorded feeding at Braganstown were low (up to 50 birds), and remained low throughout December (M. Eakin pers. comm.). Up to 15 birds were recorded on one occasion at Keenan's Cross Pond. Greylag Geese have also been reported using fields at Cruisetown (O1486) (B. Martin pers. comm.).

### North Dublin (Icelandic)

A peak of 120 birds was recorded, in November 2007. Numbers had declined substantially to just 20 during the January census. Unfortunately, no count was conducted at Lambay Island around this time; Lambay is known to support a substantial proportion of the Rogerstown Estuary flock, especially later in the season (I-WeBS data unpublished). Some 60 birds were recorded here in March 2008.

Geese were recorded roosting on the outer part of Rogerstown Estuary (near Raheen Point), but were not found roosting there in January 2008. They were also recorded twice in November 2007 in the inner estuary, near Newhaggard. Elsewhere, birds were recorded feeding in fields at Baldongan (at O2356 and O2457), and on potato stubble further south at O238554, near the M1 Motorway (at O1952), in the field next to the north hide at Rogerstown, and in adjacent winter cereal fields (at O237516), despite a large number of bird scarers now operating in the area.

In the past (some 30 years ago), Greylag Geese are known to have used feeding areas much further west of Skerries, including an area formerly under stubble at Knockbrack (O1559), the Bog

of the Ring (O1760), an area of bogland which is now drained, and also grassland to the north of Garristown (O0860).

#### North Wicklow Coastal Marshes (Icelandic)

Numbers recorded in November and January were relatively similar, at 200 birds. However, a peak count of 315 birds was made on 21 December, at Broad Lough. Proportionally large numbers of geese were reported from all three subsites during the season. The maximum number of geese recorded at this site during I-WeBS was 501 in 1999/2000.

This flock is most regularly recorded feeding in fields between Newcastle and Killoughter. In January 2008, birds were seen feeding inland near Leabeg (at O309056). This is reportedly a regularly-used feeding area (S. Newton pers. comm.). Occasionally the flock has been recorded roosting on the Vartry Reservoir (O2002). The geese are also known to roost on grassland near Ballybla (at T307995) when flooded. During this survey, the flock was recorded on one occasion roosting at the north end of Broad Lough, and birds were observed heading north at dawn, initially landing to feed on nearby pasture (at T307988). The flock divided soon after, with roughly 50% of the birds heading further north.

#### Poulaphouca – Wicklow/ Dublin (Icelandic)

A peak winter count of 144 birds was made at dusk on 15 January. This represented an increase when compared with the November count. Numbers remained relatively stable in February, but increased once again thereafter to an overall peak count of 258 in mid-March. Numbers using this site have declined considerably from a peak of 950 in 2000/01.

Birds were recorded predominantly at Threecastles to the northeast of Blessington Bridge, and also at Mountseskin in southwest County Dublin. Birds were recorded roosting on the reservoir, to the northeast of Blessington Bridge, and feeding on ryegrass/mustard and winter cereals nearby, at three locations around Threecastles (O014163 and O005162 and O022155), and also on a freshwater marsh situated close to the roost area. Birds were also recorded feeding at Mountseskin, and a peak of 157 was recorded in March. This site was used more regularly by large numbers of birds, but encroaching golf courses and overgrazing may have reduced the suitability of the site (T. Doherty pers. comm.). A former roost site on the lake, near Ballymore Eustace, (at N9610) was not visited, as local information indicated that the site has been abandoned.

#### Avoca River, Arklow Harbour & Ponds (Feral)

A feral flock of Greylag Geese has been present on the Avoca River, in Arklow Harbour and adjacent ponds since the early 1990s. The geese were not present during the earlier wetland surveys in the mid 1980s (Sheppard 1993). The earliest record held by I-WeBS was of 4 birds in March 1987. Numbers at the beginning of I-WeBS (1994/95) had grown to 43, although this included relatively large numbers of hybrid geese (a peak of 16 Greylag Geese was reported). Numbers have since grown to a peak of 166 in 2005/06.

During this survey, a peak of 75 birds was recorded in January, and 59 during the subsequent autumn. Birds are predominantly recorded on Arklow Main Pond (T252740).

#### Other Wicklow sites

Elsewhere in County Wicklow, Greylag Geese were absent at two sites where they have occasionally been recorded during I-WeBS, namely Loughs Tay and Dan (O1516, single count of one bird in 2003/04) and Buckrone Fen (T295808, single count of one bird in 2002/03). The origins of these individuals remain unknown.

#### Cahore Marshes (Feral)

Cahore Marshes in north County Wexford has supported an increasing flock of Greylag Geese since 1995/96, when two birds were recorded. Numbers remained low until 2001/02, when a peak of 34 was recorded, and has since increased to a peak of 63 in 2004/05. At the time of writing, no data had yet been received for the 2007/08 winter. However, as numbers there have been sustained between 53 and 63 since 2003/04, a mean count of 59 was used. However, just 21 were recorded during the autumn census. Numbers at this site have been shown to fluctuate quite

dramatically during the season, although no regular patterns of movement have been shown. It is more likely that counts are at times affected by visibility, with birds remaining undetected in some patches of dense vegetation present throughout many parts of the site.

#### Lady's Island/ Tacumshin Lake (Feral)

Winter and autumn totals at Lady's Island/ Tacumshin Lake were reasonably consistent, with a peak of 136 in September 2008. To date, numbers have fluctuated at this complex during I-WeBS, and appeared to decline through the late 1990s and early 2000s, but have once again increased to a peak of 174 in November 2006.

#### Wexford Harbour & Slobs/ River Slaney

Occasionally, small numbers of Greylag Geese have been recorded at the Wexford Slobs (predominantly North Slob, mostly one or two birds, peak of 13 in 1998/99) and once on the River Slaney. No birds were recorded at either of these sites during the present survey.

#### River Barrow – Wexford/Kilkenny (Icelandic)

A new flock of 156 birds was discovered during the winter survey on the Wexford/ Kilkenny county boundary between Rochestown and Barrow Bridge. This count was made in late November, and represents an increase from 75 birds recorded earlier in the month. A local farmer reported that it had only been present in the last five years and not for the previous 40 years. This flock was not found during the autumn survey, which might indicate that it is of Icelandic origin. Furthermore, it is located relatively close to the flock on the Lower Blackwater River (at Coolfin and Portnascully), and in recent years, there has been some evidence of this flock spreading out and using other areas (see *River Suir Lower* below). Further coordinated work is required to identify whether or not this flock is part of the River Suir Lower flock.

These geese were recorded roosting on the River Barrow at S6817. Birds spent the early part of the night on fields, and were observed flying from the estuary to nearby feeding areas shortly after dawn. Birds were recorded feeding on ryegrass at S688170 on the Wexford side of the river and at S675177 on the Kilkenny side.

#### River Suir Lower – Waterford (Icelandic)

A peak count of 201 was made in November, which was slightly higher than the count in January, which contravenes the general trend observed at this site in previous years. This peak count represents an overall decline from a peak of 740 in 1997/98.

Birds were predominantly located between Derrigal and Portnascully, and once between Fiddown and Tibberaghny. The roost in December was located on the River Suir, adjacent to Darrigal at (S4914). In November, the flock spent the early part of the night on fields, but was observed flying from the river into the Darrigal area shortly after dawn. Moonlit early nights may have accounted for the birds remaining on the fields at dusk. It is possible that the geese also roost slightly further north on the River Suir (at S4816) and on the marshes near Tibberaghny (at S4420) (P. Walsh pers. comm.), the latter which is also a former feeding area. The geese were seen feeding in various ryegrass fields at Darrigal (S4913). In other seasons, they have also been recorded feeding at Portnascully (S5013 and S5113). During recent winters, small numbers of Greylag Geese have been recorded at Tramore Backstrand, and it is assumed that these are part of the same flock.

#### Lower Blackwater River

Some 3 birds were recorded on the Lower Blackwater River near Camphire during the November census. This site has been regularly monitored during I-WeBS, and Greylag Geese have only ever been recorded on three occasions, peaking at 12 in November 1995.

#### Tipperary sites (Feral)

River Suir Middle – Small numbers of geese (peak of 8 in 1996/97) have been recorded at a suite of sites along the Middle River Suir, between Caher and Newcastle. During the autumn census, these birds were located at Marlhill (S086185) near Ardfinnan. It is presumed that these birds are of feral origin.

Other sites checked where no birds were recorded include Lough Eorna and Cabragh Wetlands. A peak of 45 birds was recorded at Lough Eorna in November 1997. However, numbers in recent years have rarely exceeded 10 birds.

#### Cork sites (Feral)

Cork Harbour – Small numbers of between one and four geese have been recorded at Cork Harbour, principally at Rostellan Lake, and occasionally at the Owenboy Estuary and between Belvelly and Marino. During this survey, one bird was recorded at Rostellan Lake.

The Lough (Cork) – Just three flocks of 14, 17 and 21 birds have been recorded during seasons 1994/95 and 2003/04 only. The present survey has shown that numbers have increased; two counts were made in November, with 43 birds recorded on 18 November and a peak count of 82 birds was recorded on 20 November, while 41 birds were recorded during the autumn census.

The Gearagh – This site has supported up to 150 Greylag Geese throughout I-WeBS, especially during recent seasons. A peak count for the 2007/08 season of 143 was made in September 2007. However, by the official census date in November, numbers had declined to 82, and declined further to 26 during the following autumn.

Kilcolman – Kilcolman Marsh has supported up to 100 Greylag Geese during I-WeBS. Numbers appear to increase as the season progresses each winter, beginning relatively low (less than 10 birds) in September, increasing to a peak count in December or January, and declining thereafter. In 2007/ 08, numbers increased to a record peak of 148 birds in December, and declined thereafter. It is known that this flock is of feral origin. The site probably becomes increasingly used as conditions become more suitable (wet).

No birds were recorded at the following sites in the county, which have occasionally supported small numbers of geese: Lough Cluhir, Lough Gal, Ballinacarriga/Manch, Rossmore, Broadstrand, Kinsale Marsh, Charleville Lagoons, Mallow Sugar Factory Lagoons.

#### Lough Gur (Feral)

Lough Gur has supported an increasing feral flock throughout I-WeBS, which has grown to a peak of 118 in 2006/07. However, much smaller numbers were recorded during this survey, with just 24 recorded in November and 66 during the autumn. It is possible that there is some interaction between this site and others on the Shannon to the north.

#### Lower River Shannon and the Shannon & Fergus Estuary (Feral)

Altogether, Greylag Geese were recorded at six sites/ subsites around the Shannon and Fergus Estuary and Lower River Shannon. A peak count of 139 was made during the winter census (January), which represents a slight increase when compared to recent seasons (peak of 109 in 2005/06). However, annual peaks recorded during I-WeBS have fluctuated considerably, probably as a result of the variable coverage at this very large wetland complex. A peak count of 215 birds was made in 1995/96.

Numbers recorded during the autumn were considerably lower. However, there was an increase in the totals present at nearby sites/ subsites in Clare during the autumn. There is probably substantial movement of geese in the area at a relatively localised scale throughout the year in response to available conditions, shooting etc.

During the winter survey, birds were concentrated at Bunlicky Lake, and also on the River Shannon between Parteen and Corbally. Small numbers were also recorded at Westfields, and further west along the estuary near Newtown. In the autumn, birds were again concentrated at Bunlicky Lake. No geese were recorded on the River Shannon north of Castleconnell.

#### Ballyallia and southeast Clare lakes (Feral)

Relatively few birds were recorded during the winter census, with just nine birds present at Fenloe Lake in January. During the autumn, a flock of 82 birds was recorded at nearby Rosroe Lake, and a further six were present at Ballyallia. It is likely that these birds move between Clare and the Lower River Shannon/ Shannon Estuary system above.



Fenloe Lake has been surveyed on several occasions during I-WeBS, and there was just one single record, of 45 in November 2006. Rossroe Lake was only previously surveyed in 1994/95 and 2001/02, and no geese were reported. Ballyallia has received good coverage throughout I-WeBS, and geese have been recorded on several occasions, with numbers ranging between one and 50 (latter in November 2005).

#### Midlands (Feral)

Offaly cutover bogs – A feral flock of up to 27 feral birds occurs at a suite of cutover bog sites in northwest Offaly. During this survey, some 18 birds were recorded in January and 26 during the autumn census. Birds were located at three sites, namely Blackwater Railway Lake (Top), Tumduffmore Wetlands and Boora Lakes - Back Lakes Finnermore. This flock has also been recorded at Turraun Lake (N178236) on several occasions during I-WeBS counts.

Several other sites which have supported geese during I-WeBS, but where no geese were reported during this survey include Coreen on the River Suck, Inchinalee, Leabeg Lake, Raheen Lough, Tumduffmore Wetlands, Little Brosna Callows, Ashton's Callow, Lusmagh Rd, Graveyard Field, Banagher and Cloghan Lake.

#### Galway/ Mayo (Feral)

A small flock of just seven birds was recorded at Camus Bay in Connemara during the autumn census. This site is not regularly monitored during I-WeBS, but was covered once before, in 1995/96, when 20 Greylag Geese were recorded.

Oorid Lough to the north was surveyed late during the winter (February), and 16 geese were recorded. No birds were present during the autumn census.

Lough Corrib (Inchiquin) – No geese were present at Inchiquin during this survey. There have been just three records of Greylag Geese during I-WeBS (peak of 18 in 2006/07). A member of the public was in contact in March 2008 to inform of a small flock of seven birds present near Knockferry, located opposite Inchiquin, on the western shore of Lough Corrib.

Rostaff Lake – This lake, on the Mayo/ Galway County boundary, has supported variable numbers of Greylag Geese throughout I-WeBS, and a peak of 90 was recorded in 2005/06. Numbers present during the autumn census of this survey were considerably higher than during the winter.

Greaghans – This turlough is located in southeast Mayo, and has been monitored for I-WeBS since 2000/01. Geese were first recorded here in December 2006, and a peak of 90 was recorded that season. The count of 175 in September was the second highest recorded during the autumn. At the time of writing, no data had been received for the winter census.

South Mayo Coast – This site supported six birds during the winter census, located at three subsites, Dooaghtry/Corrugaun Lakes and Shore, Roonah Lough and Emlagh Lough Baun and shore, during the winter census. Geese have occasionally been recorded during I-WeBS, predominantly at Roonah Lough. A peak of 20 birds was recorded at this site, at Dooaghtry/Corrugaun Lakes and Shore, in September 2005.

The Mullet, Broadhaven & Blacksod Bays – Numbers recorded during the winter and autumn surveys were relatively consistent. The peak of 139 birds in November represents a marginal decline on the overall I-WeBS peak count of 162 in 2006/07. Birds were concentrated at Cross Lough, Leam Lough and Annagh Marsh and Termoncarragh Lake during this survey.

No birds were recorded at Tawny Lough or Carrownacon Lakes, both located in County Mayo.

#### Canada Geese

Small numbers were recorded during the winter at The Lough in Cork (7), Inch Lough at Lough Swilly (4), Drumcliffe Bay in Sligo (2) and Rostellan in Cork Harbour (3). Numbers were substantially larger during the autumn at Inch Lough and Levels and Blanket Nook at Lough Swilly (204), Derrybrick Lake at the Lough Oughter Complex (31) and at The Lough (30).

## Discussion

### *Population size*

The present work has served to improve clarification on the origins of Greylag Goose flocks in Ireland. The peak winter count of 6,316 in November 2007 includes an estimated 1,747 birds counted the following autumn which are from the feral population, thereby leaving 4,569 birds from the Icelandic population. However, this carries the assumption that the size of resident feral population remained stable in 2007 and 2008. Recent analyses for the next I-WeBS species report, currently in prep, have shown that the feral population has increased annually at a rate of 11% throughout I-WeBS; there have been particularly notable increases at the Gearagh and at Kilcolman in County Cork, and on the Mullet Peninsula in Mayo.

If this increase is consistent throughout the island (i.e. Northern Ireland and the Republic), and is taken into account, then the size of the feral population in autumn 2007 would be expected to be 1,555 birds, and the Icelandic population 4,761. This would represent an increase in numbers of feral geese since the mid 1990s, when they were first fully censused in Ireland. During that census, a total of 977 Greylag Geese was recorded at 23 sites in 15 counties throughout Ireland (Browne and O'Halloran 1998). Feral geese were also censused in 2000, when almost 1,500 birds were recorded (Republic only) (Naturalised Goose Census data unpublished).

It is likely that some feral flocks were missed during this census. Birds were highly dispersed due to summer and autumn flooding and due to hunting disturbance (discussed below). However, the total numbers missed are thought to be low. Thus, the total number of Icelandic birds in 2007 was estimated at between 4,569 and 4,761. This represents a decline compared with the most recent estimate of 5,030 for the five-year period 1999/00 to 2003/04 (Crowe *et al.* 2008), and is consistent with the trend for the Icelandic population which has shown to be in decline in the Republic at an annual rate of 5% (I-WeBS Office, in prep.).

### *Distribution & abundance*

This work has confirmed that the Icelandic-breeding population of Greylag Geese within Ireland is concentrated within nine main flocks in Ireland, which occur at roughly 20 locations in Counties Donegal, Derry, Antrim, Down, Louth, Dublin, Wicklow and Waterford. It is probable that small numbers of birds of Icelandic origin do occur at other sites from time to time, and this has been confirmed by occasional reports of Icelandic birds (confirmed by ring sightings) elsewhere, most notably the Wexford Slobs. However, collectively these totals are thought to be quite low.

The Swilly/ Foyle complex is the most important for Greylag Geese which winter in Ireland. Most of the geese congregate here upon arrival from Iceland, before dispersing to other sites as the winter progresses. Despite the concentrated efforts to ensure all sites were covered, almost 2,500 birds were unaccounted for during the January census. This is consistent with the decline at the Swilly/ Foyle complex alone. This result may imply that this complex also supports some birds arriving from Iceland which winter in Scotland.

Feral geese occurred in much smaller concentrations than birds of Icelandic origin, with the largest concentration at Lough Swilly. However, numbers there seem to have halved in recent years, and reasons remain unclear. There was substantial wildfowling in the area during the autumn census. However, this has not impacted on Canada Geese in the area, whose numbers actually reached a record high this autumn.

The feral population in Ireland is considerably more widespread, and throughout WeBS and I-WeBS, has been located at over 160 locations in almost every county. During this survey, some 22 flocks were recorded at roughly 30 locations. Survey observers reported difficulties in detecting flocks at several locations due to the degree of summer and autumn flooding, and due to hunting disturbance. The distribution of Greylag and Canada Geese during the autumn is likely to be highly variable, depending on the level of wildfowling. Hunting of Greylag and Canada Geese is permitted between 1 September and 15 October in the Republic and between 1 September and 31 January in Northern Ireland.

Flocks of geese of mixed origins were reported at three locations, Lough Swilly, Loughs Neagh & Beg and Strangford Lough, and were predominated by geese of Icelandic origin.

The problem of mixed flocks is much more significant in Britain than in Ireland, where Greylag Geese are more widespread and numerous. There, a re-established population, presently estimated at over 25,000 birds (Banks *et al.* 2006), has formed through a series of releases (mainly by wildfowlers) in areas where the species formerly bred. A third population, the remnant of the original native population which formerly occurred throughout Britain, but which now occurs in north and west Scotland, is estimated at 8,500 birds (Banks *et al.* 2006).

In January 2008, a single bird from the UK re-established population (confirmed by ring resighting) was reported at Annaghroe on the Armagh/ Monaghan county boundary. Few if any birds from this population have previously been reported in Ireland. However, that population is expanding in size and range (Musgrove *et al.* 2007), and there is a strong likelihood that increasing numbers from this population will occur in Ireland. Some may even be moving back and forth between Britain and Ireland on a regular basis. This degree of movement can only be confirmed through ring resightings.

### *Goose movements*

Counts of Greylag Geese at roost are generally more accurate when compared with daytime counts, when the geese are usually feeding on grassland, and are much more dispersed. However, until now, relatively little was known of roosting locations of geese wintering in Ireland, and their numbers have been censused during the day.

Observations carried out at the principal sites known to support birds of Icelandic origin provided substantial information on areas their movements between feeding and roosting areas. Generally, the greatest movements often occurred in semi-darkness or complete darkness, and it was found that accurate counting was best achieved at dawn when birds move with more available light. Greylag Geese were also observed on several occasions spending part of the night at their grassland feeding sites; this was possibly linked to better visibility on brighter nights. On these occasions, geese are known to occasionally remain at their roosts after dawn after such nocturnal activity. The geese were often seen in one cohesive flock during feeding periods, especially at dawn and dusk. On several occasions, Greylag Geese were also recorded feeding alongside Whooper Swans at various locations in Donegal.

It is worth noting that winter cereals are generally not damaged by geese. However, the farm manager at Braganstown commented that damage is caused when land holds water, when geese trample the margins of pools and damage the crop.

### *Recommendations*

The feral population continues to show an increase in numbers in Ireland. In some areas (e.g. parts of Mayo), the conflict with farmers is heightened due to presence of resident feral geese throughout the year. There is the danger that this issue may ultimately lead to the illegal persecution of wintering geese. Greater effort is required to control their numbers during the autumn, especially at sites where large numbers are present, and in some cases increasing (e.g. Lough Swilly, Mullet Peninsula and The Gearagh).

It has become apparent that there may be significant movements of Greylag Geese between Ireland and Britain. All efforts should be made to attempt to find marked birds, and to catch and mark birds at Irish sites, especially at the Swilly/ Foyle complex. This would help clarify their movements, both temporally and spatially.

The present work has allowed us to gather significant information on the present distribution of Greylag Geese in Ireland and, for the larger flocks, on their roosting locations and movements between feeding and roosting areas. It is encouraging that all sites which support wintering Greylag Geese of Icelandic origin have been designated as Special Protection Areas under the EU Birds Directive, with the exception of a relatively newly-used site, the Barrow Estuary. Further survey work is required here to define boundaries, and to evaluate its importance for wintering geese.

However, already we have witnessed the significant decline in numbers at one site which formerly supported in excess of 1,000 birds. It is most likely that the lack of management of the Braganstown site has resulted in the loss of usage by the geese. It is essential that management plans are implemented so that these SPA sites are in optimal condition for wintering geese, and that they continue to be used over time.

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## Appendix 1. Coverage

Sites and subsites surveyed, together with grid references and an indication of coverage during winter 2007/08 and autumn 2008 (last two columns respectively; 1 & 0 indicate birds present or absent, - indicates no coverage).

<b>Antrim</b>				Bunlicky Lake	R543550	1	1
<u>Belfast Lough</u>				Newtown	R504576	1	0
BP2			J372778	Westfields	R565570	1	0
Connswater and Victoria			J366753	Fenloe Lake (Finn Lough)	R433690	1	1
Victoria Park			J365754	Rosroe Lake	R445690	-	1
<u>Loughs Neagh and Beg</u>				<b>Cork</b>			
Ardmore Point			J018666	Argideen River at Rossmore	W330467	0	-
Ardmore Rectory			J039655	Ballyshunnoch Reservoir	S455095	-	0
Brookend			H967702	Kinsale Marsh	W633498	0	-
Charlestown			H954654	Ballinacarriga/Manch	W291515	0	-
Craigavon Lake North			J053581	Mallow Sugar Factory Lagoons	W5297	-	0
Craigavon Lake South			J051574	Blarney Lake	W605745	-	0
Craigavon Lakes			J051581	Charleville Lagoons	R5426	-	0
Drumaul and Cranfield swan fields			J042877	Cork Harbour at Rostellan Lake	W8765	1	-
Killycolpy			H950696	Broadstrand	W518408	0	-
Lady Bay			J076707	The Gearagh	W330700	1	1
Lagan (Flatfield) swan fields			J180595	Kilcolman Marsh	R580109	1	1
Lough Beg (Creagh)			H984926	Lough Cluhir	W200325	0	-
Lurgan Park Lake			J088587	Lough Gal	W400750	0	-
McCann's Farm			J019821	The Lough Cork	W665706	1	1
Moss Vale (Diamond Lane)			J106668	<b>Donegal</b>			
Outer Lakes			J051581	Ballincrick grasslands	B770015	1	1
Oxford Island			J046628	Cruit Strand	B7419	-	0
Pollan Bay			H982851	Donegal Bay			
Portmore Lough			J114691	Donegal Bay (total)	G890730	-	0
Portmore swan fields			J108707	Doorin Point - Rossnowlagh	G850720	-	0
Reedy Flat			H983653	Durnesh Lough	G870690	1	-
Shallow Flat			H991663	Inner Bay/Section 5: Legacurry	G920745	-	0
The Creagh			H974925	Dunfanaghy New Lake	C020380	1	-
Tunny Point			J081718	Gweebarra Bay (Dooey Point)	G750035	-	0
<b>Armagh</b>				Lough Derg (Donegal)	H080740	-	0
<u>Annaghroe</u>			H733448	Lough Fern	C180230	1	0
<b>Cavan</b>				Lough Swilly			
<u>Adra Lough</u>			H300003	Ballybegley	C272175	0	0
<u>Annalee River (at Corcloghan)</u>			H474109	Ballymoney	C320216	1	1
<u>East Ballinamore Lakes</u>				Big Isle	C230134	1	-
Ballymagauran Lake			H210125	Blanket Nook	C305195	1	1
Bellaboy Lough			H206174	Castle Shanaghan	C232165	-	0
Bunerky Lake			H190185	Fahan Creek	C335268	-	0
Coologe Lough			H236130	Inch Lough & Levels	C340220	1	1
Garadice Lough			H185110	Inland: Sallybrook - Galdonagh	C270120	1	0
Lakefield Lake			H200180	Leannan Estuary	C250230	1	-
Templeport Lake			H215165	Lough Swilly (total)	C300250	-	0
<u>Lough Oughter Complex</u>				Swilly Estuary	C220133	-	0
Black Lough			H360138	<u>River Foyle</u>			
Commons Lake			H380157	Carrickmore - Mongavlin	C350070	0	0
Corglass Lough			H348085	Drumminaw/Clonleigh (Corkan Isle)	C3401	0	0
Derrybrick Lough			H348116	Drummeny - Grange - Gribben	C352070	1	0
Derryhoo Lough			H357133	Dunlalong - St. Johnstown	C370105	0	0
Drumanny Lough			H365128	Greenbrae/Ballymagorry	C3503	0	-
<u>Lough Ramor</u>			N600860	St Johnson's Gap & Port Lough	C350100	1	0
<u>River Erne &amp; lakes</u>				Swilly Burn upstream - Feddyglass	C340040	0	0
Belturbet			H360170	Thorn Hill	C3610	0	-
Derryvony - Bloodypass			H375225	<u>Trawbreaga Bay</u>	C440480	-	0
Bellahillan Bridge-Carr's Lough			H360025	<b>Down</b>			
<u>Woodford River Lakes</u>				<u>Strangford Lough</u>			
Annagh Lake Ballyconnell			H290180	Ardmillan West (C70)	J513642	0	-
Barn Lough			H321162	Castle Espie Lakes (E10)	J493672	1	1
Clonamullig Lake			H312160	Greyabbey Lake	J581674	1	-
Killynagher Lake (Drumasladdy)			H322153	Islands Mid Lough (C62)	J547607	1	-
Tomkins Road Lake			H310173	<b>Dublin</b>			
<b>Clare</b>				<u>Brittas Pools</u>	O032225	0	-
<u>Ballyvalla Lake</u>			R345810	<u>Lambay Island</u>	O315510	0	-
<u>Lough Derg - Scariff Bay</u>			R700840	<u>Mountseskin/Gortlum</u>	O0422	1	-
<u>River Shannon (Lower)</u>				<u>Rogerstown Estuary</u>			
Castleconnell			R634611	Inner: N Channel (H)	O232521	0	-
Lake South of Killaloe			R6970	Inner: Newhaggard N (L)	O224522	1	-
O'Briensbridge			R660670	Inner: Newhaggard Roost (RJ)	O215517	0	-
<u>Shannon &amp; Fergus Estuary</u>				Inner: Newhaggard S (J)	O218519	0	-
Limerick City			R5857	Inner: River (Sluice) (K)	O207515	0	-
Shannon Airport Lagoon			R380600	Inner: River (Sluice) Roost (RK)	O207515	0	-
Bunlicky - Corbally Limerick City			R575570	Inner: S Channel (I)	O225516	0	-

Outer Rogerstown Estuary	O240520	0	-	<u>Blackwater Catchment</u>			
Outer: Burrow W (B1)	O242528	0	-	Bellanaman (Sillis) Lough	H730398	-	0
Outer: E Raheen Pt (E)	O236517	1	-	Emy Lough	H690440	-	0
Outer: Lusk (A2)	O242530	0	-	Glaslough	H725410	-	0
Outer: Middle (C)	O237523	0	-	<u>Lough Major Ballybay -</u>			
Outer: SW Raheen Pt - Viaduct (G)	O230517	0	-	<u>Ballycoghill/Ballynascarva</u>	H690195	-	0
<u>Shenick Pt - Loughshinnv</u>	O271580	0	-	<u>Loughs Feagh &amp; Drumate</u>	H585225	-	0
<u>St. Patrick's Isl.</u>	O275612	0	-	<b>Offaly</b>			
<u>Skerries, Baldongan</u>	O225575	1	-	<u>Blackwater Railway Lakes</u>	N013263	1	0
<b>Fermanagh</b>				<u>Boora Lakes - Back Lakes Finnamores</u>			
<u>Lough Macnean Lower: Cushrusheen</u>	H131375	1	-	Boora Lakes - Back Lakes			
<u>Lower Lough Erne</u>				Finnamores	N182186	1	1
Sector 15	H212504	1	-	Leabeg Lake	N192202	0	-
Sector 4	H156600	1	-	Tumduffmore Wetlands	N1819	1	0
Sector 50	H022584	1	-	<u>Cloghan Lake</u>	N105196	0	0
Sector 51	H007583	1	-	<u>Little Brosna Callows</u>			
Sector 54	H002588	1	-	Ashton's Callow	M995102	0	-
Sector 58	H020609	1	-	Graveyard Field	M980118	0	-
Sector 59	H038615	1	-	Little Brosna Callows	M970115	0	-
Sector 65	H111643	1	-	Lusmagh Rd	N012099	0	-
<u>Upper Lough Erne</u>				<u>Raheen Lough</u>	N465180	0	-
Corraslee Point	H274319	1	0	<u>River Barrow (Derrylea/Inchacooly)</u>	N610135	0	-
Inishcollan	H323314	1	-	<u>Shannon Callows</u>			
Ross Lough	H339326	1	-	Banagher	N005160	0	-
Upper Lough Erne	H319310	1	-	Inchinallee	N038330	0	-
Upper Lough Erne - Sector 25	H249325	1	0	<u>Turraun Nature Reserve</u>	N178236	0	0
<b>Galway</b>				<b>Roscommon</b>			
<u>Camus Bay, Connemara</u>	L940325	-	1	<u>River Suck at Coreen</u>	M900256	0	-
<u>Lough Corrib (Inchiquin)</u>	M180460	-	0	<b>Sligo</b>			
<u>Orid Lough</u>	L926459	1	0	<u>Drumcliff Bay Estuary: Lissadell</u>	G645435	0	-
<b>Kerry</b>				<b>Tipperary</b>			
<u>Lough Gill</u>	Q600150	-	0	<u>Cabragh Wetlands</u>	S108552	-	0
<b>Limerick</b>				<u>Lough Eorna</u>	R880860	1	0
<u>Lough Gur</u>	R6441	1	1	<u>River Suir Middle</u>			
<b>Louth</b>				Kilmaneen	S111150	-	0
<u>Boyne Estuary</u>	O150770	1	0	Marlhill	S086185	-	1
<u>Bragansstown</u>	O020943	1	0	Newcastle	S128135	-	0
<u>Dunany Point - Clogher Head</u>	O146880	1	0	Newcastle - Caher	S070200	-	0
<u>Fane River Plain</u>	J040005	1	0	<b>Derry</b>			
<u>Keenan's Cross Pond</u>	O0991	1	0	<u>Lough Foyle</u>			
<u>River Glyde</u>				Black Brae and Donnybrewer	C510237	1	-
Kilsaran	O065945	0	0	Longfield to Faughnavale	C557230	1	-
Mapastown Upper	N985955	1	0	Lough Foyle	C600250	-	0
<u>Dundalk Bay</u>				Myroe	C650275	1	-
Annagassan - Lurgangreen	O072970	1	-	Culmore Refuse Tip	C480235	0	-
Annagassan North	O080960	0	-	Lough Foyle (Rol total)	C530330	-	0
Annagassan South	O100935	0	0	<b>Waterford</b>			
Ballymascanlan Bay	J074090	0	-	<u>Knockaderry Reservoir</u>	S495060	0	0
Blackrock Corniche	J072025	0	-	<u>Lower Blackwater River at Camphire</u>	X085910	1	-
Dundalk Harbour	J070081	0	-	<u>River Suir Lower</u>			
Fitzpatrick's - Blue Anchor	J102075	0	-	Coolfinn	S480140	0	0
Giles Quay - Fitzpatrick's	J125065	0	-	Coolfinn/Portnascully	S480140	0	-
Lurgangreen Fields	O065995	1	-	Derrigal - Portnascully	S505126	1	0
Lurgangreen North	J064010	1	-	Fiddown - Tibberaghny	S457200	1	0
Lurgangreen South	O070980	1	-	<u>Tramore Back Strand &amp; Bay</u>	S615015	0	-
Marsh South	J085065	0	-	<b>Westmeath</b>			
Salterstown	O125930	0	-	<u>Lough Ennell</u>	N400465	-	0
<b>Mayo</b>				<b>Wexford</b>			
<u>Carrownacon Lakes</u>	M196777	0	-	<u>Barrow Estuary (Rochestown - Barrow</u>			
<u>Greaghans</u>	M287630	-	1	<u>Bridge)</u>	S670165	1	0
<u>Kilglassan Turlough</u>	M280650	-	0	<u>Cahore Marshes</u>	T205450	-	1
<u>Rostaff Lake</u>	M250490	1	1	<u>Lady's Island Lake</u>	T1006	1	1
<u>South Mayo Coast</u>				<u>River Slaney (Edermine Bridge - R. Urrin</u>			
Dooaghtry/Corraugaun Lakes and				<u>Enniscorthy)</u>	S975372	0	-
Shore	L740700	1	-	<u>Tacumshin Lake</u>	T0506	1	1
Emlagh Lough Baun and shore	L750790	1	-	<b>Wicklow</b>			
Roonah Lough	L750770	1	-	<u>Arklow Harbour &amp; ponds &amp; Avoca River</u>			
<u>Tawny Lough</u>	M308834	0	-	Arklow Harbour	T250730	1	0
<u>The Mullet, Broadhaven &amp; Blacksod Bays</u>				Arklow Main Pond	T252740	1	1
Blacksod/Seafeld Bay	F700325	1	-	Caravan Site Pond	T258748	0	0
Mullet/Annagh Marsh	F653342	1	-	Avoca River/Arklow	T240736	1	1
Mullet/Cross Lough	F645295	1	1	<u>Buckronev Fen</u>	T295808	0	-
Mullet/Leam Lough	F645270	-	1	<u>Glendalough Upper &amp; Lower Lakes</u>	T1196	0	0
Mullet/Termoncarragh Lake	F663350	1	1	<u>Lough Bray</u>	O135160	-	0
<b>Meath</b>				<u>Lough Nahanagan</u>	T080990	-	0
<u>Newgrange</u>	O007728	0	-	<u>Lough Tay &amp; Dan</u>	O1516	0	0
<u>Tara Mines Tailings Ponds</u>	N840710	0	-	<u>North Wicklow Coastal Marshes</u>			
<u>Wilkinstown</u>	N842744	0	-		T307960	1	-
<b>Monaghan</b>					O315064	1	-

Poulaphouca Reservoir	O302020	1	-	Threecastles	O005155	1	-
Area NE of Blessington Bridge	O0015	1	-	Vartry Reservoir	O2002	0	0