

Densities and population estimates of Red Grouse *Lagopus lagopus scotica* in Ireland based on the 2006-2008 national survey

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Records of Red Grouse *Lagopus lagopus* occupancy derived from tape-playback transect methods, counts using dogs and a casual sightings database of incidental records, were used to determine the species range in the Republic of Ireland between 2006 and 2008. The primary focus of the national survey was counts of territorial males in winter and early spring in a selection of random 1 km squares. Sites were stratified according to region and predominant habitat type. Any randomly selected sites with more than 60% habitat suitability for Red Grouse were surveyed. Spring densities of Red Grouse were low (average 1.1 per km²) with much variation across regions and habitats. The Irish population of Red Grouse was estimated at just over 4,200 birds (95% confidence limits (nearest 100) 3,800-4,700), using the best available data from sites surveyed and suitability of areas not surveyed. Regional population estimates are presented along with estimates of population sizes across five broad-scale habitat classes: mountain blanket bog, upland blanket bog, lowland blanket bog, raised bog and moors and heath. The national survey supports the inclusion of Red Grouse on the Irish Red List of Birds of Conservation Concern with losses of more than 50% of their former breeding range in the Republic of Ireland. Although declines have been less dramatic in Britain, on both islands, changes in suitable habitat availability and habitat quality are considered the primary causes. Regional population estimates generated by this survey are critical to guiding future conservation efforts by highlighting areas that have experienced the steepest declines. Since this survey was completed, a Red Grouse Species Action Plan for Ireland has been produced, which was led by stakeholders and aims to set out a framework to deliver positive measures for Red Grouse in Ireland over a 10-year period (2013-2023).

Introduction

In Ireland and Britain, the Red Grouse *Lagopus lagopus scotica* (a sub-species of the Willow Grouse *Lagopus lagopus*) is endemic, and it is closely associated with peatland habitats with a minimum of 20% heather cover and with a range of age

classes from young to older stands (Lance 1972, Watson & O'Hare 1979a). Red Grouse have been affected by many land use changes, particularly in the last 100 years (Allen *et al.* 2005,

Plate 94. Red Grouse (Michael O'Clery).

Davies 2005), which have resulted in the fragmentation of habitats and isolation of populations that were once extensive over much of Ireland's bogs and heaths (Sharrock 1976). In Ireland, peatlands once covered an estimated 1.17 million hectares, but activities such as peat extraction, afforestation, drainage, inappropriate burning practices, and overgrazing (particularly by sheep) have led to declines in suitable habitat extent and quality (Douglas *et al.* 2008), and more recently the expansion of renewable energy and associated infrastructures on peatland, particularly in the uplands, is a concern (Perrin *et al.* 2014). The fragmented nature of the remaining peatlands suitable for Red Grouse is unlikely to benefit population growth or expansion of range in Ireland where territories tend to be much larger than elsewhere, therefore, suitable areas are likely to support fewer birds (Watson & Moss 2008).

On the island of Ireland, the former breeding range of Red Grouse has declined by 60% in the past 40 years (Sharrock 1976, Balmer *et al.* 2013) and thus it is a Red-Listed species (Newton *et al.* 1999, Lynas *et al.* 2007, Colhoun & Cummins 2013). Bag records of numbers of birds shot can be used to estimate trends in gamebird populations. While British bag records have shown long-term declines in most regions (Hudson *et al.* 1992, Redpath & Thirgood 1997), Irish bag records have shown even greater declines (Watson *et al.* 1993). The Irish population was previously estimated by Gibbons *et al.* (1993) from a bird atlas study as being between 1,000 to 5,000 breeding pairs. A Red Grouse survey in Northern Ireland in 2004 highlighted the extent of the decline there, with a population estimate of just 202 breeding pairs (Allen *et al.* 2005).

Extensive research has been conducted on the Red Grouse in Britain where it is considered an economically viable gamebird (Game and Wildlife Conservation Trust Review 2008, Grant *et al.* 2012). Few studies have been undertaken in Ireland, most limited to a single site at Glenamoy Research Station in north County Mayo (Watson & O'Hare 1973, 1979a, b, c, Lance 1976, 1978a, b). It is widely accepted that Red Grouse populations in Ireland are sparsely distributed, and largely confined to wet, nutrient-poor blanket bog (Watson & O'Hare 1973). Densities in Britain can reach over 100 birds per km² (Game and Wildlife Conservation Trust Review 2008, Hudson *et al.* 1992), whereas Irish populations have low densities of one to six individuals per km² (Watson & O'Hare 1979b, Murray & O'Halloran 2003, Allen *et al.* 2005, Finnerty *et al.* 2007, Murray *et al.* 2013).

Ireland's peatland habitat has been recognised both nationally and internationally by the inclusion of blanket bog, raised bog, wet heath and dry heath on Annex I of the EU Habitats Directive, which affords these habitats a special conservation status. However, peatland habitats suitable for conservation have been dramatically reduced in size with less

than a quarter remaining in relatively intact condition (Foss *et al.* 2001). The results of a national survey of Red Grouse (2006-2008) are presented here, including estimates of the current population size and range both nationally and across five regions and the five habitat types in which the species can be found. As the first dedicated survey of Red Grouse in the Republic of Ireland, these results should form an effective methodological base from which future monitoring can be conducted.

Survey area and methods

The largest recorded extent of the population in Ireland was given in the first breeding bird atlas in 1968-72 (Sharrock 1976). The historic range was defined as all 10 km squares in which the species had been recorded during 1968-72 and is hereafter referred to as the 'defined historical breeding range'. The subsequent breeding bird atlas of 1988-91 showed the species range had contracted substantially (Gibbons *et al.* 1993). However, the distribution maps presented in this atlas were not considered entirely representative of the Red Grouse breeding range by conservationists and game enthusiasts. Therefore, for the national survey the sampling area included the entire defined historical breeding range indicated by the first breeding bird atlas (Sharrock 1976), as it was considered a more accurate representation of potential range for the species.

As previous studies of Red Grouse in Ireland indicated the population existed at low density and was dispersed over a wide geographical area (Watson & O'Hare 1973), a stratified random sampling protocol was used to ensure adequate regional and habitat coverage (Gregory *et al.* 2004) with all potentially suitable sites pooled into two strata, regions and habitats. Using CORINE Land Cover data (EEA 2000) as an indicator of habitat suitability, 1 km squares were identified within each 10 km square occupied by Red Grouse in 1968-72, which contained potentially suitable habitat. In total, 5,963 1 km square potential sites were identified across the country (Table 1) and assigned to one of five regions (Figure 1). ArcView GIS 3.2 (ERSI, California, USA) was used to calculate the proportion of the survey area made up of the five habitat class types:

- 1) Upland blanket bog (150-300 m above sea level (a.s.l.))
- 2) Mountain blanket bog (> 300 m a.s.l.)
- 3) Lowland blanket bog (< 150 m a.s.l.)
- 4) Moors and heath
- 5) Raised bog

Any 1 km square with more than 60% of suitable habitat for Red Grouse was included in the potential sampling area. Each survey site was assigned to one of the five habitat classes described above. These classes were selected as being the most relevant predictors of grouse presence or absence at the

Table 1. Numbers of randomly selected 1 km squares in each of the five regions and five habitat classes used in the survey stratification, and numbers of those that were surveyed for Red Grouse within each region or habitat class, 2006-2008.

Region/ Habitat Class	Squares selected		Squares surveyed	
	Number	%	Number	%
East & South	926	15.5	85	17.3
Midland	711	11.9	65	13.2
Northwest	1514	25.4	119	24.2
Southwest	1032	17.3	83	16.9
West Connacht	1780	29.9	139	28.3
Lowland blanket bog	1800	30.2	115	23.4
Moors & heath	332	5.6	23	4.7
Mountain blanket bog	1366	22.9	145	29.5
Raised bog	818	13.7	74	15.1
Upland blanket bog	1647	27.6	134	27.3
Total	5963		491	

broader landscape level, with final assessment of suitability for survey based on an evaluation of aerial photos and ground-truthing. As information on the historic distribution of grouse in relation to habitat use and availability in Ireland was lacking, sampling was conducted in proportion to the area of the different habitats within each region as categorised by CORINE Land Cover data (EEA 2000).



Figure 1. Regional divisions used in the national Red Grouse survey, 2006-2008.

The survey unit chosen was a 1 km square and the primary count unit a territorial male (occupying a territory in late winter to early spring, December to March). At the outset, the survey design and methods took into account the sensitive nature of these ground dwelling birds, and the survey period coincided with the peak of male territoriality and avoided the most sensitive nesting period (late April and May) given that Red Grouse are ground nesters and largely single-brooded (Watson & Jenkins 1964, Watson & O'Hare 1979a).

Data collection

Given the extent of bog and heath habitats in Ireland, a number of methods were used in order to ensure adequate coverage of sites. The three methods for collection of data are given below and each contributed to the final species range in the Republic of Ireland. Counts with tape-playback was the most extensive method employed and was used to assess the distribution of Red Grouse at a landscape level by examining occupancy of 1 km squares surveyed. Using linear transect counts with tape-playback, a total of 491 1 km squares were visited over two field survey periods (1 December 2006 to 31 March 2007 and 1 December 2007 to 7 April 2008).

As Red Grouse are largely sedentary with males in particular not dispersing widely from their natal territories (Jenkins *et al.* 1967), the distribution of birds recorded during these survey periods was considered to reflect the distribution of males holding territories prior to breeding later in the spring. Songs or calls of grouse have been used to maximise counts of males at lower densities as such birds are known to be less vocal (Watson & Moss 2008). This relies on detection of territorial males in the area being surveyed by responding to the male grouse call being played. Given the low densities

of grouse in Ireland, this method allows for improved detection, not just of males, but of any incidental sightings of females or of fresh signs of grouse presence at a site.

All activities regarding the use of tape-playback were carried out under licence issued by National Parks and Wildlife Service. If the aim is to determine whether a species is present or absent then tape-playback may simply increase the chance of finding it (Evans *et al.* 2007). To generate a reliable method, the probability of birds responding to the tape was held as constant as possible. This was aided by standardising the manner in which the tape was played and ensuring the tape was not played to any one individual too frequently, causing it to habituate and respond less. Line transect methodologies, which are widely used in bird surveys (Bibby *et al.* 2000), were adapted to incorporate the use of tape-playback with a short call of a male Red Grouse played at six pre-defined points within the square along alternate transects. A pair of observers, 250 m apart, walked four transects across a 1 km square at a slow and steady pace. Where terrain allowed, transects were walked at 125 m, 375 m, 625 m and 875 m across the square in an east-west or north-south direction. At 250 m, 500 m and 750 m along alternate transects the call of a male Red Grouse was played for no more than 30 seconds to see whether any birds in the area would respond.

All registrations of birds seen or heard and any fresh droppings were recorded on field maps (1: 10,560 Ordnance Survey Maps). Any birds seen were classified as male or female based on visual characteristics, i.e. presence or absence of a red comb above the eye. Any birds heard responding to the tape, but not seen, were assumed to be territorial males responding to intruder male calls. Birds observed flying off (flushing) before being identified as male or female were recorded as unsexed individuals. The presence or absence of droppings (fresh or old) or feathers was considered important as they may indicate Red Grouse presence (recent or past evidence) where no birds were actually seen. These methods are suitable for surveying areas with lower densities of grouse, as the tape-playback entices territorial males to respond to the intruder male calls, therefore giving a more accurate estimate of density than transect methods without the use of tape-playback.

Potential sources of bias were the proximity of sites surveyed to one another and the probability of missing birds or double counting of individuals whose territories may have ranged over a number of 1 km squares. The time spent in a survey square depended on the terrain, the area to be covered and the observer. Where possible, it was recommended that observers traversed a site at a constant walking pace, although obviously steeper terrain affected the length of time spent in a survey square. Deriving abundance predictions of grouse based on length of survey in 1 km squares was not feasible as

it was likely to vary with terrain and fitness of survey teams and volunteers. Responses were not unfavourably affected by weather, although where possible sites were not surveyed in poor weather conditions.

To ascertain how effective the tape-playback method was at detecting grouse, repeat surveys using both dogs and tape-playback methods were carried out in fifteen pre-selected areas (average area covered was 1.2 km²) in Counties Wicklow, Cork, Galway, Tipperary, Sligo and Donegal. Counts of each selected survey area were usually conducted within three days of each other. Areas counted using dogs were demarcated using observers with hand-held GPS units which subsequently allowed for these areas to be resurveyed using the tape-playback method. The size of the areas surveyed was largely dependent on the areas covered by the handlers and their dogs. The number of handlers ranged between two and seven, with usually a mix of dog breeds used on any given count day, including red setters, English setters, pointers and springers. These areas were then revisited by field staff and counted using standard tape-playback methods. This was done to assess the error in detection using tape-playback (directed at territorial males) versus counts using dogs (directed at both sexes). The average time period between counts was 2.9 +/- 4.3 days. One of the most important assumptions in interpreting these data is that the probability of detection was considered to be constant.

The two main count methods used in this survey differed in their powers of detection with tape-playback designed to target territorial males, whereas counts using dogs targeted both sexes and was expected to yield greater numbers. Total numbers of Red Grouse from areas surveyed using both methods confirmed this assumption with approximately 30% more birds detected using dogs than tape-playback. Therefore, a simple correction factor was applied to regional and national population estimates to account for the lower detection of grouse by the tape-playback method (Appendix 1).

Given the difficulties of surveying grouse in low density populations supplementary records received from other sources (birdwatchers, hill walkers, game enthusiasts, and other surveys) were included to enable establishment of a more complete species range.

From a total of 5,963 1 km squares containing potentially suitable habitat for Red Grouse (Table 1), 491 squares (8.2%) were actually surveyed, while 1,133 squares (19%) were dropped as unsuitable after assessment using aerial photographs and ground-truthing. Percentage suitability figures for all remaining 1 km squares in each stratum were calculated. However, it is important to note that these population estimates are likely to be biased as CORINE Land Cover data (EEA 2000) does not give an indication of habitat quality; it merely represents habitat type at a coarse resolution.

Calculation of population estimates

Mean densities of Red Grouse across each stratum (i.e. region or habitat class) were calculated separately, based on field counts. By using the number of discarded 'unsuitable' sites in each stratum (Table 1), the percentage suitability of remaining sites not surveyed in each stratum for Red Grouse was calculated. Population estimates for total males were produced by adding the counts derived from known survey squares to the extrapolated estimates from squares not surveyed, but deemed potentially suitable. To derive the overall population estimate (males and females), a similar calculation was applied, however, the resulting 'total grouse' figure was then adjusted upwards (taking into account the likely under recording of female grouse by tape-playback methods; see Appendix 1) by applying a correction factor of 1.31 to this population estimate. This correction factor was derived from the results of the validation survey. Note that the same process just described, was used to calculate the estimated total numbers of grouse in each region and each habitat class.



Plate 95. Red Grouse (Richard T. Mills).

These derived population estimates highlight variability in suitability of sites for Red Grouse between regions. In addition, the sum of the regional estimates differs slightly from the national population estimate which was extrapolated using the overall mean national density and suitability figures. Similarly, the sum of the habitat estimates differs for the same reasons. The count data were not normally distributed, therefore confidence limits for all population estimates were calculated using the bootstrap procedure (Crawley 2005).

Validation of count methods

Paired t-tests were used to test for differences in densities of grouse (number of birds per unit area) recorded at sites that were surveyed using both methods (i.e. once using tape-playback and once using dogs). Density figures were cosine transformed to achieve a normal distribution using the Kolmogorov-Smirnov test prior to the Paired t-test.

Between year effects

To test for changes in grouse numbers recorded at sites between survey years, a Paired t-test was carried out on results from a random sub-sample of 64 1 km sites which were surveyed in both winters. A $\log_{10}(x+1)$ transformation of the original count data was carried out prior to running the parametric t-test. Subsequently, the occupancy data for these 64 sites (based on the presence of grouse in one or both survey seasons) were used along with the occupancy data of those 1 km squares surveyed just once ($n = 427$) in the final population models below.

Regional and habitat effects

A Generalized Logistic Model with binomial error link incorporated grouse presence or absence as the response variable, with region and habitat types as the categorical variables. It was used to test whether there were any significant regional or habitat effects (landscape level) driving grouse presence or absence. The models were not overdispersed, although as the response variable was binomial, overdispersion was not a real concern (Crawley 2005). In addition, the relationship between presence or absence of Red Grouse and elevation of sites where they were recorded was also examined. Maximum elevation figures for each 1 km square were calculated using map data in ArcView GIS 3.2. A similar model testing whether the abundance of grouse (Poisson distribution) was positively or negatively related to some regions and/or habitat types was ran but results are not included here due to poor model fit. Unless otherwise stated, figures quoted in the main body of the text are the mean (± 1 SD). All analyses were performed either in R (freeware Version 2.7.1) or S-Plus 8.

Results

Survey coverage

A total of 491 1 km squares distributed across 188 10 km squares was surveyed between 2006 and 2008. The distribution of Red Grouse in the Republic of Ireland based on occupancy of 10 km squares surveyed using the tape-playback methods is summarised in Figure 2. In total, 107 10 km squares were occupied out of a total of 188 surveyed. Overall, 229 (47%) of the 491 1 km squares surveyed using tape-playback were deemed occupied (i.e. birds or fresh signs seen).

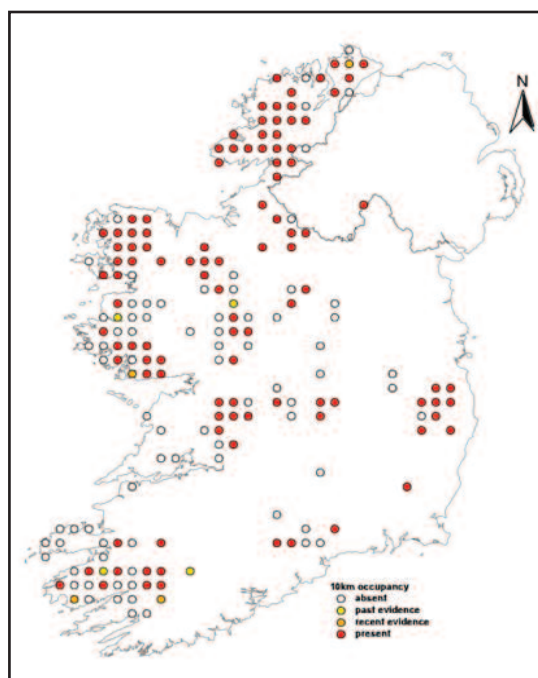


Figure 2. Distribution of Red Grouse at the 10 km square level using results derived from the tape-playback survey, 2006-2008.

Changes in population range

Incidental records of Red Grouse, from a number of sources, contributed data to derive the overall distribution in Ireland for the period 2006-2008 (Figure 3). These supplementary records facilitated the addition of 65 10 km squares to the 107 10 km squares identified as occupied by the tape-playback survey. This gave a total of 172 10 km squares occupied in the Republic of Ireland. Five of these additional 65 10 km squares overlapped with sites already surveyed using tape-playback, but which were deemed unoccupied, and only one of these

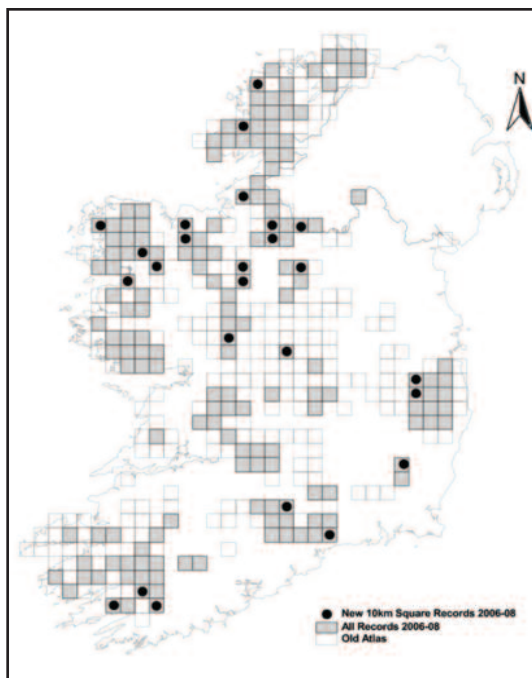


Figure 3. Changes in Red Grouse range in the 40 years, 1968-2008. All records collected during the 2006-2008 survey are highlighted in grey shading. Records include those from the tape-playback surveys, counts using dogs, incidental sightings and counts from other scientific surveys. New records additional to those 10 km squares occupied in the first breeding bird atlas (1968-72) (Sharroch 1976) are shown as black dots.

records was of a grouse seen on site, the remainder were records of fresh caecal droppings or pellets. The national survey identified a total of 25 new 10 km squares, additional to those given in the 1968-72 breeding atlas. Taking these supplementary data into account, the decline in the species range from 1968-72 to 2008 is estimated at 50% (using all records collected from 2006-2008) of their former historical range, based on changes in occupancy of 10 km squares between 1968 and 2008 (Table 2). The magnitude of this decline varies across regions with losses being less in the Southwest (47%), Northwest (33%) and West Connacht (22%) regions with greatest declines in the Midland (75%) and the East and South regions (58%).

Validation of count methods

Counts using dogs at a total of 18 sites were used to test how effective counts with tape-playback were. The total number of birds detected using dogs was almost 33% greater than the total number detected using tape-playback. Red Grouse were

Table 2. Changes in distribution of Red Grouse from 1968-72 to 2006-2008 based on occupancy of 10 km squares.

Region	1968-72*	1988-91†	Tape-playback 2006-2008	All records 2006-2008
Southwest	43	13	11	23
% decline		70	74	47
East and South	121	39	24	50
% decline		68	80	58
West Connacht	49	15	27	38
% decline		69	45	22
Midlands	65	15	11	16
% decline		77	83	75
Northwest	67	25	35	45
% decline		63	48	33
Total	345	107	107	172
% decline	-	69	69	50

* = (Sharrock 1976); † = (Gibbons *et al.* 1993).

present at 13 out of 15 sites (with both methods detecting no birds at two sites and zero detection using dogs at another site). In addition, in a site where no birds were seen using either method, fresh droppings were recorded on the visit using dogs. There was no significant difference in the densities of grouse recorded per unit area in sites surveyed using dogs and repeated using tape-playback methods. However, differences in the detection of Red Grouse using these two methods enabled an adjustment of the population estimates generated using data collected by the tape-playback method only, by applying a correction factor (Appendix 1) to generate overall population estimates. On the assumption that all birds in a given area are detected using dogs, this correction factor was derived from the difference in the total numbers detected using both methods, thereby correcting the probable under-recording of some individuals (i.e. non-territory holding males and females) by the tape-playback method.

Between year effects

For those 64 1 km squares that were surveyed in both 2006-07 and 2007-08, there was no significant difference between winters in the number of sites that held Red Grouse (Wilcoxon $z = 0.5$, d.f. = 63, $P = 0.62$). In addition, there was no significant difference in the mean densities of Red Grouse recorded in these 64 1 km squares (Paired t-test, $t = 1.4$, d.f. = 63, $P = 0.15$) indicating no significant temporal variation in numbers recorded at these sites between survey periods.

Population estimates

The highest counts recorded in those 64 1 km squares surveyed in both seasons were used, along with the single

counts for the remaining 427 1 km squares surveyed on one occasion only, to derive the overall population estimate figures. The population of Red Grouse was estimated at approximately 4,220 birds (95% confidence limits 3,795-4,702) for the Republic of Ireland, including 2,310 males (95% confidence limits 2,036-2,589). This gives a sex ratio of 1.2: 1 (males to females). Table 3 shows regional differences in population estimates with greatest numbers in the Northwest and West Connacht regions and fewer birds in the Midland and Southwest regions.



Plate 96. Red Grouse (Michael O'Clery).

Table 3. Mean number of male Red Grouse derived from tape-playback surveys across regions and estimated number of males and totals overall for each region, 2006-2008.

Region	Males Mean +/- CL's	Estimate of Total Males +/- CL's	National Estimate (correction factor*) Total Grouse +/- CL's	% of total population
East and South	1.22 0.9-1.5	323 255-395	685 542-804	16.3
Midland	0.5 0.3-0.9	34 19-60	59 37-96	1.4
Northwest	1.21 1-1.4	1286 1060-1526	2038 1702-2431	48.3
Southwest	0.23 0.12-0.3	73 38-102	132 76-209	3.1
West Connacht	0.64 0.5-0.8	773 628-932	1376 1120-1652	32.6
Overall	0.79 0.7-0.89	2310 2036-2589	4218 3795-4702	

* The correction factor (1.31) was applied to account for under-detection of birds recorded using the tape-playback method. It was derived using repeat counts of defined areas using dogs and tape-playback. See Appendix 1 for more information.

Regional and habitat effects

Regional differences in the number of 10 km squares occupied by grouse were detected. Given the distribution results highlighted in Table 2, such regional variation was not unexpected. Similarly, regional differences in densities of Red Grouse (Table 3) reinforce the assumption that populations are more densely distributed in some regions (East and South; and Northwest) than others (Southwest and Midland).

There were a number of differences in population estimates across habitat classes (as identified using CORINE Land Cover data) with mountain blanket bog the most important habitat, followed by upland blanket bog, which together held 75% of the total estimated national population (Table 4). Numbers of grouse on raised bogs were extremely low, at less than 2% of the national figure. An examination of the presence and absence data across habitat classes revealed that occupancy on heath (at almost 70%) was the highest, followed by mountain blanket bog (60%) and upland blanket bog (47%), with lower rates of occupancy on lowland blanket bog (37%) and raised bogs (28%).

There were differences in Red Grouse presence and absence across both habitat and region classes, with these differences significant across regions (Table 5). Regionally, sites in the East and South had significantly higher rates of occupancy (68%) compared to the Southwest (18%), which had the lowest rate, followed by the Midland (28%), West Connacht (45%) and Northwest (66%) regions. There was also a significant positive northerly effect (Z -value = 3.57, P = <

0.001) in terms of geographic location, with sites more likely to be occupied the further north they were in the country. Red Grouse were found at sites with wide-ranging differences in elevation (30 to 810 m) in the Republic of Ireland, reflecting the habitats where they still occur (Table 6). The average maximum elevation of sites where they occurred was calculated at 302 m (+/- SD 192 m). A significant positive effect for elevation showed that sites in upland areas were more likely to be occupied than those on lowland or raised bogs. There is evidence to suggest that Red Grouse are now associated more with mountain blanket bog than any other habitat class.



Plate 97. Red Grouse (Mike Brown).

Table 4. Mean number of male Red Grouse derived from tape-playback surveys across CORINE Land Cover classes and estimated number of males and totals overall for each Land Cover class, 2006-2008.

Region	Males Mean No. +/- CL's	Estimate of Total Males +/- CL's	National Estimate (correction factor*) Total Grouse +/- CL's	% of total population
Lowland blanket bog	0.52 0.38-0.66	327 239-412	578 447-760	13.7
Moors & heath	1.35 0.83-1.9	257 158-365	407 283-584	9.6
Mountain blanket bog	1.0 0.83-1.2	1102 906-1269	2116 1749-2501	50.2
Upland blanket bog	0.88 0.72-1.1	640 524-794	1061 863-1302	25.5
Raised bog	0.47 0.28-0.81	37 22-64	71 48-111	1.7

* The correction factor was applied to account for under-detection of birds using the tape-playback method. It was derived using repeat counts of defined areas using dogs and tape-playback, see Appendix 1.

Table 5. Analysis of the main variables affecting Red Grouse distribution, 2006-2008. Presence/absence data for those 491 1 km² survey sites were analysed using a minimum adequate binomial regression model. Parameter estimates are presented below.

Category	Estimate (logit scale)	S.E.	Z-value	P value
Intercept*	-3.19	0.8	-3.97	0.0001
Lowland blanket bog	-0.27	0.58	-0.46	0.64
Mountain blanket bog	0.51	0.56	0.91	0.37
Raised bog	-1.13	0.96	-1.18	0.24
Upland blanket bog	-0.28	0.54	-0.51	0.61
northwest	-1.14	1.1	-1.1	0.3
west Connacht	-0.75	0.8	-0.98	0.33
East and South	1.27	0.5	2.54	0.01
Midlands	0.11	1.1	0.1	0.91
Max Elevation (m)	0.002	0.0008	2.08	0.038
Northings	0.00001	0.000003	3.57	0.0004

* Category estimates for 'Moors & Heath' and the 'Southwest' were set to 0 and all other estimates given are relative to the intercept.

Note: Habitat was retained as a categorical variable in the model, as dropping it resulted in a significant change in the deviance (model fit). All non-significant terms were dropped.

Table 6. The mean elevation (+/- 1 SD) of 1 km squares where Red Grouse were recorded and those 1 km squares where they were not recorded across habitats (using CORINE Land Cover Classes), 2006-2008.

Habitat	Red Grouse Present	Red Grouse Absent
Moors & heath	392.7m ± 130	445.7m ± 234.9
Lowland blanket bog	132.8m ± 52.2	141.4m ± 64.7
Mountain blanket bog	419.7m ± 224.5	326.1m ± 238.5
Raised bog	138.6m ± 133.9	71.2m ± 21.9
Upland blanket bog	283.5m ± 55.9	309.4m ± 80.6

Discussion

This survey has confirmed that the breeding range of Red Grouse has declined by 50% since the first recorded species range maps were produced in 1968-72 (Sharrock 1976). The greater magnitude of declines detected at an all-Ireland level (Balmer *et al.* 2013) is likely due to even greater losses in Northern Ireland (Allen *et al.* 2005). The overall population estimate of 4,200 adult birds in spring for the Republic of Ireland lies within those estimates given in the early 1990s (Gibbons *et al.* 1993), which though largely based on best expert opinion at the time, are supported by a recent genetic study in Ireland (McMahon *et al.* 2012) which estimated the population at 4,560 adult birds (inside the 95% confidence limits range from this study). Philopatry is evident in Red Grouse populations, with young males breeding near where they hatch while females move further from natal areas to avoid inbreeding (Watson & Moss 2008, Hörnell-Willebrand *et al.* 2014). Their sedentary nature can make populations more vulnerable to rapid habitat changes (Martínez-Padilla *et al.* 2014). Although there is no recent data on productivity of Irish populations, it is known that most males pair with a single female, and pairs are generally single-brooded (Lance 1976) with an average brood size (chicks hatched) of 2.9 (Watson & O'Hare 1979a). Breeding female numbers are largely determined by the numbers of territorial males (Moss *et al.* 1996, Mougeot *et al.* 2003a, b). An excess of males (55%), based on our results from this survey, is typical of low density populations and could be an indicator of a population in decline (Watson & Moss 2008).

Measures of the variation in grouse abundance and range across regions and habitat types will be critical to guiding future conservation efforts. The East and South region showed a loss of 68% in species range, however, it remains an important area for Red Grouse holding the highest densities nationally and supporting an estimated 16% of the national population and 29% of the current range. The greatest losses were in the Midland region (75%) which now holds just 1.4% of the national population and 1% of the current range, which differs markedly from its position in 1968-72 when it held almost 19% of the historic range. Red Grouse densities are lowest in the Southwest region where the range has contracted by 47%. Overall, these results indicate a reduction in species range, particularly in some regions, to strongholds (e.g. densities of 1.2 males per km² in the East and South; and Northwest regions).

There are a number of factors which limit grouse populations in terms of species range and their potential for expansion. Current and past pressures on peatlands include overstocking of livestock, large-scale peat extraction, drainage, extensive burning of heather, expansion of forestry plantations (which act as refuges for predators such as Foxes *Vulpes*

vulpes and Hooded Crows *Corvus cornix*) and expansion of infrastructural developments (including access and service roads to windfarms) (Douglas *et al.* 2008). These are likely to impact grouse populations either through direct loss of once suitable habitat or by leading to inferior habitat quality. The vulnerability of remaining Red Grouse populations, which are now more isolated because of the changes to our landscape, to additional environmental and biological factors such as more limited gene flow (McMahon *et al.* 2012) between local populations could have serious implications for their future on the island of Ireland.

Contributory factors affecting Red Grouse differ across the five regions. Altogether, traditional turf cutting, mechanical turf cutting and industrial peat extraction have accounted for a loss of 47% of the original area of peatlands in Ireland (Malone & O'Connell 2009). Red Grouse declines in the Midland region can be largely attributed to large-scale mechanical peat extraction which has resulted in the conversion of huge areas of once suitable raised bog, to cutaway bogs with just 8% of raised bogs remaining intact (Foss *et al.* 2001). Peat has been harvested for fuel, electricity production and the manufacture of horticultural products. From a total extent of 310,000 hectares, it is estimated that only 18,000 hectares of raised bog of conservation value remains (Derwin & MacGowan 2000). If all of this area of raised bog was suitable for Red Grouse, then the potential population of conservation value would be 85 birds (95% confidence limits, 50-146) which is only marginally greater than the 71 birds estimated for the national survey (95% confidence limits, 48-111). Recognition that 'after-use' cutaway bogs can support biodiversity (Bord na Móna 2010) including Red Grouse, if rehabilitated and/or managed properly offers scope to provide additional habitat and potentially link existing populations on suitable but largely isolated raised bogs.

Large-scale forest planting schemes have had the greatest impact on blanket bog in the Republic of Ireland, with planting on 27% of their area (Foss *et al.* 2001). Regional differences in the elevation at which conifers have been planted (National Forestry Inventory 2007) might partly explain the pattern of occurrence or absence of Red Grouse in some regions with the average elevations highest in the East and South and Southwest compared to the Northwest, West Connacht and Midlands. These differences in planting probably reflect regional differences in elevation and may also indicate the effect on local grouse populations of forestry planted on upland and mountain blanket bog areas, particularly the Southwest and East and South which have suffered serious losses in historic breeding range. Given most forestry planting in these regions occurs on upland blanket bog (150-300 m a.s.l.), Red Grouse populations are nowadays more restricted to mountain blanket bog areas (> 300 m a.s.l.), particularly



Plate 98. Female Red Grouse (Michael O'Clery).

given the other pressures from agriculture and development on more lowland areas. The elevation of sites surveyed may explain some of the variation in site occupancy between the five regions as it had a significant effect on grouse presence or absence. Mountain blanket bog and upland blanket bog habitats were more likely to be occupied by Red Grouse than lowland blanket bog and raised bogs, reflecting the increased pressures on lowland peatland habitats in particular. For all regions, except West Connacht, the average elevation of sites that held Red Grouse was higher. West Connacht accounts for almost 35% of the total area of lowland blanket bog (< 150 m a.s.l.), and this is likely to have accounted for the difference in the elevation of occupied sites here compared to the other four regions. An examination across habitats revealed that the average elevation of occupied sites was lower on areas of lowland blanket bog, upland blanket bog and moors and heath. In contrast, the elevations of occupied sites on mountain blanket bog and raised bog were greater. These differences across habitats are probably a reflection of landscape and the changes that occur at different elevations. On raised bogs, the higher average elevation of occupied sites may be due to the avoidance of hollows and areas of lower ground which tend to be much wetter (poorer heather growth) than on the higher domes on raised bogs.

Anecdotal evidence from some regions (e.g. Wicklow Mountains National Park) indicates that inappropriate burning

of heather and scrub, particularly outside the current legal burning period of 1 September to 28 February (Wildlife (Amendment) Act 2000; 38/2000), is a concern. In Scotland, the burning of heather, or 'muirburn', is used to generate a patchwork of young and old heather which can be beneficial to grouse in providing older stands for cover and young shoots for food (Watson & Moss 2008). In Ireland, a number of successful grouse management projects have been initiated since 2007 (Scallan 2013, 2015, Glenfane Gun Club & O'Toole 2014) which have used managed burns, along with cutting or flailing, to create a mosaic of heather types preferred by Red Grouse. However, most incidences of burning in Ireland, or rather over-burning, are not managed in the manner of 'muirburn' and are generally not intended to benefit grouse but rather to create suitable grazing for sheep. Burning every three to four years causes a shift away from heather towards grasses, sedges or rushes and can damage underlying peat irreparably, leading to erosion (Watson & Moss 2008, Brown *et al.* 2014). Direct impacts of such practices can lead to increased grazing by sheep and deer with more cover of grasses and increases in tick populations, which can carry the deadly Louping ill virus which is largely fatal to Red Grouse (Reid 1975, McGuire *et al.* 1998, Irvine *et al.* 2013). The encroachment of Bracken *Pteridium aquilinum* on many of the lower slopes of former grouse hills is a problem in many areas; it would formerly have been controlled by cattle grazing

before increases in sheep numbers throughout the 1980s and 1990s (Watson & Moss 2008). Bracken can produce chemicals to deter other plants; in particular it has a detrimental effect on heather species (Pakeman *et al.* 1992). In Britain, the Black Grouse *Tetrao tetrix* has suffered serious declines as a result of overgrazing by sheep (Baines 1996) leading to more cover of grasses, sedges and rushes (because the growing point of these plants is at the very bottom of the stem and stays undamaged if an animal eats the shoot tip) (Watson & Moss 2008).

Habitats used by Red Grouse are becoming increasingly patchy and enriched by agriculture, planting and fertilising of trees, leading to more grassy vegetation thereby increasing numbers of prey, such as rodents and rabbits *Oryctolagus cuniculus*, for local predator populations (Watson & O'Hare 1979a, Madders 2003). Unlike Britain, where the effects of predators on grouse populations have been studied (Redpath & Thirgood 1997, Thirgood *et al.* 2000a, b, Redpath *et al.* 2001), the dynamics of predator populations in Ireland and their effect on the national population has not been quantified. Legal predator control has been used effectively by grouse management projects (e.g. Boleybrack Grouse Management Project, County Leitrim), along with habitat management, to help local populations recover.

The range decline of Red Grouse in Britain (22%) is less than the all-Ireland decline (66%) as indicated in the most recent breeding bird atlas (Balmer *et al.* 2013) and the 50% decline in the Republic of Ireland detected by this survey. Such differences can be partly explained by the economic benefits of Red Grouse in Britain, where many populations are intensively managed for shooting. Also, the distribution of Red Grouse across habitats in Ireland differs to Britain, with a significant portion (almost 20%) of their former range in Ireland on raised bogs which have been systematically exploited. In Britain, the number of Red Grouse shot fell by 50% over the course of the 20th century with declines largely blamed on habitat losses, although avian predators did limit grouse numbers in areas recovering from population crashes (Thirgood *et al.* 2000c). Shooting of Red Grouse in Ireland is smaller in scale and confined largely to suitable areas where private landowners have granted permission with indications that few birds are now taken (Red Grouse Species Action Plan 2013). The additional pressures that weather and climate patterns may have on grouse, a cold adapted species, are likely to result in shifts in range, potentially northwards (Hulme & Jenkins 1998, Watson & Moss 2008, Smith *et al.* 2013).

The fragmented range of Red Grouse in Ireland has probably led to the isolation of certain populations and the ability of these populations to survive and expand is uncertain given the lack of current information on fundamental life

history traits. Given the extent and quality of habitats utilised by Red Grouse in Ireland, very little of which is exclusively managed for them, populations will always exist at lower levels than on shooting estates where active measures are taken to boost populations (Allen *et al.* 2005). Almost 98% of the national population is now distributed across blanket bog and heath, with only 2% remaining on raised bogs. Further research is needed to understand the demographic processes that might be influencing their population size, distribution and long-term survival.

The key findings of the Red Grouse survey together with the Northern Ireland Red Grouse survey (Allen *et al.* 2005) were instrumental in motivating stakeholders to work together, through a steering committee, to develop an all-Ireland approach to Red Grouse conservation culminating in a Red Grouse Species Action Plan published in 2013. The plan outlines a framework of measures to further grouse conservation on the island of Ireland, including the provision of information and guidance to those interested in grouse management. Recognition of the threatened status of Red Grouse in Ireland (Colhoun & Cummins 2013) has led a number of interest groups to deliver positive measures at a local level through site management for the species at more than 50 locations across the country. Supporting measures to raise wider awareness of Red Grouse and the integral relationship they have with peatlands is vital. The role of past agricultural, forest and energy policies as drivers of landscape-scale changes (overgrazing, afforestation, turf cutting) has been highlighted by this survey. Adequate supports for farmers through locally-led agri-environment schemes could help ensure the species has a firm foothold in the uplands in the future. Furthermore, a strategic approach is needed to assess whether the species can recover some of its former range on cutaway raised bogs, before final decisions are made regarding the likely future use of these peatlands (Bord Na Móna 2011).

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Appendix 1

Results from surveys using tape-playback and dogs highlighted that fewer Red Grouse (68.8%) were detected by the tape-playback method (see table at right). To adjust for the under-detection of grouse by the tape-playback method, a correction factor derived using this simple calculation was used to modify upwards regional and national estimates for total numbers of grouse (Table 3). Note that count data from the surveys using dogs were assumed to detect all grouse present in a given survey area.

Correction factor = $[1 - (\text{total number of grouse recorded from tape-playback surveys}) / (\text{total number of grouse recorded from counts using dogs})]$.
Calculated value of 1.31 based on formula given.

Results of standardised repeat counts using tape-playback and dogs methodologies. The average area surveyed was 1.2 km² ± 0.6 (N = 15).

Method	Total number	Densities/km ²
Tape-playback	62	2.99 ± 2.62
Dogs	90	4.84 ± 4.74
Paired t-test		t value = 0.16
Comparison test of paired samples (cosine transformed densities)		d.f. = 28 P = 0.9

A preliminary review of the population and protection of breeding Little Egret *Egretta garzetta* in Ireland

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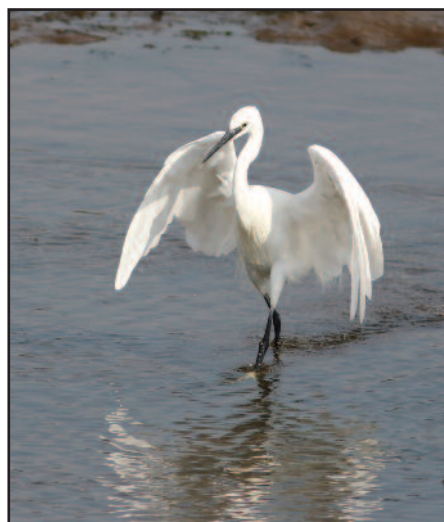
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Keywords: Breeding status, conservation, *Egretta garzetta*, legal protection, Little Egret, threats

There has been no census of the Little Egret *Egretta garzetta* in the Republic of Ireland (RoI), or Northern Ireland (NI). No census is currently planned in either jurisdiction. The RoI population was recently estimated at 250-500 pairs. On-going monitoring is carried out at approximately 14 colonies in Counties Cork, Waterford, Galway and Dublin. Two colonies in Down have been surveyed since 2012 under the NI Heronry Survey. The European Court of Justice has ruled that member states have similar responsibilities for sites eligible for designation as Special Protection Areas (SPAs) which are not yet designated, as for designated SPAs. Candidate SPAs (cSPAs), alternately termed proposed SPAs in NI, are subject to the same protection as SPAs in both jurisdictions. However, no candidate sites for breeding Little Egret have been designated in either jurisdiction. Based on the current population estimate and one of the SPA designation criteria, many colonies hold at least 1% of the all-Ireland breeding population and could therefore qualify for SPA designation. However this criterion cannot be rigorously applied until an accurate population estimate is obtained. The final SPA selection by regulatory authorities will consider other criteria such as occupancy history, and role as severe weather refuges. Limited published and anecdotal information on known threats to Irish colonies is presented. The species is vulnerable to extreme cold, but appears to be relatively tolerant of human disturbance. Shooting has been recorded at two sites, and tree felling could threaten any sites in commercial forest plantations.



Introduction

This preliminary review focuses on known information for breeding populations of Little Egrets *Egretta garzetta* in Ireland. The Little Egret is listed under Annex 1 of the European Birds Directive 2009/147/EC (The Birds Directive). Under Article 4.1 of the Birds Directive member states, including the Republic of Ireland (RoI) and Northern Ireland (NI), must adopt special measures to ensure the survival and reproduction of Annex 1 species, including the classification

of the most suitable territories as Special Protection Areas (SPAs) for the conservation of these species. Most Annex 1 species breeding in Ireland have been surveyed by general and/or species-specific surveys designed by the National Parks and Wildlife Service (NPWS) and/or BirdWatch Ireland, albeit that many surveys have been once-off and/or limited to particular areas. A small number of breeding surveys are

Plate 99. Little Egret (Michael O'Clery).

coordinated on an all-Ireland basis, such as the 'Seabird 2000' breeding seabird surveys (e.g. Mitchell *et al.* 2004) and the Bird Atlas (Balmer *et al.* 2013). Most Annex 1 raptor breeding populations have been surveyed to some degree in Ireland, with surveys conducted independently in NI and RoI (reviewed by Mee 2012). In RoI, breeding waders have been surveyed under the Upland Bird Survey. Species-specific surveys for some sites have included Kingfisher *Alcedo atthis*, Corncrake *Crex crex*, Cough *Pyrhocorax pyrrhocorax*, and Red-throated Diver *Gavia stellata*. Excluding rare breeding species such as Nightjar *Caprimulgus europaeus* or Short-eared Owl *Asio flammeus*, breeding Little Egret is perhaps unique amongst Annex 1 populations in Ireland, in that breeding sites are not commonly surveyed either through bespoke surveys or in the course of surveys for other species. A further unique aspect of Little Egret populations is that they are rapidly expanding on an annual basis, which makes a census difficult, but worthwhile.

The aims of this preliminary review are to: i) synthesise current population data on breeding Little Egrets in RoI and NI from published and unpublished sources; ii) review the current legal protection of breeding sites in both jurisdictions; iii) assess which sites could qualify as Special Protection Areas (SPAs); and iv) review known threats to breeding colonies.

Methods

A literature review was conducted of peer-reviewed sources, conference proceedings, and 'grey literature' such as government publications. Expert opinion was consulted through personal communications with published authors on Little Egret, government nature conservation bodies, and non-governmental nature conservation bodies. A small number of unpublished Little Egret colony records were available online, (e.g. reported in birdwatching trip reports), but the reliability of these records could not be verified, and they were excluded. As part of this study unpublished survey data for one Little Egret breeding colony from north County Dublin has been included. This site, also occupied by Grey Heron *Ardea cinerea*, was surveyed from ground level in March, May and July 2015.

Results and discussion

There have been no complete censuses for breeding Little Egret in RoI. None were planned as of November 2015 according to the National Parks and Wildlife Service (David Tierney, pers. comm.) and the Ornithology Officer of the Northern Ireland Environment Agency (NIEA) (Neil McCulloch, pers. comm.). Hillis (2004), quoting Smiddy (2002), gave a breeding population of 55 pairs for Cork and Waterford. The recently published *Bird Atlas 2007-2011* (Balmer *et al.* 2013) did not estimate the breeding population.

The atlas confirmed breeding in 41 10 km squares, with probable breeding recorded in an additional 15 squares. This indicates a conservative minimum of 41 breeding colonies across the whole island.

The only recent 'published' population estimate of the breeding population was of 250-500 pairs for the RoI for the period 2008-2012. This estimate was published online on the European Topic Centre on Biodiversity website by the National Parks and Wildlife Service in response to the Irish state's reporting requirements to the European Commission on the implementation of the Birds Directive (Article 12 reporting) (European Topic Centre on Biodiversity 2014). The online resource notes the limitations of the estimate, in that it is based on expert opinion. There are currently no published estimates of the population in NI; the NI population was not distinguished in the estimate of 660-740 pairs for the period 2008-2012 for the United Kingdom as a whole under Article 12 reporting (European Topic Centre on Biodiversity 2014). The NI Heronry Survey has recorded two colonies in eastern County Down. Colonies are not currently known elsewhere in NI.

Breeding populations in the RoI have been increasing annually since breeding was first proven (Smiddy & Duffy 1997). Colhoun and Cummins (2013) reported the species as breeding in most counties in RoI. However, the *Bird Atlas 2007-2011* (Balmer *et al.* 2013) and data from the NI Heronry Survey up to and including 2015 indicate breeding remains to be confirmed in many midland and western counties, and in all Ulster counties excluding Down. Published accounts of confirmed Little Egret breeding sites were limited to reports of ten colonies in County Cork, two in County Waterford (Smiddy 2002, O'Donoghue & Smiddy 2008), and a single colony in County Galway (Benson & Lusby 2013), where long-term studies are on-going. Productivity data was published for Cork and Waterford sites studied from 1997 to 2001 (Smiddy 2002), and the Galway colony studied from 2009 to 2013 (Benson & Lusby 2013). Reliable estimates of mean colony size cannot be calculated in this preliminary review paper given this small sample size. The sites in Down have been surveyed annually since 2012 during the NI Heronry Survey.

The authors recorded a single Little Egret colony of six pairs in north Dublin following a survey in 2015. The authors did not record Little Egrets at five other occupied Dublin Grey Heron colonies surveyed from 2013 to 2015. The known colony data is summarised in Table 1. Colony size (number of nests) varied significantly between years at four of the eight colonies for which multi-year data was available. This inter-annual variation and the potential for rapid increase in colony size over successive years, underlines the importance of multi-year surveys for accurate census data. Colonies larger than 40 nests have been reported elsewhere (e.g. French colonies reported by Hafner *et al.* (1994) and Australian colonies

Table 1. Summary of known colony data for Little Egrets in Ireland from 1997 to 2015. Data from published and unpublished sources (see text).

Colony	County	Survey period	Peak nests	Range in No. of nests	Productivity measured	Source
A	Cork	1997 to 2001	2	0 to 2	Yes	Smiddy 2002
B	Cork	1997 to 2001	8	1 to 8	Yes	Smiddy 2002
C	Galway	2009 to 2013	19	2 to 19	Yes	Benson and Lusby 2013
D	Down	2012 to 2015	5	2 to 5	No	NI Heronry Survey (John Lyons, pers.comm.)
E	Down	2012 to 2014	4	1 to 4	No	NI Heronry Survey (John Lyons, pers.comm.)
F	Dublin	2015	6	N/A	No	Author's unpublished records
G	Waterford	1997 to 2001	7	3 to 7	Yes	Smiddy 2002
H	Waterford	1997 to 2001	40	12 to 40	Yes	Smiddy 2002

reported by Baxter *et al.* (1998). Colonies of this size may become established in future in Ireland.

Legal protection of breeding egret sites

The Little Egret is one of approximately 20 regularly breeding species in Ireland subject to special protection under Annex 1 of the Birds Directive. Little Egret is also one of only two regularly breeding Annex 1 species which has 'naturally' colonised Ireland in recent history following climatic events (Voisin 1991) (the other being Mediterranean Gull *Larus melanocephalus*). Based on the online databases of the NPWS and the Joint Nature Conservation Committee, no breeding Little Egret populations were designated as special conservation interests of any SPAs in Ireland. The Birds Unit of the NPWS has confirmed there are no immediate plans for designating SPAs for this species in RoI (David Tierney, pers. comm.). In relation to NI, NIEA's Ornithology Officer informed the authors that one proposed SPA (pSPA) existed in NI for marine birds, but that no pSPAs or SPAs were designated for breeding Little Egret in the jurisdiction (Neil McCulloch, pers. comm.). The European Court of Justice ruled in 2000 that the obligation placed on member states by the Birds Directive to implement special conservation measures for Annex 1 species equally applies to areas that have not been classified as SPAs but which should have been.

Which sites could qualify as SPAs?

The Birds Directive requires member states to classify the "most suitable territories in number and size as Special Protection Areas". The term "most suitable" is not defined in the Directive. Subsequently, to assist in the definition of "most suitable", the JNCC (2010), and later the NPWS (2012) published site selection criteria for the United Kingdom and RoI respectively. The NPWS and JNCC criteria for SPA designation are similar. For Annex 1 species like Little Egret, sites holding $\geq 1\%$ of the 'all-Ireland' population (i.e. the island

of Ireland) can potentially qualify as an SPA in either jurisdiction. In the view of the authors, this criterion cannot be rigorously used to select SPAs until the all-Ireland population has been accurately censused. All-Ireland surveys of Little Egret have been recommended by Colhoun & Cummins (2013). These surveys could also provide accurate data on the status of Cattle Egret *Bubulcus ibis* at Irish heronries (which has not yet been recorded here as a breeding species), and other woodland-nesting species.

The 1% population criterion does not alone determine the list of sites to be designated, and the criteria in both jurisdictions include allowance for other parameters. These are clearly prescribed in the JNCC criteria, which list seven 'Stage 2' criteria including history of occupancy, naturalness, and role as a severe weather refuge. The final determination of SPA sites will require careful assessment of the full suite of criteria. This will require the relative importance of different colonies to be identified with reference to JNCC's Stage 2 criteria. It is noteworthy that the 250-500 breeding pair population estimate for RoI, which would be little altered by the addition of sites in Northern Ireland, means colonies with five or less nesting pairs could constitute 1% of the all-Ireland population. However, accurate population estimates are needed to properly determine the colony size that meets the 1% threshold.

Threats

There are no published accounts of observed threats at breeding Little Egret colonies in Ireland. Weather patterns undoubtedly affect Little Egret population trends. A succession of mild winters in the 1970's contributed to the expansion of the species' range in Europe (Voisin 1991). Harsh winters in 1984-85 and 1986-87 increased winter mortality in several Mediterranean population strongholds (Birdguides 2006). Anecdotal evidence indicates that some Munster egret colonies have declined or become extinct following recent harsh winters in Ireland (Patrick Smiddy,

pers. comm.). Effects of rainfall may be complex but increased spring rainfall may positively affect Little Egret breeding success in some natural coastal wetlands, due to increased feeding habitat in flooded areas (Bennetts *et al.* 2000). The potentially significant effect of human disturbance on wetland birds such as waders has been well documented. However, Little Egrets may be relatively tolerant of human disturbance. Little Egrets at an urban Cork colony bred successfully close to pedestrians accessing an adjacent railway platform (Patrick Smiddy, pers. comm.). The authors have recorded successful breeding in Dublin by a busy carpark and pedestrian paths. Shooting of several young egrets has been observed at a colony in Waterford, as well as attempts to shoot birds at a winter roost in Cork (Patrick Smiddy, pers. comm.). The fact that this did not result in abandonment of the colony or the roost further suggests a tolerance of human disturbance. No hunting has been reported from other colonies in this preliminary review, although several are urban or suburban sites unlikely to be threatened by shooting. Furthermore, the effect of hunting on egret productivity declined Europe-wide in the 20th century (Fasola *et al.* 2010), and is not expected to be a significant threat in Ireland.

Analysis of the NI Heronry Survey data from 2013 indicates that at least 10% of Grey Heron colonies in NI have been lost or affected by tree felling. Only one of the egret colonies reported in this preliminary review was in a commercial woodland plantation at risk from felling. As woodland nesters, several common corvid species can be expected to breed and forage close to Irish Little Egret colonies. All fifteen Irish colonies reported in this study fall within the definition of 'small' colonies (<30 nests), reported to be particularly vulnerable to corvid predation (H. Hafner & Y. Kayser, unpublished data cited in Birdguides (2006)). Evidence of corvid predation on eggs was frequently found in the woodland of a southern Irish colony (Smiddy 2002), but there has been no quantitative study of the effect of avian predation relative to other threats. The designated status of sites has been shown to significantly affect Little Egret population trends, at least in Italy (Fasola *et al.* 2010). Designation of breeding sites is likely to reduce the risk of significant threats to breeding populations. A threat assessment of known colonies could help plan efficient resource allocation in conservation of breeding sites. Such an assessment could also identify whether any urgent action is required to protect important sites, for instance from development.

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Undertaking a review of a species for which few studies have been published, such as Little Egret, must rely significantly on expert opinion. Accordingly, we are very grateful to Pat Smiddy, John Lusby, and John Lyons for sharing unpublished observations and data. We are also grateful to David Tierney and Neil McCulloch for providing useful insights to protection for the species in Irish legislation, and for Phil Shepherd's comments. John Lusby and the editor also provided useful comments on earlier drafts of the text.

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Census of Gannet *Morus bassanus* colonies in Ireland in 2013-2014

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Based on counts of nesting Gannets *Morus bassanus* from aerial photographs, the Irish population has increased from 36,000 to nearly 48,000 Apparently Occupied Sites (AOS). Little Skellig (Kerry) continues to be the largest colony, supporting 74% of the national population, though growth rates at Bull Rock (Cork) and Great Saltee (Wexford) were higher. A new colony has been established at Lambay (Dublin) on the east coast and the tiny west coast colony at Clare Island (Mayo) has increased dramatically in the last few years.



Introduction

Northern Gannets *Morus bassanus* (hereafter Gannet) have been censused at ten-year intervals in Britain and Ireland and, when feasible, across the North Atlantic. The last full census of British and Irish gannetries was in 2004, just after the completion of the Seabird 2000 Survey (Wanless *et al.* 2005). At that time there were five known gannetries in Ireland, supporting 36,111 Apparently Occupied Sites (hereafter AOS). Four were well established and increasing: Little Skellig (Kerry), Bull Rock (Cork), Great Saltee (Wexford) and Ireland's Eye (Dublin). A fifth colony is present on Clare Island (Mayo) and supported a handful (<5) of pairs over a 27-year period (1978-2004). However, over the last few years, the Clare Island colony has increased substantially, holding at least 65 pairs in 2011 (Eoin McGreal, pers. comm.) and a 2012 photograph has been used in the present analysis. The 2004 census revealed that the smaller colonies were expanding

rapidly at between 7% and 20% per annum (over 10 years) and the largest, Little Skellig, was growing at a modest 1.2% per annum. Additionally, in 2006, a group of Gannets appeared on the north cliffs of Lambay Island (Dublin) and closer observation in 2007 revealed they had commenced nesting, thus becoming the sixth Irish colony.

Scottish partners of the UK-Irish Seabird Monitoring Programme commenced the next decadal census of British gannetries in 2013 and had completed the task in summer 2015 (Murray *et al.* 2014, 2015). Here we present the results of a census of Irish gannetries based on aerial photographs taken in the summers of 2013 and 2014.

Plate 100. The Little Skellig Gannetry viewed from the east in summer 2014, showing recent rockfall in the foreground (Alyn Walsh).

Methods

The present survey is primarily based on an examination of aerial photographs taken by Alyn Walsh (of the National Parks and Wildlife Service) at east coast colonies in summer 2013 (Great Saltee, Ireland's Eye and Lambay) and at the southwest colonies (Little Skellig and Bull Rock) in summer 2014. The material available is summarised in Table 1.



Plate 101. The Ireland's Eye Gannetry viewed from the north, summer 2013 (Alyn Walsh).

Photographs were viewed in the standard desktop AppleMac Photolibrary system to orientate them and allocate them with respect to count sections from previous surveys. They were subsequently opened in Paint Shop Pro 8 on a PC to select the best images for counting. This subset of photographs was then copied prior to any manipulation and marking in which Microsoft Paint was used to draw section boundaries, and 'dot' AOS. An AOS was inferred from the presence of an adult bird at a location in which a nest, egg or chick could be supported. Some birds perched on the top of pinnacles or other pointed rocks at the periphery of a colony or section were not included in the AOS tally. On the photographs used here, an AOS usually comprised (i) a single adult regularly spaced from neighbours, (ii) a pair of adults

side by side or closer than would be expected for neighbouring nesting birds, or (iii) an adult standing beside a greyer and smaller bird (the chick). The photographer had indicated that most non-breeding, loafing or 'club' birds had usually flown off in the first reconnaissance flight round the island and that very few would be present in the photographs supplied for counting. For example, apparently 1,000 loafers were present on a club site on the south side of Bull Rock, below the main helideck and buildings, on the initial approach but nearly all flew off before photography commenced. The images supplied did show that this area held two AOS and indicate that a new sub-colony is about to form. Also, a few of the lowest 'shelves' on Little Skellig, particularly on the south face, are known to be occupied by non-breeders and these were not tallied as AOS. Two principal methods of counting AOS were used:

- In Microsoft Paint, an image was opened and section and subsection boundaries were drawn using the 'pencil tool'. Actual AOS were identified and 'dotted' using the 'brush tool' with the dot colour changed after approximately 100 sites for ease of subsequent counting. Colour bands or sections were re-counted until a consistent total was reached.
- The image (or series of images for larger sites) was imported into ArcGIS ArcMap 10. The 'Editor tool' was used to 'dot' AOS and these were tallied in an 'attributes table'. In general, for large sites, an image was used for each count section and there was no need to draw boundaries on the image. The count sections for Little Skellig used in previous years (total 17) were adopted.
- In some cases, including parts of Bull Rock and the eastern end of Little Skellig, AOS were identified and marked in Microsoft Paint but the actual counts were made using the editor tool in the GIS.

For the three largest colonies (Little Skellig, Bull Rock and Great Saltee) all photographs were counted independently by the three authors (SN, MH and SM) and the accepted count for each section and colony is the mean of these three counts. In the case of Clare Island, only the 2012 image was of sufficient quality to count using these methods. Eoin McGreal provided detailed counts for 2014, but unit definitions were somewhat different. EMCG identified 'discernible nests' and

Table 1. Dates of photographic surveys of Irish Gannet colonies, 2012-2014.

Colony	No. photographs	No. selected	Date	Time	Notes
Little Skellig	76	15	15 July 2014	10:50	-
Bull Rock	97	5	15 July 2014	11:10	-
Great Saltee	21	3	6 August 2013	12:30	-
Ireland's Eye	21	4	6 August 2013	16:50	-
Lambay	37	3	6 August 2013	16:30	-
Clare Island	1	1	c. 10 July 2012	?	-
Clare Island	2	(-)	20 June 2014	?	Poor quality

a total count of adults. Both methods were available for 2012 so that an adjustment to AOS for 2014 can be made (see colony account).

Results

Clare Island

The good quality photograph taken in July 2012 was used to count AOS in a manner consistent with other sites photographed in 2013 and 2014. This yielded 213 AOS, though a few other heads could be discerned around the north and northwestern side of the stack, perhaps belonging to out of sight AOS, indicating that this count is likely an underestimate. The site is well covered by ground counts (Table 2) by Eoin McGreal but it would be useful to acquire some aerial photographs to estimate the extent of the colony facing west. There seems to have been a significant increase in the growth of the colony between 2013 and 2014 and an estimate of AOS in 2014 would be in the range 250–300.

Little Skellig

In general, aerial coverage of the island's gannetry was good, especially for the long 'faces' on the north and south sides of the island where the majority of birds nest. Coverage of the extreme east end was satisfactory, though some photographs were taken from a vertical 'bird's-eye view' perspective and this area has suffered from rock and cliff-falls in recent winters. Coverage was poorest for the far southwest end where a series of stacks probably make it difficult for the aircraft to circumnavigate. One section on the north side, number 12, was poorly represented in the array of photographs and numbers had to be 'best estimated' from a distant shot. The sections run clockwise from the eastern point, along the south side of the island (1–6), southwest end and stacks (7–10) and eastwards along the north side (11–17). The main peak north face is section 14 and on the south is section 6. The present total indicates that the colony has increased to at least 35,294 AOS, an increase of approximately 19% over 10 years or 1.8% per annum (Table 3).

Table 2. Recent counts (2004–2014) of the Gannet colony at Clare Island (Mayo).

Year	Total adults	Pairs	Discernible nests	Near-fledged young	AOS
2004	-	-	-	-	3
2011	-	65	40	20	-
2012	-	157	98	>30	213*
2013	289	-	52	39	-
2014	510	-	197	142	(estimate 267)

* From photograph.

Table 3. Recent counts (AOS) (1995–2014) of the Gannet colony at Little Skellig (Kerry).

Section	Photo No.	SN*	MH*	SM*	2014 (mean)	2004	1995 (mean)
1	6954	443	460	451	452	297	297
2	6922	269	276	273	273	264	264
3	6965	2,759	2,881	2,703	2,820	2,347	2,512
4	6965	1,666	1,701	1,564	1,684	1,233	1,402
5	6927	782	660	584	721	538	481
6	6968, 6969	7,841	7,577	7,159	7,709	5,025	4,937
7	6937	1,687	1,991	2,012	1,897	1,180	1,062
8	6935, 6975	1,636	1,760	1,900	1,698	1,391	1,461
9	6971	668	587	635	628	467	467
10	6940	20	(20)	(20)	20	NC	NC
11	6907, 6942	1,457	1,528	1,397	1,493	1,300	1,134
12	6981	1,129	1,492	1,164	1,311	522	538
13	6912	3,710	3,615	3,438	3,663	3,115	3,107
14	6913, 6915	7,301	7,307	6,793	7,134	8,160	6,066
15	6917	1,490	1,626	1,407	1,558	1,527	1,400
16	6917	1,217	1,437	1,623	1,327	1,478	1,356
17	6917, 6954	766	1,009	944	906	839	757
Total	-	34,821	35,927	34,067	35,294	29,683	27,241

* SN = Stephen F. Newton, MH = Mike P. Harris, SM = Stuart Murray.
NC = no count available.

Bull Rock

On the basis of this census, there has been a dramatic increase in the number of Gannets nesting on Bull Rock, with 6,388 AOS counted (Table 4). The increase presumably is attributable to, amongst other factors, the lack of disturbance by helicopters and from lighthouse keepers and attendants on a relatively small island. This colony has not been consistently subdivided into census sections for previous assessments. Two primary subdivisions, west side and north side were used in 1985, though the former was split into three parts (with a diagram). In 1995, the data sheet gives three subdivisions, SW side (arch), W side and N side, although it is not clear how the former two relate to the three subdivisions of 1985 (Table 5).

Clearly, the main growth has been on the north side and continued upwards spread towards man-made structures on both the west and north sides (new sections 8, 10, 12, 13, 14). For future monitoring, boundaries of the 2014 count units are held on file at BirdWatch Ireland headquarters and at National Parks and Wildlife Service (7 Ely Place, Dublin 2).

Great Saltee

Great Saltee can be easily split into three subdivisions: the original colony on the southwestern cliffs, the more easterly extension along the south cliffs and the well separated Makestone, an isolated sea stack off the southeastern cliffs. The three counters involved in assessing the 2013 photographs were reasonably consistent in the total number of AOS with 4,722 the overall mean (Table 6). Counting Gannets on the rather over-exposed image of the Makestone was problematic and no images of the northern aspect were available. Hence the 239 AOS counted from the southeast is likely to be an underestimate, given there were 240 there in total in the 2004 census. The overall size of the Great Saltee colony (4,722 AOS), assessed from the 2013 oblique aerial photographs, is much higher than the ground count from the same year (2,673 AOS; A. Walsh, T. Murray and D. Tierney, in litt.). This implies that around 43% of the colony is not adequately viewable from the ground count vantage points, though we acknowledge that the definition of AOS from an aerial photograph is slightly different to that used on a ground count where an AOS usually includes a definite nest.

Table 4. Counts (AOS) (2014) of the Gannet colony at Bull Rock (Cork).

Section	Photo No.	SN*	MH*	SM*	Mean
1. left, above arch	6990	371	401	382	392
2. middle, below lighthouse	6990, 6987	203	206	191	199
3. right, upper	6990, 6987	77	69	67	71
4. right, lower	6990, 6987	26	10	11	16
5. top	6990	96	95	93	95
6. mid	6990	148	152	151	150
7. main	6990	508	525	565	533
8. upper, behind helideck	6996	355	500	471	442
9. lower, main	6996	1,253	1,457	1,388	1,366
10. below inland cliff	7002	687	794	668	716
11. lower, main	7002	399	616	504	506
12. lower, right, main	7009	1,173	1,345	1,283	1,267
13. middle	7009	432	529	521	494
14. left	7009	109	151	156	139
15. elsewhere	6987	2	(2)	(2)	2
Total	-	5,839	6,850	6,451	6,388

* SN = Stephen F. Newton, MH = Mike P. Harris, SM = Stuart Murray.

Table 5. Change in numbers (AOS) (1985-2014) at a sample of count sections of the Gannet colony at Bull Rock (Cork).

Subdivisions 1985	1985	Equivalent to (see Table 4)	2014	Subdivisions 1995	1995
W side right	183	2,3,4	286	SW side (arch)	730
W side over arch	237	1	392	W side	340
W side left	660	5,6,7	778	-	-
N side	431	9	1,366	N side	745

Ireland's Eye

The colony originated on the isolated stack off the northeastern cliffs of the island. This appears to have reached carrying capacity and in 2013 held 486 AOS. The most recent ground level count (from a boat) was in 2011, with 504 AOS including some on the adjacent main island cliffs. A new satellite sub-colony appears to be developing on the central part of the north cliffs of the main island, hinting that there is room for growth at this site, and the overall total for 2013 is 547 AOS (Table 7).

Lambay

Gannets first appeared on the north cliffs of Lambay in 2006. These pioneering birds commenced nesting in 2007 when 68 AOS were recorded including the first eggs (SN, pers. obs.). The colony has spread east and west of the original site on the distinctive 'saddle' and three subcolonies can be identified, though in time these may join up. The 2013 total of

728 AOS almost certainly include a significant proportion that are 'site holders' only, with no nests, eggs or chicks, as is typical with newly founded colonies (Table 8). The (2013) colony was recounted from the ground in June 2015 with 922 AOS identified, together with a new satellite subcolony (four AOS) on the Nose of Lambay, approximately 1 km to the east (SN, pers.obs.). The colony is thus continuing its expansion.

Discussion

Overall, the Irish Gannet population has increased by 32.8% (11,835 AOS) over a 10-year period (Table 9). This includes the establishment of a new (the sixth) colony on Lambay and significant increases at all sites, although Ireland's Eye apparently reached capacity between 2004 and 2014. The Lambay colony is approximately 10 km north of Ireland's Eye and is presumed to be a satellite extension to the 'founder' colony. Three colonies, Bull Rock, Great Saltee and Ireland's

Table 6. Counts (AOS) (2013) of the Gannet colony at Great Saltee (Wexford).

Section	Slide	SN*	MH*	SM*	Mean
Main colony, southwest 1	5640	1,658	1,517	1,567	1,581
Easterly extension 2	5638	3,022	2,906	2,779	2,902
Makestone 3	5605	266	235	217	239
Total	-	4,946	4,658	4,563	4,722

* SN = Stephen F. Newton, MH = Mike P. Harris, SM = Stuart Murray.

Table 7. Counts (AOS) (2013) of the Gannet colony at Ireland's Eye (Dublin).

Section	Slide	SN*	MH*	SM*	Mean
Stack, northeast face	5953	167	170	178	172
Stack, northwest face	5952	84	NC	NC	84
Stack, south west face	5943	230	NC	NC	230
Adjacent 'mainland' to stack	5905	37	NC	NC	37
Central north cliffs	5928	24	NC	NC	24
Total	-	542	-	-	547

* SN = Stephen F. Newton, MH = Mike P. Harris, SM = Stuart Murray.
NC = no count available.

Table 8. Counts (AOS) (2013) of the Gannet colony at Lambay (Dublin).

Section	Slide	SN*	MH*	SM*	Mean
Central (left) saddle	5880	260	255	261	259
Central (centre)	5880	39	26	30	32
Central (right) east	5880	144	123	120	129
Eastern subcolonies	5894	27	NC	NC	27
Western subcolonies	5878	281	NC	NC	281
Total	-	751	-	-	728

* SN = Stephen F. Newton, MH = Mike P. Harris, SM = Stuart Murray.
NC = no count available.



Eye, have approximately doubled in size over the last ten years. We have already indicated (above) that ground counts such as that conducted in the 2004 census on Great Saltee probably underestimate the size of the colony and that it was likely to have been larger in that year.

Factors underlying the sustained growth of the Irish Gannet population are not known, but food supply cannot be a limiting factor up to the present time. Recent changes in

Plate102. Part of the new (since 2007) Gannetry on the north cliffs of Lambay Island, viewed from the northeast, summer 2013 (Alyn Walsh).

European fisheries policy on discarding may in due course reduce food supply and availability for Gannets and this could curtail further population expansion.

Table 9. Counts (AOS) of Gannets at Irish colonies (1968/70-2013/14).

Site	2013/14	2004	1995	1984/85	1968/70
Clare Island	267	3	3	2	0
Little Skellig	35,294	29,683	26,436	22,500	22,000
Bull Rock	6,388	3,694	1,815	1,511	1,500
Great Saltee	4,722	2,446	1,250	710	155
Ireland's Eye	547	285	45	17	0
Lambay	728	0	0	0	0
National total	47,946	36,111	29,549	24,740	21,655

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Barn Owl *Tyto alba* diet at a West Cork site

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A total of 6,084 vertebrate prey remains were recovered and identified from a Barn Owl *Tyto alba* site in West Cork. The owls ate Bank Vole *Myodes glareolus* (2,680; 44%), Field Mouse *Apodemus sylvaticus* (2,250; 37%), Brown Rat *Rattus norvegicus* (602; 9.9%) and Pygmy Shrew *Sorex minutus* (278; 4.6%), as well as smaller numbers of birds (149), Common Frog *Rana temporaria* (96), House Mouse *Mus domesticus* (20), seven bats and two fishes. Bank Vole, Field Mouse and Brown Rat were also the most important prey species in terms of biomass. Significantly more female than male of Bank Vole and Field Mouse were taken, although there was no significant difference in the number of female and male Pygmy Shrew taken. The majority of the 149 beetles recovered were *Nicrophorus* species, which specialise on carrion-feeding. It is likely that the presence of these beetles is related to the fact that Barn Owl's bred at the site, and that several dead owls were discovered among the pellet debris.



Introduction

The Barn Owl *Tyto alba* was formerly common in Ireland and Britain, but is now a species of conservation concern (Bunn *et al.* 1982, Whilde 1993, Balmer *et al.* 2013, Colhoun & Cummins 2013). There has been a considerable decline since the 1950s, and the Irish population is now estimated at 400 to 500 pairs, most of which are found in the south-west (Lusby & O'Clery 2014). Diet plays a central role in owl ecology, and can be studied using pellets. In addition, pellets have also been used to detect the presence and reflect the distribution

and other aspects of the ecology of their mammal prey. For example, Barn Owl pellets have been used to detect and track the distribution of invasive small mammal species in Ireland, such as Bank Vole *Myodes glareolus* and Greater White-toothed Shrew *Crocidura russula* (Foley & Sleeman 2008, Lusby *et al.* 2008a, b, Tosh *et al.* 2008). The apparent recent decline of the Brown Rat *Rattus norvegicus* has also been reflected in Barn Owl diet (O'Connell *et al.* 2006). Similarly,

Plate 103. Barn Owl (Michael O'Clery).

while bats are generally rare as prey in Barn Owl diet (Roulin & Christie 2013), examples of predation on Daubenton's Bat *Myotis daubentonii* has come to light recently in Ireland (Sleeman & Kelleher 2008, Ronayne *et al.* 2011).

Barn Owl diet is usually determined by examining pellets, which are mostly collected from nest and roost sites. Indigestible parts of prey (e.g. fur, feathers, bones, teeth and insect exoskeletons) are compacted and ejected as a pellet. This method has some limitations with potential for bias where larger prey species are taken. Small species are usually swallowed whole, while larger prey may be dismembered, which may lead to some body parts not being consumed. The question of whether the contents of Barn Owl pellets accurately represent the proportion of prey species in the field has also been raised (Yom-Tov & Wool 1997). Barn Owl diet in Ireland is restricted, compared to other countries, because fewer small mammal species are available to them. For example, the Field Vole *Microtus agrestis* is a favoured prey in Britain (Glue 1967, Love *et al.* 2000), but is absent from Ireland. The complete absence of any vole species in Ireland until the discovery of the Bank Vole has meant that there are significant differences in the diet of Irish owls, compared to owls elsewhere (see recent reviews of the British literature on Barn Owl diet there by Martin (2008) and Toms (2014)). There have been some thirty investigations of prey taken by Irish Barn Owls (Smiddy & Sleeman 2011), of which those by Smal (1987), Feehan (1995), Cooke *et al.* (1996) and Kelleher *et al.* (2010) are among the most extensive. Previous Irish studies have generally included many roosts with small samples of pellets from each. This study presents data from a single site.

Methods

In August 1994 a barrel was attached to a Beech *Fagus sylvatica* tree near Leap in West Cork (W2140). It was erected as a possible alternative roost or nest site for Barn Owls after a nearby chimney was renovated. Subsequently, in 2013 the barrel was blown down during a gale and was found to contain a large amount of pellets (about 12.5 kg). Although the site was not visited between 1994 and 2013 it is possible to conclude that it was used at some stage by a pair of breeding owls; body parts (including hooked bills) of two adult and three young owls were found among the debris. However, the period over which the site was in use remains unknown. The pellet material was divided into two parts: (i) more recent and relatively intact pellets, hereafter called 'recent' pellets, and (ii) an older undifferentiated mass of bones, hereafter called 'clumped' pellets. We used volunteers to assist with the large quantity of material involved, including school children (for educational purposes). Although the bulk of the bones were recovered and cleaned by many people, identification of prey was carried out only by those with appropriate expertise.

Standard keys and guides (Lawrence & Brown 1974, Yalden 1985, 2003, Corbet 1989, Brown *et al.* 1992, Luff 2007), as well as reference collections, were used to assist in identification of prey remains.

The sex of small mammal prey was determined by examination of pelvic bones, using both drawings and photographs (Brown & Twigg 1969, Lawrence & Brown 1974, Walsh 1985, Yalden 2003, Kelleher *et al.* 2010, Ronayne & Sleeman 2013). This involved microscopic examination of the shape and size of parts of the pelvic bones, in particular the ischium, pubis and pelvic margin (Kelleher *et al.* 2010). While total counts of each prey species was made based on skulls and lower jaw bones, fewer were sexed as fewer paired pelvic bones were recovered; 744 (28%) Bank Voles, 221 (10%) Field Mice *Apodemus sylvaticus*, 75 (27%) Pygmy Shrews *Sorex minutus*, and three Brown Rats (0.5%). Clearly some species were better represented than others. The low proportion of Pygmy Shrew and Brown Rat pelvic bones may possibly be explained by the difficulty of finding the former, given their small size, and in the latter perhaps due to selective feeding on body parts of the larger prey. However, why there should be so few pelvic bones of Bank Voles and Field Mice remains unexplained. Therefore, care ought to be taken in interpretation of the sex ratio data. The pelvic bones, along with all other prey remains recovered, have been deposited in the National Museum of Ireland (Natural History Division) (NMNH: 2015/163).

The results are presented in terms of the number of prey items identified to species level, and the sex ratio of small mammals. Studies of Irish Field Mice, Bank Voles, Pygmy Shrews and Brown Rats have reported sex ratios of roughly 50: 50 (Grainger 1977, Grainger & Fairley 1978, Gallagher & Fairley 1979, Butler 1990, Butler & Whelan 1994, Rooney 1999). The data were analysed assuming equal 50: 50 sex ratios, using a probability binomial model (Sokal & Rohlf 2009).

Results

A total of 6,084 vertebrate prey remains were recovered and identified (Table 1). Among the vertebrates, the most abundant prey species was Bank Vole (44%), followed by Field Mouse (37%), Brown Rat (9.9%) and Pygmy Shrew (4.6%). Bank Vole, Field Mouse and Brown Rat (in that order) were also the most important prey species in terms of biomass. There were also 149 birds, 96 Common Frog *Rana temporaria*, 20 House Mouse *Mus domesticus*, seven bats and the bones of two fishes among the prey (Table 1). Among the birds, ten were identified to species; four Blackbird *Turdus merula*, two House Sparrow *Passer domesticus*, two Skylark *Aulauda arvensis* and two Woodcock *Scolopax rusticola*. Of the seven bats, five were identified from skull remains; three

Table 1. Total number of prey items recovered from Barn Owl pellets from West Cork ('recent' and 'clumped' pellets given separately) (conversion factors from Fairley and Smal (1988)). In addition, the remains of 149 beetles (Coleoptera) were recovered; for details see Discussion.

Species	Recent pellets	Clumped pellets	Total (%)	Conversion factor (g)
Bank Vole	72	2,608	2,680 (44.0)	2,439
Field Mouse	23	2,227	2,250 (37.0)	2,138
House Mouse	2	18	20 (0.3)	17
Brown Rat	4	598	602 (9.9)	1,517
Pygmy Shrew	5	273	278 (4.6)	53
Bird	3	146	149 (2.4)	-
Common Frog	3	93	96 (1.6)	139
Bat	0	7	7 (0.1)	7
Fish	0	2	2 (0.03)	-

Leisler's *Nyctalus leisleri* and two Natterer's *Myotis natterei*. There were more females than males among the pelvic bones available from Bank Voles and Field Mice. Both of these differences were statistically significant (binomial probability test, $P = <0.001$). Although there were also more female than male pelvic bones among the Pygmy Shrew material, this difference was not statistically significant ($P = 0.105$).

The remains of 149 beetles were also recovered from among the 'clumped' pellet debris; none was present among the 'recent' pellets. The majority were burying or sexton beetles *Nicrophorus* species, which specialise on carrion-feeding. Of those identified to species level, 37 were *Nicrophorus humator* and 14 were *Nicrophorus vespilloides*. Two other beetle species occurred; a single Vine Weevil *Otiorhynchus sulcatus* and a single *Chrysolina* species (see Discussion for a possible explanation for the presence of these beetles).

Discussion

Barn Owls at this West Cork site were feeding mainly on Bank Vole, Field Mouse and Brown Rat. The prey range is similar to that found in other recent studies in Ireland within the range of the Bank Vole (Cooke *et al.* 1996, O'Connell *et al.* 2006). In the latter part of the last century Bank Voles constituted 15% to 22% of Barn Owl prey in Ireland (Smal 1987). In this century in North Cork, where Bank Voles are established since the 1960s (Fairley 1969, Fairley & O'Donnell 1970), they now form the majority of Barn Owl prey (Farnsworth *et al.* 2002, Kelleher *et al.* 2010, Ronayne & Sleeman 2013), as they do here in the present study from West Cork.

Bank Voles are typically found in dense cover, where it would be expected they would be comparatively safe from hunting Barn Owls. Does the high number of Bank Vole prey taken mean that, in Ireland, these voles have moved into open areas and occupied the Field Vole niche, as suggested by

Taylor (1989, 1994) and Toms (2014)? Studies in the latter part of the last century of Bank Vole range expansion in County Cork showed that they are most readily caught in dense cover (Smiddy & Sleeman 1994) and radio-tracking failed to show a change in habitat use from elsewhere in their range (Rooney 1999). Perhaps the high rate of Bank Vole as prey, and the reported detection of genetic adaptations in Irish voles (White *et al.* 2013), means that at sites where voles are long established, they have expanded their niche. Therefore, a re-examination of Bank Vole density, home range and habitat use in areas where they are long established in Ireland would be useful.

Voles in general are a preferred prey for Barn Owls (Bunn *et al.* 1982, Taylor 1994, 2009, Toms 2014), and as soon as Bank Voles arrive in new areas in Ireland they are detected and taken by owls (e.g. Foley & Sleeman 2008). Bank Voles, on present knowledge, prefer dense cover. Therefore, the question arises as to how they are accessible as prey to Barn Owls that usually fly in the open. In the present study area, most Bank Voles inhabit hedges and scrub, and the long legs of the Barn Owl are ideal for penetrating deep into such vegetation (Taylor 1989). Comparatively few of the rodent pest species, Brown Rat and House Mouse, were identified in the pellets. They formed only 9.9% and 0.3% respectively of the vertebrate prey identified in the pellets.

The results of the analysis of sex ratios of prey taken are unexpected as males usually predominate in comparable studies (Halle 1988, Taylor 1994). However, caution is advised as a minority, perhaps a biased minority, of prey pelvic bones was available for study (see Methods). Previous research efforts on sex ratios of small mammal prey from Irish Barn Owls found no significant difference between the number of male and female prey (Kelleher *et al.* 2010, Ronayne & Sleeman 2013).

The international literature on the sex ratios of small mammal prey taken is confusing. For example, it has been

suggested in Finland that it would be expected that birds of prey would take male rodents, whereas small terrestrial mammal carnivores are reported to take more females (Korpimäki 1981, 1985, Koivunen *et al.* 1996, Norrdahl & Korpimäki 1998). However, the broader international literature on the topic of selective predation on a certain sex is large and often contradictory, with one or other sex being selected (Kaufman 1974, Derting & Cranford 1989, Jones 1990, Sinclair *et al.* 1990, Dickman *et al.* 1991, Ille 1991, Bellocq & Kravetz 1994, Trejo & Guthmann 2003, Askew *et al.* 2007, Boukal *et al.* 2008, Taylor 2009).

There are perhaps four hypotheses which might explain intraspecific sexual differences in vulnerability of small mammal prey to avian predation. These are: 'differential activity of prey', 'differential habitat use of prey', 'shared parasites and disease', and 'predator hearing ability'.

In 'differential activity of prey' (Kaufman 1974, Trejo & Guthmann 2003) the most active part of the population (e.g. males) may be more easily caught. In 'differential habitat use of prey' (Errington 1967, Dickman *et al.* 1991, Trejo & Guthmann 2003) the most vulnerable individuals may be forced to leave suitable microhabitats for habitats where they are at greater risk of predation. In 'shared parasites and disease', such parasites and/or disease may affect female prey in particular, perhaps due to food requirements, which may then make them more vulnerable to predation by owls. Female Field Mice in an Irish study have been found to be more heavily infected by flukes (Langley & Fairley 1982), and there are widely reported differences between sexes in term of immune responses (Robinson & Klein 2012). This aspect of prey selection by owls is neglected and would be difficult, but not impossible to test.

The final hypothesis, which we consider most probable, concerns 'predator hearing ability', in this case of the Barn Owl. Barn Owls hunt by detecting sounds made by their prey in a particular band, and are reported to have reduced or poorer hearing ability above 9 kHz (Konishi 1973). This has been used to explain why Scops Owls *Otus scops* take more female than male large bush cricket prey (Heller & Arlettaz 1994). Distinct Barn Owl 'personalities' associated with large black feather spots on their plumage have been described (Peleg *et al.* 2014). It would be interesting to know whether these West Cork owls' personalities enabled them to better hear female than male prey. This might be tested by playing male and female prey vocalisations to owls in the field.

Given the unusual nature of the site the results may be exceptional, and as Toms (2014) wrote: 'how you study owl diet will determine what you can say about it'. If the pellets had been collected systematically and dated, this collection and the research efforts would have been more worthwhile. However, it is worth pointing out that there are other ways, apart from looking at pelvic bones, of sexing bone material

(e.g. Ruscillo 2002), and these might yield better data in the future.

While beetles have been found in Barn Owl diet in other studies (e.g. Glue 1974, O'Connell *et al.* 2006), they tend to be generally avoided (Bunn *et al.* 1982) and burying beetles (*Nicrophorus* species) have not previously been reported. However, it is unlikely these beetles were eaten by owls since none was found within 'recent' pellets. It can be deduced that the site was also used for breeding, as evidenced by the presence of the remains of dead owls of varying sizes. Therefore, it is perhaps not surprising that these beetles, which specialise on carrion-feeding, would be found among the 'clumped' pellet debris. It seems most likely that the beetles colonised the site to feed on the dead prey brought in to the owlets, and later to feed on the dead owls themselves.

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Rare Breeding Birds in Ireland in 2014 and 2015



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Introduction

Since the publication of the last Irish Rare Breeding Birds Report (for 2013) (Perry & Newton 2014) the Panel has recruited a new co-ordinator, Gerry Murphy. He will largely be responsible for gathering records and working to improve our coverage starting in January 2016. In this report, we have collated records from breeding seasons, 2014 and 2015. Some readers will have noticed that in addition to genuinely rare, scarce or declining breeding species we have added some records of non-native species. Ireland, rather surprisingly, has

relatively few introduced species, which are mostly gamebirds and waterfowl. Various exotic parakeets, commonly encountered in European cities and southeast England have, to date, been rarely reported in Ireland. We encourage readers to come forward with observations of both rare native and all non-native breeding species, although we consider the Pheasant *Phasianus colchicus* to be naturalised, and records are not required.

Plate 104. Red-necked Phalarope (David Dillon).

The low density of Ireland's rarer breeding species coupled with a similarly low density of observers presents a considerable challenge in recording status and distribution. Consequently, the information reported here relies heavily upon a small number of committed fieldworkers who track down these rarer breeding species and faithfully submit their observations to the Irish Rare Breeding Bird Panel (IRBBP) each year. Nevertheless, as will become clear from reading this report, the record is far from complete. Many skilful birders still forget to submit their sightings by the end of each breeding season thus hindering our ability to report back as soon as possible to the conservation bodies and wider birdwatching community. That said, late submissions and updates to published records are still most welcome. All rare breeding bird information, both recent and historic, is regarded by the panel as strictly confidential. It is stored in a secure environment and is used solely for the benefit of conservation. To help us continue to maintain the definitive archive of rare breeding bird records in Ireland please send any you think may be valuable to: secretary.irbbp@gmail.com.

Membership of IRBBP comprises: Stephen Newton (BirdWatch Ireland, Chairman), Gerry Murphy (Co-ordinator), David Tierney (National Parks and Wildlife Service), Neil McCulloch (Northern Ireland Environment Agency), Chris Murphy (Northern Ireland Birdwatchers' Association), Paul Hillis (retired Honorary Secretary IRBBP), Kendrew Colhoun (Royal Society for the Protection of Birds) and Mark Holling (non-voting Secretary United Kingdom Rare Breeding Birds Panel).

This report covers observations of both confirmed rare breeding birds, and those species recorded present during the 2014 and 2015 breeding seasons, but not known to have bred. We also report on several species which have never bred in Ireland but have the potential to do so in the future. These include Osprey (scientific names in Species accounts) and Hobby for which there are regular breeding season observations. For the purposes of this report we limit consideration of observations to the period May to July (inclusive) to exclude non-breeding migrants except where earlier or later records might prove breeding. The report also includes some species, which can be numerous, but are confined to a small number of breeding locations/colonies, particularly terns, and waders. The criteria for the selection of species for which the IRBBP collect data will be fully described and justified in next year's report and on a new website that we are developing.

Observations for 2016, and for other years, especially 2014 and 2015, should be forwarded to Gerry Murphy at: secretary.irbbp@gmail.com.

Highlights of 2014 and 2015 breeding seasons

Amongst non-passerines two waders are worthy of mention: the appearance of, and a breeding attempt by Little Ringed Plovers in west Wicklow and the return of breeding Red-necked Phalaropes, particularly in Mayo. Eagles show contrasting fortunes, with White-tailed Eagle recovery well advanced but Golden Eagles still struggling to get a foothold in Donegal. Notable passerine records include proof that Ring Ouzels occur in County Sligo and Pied Flycatchers occasionally breed successfully in Ireland. The Reed Warbler population has really consolidated – increasing numbers are singing, and hopefully breeding, in the eastern counties and the first birds have reached Tipperary.

Species accounts

Whooper Swan *Cygnus cygnus*

Donegal 2014 One pair reared four young, Inch Lough, 6 September.

Fermanagh 2014 One pair, Lower Lough Erne, outside RSPB Reserve.

Lough Neagh/Beg 2014 One pair with young, east shore Lough Beg, 8 September.

Lough Neagh/Derry 2014 One pair (no young), 2 July.

Lough Neagh/Beg 2015 Two pairs with young, Lough Beg, 14 September.

Lough Neagh/Derry 2015 One pair behaving abnormally, female "mothering" three apparently recently fledged Canada Geese *Branta canadensis*, whilst male attacked male of neighbouring Mute Swan *Cygnus olor* pair with young, 19 July.

Common Wigeon *Anas penelope*

Fermanagh 2014 One pair in suitable habitat, Lower Lough Erne RSPB Reserve, 2 May.

Wexford 2014 Up to two males and four females, Tacumshin, 18 May to 13 June, but no direct evidence of breeding.

Wexford 2015 Up to four males, Tacumshin, 4-21 May.

Gadwall *Anas strepera*

Antrim 2014 One pair throughout season, Portmore Lough, likely to have bred.

Fermanagh 2014 Five pairs possibly breeding, Lower Lough Erne Islands.

Lough Neagh/Armagh 2014 Three females with eight, four and one young, 25 June; three females with three, three and three young, 1 July; female with four young, 2 July.

Lough Neagh/Derry 2014 One female with about three young, 2 July.

Wexford 2014 Seven pairs, Lady's Island Lake, somewhat less than usual for this site.

Antrim 2015 Five pairs present and likely to have bred, Portmore Lough.

Down 2015 One pair, Belfast Harbour Reserve, no young recorded.

Fermanagh 2015 Five pairs in suitable breeding habitat, Lower Lough Erne Islands Reserve; three pairs suitable breeding habitat, April to June, Upper Lough Erne.

Lough Neagh/Antrim 2015 One female with four young, 19 July.

Lough Neagh/Armagh 2015 Three females with ten, six and three young, 26 June; one female with eight young, 2 July; four females with seven, five, three and one young, 10 July; four females with seven, seven, five and three young, 19 July (some multiple counting may be involved).

Wexford 2015 Between 13 and 15 pairs nesting, Lady's Island Lake, but no observations of young submitted.

Wicklow 2015 One pair reported, Poulaphouca, but no confirmed breeding.

Pintail *Anas acuta*

Wexford 2015 One pair, Tacumshin, 4 May.

Garganey *Anas querquedula*

Antrim 2014 One pair probably breeding, Portmore Lough RSPB Reserve.

Wexford 2014 Up to six birds, Tacumshin, mid April to mid June, including four males and two females displaying on 25 May.

Antrim 2015 One pair probably breeding, Portmore Lough RSPB Reserve.

Fermanagh 2015 One male in suitable habitat, Upper Lough Erne.

Wexford 2015 Only one male, Tacumshin, 4 May.

Wicklow 2015 At least two males 'calling' and on a later date a female seen with ducklings, Poulaphouca.

Northern Shoveler *Anas clypeata*

Antrim 2014 Seven pairs, Portmore Lough RSPB Reserve, seen with young.

Down 2014 Two males, RSPB Belfast Lough, 18 April.

Fermanagh 2014 One pair, Lower Lough Erne Islands RSPB Reserve, April; not seen subsequently.

Lough Neagh/Armagh 2014 One pair (male entering eclipse) 1 July.

Roscommon 2014 One male and two females, Lough Funshinagh, 21 May, possible breeding at this midlands site.

Wexford 2014 Up to two males seen regularly, Tacumshin, May, most promising sighting was of two males and a female, 25 May. Three pairs probably bred, Lady's Island Lake.

Wicklow 2014 One pair, Kilcoole, 3 June, possible breeding.

Antrim 2015 Six pairs, Portmore Lough RSPB Reserve, seen with young.

Fermanagh 2015 Four pairs at different sites, Upper Lough Erne, breeding not proven.

Galway 2015 Two birds reported, southeastern edge of Lough Corrib, 21 May, breeding status not determined.

Lough Neagh/Armagh 2015 One pair, 26 June to 10 July; another pair with three ducklings, all same area, 19 July.

Roscommon 2015 Four males, Lough Croan, 1 May.

Wexford 2015 One pair, Tacumshin, 31 May; none noted, Lady's Island Lake.

Wicklow 2015 One female with five fledged juveniles, Kilcoole, indicative of successful breeding.

Common Pochard *Aythya ferina*

Antrim 2014 Up to 11 individuals throughout breeding season, Portmore Lough, but breeding not proven.

Lough Neagh/Antrim 2014 One female with two young, 25 June.

Lough Neagh/Armagh 2014 Three females with six, one and one young, 25 June; two females with broods with minimum numbers of two and three, 27 June; 12 or 13 females with 20 young (all same size, even if not of same brood); and ten, five, four (2), three (4) and two (2) young (ten broods), as well as female with five young (three and two of differing sizes), 1 July.

Lough Neagh/Tyrone 2014 Two females agitated, but young not clearly seen, 26 June.

Wexford 2014 Up to nine birds, Tacumshin, throughout May, with five males and four females seen on two occasions but no proof of breeding. Last observation of a male on 2 June.

Antrim 2015 Up to 23 individuals present throughout breeding season, Portmore Lough, but breeding not proven.

Fermanagh 2015 Single males at two sites, Upper Lough Erne, one in April and one in June.

Lough Neagh/Antrim 2015 One female with one young, 26 June.

Lough Neagh/Armagh 2015 Six females with six, four, three, three, two and one young, 26 June; ten females with six (2), four, three (2), and two (5) young, 2 July; 15 females with seven, six, five, four (2), three, two (4) and one (5) young and one with a juvenile, 10 July; nine females with four (2), three (5) and two (2) young, 19 July (some multiple counting may be involved).

Lough Neagh/Down 2015 One female with one young, 26 June.

Wexford 2015 Two pairs, Tacumshin, 4 May.

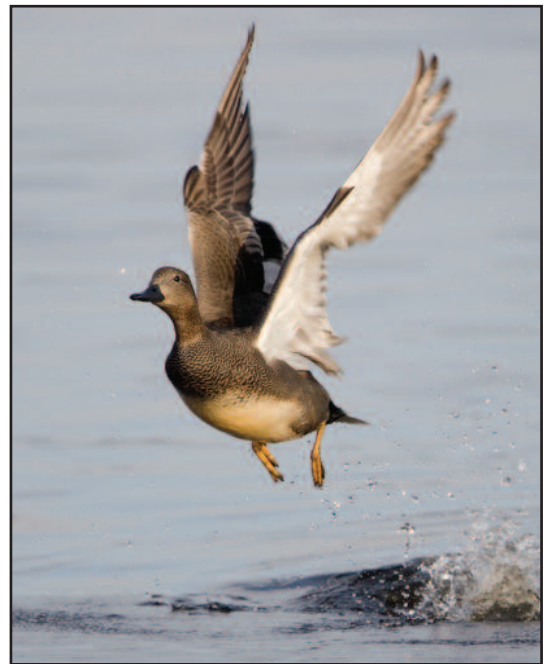


Plate 105. Gadwall (Graham Catley).

Common Scoter *Melanitta nigra*

Galway 2015 Four seen, northwestern Lough Corrib, 28 May.

Goosander *Mergus merganser*

Wicklow 2014 Two breeding pairs occupying nestboxes (out of 17), Avonmore River; one failed, the other produced ten young.

Wicklow 2015 One occupied nestbox produced eight young. The small population, mostly reliant on nestboxes, is increasingly vulnerable to depredation from Pine Martens *Martes martes*. One female and five young, Lough Dan, 3 June; one female and possibly five young, Trooperstown Bridge, 13 August. These two sightings are possibly of the family from the successful nestbox, but they could also represent birds nesting in natural tree holes.

Ruddy Duck *Oxyura jamaicensis*

Antrim 2014 One pair seen occasionally throughout the breeding season, Portmore Lough.

Quail *Coturnix coturnix*

Lough Neagh/Beg 2014 One calling male, Lough Beg Reserve.

Lough Neagh/Beg 2015 One calling male, Lough Beg Reserve.

Wexford 2015 A late season singing male, Lady's Island Lake, 26 July. No reports received from the regular site at Athy, County Kildare.

Grey Partridge *Perdix perdix*

Dublin 2014 24 pairs recorded at a new reintroduction site.

Offaly 2014 The population at Boora comprised 187 breeding pairs.

Dublin 2015 A slight decrease to 19 pairs at the 2014 site.

Offaly 2015 The population at Boora decreased slightly to 157 breeding pairs.

Red-throated Diver *Gavia stellata*

Donegal 2014 Five occupied sites with two pairs nesting at one giving six breeding pairs overall; one failed but four reared a total of six young.

Donegal 2015 Five occupied sites with nesting attempts; three were successful rearing six young, one failed due to flooding and the outcome of the fifth nest is not available, though adults were sitting at the end of July.

Two good years for this 'edge of the range' population.

Cattle Egret *Bubulcus ibis*

Wexford 2014 Two birds seen regularly between 27 April and 8 June indicate the possibility of a breeding attempt.

Little Egret *Egretta garzetta*

Wexford 2014 Two pairs bred, Lady's Island Lake.

Wexford 2015 Two pairs bred, Lady's Island Lake; five fledged juveniles seen on a lake island, 13 July, could have been locally reared.

Red Kite *Milvus milvus*

Down 2014 16 territorial pairs, eight bred successfully, and fledged 16 young.

Dublin-Meath 2014 Four territorial pairs, but none bred successfully.

Wexford 2014 Two probable territorial pairs.

Wicklow 2014 At least 25 nesting attempts (eggs laid) from which ten pairs successfully fledged 22 young.

Down 2015 12 territorial pairs, seven bred successfully, and fledged 13 young.

Dublin-Meath 2015 Four territorial pairs, two of which bred, with one pair rearing a single young.

Wexford 2015 Two territorial pairs.

Wicklow 2015 47 territorial pairs from which 20 pairs reared 41 young.

White-tailed Eagle *Haliaeetus albicilla*

Clare The established pair at Lough Derg bred successfully in both 2014 and 2015.

The overall population in 2014 comprised 14 pairs of which 12 built nests with eggs laid in seven of these, but only the Lough Derg pair reared a single young. In 2015 there were 13 territorial pairs/trios, nine of which built nests and all except one laid eggs. Five nests hatched young and four single young fledged successfully.

Marsh Harrier *Circus aeruginosus*

Wexford 2014 One female, Tacumshin, throughout June and July.

Wicklow 2014 Up to three birds, two females and a first-summer male, Kilcoole-Newcastle area, mid May to early July.

Roscommon 2015 Third calendar-year male reported hunting, Lough Funshinagh, 1 May.

Wexford 2015 One female, Tacumshin, 17 May.

Hen Harrier *Circus cyaneus*

The fourth five-yearly national census took place in the Republic of Ireland in 2015 (Ruddock *et al.* 2016); 108 confirmed and probable pairs were monitored and a further 49 possible pairs were located giving a national (Republic of Ireland) total of 157 pairs. Note: the term 'possible pairs' is a stronger (better proof of breeding) category than 'possible' used in the *Bird Atlas 2007-2011* terminology (Balmer *et al.* 2013).

Montagu's Harrier *Circus pygargus*

Wexford 2014 A single observation of a ringtail, 5 August.

Golden Eagle *Aquila chrysaetos*

Donegal 2014 Five territorial pairs, three of which bred and laid eggs; only a single chick was fledged.

Donegal 2015 Four pairs bred, three of which laid eggs, two hatched but no young fledged.

Osprey *Pandion haliaetus*

Wicklow 2014 One first-year colour-ringed male, presumed migrant, Poulaphouca.

Wicklow 2015 One two-year old female (from the Scottish Borders), Poulaphouca; the regular presence of birds here in late spring-early summer indicates it may be a likely breeding locality in the near future.

Hobby *Falco subbuteo*

Wexford 2014 One, Oldtown, Tomhaggard, 24 May; first-summer, Tacumshin, 25 May.

Corncrake *Crex crex*

Antrim 2014 One calling male, Rathlin Island, for 11 days; one reported at Kinramer, 30 June.

Kerry 2014 Calling males reported at Ballyduff (3 May) and Rathmore (5 May) probably represent birds heading north; one, Kells, 20 June seems late for a migrant.

Donegal 2015 128 calling males reported.

Shannon Callows 2015 No birds reported.

West Connacht 2015 55 calling males reported.

The monitored core breeding area of Donegal and West Connacht supports a national total of 183 calling males. This is a modest decrease from 230 recorded in 2014.

Northern Lapwing *Vanellus vanellus*

Donegal 2014 Systematic surveys by the Curlew Project (HELP) Team located 105 pairs at ten sites/islands, including 30 at Tory Island and 17 at Sheshkinmore.

Galway 2014 One adult, Kiltulla Lake, 21 May.

Mayo 2014 Total of 31 apparently occupied territories (probable nesting pairs), Inishkea Islands, fledged 64 young (Suddaby 2014); 14 pairs, Annagh Marsh, fledged 36 young.

Offaly 2014 91 breeding pairs, Boora (see comment below).

Roscommon 2014 One adult, Lough Croan, 21 May.

Wicklow 2014 13 breeding pairs, Kilcoole-Newcastle, and a further probable pair East Coast Nature Reserve, second half of April.

Galway 2015 Four adults, northwestern Lough Corrib, 28 May.

Mayo 2015 Total of 25 apparently occupied territories (probable nesting pairs), Inishkea Islands, but no young were fledged (Suddaby 2015); 18 pairs, Annagh Marsh, fledged seven young.

Offaly 2015 85 breeding pairs, Boora (see comment below).

Roscommon 2015 Three pairs, Lough Croan, 1 May, a possible breeding record.

Wicklow 2015 Three pairs, Kilcoole-Newcastle, 14 April, but only a single downy chick seen by 17 May – high chick mortality and a very poor year for the species overall.

At Boora, County Offaly, 122 Lapwing broods were recorded across the two years; these were the subject of a radio-tracking study investigating chick movements and survival and this work will be published elsewhere in due course.

European Golden Plover *Pluvialis apricaria*

Antrim 2014 One adult alarm calling and agitated, indicating probable breeding, Glenwherry, 27 May.

Cavan 2014 One displaying male over suitable breeding habitat, Cuilcagh Mountain, 16 May.

Donegal 2014 A single observation of a potential pair, Inishbofin, although not a site with obvious plover habitat.

Cavan 2015 One pair with nest, four eggs, same site as 2014 record, Cuilcagh Mountain, 13 May; same pair alarming in vicinity of nest, 10 June, indicating chicks were present.

Galway 2015 Three pairs, probably breeding, recorded during Curlew surveys in Connemara.

Little Ringed Plover *Charadrius dubius*

Wexford 2014 One juvenile, Tacumshin, 26 July to 1 August was considered a migrant but whether it originated from an Irish breeding site is unknown; presumably same juvenile, Lady's Island Lake, 16 August.

Wicklow 2015 Four birds, Poulaphouca, spring, female and three males. A pair nested and eggs recorded but the nest was flooded following heavy rain.

Common Curlew *Numenius arquata*

Antrim 2014 39 confirmed breeding pairs, Glenwherry, and a further four probable pairs same site.

Fermanagh 2014 47 confirmed breeding pairs, Lower Lough Erne Islands, of which 32 pairs hatched young; 22 pairs at 19 sites, Upper Lough Erne.

Antrim 2015 46 confirmed breeding pairs, Glenwherry.

Fermanagh 2015 44 confirmed breeding pairs, Lower Lough Erne Islands, of which 24 pairs hatched young; 19 pairs at 19 sites, Upper Lough Erne.

Republic of Ireland 2015 Extensive surveys located 67 pairs in seven counties (confirmed breeding in parentheses; (Kelly & Donaghy 2015)): Clare 1 (1); Donegal 13 (3); Galway 17 (9); Kerry 16 (2); Kildare 8 (0); Laois 8 (1); Tipperary 4 (3).

Dunlin *Calidris alpina*

Donegal 2014 One territory, Falcarragh; two territories, Tory Island.

Lough Neagh/Beg 2014 One pair, possibly breeding, Lough Beg.

Mayo 2014 16 breeding territories, Inishkea Islands, six young fledged (Suddaby 2014); four breeding pairs, Roonagh Lough.

Lough Neagh/Beg 2015 One pair, probably breeding, Lough Beg.

Mayo 2015 Ten breeding territories, Inishkea Islands, only one young fledged (Suddaby 2015).

Although productivity at this important site (Inishkea) is low it has improved with more conservation actions in place.

Common Redshank *Tringa totanus*

Donegal 2014 Systematic surveys by the Curlew Project (HELP) Team located 25 pairs at four sites, including 20 at Tory Island.

Fermanagh 2014 76 pairs, Lower Lough Erne Reserve, and one pair elsewhere outside reserve. Three pairs, Upper Lough Erne.

Galway 2014 One adult, Kiltulla Lake, 21 May.

Lough Neagh/Beg 2014 29 pairs present.

Mayo 2014 11 breeding territories, Inishkea Islands, these fledged 17 young (Suddaby 2014).

Wexford 2014 Two pairs bred, Lady's Island Lake.

Antrim 2015 One pair, Portmore Lough, no young observed.

Donegal 2015 One, Dunfanaghy, 10 June, but breeding status not determined.

Down 2015 One pair, Belfast Harbour Reserve.

Fermanagh 2015 75 pairs, Lower Lough Erne Reserve, and two pairs elsewhere outside reserve; breeding success thought to be good. None recorded at Upper Lough Erne despite intensive search.

Galway 2015 Eight adults, northwestern Lough Corrib, 28 May. Two agitated pairs reported from an island in central Lough Corrib, indicating young were present and other reports of adults at the southeastern end of the Lough.

Lough Neagh/Beg 2015 54 pairs present.

Mayo 2015 Significant decline to only five territorial pairs, Inishkea Islands, and no young fledged (Suddaby 2015).

Roscommon 2015 An adult calling, Lough Funshinagh, 1 May.

Wexford 2015 Four pairs bred, Lady's Island Lake.

Red-necked Phalarope *Phalaropus lobatus*

Mayo 2014 Incubating male at undisclosed coastal site A, 14 June to 1 July; no evidence of chicks hatching. Fourteen apparently breeding males at site B, six probably hatched young, but no young fledged.

Midlands 2014 One probable breeding attempt at an undisclosed site C, copulation seen on two days in mid June.

Mayo 2015 Nine apparently breeding males at site B, only one probably hatched young, but no young fledged for the second successive year. At a new site D, a pair seen on 17 June with the male probably incubating successfully and hatching young, but no fledged young seen later.

Great Skua *Stercorarius skua*

Antrim 2014 One pair reared two young, Rathlin Island.

Galway 2014 Three pairs, Inishshark Island, 17 June.

Mayo 2014 At least one breeding pair, Inishturk, 11 June; two pairs, Kid Island, 10 July, of which at least one bred successfully; one pair bred successfully, Erris Head, and another at Illaunmaistir. One apparently occupied territory (no nesting seen), Inishkea South, with possibly the same pair prospecting at Duvillaun; total of at least six pairs in County Mayo.

Antrim 2015 One pair reared one young, Rathlin Island.

Mayo 2015 Successful pairs at Erris Head and Kid Island, with the same territorial pair on Inishkeas South-Duvillaun as in 2014.

Little Tern *Sternula albifrons*

Louth 2014 Total of 111 pairs bred, Baltray, rearing 91 young (Egerton & Newton 2014).

Mayo 2014 Total of 66 apparently incubating adults, Inishkea Islands, fledged 80 young (Suddaby 2014); a good season.

Wexford 2014 Approximately 180 pairs bred, Wexford Harbour. Four adults seen in suitable breeding habitat, Tacumshin, 21 April; no nesting subsequently noted.

Wicklow 2014 At least 120 pairs bred, Kilcoole, 219 chicks presumed to have fledged (O'Connell *et al.* 2014).

Louth 2015 Total of 25 pairs reared 20 young, Baltray. The 'missing' pairs probably relocated to Kilcoole (Wicklow) (Boué & Newton 2015).

Mayo 2015 Total of 65 apparently incubating adults, Inishkea Islands, but only five young fledged (Suddaby 2015).

Wexford 2015 140 breeding pairs estimated at the main colony, Wexford Harbour, though productivity was probably poor; 30+ adults nested at a second site and young were present in mid July.

Wicklow 2015 The Kilcoole colony reached a record level of 155 breeding pairs, with 289 chicks presumed to have fledged (Doyle *et al.* 2015).

Roseate Tern *Sterna dougallii*

Antrim 2014 Probably two pairs, Blue Circle Island; one pair, Swan Island, Larne Lough; breeding confirmed and three young probably reared.

Down 2014 Two displaying birds, Carlingford Lough Islands RSPB Reserve; no further breeding evidence.

Dublin 2014 Total of 1,243 pairs bred, Rockabill Island (Burke *et al.* 2014); one pair attempted breeding, Dalkey Island, but the two eggs were deserted.

Wexford 2014 Total of 174 breeding pairs, Inish, Lady's Island Lake, rearing 1.23 young per pair (Daly *et al.* 2014).

Antrim 2015 One pair reared one young, Blue Circle Island, Larne Lough.

Dublin 2015 Total of 1,388 pairs bred, Rockabill Island (Burke *et al.* 2015); no birds were seen at Dalkey Island.

Wexford 2015 Total of 215 breeding pairs, Inish, Lady's Island Lake, mid-May; these reared 1.15 young per pair (Daly *et al.* 2015).

Mediterranean Gull *Larus melanocephalus*

Antrim 2014 Up to 12 adults and several fledged young noted, Blue Circle Island, Larne Lough.

Down 2014 One pair bred, Strangford Lough.

Fermanagh 2014 Male copulated and paired with Common Gull *Larus canus*, Lower Lough Erne Islands Reserve; no nest identified.

Wexford 2014 20 nests with eggs at Inish, Lady's Island Lake, 28 May (mean clutch size 2.4); three further nests found later.

Antrim 2015 Up to five pairs, Blue Circle Island, Larne Lough; breeding not proven.

Fermanagh 2015 The same male and female Common Gull as in 2014 present at Lower Lough Erne Islands Reserve; no eggs noted, 14 April to 9 July.

Wexford 2015 Total of 28 nests located, Inish, Lady's Island Lake, 7 May; despite considerable chick mortality due to rain, 19 young were ringed and presumed to have fledged.

Breeding numbers continue to increase.

Ring-billed Gull *Larus delawarensis*

Mayo 2014 One adult in a Common Gull colony, Lough Mask, 14 May, indicates there may be a mixed pair hybridising here.

Yellow-legged Gull *Larus michahellis*

Kerry 2014 One adult, Blennerville, 5 to 10 June.

Turtle Dove *Streptopelia turtur*

Kerry 2014 One reported, Blennerville, 1 June, a presumed migrant.

Barn Owl *Tyto alba*

Northern Ireland 2014 Two confirmed pairs reared four+ and one or two young; two other possible pairs.

Northern Ireland 2015 Two confirmed pairs reared two and two young; two other possible pairs.

Snowy Owl *Bubo scandiacus*

Fermanagh 2015 One bird, probably female, Aghatirourke RSPB Reserve, Cuilcagh Mountain, 7 May; not seen subsequently.

Short-eared Owl *Asio flammeus*

Louth 2014 One, Baltray, 10 May, no evidence of breeding so presumed migrant or summering bird.



Great Spotted Woodpecker

Dendrocopos major

Fermanagh 2014 Drumming heard in three territories in different estates.

Monaghan 2014 One pair bred successfully, though nest site not found.

Wexford 2014 Two nests located.

Wicklow 2014 28 nests, mainly in the eastern half of county, plus ten other territories where proof of breeding obtained, bringing the total number of pairs known to have bred in Wicklow to 38.

Antrim 2015 Male, Craighagh Wood, Glendun, 17 May.

Carlow 2015 One territory with fledged young, late in season.

Fermanagh 2015 Drumming heard in three 2014 territories, plus another drumming in a fourth estate.

Monaghan 2015 One pair nested in a Scots Pine but failed due to probable depredation by Pine Marten.

Wexford 2015 One occupied site with proof of successful breeding.

Wicklow 2015 34 nests, with proof of breeding at eight other sites, making a county total of 42 pairs.

In 2014 a total of 41 pairs bred in ROI, primarily in Wicklow, and in 2015 a total of 45 sites were recorded in ROI including confirmed breeding in Carlow (see paper by Coombes & Wilson on pages 183-196 in this issue).

Bearded Tit *Panurus biarmicus*

Wexford 2014 Four possible breeding females, Tacumshin, with two of them carrying nesting material, 25 May; male and fledged juvenile, 2 June.

Wexford 2015 Singles seen 6 April and 4 May; five adults, 2 June, including a pair carrying food, all at Tacumshin.

Wood Warbler *Phylloscopus sibilatrix*

Wicklow 2014 Singing males, Croneyburn, 24 and 25 May; Vale of Clara, 30 May; Glendalough, 13 June.

Wicklow 2015 Two singing males, Oldbridge, near Roundwood, 24 May.

Plate 106. Bearded Tit (Michael O'Clery).

Lesser Whitethroat *Sylvia curruca*

Antrim 2014 Singing male, Rathlin Island, 11 May.

Garden Warbler *Sylvia borin*

Kerry 2014 Singing males, Killarney National Park, 4 May; Derrynane, 25 May.

Common Reed Warbler

Acrocephalus scirpaceus

Antrim 2014 21 singing males, Portmore Lough.

Wexford 2014 Up to three singing males, Tacumshin, 21 April to 2 June; four singing males, South Slob, 24 May; one singing male, North Slob, 1 June. Probable migrant, Great Saltee, 31 May.

Wicklow 2014 Total of nine singing males, Ballygannon (Kilcoole)-Newcastle-East Coast Nature Reserve area.

Antrim 2015 13 singing males (probable underestimate), Portmore Lough.

Dublin 2015 One male singing, Kilbogget Park, 15 May, a presumed migrant as not relocated.

Tipperary 2015 One male singing on four days between 12 and 23 May, Cabragh Wetlands; first possible breeding record for county.

Wexford 2015 Five singing males, Tacumshin area, 26 April to 2 June; single male singing, Lady's Island Lake, 24 April.

Wicklow 2015 Total of six singing males, Newcastle-East Coast Nature Reserve area, 29 June.

The population consolidates in Wicklow with migrants arriving back at their breeding sites from 22 April.

Ring Ouzel *Turdus torquatus*

Sligo 2015 One pair on territory and probably nesting, seen over three to four weeks from 24 April.

The first record from outside Donegal and Kerry for many years, with breeding deemed probable.

Common Redstart *Phoenicurus phoenicurus*

Wicklow 2014 Singing male, Glendalough, 17 and 30 May, indicates a territorial bird, but no evidence of breeding.

Whinchat *Saxicola rubetra*

Wicklow 2014 Three adults, Coronation Plantation, 30 May, indicating likely breeding.

Donegal 2015 Pair with four fledged young, near Fintown, 2 July.

Pied Flycatcher *Ficedula hypoleuca*

Wicklow 2014 One pair at nest, Glenmalure, 7 June, fledged young seen one week later.

Wicklow 2015 One singing male, Glenmalure, 29 and 30 May, apparently unmated.

Yellow Wagtail *Motacilla flava*

Wexford 2014 One Blue-headed *M. f. flava*, Tacumshin, 20 June, with a pair carrying food next day proving successful nesting at this site.

Wicklow 2014 Only single sighting of probable migrant, Webb's field, Kilcoole, 4 May.

Twite *Carduelis flavirostris*

Antrim 2014 Three singing males, Rathlin Island, 5 April.

Antrim 2015 One singing male at a regular songpost, Rathlin Island, 18 April; elsewhere on island, two pairs with fledged young, 8 August. No specific reports were received from Mayo observers for the 2014 and 2015 breeding seasons, but definitely breeding on the north coast of the Mullet peninsula, in both years (Dave Suddaby, pers. comm.).

Common Crossbill *Loxia curvirostra*

Wicklow 2014 Total of 48 birds between 17 April and 3 June at four sites: Coronation Plantation, Stump of the Castle, Clara More and Three Castles (Blessington).

Hawfinch *Coccothraustes coccothraustes*

Kerry 2014 One reported, Lyrcrompane, 12 July.

Snow Bunting *Plectrophenax nivalis*

Kerry 2014 Intriguing observation (photographed) of a male, Mount Brandon, 26 May.

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Irish Rare Bird Report 2014

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Introduction

The year under review was the classic year of two halves. The first half was one of the most exciting starts to a year in recent times, whereas the latter half was far more pedestrian. In line with that, both additions to the Irish list in 2014 were during the first six months, with an American Purple Gallinule *Porphyrio martinicus* found dead in Mayo and, less than a week later, a Slaty-backed Gull *Larus schistisagus* in Galway, both of these in February. Undoubtedly, though, the most significant record of the year was a Bermuda Petrel *Pterodroma cabow*, which is categorised as an 'At sea' record as it was observed some 170 nautical miles west of Ireland, a location that lies outside the boundary of the Irish List. Bermuda Petrel is considered endangered by BirdLife International and this is the first sight record for the Western

Paleartic away from the Azores. Ireland's second Pacific Diver *Gavia pacifica* (Galway) and third Sardinian Warbler *Sylvia melanocephala* (Cork) were recorded in April and the fourth records of Red-flanked Bluetail *Tarsiger cyanurus* (Mayo) and American Coot *Fulica americana* (Kerry) were recorded in October and November respectively. Also, this report contains details of the second Little Swift *Apus affinis* from Wexford in May 2002 and the fourth Thrush Nightingale *Luscinia luscinia* from Cork in October 2013. Significant records of sub-species in the report are of the first Eastern Subalpine Warbler *Sylvia cantillans albigristata* from Mayo in 2007 and the first Yellow

Plate 107. Slaty-backed Gull *Larus schistisagus*,
Waterside, Galway City, Co. Galway, February 2014
(Thomas Cuffe).

Wagtail *Motacilla flava* of the *plexa/tschutschensis* complex from Donegal in 2013.

The year started with a phenomenal influx of gulls. Among a record number of Kumlien's Gulls *Larus glaucoides kumlieni* was a small scattering of Arctic gems; four Ross's Gulls *Rhodostethia rosea* and a record-equalling two Ivory Gulls *Pagophila eburnea* across the southern half of the country. Included in these were long staying individuals of both species, allowing many the opportunity to get close range views of these iconic rarities. Other gulls of note during the early months of the year were an Atlantic Gull *Larus michabellis atlantis* in Wexford and the first Laughing Gull *Larus atricilla* since 2008 in Cork, both in January. Three American Herring Gulls *Larus smithsonianus* along the west coast completed a stellar list of early 2014 gulls.

Not to be outdone, other species also occurred in very good numbers early in the year. The Glossy Ibis *Plegadis falcinellus* invasion that started in late 2013 continued strongly into 2014 with 21 new birds found by the end of March. A new Forster's Tern *Sterna forsteri* was found in Mayo in January. The end of that month also saw the beginning of the (by now) annual Scandinavian Rock Pipit *Anthus petrosus littoralis* appearances, with a further 13 found between then and the end of April comprising the second highest annual total of all time. The recent sequence of Snowy Owl *Bubo scandiacus* records was added to with the first for Monaghan at the end of February.

A returning Pied-billed Grebe *Podilymbus podiceps* and American Black Duck *Anas rubripes* were seen in Mayo in early April, but the first new rarity of the spring was a Red-rumped Swallow *Cecropis daurica* in Cork. Later in the month on the same day, but at opposite ends of the country, two handsome rarities were found – a White-billed Diver *Gavia adamsii* in Donegal and a Bee-eater *Merops apiaster* on Dursey Island in Cork. Just 24 hours later Dursey Island produced another great bird with the Sardinian Warbler previously mentioned. May witnessed the arrival of Hobbies *Falco subbuteo* and Little Ringed Plovers *Charadrius dubius*, both recorded annually in recent years. These were followed by the first Whiskered Tern *Cblidonias hybrida* since 2008 in Cork and two White-winged Black Terns *Cblidonias leucopertus* in Donegal. Two different forms of Yellow Wagtail *Motacilla flava* made appearances in late spring – four of the blue-headed form *flava* were not unexpected but the occurrence of Ireland's seventh record of the grey-headed form *thumbergi* in Kerry was notable. Another notable event was the relocation of a Black-winged Stilt *Himantopus himantopus* from Offaly to Cork a few days later.

The summer got off to an auspicious start with the occurrence of a Snowy Owl in Clare, a Marsh Warbler *Acrocephalus palustris* in Cork and an Arctic Redpoll *Acanthis borenmanni* on Dursey Island, Cork, all before 9th June.

Unfortunately, the rest of the summer was quieter than usual, although a Temminck's Stint *Calidris temminckii* in Dublin in early July did its best to alleviate the tedium. Seawatching was a mild distraction from the generally poor fare elsewhere with the second best year ever for the Fea's/Zino's Petrel *Pterodroma feae/madeira* complex, although only small numbers of Wilson's Storm-petrels *Oceanites oceanicus* were seen.

This was the poorest year for Nearctic wader numbers in a decade. Only one Baird's Sandpiper *Calidris bairdii* and one Long-billed Dowitcher *Limnodromus scolopaceus* were found, representing the lowest figures since 2002 and 2000 respectively. Numbers of White-rumped Sandpipers *Calidris fuscicollis* were the lowest since 1998, with only two found and, while ten American Golden Plovers *Pluvialis dominica* occurred, it was their poorest year since 2005. That said, the presence of a Stilt Sandpiper *Calidris bimantopus* in Wexford and Dublin (September) as well as a Solitary Sandpiper *Tringa solitaria* in Wexford (October) added quality to compensate for low numbers.

Despite conditions that were clearly not conducive to transatlantic vagrancy, three Red-eyed Vireos *Vireo olivaceus* (Clare, Cork and Mayo) and a Swainson's Thrush *Catharus ustulatus* (Clare) still managed to arrive on these shores during late September and early October. Red-eyed Vireo in particular seems to be able to turn up under almost any conditions and there are now over 250 records of this Nearctic passerine in the Western Palearctic since the first was found on Vestmannaeyjar, Iceland in September 1951 (Pétursson & Þráinsson 1999). The months of September and October were not as productive as normal. The highlights were the Red-flanked Bluetail in Mayo, a Swainson's Thrush in Clare and two Nightingales *Luscinia megarhynchos*, one in Cork during October and another 'At sea' record west of Loop Head, Clare in September. Most of the regular vagrants occurred in low numbers, although Barred Warbler *Sylvia nisoria* had its third best year and both Wrynecks *Jynx torquilla* and Ortolan Buntings *Emberiza hortulana* turned up in relatively high numbers. In contrast, there was only one Icterine Warbler *Hippolais icterina* (albeit the first since 2010), one Greenish Warbler *Phylloscopus trochiloides*, two Red-backed Shrikes *Lanius collurio* (but no Woodchat Shrike *Lanius senator* for the first time since 2002), while the sole Short-toed Lark *Calandrella brachydactyla* was notable in being the first for Galway.

November produced two great birds, beginning with an American Coot in Kerry that remained into December. In contrast, a Roller *Coracias garrulus* near Manch, Cork remained just long enough to have its picture taken. Otherwise the end of the year drifted away in the inevitable mix of Water Pipits *Anthus spinoletta* and waterfowl although a further small influx of Glossy Ibis during the autumn took the total to a record 35. Nonetheless, there was one final

remainder of migration as the only Richard's Pipit *Antbus richardi* of the year waited until the dark days after Christmas to put in a brief appearance at Galley Head, Cork. The year ended as it had begun with a Kumlien's Gull in Donegal, bringing the annual total for the taxon to an incredible 84!

The backbone of the IRBC's system for recording occurrences of rare birds in the Republic of Ireland is the Provisional List, published online at www.irbc.ie/provisional/provisional.php and updated on a monthly basis. Most of the data in this report were taken directly from the 2014 Provisional List. The IRBC expresses its sincere gratitude to all those who provided information during 2014, either directly or indirectly. Although there are no 2014 records from Northern Ireland in this report due to publication deadlines, we thank the members of the Northern Ireland Birdwatchers' Association Rarities Committee (NIBARC) for the continued close working relationship between that body and the IRBC. The Committee also extends its thanks to Kieran Fahy, Steve Howell, Killian Mullarney and Pat Smiddy for their invaluable assistance.

Records for 2015 (and previous years) should be sent to the following:

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Website www.nibirds.blogspot.ie/p/the-niba.html

Rarity Description forms may be downloaded from the IRBC website www.irbc.ie/records/records.php.

Submission of photographs We welcome photographs of rare and scarce birds, which can be sent to photoArchive@irbc.ie.

Rarities The full list of taxa requiring substantiating documentation can be found at www.irbc.ie/records/desclist.php. For a full explanation of the background and purpose of the list, see *Irish Birds* 7: 413-418 or online at www.irbc.ie/announcements/announce1.php.

2014 Systematic List

The sequence and scientific nomenclature largely follows British Ornithologists' Union (2013), but also incorporates recommendations of the Taxonomic Advisory Committee of the AERC (Crochet *et al.* 2010, 2011, 2012) and the Taxonomic Sub-committee of the British Ornithologists' Union (Sangster *et al.* 2013, 2015). Further details of taxonomic changes adopted by the IRBC can be viewed via the Announcements page on our website www.irbc.ie/announcements/announcements.php.

The three numbers in parentheses after each species refer respectively to (a) the total number of birds up to 31st December 1949; (b) the total number of birds from 1st January 1950, up to, but excluding, the current year – where this total is enclosed in square brackets, totals are from 1st January 2010 only; (c) the total number of new individuals for the current year. Some totals are minimum figures due to lack of precise numbers in historical texts – where this is the case, the total is succeeded by a '+'. In addition to the species totals, the total number of individuals being added to the species total is included immediately following the county name.

Whistling Swan

Cygnus columbianus columbianus (0; 5; 0)

1992 Wexford Zero: Adult, North Slob, 25th January and 1st February (K.Fahy), presumed to relate to the individual that had been present on 28th December 1991 (*Irish Birds* 4: 578).

1991 Wexford Zero: Adult, North Slob, 3rd March (*Irish Birds* 4: 578), was also present on 2nd March (K.Fahy) and is presumed to relate to the individual present on 29th December 1990 (*Irish Birds* 4: 430).

1983 Cork Zero: Adult, Ballycotton, 3rd to 18th February, also visited Ballymacoda, 18th February (P.Smiddy) (*Irish Birds* 2: 550). The same individual was also at Ballycotton in January and February 1985 (*Irish Birds* 3: 296).

The records of an adult reported here for Wexford in 1991 and 1992, and that already published for 1990 (*Irish Birds* 4: 430) refer to the same individual.

Tundra Bean Goose *Anser fabalis rossicus* (0; 31; 0)

2013 Cork One: One, The Gearagh, 27th to 29th April, photographed (A.Duggan *et al.*).

Russian White-fronted Goose
Anser albifrons albifrons (51; 109; 3)

Wexford Two: Two adults, North Slob NNR, 4th to 17th December, photographed (K.Mullarney, A.Walsh *et al.*).

Wicklow One: One, Kilcoole, 8th January, and, presumed same, Newcastle and Kilcoole, 28th February to 23rd March, photographed (N.T.Keogh *et al.*).

The Wicklow bird represents the first record for the county since five were present in December 1997 and January 1998

(*Irish Birds* 6: 384). In fact, away from Wexford, Russian White-fronted Goose is a very rare bird indeed. The occurrence of this taxon in Ireland may be subject to change as the wintering population continues to decline in Britain where the lowest ever numbers were recorded during winter 2013/2014 (www.bto.org/sites/default/files/u18/downloads/publications/wituk-2013-14-web.pdf).

Snow Goose *Anser caerulescens* (70; 49; 0)

Kerry Zero: White morph adult, Carrahane Strand and Barrow Harbour, from 16th September 2013 (*Irish Birds* 10: 73) remained to 7th February.

See Appendix 5 for details of corrections to the statistics.

Cackling Goose *Branta hutchinsii* (0; 27; 0)

Clare Zero: Two, Healey's Marsh and Mutton Island, 12th to 24th March, photographed (D.Cosgrove, C.Cronin *et al.*), presumed the same duo as had been seen at Killard in December 2013 (see below).

2013 Clare Two: Two, Killard, Doonbeg, 7th December, photographed (F.MacGabhann, J.N.Murphy *et al.*).

2012 Donegal Zero: One, Trawbreaga Bay, 3rd March, photographed (C.Cassidy), presumed one of the three previously seen in Sligo until mid-February 2012 (*Irish Birds* 9: 579).

Canada Goose *Branta canadensis* (0; 34; 2)

Clare Zero: One, Healey's Marsh and Mutton Island, 12th to 24th March, photographed (D.Cosgrove, C.Cronin *et al.*), presumed the same individual at Killard in December 2013 (see below).

Louth One: One, Lurgangreen, 29th March to 7th April (P.Kelly *et al.*), photograph *Birdwatch* 263: 15.

Wexford One: One, North Slob NNR, 29th October to 30th December, photographed (A.Walsh *et al.*).



Plate 108. Canada Goose *Branta canadensis*, North Slob NNR, Co. Wexford, December 2014 (Paul Kelly).

2013 Clare One: One, Killard, Doonbeg, 7th December, photographed (F.MacGabhann, J.N.Murphy *et al.*).

2013 Mayo Zero: One, Termoncarragh, Cross Lough and Leam Lough, Mullet Peninsula, 6th October to 23rd March 2014, photographed (D.Suddaby *et al.*), presumed returning.

Black Brant *Branta bernicla nigricans* (0; 39; 0)

Kerry Zero: One, Castlegregory and Scraggane, from 17th November 2013 (*Irish Birds* 10: 74) remained to 12th March and was also seen at Ventry; One, Barrow Harbour, 6th November to 3rd December, photographed (D.A.O'Connor *et al.*); One, Spa, 6th November (M.O'Clery); Adult, Castlegregory, 21st December, photographed (S.Enright), all presumed to relate to two returning and wandering individuals.

American Wigeon *Anas americana* (0; 135; 2)

Cork One: Male, Harper's Island, 14th to 31st December, photographed (T.Gittings *et al.*).

Donegal One: Male, Drowes River, Tullaghan, from 31st October 2013 (*Irish Birds* 10: 75) remained to 1st March, also seen in Leitrim; First-winter male, Lagg, Malin Head, from 23rd November 2013 (*Irish Birds* 10: 75) remained to 21st February, also seen at the Culdaff Estuary; Male, Inch Lake, 30th September to 4th October (T.Campbell); Male, Culdaff Estuary and Malin, 13th October to 31st December, photographed (M.McLaughlin *et al.*), presumed returning; Male, Tullaghan, 17th October to 7th December (F.Cross), presumed returning, also seen in Leitrim.

Leitrim Zero: Male, Drowes River, Tullaghan, from 31st October 2013 (*Irish Birds* 10: 75) remained to 1st March, also seen in Donegal; Male, Tullaghan, 17th October to 7th December (F.Cross), presumed returning, also seen in Donegal.

American Black Duck *Anas rubripes* (0; 20; 1)

Mayo One: Male, Termoncarragh, Mullet Peninsula, 19th January to 20th February, photographed (S.Feeney, G.Mitchell *et al.*); Male, Sruhull Lough, Dooniver, Achill Island, 17th to 20th April, photographed (M.O'Briain), presumed returning.

2013 Kerry One: Female, Killelton Polder, Ballylongford, 3rd July to 9th August, photographed (D.Farrar *et al.*).

Blue-winged Teal *Anas discors* (3; 109; 1)

Cork One: Male, Beamish's Pool, Clonakilty, 27th May, photographed (P.Moore *et al.*).

Lesser Scaup *Aythya affinis* (0; 31; 1)

Galway One: First-winter female, Rahasane Turlough, 12th October, photographed (D.Breen, C.Forkan).

Kerry Zero: Male, Lough Gill, 22nd October to 6th December, photographed (D.Farrar *et al.*), presumed returning.

2013 Kerry One: Male, Lough Gill, 15th November to 17th December, photographed (D.Farrar *et al.*), presumed returning; First-winter female, Ross Castle, Killarney, 28th November, photographed (D.Farrar).

2012 Clare One: First-winter male, Lough Gash, 4th November to 16th March 2013, photographed (J.N.Murphy *et al.*).

2012 Kerry Zero: Male, Lough Gill, 9th November to 31st December, photographed (D.Farrar *et al.*), presumed returning.

2011 Kerry One: Male, Lough Gill, 31st December to 17th February 2012, photographed (A.Duggan *et al.*).

2010 Kerry One: Female, Lough Gill, 31st December to 22nd January 2011, photographed (A.Duggan *et al.*).

Northern Eider *Somateria mollissima borealis* (0; 15; 0)

2013 Donegal Two: Male and female, Tory Island, 9th April, photographed (P.Phillips).

King Eider *Somateria spectabilis* (4; 19; 2)

Cork One: Female, Cahermore, 19th January to 9th March, photographed (F.Moore *et al.*).

Donegal One: Female, Narin Strand and Portnoo, 17th March to 24th April, photographed (P.McDaid *et al.*).

Mayo Zero: Female, Blacksod Bay, Mullet Peninsula, from 22nd November 2013 (*Irish Birds* 10: 75) remained to 4th April.



Plate 109. King Eider *Somateria spectabilis*, Portnoo, Co. Donegal, April 2014 (Patrick McDaid).

Surf Scoter *Melanitta perspicillata* (6; 207; 5)

Clare Zero: Male, Black Head and Ballyvaughan, 8th to 10th March (J.N.Murphy *et al.*), presumed to be the same individual seen at Ballyvaughan in winter 2012/2013 (*Irish Birds* 9: 582).

Cork Zero: First-winter male, Courtmacsherry, from 3rd November 2013 (*Irish Birds* 10: 75) remained to 6th April; Female, Coolbaun, Seven Heads, from 10th November 2013 (*Irish Birds* 10: 75) remained to 22nd January; Adult male, Garrettstown, 27th September, photographed (F.Moore *et al.*), presumed returning.

Kerry Two: Female, Ballinskelligs, 22nd September (M.O'Clery); Female, Reenroe, 16th November (M.O'Clery).

Louth Two: Adult male, The Hermitage, 12th October to 22nd November, photographed (G.O'Neill *et al.*); Female, The Hermitage, 22nd November (M.Tierney).

Sligo One: Male, Mullaghmore, 28th February to 1st March, photographed (N.Rafter, P.Keogh, B.Robson *et al.*).

Ruddy Duck *Oxyura jamaicensis* (0; [4]; 2)

Dublin One: Female, Swords, Knock Lake and Balrothery, 29th December to 12th January 2015, photographed (P.Kelly *et al.*).

Wexford One: Female, Tacumshin Lake, 24th December to 11th January 2015, photographed (P.Kelly *et al.*).

After a rapid increase following the first in 1973 (Culbert & Furphy 1978), this species was removed from the rarity list from 1st January 1989 but was reinstated from 1st January 2010 (see www.irbc.ie/announcements/announce47.php) and statistics are only given from the latter date.

Pacific Diver *Gavia pacifica* (0; 1; 1)

Galway One: Adult winter, Tawin, 5th April, photographed (P.Troake). The only other record was one in the same area in 2009 and 2010 (*Irish Birds* 9: 288, 454). A claim from early in 2011 was presumably the same individual, although no documentation has been received by the IRBC to support this. Notwithstanding that this record is also from Galway Bay, it is treated as a new individual given that there have been neither accepted records nor undocumented claims over two consecutive winters (2011/2012 and 2012/2013) in a relatively well-watched area.

White-billed Diver *Gavia adamsii* (0; 16; 1)

Donegal One: Adult, Malin, 19th April, photographed (R.McLaughlin).

Fea's/Zino's Petrel

Pterodroma feae/madeira (0; 91; 10)

At sea Zero: One, Porcupine Seabight, 1st September, photographed (L.Kavanagh).

Clare One: One, Bridges of Ross, 16th August (E.O'Flynn *et al.*).

Cork Four: One, About eight nautical miles off Galley Head, 30th July (P.Connaughton *et al.*); Two, off Baltimore, 24th August, photographed (P.Connaughton, R.Vaughan *et al.*); One, 11 nautical miles south-southeast of Galley Head, 10th October, photographed (C.Cronin).

Donegal One: One, Malin Head, 3rd August (R.McLaughlin).

Mayo Four: One, Kilcummin Head, 10th August (B.Robson); One, Annagh Head, 10th August (D.Suddaby); One, Kilcummin Head, 13th August (D.Charles, M.Ullman); One, Kilcummin Head, 17th August (J.Donaldson *et al.*).

Bermuda Petrel *Pterodroma cahow* (0; 0; 0)

At sea Zero: One, approximately 170 nautical miles west-northwest of Sleah Head, Co. Kerry, 19th May (N.T.Keogh *et al.*) (Keogh 2014), photograph *Wings* 74: 29.

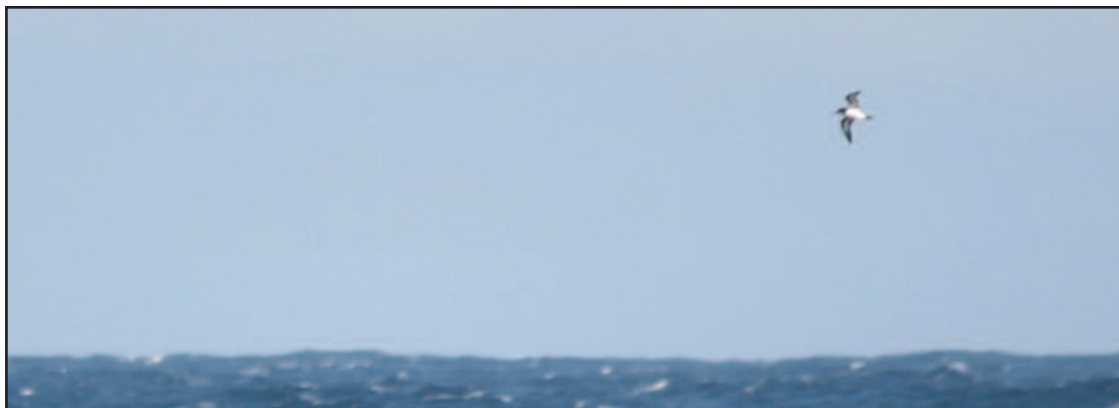


Plate 110. Bermuda Petrel *Pterodroma cahow*, at sea, approximately 170 nautical miles west-northwest of Sleah Head, Co. Kerry, May 2014 (Simon Berrow).

An extraordinary occurrence of an endangered species; recorded during a dedicated survey for seabirds and marine mammals along the western edge of the Porcupine Bank seashelf on the R.V. *Celtic Voyager*. The bird was on view for no more than one minute but passed by the ship close enough to allow for several atmospheric images to be obtained. Observed outside the boundary of the Irish List but within the scope of this report meaning it is not added to the main Irish List but does highlight the tantalising possibility of a land based or inshore occurrence. Due to data logging studies conducted on the breeding grounds much more is now known about the distribution of Bermuda Petrel at sea. For adults at least, the optimum time to search for them in Irish waters appears to be between March and June but particularly April and May, which may encourage some off-peak seawatching. Their great rarity in global terms means that any future observers of a Bermuda Petrel in Irish waters will have to be almost indescribably lucky. The continuing intensive conservation efforts on the breeding grounds offers some hope and has witnessed the breeding population rise to its highest levels in several hundred years with 112 pairs in 2015, up from 108 pairs in 2014 (www.nonsuchisland.com/blog/). It is purely idle speculation as to how common this species was in Irish waters 500 years ago when the population was thought to number over one million birds!

While Bermuda Petrel is not especially difficult to identify, other hoped for species of endangered *Pterodroma* petrels such as Black-capped Petrel *Pterodroma basitata* and even Zino's Petrel *Pterodroma madeira* (which can show extensive white on the underwing, similar to Bermuda Petrel) will need to be taken into consideration. For those keen to take on the challenge, Flood and Fisher (2013) is the essential reference.

Bulwer's Petrel *Bulweria bulwerii* (0; 0; 0)

2003 Kerry Zero: One, Brandon Point, 11th September (*Irish Birds* 7: 574) still considered not proven after review.

1975 Cork Minus one: One, Cape Clear Island, 22nd July (*Irish Birds* 1: 415 & 3: 649), still considered not proven after review; One, Cape Clear Island, 3rd August (*Irish Birds* 1: 415 & 3: 649), now considered not proven after review.

1965 Cork Zero: One, Cape Clear Island, 26th August (*IBR* 13: 14, *Irish Birds* 3: 649), still considered not proven after review.

The result of this review (see *Irish Birds* 10: 264-265) is that Bulwer's Petrel is removed from the Irish List.

Macaronesian Shearwater

Puffinus baroli (1; 22; 0)

2013 Clare One: One, Loop Head, 31st August (Sh.Farrell, O.Foley, R.Vaughan).

Wilson's Storm-petrel

Oceanites oceanicus (2; 252; 13)

At sea Zero: One, approximately 32 nautical miles northwest of Erris Head, Mayo at 54° 39.6'N, 010° 42.6'W, 19th July, photographed (A.G.Kelly *et al.*); One, Porcupine Bank, about 170 nautical miles west of Slyne Head, Galway, 18th September, photographed (N.T.Keogh); One, Porcupine Seabight, 19th September (N.T.Keogh); One, Porcupine Seabight, 20th September (R.Pinfield); One, Porcupine Seabight, 22nd September (N.T.Keogh).

Clare Three: One, Bridges of Ross, 8th August (A.vanLubeck); One, Bridges of Ross, 12th August (E.O'Flynn); One, Bridges of Ross, 30th August (L.Gregory *et al.*).

Cork Ten: Four, around 10 nautical miles off Galley Head, 22nd July, photographed (P.Connaughton); Five, between 10 and 20 nautical miles off Galley Head, 24th July (P.Connaughton); One, 15 nautical miles south-southeast of Galley Head, 10th October (N.T.Keogh).

Numbers recorded from land-based seawatching sites were low and were confined to Bridges of Ross. However, a good showing from pelagic trips off west Cork in late July and

another one in October show that birds are there to be found at either end of the typical seawatching season. The 19th September 'at sea' record over the Porcupine Seabight was notable in that the bird was recorded in the presence of a flock of seabirds associating with a group of seven Killer Whales *Orcinus orca*!

Continental Cormorant

Phalacrocorax carbo sinensis (0; 33; 6)

Dublin One: Adult, Scotsman's Bay, 1st February, photographed (S.Lawlor).

Limerick One: Adult, Corbally, 28th December, photographed (T.Tarpey).

Louth Two: First-winter and second-winter, Port Oriel, 2nd to 3rd February, photographed (P.Kelly *et al.*).

Westmeath One: Immature, Lough Ennel, 20th December, photographed (P.Kelly).

Wexford Zero: Adult, Rosslare Harbour, from 27th December 2013 (*Irish Birds* 10: 77) remained to 4th July.

Wicklow One: Adult, Newcastle, 22nd April, photographed (N.T.Keogh).

2012 Kerry One: One, Cromane, 25th April, photographed (S.Enright).

Bittern *Botaurus stellaris* (161+; 43; 1)

Cork One: One, Kilcolman NNR, 31st March (M.Hirst).

Night Heron *Nycticorax nycticorax* (27; 51; 1)

Cork One: Juvenile, Crosshaven, 29th November, photographed (B.Cudmore).

2011 Kerry One: Adult, Abbeyfeale, 25th November (E.Carty).

Cattle Egret *Bubulcus ibis* (0; 250; 5)

Laois One: One, Cullahill, 22nd June (E.Salholm).

Waterford One: Up to two, Bunmahon, from 21st December 2013 (*Irish Birds* 10: 78) remained to 29th January; One, Saleen, Tramore Back Strand, 27th April (J.D.Power).

Wexford Two: Two, Tacumshin Lake, 27th April to 15th June (T.Kilbane *et al.*), photograph *Wings* 74: 30.

Wicklow One: One, East Coast Nature Reserve, Blackditch, 11th March, photographed (C.Clarke).

There were just ten records between the first in 1976 and 2006. Thereafter a remarkable influx of over 200 birds took place between late autumn and winter of 2007 and the end of 2009, with a few stragglers remaining to March 2010. These were spread across Cos. Clare, Cork, Donegal, Galway, Kerry, Kilkenny, Limerick, Waterford, Wexford and Wicklow. Included here is the first record for Laois, which missed out during the influx.

Great White Egret *Ardea alba* (0; 60; 5)

Galway Two: One, Angliham, Lough Corrib, 6th September (A.Ó'Dónaill *et al.*), and, presumed same, Muckrush, 30th November



Plate 111. Cattle Egret *Bubulcus ibis*, Tacumshin Lake, Co. Wexford, May 2014 (Tom Shevlin).



Plate 112. Cattle Egret *Bubulcus ibis*, with Little Egret *Egretta garzetta*, East Coast Nature Reserve, Co. Wicklow, March 2014 (Colum Clarke).

to 31st December, photographed (N.Ellis *et al.*); One, Kinvarra, 30th October (P.Troake), and, presumed same, Aughinish, 23rd November (C.Peppiatt).

Mayo One: One, Sruwaddacon Bay, 2nd October (G.Fennessy).

Wexford One: One, Churchtown, 25th October, photographed (M.Noonan), and, presumed same, Tacumshin Lake, 2nd November (P.Kelly), and, presumed same, Cahore Marsh, 12th to 23rd November (C.Foley, D.Foley, M.Stewart *et al.*).

Wicklow One: One, Vartry Reservoir, 28th July, photographed (P.King *et al.*).

2009 Monaghan One: One, Ballybay Wetlands, 19th December, photographed (D.Nesbitt *et al.*).

These include the first record for Monaghan.

Purple Heron *Ardea purpurea* (1; 23; 0)

2013 Dublin One: One, Knock Lake, 28th April (B.Gormley).

As might be expected, the first for Dublin and, of the neighbouring counties, only Wicklow has recorded one – at Kilcoole and Killoughter in April 1996 (*Irish Birds* 6: 67).

White Stork *Ciconia ciconia* (6; 28; 0)

2002 Waterford Zero: One, Tallow, 28th April (N.Hennessy per P.Smiddy), presumed to be the same individual seen in Cloyne (Cork) a few days previously (*Irish Birds* 7: 393).

Glossy Ibis *Plegadis falcinellus* (103; 170; 35)

Clare One: One, Lough Atedaun, 12th January (D.McNamara).

Cork Nine: First-winter, Carrigrohane, Cork City, from 26th December 2013 (*Irish Birds* 10: 78) remained to 12th January; Two, Owenahincha Cross, from 27th December 2013 (*Irish Birds* 10: 79) remained to 12th January; Two, Ballycotton, 8th January to 2nd August, photographed (D.O'Sullivan *et al.*); One, Timoleague, 5th to 15th March (D.Hollingsworth); Two, Oysterhaven, 29th March (U.Keating); Two, Cuskinny Marsh, Great Island, 30th May, photographed (M.Carmody); Two, Ballywilliam, 1st July (D.O'Sullivan).

Dublin One: One, Rogerstown Estuary, 6th to 7th September (C.Crowley *et al.*).

Kerry One: One, Callinafercy, 6th to 15th March, photographed (D.O'Loughlin *et al.*).

Limerick Two: One, Coonagh, 7th March to 5th April, photographed (T.Tarpey); One, Coonagh, 7th to 14th June (T.Tarpey).

Louth Two: One, Grangebellew, 3rd May to 7th August (G.O'Neill *et al.*), photograph *Wings* 74: 28; One, Ardee, 18th October (P.Phillips).

Mayo Zero: One, Kilmeena, from 30th December 2013 (*Irish Birds* 10: 79) remained to 2nd January.

Offaly One: One, Shannonbridge, 17th January to 1st March, photographed (per S.Heery *et al.*).

Roscommon One: One, Lough Funshinagh, 14th June to 2nd July (A.G.Kelly, P.Brennan).

Sligo Two: Two, Ballincar, 26th February to 3rd April, photographed (P.Keogh *et al.*).

Tipperary One: One, Cabragh Wetlands, 1st March (P.Brennan).

Waterford One: One, Tramore Back Strand, 20th September to 15th December, photographed (A.Allen *et al.*).

Wexford Thirteen: One, South Slob, from 31st December 2013 (*Irish Birds* 10: 79) remained to 9th February; One, The Cull, 4th January, photographed (P.Kelly); Three, Ballyhealy Marsh, 8th to 11th January, photographed (T.Murray); One, Riverchapel, 9th January (J.Adamson); One, Wexford Harbour, 9th February, photographed (P.Kelly); Two, Cahore Marsh, 28th January to 31st May, photographed (P.Lee *et al.*); One, Enniscorthy, 23rd March (A.Savitzky); One, The Cull, 1st September (M.Wink); One, Ring Marsh, 4th September (B.Haslam); One, Tacumshin Lake, 6th September (P.Kelly); One, Tacumshin Lake, 16th October (P.Kelly).

For the third year in a row, a new record is set, with one more than in 2013, including firsts for Roscommon, Limerick, Louth and Sligo. With growing numbers it is becoming increasingly difficult to keep an accurate account of numbers involved and duplication cannot be ruled out.



Plate 113. Glossy Ibis *Plegadis falcinellus*, Ballincar, Co. Sligo, February 2014 (Micheál Casey).

Spoonbill *Platalea leucorodia* (92; 145; 7)

Kerry Zero: Adult, Cromane Harbour, from 1st October 2013 (*Irish Birds* 10: 79) remained to 9th March; Adult, Cromane Harbour, 20th September to 31st December, photographed (M.O'Clery *et al.*), presumed returning.

Louth One: Juvenile, The Hermitage, 19th October to 27th November, photographed (G.O'Neill *et al.*).

Waterford One: Adult, Dungarvan, from 28th October 2013 (*Irish Birds* 10: 79) remained to 15th February; Adult and juvenile, Dungarvan, 26th November to 29th December, photographed (F.O'Connell *et al.*), adult presumed returning.

Wexford Four: One, Rosslare, 3rd March (F.Tennant *et al.*); Adult, North Slob NNR, 19th May, photographed (A.Butler, J.Kiernan, A.Walsh); Adult, Tacumshin Lake, 23rd July to 1st August, photographed (K.Mullarney); Adult, Tacumshin Lake, 14th September (E.Dempsey).

Wicklow One: One, Kilcoole, 16th May (C.Cardiff, T.Cardiff).

2001 Waterford One: Older than first-winter, Kinsalebeg, 18th December to 9th January 2002 (P.Smiddy).

Pied-billed Grebe *Podilymbus podiceps* (0; 12; 0)

Mayo Zero: Adult in summer plumage, Sruhullbeg Lough, Achill Island, 16th April, photographed (M.O'Briain), presumed returning.

Black Kite *Milvus migrans* (0; 20; 0)

2013 Mayo One: One, Tarmon Hill, Mullet Peninsula, 1st June (D.Suddaby).

2012 Galway One: One, Derrynreen, Recess, 20th April, videoed (T.McDermott).

2010 Cork One: One, Toe Head, 9th October (A.Brewer, C.Cronin, T.Kelly).



Plate 114. American Purple Gallinule *Porphyrio martinicus*, Carne Golf Links, Mullet Peninsula, Co. Mayo, February 2014 (Dave Suddaby).

Montagu's Harrier *Circus pygargus*
(23; 63; 1)

Wexford One: Female, Tacumshin Lake, 5th to 6th August (K.Grace *et al.*).

Spotted Crake *Porzana porzana*
(Unknown; 50; 2)

Cork One: Male, calling at night in breeding habitat, west Cork, 4th to 6th May (Observer names withheld).

Wexford One: One, Tacumshin Lake, 13th August (T.Murray).

1996 Wicklow One: One, heard, 26th to 27th April (P.Farrelly, A.McMillan).

American Purple Gallinule
Porphyrio martinicus (0; 0; 1)

Mayo One: First-winter male, found dead, Carne Golf Links, Mullet Peninsula, 2nd February (K.Donnely, E.Killeen, D.Suddaby) (Suddaby 2014), photograph *Wings* 73: 26.

This represents the first record of this New World species for Ireland. The typical wintering range of the species migratory populations extends from southern Florida south to Argentina, however during the autumn and late winter of

2013/2014 there were an unusual number of observations and specimens collected across North America and Bermuda well outside its expected range. In addition, there were at least two claims (yet to be accepted by the relevant rarity committees) of this species in the Western Palearctic; at the Parque Florestal Monsanto, Lisbon, Portugal from the 7th to 11th November 2013 and on the River Krossá, Fljótshverfi in southern Iceland on 30th January 2014. While it was mooted that the polar vortex of January 2014 might have influenced the displacement of some birds, it was not particularly cold in Florida. In fact, temperatures in Florida that winter were slightly above average. The current thinking is that severe drought conditions over southeastern Mexico, Central America, the Caribbean and northern South America, including the Greater Antilles, coupled with the movement of air parcels across that region, could quite easily have influenced a northward passage towards Canada and, for some it appears, across the Atlantic. A very interesting analysis on these movements was presented in The Cornell Laboratory of Ornithology Birdcast article published on 12th February 2014 (<http://birdcast.info/forecast/purple-gallinule>).

American Coot *Fulica americana* (0; 3; 1)

Kerry One: One, Lough Gill, 5th November to 7th December, photographed (D.Farrar *et al.*).

The fourth record and the fourth different county to host one, following records from Cork (1981), Mayo (2011) and Galway (2013).

Crane *Grus grus* (29; 160; 4)

Cork One: One, between Ballydehob and Skibbereen, 15th December (P.Wolstenholme).

Dublin Two: Up to two, Baldongan, North Bull Island, Lusk, Donabate and Rogerstown, 12th to 20th December, photographed (J.English *et al.*).

Westmeath One: One, between Athlone and Moate, 11th February (N.T.Keogh).

Wicklow Zero: Adult, Newcastle and Kilcoole, from 23rd November 2013 (*Irish Birds* 10: 80) remained to 22nd March, and, presumed same, Redcross, 17th April (P.Kelly).

Stone Curlew *Burhinus oedipnemos* (15; 12; 0)

2011 Galway One: One, Loughaunbeg, Inveran, 18th August (A.Ó'Donail).

Black-winged Stilt *Himantopus himantopus* (13; 42; 2)

Clare One: One, Doonbeg, 23rd August (G.Fennessy).

Cork Zero: Male, Clogheen Marsh and White's Marsh, 30th to 31st May, photographed (R.Cronin *et al.*), previously seen in Offaly.

Offaly One: Male, Finnermore Lake, Lough Boora Parklands, 28th May (J.M.Murphy *et al.*), photograph *Wings* 74: 30, subsequently seen in Cork.

Avocet *Recurvirostra avosetta* (36; 119; 1)

Wexford One: Second calendar-year, Lady's Island Lake, 27th June, photographed (T.Murray *et al.*).

See Appendix 5 for corrections and clarifications of the statistics.

American Golden Plover

Pluvialis dominica (1; 264; 10)

Cork One: Juvenile, Ring Strand, Ballymacoda, 4th October (D.O'Sullivan).

Donegal One: One, Tory Island, 27th September (J.Adamson, C.Ingram, R.Sheppard).

Galway One: Juvenile, Aillebrack, Slyne Head, 21st October to 3rd November, photographed (D.Breen *et al.*).

Kerry Two: One, Carrahane Strand, 12th September (G.Walker); One, Ferriter's Cove, 14th to 19th September (I.Jones *et al.*).

Mayo Three: Adult summer, Inishkeas, 24th June (D.Suddaby); Adult, Tarmon, Mullet Peninsula, 1st July, photographed (D.Suddaby); Juvenile, Corragoun Lough, 3rd October (J.Donaldson).

Wexford Two: Adult, Tacumshin Lake, 1st June (P.Kelly); One, Tacumshin Lake, 28th September, photographed (P.Kelly).

1978 Mayo One: Adult, Termoncarragh Lake, 24th September (*Irish Birds* 1: 426), previously considered indeterminate Lesser Golden Plover.

1971 Cork One: Adult, Ballycotton, 10th to 18th September (*IBR* 19: 35), previously considered indeterminate Lesser Golden Plover.

1971 Kerry One: Adult, Akeragh Lough, 25th May (*IBR* 19: 34), previously considered indeterminate Lesser Golden Plover.

1966 Roscommon One: Juvenile, Keenagh Turlough, near Mount Talbot, 15th to 16th October (*IBR* 14: 29), previously considered indeterminate Lesser Golden Plover.

1963 Kerry One: Adult, Akeragh Lough, 15th to 22nd September (*IBR* 11: 17), previously considered indeterminate Lesser Golden Plover.

The lowest number recorded since 2005. For the results of a review by the IRBC of 20th century records of Lesser Golden Plover *Pluvialis dominica dominica/fulva* see *Irish Birds* 10: 266-267.

American/Pacific Golden Plover

Pluvialis dominica/fulva (0; 23; 0)

The following records, previously considered indeterminate American/Pacific Golden Plover are now considered acceptable as American Golden Plover *Pluvialis dominica* after review:

1978 Mayo Minus one: Adult, Termoncarragh Lake, 24th September (*Irish Birds* 1: 426).

1971 Cork Minus one: Adult, Ballycotton, 10th to 18th September (*IBR* 19: 35).

1971 Kerry Minus one: Adult, Akeragh Lough, 25th May (*IBR* 19: 34).

1966 Roscommon Minus one: Juvenile, Keenagh Turlough, near Mount Talbot, 15th to 16th October (*IBR* 14: 29).

1963 Kerry Minus one: Adult, Akeragh Lough, 15th to 22nd September (*IBR* 11: 17).

The following records are still considered indeterminate after review:

1983 Cork Zero: Adult, Ballycotton, 22nd to 23rd July (*Irish Birds* 2: 557).

1983 Galway Zero: One, Rahasane Turlough, 23rd August (*Irish Birds* 3: 111) and one, Rahasane Turlough, 15th to 29th September (*Irish Birds* 2: 557) should be treated as follows – Adult, Rahasane Turlough, 23rd August to 7th September (P.Buckley) and, presumed same, Rahasane Turlough, 15th to 29th September (M.Donohue *et al.*); Juvenile, Rahasane Turlough, 7th September (P.Buckley).

1978 Wexford Zero: Adult, Tacumshin Lake, 25th to 27th September (*Irish Birds* 1: 426).

1971 Dublin Zero: Adult, North Bull Island, 10th October (*IBR* 19: 35).

1970 Cork Zero: One, Barley Cove, 19th to 21st August (*IBR* 18: 29).

1969 Kerry Zero: Adult, Ballinrannig Marsh, near Ballyferriter, 25th June (*IBR* 17: 34); One, Cooltraw, near Akeragh Lough and Carrahane Strand, 13th to 27th September (*IBR* 17: 34).

1966 Cork Zero: Adult, Lissagriffin, 7th to 21st September (*IBR* 14: 29); One, Shanagarry, 18th September (*IBR* 14: 29); Adult, Douglas Estuary, 30th September to 8th October (*IBR* 14: 29).

Pacific Golden Plover *Pluvialis fulva*

(0; 13; 0)

1999 Galway Zero: Adult, Inishbofin, 9th September (*Irish Birds* 6: 553), still considered acceptable after review.**Little Ringed Plover** *Charadrius dubius*

(0; 130; 8)

Cork One: Adult, Ring Strand, Ballymacoda, 15th May (D.O'Sullivan).**Waterford** One: Adult, Annewstown, 23rd May, photographed (D.Clarke).**Wexford** Six: Juvenile, Tacumshin Lake, 24th July to 1st August, photographed (M.McLoughlin *et al.*); Juvenile, Tacumshin Lake, 26th July to 7th August, photographed (P.Kelly *et al.*); Juvenile, Lady's Island Lake, 15th to 17th August, photographed (P.Kelly); Juvenile, Tacumshin Lake, 31st August to 13th September, photographed (P.Kelly, M.McLoughlin, K.Mullarney *et al.*); Juvenile, North Slob NNR, 2nd September (A.Walsh); Juvenile, Ring Marsh, 12th September, photographed (P.Kelly).**1999 Waterford** One: Adult female, The Cunnigar, Dungarvan, 1st May (C.Flynn *et al.*).**Dotterel** *Charadrius morinellus* (146; 157; 4)**Clare** One: Juvenile, Loop Head, 4th October, photographed (T.Mee, T.Tarpey *et al.*).**Wexford** One: Juvenile, Tacumshin Lake, 19th to 21st October, photographed (A.A.Kelly, P.Kelly *et al.*).**Wicklow** Two: Juvenile, Mullaghcleevaun Mountain, 22nd September(F.Ryan); Juvenile, Maulin Mountain, 2nd to 8th October, photographed (P.Hogan *et al.*).

See Appendix 5 for corrections and clarifications of the statistics.

Hudsonian Whimbrel *Numenius hudsonicus*

(0; 3; 0)

1960 At sea Zero: One, 105 nautical miles west-southwest of Fastnet Rock, Cork, 24th August, photographed (S.E.Chapman) (Chapman 1961).This individual was first noticed early on the morning of 24th August 1960 on board the S.S. *Birmingham City* while it was east-bound in the Atlantic. It remained on board or close by the ship until 15:10, when it was observed to fly against the side of the ship and fall back in to the water, not to be seen again. By this time the *Birmingham City* was 105 nautical miles west-southwest of Fastnet Rock. At sea records are not included in the species totals.**Stilt Sandpiper** *Calidris himantopus* (0; 15; 1)**Dublin** Zero: Adult, Swords Estuary, 4th to 7th September (N.Griffin, P.Kelly *et al.*), photograph *Wings* 75: 29. Same individual as seen before and after these dates in Wexford, see next record.**Wexford** One: Adult, Tacumshin Lake, 2nd September, Ring Marsh, 3rd September, Lady's Island Lake, 10th September, and Rosslare Back Strand, 12th to 13th September, photographed (K.Mullarney *et al.*). Same individual reported in Dublin also, see previous record.**Plate 115.** Dotterel *Charadrius morinellus*, Maulin Mountain, Co. Wicklow, October 2014 (R.H. Coombes).

This bird covered a lot of ground while in Ireland. Initially identified in flight as it departed Tacumshin Lake in the company of a party of Ruff *Calidris pugnax*, it was relocated the following evening at Ring Marsh, loosely associating with a small number of Redshank *Tringa totanus*. It could not be found in Wexford the following day, but amazingly, the same bird (recognisable individually on plumage detail) was discovered that afternoon at Swords Estuary, Co. Dublin, where it attracted a lot of interest during its four-day stay. Wexford birders had another chance to catch up with this bird when it was relocated at Lady's Island Lake on 10th September and, after another short absence, reappeared at Rosslare Back Strand from 12th to 13th September. The same bird was subsequently claimed in France, at Joué-sur-Orde, Loire Atlantique, from 25th September to 4th October (yet to be accepted by the French Rarity Committee). There is precedence for a Stilt Sandpiper observed in Wexford relocating outside the country. An adult summer bird at The Cull on 23rd and 24rd June 2009 (*Irish Birds* 9: 469) was later observed at Loch of Strathbeg, Aberdeenshire in Scotland (Hudson *et al.* 2010) the following month, just over 400 miles distant.

There are five previous records of the species in Wexford (1983, 1988, 1989, 2000 & 2009) but this is the first to be recorded in Dublin. Wicklow birders were understandably a little peeved by the near certainty that this bird must have passed through that county twice, undetected!

Temminck's Stint *Calidris temminckii* (1; 41; 1)

Dublin One: Adult, Sandymount, 5th July, photographed (H.Delaney *et al.*).

Baird's Sandpiper *Calidris bairdii* (0; 148; 1)

Mayo One: Juvenile, Cross Lough, Mullet Peninsula, 26th to 27th September, photographed (P.Troake *et al.*).

The lowest number recorded since 2002.

White-rumped Sandpiper

Calidris fuscicollis (0; 325; 2)

Cork One: Adult, Pilmore Strand, 17th August (D.O'Sullivan).

Wexford One: Adult, Tacumshin Lake, 9th to 10th July, photographed (C.Cardiff, T.Cardiff *et al.*).

2000 Cork One: Juvenile, Pilmore Strand, 11th October (P.Smiddy).

The lowest number recorded since 1998.

Red-necked Phalarope

Phalaropus lobatus (3; 44; 2)

Kerry One: Adult, Great Skellig, 20th June, photographed (K.Collins).

Mayo One: Juvenile, found dead, Achill Island, 2nd October, photographed (J.Donaldson).

Since 2013, the IRBC only considers records of this species outside the breeding season (see *Irish Birds* 10: 84).



Plate 116. Baird's Sandpiper *Calidris bairdii*, Cross Lough, Co. Mayo, September 2014 (Dermot Breen).

According to Cramp and Simmons (1983) the breeding season begins in late May and lasts to the end of July, with adult females departing from the end of June and males by the end of July. Consequently, records between May and July inclusive are regarded as potentially breeding and the totals above exclude birds observed in breeding habitat in these months. An analysis of historical records shows almost all records from late May to the end of July were of birds in potential breeding habitat. The only exceptions, apart from the Kerry record above, are of one flying south past Bridges of Ross in June 2008 (*Irish Birds* 9: 92) and one 10 km off Annagh Head in July 2012 (*Irish Birds* 9: 592) – these are treated as migrant birds and are included in the totals.

Terek Sandpiper *Xenus cinereus* (0; 7; 0)

2009 Kerry One: One, Barrow Harbour, 10th to 14th September (J.Adamson *et al.*).

Spotted Sandpiper *Actitis macularia*

(1; 44; 0)

2012 Kerry One: One, Ross Castle, Killarney, 23rd to 25th October (W.Wagstaff *et al.*).

Solitary Sandpiper *Tringa solitaria* (0; 5; 1)

Wexford One: Juvenile, Duncormick, Rathangan and The Cull, 6th to 14th October (J.Lambert, M.Maddock *et al.*), photograph *Wings* 76: 27.

Over twenty years ago, Matti Maddock constructed a pond in his garden with the express wish of attracting a Solitary Sandpiper some day. On the afternoon of 6th October 2014 he noticed a sandpiper in the corner of the pool but viewed directly against the glare of the sun it was impossible to discern detail. The bird's shape (and the fact that it hadn't flown off as he approached) made him suspicious that this was the bird he had been waiting for! However, as he cautiously manoeuvred into a better position the bird



Plate 117. White-rumped Sandpiper *Calidris fuscicollis*, with Dunlin *Calidris alpina*, Tacumshin Lake, Co. Wexford, July 2014 (Paul Kelly).

disappeared silently without him noticing, thereby depriving him an opportunity to check the all-important rump and tail. He was confident it would return, but before it did he received a phone call from his friend and neighbour to tell him there was a surprisingly confiding sandpiper on his newly-constructed pool, and he had managed to obtain some photographs of it... the rest, as they say, is history, but the story demonstrates two things; good things come to those who wait, but in the right circumstances some people do not have to wait as long as others! This long-anticipated first for Wexford delighted many visitors but proved to be far from easy to connect with for some as it utilised a series of little-known pools, creeks and marshes in the vicinity of the original sightings.

Lesser Yellowlegs *Tringa flavipes* (0; 146; 6)

Clare One: Juvenile, Moyasta, 27th to 31st October, photographed (V.Caschera, J.F.Dowdall, D.O'Mahony *et al.*).

Cork One: Juvenile, The Gearagh, 2nd to 5th October (A.Duggan *et al.*).

Donegal One: Juvenile, Blanket Nook, 6th to 19th September (D.Brennan, B.Robson *et al.*).

Dublin One: Juvenile, Rogerstown Estuary, 1st October to 30th December (R.Vaughan *et al.*), photograph *Birdwatch* 271: 20.

Offaly Two: Two juveniles, Derrinlough, 9th September, photographed (P.Brennan).

The one bright spot for Nearctic waders in 2014, although six is no higher than the average for the previous decade. This is the second time Offaly has recorded Lesser Yellowlegs, following one at Shannon Harbour in December 1996 (*Irish Birds* 6: 297), and two together at an inland location is notable.

Long-billed Dowitcher

Limnodromus scolopaceus (2; 121; 1)

Offaly One: Adult summer, Boora Lake, Lough Boora Parklands, 18th to 25th August, photographed (P.Brennan *et al.*).

Both 2013 and 2014 have recorded just a single bird each, the joint lowest number since 2000.

Whiskered Tern *Chlidonias hybrida* (1; 20; 1)

Cork One: Adult, Lough Aderry, Ballybutler Lake and Ballyhonock Lake, 4th to 13th May, photographed (D.O'Sullivan *et al.*).

This is the first record since one at Kilcolman NNR, Cork in 2008.

White-winged Black Tern

Chlidonias leucopterus (9; 91; 3)

Donegal Two: Two, Tory Island, 15th May, photographed (A.Meenan).

Limerick One: Juvenile, Coonagh, 31st August to 2nd September (T.Tarpey), photograph *Birdwatch* 268: 16.

1994 Waterford One: Adult, Ballinclamper, Clonea, 9th September (C.Flynn *et al.*).



Plate 118. Solitary Sandpiper *Tringa solitaria*, Rathangan, Duncormick, Co. Wexford, October 2014 (Killian Mullarney).

Forster's Tern *Sterna forsteri* (0; 38; 1)

Dublin Zero: Adult winter, Rogerstown Estuary, 15th to 30th October (Sh.Farrell *et al.*), photograph *Birdwatch* 271: 15, presumed returning.

Galway Zero: Adult winter, Nimmo's Pier, 16th February to 11th April, photographed (J.F.Dowdall, A.G.Kelly *et al.*), presumed returning; Adult winter, Galway Bay, 23rd November to 20th December, photographed (C.Peppiatt *et al.*), presumed returning.

Louth Zero: Adult winter, Dundalk, 14th to 28th September, photographed (D.Hodgers, G.O'Neill *et al.*), presumed returning.

Mayo One: First-winter, Elly Strand, Mullet Peninsula, 16th January to 23rd February, photographed (D.Suddaby *et al.*).

2007 Kerry One: Adult winter, Blennerville, 24th September (E.Carty).

Ivory Gull *Pagophila eburnea* (7; 10; 2)

Kerry One: Juvenile, Cromane, 30th to 31st January, photographed (S.Enright *et al.*).

Wexford One: Juvenile, Tacumshin Lake, 8th to 24th January (T.Murray *et al.*), photographs *Birdwatch* 261: 15, *Wings* 73: 28.

Winter storms washed the corpse of a Harbour Porpoise *Phocoena phocoena* into Tacumshin Lake, which no doubt enticed the Ivory Gull to that site. It remained faithful to the

area for some time allowing many to catch up with stunning views of this highly sought after species; an unusual, but welcome, addition to the Tacumshin Lake site list.

Bonaparte's Gull

Chroicocephalus philadelphia (1; 71; 4)

Kerry One: Adult, Dingle, 23rd April (D.Farrar).

Waterford One: Adult winter, Tramore, 2nd November, photographed (M.Cowming *et al.*).

Wexford Two: Adult, Tacumshin Lake, 8th to 13th May, photographed (K.Mullarney *et al.*); Different adult, Tacumshin Lake, 11th May, photographed (T.Kilbane *et al.*).

2004 Waterford One: Adult, Shandon, Dungarvan, 24th April, photographed (C.Flynn *et al.*).

Ross's Gull *Rhodostethia rosea* (0; 18; 4)

Cork One: Adult winter, Kinsale, 9th February to 9th March (B.Power *et al.*), photograph *Birdwatch* 262: 10.

Dublin One: Adult winter, North Bull Island and Poolbeg, 15th January to 27th February (N.T.Keogh, R.Whelan *et al.*), photograph *Wings* 73: 28.



Plate 119. Ivory Gull *Pagophila eburnea*, Cromane, Co. Kerry, January 2014 (Seamus Enright).



Plate 120. Ivory Gull *Pagophila eburnea*, Tacumshin Lake, Co. Wexford, January 2014 (Tom Shevlin).



Plate 121. Ross's Gull *Rhodostethia rosea*, Kinsale, Co. Cork, February 2014 (Leon van der Noll).



Plate 122. Ross's Gull *Rhodostethia rosea*, North Bull Island, Co. Dublin, January 2014 (Victor Caschera).

Galway One: Adult winter, Salthill, 4th January, photographed (A.O'Dónaill *et al.*).

Wexford One: Adult winter, Lady's Island Lake, 20th February, photographed (T.Murray *et al.*).

These are the first since 2005, and represent the best year on record exceeding by one the totals in both 1981 and 1983.

Laughing Gull *Larus atricilla* (0; 42; 1)

Cork One: First-winter, Ballycotton, 18th January to 16th March (O.Foley, N.Gleeson *et al.*), photographs *Birdwatch* 262: 14, *Wings* 73: 27, and, presumed same, as second calendar-year, Ballycotton, 27th June to 28th December (D.O.Sullivan *et al.*), photographs *Birdwatch* 268: 16, *Wings* 75: 29.

This is the first record since one on the Mullet Peninsula, Mayo in 2008.

Franklin's Gull *Larus pipixcan* (0; 17; 0)

2006 Down Zero: First-winter, Dundrum Inner Bay South, 28th to 29th January (*Irish Birds* 8: 403) – finders should read (D.Charles, W.Farrelly).



Plate 123. Laughing Gull *Larus atricilla*, Ballycotton, Co. Cork, January 2014 (David O'Connor).

Atlantic Gull *Larus michahellis atlantis*

(0; 12; 2)

Birds showing characters of the Atlantic island form, in particular, the somewhat more distinctive Azorean population.

Kerry One: 4th calendar-year, 21st to 25th October, Dingle, photographed (R.Moore *et al.*).

Wexford One: Adult, Wexford Harbour, 17th to 27th January (C.Foley, D.Foley *et al.*), photograph *Birdwatch* 261: 15.

2013 Cork One: Third-winter, Rosscarbery, 29th October, photographed (B.Richards).

American Herring Gull

Larus smithsonianus (0; 92; 4)

Cork One: Second calendar-year, Baltimore, 17th February (J.Wyllie).

Donegal One: First-winter, Killybegs, 20th December (O.Foley, R.Vaughan).

Kerry One: Second-winter, Portmagee, 9th to 25th March (P.Connaughton *et al.*), photograph *Birdwatch* 263: 15.

Mayo One: First-winter, Carrowmore Lake, 17th February to 23rd March, photographed (C.Foley, D.Foley *et al.*).

2010 Kerry Zero: Second calendar-year, Blennerville, 11th July to 1st October (*Irish Birds* 9: 301) was present until 2nd October (E.Carty).

Slaty-backed Gull *Larus schistisagus* (0; 0; 1)

Galway One: Fourth-winter, Waterside, Galway City, 8th February (T.Cuffe) (Cuffe 2014), photograph *Wings* 73: 27.

This is a first for Ireland and only the fourth Western Palearctic record, following birds in Lithuania in 2008 (and presumed same individual the following year in neighbouring Latvia), Finland in 2012 and Belarus in 2012. In addition, there are pending records from Britain (2011) and Iceland (2012). This large and stocky dark-backed gull is largely sedentary in parts of extreme northeastern Asia with some post-breeding dispersal west to the Bering Sea and south to the Sea of Japan and occasionally further south along the Chinese coast and to Taiwan. As a vagrant, it has reached North America on both west and east coasts and was added to the Western Palearctic list after a near-adult bird was observed at Klaipeda Rubbish Tip, Lithuania in November 2008.

Kumlien's Gull *Larus glaucooides kumlieni*

(0; 213; 84)

Clare Five: First-winter, Lahinch, 9th to 19th January, photographed (J.Copner *et al.*); First-winter, Quilty, 28th January, photographed (D.Farrar); Third-winter, Carrigaholt, 13th March, photographed (C.Cronin); First-winter and adult, Kilkee, 14th March (C.Cronin).

Cork Twelve: Adult, Ballycotton, 24th January, photographed (D.A.O'Connor); First-winter, Kinsale, 25th January to 22nd February, photographed (J.Diggin *et al.*); First-winter, Ballycotton, 1st February to 13th March, photographed (O.Foley *et al.*); First-winter, Long Strand and Kilkerran Lake, 7th February to 16th March (C.Barton); Two first-winters, Courtmacsherry, 8th February (J.Diggin); First-winter, Old Head of Kinsale, 11th February (R.O'Driscoll); First-winter, Castletownbere, 16th February, photographed (H.Hussey, D.O'Sullivan,



Plate 124. Kumlien's Gull *Larus glaucooides kumlieni*, Poolbeg, Co. Dublin, February 2014 (Aidan G. Kelly).

M.Shorten); One, Timoleague, 18th March (P.Wolstenholme); Two first-winters, Ballycotton, 22nd March (R.McLaughlin); First-winter, Ring, Clonakilty, 23rd March to 13th April (M.O'Keeffe).

Donegal Seventeen: Fourteen at Killybegs as follows: Adult, 3rd to 29th January (D.Charles); Another adult, 29th January (J.N.Murphy); Three first-winters, one second-winter and one adult, 8th to 22nd February, photographed (D.Charles *et al.*); One first-winter, two second-winters and an adult, in addition to those seen on 8th February, 9th to 22nd February, photographed (B.Robson *et al.*); Third-winter, 9th to 15th February (B.Robson *et al.*); Returning adult, 15th to 22nd February, photographed (D.Charles *et al.*); First-winter and second-winter, 22nd February, photographed (D.Charles *et al.*); Three at locations other than Killybegs, as follows: First-winter, St.John's Point, 9th February (M.Callaghan, D.Charles); First-winter, Malin Head, 21st February (R.McLaughlin); Second-winter, Greencastle, 31st December (R.McLaughlin).

Dublin One: Adult, Poolbeg, 2nd to 9th February, photographed (A.G.Kelly *et al.*).

Galway Six: Second-winter, Nimmo's Pier and Rossaveal, from 22nd October 2013 (*Irish Birds* 10: 87) remained to 8th March; Adult, Rossaveal, 21st February, photographed (D.Breen); Second-winter, Nimmo's Pier, 26th February (T.Cuffe); Up to two first-winters, Ross Beach, 23rd to 25th February, photographed (D.Breen); Two first-winters, Ballynahown, 8th March (D.Breen).

Kerry Twenty-four: First-winter, Reenroe and Annascaul, 4th to 13th January, photographed (M.O'Clery); Adult, Inch Strand, 11th to 14th January, photographed (M.O'Clery *et al.*); Adult, Rossbeigh, 15th January (M.O'Clery *et al.*); First-winter, Rossbeigh, 15th January to 16th February, photographed (S.Enright *et al.*); First-winter, Dingle, 17th January to 12th March, photographed (M.O'Keeffe *et al.*); First-winter, Inch Strand, 19th to 22nd January, photographed (M.O'Clery); First-winter, Inch Strand and Rossbeigh, 20th to 30th January, photographed

(M.O'Clery); First-winter, Reenard, 21st January, photographed (D.Farrar); Another first-winter, Dingle, 22nd January to 13th March, photographed (M.O'Clery *et al.*); Adult, The Cashen, 27th January, photographed (D.Farrar); First-winter, Black Rock Strand, 30th January, photographed (D.A.O'Connor); First-winter, Blennerville, 3rd February (E.Carty); First-winter, Kilmoyley, 5th February, photographed (D.A.O'Connor); Second-winter, Dingle Harbour, 9th February, photographed (S.Enright); First-winter, Lehid Harbour, Kenmare, 9th to 23rd February, photographed (F.Moore *et al.*); First-winter, Kells, 15th February (M.O'Clery); Second-winter and two first-winters, Inny Estuary, Iveragh, 17th February, photographed (R.Bonser); First-winter, Waterville, 17th February, photographed (R.Bonser); Adult, Dingle Harbour, 18th February, photographed (R.Bonser); Adult, Reenard Point, 20th to 23rd February (P.McDaid); First-winter, Fertha Estuary, Cahersveen, 15th March (M.O'Clery); First-winter, Black Rock Strand, 21st March (D.A.O'Connor).

Louth One: Second-winter, Cruisetown, 2nd February, photographed (P.Kelly).

Mayo Nine: First-winter, Keel, Achill Island, 18th January, photographed (T.Jones, O.Metcalf); First-winter, Tarmon, Mullet Peninsula, 28th to 30th January (D.Suddaby); First-winter, Belderra, Mullet Peninsula, 6th to 28th February, photographed (M.Reilly *et al.*); Another first-winter, Belderra, Mullet Peninsula, 7th to 28th February, photographed (D.Suddaby *et al.*); First-winter, Falmore, Mullet Peninsula, 10th to 17th February (D.Suddaby *et al.*); Adult, Cross, Mullet Peninsula, 14th February, photographed (D.Suddaby); First-winter, Annagh, Mullet Peninsula, 18th February (D.Suddaby); First-winter, Tarmon, Mullet Peninsula, 19th February to 18th March, photographed (D.Suddaby); First-winter, Belderra, Mullet Peninsula, 28th February (D.Suddaby).

Sligo Two: Third-winter, Enniscrone, 25th to 26th January, photographed (S.Feeney); First-winter, Enniscrone, 26th January, photographed (S.Feeney).

Waterford Three: Adult, Helvick Head, 19th January to 2nd February (R.Zamora); First-winter, Helvick Head, 20th January (R.Zamora); Adult, Ballyvooney Cove, 2nd March (D.O'Sullivan).

Wexford Four: First-winter, Kilmore Quay, from 29th December 2013 (*Irish Birds* 10: 87) remained to 12th January; First-winter, Wexford Harbour, 18th January, photographed (P.Kelly, K.Mullarney *et al.*); First-winter, Carne Beach and Carnsore Point, 2nd February to 24th March, photographed (K.Mullarney *et al.*); First-winter, Rosslare Back Strand, 8th February (P.Kelly); First-winter, Kilmore Quay, 23rd February, photographed (P.Kelly).

An amazing year, more than doubling the previous record of 37 set in 2012.

Snowy Owl *Bubo scandiacus* (55; 24; 2)

Clare One: Male, Black Head, 5th June, photographed (M.Lewis).

Monaghan One: One, Sliabh Beagh, Knocktallon, 28th February to 25th March, photographed (J.Moyna *et al.*).

Alpine Swift *Apus melba* (7; 71; 0)

1829 Cork Zero: One obtained, about 15 km off Cape Clear Island about midsummer 1829 (Ussher & Warren 1900).

The date of occurrence of the first Alpine Swift recorded in Cork (and in Ireland) requires explanation. Harvey (1845)

gave the year as 1838. However, Thompson (1849), although referring to it, omitted mention of the year of the Cork record, possibly because it occurred offshore, rather than on land. Ussher and Warren (1900) gave more details of this record than previous authors, and gave the date and year as about midsummer 1829. No author has given an explanation of why the dates differ. However, since Thompson (1849) and subsequent authors, notably Ussher and Warren (1900), refer to the Cork record as the first for Ireland, then it must have been before 1833, the year the second one was obtained in Dublin. This account is based on research provided to the committee by Pat Smiddy.

Little Swift *Apus affinis* (0; 2; 0)

2002 Wexford One: One, Great Saltee Island, 16th May (M.Smyth). Only the second record for Ireland, almost 35 years after the first in 1967 (*IBR* 15: 36). The untimely passing of the sole observer, Martyn Smith, precluded a proper submission, but his field notes were made available to the IRBC recently. Understandably, these were sparser in detail than a full submission but the committee was happy that the identification was established on the evidence provided. It is worth noting that a Little Swift was photographed the following day on the Isles of Scilly (*Birding World* 15: 184) and while it is tempting to speculate that this was the Saltee bird moving south there is obviously no way of proving this. The most that can be said is that at least conditions were conducive to the arrival of the species.

Bee-eater *Merops apiaster* (21; 39; 2)

Cork One: One, Dursey Island, 19th April (D.Cooke *et al.*).

Kerry One: One, Tralee, 23rd May (E.Carty).

Roller *Coracias garrulus* (12; 7; 1)

Cork One: Juvenile, Manch, Dunmanway, 16th November (J.Quinn), photograph *Wings* 76: 26.

A real surprise for one lucky birder who noticed this bird perched on a wire at the side of the R586 Dunmanway to Bandon road. Yet another short-staying single observer record for this species. Only one record in Ireland remained more than a day – one in Castledeger, Tyrone from 11th to 24th July 1976 (*Irish Birds* 1: 88).

Wryneck *Jynx torquilla* (9; 291; 18)

At sea Zero: One, Porcupine Seabight, 4th September, photographed (L.Kavanagh).

Clare One: One, Loop Head, 14th September, photographed (N.Keogh *et al.*).

Cork Seven: One, Mizen Head, 29th August (D.Ballard, C.O'Sullivan); One, Mizen Head, 5th to 6th September (D.Ballard, P.Connoughton *et al.*); One, Cape Clear Island, 9th to 10th September (R.H.Coombes); One, Cape Clear Island, 12th to 13th September (R.H.Coombes); One,

Galley Head, 13th September (C.Barton); One, Mizen Head, 19th September (C.Foley); One, Galley Head, 20th September (C.Cronin *et al.*).

Donegal One: One, Tory Island, 19th September (J.F.Dowdall).

Kerry One: One, Great Blasket Island, 21st September (J.McDonnell).

Mayo One: One, Tarmon, Mullet Peninsula, 21st September (D.Suddaby).

Waterford Two: One, Brownstown Head, 11th September, photographed (M.Cowming); One, Clonea, found dead, 12th or 13th September, photographed (M.Kennedy).

Wexford Five: One, Great Saltee Island, 6th September (L.Benson, K.Grace, T.Shevlin); Two, Great Saltee Island, 13th to 14th September, photographed (K.Grace, A.A.K.Lancaster, A.Walsh *et al.*); One, Carne Beach, 18th to 28th September, photographed (T.Moore *et al.*); One, Great Saltee Island, 20th September (J.E.Fitzharris, K.Grace, T.Shevlin *et al.*).

The 'at sea' record on the Porcupine Seabight landed on board a survey vessel.

Hobby *Falco subbuteo* (14; 320; 9)

Cork One: One, Glengarriff, 1st July (P.Farrelly).

Dublin One: One, Balbriggan, 9th May (C.McNamee).

Monaghan One: One, Rossmore Forest Park, 1st July (J.McGuirk).

Waterford One: One, Tramore Back Strand, 28th July (A.Jacques).

Wexford Four: One, Oldtown, Tomhaggard, 24th May (K.Grace); First-summer, Tacumshin Lake, 25th to 30th May (N.Keogh, B.Porter *et al.*), presumed same as the individual at Tomhaggard the previous day; One, Tacumshin Lake, 28th May (P.Connaughton), in addition to the bird already present; First-summer, Cahore Marsh, 12th June (J.Adamson, Sh.Farrell); One, Tacumshin Lake, 3rd to 9th August (R.Busby *et al.*).

Wicklow One: One, Five Mile Point, 5th July (M.Boyle).

2012 Cork One: One, Inishannon, 25th January and 20th February (C.Cronin *et al.*).

These nine records are in contrast to the high numbers of recent years; 31 in 2013, 34 (including the Inishannon record above) in 2012, 27 in 2011 and the all-time-record of 45 in 2010. Autumn passage for Western Palearctic Hobbies generally begins around late August, when birds depart breeding grounds for their African winter quarters. Returning birds normally arrive in northern Europe by late May where it is one of the latest summer migrants (Snow & Perrins 1998). Western Palearctic winter records are very rare (Snow & Perrins 1998) making the 2012 Cork individual exceptional. It is the first Irish Hobby to be recorded between 14th November and 9th April and its presence is a puzzle, especially as it remained for almost three weeks. One clue that might shed light on its stay is that mean temperatures recorded at nearby Cork Airport during January and February 2012 were almost 2° higher than the mean temperature for both those months at the airport between 1981 and 2010 (<http://www.met.ie/climate/monthly-data.asp?Num=3904>).

Gyr Falcon *Falco rusticolus* (87; 39; 0)

Kerry Zero: Juvenile white morph, Fenit, 18th January, photographed (L.Doyle), presumed same individual as previously seen at Ferriter's

Cove and Dunquin during November 2013 (*Irish Birds* 10: 90).

2012 Kerry One: White morph, Kerries, Blennerville, 27th November (D.A.O'Connor).

Red-eyed Vireo *Vireo olivaceus* (0; 58; 3)

Clare One: One, Loop Head, 27th September, photographed (J.N.Murphy *et al.*).

Cork One: One, Firkeel, 28th to 29th September, photographed (A.A.K.Lancaster *et al.*).

Mayo One: One, Achill Island, 3rd October (M.O'Brian), photograph *Wings* 75: 29.

In a very poor year for Nearctic species, it is amazing that three Red-eyed Vireos made it across the Atlantic. They seem to be able to make it here under any conditions!

Red-backed Shrike *Lanius collurio* (7; 173; 3)

Donegal One: Juvenile, Tory Island, 13th September (D.Charles).

Mayo One: Juvenile, Tarmon, Mullet Peninsula, 28th September to 1st October, photographed (D.Suddaby *et al.*).

Wexford One: Female, Great Saltee Island, 31st May, photographed (L.Benson, T.Shevlin, A.Walsh *et al.*).

Great Grey Shrike *Lanius excubitor*

(32; 16; 0)

1834 Cork Zero: One obtained, near Cork city, undated (Harvey 1845).

There is disagreement in the literature over the year of the first record for Cork. Thompson (1849) gave the year as 1824, but he noted that Harvey (1845) had published a different one (1834). It is known that Harvey was a correspondent of Thompson, therefore, presumably the latter (Thompson) based his year on a communication from the former (Harvey). Communications would most likely be by hand-written notes, so it is easy to understand how Harvey might have written '1824' for '1834' when communicating with Thompson. There is no evidence that Harvey was making a correction (if he was, then Thompson would surely have been aware of it). Later authors have followed Thompson and have given the year as 1824, and there has been no further comment or speculation on the different date published by Thompson. However, the record should be accepted as 1834 on the basis of priority, and in the absence of a specific mention of a correction being made. This account is based on research provided to the committee by Pat Smiddy.

Lesser/Great Grey Shrike

Lanius minor/excubitor (0; 1; 0)

1966 Cork One: One, Cloyne, 12th December (C.Longfield).

Bearded Tit *Panurus biarmicus* (0; 120; 3)

Wexford Three: The group of up to 30 at Tacumshin Lake, from 3rd July 2011 (*Irish Birds* 9: 478, 598; 10: 93) remained to at least 17th October (K.Grace *et al.*); The group of up to 22 at Ring Marsh, from



Plate 125. Short-toed Lark *Calandrella brachydactyla*, Truska, Co. Galway, September 2014 (Dermot Breen).

19th February 2012 (*Irish Birds* 9: 598; 10: 93) remained to 12th April; Twelve, including males and females, South Slob, 15th November, photographed (P.Kelly), presumed to include the group of ten that had been present in November 2013 (*Irish Birds* 10: 93); Up to six, including males and females, Cahore Marsh, 16th November to 6th December, photographed (T.Kilbane *et al.*), five of these presumed present since April 2013 (*Irish Birds* 10: 93).

2013 Wexford Three: The group of up to 27 at Tacumshin Lake, from 3rd July 2011 (*Irish Birds* 9: 478, 598; 10: 93) remained throughout the year, with a peak count of 30 on 19th October (P.Kelly *et al.*).

Short-toed Lark

Calandrella brachydactyla (1; 76; 1)

Galway One: One, Truska, 23rd September, photographed (D.Breen *et al.*).

2009 Kerry One: One, Carrahane Strand, 14th May (D.A.O'Connor). This is the first record for Kerry.

Red-rumped Swallow *Cecropis daurica*

(0; 49; 1)

Cork One: One, Owenahincha, 10th April (C.Cronin).

2013 Dublin One: Adult, Dun Laoghaire, 30th April (R.Busby).

Greenish Warbler *Phylloscopus trochiloides*

(0; 39; 1)

Cork One: One, Cape Clear Island, 10th September (R.H.Coombes).

Arctic Warbler *Phylloscopus borealis* (0; 10; 0)

2013 Cork One: One, Dursley Island, 13th September, photographed (D.A.Scott *et al.*).

This is a very rare bird for Ireland in contrast to Britain where it averages about eight per year and a grand total of 350 overall (Hudson *et al.* 2014). The IRBC undertook a review of Arctic Warbler records up to 1986 and found that two of the eight records were no longer acceptable (Mullarney 1988). Since then there have been four; on Bloody Foreland, Donegal in late September 2003, on Cape Clear Island, Cork in October 2009, on the Beara Peninsula, Cork in early September 2010 and the above.

Siberian Chiffchaff

Phylloscopus collybita tristis (2; 38; 1)

Wexford One: One, Rosslare, 10th to 11th January, photographed (H.Delaney, P.Kelly *et al.*).

2013 Cork One: One, Middleton, 4th to 9th February, photographed (P.Moore *et al.*).

2013 Wexford One: One, Kilmore Quay, 13th December to 11th January 2014, photographed (K.Mullarney *et al.*).

2012 Galway One: One, Inishbofin, 20th December to 3rd January 2013, photographed (D.Breen *et al.*).

2010 Cork One: One, Firkeel, 15th to 23rd October (K.Grace *et al.*).

Barred Warbler *Sylvia nisoria* (6; 184; 13)

Cork Three: One, Cape Clear Island, 9th October (E.O'Donnell); One, Garinish, 29th October (A.A.K.Lancaster); One, Dursley Island, 30th October (A.A.K.Lancaster).

Donegal Two: One, Tory Island, 14th to 22nd September (D.Charles); One, Tory Island, 20th September (J.F.Dowdall).

Galway One: One, Inishbofin, 7th October (E.A.MacLochlainn, F.O'Connell, J.A.Power *et al.*).

Kerry One: One, Dunquin, 19th September (I.Jones).

Mayo One: One, Tarmon, Mullet Peninsula, 21st to 25th September, photographed (D.Suddaby).

Wexford Five: Juvenile, Hook Head, 31st August (K.Grace); One, Churchtown, 28th September (K.Grace); One, Hook Head, 6th October (B.Haslam); First-winter, Hook Head, 1st November (K.Grace, A.A.K.Lancaster); One, Clones Lower, 7th to 9th November (M.O'Donnell *et al.*).

Subalpine Warbler *Sylvia cantillans* (2; 50; 1)

Wexford One: First-winter female, Churchtown, 11th November, photographed (K.Mullarney).

Note that the statistics exclude the next taxon.

Eastern Subalpine Warbler

Sylvia cantillans albistriata (0; 1; 0)

2007 Mayo One: Male, in song, Tarmon, Mullet Peninsula, 3rd May, photographed (R.H.Coombes *et al.*).

This is the first Irish record of the southeastern European form of Subalpine Warbler. The finder had completed an early morning square as part of the Countryside Bird Survey and



Plate 126. Eastern Subalpine Warbler *Sylvia cantillans albistriata*, Tarmon, Mullet Peninsula, Co. Mayo, May 2007 (R.H. Coombes).

was preparing breakfast when he heard an unfamiliar song outside. Grabbing his bins he went to investigate thinking it might be a *Hippolais* warbler but soon discovered a Subalpine Warbler. A phone call alerted a nearby birder and both were able to get very good views and some photographs were taken. They discussed the possibility that it was one of the eastern races and subsequent investigation showed this to be the case.

Sardinian Warbler *Sylvia melanocephala* (0; 2; 1)

Cork One: Male, Dursley Island, 20th April to 14th May (P.Rowe *et al.*), photographs *Birdwatch* 264: 14, *Wings* 74: 29.

This, the third Irish record, was the highlight of the spring for many, especially considering the 21 year wait since the previous two in 1993. All three records have been males in Co. Cork during April and, while the extended stay of this bird, a little under a month, was comfortably the longest stay of this species in Ireland, there is a precedent for Sardinian Warblers staying for extended periods in Britain (Slack 2009, p. 280).

Icterine Warbler *Hippolais icterina* (2; 218; 1)

Cork One: One, Mizen Head, 18th September (C.Foley, D.Foley).

This is the first record since 2010. See Appendix 5 for details of corrections to the statistics.

Melodious Warbler *Hippolais polyglotta* (2; 200; 3)

Cork Three: One, Mizen Head, 4th September (P.Wolstenholme); One, Dursley Island, 8th September (D.A.Scott *et al.*); One, Cape Clear Island, 20th to 23rd September, photographed (P.Connaughton *et al.*).



Plate 127. Sardinian Warbler *Sylvia melanocephala*, Dursley Island, Co. Cork, April 2014 (Paul Rowe).

Blyth's Reed Warbler

Acrocephalus dumetorum (0; 10; 0)

2012 Cork One: One, Ballinacarraige, West Beara, 8th October (K.Grace, A.A.K.Lancaster).

2012 Waterford One: One, Helvick Head, 15th to 18th October (C.Flynn *et al.*).

2010 Cork Zero: One, Dursley Island, 26th to 27th October (*Irish Birds* 9: 482) should read 26th to 27th September.

Marsh Warbler *Acrocephalus palustris* (0; 5; 1)

Cork One: Male in song, Old Head of Kinsale, 9th June, photographed (P.Connaughton, C.O'Sullivan *et al.*).

Rose-coloured Starling *Pastor roseus* (41; 102; 4)

Cork Three: Juvenile, Mizen Head, 3rd September (C.Foley); Juvenile, Galley Head, 19th September, photographed (P.Connaughton, C.O'Sullivan); Juvenile, Firkeel and Dursley Island, 29th September to 11th October, photographed (A.A.K.Lancaster, D.Weir).

Galway One: Adult, Inishbofin, 15th to 20th June, photographed (A.McGeehan, T.Murtagh *et al.*).

Swainson's Thrush *Catharus ustulatus* (0; 5; 1)

Clare One: One, Loop Head, 4th October, photographed (J.Copner *et al.*).

Grey-cheeked Thrush *Catharus minimus* (0; 8; 0)

2013 Cork One: First-winter, Dursey Island, 3rd October, photographed (D.A.Scott *et al.*).

This was a very tired looking individual that was observed on a track in Tillickafinna for about one hour. It is the second Grey-cheeked Thrush for the island following another in 2011 (*Irish Birds* 9: 483). See Yellow-rumped Warbler comments for a full list of Nearctic passerines recorded on Dursey Island.

Thrush Nightingale *Luscinia luscinia* (0; 4; 0)

2013 Cork One: One, Dursey Island, 22nd October (K.Grace, A.A.K.Lancaster).

All four Irish records have been on Cork islands. The previous three were on Cape Clear Island (1989, 1990 and 1999).

Nightingale *Luscinia megarhynchos* (0; 33; 1)

At sea Zero: One, 40 nautical miles west of Loop Head, Co. Clare, 22nd September, photographed (N.T.Keogh *et al.*).

Cork One: One, Cape Clear Island, 11th October (S.Enright, M.Hanafin, M.O'Keefe).

2012 Cork One: One, Cape Clear Island, 6th May (E.O'Donnell).

Bluethroat *Luscinia svecica* (0; 42; 0)

1995 Cork Zero: Male of the red-spotted race *svecica*, in song, Kilcolman NNR, 6th to 13th April (*Irish Birds* 5: 469) still considered acceptable to subspecies level following review.

Red-flanked Bluetail *Tarsiger cyanurus* (0; 3; 1)

Mayo One: First-winter, Tarmon, Mullet Peninsula, 28th to 30th October (D.Suddaby *et al.*), photograph *Wings* 76: 26.

This is the fourth record and the first one away from Cork.

Siberian Stonechat *Saxicola maurus* (0; 9; 0)

2012 Cork One: Immature, Firkeel, West Beara, 1st October (K.Grace).

Previously considered a race of Stonechat *Saxicola rubicola*,



Plate 128. Red-flanked Bluetail *Tarsiger cyanurus*, Tarmon, Mullet Peninsula, Co. Mayo, October 2014 (Dermot Breen).

Siberian Stonechat was split as a full polytypic species by the IRBC in 2012 (see www.irbc.ie/announcements/announce6.php). Prior to that, Asian races of Stonechat were recorded in these reports as Eastern Stonechat.

Black-eared/Pied Wheatear

Oenanthe hispanica/pleschanka (0; 1; 0)

1994 Wicklow One: First-year male, Kilcoole, 24th November (D.Keddy, B.Porter).

Blue-headed Wagtail *Motacilla flava flava* (0; 63; 6)

Cork Two: Adult, Old Head of Kinsale, 15th October (K.Preston); Male, Ballycotton, 21st to 25th May, photographed (D.O'Sullivan *et al.*).

Donegal One: Male, Tory Island, 26th May, photographed (D.Brennan).

Wexford Three: Male and female, Tacumshin Lake, 20th to 21st June (K.Grace); Male, Tacumshin Lake, 16th August (P.Kelly).

Grey-headed Wagtail

Motacilla flava thunbergi (0; 6; 1)

Kerry One: Male, Ballinskelligs, 30th May, photographed (P.McDaid).

'North-eastern' Yellow Wagtail

Motacilla flava plexa/tschutschensis (0; 1; 0)

2013 Donegal One: First-winter, Tory Island, 12th to 28th October, photographed and DNA sequenced (V.Caschera, J.F.Dowdall, J.E.Fitzharris *et al.*)

Thanks to DNA analysis, this occurrence can be attributed to one or other of these taxa. The exact taxonomic status of these two taxa is far from certain however, with some, such as the IOC (Gill & Donsker 2015), treating the Eastern and Western forms of Yellow Wagtail as distinct full polytypic species, placing *plexa* in Western Yellow Wagtail *Motacilla flava* and *tschutschensis* with Eastern Yellow Wagtail *M. tschutschensis*. To date the IRBC have not adopted this split.

Citrine Wagtail *Motacilla citreola* (0; 30; 0)

2013 Kerry One: First-winter, Black Rock Strand, 22nd to 24th August, photographed (D.A.O'Connor *et al.*).

2013 Wexford Two: Two first-winters, Tacumshin Lake, 22nd to 26th August, photographed (P.Archer, P.King *et al.*).

Richard's Pipit *Anthus richardi* (2; 105; 1)

Cork One: First-winter, Galley Head, 27th December, photographed (C.Cronin *et al.*).



Plate 129. Blue-headed Wagtail *Motacilla flava flava*, Ballycotton, Co. Cork, May 2014 (Leon van der Noll).

December records are not without precedent as there have been three previously. One was at Kilcolman NNR, Cork from 1st to 3rd December 1994, another was at Tacumshin Lake, Wexford from 3rd to 10th December 1995 and a long-staying bird was also at Tacumshin Lake from 12th November to 31st December 2007.

Scandinavian Rock Pipit

Anthus petrosus littoralis (0; 70; 14)

Cork One: One, Baltimore, 6th to 11th April (J.Wylie).

Donegal One: One, Malin Head, 18th April (R.McLaughlin).

Kerry Two: One, Black Rock Strand, 24th February to 28th April, photographed (D.A.O'Connor); One, Black Rock Strand, 21st March to 16th April, photographed (D.A.O'Connor).

Wexford Ten: One, Kilmore Quay, 27th January to 1st March, photographed (P.Kelly *et al.*); Three, Great Saltee Island, 22nd to 30th March, photographed (K.Grace, N.Keogh, K.Mullarney *et al.*); Three, Nemestown, Kilmore Quay, 1st April, photographed (K.Mullarney); One, Carne Beach, 3rd April, photographed (K.Mullarney); One, Carnsore Point, 3rd April, photographed (K.Mullarney); One, Great Saltee Island, 19th to 21st April (J.F.Dowdall, B.Porter, T.Shevlin *et al.*).

Water Pipit *Anthus spinoletta* (1; 143; 6)

Kerry Two: One, Carrahane Strand, 2nd December, photographed (D.A.O'Connor); One, Black Rock Strand, 3rd to 23rd December, photographed (D.Farrar *et al.*).

Sligo One: One, Ballyconnell Beach, 28th to 30th November, photographed (S.Feeney *et al.*).

Wexford Three: One, Cahore Marsh, 2nd April (R.Vaughan); One, Tacumshin Lake, 5th April (P.Kelly); One, Tacumshin Lake, 29th November to 28th December (P.Kelly *et al.*).

1943 Dublin Minus one: One, North Bull Island, 18th March (Kennedy 1947), now considered not proven following review.

Buff-bellied Pipit *Anthus rubescens* (0; 21; 0)

2012 Cork One: One, Cape Clear Island, 21st to 24th September (E.O'Donnell *et al.*).

2011 Wexford One: One, near Carne Harbour, 5th November (K.Grace).

This is the first blank year since 2006. The IRBC undertook a review of both 20th century records (Great Saltee Island in 1951 and Newcastle, Wicklow in 1967) of this species and the Saltee bird was the only one found to be acceptable (Hussey 2014). There were just 15 Western Palearctic records to the end of 1999 (including three 19th century records). Thereafter



Plate 130. Water Pipit *Anthus spinoletta*, Ballyconnell Beach, Co. Sligo, November 2014 (Declan Skehan).

numbers increased considerably with almost 100 more to the end of 2013 in places as far apart as Iceland, Norway, Sweden, Svalbard, Faroe Islands, Spain, Azores as well as Ireland, Britain and Jersey in the Channel Islands. Buff-bellied Pipit is polytypic and all Irish records to date concern the North American nominate race *rubescens*. A summary of the main differences between *rubescens* and the eastern race *japonicus* is outlined in the 2013 Irish Rare Bird Report (*Irish Birds* 10: 97).

Hawfinch *Coccothraustes coccothraustes* (Unknown; 210; 5)

Donegal One: One, Portnoo, 12th to 15th June, photographed (B.Naughton).

Galway Three: Male, Inishbofin, 26th April, photographed (P.J.King); Female, Inishmore, 2nd to 4th May, photographed (S.Flaherty); A second female, Inishmore, 3rd May, photographed (S.Flaherty).

Limerick One: One, Curragh Chase Forest Park, 30th December (J.Hayes).

Common Rosefinch *Erythrina erythrina* (0; 220; 8)

Cork Three: First-summer male, Cape Clear Island, 30th May to 3rd June (S.Wing); One, Firkeel, 19th September (A.A.K.Lancaster); Juvenile, Cobh, 23rd to 27th November, photographed (R.McLaughlin *et al.*).

Donegal One: One, Tory Island, 14th September (D.Brennan).

Galway Three: Male, Inishbofin, 17th June (A.McGeehan); Up to two juveniles, Inishbofin, 5th to 6th October (J.A.Power, B.Sheridan, B.A.Wheeler *et al.*).

Wexford One: First-summer male, Great Saltee Island, 31st May, photographed (L.Benson, M.McLoughlin, A.Walsh *et al.*).

Mealy Redpoll *Acanthis flammea flammea* (21; 101; 0)

2011 Cork One: One, Garinish, West Beara, 16th October (K.Grace, D.O'Sullivan).

2007 Cork One: One, Cape Clear Island, 28th October, photographed (P.Kelly *et al.*).

2005 Cork One: One, Dursey Island, 22nd October (K.Grace).

2000 Cork One: One, Dursey Island, 13th October (K.Grace).

The 2007 record on Cape Clear Island is said to have involved a total of three individuals. However, no evidence has been received by the committee to support the occurrence of any other individuals.

Greenland Redpoll

Acanthis flammea rostrata (13; 38; 1)

Donegal One: One, Tory Island, 22nd October, photographed (V.Caschera, J.F.Dowdall, T.Shevlin).

2007 Donegal One: One, Tory Island, 27th October, photographed (J.Adamson).

Arctic Redpoll *Acanthis hornemanni* (0; 10; 1)

Cork One: Dursey Island, 5th to 10th June (D.Cooke, D.A.Scott, J.E.Scott).

2007 Clare One: One, near Kilcredaun Lighthouse, 29th to 30th October, photographed (J.N.Murphy *et al.*).

The 2007 record from Clare is said to have involved a total of four individuals. However, no evidence has been received by the committee to support the occurrence of any other individuals.



Plate 131. Greenland Redpoll *Acanthis flammea rostrata*, Tory Island, Co. Donegal, October 2014 (Tom Shevlin).



Plate 132. Ortolan Bunting *Emberiza hortulana*, Ballyconneely, Co. Galway, September 2014 (Dermot Breen).



Plate 133. Ortolan Bunting *Emberiza hortulana*, Cape Clear Island, Co. Cork, September 2014 (R.H. Coombes).

Serin *Serinus serinus* (2; 8; 0)

1947 Cork Minus one: One, Fermoy, 3rd to 9th May (Abbott 1947), now considered not proven following review.

Ortolan Bunting *Emberiza hortulana* (0; 121; 3)
Cork Two: One, Mizen Head, 4th to 5th September, photographed

(D.Ballard *et al.*); Juvenile, Cape Clear Island, 13th September (R.H.Coombes), photograph *Wings* 75: 28.

Galway One: One, Ballyconeeley, 6th to 7th September, photographed (J.Mazenauer *et al.*).

The second record for Galway following one on Inishbofin in 2012 (*Irish Birds* 9: 608), making it the first for the Galway mainland.

Yellow-rumped Warbler

Setophaga coronata (0; 17; 0)

2012 Cork One: First-winter, Dursey Island, 3rd to 6th October (K.Grace, A.A.K.Lancaster *et al.*).

Along with two on Inishmore (*Irish Birds* 9: 608), both on 6th October, this brings the 2012 total to a record three. To date, Dursey Island has produced seven species of Nearctic passerine; two Red-eyed Vireos *Vireo olivaceus* (1990 & 2010), two Grey-cheeked Thrushes *Catbarus minimus* (2011 & 2013) and single records of Ovenbird *Seiurus aurocapilla* (1990), Northern Parula *Setophaga americana* (1989), Blackpoll Warbler *Setophaga striata* (2006), Yellow-rumped Warbler (2012) and Wilson's Warbler *Cardellina pusilla* (2013), while the Bull Rock, just west of Dursey, has recorded Rose-breasted Grosbeak *Pheucticus ludovicianus* (1983). Many of these as well as other Dursey Island rarities are the result of the diligence of one resident and two long-time autumn regulars.

Appendix 1: Category D records

Category D1 records

Species that would otherwise appear in Categories A or B, except that there is a reasonable doubt that they have ever occurred in a natural state.

Belted Kingfisher *Megaceryle alcyon* (0; 4; 0)

1845 Wicklow Zero: One, near Luggala, shot, November, still considered attributable to Category D1 after review.

Thompson (1849: 373-374) reports that it was on the river between Luggala and Lough Dan, which suggests that it may have been the River Cloghoge.

American Goldfinch *Carduelis tristis* (0; 0; 0)

1894 Mayo Zero: Adult male, Achill Island, 6th September (J.R.Sheridan), still considered attributable to Category D1 after review. (Sheridan 1894).

Appendix 2: Contributors

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Irish Rare Breeding Birds Panel (IRBBP)

BirdWatch Ireland (BWI)

Cape Clear Bird Observatory (CCBO)

Copeland Bird Observatory (CBO)

Northern Ireland Birdwatchers' Association (NIBA)

Appendix 3: List of records not proven

This list includes all records of taxa set out in *Irish Birds* 7: 416-418 (and subsequent updates online at www.irbc.ie/records/desclist.php and www.irbc.ie/records/desclist1.php) which, after circulation to the Irish Rare Birds Committee or the Northern Ireland Birdwatchers' Association Rarities Committee, as appropriate, were considered to be not proven. Records of birds not attributed to any definite species by the observers are not included, nor are birds considered to have been escapes from captivity.

2014 records not proven

Caspian Gull *Larus cachinnans*

Third-winter, Tallaght, Dublin, 16th November to 28th December.

Mealy Redpoll *Acanthis flammea flammea*

Male, Ardcaith, Meath, 1st to 2nd April.

Supplemental 2013 records not proven

Continental Cormorant *Phalacrocorax carbo sinensis*

One, Rosslare Harbour, Wexford, 16th to 17th March.

Macaronesian Shearwater *Puffinus baroli*

One, Porcupine Bight, 9th August.

Baird's Sandpiper *Calidris bairdii*

One, Blanket Nook, Donegal, 25th August.

White-rumped Sandpiper *Calidris fuscicollis*

Two juveniles, Blanket Nook, Donegal, 29th August to 1st September.

Caspian Gull *Larus cachinnans*

Second-winter, Tallaght, Dublin, 8th December to 18th April 2014.

Siberian Chiffchaff *Phylloscopus collybita tristis*

Two, Lough Gash, Clare, 5th to 11th February.

Supplemental 2012 records not proven

Black Kite *Milvus migrans*

One, Mizen Head, Cork, 26th October.

Wilson's Phalarope *Phalaropus tricolor*

One, Trawbreaga Bay, Donegal, 24th November.

Gull-billed Tern *Gelocbelidon nilotica*

Adult, Bloody Foreland, Donegal, 4th August.

Siberian Chiffchaff *Phylloscopus collybita tristis*

One, Malinbeg, Donegal, 7th to 11th November.

One, North Bull Island, Dublin, 20th November.

Supplemental 2011 record not proven

Citrine Wagtail *Motacilla citreola*

First-year, Carrahane Strand, Kerry, 8th September.

Supplemental 2010 records not proven

Lesser Scaup *Aythya affinis*

Female or immature, Lough Gill, Kerry, 24th January.

Short-tailed Shearwater *Puffinus tenuirostris*

One, Bridges of Ross, Clare, 18th August.

Black Kite *Milvus migrans*

Adult, Tory Island, Donegal, 9th October.

Chimney Swift *Chaetura pelagica*

One, Farranfore, Kerry, 5th October.

Blyth's Reed Warbler *Acrocephalus dumetorum*

One, Dunquin, Kerry, 11th October.

Blue-headed Wagtail *Motacilla flava flava*
Juvenile, Cape Clear Island, Cork, 9th October.

Supplemental 2009 records not proven

Snow Goose *Anser caerulescens*
Adult, Dingle, Kerry, 1st January.

American Herring Gull *Larus smithsonianus*
First-winter, Tralee, Kerry, 20th November.

Hobby *Falco subbuteo*
Juvenile, Carrahane Strand, Kerry, 9th October.

Supplemental 2007 record not proven

Spotted Crake *Porzana porzana*
One, Sherkin Island, Cork, 8th November.

Supplemental 2005 record not proven

Caspian Gull *Larus cachinmans*
One, Salterstown, Louth, 15th January.

Supplemental 2003 review record not proven

Bulwer's Petrel *Bulweria bulwerii*
One, Brandon Point, Kerry, 11th September.

Supplemental 2002 record not proven

'African' Chaffinch *Fringilla coelebs africana*
Male, Coolaney, Sligo, 23rd December to 22nd February 2003.

Supplemental 2000 record not proven

Continental Song Thrush
Turdus philomelos philomelos/bebridensis
Two, Annagassan and Salterstown, Louth, 31st December to 1st January 2001.

Supplemental 1999 records not proven

White-billed Diver *Gavia adamsii*
Juvenile, Fintragh Bay, Donegal, 7th to 9th October.

Western/Eastern Bonelli's Warbler
Phylloscopus bonelli/orientalis
One, Galley Head, Cork, 25th August.

Siberian Chiffchaff *Phylloscopus collybita tristis*
One, Allihies, Cork, 24th October.

Supplemental 1998 records not proven

Albatross Sp. *Thalassarche* sp.
One, Cape Clear Island, Cork, 10th September.

Northern Giant-Petrel *Macronectes balli*
One, Cape Clear Island, Cork, 10th September.

Swinhoe's Storm-petrel *Oceanodroma monorbis*
One, Cape Clear Island, Cork, 10th September.

Tawny Owl *Strix aluco*
One, Letterkenny area, Donegal, March and April.

Hawfinch *Coccothraustes coccothraustes*
One, Corofin, Clare, 4th to 30th March.

Supplemental 1997 record not proven

Sharp-tailed Sandpiper *Calidris acuminata*
Adult, Tacumshin Lake, Wexford, 15th September, in addition to one already accepted from this site at this time (*Irish Birds* 6: 297).

Supplemental 1994 record not proven

Kumlien's Gull *Larus glaucooides kumlieni*
Adult, Cruisetown Strand, Louth, 11th September to 27th January 1995.

Supplemental 1991 records not proven

Baltic Lesser Black-backed Gull *Larus fuscus fuscus*
Adult, Clogher Head, Louth, 2nd July.

Scandinavian Lesser Black-backed Gull
Larus fuscus intermedius
Three adults and one second-year, Stabannon, Louth, 18th March.

Supplemental 1975 review records not proven

Bulwer's Petrel *Bulweria bulwerii*
One, Cape Clear Island, Cork, 22nd July.
One, Cape Clear Island, Cork, 3rd August.

Supplemental 1969 review record not proven

Blyth's Reed Warbler *Acrocephalus dumetorum*
One, Cape Clear Island, Cork, 13th to 19th October.

Supplemental 1968 record not proven

Pallas's Grasshopper Warbler *Locustella certhiola*
One, Cape Clear Island, Cork, 29 August.

Supplemental 1965 review record not proven

Bulwer's Petrel *Bulweria bulwerii*
One, Cape Clear Island, Cork, 26th August.

Supplemental 1947 review record not proven

Serín *Serinus serinus*
One, Fermoy, Cork, 3rd to 9th May.

Supplemental 1943 review record not proven

Water Pipit *Anthus spinoletta*
One, North Bull Island, Dublin, 18th March.

Appendix 4: List of anonymous records not accepted

The following reports concern Appendix 2 rarities that were entered in the Provisional List of Rare Bird Sightings during 2014 but where the observers have to date remained unknown. Some or all of these reports may yet qualify for publication in a future IRBR, should the observers become known to the IRBC and be prepared to validate the claim.

Glossy Ibis *Plegadis falcinellus*
One, Drogheda, Louth, 14th April.

Whiskered Tern *Cblidonias hybrida*
One, Aghills Lake, Skibbereen, Cork, 1st to 2nd May.

Appendix 5: Corrigenda to previous reports

Snow Goose *Anser caerulescens* – Totals for this species in recent reports and *Checklist of the Birds of Ireland* (IRBC 1998) have excluded the record of 12 at Mutton Island, Galway

on 5th December 1917 (*IN* 1918: 112). However, the record was included by Humphreys (1937), Kennedy *et al.* (1954) and implicitly in Kennedy (1961) and Ruttledge (1966). Moreover, it was not specifically excluded by any subsequent works (Ruttledge 1975, Hutchinson 1989) and totals have thus been incremented to include this record. For clarity, the record of two in Kerry on 23rd May 1954 (*IBR* 2: 10) are excluded from the total due to the extremely late date of the occurrence.

Avocet *Recurvirostra avosetta* – Reported statistics for this species in recent reports and *Checklist of the Birds of Ireland* (IRBC 1998) have consistently understated the national total prior to 1950 by two. Examining the literature, Thompson (1849–1851) published seven records involving nine birds. A further thirteen were published in Ussher and Warren (1900), and another eight records involving fourteen birds prior to 1950 in Kennedy *et al.* (1954). These comprise a total of 36 prior to 1950, and the totals have been adjusted to reflect this correction. For clarity, the series of records in Cork Harbour from February 1956 to winter 1964/1965 and a similar series at the North Bull Island in Dublin from January 1968 to winter 1973/1974 are treated as involving twelve and four birds respectively.

Dotterel *Charadrius morinellus* – Reported statistics for this species in *Checklist of the Birds of Ireland* (IRBC 1998) understated the national total since 1950 by one. This under-reporting has been perpetuated since that publication and has been corrected in the statistics in this report. For clarity, the breeding record in Mayo in 1975 (*IBR* 23: 13) is treated as two individuals notwithstanding that the introduction to the same report indicates that only one adult was seen with chicks (*IBR* 23: 3).

Icterine Warbler *Hippolais icterina* – Totals for this species have been increased by one to accurately reflect the occurrences on Cape Clear Island in 1961. Reports of the occurrence at Cape Clear Island state 'at Cape Clear four, probably five, perhaps six between Aug. 28th and Sept. 25th' (*IBR* 9: 22). Historically, this has been counted as four individuals. However, perusal of the Cape Clear Bird Observatory report for 1961 indicates that five is the most accurate count, with three on 31st August 1961 presumed to include one that had been present from 28th August. One in Central Bog on 2nd September is treated as different, with the fifth individual occurring at Cummer from 25th September to 1st October.

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Abbreviations used

- AERC: Association of European Rarities Committees.
 BOURC: British Ornithologists' Union Records Committee.
 IBR: Irish Bird Report – annual from 1953 to 1975.
 IN: Irish Naturalist – monthly journal between 1892 and 1924.
 INJ: Irish Naturalists' Journal – monthly journal from 1925.
 IOC: International Ornithological Congress
 NIBARC: Northern Ireland Birdwatchers' Association Rarities Committee.
 NIBR: Northern Ireland Bird Report - periodically from 1980 onwards.

Bulwer's Petrel *Bulweria bulwerii*: review of Irish record and claimed records

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Keywords: *Bulweria bulwerii*, Bulwer's Petrel, records review

Introduction

Bulwer's Petrel *Bulweria bulwerii* is currently on the Irish List based on a single record off Cape Clear Island (Cork) on 3rd August 1975 (Preston 1979). In addition, there have been several claimed records over the years, but only one of these has ever been accepted (off Cape Clear Island on 26th August 1965). However, this record was reviewed in 1988 and was deemed unacceptable (Mullarney 1988).

Prior to the late 1980s any dark-rumped petrel in northern European waters was considered, almost by default, to be a Bulwer's Petrel. This is hardly surprising considering that Swinhoe's Storm-petrel *Oceanodroma monorhis* was unknown in the North Atlantic until the 1980s, and was not confirmed until 1992 when DNA samples taken from birds trapped in north-east England proved its occurrence in European waters (Cubitt 1995). The first Irish record of Swinhoe's Storm-petrel was in 1985, but this bird was not accepted by the Irish Rare Birds Committee (IRBC) until many years later, in 2002 (Milne 2004).

Many Bulwer's Petrel records in northern European waters in recent years have been either rejected by the relevant rarities committees or have had their identification questioned by expert opinion, thus changing the understanding of its status in the area. With this knowledge, and a greater awareness of the separation of these similarly plumaged species, the IRBC felt it was time to review the Irish Bulwer's Petrel record, and claimed records. As there have been few submissions of Bulwer's Petrel records to the IRBC, it was decided to review all of them, including those previously not accepted, to establish if any could now be accepted as Bulwer's Petrel or Swinhoe's Storm-petrel.

Results of review

Four claims of Bulwer's Petrel have been submitted to the IRBC, or its predecessor, and these were reviewed as well as

soliciting the opinions of seabird experts abroad. A brief summary of each record assessment is presented below.

Cape Clear Island (Cork), 26th August 1965

This record was accepted for a number of years but was deleted from the Irish List following the 1988 review (Mullarney 1988). It was seen at close range off Cape Clear Island for a short time. However, there were few details describing flight-style or structure and its estimated size was not consistent with Bulwer's Petrel. Overall, there was insufficient detail to ascribe this bird to any species.

Cape Clear Island (Cork), 22nd July 1975

The descriptions provided for this bird, e.g. a square-ended tail and a patch of white on the under-tail do not indicate a Bulwer's Petrel or allow it to be ascribed to any species.

Cape Clear Island (Cork), 3rd August 1975

Up to now this record has been accepted as a Bulwer's Petrel, and is the best documented of all claims. The descriptions submitted agree on a number of features. However, some of these no longer support identification as Bulwer's Petrel. In particular:

- The size is described as 'very noticeably smaller than a Manx Shearwater' *Puffinus puffinus*. This does not tally with Bulwer's Petrel, and perhaps suggests a bird of Leach's Storm-petrel *Oceanodroma leucorhoa* (or Swinhoe's Storm-petrel) size.
- The tail is described as square-ended. This is wrong for Bulwer's Petrel, which always shows either a tapering, or wedge-shaped tail when splayed.
- The elongated front end projection gives Bulwer's Petrel a unique appearance with a 'stretched' neck, but this feature is not reflected in the descriptions, which describe the bird as being 'virtually identical in shape to a Storm-petrel' *Hydrobates pelagicus* and 'all wings and tail'.

Some other features, depending on how interpreted, could point towards Bulwer's Petrel but it was unanimously felt that acceptance of this bird as a Bulwer's Petrel was no longer justified, particularly with Swinhoe's Storm-petrel now known to occur in the North Atlantic. Indeed there are suggestions that this bird could have been a Swinhoe's Storm-petrel, e.g. the size and tail shape, but unfortunately it was felt that there was not enough detail to accept it as such.

Brandon Point (Kerry), 11th September 2003

The description provided did not allow a definite identification to be made. In particular, the quoted size suggests a smaller bird than Bulwer's Petrel.

Summary

As a result of this review, Bulwer's Petrel has been removed from the Irish List (a pdf copy of the Irish List is available through the IRBC website at www.irbc.ie/topbar/categories.php). Any of these records could refer to a Swinhoe's Storm-petrel,

which was an unknown identification pitfall, particularly for the earlier claims. Any Bulwer's Petrel claim should ideally include details of precise flight-style and structure as well as a careful appraisal of size. This can be one of the most difficult aspects to judge correctly and ideally should be in direct comparison with another species.

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Plate 134. Bulwer's Petrel *Bulweria bulwerii*, at sea off Madeira, 14th May 2012 (Killian Mullarney).

'Lesser' Golden Plover *Pluvialis dominica/fulva* – a review of 20th century records

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Following the occurrence of the first 'Lesser' Golden Plover *Pluvialis dominica* in Mayo in 1894 (Ussher & Warren 1900) it became clear that, in addition to European Golden Plover *Pluvialis apricaria* and Grey Plover *Pluvialis squatarola*, there was an additional vagrant species of *Pluvialis* to contend with in Ireland. Once it was established that a candidate was smaller, slimmer, with greyish underwings and longer legs, the acceptance as 'Lesser' Golden Plover was straightforward. Only three individuals occurred prior to 1966 (Mayo, 1894; Meath, 1952; Kerry, 1963), but from that year onwards the species was recorded more or less annually, in small numbers, and its occurrence soon became an expected part of the birding year. Prior to 1986, the species was considered to comprise two subspecies, nominate *dominica* in North America and *fulva* mainly in east Asia. In general, no real attempt was made to identify birds seen here or in most European countries to subspecific level, although a few older specimen records, both in Ireland and in Britain, were assigned to subspecies.

However, in 1986 this was to change when the British Ornithologists' Union Records Committee (BOURC) adopted a proposal (Connors 1983) to raise both races of 'Lesser' Golden Plover to full species status, i.e. American Golden Plover *Pluvialis dominica* and Pacific Golden Plover *Pluvialis fulva* (*Ibis* 128: 601-603). Two papers were published (Pym 1982, 1984) in advance of the split alerting birdwatchers to the field characters of both, and identification criteria were also dealt with (Hayman *et al.* 1986). Armed with new knowledge and improved optics, birdwatchers soon began to confidently identify 'lesser golden plovers' seen well to species level. In the case of adult birds, it became accepted that birds with long primary projections, dark flanks and dark undertail-coverts were American Golden Plover, whereas Pacific Golden Plover differed in having, among other features, a shorter

primary projection, a whitish line along the flanks, paler undertail-coverts and perhaps yellower-spangled upperparts with feet that projected beyond the tail in flight. Juvenile American Golden Plovers were grey-buff birds with long primary projections, and juvenile Pacific Golden Plovers had shorter primary projections and were more similar in colouration to European Golden Plovers of the same age.

Hot on the heels of the split, Ireland's first Pacific Golden Plover, an adult, was found at Tacumshin Lake (Wexford) on 17th August 1986 (*Irish Birds* 3: 622). Just 13 individuals have occurred to date (the most recent in 2012; *Irish Birds* 9: 589-590), making it a far greater rarity than American Golden Plover. Since the split, American Golden Plover has occurred annually, with 275 individuals recorded in total to 2014 (*Irish Birds* 10: 244). In some rare cases, the evidence available to the Irish Rare Birds Committee (IRBC) has been insufficient to allow for a confident specific identification, and these birds have been published as 'indeterminate' and could be either American or Pacific Golden Plovers. However, records published as 'Lesser' Golden Plover prior to the split were never formally reassessed to determine if they could be identified to one or other taxon, which prompted the IRBC to undertake a review of these historic records.

Results of review

Unfortunately, written documentation for only 16 records was available and these were circulated among the committee for review. The challenge of separating American and Pacific Golden Plovers is more complex than had been previously understood and some recent records have generated considerable debate. For instance, a bird at Kinsale Marsh (Cork) in 1991 generated lively discussion, before being accepted as a Pacific Golden Plover (*Irish Birds* 5: 88). More recently, a bird

at Tacumshin, Wexford in 2002 was, for a time, believed to be a Pacific Golden Plover before being correctly identified as an American Golden Plover (*Irish Birds* 7: 394). These tricky individuals have shown there is overlap in some features formerly believed diagnostic. These include projection of the feet beyond the tail, formerly considered diagnostic of Pacific Golden Plover. However, it is now realised that some Pacific Golden Plovers can look long-winged and that some adult Pacific Golden Plovers can show black undertail-coverts. In addition, much of the documentation available was compiled at a time when the importance of accurately recording a bird's primary projection was not fully appreciated. With these difficulties it is hardly surprising that most (11 of the 16 records reviewed) individuals were considered unsafe to assign to either species with confidence, and remain as indeterminate American or Pacific Golden Plovers. The remaining five individuals were considered acceptable as American Golden Plover.

It should be noted that a bird seen at Ballycotton on 22nd and 23rd July 1983 (*Irish Birds* 2: 557), showed some characters suggestive of Pacific Golden Plover, but regrettably, did not meet the necessary criteria for acceptance as one by the committee. Had it been, it would have represented the first Irish record.

The following records are now considered acceptable as American Golden Plover:

- Adult, Ballyheigue Strand and Akeragh Lough (Kerry), 15th to 22nd September 1963 (*Irish Bird Report* 11: 17).
 Juvenile, Keenagh Turlough, near Mount Talbot (Roscommon), 15th to 16th October 1966 (*Irish Bird Report* 14: 29).
 Adult, Akeragh Lough (Kerry), 25th May 1971 (*Irish Bird Report* 19: 34-35).
 Adult, Ballycotton (Cork), 10th to 18th September 1971 (*Irish Bird Report* 19: 34-35).
 Adult, Termoncarragh Lake, Mullet Peninsula (Mayo), 24th September 1978 (*Irish Birds* 1: 426).

The following remain as indeterminate American/Pacific Golden Plover:

- Adult, Lissagriffin (Cork), 7th to 21st September 1966 (*Irish Bird Report* 14: 29).
 One, Shanagarry (Cork), 18th September 1966 (*Irish Bird Report* 14: 29).
 Adult, Douglas Estuary (Cork), 30th September to 8th October 1966 (*Irish Bird Report* 14: 29).
 Adult, Ballinrannig Marsh, near Ballyferriter (Kerry), 25th June 1969 (*Irish Bird Report* 17: 34).
 One, Akeragh Lough and Carrahane Strand (Kerry), 13th to 27th September 1969 (*Irish Bird Report* 17: 34).
 One, Barley Cove (Cork), 19th to 21st August 1970 (*Irish Bird Report* 18: 29-30).
 Adult, North Bull Island (Dublin), 10th October 1971 (*Irish Bird Report* 19: 34-35).
 Adult, Tacumshin (Wexford), 25th to 27th September 1978 (*Irish Birds*

1: 426).

- Adult, Ballycotton (Cork), 22nd to 23rd July 1983 (*Irish Birds* 2: 557).
 Adult, Rahasane Turlough (Galway), 23rd August to 7th September 1983 (*Irish Birds* 3: 111), and presumed same, 15th to 29th September 1983 (*Irish Birds* 2: 557) (see *Irish Birds* 10: 244).
 Juvenile, Rahasane Turlough (Galway), 7th September 1983 (see *Irish Birds* 10: 244).

No documentation was available for the following records and they will continue to be treated as indeterminate American/Pacific Golden Plover:

- One, Ballycotton (Cork), 20th October to 6th November 1979 (*Irish Birds* 1: 564).
 One, Ballycotton (Cork), 29th October to 4th November 1979 (*Irish Birds* 1: 564).
 One, Lissagriffin (Cork), 14th to 21st September 1980 (*Irish Birds* 2: 99).
 One, Ballycotton (Cork), 16th September 1980 (*Irish Birds* 2: 99).
 Juvenile, Ballycotton (Cork), 28th August 1982 (*Irish Birds* 2: 386).
 Adult, Ballycotton (Cork), 27th September to 5th October 1982 (*Irish Birds* 2: 386).
 One, Rahasane Turlough (Galway), 15th to 17th October 1984 (*Irish Birds* 3: 111).

Summary

These results do not drastically change the status of these two species. Only five records were acceptable as American Golden Plover, and, of the 11 indeterminate records, most suggest American Golden Plover but just fall short of being sufficiently well documented to allow a confident identification. As previously noted, the bird at Ballycotton (Cork) on 22nd and 23rd July 1983, was more suggestive of Pacific Golden Plover in many respects.

It should be noted that the only two individuals of 'Lesser' Golden Plover relating to the period before this review (i.e. 1963) are of specimens of the American Golden Plover obtained in Mayo (1894) (Ussher & Warren 1900) and in Meath (1952) (Kennedy *et al.* 1954), and both reside in the National Museum (Natural History Division), Dublin.

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Genetic identity of wintering Common Chiffchaffs *Phylloscopus collybita* trapped in County Kerry in 2015

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The Common Chiffchaff *Phylloscopus collybita* (hereafter Chiffchaff) overwinters in Ireland in significant numbers (Balmer *et al.* 2013), but in the absence of recoveries of birds ringed as nestlings, it is not possible to accurately determine their origins. However, field identification of the Siberian race *P. c. tristis* occurs annually in small numbers while the Fennoscandinavian/eastern race *P. c. abietinus* remains unsubstantiated or, at best, is presumptive and reported as *abietinus/tristis*.

During a period of cold weather in the winter of 2012/2013 DF observed a number of individuals of the Siberian race of Chiffchaffs *P. c. tristis* foraging in mixed deciduous woodland near Ross Castle on the shores of Lough Leane, Killarney, County Kerry (grid reference V9589). The initial estimate was of seven individuals but, as the birds were never all seen together and were distributed along the watercourse flowing from the Killarney wastewater treatment works, an accurate count was impossible. In an effort to get a better estimate of numbers, it was decided to trap and ring a proportion of these birds to determine a minimum number and enable other unringed birds to be counted. Unfortunately, the weather improved and birds dispersed before a ringing visit could be made. During the following winter there was no significant concentration of Chiffchaffs to merit a visit. This pattern of Chiffchaff distribution at this site has previously been documented (Carruthers 1996).

However, in January 2015, again during a protracted cold spell, there was an estimated minimum of 25 Chiffchaffs at the site including five individuals identified as the Siberian race

P. c. tristis. In the following weeks trapping with mist nets was carried out on three dates with individuals of the Siberian race *P. c. tristis* ringed on each day (Table 1). Trapping was limited to approximately 300 m of the watercourse and sessions were short (less than three hours). Only a small proportion of the birds in the area were trapped and many were seen to avoid the nets or remained in stands of vegetation away from the nets. After 29 January DF continued to visit the site daily and estimated that 20% of the Chiffchaffs present were carrying rings and his observations included of a number of unringed *P. c. tristis*. Although not statistically reliable, this puts a crude estimate of up to 100 individuals in the area.



Plate 135. Chiffchaff *P. c. abietinus*, Killarney (Barry O'Mahony).

Table 1. Daily ringing totals of Common Chiffchaffs at Killarney.

Date	Total Chiffchaffs	<i>P. c. tristis</i>
23/01/2015	3	1
29/01/2015	17	3
17/02/2015	6	2

During extraction and handling, any feathers dropped by trapped birds were retained for DNA analysis to confirm identification. While our intention was primarily to identify *P. c. tristis* we also collected feathers that fell from birds

identified as the nominate race *P. c. collybita*. Feathers were retrieved from eight individuals and analysed (cytochrome B mitochondrial DNA sequencing) at the Institute of Medical Sciences (University of Aberdeen). Results are tabulated and summarised in Figure 1 and Table 2. Of the eight samples analysed, three were of the nominate race *P. c. collybita*, four were of the Siberian race *P. c. tristis* and one was of the Fennoscandinavian/eastern race *P. c. abietinus*. A previous occurrence of *P. c. tristis*, confirmed by DNA analysis, has been documented at Brownstown Head, County Waterford during 2012 (Collinson *et al.* 2013, Fahy 2013).

The discovery of *P. c. abietinus* was unexpected and is the first occurrence of the race for Ireland confirmed by DNA

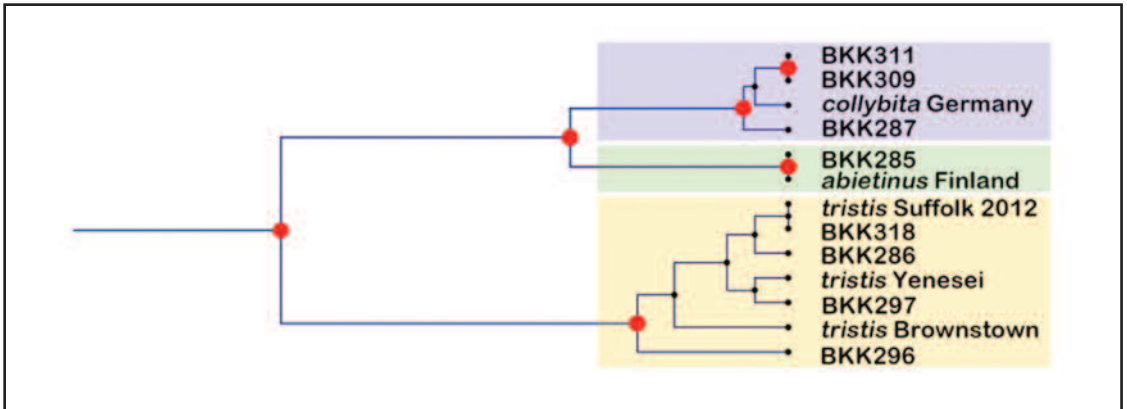


Figure 1. Gene tree of the cytochrome B mitochondrial DNA sequence of the Common Chiffchaffs analysed in this paper, compared with previously published sequences from Collinson *et al.* (2013) and Helbig *et al.* (1995). The nodes highlighted in red have 90-100% statistical support, and indicate that BKK287, BKK309 and BKK311 form a clade with nominate *collybita*, BKK285 clusters with known *P. c. abietinus*, and BKK286, BKK296, BKK297 and BKK318 cluster with known *P. c. tristis*, including birds previously sequenced in Britain (Suffolk, 2012) and Ireland (Brownstown, 2012). Although there is genetic variation in all taxa, all individuals of each subspecies are much more closely related to each other than they are to individuals of different subspecies.



Plate 136. Chiffchaff *P. c. tristis*, Killarney (Barry O'Mahony).



Plate 137. Chiffchaff *P. c. collybita*, Killarney (Barry O'Mahony).

Table 2. Details of DNA sequence data of Common Chiffchaffs at Killarney.

Ring No.	Race	Comment
BKK285	<i>P. c.abietinus</i>	Identical to bird previously sequenced from Finland
BKK286	<i>P. c.tristis</i>	1 bp different from previously published Landguard (Suffolk) bird
BKK287	<i>P. c.collybita</i>	Novel but 2 bp different from nominate German
BKK296	<i>P. c.tristis</i>	Novel but 5 bp different from multiple <i>tristis</i> , 15+ bp different from other taxa
BKK297,	<i>P. c.tristis</i>	1 bp different from core Yenesei (Siberia) bird
BKK309.	<i>P. c.collybita</i>	1 bp different from nominate German bird
BKK311	<i>P. c.collybita</i>	1 bp different from nominate German bird
BKK318	<i>P. c.tristis</i>	Identical to previously published Landguard bird (Collinson <i>et al.</i> 2013)

analysis. Prior to this, only two British examples of *abietinus* have been analysed by the Institute of Medical Sciences (University of Aberdeen), in contrast to over 30 *tristis*. In addition, previous efforts to determine the distribution and occurrence of this race (*abietinus*) in Britain and the Netherlands (de Knijff *et al.* 2012) were unsuccessful, although this may have been due to the sample selection methods or the time of year.

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Irish Ringing Report for 2014

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This report summarises the number of birds ringed in Ireland in 2014 in the context of previous years. The data are presented separately for the Republic of Ireland and Northern Ireland, and further broken down according to whether the birds were ringed as pulli (nestlings) or as fledged birds (adults or juveniles). The grand total of all birds ringed in Ireland since 1975, when this annual reporting began, is presented, again, broken down by the numbers ringed as pulli and as fledged birds. A selection of recoveries, re-sightings or retraps, which are noteworthy on the basis of distance or

direction travelled or the longevity of the birds, is presented. These recoveries include both those ringed abroad and recovered or re-sighted in Ireland and those ringed in Ireland and recovered or re-sighted abroad.

The total number of birds ringed in Ireland in 2014 was 29,924, of which 20,547 were ringed as fledged birds and 9,377 as pulli (Table 2). This accounts for a 6% increase on 2013 and

Plate 138. Dipper (Michael Linehan).

a 13% increase on the average number of birds ringed per year for the preceding five-year period (2009–13). Of the 125 species ringed, the top three were European Storm Petrel *Hydrobates pelagicus*, Barn Swallow *Hirundo rustica* and Common Tern *Sterna hirundo* (Table 1). European Storm Petrels accounted for 10% of all birds ringed in Ireland in 2014, with the top three most frequently ringed species accounting for 25%, and the top ten accounting for 52%.

The recent reduction in the number of wildfowl being ringed has continued (Tierney 2013, 2014), with numbers down 43% on the five-year mean. The number of birds of prey ringed has declined by 35%, and auks are down 22% on the five-year mean. Gannet *Morus bassanus* (none ringed in 2014), Cormorant *Phalacrocorax carbo* and Shag *Phalacrocorax aristotelis* all had fewer ringed in 2014 compared to the five-year mean. The numbers ringed for several species groups, namely terns and passerines and near-passerines have remained relatively stable, showing changes of less than 10% compared to the five-year mean. The number of gulls ringed increased by 16%, and tubenoses by 21%. The number of waders ringed increased by 339% in 2014. These changes are most likely a result of ringing effort: certain species being targeted for projects (i.e. waders), or the completion of such projects, rather than changes at a population level.

While there were more Mute Swans *Cygnus olor* and Teal *Anas crecca* ringed in 2014 compared to the previous year, the numbers ringed remain well below the five-year means for both species. The number of Brent Geese *Branta bernicla* ringed represents a 31% increase on the five-year mean. For the first year since 2008, there were no Little Egrets *Egretta garzetta* ringed. There were fewer Red Kites *Milvus milvus* and Hen Harriers *Circus cyaneus* ringed, with numbers for both species well below their five-year means. There were also fewer Barn Owls *Tyto alba* ringed compared to the previous five years, and the number ringed represents a decrease of 51% compared to the five-year mean. There were no Long-

eared Owls *Asio otus* ringed in 2014, for the first time in at least seven years. Sparrowhawks *Accipiter nisus* and Peregrines *Falco peregrinus* were ringed in their highest numbers in the last seven years, and showed increases of 62% and 114% compared to the five year-mean.

Woodcock *Scolopax rusticola* were ringed in lower numbers compared to the previous six years. Several wader species; Oystercatcher *Haematopus ostralegus*, Red Knot *Calidris canutus*, Dunlin *Calidris alpina*, Bar-tailed Godwit *Limosa lapponica* and Curlew *Numenius arquata* were ringed in considerably higher numbers than in previous years. This was mostly, but not exclusively, a result of cannon-netting effort in Dublin Bay. There were more Mediterranean Gulls *Larus melanocephalus* ringed in 2014 than ever before and Lesser Black-backed Gull *Larus fuscus* were ringed in greater numbers than at least for the previous seven years.

There were fewer Arctic Terns *Sterna paradisaea* ringed than in any of the preceding seven years and the 2014 total represents a considerable decrease (94%) compared to the five year mean. The number of Little Terns *Sternula albifrons* ringed in 2014 was higher than in any of the preceding seven, and the year's total represents a 212% increase on the five-year mean. The decrease in the number of auks ringed, compared to the five-year mean, is mostly as a result of fewer Black Guillemots *Cepphus grille* having been ringed in 2014. There were 8% more passerines and near-passerines ringed in 2014 compared to the five-year mean. Coal Tits *Periparus ater*, Treecreepers *Certhia familiaris*, Fieldfares *Turdus pilaris*, Tree Sparrows *Passer montanus*, Bramblings *Fringilla montifringilla*, Greenfinches *Chloris chloris*, Goldfinches *Carduelis carduelis* and Lesser Redpolls *Carduelis cabaret* were all ringed in lower numbers compared to any of the previous five years. The number of Kingfishers *Alcedo atthis*, Jackdaws *Corvus monedula* and Skylarks *Alauda arvensis* ringed were considerably higher than the five-year mean, each showing increases in excess of 200%. Ravens *Corvus corax*, Great Tits *Parus major*, Barn Swallows, Blackcaps *Sylvia*

Table 1. The ten most frequently ringed species in 2014 and their ranking over the years 2010-2014.

Species	Number ringed		2013	Rank		
	2014	2014		2012	2011	2010
European Storm Petrel	3,007	1	1	2	3	1
Barn Swallow	2,416	2	4	1	2	3
Common Tern	1,691	3	2	3	1	2
Roseate Tern	1,552	4	5	5	5	5
Great Tit	1,441	5	8	4	9	11
Blue Tit	1,382	6	6	9	5	9
Sandwich Tern	1,138	7	9	11	12	8
Chaffinch	1,002	8	7	6	7	4
Red Knot	915	9	83	76	84	-
Goldfinch	876	10	3	8	11	6

atricapilla, Reed Warblers *Acrocephalus scirpaceus*, Wrens *Troglodytes troglodytes*, Dippers *Cinclus cinclus*, Redwings *Turdus iliacus*, Robins *Erithacus rubecula*, Grey Wagtails *Motacilla cinerea*, Tree Pipits *Anthus trivialis*, Bullfinches *Pyrrhula pyrrhula* and Reed Buntings *Emberiza schoeniclus* were ringed in higher numbers than in any of the preceding five years.

The 2014 ringing effort has brought the grand total of birds ringed in Ireland since 1975 to 1,219,770 and a total of 20,580 recoveries have been generated to date (Table 3). There were 50 registered ringers in Northern Ireland and 77 in the Republic of Ireland in 2014. This is relatively consistent with last year's numbers, which were 57 and 72, respectively. There were four Constant Effort Sites in operation in 2014, one each in Antrim, Tipperary, Wicklow and Kildare. There were five Retrapping Adults for Survival (RAS) projects, two at the same site in Derry (Great Tit & Blue Tit *Cyanistes caeruleus*), two in Offaly (Swallow & Sand Martin *Riparia riparia*), and one in Tipperary (House Sparrow *Passer domesticus*).

Recoveries of ringed birds

A total of 519 recoveries were retrieved from the BTO's Online Ringing Report (Robinson & Clark 2015) for this report, and an additional 47 records from 14 species were included after a data request to the coordinators of colour-ringing projects in Ireland. The recoveries are birds ringed in Ireland or Britain and recovered in Ireland, Irish-ringed birds recovered elsewhere, or birds ringed outside Britain and Ireland and recovered or re-sighted in Ireland.

There are 73 recoveries or re-sightings listed in this report: 12 of wildfowl, 20 of waders, 10 of seabirds, nine of terns, eight of gulls, seven of passerines, four of birds of prey and one each of Water Rail *Rallus aquaticus*, Barn Owl and Grey Heron *Ardea cinerea*.

Selected recoveries

For each recovery listed below, the ringing details are given in the first two lines (ring number (or colour-ring inscription/permutation), age (and sex, if known), date and place of ringing and coordinates of the ringing location) followed by details of the re-sightings or recovery (circumstances, date and place of re-sighting/recovery, coordinates of the re-sighting/recovery location, straight-line distance from ringing site and direction of movement). In cases where a bird has been re-sighted numerous times, only selected re-sightings are listed. The term "controlled" indicates the bird was caught, processed and released by another ringer. The term "field record" indicates that the ring (or collar or wing tag) was read in the field without capturing the bird.

Key to abbreviations used:

Pull. = Pullus (unfluffed chick)
 1yr. = First year
 2yr. = Second year
 Fg. = Fully grown of any age
 Ad. = Adult
 M = Male
 F = Female
 Wint. = Winter

Whooper Swan *Cygnus cygnus*

ASV	Ad.	Date	Location
		26-11-1994	Caerlaverock, Dumfriesshire, Scotland 54°58'N 3°28'W
Controlled		07-02-1995	Caerlaverock, Dumfriesshire, Scotland 54°58'N 3°28'W
Field record		12/03/2003	Stafholt, Stafholtstungur, Iceland 65°41'N 18°06'W
Field record		14/01/2004	Garrow, Westport, Mayo 53°46'N 9°30'W 1,408 km SSE
Field record		20/03/2014	Kinlooe Lough, Aghagower, Westport 53°46'N 9°27'W

ASV was re-sighted 15 times since it was ringed in November 1994 and appears to winter annually at a number of small lakes at Aghagower, near Westport in County Mayo. ASV is now a long-lived bird as it was colour-ringed as an adult in 1994 and therefore was at least 20 years, 3 month and 22 days old when re-sighted in Westport on 20 March 2014 (E. McGreal, pers. comm.). The BTO longevity record, set in 2009, stands at 28 years, 2 months and 10 days.

Greater White-fronted Goose

Anser albifrons

1313371	1yr. F	19-01-1996	North Slob, Wexford 52°21'N 6°25'W
Field record		08-10-2014	Skufslaekur, Árnessýsla, Iceland 63°51'N 20°46'W 1,526 km
T4N		Wint. 2009/10	Ballylawn, Lough Swilly, Donegal 55°05'N, 7°19'W
Field record		Wint. 2012/13	Tiree, Inner Hebrides, Scotland 56°30'N 6°53'W
Field record		Wint. 2013/14	Tiree, Inner Hebrides, Scotland 56°30'N 6°53'W 157 km NNE

4HK	Wint. 2012/13	Islay, Inner Hebrides, Scotland 55°43'N 6°10'W
Field record	March 2014	Lough Swilly, Donegal 55°03'N 7°31'W 113 km
0HU	Wint. 2012/13	Islay, Inner Hebrides, Scotland c. 55°43'N 6°10'W
Field record	10-03-2014	Islay, Inner Hebrides, Scotland c. 55°43'N 6°10'W
Field record	29-03-2014	Stabannan, Louth 53°52' N, 6°26' W 205 km
Field record	30-10-2014	North Slob, Wexford 52°21'N 6°25'W 168 km

1313371, at 18 years, 8 months and 19 days since ringing, this bird is very close to breaking the longevity record for this species, which is 18 years, 9 months and 22 days. T4N is an example of between-winter shifting of wintering area from Ireland to Scotland. Two more examples are: X3C, which was caught at Wexford in winter 2011/12 and has wintered at Loch Lomond, Dunbartonshire, Scotland (56°04'N, 4°35'W) ever since; and X8H, which was caught in Wexford in winter 2012/13 and was re-sighted on Lismore Island in the Inner Hebrides, Scotland (56°30'N, 5°31'W) in February and March 2014 (A.D. Fox, pers. comm.). 4HK is an example of between-winter shifting of wintering area from Scotland to Ireland. Two more examples are: V7A, which was caught Loch Ken, Dumfries and Galloway, Scotland (55°00' N, 4°02' W) in winter 2008/09, re-sighted there in 2009/10, and then switched to winter in Glenamaddy, Galway (53°36'N 8°33'W) every year since; and V8D, which was caught at Loch Ken in winter 2010/11, re-sighted there in 2011/12, and then switched to winter on Lough Swilly, Donegal (55°00' N, 4°02' W) in 2012/13 and 2013/14 (A.D. Fox, pers. comm.). 0HU is an example of a within-winter movement between Scotland and Ireland which is much less common than between-winter movements. Regular Wexford-wintering birds, T1D, T5D, Y6C, P7Z and P9Z are thought to have been blown off course en-route from Iceland in autumn 2014, and were re-sighted in Farlington Marches, Hampshire, England (50°50'N 1°01'W) on 22 October. T5D was re-sighted in Wexford on 29 October, but none of the others were seen again in winter 2014/15 (A.D. Fox, pers. comm.).

Greylag Goose *Anser anser*

5191310	Ad. F	06-02-2013	Burt, Donegal 55°1'N 7°28'W
Freshly dead (shot)	13-11-2014	Borgartun, Rangárvallasýsla, Iceland 63°45'N 20°37'W 1,218 km NW	

5191308	1yr. M	06-02-2013	Burt, Donegal 55°1'N 7°28'W
Field record	25-04-2013	Hvanneyri, Borgarfjardar, Iceland 64°33'N 21°42'W 1,319 km NW	
Freshly dead (shot)	16-10-2014	Jadarkot, Árnessýsla, Iceland 63°52'N 20°46'W 1,234 km NW	
A AD	Ad. F	21-11-2012	Inch Lough, Lough Swilly, Donegal 55°02'N 7°25'W
Field record	30/10/2013	Orrevatnet, Jæren, Norway 58°45'N 5°32'E 891 km NE	
Field record	15-03-2014	Klepp, Rogaland Norway 58°43'N 5°32'E	
Field record	29-10-2014	Inch Lough, Lough Swilly, Donegal 52°55'N 7°26'W 890 km SW	
A AX	Ad. F	06-02-2013	Burt, Lough Swilly, Donegal
Field record	22-11-2013	Cumrue, Dumfries and Galloway, Scotland 55°09'N 3°27'W	
Field record	24-02-2014	Courance, Dumfries and Galloway, Scotland 55°10'N 3°28'W 257 km	

Only selected re-sightings are shown. A|AT, also an adult caught at Inch Lough, Lough Swilly, Donegal on 21 November 2012, was re-sighted in Norway at the same location and time as A|AD and subsequently returned to Lough Swilly with her. A|AX was re-sighted in this area 28 times in this period.

Light-bellied Brent Goose

Branta bernicla hrota

3XYY	Ad. F	21-05-2006	Pálshús, Álftanes, Iceland 64°07'N 21°56'W
Field record	15-06-2014	Cornwallis Island, Canada 74°41'N 94°54'W 2,804 km NW	
Field record	29-09-2014	Sandsøya, Norway 62°15'N 5°26'E 2,000 km SE	
2IRR	Ad.	06-03-2013	Finglas, Dublin 53°23'N 6°18'W
Field record	14-11-2014	Havre de Regnéville, France 49°00'N 1°33'W	
Field record	25-12-2014	Ile de Ré, France 46°11'N 1°22'W 861 km SSE	

Only selected re-sightings are shown. 3XYY was re-sighted a total of 232 times in Iceland, Ireland, Jersey, Canada and Norway in this period. It wintered in Jersey each winter from 2006/07 to 2013/14, was re-sighted in Cornwallis Island in

Canada in June 2014, photographed in Norway in September 2014 and not recorded again. This suggests movement from the East Canadian High Arctic flyway population to the East Atlantic flyway (G. McElwaine, pers. comm.). 2IRR was re-sighted a total of 29 times in Iceland, Ireland and France in this period. This re-sighting from the Ile de Ré is one of the furthest south re-sightings that the project has had to date (G. McElwaine, pers. comm.).

Goldeneye *Bucephala clangula*

4254569	Ad. F	15-05-2014	Herum, As, Akershus, Norway 59°39'N 10°46'E
Freshly dead (shot)		01-12-2014	Ballyronan, Lough Neagh, Derry c. 54°42'N 6°31'W 1,178 km WSW

Fulmar *Fulmarus glacialis*

FB01381	Pull.	07-08-2009	Ailsa Craig, South Ayrshire, Scotland 55°15'N 5°7'W
Freshly dead		22-09-2014	Carnfunnock Country Park, Larne, Antrim 54°52'N 5°51'W 62 km SW
FV77973	Ad.	02-07-1980	Great Saltee, Wexford 52°6'N 6°37'W
Dead (storm)		30-03-2014	Harlech, Gwynedd, Wales 52°51'N 4°7'W 190 km ENE

The BTO longevity record for this species, which was set in 1992, stands at 40 years, 10 months and 16 days, so at 33 years, 8 months and 28 days, FV77973 is a relatively old bird.

Manx Shearwater *Puffinus puffinus*

EW88565	Fg.	17-04-2010	Copeland Bird Observatory, Down 54°40'N 5°31'W
Freshly dead (storm)		05-07-2014	Southampton, New York, USA 40°52'N 72°28'W 5,188 km WSW

European Storm Petrel

Hydrobates pelagicus

N05319	Ad.	19-06-2012	Ponta de Almadena, Faro, Portugal 37°4'N 8°46'W
Controlled		28-07-2014	Sheepand Harbour, Ardglass, Down 54°16'N 5°34'W 1,929 km N
2689692	Ad.	19-07-2014	Annagh Head, Mayo 54°13'N 10°7'W
Controlled		15-08-2014	Mykines, Vága, Faroe Islands c. 62°6'N 7°39'W 886 km N

Ten European Storm Petrels were controlled greater than 400 km from their original ringing sites in 2014, demonstrating links between Ireland and Scotland (Highland, Orkney and Shetland), and the Isle of Man.

Gannet *Morus bassanus*

1160377	Pull.	25-07-1981	Great Saltee Island, Wexford 52°7'N 6°37'W
Controlled		15-07-2014	Hadsel, Nordland, Norway 68°31'N 14°31'E 2,146 km NNE
1330862	Pull.	28-06-1995	Great Saltee Island, Wexford 52°7'N 6°37'W
Field record		01-09-1999	Helgoland, Germany 54°10'N 7°55'E 995 km ENE
Field record		11-04-2014	Helgoland, Germany 54°10'N 7°55'E

Only selected re-sightings are shown. 1330862 was re-sighted in Helgoland, Germany on eight occasions (once each in 1999, 2000, 2001, 2002, 2006, 2007, 2008 and 2014) between 1 September 1999 and 11 April 2014.

Grey Heron *Ardea cinerea*

1285755	Pull.	20-05-2014	Isle of Colonsay, Argyll and Bute, Scotland 56°1'N 6°15'W
Freshly dead		18-08-2014	Loughmuck Road, Omagh, Tyrone 54°31'N 7°21'W 181 km SSW

Red Kite *Milvus milvus*

GR41587	Pull.	21-06-2013	Rathdrum, Wicklow c. 52°55'N 6°13'W
Freshly dead		15-12-2013	Celbridge, Kildare 53°19'N 6°33'W 51 km NNW

White-tailed Eagle *Haliaeetus albicilla*

ZY3422	Pull. F	07-07-2014	Mountshannon, Clare c. 52°55'N 8°25'W
Field record		05-10-2014	Portumna, Galway c. 53°4'N 8°13'W 22 km NE
Field record		10-12-2014	Luska Bay, Tipperary, c. 52°58'N 8°16'W 12 km ENE

Marsh Harrier *Circus aeruginosus*

FB44707	Pull. M	06-07-2014	Site Confidential, East Norfolk, England c. 52°41'N 1°28'E
Field record		08-11-2014	Ardcavan, Wexford 52°21'N 6°25'W 551 km W

Only selected re-sightings are shown. FB44707 was re-sighted twice in Yorkshire, England in August and September 2014.

Osprey *Pandion haliaetus*

1123603	Pull.	14-07-2014	Site Confidential, Highlands, Scotland
Field record		23-09-2014	Clogheen Marsh, Clonakilty, Cork c. 51°36'N 8°52'W 701 km SSW

Water Rail *Rallus aquaticus*

LA46718	Pull.	04-08-2013	Uckermark, Zachodnio-Pomorskie, Poland 53°9'N 14°22'E
Freshly dead (disease)		10-02-2014	Ballincroig, Cork 51°55'N 8°28'W 1,550 km W

Oystercatcher *Haematopus ostralegus*

FH74745	Ad.	26-02-2013	Merrion Gates, Dublin 53°18'N 6°12'W
Field record		02-04-2013	Karmøy, Rogeland Norway 59°11'N 5°12'E 959 km NE
Field record		22-12-2014	South Dublin Bay, Dublin 53°19'N 6°12'W
FH74749	Ad.	26-02-2013	Merrion Gates, Dublin 53°18'N 6°12'W

Field record		21-04-2014	Fair Isle, Shetland, Scotland 59°31'N 1°37'W 746km NNE
Field record		19-08-2014	Merrion Gates, Dublin 53°18'N 6°12'W
FH74725	Ad.	26-02-2013	Merrion Gates, Dublin 53°18'N 6°12'W
Field record		25-03-2014	Stokkseyri, Southern Iceland 63°50'N 21°03'W 1,445 km NW
Field record		16-09-2014	Merrion Gates, Dublin 53°18'N 6°12'W

Only selected re-sightings are shown: FH74745 was re-sighted 11 times since being ringed, and was re-sighted in Norway three times during the 2013 and 2014 breeding seasons, and wintered in Dublin in between. FH74749 has been re-sighted 11 times since it was ringed. FH74725 was re-sighted seven times since being ringed. A further four Dublin-ringed Oystercatchers were re-sighted in Scotland (Moray, Orkney (2) and Aberdeenshire) in 2014. A further two Dublin-ringed Oystercatchers were re-sighted in Iceland (Stokkseyri and Sandgerdi) in 2014.

Ringed Plover *Charadrius hiaticula*

3574285	Pull.	14-05-2010	Vellinge Angar, Skåne, Sweden 55°28'N 12°58'E
Field record		31-08-2013	Ballinclammer, Dungarvan, Waterford 52°4'N 7°33'W 1,398 km SW



Plate 139. Oystercatchers (Oskar Bjørnstad).

Field record 30-08-2014 Cunnigar Point, Dungarvan,
Waterford
52°4'N 7°36'W
1,401 km WSW

Red Knot *Calidris canutus*

ST40506 Ad. 30-01-2014 Booterstown, Dublin
53°18'N 6°13'W

Long dead (leg only) 24-07-2014 Helgoland, Germany
54°10'N 7°52'E
932 km E

ST40507 Ad. 30-01-2014 Booterstown, Dublin
53°18'N 6°13'W

Long dead 12-08-2014 Nordfriesische Inseln, Germany
54°55'N 8°20'E
962 km E

ST40396 Ad. 30-01-2014 Booterstown, Dublin
53°18'N 6°13'W

Controlled 24-05-2014 Reykjarfjordur, Iceland
65°37'N 23°28'W
1,671 km NW

ST40062 Ad. 30-01-2014 Booterstown, Dublin
53°18'N 6°13'W

Controlled 28-08-2014 Vlieland, The Netherlands
53°16'N 5°7'E
754 km E

Sanderling *Calidris alba*

R6RRGY Ad. 09-10-2010 Asenko Village, Western Region,
Ghana
04°55'N 2o19'W

Field record 22-08-2013 Carne Harbour, Wexford
52°11'N 6°21'W

Field record 31-07-2014 Carne Harbour, Wexford
52°11'N 6°21'W
5,057 km N

BT35697 Ad. 14-05-2010 Ardivachar, South Uist, Scotland
57°22'N 7°25'W

Controlled 20-10-2014 Booterstown, Dublin
53°18'N 6°13'W
459 km S

Curlew Sandpiper *Calidris ferruginea*

8N59347 1yr. 03-09-2014 Revtangen, Klepp, Norway
58°45'N 5°28'E

Field record 06-09-2014 Cunnigar, Dungarvan, Waterford
52°4'N 7°36'W
1,109 km SW

8N59202 1yr 02-09-2014 Revtangen, Klepp, Norway
58°45'N 5°28'E

Field record 25-09-2014 Cromane, Kerry
52°7'N 9°55'W
1,217 km SW

8N59204 1yr. 02-09-2014 Revtangen, Klepp, Norway
58°45'N 5°28'E

Field record 27-09-2014 Clonakilty, Cork
51°37'N 8°54'W
1,207 km SW

Common Snipe *Gallinago gallinago*

H00901 1yr. 01-08-2013 Turov, Zhitkovichi, Gomel
Oblast, Belarus
52°4'N 27°43'E

Freshly dead (shot) 26-10-2014 Tullyleer, Monaghan
54°13'N 6°58'W
2,324 km W

PS17805 Ad. M 22-06-2014 Primorskiy District,
Sankt-Petersburg, Russia
60°1'N 30°10'E

Freshly dead (shot) 06-12-2014 Salthill, Galway
53°16'N 9°4'W
2,505 km WSW

Curlew *Numenius arquata*

FC80363 Ad. 21-07-1997 Seal Sands, Teesmouth,
Hartlepool, England
54°37'N 1°10'W

Field record 19-09-2002 Seal Sands, Teesmouth,
Hartlepool, England
54°37'N 1°10'W

Freshly dead (shot) 15-11-2014 Island Hill, Strangford Lough,
Down
54°33'N 5°42'W
291 km W

Ym/NB Pull. 06-06-2014 Corgarff, Aberdeenshire,
Scotland
57°09'N 3°12'W

Field record 22-12-2014 Booterstown, Dublin
53°19' N 6°13' W
467 km SW

Bar-tailed Godwit *Limosa lapponica*

DD73031 Ad. 12-08-2010 Friskney New Marsh,
Lincolnshire, England
53°4'N 0°13'E

Controlled 30-01-2014 Booterstown, Dublin
53°18'N 6°13'W
431 km W

DB87978 Ad. 11-08-2006 Leverton Outgate, Lincolnshire,
England
53°0'N 0°7'E

Controlled 30-01-2014 Booterstown, Dublin
53°18'N 6°13'W
425 km W

DE77673 Ad. 30-01-2014 Booterstown, Dublin
53°18'N 6°13'W

Field record 18-05-2014 Igeldas, Porsanger, Finnmark,
Norway
70°13'N 24°55'E
2,460 km NE

Kittiwake *Rissa tridactyla*

MA21705 Pull. 20-07-1990 Hornoya, Finnmark, Norway
70°22'N 31°9'E

Freshly dead (injury) 27-01-2014 Cruit Island, Donegal
55°1'N 8°25'W
2,601 km SW

At 23 years, 6 months and 7 days old, this is a relatively old bird. The BTO longevity record, which was set in 1993, is 28 years, 6 months and 5 days.

Black-headed Gull

Chroicocephalus ridibundus

571487	Pull.	19-06-2003	Alftanes, Kjósarsýsla, Iceland 64°6'N 22°0'W
Field record		23-03-2014	Antrim Marina, Antrim 54°42'N 6°13'W 1,369 km SE
Field record		07-12-2014	Antrim Marina, Antrim 54°42'N 6°13'W
2VPN	Pull.	15-06-2014	Corgarff, Aberdeenshire, Scotland 57°09'N 3°12'W
Field record		13-09-2014	Newburgh, Ythan Estuary, Scotland 57°19'N 1°59'W
Field record		07-12-2014	Waterside, Galway 53°16'N 9°02'W 572 km SW
252D	Pull.	15-06-2008	Lough Mask, Co. Mayo 53°35'N 9°21'W
Field record		17-10-2014	Phoenix Park, Dublin c. 53°21'N 6°19'W

252D has been re-sighted in Dublin ten times and was present during every winter from February 2010 to October 2014. All re-sightings were from the Phoenix Park, with the exception of one re-sighting on Sandymount Strand. A possible reason for the high re-sighting rate for this bird is that it is an almost completely leucistic bird (E. McGreal, pers. comm.).

Mediterranean Gull *Larus Melanocephalus*

FS02002	Pull.	27-05-2012	Zb. Nysa, Wojcice, Opolskie, Poland 50°25'N 17°13'E
Field record		30-07-2013	Antrim Marina, Antrim 54°42'N 6°13'W 1,653 km WNW
Field record		08-11-2013	Ballywalter, Down 54°31'N 5°28'W 1,602 km WNW
RX59	Pull.	22/06/2014	Jablins, Seine-et-Marne, France 48°33'N 2°28'W
Field record		18-08-2014	Ballygerry, Rosslare Harbour, Wexford 52°15'N 6°21'W 741 km NW

Common Gull *Larus canus*

JJ93	3yr. F	02-07-2014	Tveitevannet, Bergen, Hordaland, Norway 60°21'N 5°21'E
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Field record	22-10-2014	Duncannon Beach, Wexford 52°13'N 6°55'W 1,176 km SW
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Lesser Black-backed Gull *Larus fuscus*

GR64662	Pull.	10-07-2012	Calf of Man c. 54°3'N 4°49'W
Field record		12-12-2012	Sagres, Faro, Portugal 37°0'N 8°55'W 1,921 km S
Freshly dead (hit wires)	04-06-2014	Downpatrick, Down 54°19'N 5°43'W 67 km WNW	

Only selected recoveries are shown. GR64662 was also re-sighted in Faro, Portugal in May and October, 2013.

Little Tern *Sternula albifrons*

IEV	Pull.	28-06-2014	Kilcoole, Wicklow 53°05'N 6°02'W
Field record		24-08-2014	Dawlish Warren, Devon, England 50°36'N 3°25'W 328 km SE
IBB	Pull.	23-06-2014	Kilcoole, Wicklow 53°05'N 6°02'W
Field record		24-08-2014	Pénestin, Morbihan, Brittany, France 47°29'N 2°27'W 673 km SE
IJT	Pull.	08-07-2014	Kilcoole, Wicklow 53°05'N 6°02'W
Field record		01-09-2014	Hayling Island, Hampshire, England 50°47'N 0°56'W 433 km SE
IBH	Pull.	26-06-2014	Kilcoole, Wicklow 53°05'N 6°02'W
Field record		01-09-2014	Torres Vedras, Lisbon, Portugal 39°6'N 9°23'W 1,578 km S
NW38521	Pull.	06-07-2013	Kilcoole, Wicklow 53°05'N 6°02'W
Freshly dead (on ship)	19-03-2014	off Aberdeen, Sierra Leone 8°30'N 13°18'W 4,998 km S	
NW38498	Pull.	29-06-2013	Kilcoole, Wicklow 53°05'N 6°02'W
Freshly dead	14-08-2014	Playa de San Lorenzo, Gijon, Spain 43°31'N 5°39'W 1,062 km S	

Only selected re-sightings are shown. IEV was also reported in Dawlish Warren, Devon, England on the 27 and 29 August.

Sandwich Tern *Sterna sandvicensis*

IAB U68075	Pull.	23-06-2014	Salina Di Comacchio , Ferrara, Italy 44°39'N 12°11'E
Field record		07-09-2014	Kilchief Bay, Strangford Lough, Down 54°19'N 5°32'W 1,664 km NW
ETA	1yr.	15-08-2011	Ythan Estuary, Aberdeenshire, Scotland 57°19'N 1°59'W
Field record		21-12-2013	Mile 4 Salt Works, Swakopmund, Namibia 22°36'S 14°31'E 8,979 km S
Field record		27-06-2014	Inner Farne, Northumberland, England 55°36'N 1°39'W 8,879 km N
Field record		11-09-2014	Duncannon Beach, Wexford 52°12'N 6°54'W 519 km SW

Nine other Sandwich Terns that were ringed on the Ythan Estuary (in 2010, 2011, 2013 and 2014) were re-sighted at Duncannon Beach in Wexford between the 3 and 16 September 2014.

Roseate Tern *Sterna dougallii*

ST20963	Pull.	13-07-2012	Rockabill, Dublin 53°34'N 6°0'W
Field record		14-06-2014	Jokulsarlon, Austur-Skaftafellssýsla, Iceland 64°3'N 16°12'W 1,301 km NNW

Common Guillemot *Uria aalge*

GJ65195	Pull.	30-06-1982	Great Saltee Island, Wexford 52°7'N 6°37'W
Freshly dead (storm)		20-01-2014	Plage de Cassard, Loire-Atlantique, France 47°19'N 2°30'W 608 km SSE

The BTO longevity record is 35 years, 11 months and 29 days, so at 31 years, 6 months and 21 days, this is a relatively old bird. There were four other recoveries of old Common Guillemots in 2014, all of which were greater than 27 years old.

Razorbill *Alca torda*

M38778	Pull.	15-07-1979	Great Saltee Island, Wexford 52°7'N 6°37'W
Freshly dead		01-03-2014	Plage de Sion, Vendee, France 46°42'N 1°58'W 690 km SSE

The BTO longevity record is 41 years, 11 months and 23 days, so at 34 years, 7 months and 14 days, this is a relatively old bird. A further four recoveries of old Razorbills were recorded in 2014, all of which were greater than 30 years old.

Puffin *Fratercula arctica*

EW66437	Ad.	24-07-2011	Great Skellig, Kerry 51°46'N 10°31'W
Long dead		22-02-2014	la Palmyre, Charente-Maritime, France 45°40'N 1°13'W 960 km SE

Barn Owl *Tyto alba*

GC81433	Pull. F	04-08-2010	near Brosna, Offaly c. 52°58'N 7°54'W
Freshly dead (shot)		19-11-2014	Abbeyfeale, Limerick 52°22'N 9°18'W 116 km SW

Raven *Corvus corax*

MA01706	Pull.	11-04-2014	Cleggan, Galway 53°34'N 10°7'W
Dead		02-11-2014	Bundoran, Donegal 54°28'N 8°16'W 157 km NE

Blackcap *Sylvia atricapilla*

EE6779?	Ad. M.	05-11-2014	Lista Fyr, Farsund, Vest-Agder, Norway 58°6'N 6°34'E
Field record		27-12-2014	Templemoyle, Culdaff, Donegal 55°16'N 7°13'W 897 km WSW

Reed Warbler *Acrocephalus scirpaceus*

Y880889	1yr.	29-07-2014	Blackditch, Wicklow 53°4'N 6°3'W
Controlled		18-08-2014	Seine-Maritime, France 49°25'N 0°18'E 599 km SE

Chaffinch *Fringilla coelebs*

VL39512	Ad. M	30-09-2012	Ventes Ragas, Silutes, Lithuania 55°19'N 21°10'E
Freshly dead (cat)		25-11-2013	Gurteen, Galway 53°22'N 8°36'W 1,940 km W

Goldfinch *Carduelis carduelis*

6934485	1yr.	01-03-2013	Marestay, Charente-Maritime, France 45°52'N 0°19'W
Freshly dead (domestic animal)		15-04-2014	Quinagh, Carlow 52°49'N 6°55'W 910 km NNW



Plate 140. Roseate Tern (Brian Burke).

Siskin *Carduelis spinus*

D204885 1yr. M 21-03-2013 Alton Hall Lane, Stutton, Suffolk
51°58'N 1°7'E
Controlled 12-04-2014 Cashel, Blaney, Fermanagh
54°25'N 7°48'W
653 km WNW

Lesser Redpoll *Carduelis cabaret*

L292856 Ad. M 02-10-2012 Copeland Bird Observatory,
Down
54°40'N 5°31'W
Controlled 29-03-2014 Wunseradiel, Friesland,
The Netherlands
53°4'N 5°22'E
737 km ESE

Table 2. Ringing totals for 2014 with the previous five-year mean for comparison.

Species	Juv/adult			Pullus			Total 2014	Five-year mean 2009– 2013
	Northern Ireland	Rep. of Ireland	Sub- total	Northern Ireland	Rep. of Ireland	Sub- total		
Mute Swan <i>Cygnus olor</i>	3	16	19	0	0	0	19	31.4
Whooper Swan <i>Cygnus cygnus</i>	0	0	0	0	0	0	0	1.4
White-fronted Goose <i>Anser albifrons</i>	0	0	0	0	0	0	0	47.2
Greylag Goose <i>Anser anser</i>	0	1	1	0	0	0	1	8.8
Barnacle Goose <i>Branta leucopsis</i>	0	0	0	0	0	0	0	18
Brent Goose <i>Branta bernicla</i>	24	202	226	0	0	0	226	173
Mandarin Duck <i>Aix galericulata</i>	0	0	0	0	0	0	0	0.2
Wigeon <i>Anas penelope</i>	0	0	0	0	0	0	0	0.6
Teal <i>Anas crecca</i>	94	3	97	0	0	0	97	289.4
Mallard <i>Anas platyrhynchos</i>	0	1	1	0	0	0	1	36
Pintail <i>Anas acuta</i>	0	0	0	0	0	0	0	1.6
Tufted Duck <i>Aythya fuligula</i>	0	1	1	0	0	0	1	1.6
Eider <i>Somateria mollissima</i>	21	0	21	0	0	0	21	20.2
Goldeneye <i>Bucephala clangula</i>	0	1	1	0	0	0	1	0
Red Grouse <i>Lagopus lagopus</i>	0	0	0	0	0	0	0	0.8
Fulmar <i>Fulmarus glacialis</i>	0	62	62	0	19	19	81	32.4
Manx Shearwater <i>Puffinus puffinus</i>	388	154	542	228	2	230	772	940
Storm Petrel <i>Hydrobates pelagicus</i>	205	2802	3007	0	0	0	3007	2213.8
Leach's Petrel <i>Oceanodroma leucorhoa</i>	0	9	9	0	0	0	9	5.8
Gannet <i>Morus bassanus</i>	0	0	0	0	0	0	0	29
Cormorant <i>Phalacrocorax carbo</i>	0	0	0	24	296	320	320	373.6
Shag <i>Phalacrocorax aristotelis</i>	0	5	5	0	155	155	160	195.6
Little Egret <i>Egretta garzetta</i>	0	0	0	0	0	0	0	17.4
Grey Heron <i>Ardea cinerea</i>	0	0	0	0	0	0	0	4.6
Little Grebe <i>Tachybaptus ruficollis</i>	0	0	0	0	0	0	0	0.4
Great Crested Grebe <i>Podiceps cristatus</i>	0	0	0	0	0	0	0	0.2
Red Kite <i>Milvus milvus</i>	0	0	0	0	9	9	9	43.6
White-tailed Eagle <i>Haliaeetus albicilla</i>	0	0	0	0	1	1	1	0.2
Hen Harrier <i>Circus cyaneus</i>	0	0	0	0	3	3	3	18
Sparrowhawk <i>Accipiter nisus</i>	4	11	15	0	23	23	38	23.4
Buzzard <i>Buteo buteo</i>	0	10	10	22	9	31	41	40
Golden Eagle <i>Aquila chrysaetos</i>	0	0	0	0	1	1	1	1.8
Kestrel <i>Falco tinnunculus</i>	0	6	6	0	57	57	63	93.8
Merlin <i>Falco columbarius</i>	0	0	0	0	8	8	8	5.8
Peregrine <i>Falco peregrinus</i>	0	0	0	3	109	112	112	52.4
Water Rail <i>Rallus aquaticus</i>	2	2	4	0	0	0	4	3.6
Spotted Crake <i>Porzana porzana</i>	0	0	0	0	0	0	0	0.2
Moorhen <i>Gallinula chloropus</i>	1	0	1	0	0	0	1	3.2
Coot <i>Fulica atra</i>	0	10	10	0	0	0	10	2

Table 2 (continued). Ringing totals for 2014 with the previous five-year mean for comparison.

Species	Juv/adult			Pullus			Total 2014	Five-year mean 2009– 2013
	Northern Ireland	Rep. of Ireland	Sub- total	Northern Ireland	Rep. of Ireland	Sub- total		
Oystercatcher <i>Haematopus ostralegus</i>	0	215	215	1	0	1	216	54.4
Ringed Plover <i>Charadrius hiaticula</i>	0	3	3	1	26	27	30	24.8
Golden Plover <i>Pluvialis apricaria</i>	0	0	0	0	0	0	0	1.4
Lapwing <i>Vanellus vanellus</i>	0	0	0	2	19	21	21	27
Knot <i>Calidris canutus</i>	0	915	915	0	0	0	915	1.4
Sanderling <i>Calidris alba</i>	0	0	0	0	0	0	0	15.4
Curlew Sandpiper <i>Calidris ferruginea</i>	0	1	1	0	0	0	1	0.4
Purple Sandpiper <i>Calidris maritima</i>	0	0	0	0	0	0	0	21.8
Little Stint <i>Calidris minuta</i>	0	0	0	0	0	0	0	0.2
Pectoral Sandpiper <i>Calidris melanotos</i>	0	0	0	0	0	0	0	0.2
Dunlin <i>Calidris alpina</i>	0	353	353	0	0	0	353	81.6
Ruff <i>Calidris pugnax</i>	0	0	0	0	0	0	0	0.2
Jack Snipe <i>Lymnocyptes minimus</i>	0	1	1	0	0	0	1	0.2
Snipe <i>Gallinago gallinago</i>	0	11	11	0	0	0	11	7.4
Woodcock <i>Scolopax rusticola</i>	0	8	8	0	0	0	8	55.6
Black-tailed Godwit <i>Limosa limosa</i>	0	17	17	0	0	0	17	20
Bar-tailed Godwit <i>Limosa lapponica</i>	0	470	470	0	0	0	470	2
Whimbrel <i>Numenius phaeopus</i>	0	0	0	0	0	0	0	3.2
Curlew <i>Numenius arquata</i>	0	61	61	0	0	0	61	19.2
Common Sandpiper <i>Actitis hypoleucos</i>	0	0	0	0	0	0	0	0.6
Greenshank <i>Tringa nebularia</i>	0	1	1	0	0	0	1	0.8
Redshank <i>Tringa totanus</i>	3	105	108	0	0	0	108	116.2
Turnstone <i>Arenaria interpres</i>	0	4	4	0	0	0	4	51
Ivory Gull <i>Pagophila eburnea</i>	0	1	1	0	0	0	1	0
Kittiwake <i>Rissa tridactyla</i>	0	0	0	0	130	130	130	124
Black-headed Gull <i>Chroicocephalus ridibundus</i>	0	7	7	42	321	363	370	220.2
Mediterranean Gull <i>Larus melanocephalus</i>	0	13	13	0	21	21	34	15.6
Common Gull <i>Larus canus</i>	0	0	0	74	1	75	75	221
Lesser Black-backed Gull <i>Larus fuscus</i>	4	0	4	2	108	110	114	48.8
Herring Gull <i>Larus argentatus</i>	18	3	21	6	99	105	126	104.8
Great Black-backed Gull <i>Larus marinus</i>	2	0	2	0	124	124	126	109.8
Little Tern <i>Sternula albifrons</i>	0	0	0	0	394	394	394	126.2
Black Tern <i>Chlidonias niger</i>	0	0	0	0	0	0	0	0.2
Sandwich Tern <i>Sterna sandvicensis</i>	0	9	9	229	900	1129	1138	936.8
Common Tern <i>Sterna hirundo</i>	0	9	9	135	1547	1682	1691	1999.2
Roseate Tern <i>Sterna dougallii</i>	0	0	0	0	1552	1552	1552	1389.6
Arctic Tern <i>Sterna paradisaea</i>	0	0	0	11	2	13	13	204.6
Guillemot <i>Uria aalge</i>	0	4	4	0	0	0	4	15.2
Razorbill <i>Alca torda</i>	0	24	24	0	0	0	24	18.8
Black Guillemot <i>Cephus grylle</i>	9	0	9	41	57	98	107	144.2
Little Auk <i>Alle alle</i>	0	0	0	0	0	0	0	0.2
Puffin <i>Fratercula arctica</i>	0	19	19	0	0	0	19	20
Stock Dove <i>Columba oenas</i>	1	0	1	0	0	0	1	4.2
Woodpigeon <i>Columba palumbus</i>	7	7	14	0	4	4	18	16.8
Collared Dove <i>Streptopelia decaocto</i>	5	3	8	1	0	1	9	14
Cuckoo <i>Cuculus canorus</i>	0	0	0	0	0	0	0	1
Barn Owl <i>Tyto alba</i>	0	5	5	0	46	46	51	103.6
Long-eared Owl <i>Asio otus</i>	0	0	0	0	0	0	0	3.4
Swift <i>Apus apus</i>	0	1	1	12	9	21	22	23

Table 2 (continued). Ringing totals for 2014 with the previous five-year mean for comparison.

Species	Juv/adult			Pullus			Total 2014	Five-year mean 2009– 2013
	Northern Ireland	Rep. of Ireland	Sub- total	Northern Ireland	Rep. of Ireland	Sub- total		
Kingfisher <i>Alcedo atthis</i>	6	5	11	0	0	0	11	3.4
Great Spotted Woodpecker <i>Dendrocopos major</i>	0	0	0	0	0	0	0	0.2
Chough <i>Pyrrhocorax pyrrhocorax</i>	0	0	0	0	0	0	0	1
Magpie <i>Pica pica</i>	13	14	27	0	0	0	27	20
Jay <i>Garrulus glandarius</i>	3	7	10	0	0	0	10	8.8
Jackdaw <i>Corvus monedula</i>	3	9	12	104	11	115	127	27
Rook <i>Corvus frugilegus</i>	2	33	35	0	1	1	36	37.8
Hooded Crow <i>Corvus cornix</i>	2	2	4	0	9	9	13	9.4
Raven <i>Corvus corax</i>	0	0	0	0	154	154	154	70.4
Goldcrest <i>Regulus regulus</i>	104	159	263	0	0	0	263	212.2
Firecrest <i>Regulus ignicapilla</i>	0	0	0	0	0	0	0	0.2
Blue Tit <i>Cyanistes caeruleus</i>	357	398	755	326	301	627	1382	1178.6
Great Tit <i>Parus major</i>	376	374	750	396	295	691	1441	988.4
Coal Tit <i>Periparus ater</i>	146	156	302	7	77	84	386	624.4
Skylark <i>Alauda arvensis</i>	3	57	60	0	4	4	64	6.8
Sand Martin <i>Riparia riparia</i>	145	671	816	0	0	0	816	641.8
Swallow <i>Hirundo rustica</i>	299	1988	2287	31	98	129	2416	1816
House Martin <i>Delichon urbicum</i>	19	3	22	0	0	0	22	22
Cetti's Warbler <i>Cettia cetti</i>	0	0	0	0	0	0	0	0.4
Long-tailed Tit <i>Aegithalos caudatus</i>	100	127	227	0	0	0	227	214.2
Arctic Warbler <i>Phylloscopus borealis</i>	0	0	0	0	0	0	0	0.2
Pallas's Warbler <i>Phylloscopus proregulus</i>	0	0	0	0	0	0	0	0.2
Yellow-browed Warbler <i>Phylloscopus inornatus</i>	1	0	1	0	0	0	1	1.6
Bonelli's Warbler <i>Phylloscopus bonelli</i>	0	0	0	0	0	0	0	0.2
Chiffchaff <i>Phylloscopus collybita</i>	48	131	179	0	0	0	179	320.4
Willow Warbler <i>Phylloscopus trochilus</i>	123	385	508	0	39	39	547	693.8
Blackcap <i>Sylvia atricapilla</i>	131	158	289	0	6	6	295	217.6
Garden Warbler <i>Sylvia borin</i>	0	1	1	0	0	0	1	2
Barred Warbler <i>Sylvia nisoria</i>	1	0	1	0	0	0	1	0.2
Lesser Whitethroat <i>Sylvia curruca</i>	1	2	3	0	0	0	3	1.2
Whitethroat <i>Sylvia communis</i>	11	27	38	0	0	0	38	48
Subalpine Warbler <i>Sylvia cantillans</i>	0	0	0	0	0	0	0	0.4
Grasshopper Warbler <i>Locustella naevia</i>	2	5	7	0	0	0	7	18.6
Booted Warbler <i>Iduna caligata</i>	0	0	0	0	0	0	0	0.2
Sedge Warbler <i>Acrocephalus schoenobaenus</i>	32	358	390	0	1	1	391	382.2
Reed Warbler <i>Acrocephalus scirpaceus</i>	0	36	36	0	0	0	36	17.8
Waxwing <i>Bombycilla garrulus</i>	0	0	0	0	0	0	0	2.4
Treecreeper <i>Certhia familiaris</i>	5	16	21	0	0	0	21	30.8
Wren <i>Troglodytes troglodytes</i>	182	257	439	0	1	1	440	323.8
Starling <i>Sturnus vulgaris</i>	76	27	103	2	98	100	203	165.2
Dipper <i>Cinclus cinclus</i>	6	98	104	2	340	342	446	236.2
White's Thrush <i>Zoothera dauma</i>	0	0	0	0	0	0	0	0.6
Ring Ouzel <i>Turdus torquatus</i>	1	0	1	0	0	0	1	0
Blackbird <i>Turdus merula</i>	194	295	489	9	12	21	510	507.2
Fieldfare <i>Turdus pilaris</i>	1	0	1	0	0	0	1	10.4
Song Thrush <i>Turdus philomelos</i>	46	73	119	0	0	0	119	119
Redwing <i>Turdus iliacus</i>	6	155	161	0	0	0	161	72.6
Mistle Thrush <i>Turdus viscivorus</i>	2	1	3	0	0	0	3	10.8
Spotted Flycatcher <i>Muscicapa striata</i>	6	11	17	4	9	13	30	23.6

Table 2 (continued). Ringing totals for 2014 with the previous five-year mean for comparison.

Species	Juv/adult			Pullus			Total 2014	Five-year mean 2009– 2013
	Northern Ireland	Rep. of Ireland	Sub- total	Northern Ireland	Rep. of Ireland	Sub- total		
Robin <i>Erithacus rubecula</i>	237	342	579	1	24	25	604	377.2
Collared Flycatcher <i>Ficedula albicollis</i>	0	0	0	0	0	0	0	0.2
Pied Flycatcher <i>Ficedula hypoleuca</i>	0	0	0	0	0	0	0	0.6
Black Redstart <i>Phoenicurus ochruros</i>	0	0	0	0	0	0	0	0.2
Redstart <i>Phoenicurus phoenicurus</i>	1	0	1	0	0	0	1	0.8
Whinchat <i>Saxicola rubetra</i>	0	0	0	0	0	0	0	1.4
Stonechat <i>Saxicola rubicola</i>	0	17	17	0	21	21	38	17.2
Wheatear <i>Oenanthe oenanthe</i>	5	1	6	4	0	4	10	17.2
Dunnock <i>Prunella modularis</i>	109	149	258	0	16	16	274	238.8
House Sparrow <i>Passer domesticus</i>	249	580	829	15	14	29	858	499.6
Tree Sparrow <i>Passer montanus</i>	46	2	48	0	0	0	48	108.4
Grey Wagtail <i>Motacilla cinerea</i>	3	2	5	0	31	31	36	13.6
Pied/White Wagtail <i>Motacilla alba</i>	9	25	34	7	4	1	45	58.4
Tree Pipit <i>Anthus trivialis</i>	0	1	1	0	0	0	1	0
Meadow Pipit <i>Anthus pratensis</i>	29	371	400	4	0	4	404	222.8
Rock Pipit <i>Anthus petrosus</i>	0	11	11	0	0	0	11	7.8
Chaffinch <i>Fringilla coelebs</i>	456	543	999	0	3	3	1002	1220.6
Brambling <i>Fringilla montifringilla</i>	1	0	1	0	0	0	1	9.4
Greenfinch <i>Chloris chloris</i>	76	230	306	7	0	7	313	453.8
Goldfinch <i>Carduelis carduelis</i>	425	451	876	0	0	0	876	1185.4
Siskin <i>Carduelis spinus</i>	214	106	320	0	0	0	320	430.8
Linnet <i>Carduelis cannabina</i>	73	116	189	0	0	0	189	135.2
Twite <i>Carduelis flavirostris</i>	0	7	7	0	0	0	7	16
Lesser Redpoll <i>Carduelis cabaret</i>	159	135	294	0	0	0	294	1020.6
Common Redpoll <i>Carduelis flammea</i>	0	0	0	0	0	0	0	1.4
Redpoll (Common/Lesser) <i>Carduelis flammea/cabaret</i>	38	13	51	0	0	0	51	52.4
Common Crossbill <i>Loxia curvirostra</i>	0	0	0	0	0	0	0	0.8
Common Rosefinch <i>Carpodacus erythrinus</i>	0	0	0	0	0	0	0	0.2
Bullfinch <i>Pyrrhula pyrrhula</i>	67	115	182	0	1	1	183	131
Yellowhammer <i>Emberiza citrinella</i>	38	35	73	0	0	0	73	49.4
Reed Bunting <i>Emberiza schoeniclus</i>	28	183	211	0	2	2	213	119.6
2014 Total	5,507	15,040	20,547	1,753	7,624	9,377	29,924	
5-year mean (2009-13)	5,887	12,196	18,084	1,748	6,611	8,360		26,444.2
Number of species							125	127

Table 3. Annual totals of birds ringed in Ireland and annual recovery totals.¹

Year	Ringed Juv/Adult	Ringed Pullus	Ringed Total	Recovered Total
1975	21,316	8,146	29,462	not known
1976	23,097	6,039	29,136	not known
1977	17,812	6,708	24,520	not known
1978	12,637	10,014	22,651	387
1979	15,495	11,052	26,547	455
1980	19,383	12,114	31,497	322
1981	21,536	10,139	31,675	424
1982	22,412	12,510	34,922	613
1983	23,588	12,807	36,395	617
1984	18,737	15,384	34,121	682
1985	21,223	15,904	37,127	634
1986	24,361	13,368	37,729	635
1987	20,657	15,185	35,842	471
1988	22,237	13,235	35,472	814
1989	26,860	14,659	41,519	615
1990	23,061	10,977	34,038	676
1991	19,517	10,674	30,191	677
1992	17,316	11,266	28,582	641
1993	15,733	10,564	26,297	456
1994	17,819	10,567	28,386	473
1995	22,875	11,961	34,836	482
1996	25,125	13,010	38,135	501
1997	20,037	11,067	31,104	1,226
1998	18,443	9,509	27,952	827
1999	19,119	12,273	31,392	437
2000	15,042	11,653	26,695	502
2001	16,630	12,237	28,867	501
2002	17,827	12,447	30,274	519
2003	16,487	13,860	30,347	532
2004	20,062	9,995	30,057	358
2005	18,777	10,126	28,903	462
2006	20,893	10,074	30,967	484
2007	18,493	5,844	24,337	576
2008	18,122	7,859	25,981	565
2009	18,624	9,058	27,682	523
2010	18,212	9,357	27,569	362
2011	17,637	9,575	27,212	690
2012	16,397	6,765	23,162	350
2013	20,301	7,964	28,265	572
2014	20,547	9,377	29,924	519
Grand totals ringed and recovered 1975-2014			1,219,770	20,580
Average number ringed per year (1975-2014)			30,494	

¹ Reproduced from Merne (2012) with data from 2006-2014 sourced from Robinson and Clark (2015).



Plate 141. Ringed Common Gull (Michael O'Clery).

Acknowledgements

Thanks to all trainers, ringers and helpers who were active in 2014 for their dedication and hard work, and especially to those ringers who contributed recoveries and re-sightings of their ringed birds to this report. The provision of additional details on the significance of the re-sightings is especially useful and I am grateful to those ringers who put the movements of their colour-ringed birds in context. I would also like to thank the BTO Ringing Office staff who helped in providing the data for this report. The owners of the lands on which much of the ringing is carried out are also thanked for allowing access to their land.

Ringers registered in 2014

Northern Ireland 50 ringers (25 A permit holders, 15 C permit holders and 10 trainees).

Christopher William Acheson, Hugh Bradley, Ryan Bradley, Anthony Caravaggi, Declan Clarke, John Clarke, Aidan Crean, Richard Donaghey, Ian Forsyth, David Galbraith, Philip Galbraith, Julian Garth Greenwood, Richard Harkness, Owen Hegarty, Nicholas Hesford, Richard Holland, Richard Hoy, Ian Humphreys, George Hynes, Nigel Ireland, Dean Jones, Kerry Leonard, Kerry Mackie, Paddy Mackie, Kathryn McBride, Peter McCarron, Adam McClure, Darryl McConnell, Edward McGuiggan, Neville McKee, Mary Mooney, Peter Munro, Gillian Parr, Michael Parr, Ken Perry, Gala Podgornik, William Porter, Siobhán Porter, Alex Portig, Lucy Quinn, Shanna Rice, Sarah Rogers, Eimear Rooney, Marc Ruddock, Wesley Smyth, Brian Sutton, Hugh Thurgate, Irena Tomankova, Niall Waterman and Shane Wolsey.

Two ringing groups were registered in Northern Ireland in 2014: Belfast and Down Ringing Group and Copeland Bird Observatory.

Republic of Ireland 77 ringers (27 A permit holders, 31 C permit holders and 19 trainees).

Adrian Allen, Chris Benson, Lorraine Benson, Mark Berney, Phil Brennan, John Boyd Bryce, Brian Burke, David Cabot, Michael Casey, Damian Clarke, Anna Collins, Kevin Collins, Richard Collins, Alex Copland, Maura Culligan, Sinéad Cummins, David Daly, Sandra Devaney, Susan Doyle, Mary Ann Duggan, Dario Fernandez-Bellon, Domhnall Finch, Ann Fitzpatrick, Steve Gaites, Christopher Honan, Mark Jessopp, Tom Kealy, David James Kelly, Seán Kelly, Sean Kingston, Alan Lauder, John Lusby, Áine Lynch, Liam Lysaght, John Maher, Declan Manley, Katie-Mai Manley, Patrick Manley, Nicola Marples, Rosemarie McDonald, Eoin McGreal, Derek McLoughlin, David McNicholas, Allan Mee, Deirdre Moran, Tony Murray, Tony Nagle, Tyrone Nelson, Stephen Newton, Gabriel Noonan, Irene O'Brien, Darren O'Connell, Michael Edward O'Donnell, Susan O'Donohoe, Barry O'Donoghue, Raymond O'Haire, John O'Halloran, Barry O'Mahony, William O'Shea, Lorcan O'Toole, Peter Phillips, James Declan Power, Graham Prole, John Quinn, Patrick Smiddy, Andrew Speer, Wendy Stringer, Dave Suddaby, David Tierney, Niall Tierney, Alyn Walsh, Paul M. Walsh, Michael Whelan, Ricky Whelan, Howard Williams, Christopher Wilson and Stephen Wing.

Six ringing groups were registered in the Republic of Ireland in 2014: Cape Clear Bird Observatory, Great Saltee Ringing Station, Irish Midlands Ringing Group, Munster Ringing Group, National Parks and Wildlife Service Ringing Group and Wicklow Murrough Ringing Group.

Erratum

Irish Ringing Report for 2013

The field record of a Caspian Gull *Larus cachimans* in Belfast, Antrim was reported in error. It appears that the colour-ring was misread in the field (*Irish Birds* 10: 111).

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Notes

Tufted Duck *Aythya fuligula*: a case of intraspecific brood parasitism?

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Keywords: *Aythya fuligula*, intraspecific brood parasitism,
Tufted Duck

In the autumn of 2010 several Tufted Ducks *Aythya fuligula* were recorded at a 2 ha pond in private property on the north coast of Dublin city. As this was the first record for the site, permission was obtained from the land owner to monitor events. Birds were recorded occasionally during 2011 and 2012, but nesting was never suspected. Five males and four females were present regularly in spring and early summer 2013, and copulation was observed in mid-June. It soon became evident from the behaviour of the birds that nest prospecting or egg-laying was taking place at a dense patch of aquatic vegetation at one side of the pond. At the time it did not seem out of place that more than one female loitered in this particular area. More frequent observations were made in July, and on 17 July a female, with 18 newly hatched ducklings, was seen at the suspected nest site. Over the following days and weeks all ducklings remained close to this one female, even when other females occasionally visited the pond.

Eighteen ducklings from one nest is an exceptionally high number as Tufted Ducks normally lay 8 to 11 eggs (Robinson 2015). It is entirely possible, though not likely, that this female laid all 18 eggs. In itself this would be a noteworthy event. However, the presence of more than one female close to the nest site at the time when egg-laying was likely to have taken place suggests a different explanation. Ducks are weak defenders of the area in the immediate vicinity of their nests during the laying period, and it would appear this provides an ideal opportunity for parasitic females to lay their eggs (Ehrlich *et al.* 1994). This behaviour, known as intraspecific

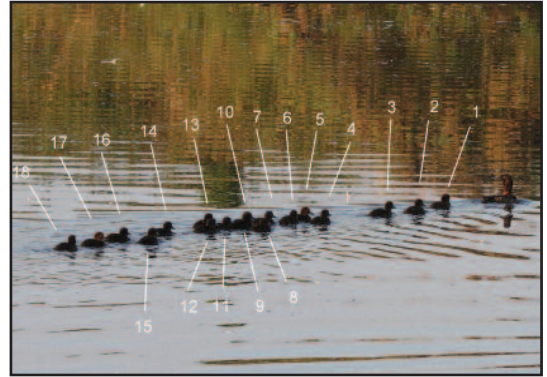


Plate 142. Female Tufted Duck with 18 newly hatched ducklings, Dublin, 17 July 2013 (Tom Cooney).

brood parasitism, is not uncommon in wildfowl species, particularly diving ducks (Blums *et al.* 2002). It also appears to occur disproportionately in species with precocial young (Dugger & Blums 2001). There are no benefits for the host females, and it is likely that an increased clutch and brood size could potentially attract more predators, thereby reducing breeding success. Only five of the 18 ducklings observed in July survived to fledging. Intraspecific brood parasitism is strongly suspected to have taken place at this site in 2013.

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Lion's Mane Jellyfish *Cyanea capillata* provide additional feeding opportunities for terns (Sternidae)

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Keywords: *Cyanea capillata*, feeding association, Lion's Mane Jellyfish, Sternidae, terns

The Lion's Mane Jellyfish *Cyanea capillata* is one of the world's largest species of jellyfish and is common in the Irish Sea and along the Dublin coast (Heard 2005, NBDC 2015). They are venomous and capture prey such as zooplankton, small fish and other jellyfish using their stinging tentacles (Purcell 2003). Some fish appear to be resistant to the venomous nematocysts and seek shelter amongst the tentacles. These fish gain protection from the host's tentacles and in some cases may feed on the jellyfish itself (Duffy 1988). Some predators have taken advantage of this association and feed on the commensal fish. Brünnich's Guillemots *Uria lomvia* have been observed in Alaska feeding on the commensal fish associated with the Northern Sea Nettle Jellyfish *Chrysaora melanaster* (Sato *et al.* 2015). The authors of this study concluded that jellyfish may enhance diving seabird foraging success by concentrating prey. It has been noted that Common Terns *Sterna hirundo* feed on American Butterfish *Peprilus triacanthus* associating with Lion's Mane Jellyfish in North America (Duffy 1988). However, there are few other records of this behaviour, particularly in Europe. Rockabill Island, a small island 8 km off the north coast of County Dublin, is home to approximately 2,000 pairs of Common Terns, 100 pairs of Arctic Terns *Sterna paradisaea* and 1,400 pairs of Roseate Terns *Sterna dougallii* during the breeding season (Burke *et al.* 2015). Terns feed by plunge diving for fish, and large feeding flocks of terns and other seabirds typically follow schools of fish when away from the breeding colony. However, it is not uncommon to see terns fishing close to the island. The Rockabill Island tern wardens observed, on multiple occasions, Arctic Terns foraging for fish living commensally with Lion's Mane Jellyfish close to the island during 2015. Lion's Mane Jellyfish are commonly observed around Rockabill, particularly from June onwards. Terns were noted hovering directly above the jellyfish, sometimes for several minutes, before diving into the water after a fish. The terns typically dived from a lower height (less than 5 metres) almost striking the jellyfish as they entered the water. The species of fish was not determined despite the



Plate 143. Arctic Tern plunge diving over a Lion's Mane Jellyfish, 14 July 2015, Rockabill Island, Co. Dublin (Andrew Power).

terns having been successful in many of their hunting attempts. The same behaviour involving Common Terns and Lion's Mane Jellyfish was observed by the tern wardens during 2014. This behaviour has not been observed with Roseate Terns at Rockabill Island, although it has not been directly investigated.

The impact of jellyfish on marine ecosystems is complex and not fully understood. Jellyfish are predators of small fish and fish eggs and may decrease the food available to seabirds. However, jellyfish may be beneficial to seabirds by concentrating prey. Further research is needed to determine how important and common this behaviour is. The large numbers of jellyfish around Rockabill Island provide what may be important additional feeding opportunities for Arctic and Common Terns. This may be especially evident during jellyfish blooms which are expected to become more frequent as jellyfish populations increase globally (Brotz *et al.* 2012). Given the large numbers of terns at Rockabill Island, every food source that minimises foraging time may be important to their continued success.

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Seabird counts at Helvick Head, Co. Waterford, 1999-2014

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Keywords: Census data, seabirds

Helvick Head is situated on the southern side of Dungarvan Harbour in County Waterford and is a Special Area of Conservation (SAC) for the presence of Vegetated Sea Cliffs (Natura 2000 Code: 1230) and Dry Heath (4030), habitats that are listed on Annex I of the E.U. Habitats Directive. The SAC extends from the Head southwestwards to Muggort's Bay and comprises sheer sea cliffs, cliff top vegetation and an area of marine waters off the Head. Helvick Head also forms part of the Helvick Head to Ballyquin Special Protection Area (SPA: Site Code 004192) and has all of the species (Cormorant *Phalacrocorax carbo*, Peregrine Falcon *Falco peregrinus*, Herring Gull *Larus argentatus*, Kittiwake *Rissa tridactyla* and Chough *Pyrrhocorax pyrrhocorax*) which are listed as of Special Conservation Interest for this SPA. Helvick Head is the most important seabird colony in County Waterford and has been censused periodically since 'Operation Seafarer' in 1969/70; the last published seabird census was undertaken in 1999 (NPWS Site Synopsis) as part of Seabird 2000 (Mitchell *et al.* 2004).

The purpose of this short communication is to present details of censuses carried out in 1999, 2005, 2008 and 2014 (Table 1). Nine seabird species breed at Helvick Head and sub-colony counts of all species are shown for 2014 and for Kittiwakes for the three census years of 2005, 2008 and 2014 (Figure 1). The census units used (Walsh *et al.* 1995) are: apparently occupied nest (AON) for Cormorant, Shag *Phalacrocorax aristotelis*, Herring Gull, Great Black-backed Gull *Larus marinus* and Kittiwake; apparently occupied site (AOS) for Fulmar *Fulmarus glacialis*; and individual adults on land for Guillemot *Uria aalge* and Razorbill *Alca torda*. Black Guillemot *Cepphus grylle* is best censused in the early morning (about 05.00-07.00 GMT) during the first three weeks of April by searching for all adults on the sea within 300 m of the shore; hence the date and timing of the seabird surveys at Helvick Head are inappropriate for this species, but their presence was noted. Puffins *Fratercula arctica* regularly pass close inshore at Helvick Head in summer (one carrying several fish was seen at Helvick Head on 15 July 2011), and they have been seen sitting on the water close inshore or, in summer 2010, on the cliffs (source: waterfordbirds.com, accessed 16 July 2015). These birds could be visitors from the nearest known colony, on Great Saltee (County Wexford), but they might also be prospecting for potential breeding sites. The cliffs and slopes at Helvick Head were checked on 31 May 2013, again during the seabird count in 2014, and in late July 2015, but no Puffins were seen.

Table 1. Seabird breeding numbers at Helvick Head, County Waterford, 1999-2014 (times in GMT).

Species	1999	2005	2008	2014
Date and time		10 June 09.00-13.00	10 June 09.45-14.35	11 June 09.45-15.00
Fulmar	42	25-27	24	42
Cormorant	0	0	0	22
Shag	6	3	2	1
Guillemot	990	1,013	808	1,371
Razorbill	41	26	30	60
Black Guillemot	-	6	1	1
Kittiwake	934	828	472	525-530
Herring Gull	44	20-25	29-37	49-55
Great Black-backed Gull	0	1	3	3

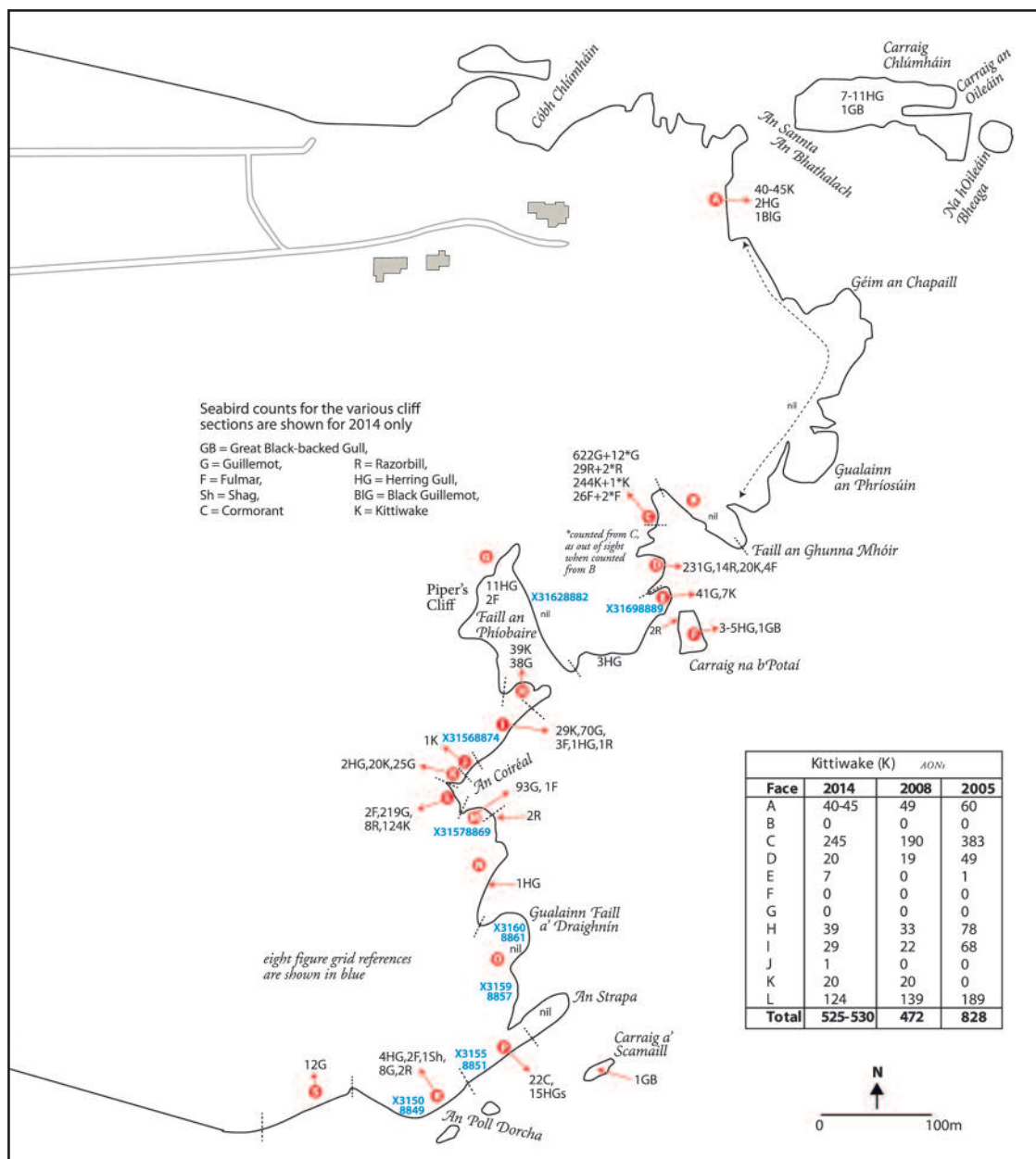


Figure 1. Seabird breeding numbers and distribution at Helvick Head, County Waterford, 2014. Census figures for Kittiwakes are shown for 2005, 2008 and 2014.

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Adaptive responses to inundation by high tides in Little Terns *Sternula albifrons*

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Keywords: Little Tern, nest movement, *Sternula albifrons*, tidal inundation

The Little Tern *Sternula albifrons* is one of Ireland's rarest breeding seabirds, arriving on Irish shores in April and nesting on coasts and offshore islands until their departure in August. Little Terns typically nest colonially, using a shallow scrape on shingle or sandy beaches, just above the intertidal zone (Gochfeld & Burger 1996). This choice of nesting habitat leaves the colony extremely vulnerable to damage from high tides. Such high tides may be the result of low pressure weather conditions and sea storms, and also spring tides, making tidal inundation a constant risk.

Since 1985, BirdWatch Ireland and the National Parks and Wildlife Service have carried out a colony protection and management scheme for the Little Tern colony that traditionally nests at the Breaches in Kilcoole, Co. Wicklow (grid reference O314063) (Patten 1899, O'Briain & Farrelly 1990). This scheme involves the continuous monitoring of the colony by wardens 24 hours a day throughout the breeding season. Since its inception, the scheme has seen tidal inundation regularly impact on the colony, particularly in 2012, when breeding success was reduced to zero as a result of storms washing over the shingle, and subsequent egg depredation (Keogh *et al.* 2012). Two years later, during the 2014 breeding season, high tides once again inundated the colony. On 19 June, a high tide washed into a gully where several Little Tern nests were located. On inspecting the gully after the tide had receded, the wardens found that the nests of 12 pairs of Little Terns had been swept away. The wardens also found that another 13 pairs whose nests had been washed out had collected their eggs into new nests roughly 0.5-1.0 m further inland from their original position. This behaviour was unexpected, as it had not previously been recorded in Sternidae (O'Connell *et al.* 2014a, b).

Egg movement in response to high tide inundation was recorded once again during the 2015 breeding season. In the early hours of 2 June, a tidal surge, likely caused by a storm at sea, inundated the colony (Doyle *et al.* 2015). A total of 11 nests were swept away and a further six were inundated with seawater, but not significantly damaged. The wardens observed that one Little Tern pair collected their eggs into a

new scrape following inundation. This pair was first observed nesting on 30 May and had a clutch of three eggs on 1 June. The nest was inundated on 2 June; one day after the full clutch was completed. The rising tide swept the eggs from the nest, but the pair gathered two of the three eggs into a new scrape approximately 0.75 m further inland; the third egg having been swept away. The location of the old nest is shown in the white circle (Plate 144), while the new nest location is in the black circle. The pair went on to lay another egg two days later. These three eggs failed to hatch after 21 days of incubation (the average for Little Tern according to Gochfeld and Burger (1996)). Incubation after the last egg was laid continued for 38 days until the eggs were finally abandoned by the parents.

Spring tides coincided with low pressure on the weekend of 4-6 July and led to a second major tidal inundation event in 2015 (Doyle *et al.* 2015). A total of 12 more nests were swept away over this period. Three nests, with a clutch of three each, were also inundated at this time. In each of these nests, two of the eggs had hatched earlier on the day of inundation, and the third egg was expected to hatch within hours. The wardens observed that the parents led the newly hatched chicks inland and abandoned the remaining egg as the tide approached the nest. The chicks were moved throughout the day, staying approximately 1.0-2.0 m ahead of the encroaching tide. Each time the wardens checked one of these nests, the chicks were observed being brooded by the parents just above the tideline, while the tide continued to rise. It is estimated they moved roughly 3.0 m further inland over the course of the tide. Five of the six chicks from these three nests were resighted (by their ring inscriptions) over one week later, on 11 and 15 July. All are assumed to have fledged.

Little Tern chicks are very mobile and may leave the nest as early as one day after the final egg hatches (Taylor 2014). In cases where the final egg does not hatch, the parents continue to incubate the egg and brood the chicks at the nest for several days (pers. obs.). Sandwich Terns *Sterna sandvicensis* are known to lure their chicks from the nest in response to kleptoparasitism from other seabirds, such as Black-headed Gull *Chroicocephalus ridibundus* (Stienen & Brenninkmeijer 1999). Similarly, Roseate Terns *Sterna dougallii* have been observed moving their chicks from areas of high tern density to low density, possibly also in response to kleptoparasitism from other terns (Baillie *et al.* 2014). However, there is no previous evidence of observations of chick moving behaviour by Little Terns in response to a rising tide.

Likewise, there have been no reports of egg moving behaviour in response to rising tides in Sternidae outside the observations at Kilcoole in 2014, and again in 2015. For a species such as the Little Tern, whose nesting habits leave eggs and chicks so vulnerable to loss from tidal inundation, strategies that maximize potential productivity in the event of a high tide are of great importance. Continued monitoring of



Plate 144. Little Tern nests where adults moved eggs from the original nest (white circle) to a new nest (black circle) following a tidal surge at Kilcoole, County Wicklow on 2 June 2015 (Susan Doyle).

nesting behaviours in future breeding seasons at Kilcoole will hopefully shed more light on this remarkable strategy and develop our understanding of the more complex behaviours of shore nesting birds.

Acknowledgements

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A melanistic Common Guillemot *Uria aalge* off Dursey Island, Co. Cork

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Keywords: Common Guillemot, melanism, *Uria aalge*

During a seawatch from the north tip of Dursey Island, Co. Cork on 19 October 2013 a steady trickle of auks was recorded flying west. At around 13.00 hours (BST), KG picked up a group of three Common Guillemots *Uria aalge* flying west close inshore. A fourth, all dark-brown bird, was with them. He immediately drew the attention of AAKL to the bird and both watched it as it passed below them.

The bird was clearly a Common Guillemot in terms of size, shape and flight action. However, its plumage was very different to the other three birds. This bird was a uniform dark-brown colour overall, similar in tone to that of a female Common Scoter *Melanitta nigra*. The wings, body, face and head area all displayed this uniform colour with no obvious pale or darker areas. Its strong flying action and ability to keep pace with the other Common Guillemots would appear to indicate that the bird was healthy and that the colouration was probably not caused by oiling.

Details of a wide range of colour aberrations found in birds have been given by van Grouw (2006, 2013), who discussed the characteristics of each, ascribing a category name to each type. Included amongst these categories of aberrations are those termed 'melanistic', an abnormal deposit of melanin in the skin and or feathers. In line with the characteristics outlined in the papers quoted, it is clear that the bird seen by the authors was 'melanistic' given it was uniformly dark-brown coloured (with no white underparts).

Colour aberrations in Common Guillemot are not unknown. It was noted by van Grouw *et al.* (2011) that 'brown' (a qualitative reduction in eumelanin) is the most common colour aberration seen in guillemots *Uria* spp. Apart

from the 'brown' individuals recorded in that paper, they also noted that at least six 'brown' Common Guillemot specimens were known to exist in European museum collections. Due to the nature of the mutation 'brown' the eumelanin pigment will not become fully oxidized during its production process and remains dark brown instead of black. In species, like the Common Guillemot, in which the natural colour is due to dark brown eumelanin, the mutation 'brown' will result in a pale brown colour. A secondary effect of plumage with qualitative melanin reduction is that colours further bleach unusually quickly in light and feathers can become almost white.

Details and a photograph of a female 'melanistic' Common Guillemot obtained at Buckton, East Yorkshire on 24 June 1896 are also given by van Grouw *et al.* (2011), the specimen of which is held at the British Natural History Museum. The only record of colour aberration in a Common Guillemot in Ireland appears to be one off Great Saltee Island, Co. Wexford in June 1976 (Kelly 1980). Although the term 'leucism' is used in this paper, the aberration described here is in fact 'brown' with the bird further bleached by the sunlight (van Grouw *in litt.*).

Knowledge about the distribution and frequency of colour aberrations in wild birds is still relatively poor and given the apparent very rare occurrences of all-dark Common Guillemots, it is considered that this sighting of a melanistic bird is worthy of formal recording.

The preparation of this note was greatly assisted by the advice of Hein van Grouw, Senior Curator at the British Natural History Museum, for which the authors are very grateful.

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A census of roof-nesting gulls at Dunmore East, Co. Waterford, 2008 and 2015

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Keywords: Great Black-backed Gull, Herring Gull, *Larus argentatus*, *Larus marinus*, roof-nesting

Dunmore East is an attractive coastal village and an important fishing harbour on the west side of Waterford Harbour in the southeast of County Waterford. There are factory buildings within the harbour area, with gently sloping roofs, and many of the older houses with substantial chimneys are built on cliffs (20-50 m high) overlooking the harbour. More recent housing developments have been concentrated to the west of the harbour at Coxtown and to the north in the 'lower' village. The human population in 2011 was 1,559, which increases in summer during the tourist season.

Herring Gulls *Larus argentatus* (HG) have nested on buildings at Dunmore East since at least 1945 and did so intermittently from then to 1962 (O'Meara 1975). In the period 1962-73, two to seven HG 'pairs' were counted, usually on the chimneys of occupied one-storied houses overlooking the harbour (O'Meara 1975). Between 1976 and 1983, from seven to 14 HG pairs, apparently of occupied nests with young, were recorded (Walsh & McGrath 1988).

The recommended census unit for gulls is the apparently occupied nest (AON), which is a well constructed nest, attended by an adult and capable of holding eggs or young, ideally counted in late May or early June (Walsh *et al.* 1995), when the maximum number of adults can be expected to be incubating eggs or have small young (in years when nesting is earlier). The apparently occupied territory (AOT) may also be used, where there is evidence of a breeding pair holding a territory but where the nest may not be visible as, for example, on a roof hidden from view from any vantage point. Estimates of breeding numbers using AONs usually approximate to breeding pairs or AOTs, but counts of nests with young may underestimate the breeding population as some nests may have failed at an earlier stage. There were 19 HG AONs on roofs at Dunmore East in 1985 (Walsh & McGrath 1988), 24 in 1993-1995 and 29 in 1999-2002 (Mitchell *et al.* 2004).

Roof-nesting gulls (Herring Gull and Great Black-backed Gull *Larus marinus* (GB)) were censused at Dunmore East in 2008 and again in 2015, using the AON as the census unit, or the AOT where a nest could not be seen. In 2008, an initial count was made on 14 May (10.00-12.00 GMT) and repeated on 8 June (07.30-09.45 GMT), which resulted in ten additional AONs (nine HG and one GB) and four additional AOTs (all HG). In 2015, just one survey was conducted on 9 June (13.40-



Plate 145. Roof-nesting Herring Gull at Dunmore East (Declan McGrath).

16.10 GMT). The census method involved walking the roads and paths of the village and scanning rooftops from nearby vantage points to locate active nests (AONs), or in a small number of situations, to infer from the behaviour of the adult birds the presence of hidden territories (AOTs); however, a suspected nest not readily visible from one vantage point could usually be confirmed from a different vantage point later. Eight figure grid references (using a Garmin Etrex 10 GPS) were assigned to each vantage point from where AONs were recorded, the circumstance of each nest was noted and their percentage occurrence calculated (Figure 1). Forty seven gull nests were located on roofs at Dunmore East in 2008, which had increased to 69 nests in 2015 (Table 1), the majority of which were HGs. It is not known when GBs first began

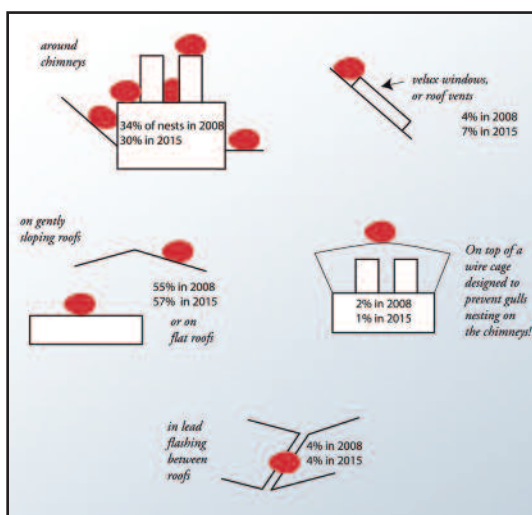


Figure 1. Roof-nesting gull situations at Dunmore East.

Table 1. Number of roof-nesting gulls at Dunmore East, 2008 and 2015 (HG = Herring Gull; GB = Great Black-backed Gull).

Species	2008	2015
HG (AON)	42	64
HG (AOT)	4	2
GB (AON)	1	3

nesting on roofs in Dunmore East but there are no confirmed records prior to 2008. The GB is a voracious predator of other birds and their eggs and young (including HGs); it may assist in controlling roof-nesting HGs if it continues to nest among them. Only one of the three roof-nesting GBs did so on an occupied dwelling (between chimney pots).

The Irfish factory on the south side of the harbour had the largest number of nests (nine HGs in 2008; 12 HGs and one GB in 2015). Occupied dwellings usually had only one nest, though the convent building overlooking the harbour and its associated apartment blocks had four nests in 2008 and ten nests in 2015, and one single-story occupied house had one nest in 2008 but five nests in 2015 (four on one side and one on the other side of a gently-sloping tiled roof). The proportion of nests on residential and commercial properties (houses, apartments, hotels, restaurants) increased from 53% in 2008 to 65% in 2015. Just one HG nested on a thatched house (in 2008, on the chimney). Other properties used included fish factories and Waterford Harbour Sailing Club (WHSC) premises, all of which are in the harbour area and easily counted from higher ground at Shanooan, and a small abandoned signal station at Shanooan. Three HGs nested in

the lower village (northwest of the Strand Hotel) in 2015, where none nested in 2008. Similarly in the Coxtown area, while none were counted in 2008, four nests were present in 2015.

Several chimneys had deterrents (metal spikes and bars) and a sloping factory roof (now in use by WHSC) had a large plastic owl, but these were generally ignored by the birds, as were elaborate wire chimney enclosures on one large house (the birds nested on top of one of them). The gulls are generally habituated to humans (for example, one pair of HGs nested in a fish box in 2015 on a floating walkway in the inner harbour area, in constant use by the fishermen accessing boats) and they rarely cause problems when incubating eggs, though difficulties may arise when the young hatch (through noise, fouling and aggressiveness). With increasing numbers of gulls nesting on roofs at Dunmore East and elsewhere (in Waterford City, for example, at least one HG pair nested successfully in the Ballybricken area in 2013, and at least three HG pairs attempted to breed in the City in 2015), conflict between people and the gulls are likely to increase.

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Plate 146. Herring Gull nest in a fish box on a floating walkway in the inner harbour area, Dunmore East, 2015 (Declan McGrath).

Reviews

Ten Thousand Birds: ornithology since Darwin

Tim Birkhead, Jo Wimpenny and Bob Montgomerie. Princeton University Press, Princeton & Oxford, 2014.

ISBN: 978-0-691-15197-7, Hardback, xvii + 524 pp.

This important book has been reviewed in several publications (e.g. Cheke 2015). The point has already been made by Cheke (2015) that it is unclear how the final selection for inclusion in the list of 500 ornithologists worldwide was made (Appendix 2). As a consequence, almost every reader will pose the question; why is 'so-and-so' not included? Four ornithologists are listed as Irish; James Parsons Burkitt (1870-1959), Richard Treacy Henry (1845-1929), Charles Bethune Moffat (1859-1935) and Edward Max Nicholson (1904-2003). Of this quartet, only Moffat is mentioned by Praeger (1949). Irish ornithologists of the present day will be familiar with the names of Burkitt and Moffat, and although well known, the name of Nicholson may not be associated by many with Ireland. Richard Henry appears to have been completely overlooked in Ireland as being of Irish origin. Here we briefly discuss some aspects of the four ornithologists mentioned above, and suggest one other whom we believe worthy of inclusion.

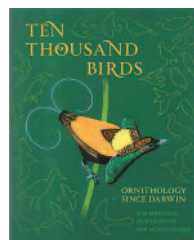
Richard Treacy Henry was born at Glanbane House, near Athy, County Kildare, and his family moved to Australia in 1851, where he grew up. He moved to New Zealand about 1874 and settled in the southwest at Lake Te Anau in 1883, where he worked at a variety of different jobs, while studying the birdlife. Henry was the first to describe the lek breeding system of the Kakapo (*Strigops babroptilus*), a flightless, nocturnal parrot endemic to New Zealand. Early settlers had introduced numerous predatory mammals (e.g. dogs, cats, rats and mustelids) which preyed on the Kakapo and reduced their numbers from one of the commonest to one of the rarest birds in New Zealand. Henry led a government initiative to settle a population of Kakapo on the (then) predator-free Resolution Island. The initiative failed as the island was only 1 km from the mainland, and predators eventually got across the channel. This attempt by the pioneering conservationist was a world first at saving a species from almost certain extinction. No further conservation efforts on the Kakapo took place until the 1950s, but the population now appears to be responding to management and stood at 131 individuals in 2011. Henry wrote articles and papers on natural history for the popular press and scientific journals, and a book, *The*

Habits of the Flightless Birds of New Zealand; with notes on other New Zealand birds (1903).

Charles Moffat was born in the Isle of Man, but his parents moved permanently to Ireland when he was only one and a half years old. He lived at Ballyhyland, County Wexford until 1919 (when he moved to Dublin), where many of his detailed observations on natural history were made. He studied law at Trinity College, Dublin, but soon left that profession to work in journalism. Praeger (1949) considered him 'the most accomplished naturalist that Ireland has produced', and he wrote detailed papers on many aspects of natural history, especially birds and bats.

Moffat wrote an important paper in 1903 (*Irish Naturalist* 12: 152-166) which according to Hunt (2015) appears to be the first attempt 'to explain a mechanism for population equilibrium'. The significance of Moffat's views bearing on bird population dynamics appears to have been overlooked, or ignored, by many over the years, especially so by David Lack. Moffat's work has been misinterpreted by others, and Hunt cites page 373 of Birkhead *et al.* (2014) (the subject of this overview) where this has happened again. Hunt concludes that Moffat 'should be remembered for perceiving very early in the development of avian demographic theory that bird populations can stabilize on the basis of habitat limits to cohort size'. This conclusion elevates Moffat to a level of importance in the development of avian population dynamics theory greater than any considered heretofore, a fitting tribute to an apparently extremely modest, shy and self-effacing man.

James Burkitt was born at Killybegs, County Donegal, and worked for much of his life as County Surveyor of Fermanagh, following his education at University College, Galway. Although completely overlooked by Praeger (1949), despite his published works, David Lack acknowledged Burkitt's pioneering work on the Robin in his *Life of the Robin* (1943). Burkitt used combinations of metal rings to study aspects of territorial behaviour, display and song and to



estimate average age (Nelson 2010). He published five papers on his Robin work during 1924-1926 in the journal *British Birds*, and Hutchinson (1997) described him as the 'most original of all the ornithologists of the first half of the twentieth century'.

Max Nicholson was born of English parents at Kiltarnan, near Dublin, where his father was a photographer, the family having its origin in Lincolnshire farming stock. The family moved back to England in 1910, settling in Staines. Max was educated at Sedbergh School (Cumbria) and Hertford College (Oxford), where he read history. Throughout his life Nicholson worked in Britain, and none of his work was done here, or relates to Ireland. However, this does not mean his work did not have an influence here. Irish ornithologists will know his name as one of the editors of the nine volume *Birds of the Western Palearctic* (1977-1994) and as author of several books.

Nicholson was a senior civil servant from 1940 onwards and was involved in a range of activities during World War Two; organizing shipping convoys across the North Atlantic, planning the invasion of Europe (Operation Overlord), later followed by planning for post-war reconstruction. However, it was as an advocate for nature conservation and the environment as a civil servant and in a private capacity that he is best known in ornithological circles; he is generally regarded as a mover and shaker of considerable significance in British ornithology, as well as further afield. Nicholson played a significant role, with others, in establishing many of the nature conservation and research bodies that we know so well today (British Trust for Ornithology, 1932; Wildfowl and Wetlands Trust, 1946; International Union for Conservation of Nature, 1948; World Wide Fund for Nature, 1961). The Edward Grey Institute at Oxford was his and Bernard Tucker's brainchild. As a civil servant he oversaw the establishment of the (then) Nature Conservancy (1949) which allowed for the legal protection of National Nature Reserves and Sites of Special Scientific Interest, and he was head of the conservancy from 1952 to 1966.

Richard Manliffe Barrington (1849-1915): We conclude this overview by considering an Irish naturalist whom we believe worthy of inclusion, for his era, in any list of innovative international ornithologists, but not mentioned by Birkhead *et al.* (2014). Moreover, it is perhaps surprising that Barrington's work has not been cited either in two recent major works dedicated solely to the study of bird migration (Newton 2008, 2010). Barrington was born at Fassaroe, County Wicklow, went to Trinity College, Dublin, and was active in natural history throughout his life. His most enduring work relates to bird migration, especially his organizing of the scheme where lighthouse and lightship keepers recovered

and returned a wing and a leg of any birds killed at the lights. In the latter part of the 19th century the state of knowledge of bird migration was fragmentary. John Cordeaux and John Harvie-Brown, from England and Scotland respectively, began a study in 1879 using light-keepers in Britain as the source of their material. The results encouraged them to continue and expand the project and the British Association for the Advancement of Science set up a Committee on Migration in 1880, and Barrington (and A.G. More) became a member. Record schedules were first sent to Irish light-keepers in autumn 1881, and the British Association committee published annual reports from 1881 to 1887. The committee then discontinued the reports in order to analyze the results, and William Eagle Clarke was given the task.

However, Barrington was of the opinion that the work should go on for a longer period of time so that uncorroborated reports could be confirmed by further occurrences, so he financed the project himself until 1897, before analyzing the results with the help of Moffat. This statement appears to have irked the British Association, and Barrington gummed in a 'note added in press' to the preface page of his magnum opus, *The Migration of Birds* (1900) stating that nothing in his publication was intended to reflect upon the work of the association or that of Clarke. Barrington was simply doing what any good researcher should; he was sceptical of reports until adequate proof was produced. It is perhaps ironic in the circumstances that Barrington published his analysis in 1900, twelve years before Clarke published his in *Studies in Bird Migration* (1912) (Hutchinson 1997).

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Pat Smiddy & Tom Kelly

Nature's Conscience: the life and legacy of Derek Ratcliffe

D.B.A. Thompson, H.H. Birks and H.J.B. Birks (editors). Langford Press, Norfolk, 2015. ISBN: 978-1-904078-59-3 (paperback) and 978-1-904078-60-9 (hardback). xxvi + 571 pp.

Derek Almey Ratcliffe was one of Britain's greatest field naturalists who made a significant contribution to the science and practice of nature conservation in Britain. His efforts, in particular, in identifying the role of agricultural chemicals in the population decline of the Peregrine Falcon in the 1950s and 1960s was crucial in the eventual banning of those chemicals and the subsequent recovery in the numbers of this species and other birds of prey. Despite receiving national and international awards for his seminal contributions on British flora and fauna and their habitats, he was never honoured by the British State. However, his many friends and former colleagues have recently published a fine book detailing his many achievements, his extraordinary life and his outstanding legacies. There are 30 chapters and 30 contributors, divided into five themes celebrating the many facets of his life. Each chapter ends with a comprehensive list of references and each theme ends with an article written by Derek himself; these are reproductions of his writings as they originally appeared.

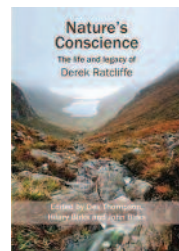
The first theme in the book (Derek Ratcliffe, The Young Naturalist) is the shortest at 35 pages. John and Hillary Birks and Des Thompson write an absorbing account of his early days as a budding naturalist and those who influenced him most (principally Ernest Blezard and Roy Clapham), which is followed by John Mitchell's account of his National Service and excursions of the Catterick Field Club formed during that Service.

The second theme in the book (Derek Ratcliffe, The Botanist), encompassing chapters 4 to 10 (151 pages), is a comprehensive account of bogs, mires and mountain plants and their ecology. While there may not be much here to interest the birdwatcher (Chapter 6, for example, on Bryology in Scotland is a challenging read), there is a wealth of information on bryophytes. Ratcliffe visited Ireland in 1961 and 1963 to study Irish mountain vegetation and to search for Killarney Fern *Trichomanes speciosum* (he had a life-long fascination with the filmy ferns; Wilson's Filmy-fern *Hymenophyllum wilsonii*, Tunbridge Filmy-fern *Hymenophyllum tunbrigense*, and especially Killarney Fern). During those visits he found *Plagiocbila carringtonii* in Mayo, a liverwort new to Ireland. He also visited Ireland in 1967 (when he found *Geocalyx graveolens*, a moss new to Ireland, near Waterville and several new colonies of Killarney Fern), again in 1983 (in search of Killarney Fern colonies) and finally in 1999 (when he was struck by the marked changes in recent land use resulting in serious habitat loss, as had already occurred in Britain). A map on page 127 shows that Ratcliffe

contributed new bryophyte county records for 11 counties in Ireland during these visits. Superb photographs of mosses and liverworts accompany several chapters.

The theme section on Derek Ratcliffe, The Ornithologist, has eight chapters (138 pages), all of which are relevant for those interested in birds.

They outline his attraction for mountains and moorlands and especially the birds that live in those wild and beautiful places. While there are obvious difficulties in reaching the nests of cliff-nesting birds, ground-nesting birds present a different challenge because of the elusive nature of the adults and the cryptic colouring of the eggs, which makes them particularly difficult to find on large expanses of moorland. But Ratcliffe was equally adept at scaling cliffs and trees in search of eyries of Peregrine Falcon, Golden Eagle, Raven and Merlin as he was at finding ground nests of Greenshank, Dotterel and European Golden Plover. Usually long, exhausting days in the field were followed by meticulous recording of the days' events, and letter writing to friends, colleagues and correspondents. Chapter 14, by Jeremy Greenwood and Humphrey Crick, outlines Ratcliffe's involvements in Peregrine surveys, prompted initially in 1960 by the concerns of pigeon fanciers at the perceived depredations by Peregrines on homing pigeons, which led to a series of censuses of the British Peregrine populations, organised by Ratcliffe himself. On page 258 we are told that it was intended to census Ireland in 1962 "to find out whether the decline had set in there". However, he recommended against this because it would detract from coverage in Britain, but the hope was that data from a few sample areas might be obtained. It subsequently proved impossible to gather enough useful information from Ireland, even on a sample basis. Ian Newton, in Chapter 15, details Ratcliffe's crucial role in linking organochlorine pesticides with the decline in raptorial birds, and especially Peregrines. The national surveys in Britain showed that there was a serious decline in the Peregrine population there and the focus shifted to establish why the decline was so serious and so rapid. Ratcliffe first noticed broken eggs in Peregrine eyries in 1958 and wondered if their shells had become thinner. Having examined a large sample of Peregrine eggs in historical egg collections, as suggested by Desmond Nethersole-Thompson (a good friend), he made the critically important discovery that eggshell thickness had in fact



decreased by around 20%, so the eggs were weak and broke easily. It also turned out that pesticides used as seed dressing were extremely toxic to birds, and they died in large numbers. The raptorial birds that preyed on them declined because of direct mortality and the sub-lethal effects of the organochlorine pesticides. Restrictions on the use of these agricultural chemicals in the 1960s and subsequently were followed by a recovery in breeding numbers of birds of prey.

The 145-page section on Derek Ratcliffe, *The Conservationist*, describes his work in that capacity and his time as Chief Scientist of the Nature Conservancy Council, responsible for advising the British Government on nature conservation. He had joined the Toxic Chemicals and Wildlife Division of the Nature Conservancy at Monks Wood in Cambridge in 1963 and he was responsible for the Nature Conservation Review in 1965, which was to re-appraise candidate sites for an expansion of the National Nature Reserve network. This required an ambitious programme of survey work and analysis of data, culminating in the publication in 1977 of the two-volume *Nature Conservation Review*, a definitive account of sites of nature conservation interest in Britain. In the 1980s he became increasingly concerned about the impacts of the massive programme of upland afforestation, begun after the Second World War in Britain to fulfill a strategic need for a national timber resource. He was especially concerned about the extent and nature of afforestation in the Southern Scottish Uplands, not only because of the loss of moorland habitat and the consequent impact on upland birds, but also because of the potential effects of forestry on freshwaters. The account in Chapter 23 of efforts to limit the impacts of large-scale afforestation of monoculture plantations in the Flow Country of Caithness and Sutherland in Scotland is particularly riveting and chronicles the difficulties encountered in facing down politicians and landed interests and in limiting industrial-scale afforestation on sensitive sites. While there were successes, there were also repercussions, and the Nature Conservancy Council (as the Nature Conservancy had become) was dismembered in July 1989 into three independent country agencies.

The final theme in the book on Derek Ratcliffe, *The Communicator*, outlines his skill at communicating, through his constant letter writing to friends, colleagues and correspondents, and especially through his many publications, aimed at a wider audience. Peter Marren, for example, on page 477, states that he once received a handwritten, five-page letter from him after he had walked all day on the fell, probably one of several letters that he wrote that night. His ease of writing and the fluency of his style are very obvious in the books he wrote. His Poyser monographs on *The Peregrine Falcon* (1980 & 1993) and *The Raven* (1997) are absolute classics, are clear, concise and well written and are copiously illustrated with many of his own superb photographs. All his other books, for example, *Birdlife of Mountain and Upland* (Cambridge University Press 1990) and his New Naturalist volumes, *Lakeland* (2002) and *Galloway and the Borders* (2007), are equally informative, even for those unfamiliar with the landscapes he so lovingly writes about. He was also on the editorial board of the New Naturalist series and was editor of several of those books, including *Ireland* (1999) by David Cabot. One chapter in his autobiography, *In Search of Nature* (published in 2000 by Peregrine Books) gives useful information on his travels in Ireland. In his later years he forsake 'battered Britain' annually from 1991 to 2004 (apart from 2000) for the unspoiled wilderness of Lapland in Norway, which led to another Poyser book, *Lapland, A Natural History*, published in May 2005, soon after his death. His last book, *Galloway and the Borders* (2007), was finished just four days before he suffered a fatal heart attack in his sleep while on his way to Lapland (in May 2005). A full bibliography of Derek Ratcliffe is included as the last chapter in the book.

Nature's Conscience, the life and legacy of Derek Ratcliffe is a fantastic testament to the man and is great value at £30/€23 (hardback/softback).

There is a much-used saying in Irish, 'ní bheidh a leithéad ann arís' ('we shall not see his like again'); this is very definitely true in respect of Derek Ratcliffe. He was an extraordinary man, hence the title: he was indeed nature's conscience.

Declan McGrath

Mind the Gap II: new insights into the Irish postglacial

D.P. Sleeman, J. Carlsson and J.E.L. Carlsson (eds). *Irish Naturalists' Journal*, Belfast, 2014. ISBN: 978-0-9569704-8-0, Paperback, 150 pp.

The nature of Ireland as an Island, gives rise to communities of animals and plants that are subtly different from those of Britain. Sometimes these differences inspire us to study our unique wildlife communities more closely and sometimes they frustrate us, usually through some level of despair at having fewer species to look at. As naturalists in Ireland, many of us recognise these differences and postulate on why the differences exist and how they may have come about. This book is an output from a series of multidisciplinary meetings held in Cork in 2012 and 2013 and it sets about documenting a range of studies, theories and collections of evidence which explore these topics of our island bio-geography and its effect upon the wildlife around us. An earlier *Mind the Gap* volume (*Irish Naturalists' Journal*, 2008) delved into the starting point of these topics, but this collection of accounts brings up to date information to the fore, utilising more recent research and presenting new thinking.

With eleven papers and an introductory section it is a modest sized volume but the information contained is very wide ranging. The editors have largely stuck to the task of keeping the material highly relevant to island bio-geography, species range and colonisation. Only the paper on Cranes deviates from the primary subject, though this is no less welcome as it brings a contrasting angle and approach to documenting species occurrence.

The papers include two relating to mammals, three on birds, two on communities and genetics, two on climate and environment, one with a botanical focus and one examining communities of fish. The approaches taken to look at these subjects include as diverse methods as the use of archaeological material, the fossil pollen record and pale-botany, the use of bird surveys and atlases and the use of cultural material, place names and early manuscripts through to the review of genetic analyses in shedding light on species origins and

diversity. This may sound to the lay reader to have the potential to be heavy going but in reality, the accounts are both accessible and illuminating, albeit with an academic tone which one might expect. The texts are not filled with, or punctuated by, statistical analyses. Graphs, tables and charts are generally used sparingly while maps, as might be expected, are frequently used and generally well presented and informative.

For the reader with an ornithological bent there is plenty of food for thought. The origins of our avifauna are well covered in a short but incisive paper and may help us all become more informed as to the reasons we lack certain species and not others. The use of the most recent Bird Atlas shows its value in the paper on the fate of bird colonists and is able to inform discussion on the fortunes of those species in more recent decades. Without it, this paper may not have been possible to write. The Crane account, while arguably not being core to the subject of biogeography, is still a fascinating read and clearly the result of dedication to the task of building a strong evidence base.

This simply presented book stems from the work of many in researching and presenting their findings, and I can heartily recommend it to anyone with an interest in the origins of Ireland's wildlife, and in particular to those of us who look to either confirm or put right our long held beliefs on why things are where they are. It would be surprising if anyone could sift through the book and not find something to spark their interest, and to most it should illuminate their view of Ireland's wildlife communities.

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