Irish Ringing Report for 2015

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This report summarises the number of birds ringed in Ireland in 2015 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.

The total number of birds ringed in Ireland since 1975 is 1,244,646. The 24,876 birds ringed in 2015 (Table 1) is considerably lower than the long-term average (40 years, 1975–2014) of 30,494 and continues the declining trend in the number of birds ringed per year (Figure 1). This accounts for a 17% decrease on 2014 and a 6% decrease on the average number of birds ringed per year for the preceding five-year period (2010–14). Of the 120 species ringed, the top three were Common Tern *Sterna hirundo,* Barn Swallow *Hirundo rustica* and Roseate Tern *Sterna dougallii* (Table 2). Common Terns accounted for 10% of all birds ringed in Ireland in 2015, with the top three most frequently ringed species accounting for 24%, and the top ten accounting for 58%.

The number of wildfowl ringed in Ireland in 2015 was higher than in any of the preceding four years and was 12% higher than the five-year mean. The number of Mute Swans *Cygnus olor* and Greylag Geese *Anser anser* ringed was higher than any of the preceding five years. There were over one hundred Mute Swans ringed this year, the first time this was achieved since 2009.

Plate 225. Ringed juvenile Common Tern, Dublin Port (John Fox).

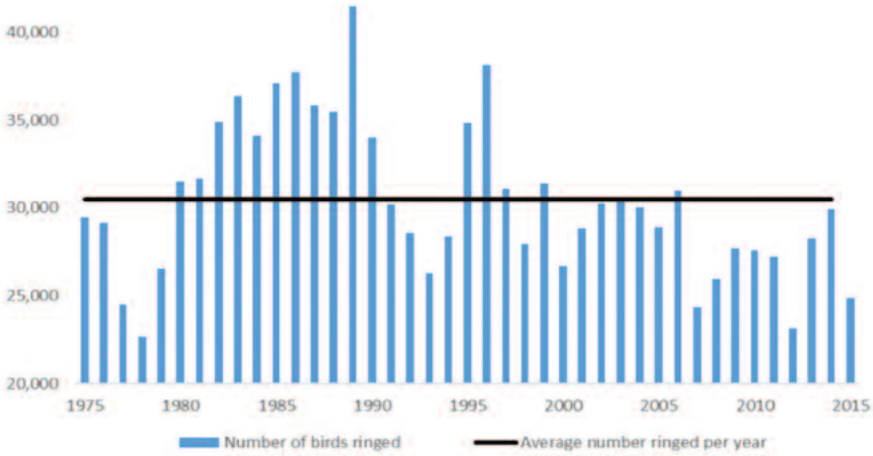

Figure 1. The total number of birds ringed in Ireland each year since 1975. The horizontal line represents the 40-year average of 30,494 birds per year. Figures reproduced from Merne (2012) with data from 2006–2015 sourced from Robinson *et al.* (2016).

Table 1. Ringing totals for 2015 with the previous five-year mean for comparsion.

	Juv/adult			Pullus			Total	Five-year mean
Species	Northern Ireland	Rep. of Ireland	Sub-total	Northern Ireland	Rep. of Ireland	Sub-total	2015	2010–2014
Mute Swan *Cygnus olor*	0	101	101	0	0	0	101	14.8
Whooper Swan *Cygnus cygnus*	1	0	1	0	0	0	1	1.2
White-fronted Goose *Anser albifrons*	0	18	18	0	0	0	18	32.8
Greylag Goose *Anser anser*	1	46	47	0	0	0	47	9
Barnacle Goose *Branta leucopsis*	0	0	0	0	0	0	0	9.2
Brent Goose *Branta bernicla*	71	166	237	0	0	0	237	176.4
Mandarin Duck *Aix galericulata*	0	0	0	0	0	0	0	0.2
Wigeon *Anas penelope*	0	0	0	0	0	0	0	0.4
Teal *Anas crecca*	8	4	12	0	0	0	12	103.6
Mallard *Anas platyrhynchos*	0	1	1	0	0	0	1	11.4
Pintail *Anas acuta*	0	0	0	0	0	0	0	0.4
Shoveler *Anas clypeata*	0	2	2	0	0	0	2	0
Tufted Duck *Aythya fuligula*	0	0	0	0	0	0	0	0.2
Eider *Somateria mollissima*	1	0	1	0	0	0	1	16.4
Goldeneye *Bucephala clangula*	0	0	0	0	0	0	0	0.2
Fulmar *Fulmarus glacialis*	0	2	21	0	11	11	32	39.8
Manx Shearwater *Puffinus puffinus*	279	313	592	160	42	202	794	857.2
Storm Petrel *Hydrobates pelagicus*	134	1247	1381	0	0	0	1381	2355.6
Leach's Petrel *Oceanodroma leucorhoa*	0	9	9	0	0	0	9	6.6
Gannet *Morus bassanus*	0	0	0	0	0	0	0	29
Cormorant *Phalacrocorax carbo*	0	0	0	2	342	344	344	323.8
Shag *Phalacrocorax aristotelis*	0	15	15	0	27	27	42	183.8
Little Egret *Egretta garzetta*	0	0	0	0	0	0	0	9.2
Grey Heron *Ardea cinerea*	0	0	0	0	0	0	0	4.2
Little Grebe *Tachybaptus ruficollis*	0	0	0	0	0	0	0	0.4
Great Crested Grebe *Podiceps cristatus*	0	0	0	0	0	0	0	0.2
Red Kite *Milvus milvus*	0	0	0	13	0	13	13	35.2

Table 1 (continued). Ringing totals for 2015 with the previous five-year mean for comparsion.

Species	Juv/adult			Pullus			Total	Five-year mean
	Northern Ireland	Rep. of Ireland	Sub-total	Northern Ireland	Rep. of Ireland	Sub-total	2015	2010–2014
White-tailed Eagle *Haliaeetus albicilla*	0	0	0	0	3	3	3	0.4
Hen Harrier *Circus cyaneus*	0	0	0	0	3	3	3	12.4
Goshawk *Accipiter gentilis*	0	0	0	3	0	3	3	0
Sparrowhawk *Accipiter nisus*	9	8	17	3	21	24	41	27.6
Buzzard *Buteo buteo*	0	11	11	4	16	20	31	45.2
Golden Eagle *Aquila chrysaetos*	0	0	0	0	0	0	0	2
Kestrel *Falco tinnunculus*	0	1	1	0	27	27	28	98
Merlin *Falco columbarius*	0	0	0	0	8	8	8	7.4
Peregrine *Falco peregrinus*	0	0	0	0	93	93	93	69.2
Water Rail *Rallus aquaticus*	0	1	1	0	0	0	1	3.6
Spotted Crake *Porzana porzana*	0	0	0	0	0	0	0	0.2
Moorhen *Gallinula chloropus*	1	0	1	0	0	0	1	2.2
Coot *Fulica atra*	0	11	11	0	0	0	11	4
Oystercatcher *Haematopus ostralegus*	2	0	2	0	0	0	2	95.2
Ringed Plover *Charadrius hiaticula*	0	0	0	0	18	18	18	28.4
Golden Plover *Pluvialis apricaria*	0	0	0	0	0	0	0	1.2
Lapwing *Vanellus vanellus*	0	0	0	0	22	22	22	19.8
Knot *Calidris canutus*	0	0	0	0	0	0	0	184
Sanderling *Calidris alba*	0	0	0	0	0	0	01	5.4
Curlew Sandpiper *Calidris ferruginea*	0	0	0	0	0	0	0	0.6
Purple Sandpiper *Calidris maritima*	0	0	0	0	0	0	0	21.8
Little Stint *Calidris minuta*	0	0	0	0	0	0	0	0.2
Pectoral Sandpiper *Calidris melanotos*	0	0	0	0	0	0	0	0.2
Dunlin *Calidris alpina*	0	38	38	0	0	0	38	142.2
Ruff *Philomachus pugnax*	0	0	0	0	0	0	0	0.2
Jack Snipe *Lymnocryptes minimus*	0	0	0	0	0	0	0	0.4
Snipe *Gallinago gallinago*	0	8	8	0	0	0	8	7.8
Woodcock *Scolopax rusticola*	0	10	10	0	0	0	10	43.4
Black-tailed Godwit *Limosa limosa*	0	16	16	0	0	0	16	16.6
Bar-tailed Godwit *Limosa lapponica*	0	1	1	0	0	0	1	96
Whimbrel *Numenius phaeopus*	0	0	0	0	0	0	0	3.2
Curlew *Numenius arquata*	0	2	2	0	0	0	2	26
Common Sandpiper *Actitis hypoleucos*	0	0	0	0	0	0	0	0.4
Greenshank *Tringa nebularia*	0	1	1	0	0	0	1	0.6
Redshank *Tringa totanus*	0	58	58	0	0	0	58	64.2
Turnstone *Arenaria interpres*	1	0	1	0	0	0	1	51.4
Ivory Gull *Pagophila eburnea*	0	0	0	0	0	0	0	0.2
Kittiwake *Rissa tridactyla*	0	3	3	0	175	175	178	118.4
Black-headed Gull *Chroicocephalus ridibundus*	0	11	11	66	225	291	302	203
Mediterranean Gull *Larus melanocephalus*	0	7	7	1	19	20	27	19.4
Common Gull *Larus canus*	0	1	1	7	0	7	8	173.4
Lesser Black-backed Gull *Larus fuscus*	8	0	8	2	43	45	53	68
Herring Gull *Larus argentatus*	43	0	43	0	0	0	43	94.4
Great Black-backed Gull *Larus marinus*	1	0	1	2	12	14	15	107.4
Little Tern *Sternula albifrons*	0	0	0	0	287	287	287	186
Black Tern *Chlidonias niger*	0	0	0	0	0	0	0	0.2
Sandwich Tern *Sterna sandvicensis*	0	15	15	135	849	984	999	986.2
Common Tern *Sterna hirundo*	0	123	123	42	2430	2472	2595	1952
Roseate Tern *Sterna dougallii*	0	0	0	0	1697	1697	1697	1368.6

Table 1 (continued). Ringing totals for 2015 with the previous five-year mean for comparsion.

Species	Juv/adult			Pullus			Total	Five-year mean
	Northern Ireland	Rep. of Ireland	Sub-total	Northern Ireland	Rep. of Ireland	Sub-total	2015	2010–2014
Arctic Tern *Sterna paradisaea*	0	1	1	22	83	105	106	177.4
Guillemot *Uria aalge*	0	15	15	0	0	0	15	13
Razorbill *Alca torda*	0	5	5	0	0	0	5	20.2
Black Guillemot *Cepphus grylle*	7	0	7	61	0	61	68	142
Puffin *Fratercula arctica*	0	11	11	0	0	0	11	22.6
Stock Dove *Columba oenas*	0	0	0	0	0	0	0	4.2
Woodpigeon *Columba palumbus*	8	5	13	0	2	2	15	17.6
Collared Dove *Streptopelia decaocto*	3	4	7	1	0	1	8	13.2
Cuckoo *Cuculus canorus*	0	1	1	0	0	0	1	0.4
Barn Owl *Tyto alba*	0	0	0	0	36	36	36	95.4
Long-eared Owl *Asio otus*	0	0	0	0	0	0	0	2.4
Short-eared Owl *Asio flammeus*	0	1	1	0	0	0	1	0
Swift *Apus apus*	6	2	8	5	7	12	20	15.8
Kingfisher *Alcedo atthis*	2	2	4	0	0	0	4	4.2
Great Spotted Woodpecker *Dendrocopos major*	0	0	0	0	0	0	0	0.2
Chough *Pyrrhocorax pyrrhocorax*	0	0	0	0	0	0	0	0.4
Magpie *Pica pica*	3	1	4	0	0	0	4	19.6
Jay *Garrulus glandarius*	3	4	7	0	0	0	7	8.6
Jackdaw *Corvus monedula*	14	9	23	0	12	12	35	46.8
Rook *Corvus frugilegus*	5	5	10	0	0	0	10	37.6
Hooded Crow *Corvus cornix*	6	1	7	0	0	0	7	11.4
Raven *Corvus corax*	0	0	0	35	118	153	153	101.2
Goldcrest *Regulus regulus*	135	202	337	0	0	0	337	246.6
Firecrest *Regulus ignicapilla*	0	0	0	0	0	0	0	0.2
Blue Tit *Cyanistes caeruleus*	368	561	929	82	251	333	1262	1261.4
Great Tit *Parus major*	351	582	933	66	385	451	1384	1135.8
Coal Tit *Periparus ater*	209	201	410	0	88	88	498	572
Skylark *Alauda arvensis*	5	13	18	0	2	2	20	16.8
Sand Martin *Riparia riparia*	137	400	537	0	0	0	537	684.2
Swallow *Hirundo rustica*	116	1590	1706	12	58	70	1776	1909.2
House Martin *Delichon urbicum*	1	15	16	0	0	0	16	20.6
Cetti's Warbler *Cettia cetti*	0	0	0	0	0	0	0	0.4
Long-tailed Tit *Aegithalos caudatus*	75	90	165	0	0	0	165	224.2
Pallas's Warbler *Phylloscopus proregulus*	0	0	0	0	0	0	0	0.2
Yellow-browed Warbler *Phylloscopus inornatus*	1	5	6	0	0	0	6	1.6
Bonelli's Warbler *Phylloscopus bonelli*	0	0	0	0	0	0	0	0.2
Chiffchaff *Phylloscopus collybita*	63	154	217	0	0	0	217	267
Willow Warbler *Phylloscopus trochilus*	114	177	291	0	55	55	346	649.8
Blackcap *Sylvia atricapilla*	148	172	320	0	0	0	320	229.8
Garden Warbler *Sylvia borin*	0	4	4	0	0	0	4	1.6
Barred Warbler *Sylvia nisoria*	0	0	0	0	0	0	0	0.4
Lesser Whitethroat *Sylvia curruca*	0	0	0	0	0	0	0	1.2
Whitethroat *Sylvia communis*	3	12	15	0	0	0	15	48.8
Subalpine Warbler *Sylvia cantillans*	0	0	0	0	0	0	0	0.4
Grasshopper Warbler *Locustella naevia*	2	6	8	0	5	5	13	16.6
Booted Warbler *Iduna caligata*	0	0	0	0	0	0	0	0.2
Sedge Warbler *Acrocephalus schoenobaenus*	8	220	228	0	5	5	2334	01.6
Reed Warbler *Acrocephalus scirpaceus*	0	29	29	0	0	0	29	20.6

Table 1 (continued). Ringing totals for 2015 with the previous five-year mean for comparsion.

Species	Juv/adult			Pullus			Total	Five-year mean
	Northern Ireland	Rep. of Ireland	Sub-total	Northern Ireland	Rep. of Ireland	Sub-total	2015	2010–2014
Waxwing *Bombycilla garrulus*	0	0	0	0	0	0	0	1.6
Treecreeper *Certhia familiaris*	17	12	29	5	0	5	34	29.2
Wren *Troglodytes troglodytes*	119	172	291	0	0	0	291	340.4
Starling *Sturnus vulgaris*	49	39	88	0	79	79	167	174.4
Dipper *Cinclus cinclus*	1	148	149	11	275	286	435	311.6
Ring Ouzel *Turdus torquatus*	0	0	0	0	0	0	0	0.2
Blackbird *Turdus merula*	192	206	398	0	11	11	409	504.6
Fieldfare *Turdus pilaris*	0	1	1	0	0	0	1	7.6
Song Thrush *Turdus philomelos*	59	65	124	0	0	0	124	107.2
Redwing *Turdus iliacus*	24	85	109	0	0	0	109	74
Mistle Thrush *Turdus viscivorus*	3	1	4	1	0	1	5	8.6
Spotted Flycatcher *Muscicapa striata*	6	18	24	0	9	9	33	27.6
Robin *Erithacus rubecula*	206	289	495	0	14	14	509	415.6
Collared Flycatcher *Ficedula albicollis*	0	0	0	0	0	0	0	0.2
Pied Flycatcher *Ficedula hypoleuca*	0	4	4	0	0	0	4	0.6
Black Redstart *Phoenicurus ochruros*	0	0	0	0	0	0	0	0.2
Redstart *Phoenicurus phoenicurus*	0	1	1	0	0	0	1	0.6
Whinchat *Saxicola rubetra*	0	0	0	0	0	0	0	1.4
Stonechat *Saxicola rubicola*	9	9	18	0	10	10	28	22.6
Wheatear *Oenanthe oenanthe*	2	2	4	0	0	0	4	16
Dunnock *Prunella modularis*	117	158	275	0	3	3	278	246.2
House Sparrow *Passer domesticus*	237	410	647	0	7	7	654	615.4
Tree Sparrow *Passer montanus*	7	5	12	10	5	15	27	102.2
Grey Wagtail *Motacilla cinerea*	3	7	10	0	14	14	24	17
Pied Wagtail *Motacilla alba*	7	15	22	4	8	12	34	51.6
Tree Pipit *Anthus trivialis*	0	1	1	0	0	0	1	0.2
Meadow Pipit *Anthus pratensis*	129	125	254	0	8	8	262	247.4
Rock Pipit *Anthus petrosus*	0	13	13	0	0	0	13	8.2
Chaffinch *Fringilla coelebs*	425	627	1052	0	0	0	1052	1242.6
Brambling *Fringilla montifringilla*	0	0	0	0	0	0	0	8.4
Greenfinch *Chloris chloris*	72	236	308	0	0	0	308	412.6
Goldfinch *Carduelis carduelis*	610	576	1186	0	0	0	1186	1146.2
Siskin *Carduelis spinus*	46	33	79	0	0	0	79	416.4
Linnet *Carduelis cannabina*	76	76	152	0	0	0	152	139.6
Twite *Carduelis flavirostris*	0	5	5	0	0	0	5	4.8
Lesser Redpoll *Acanthis cabaret*	847	148	995	0	0	0	995	870.4
Common Redpoll *Acanthis flammea*	0	0	0	0	0	0	0	1.4
Redpoll (Common/Lesser) *Acanthis flammea/cabaret*	0	1	1	0	0	0	1	38.4
Common Crossbill *Loxia curvirostra*	0	0	0	0	0	0	0	0.8
Common Rosefinch *Carpodacus erythrinus*	0	0	0	0	0	0	0	0.2
Bullfinch *Pyrrhula pyrrhula*	65	99	164	0	0	0	164	140.2
Yellowhammer *Emberiza citrinella*	29	41	70	0	0	0	70	59
Reed Bunting *Emberiza schoeniclus*	29	60	89	5	0	5	94	141
2015 Total	**5,739**	**10,457**	**16,196**	**760**	**7,920**	**8,680**	**24,876**	
5-year mean (2010-14)	**5,785**	**12,833**	**18,618**	**1,683**	**6,924**	**8,607**		**27,226.4**
Number of species							**120**	**127.4**

Table 2. The ten most frequently ringed species in 2015 and their ranking in the previous five years.

Species	Number ringed 2015	Rank				
		2014	2013	2012	2011	2010
Common Tern	2,595	3	2	3	1	2
Barn Swallow	1,776	2	4	1	2	3
Roseate Tern	1,697	4	5	5	6	5
Great Tit	1,384	5	8	4	9	11
European Storm Petrel	1,381	1	1	2	3	1
Blue Tit	1,262	6	6	9	5	9
Goldfinch	1,186	10	3	8	11	6
Chaffinch	1,052	8	7	6	7	4
Sandwich Tern	999	7	9	11	12	8
Lesser Redpoll	995	30	13	7	10	7

Plate 226. Ringed Bar-tailed Godwit, Fanø Klitplantage, Esbjerg, Denmark (Kim Fischer).

The number of tubenoses (Fulmar *Fulmarus glacialis,* Manx Shearwater *Puffinus puffinus,* Storm Petrel *Hydrobates pelagicus* and Leach's Petrel *Oceanodroma leucorhoa*) ringed was down by 32% on the five-year mean, with Strom Petrels being ringed in lower numbers than in any of the preceding five years. The numbers of Gannet *Morus bassanus,* Cormorant *Phalacrocorax carbo* and Shag *Phalacrocorax aristotelis* ringed were down 28% on the five-year mean, but are consistent with the numbers ringed since 2012. The number of Cormorants ringed remained at a similar level to previous years, but the number of Shags ringed was 77% lower than the five-year mean. There were no Little Egrets *Egretta garzetta,* Grey Herons *Ardea cinerea* or any grebes ringed in 2015.

There were more Sparrowhawks *Accipiter nisus* ringed than in any of the preceding five years, but the number of Kestrels *Falco tinnunculus* ringed was lower than in each of the preceding five years. Overall, there was a 25% decrease in the number of birds of prey ringed compared to the five-year mean.

The number of waders ringed was 78% lower than the five-year mean, with just 177 waders from 12 species being ringed. The number of gulls ringed was down 20% on the five-mean. There were more Kittiwakes *Rissa tridactyla* ringed in this year compared to any of the preceding five, and the number ringed was 50% greater than the five-year mean. The number of Common Gulls *Larus canus* ringed was down 95% compared to the five-mean. There was an increase of 22% in the number of terns ringed this year, compared to the five-year mean. A total of 1,697 Roseate Terns was ringed, which is a greater number than ever before. However, the number of Arctic Terns *Sterna paradisaea* ringed was down 40% on the five-year mean.

The downward trend in the number of auks ringed in recent years has continued, and the number ringed was 50% lower than the five-year mean. For the second year in a row, the number of Black Guillemots *Cepphus grylle* ringed was lower than each of the preceding five years, and the number ringed was 52% lower than the five-year mean. There were fewer owls ringed in 2015 compared to the preceding five years. Barn Owls *Tyto alba* were ringed in lower numbers compared to any of the preceding five years, representing a drop of 62% on the five-year mean.

The number of passerines and near passerines ringed has remained relatively stable, with a 6% drop compared to the five-year mean. The number of Ravens *Corvus corax* ringed was just one less than last year's total, which was the highest in the previous five years, and represents a 51% increase on the five-year mean.

Several species (Willow Warbler *Phylloscopus trochilus,* Whitethroat *Sylvia communis,* Sedge Warbler *Acrocephalus schoenobaenus,* Blackbird *Turdus merula*, Greenfinch *Chloris chloris*, Siskin *Carduelis spinus* and Reed Bunting *Emberiza schoeniclus*) were ringed in lower numbers than in any of the preceding five years. The greatest declines, compared to the five-year mean, were in the numbers of Willow Warbler (-47%), Whitethroat (-69%), Sedge Warbler (-42%) and Siskin (-81%) ringed. For the second year in a row the number of Blackcaps *Sylvia atricapilla* ringed was higher than in the preceding five years. And the numbers ringed represent an increase of 39% on the five-year mean. Other passerines that were ringed in greater numbers than the five-year mean include Goldcrest *Regulus regulus* (+37%), Great Tit *Parus major* (+22%), Reed Warbler *Acrocephalus scirpaceus* (+41%), Dipper *Cinclus cinclus* (40%), Redwing *Turdus iliacus* (+47%) and Robin *Erithacus rubecula* (+22%).

Some of these changes are likely to be a result of ringing effort, with certain species being targeted for projects, or the completion of such projects. For other species, the number of birds ringed in a particular year may be a result on whether the birds are available for ringing or not. For example, a reduced number of Siskins ringed may result from them finding sufficient food in natural situations and not having to avail of food provisioned in gardens or ringers' baited sites, thereby avoiding being trapped. However, for other species, the numbers ringed may reflect actual changes in populations.

The full list of all recoveries of birds ringed in Ireland and recovered elsewhere, and birds ringed outside Ireland and recovered here, is comprehensively summarised in the Online Demography Report: bird ringing and nest recording in Britain and Ireland in 2015 (Robinson *et al.* 2016); these recoveries are available at: (https://www.bto.org/volunteer-surveys/ringing/publications/online-ringing-reports).

Ringing activity in 2015

There were 43 registered ringers in Northern Ireland and 74 in the Republic of Ireland during 2015. This is slightly lower than last year's numbers, which were 50 and 77, respectively. There were three Constant Effort Sites (CES) in operation, one each in Antrim, Tipperary and Wicklow. There were six Retrapping Adults for Survival (RAS) projects, two at the same site in Derry (Great Tit and Blue Tit *Cyanistes caeruleus*), three in Offaly (Dipper, Barn Swallow and Sand Martin *Riparia riparia*), and one in Tipperary (House Sparrow *Passer domesticus*).

There were fewer ringers in Northern Ireland and in the Republic of Ireland compared to the other countries in the ringing scheme, and the number of ringers per capita is also lower in Northern Ireland and in the Republic of Ireland compared to England, Wales and Scotland (Table 3). The vast majority of birds ringed in 2015 were in England, followed by Scotland and Wales, with considerably fewer birds ringed in

Table 3. Ringing activity in Northern Ireland and the Republic of Ireland compared to the other countries in the ringing scheme.

	Ringers[1]	Birds ringed	Birds ringed per ringer	Ringers per capita	CES per ringer[1]	RAS per ringer[1]
England	2,160	750,229	347	0.00004	0.049	0.060
Scotland	463	131,314	284	0.00009	0.032	0.071
Wales	147	73,137	498	0.00005	0.068	0.177
Republic of Ireland	74	18,211	246	0.00002	0.027	0.054
Northern Ireland	43	6,428	149	0.00003	0.023	0.047

[1] R. Walker, BTO (pers. comm.).

Northern Ireland and the Republic of Ireland. The number of birds ringed per ringer was highest in Wales, followed by England, Scotland, the Republic of Ireland and Northern Ireland. With regard to Constant Effort Sites (CES) and Retrapping Adults for Survival (RAS) projects, there were more projects per ringer in Wales compared to the other countries, with the lowest number of projects per ringer in Northern Ireland and the Republic of Ireland.

Ringers and Ringing Groups registered in 2015

Northern Ireland 43 ringers (23 A permit holders, 11 C permit holders and 9 trainees).
Christopher William Acheson, Kerri-Ann Armstrong, Hugh Bradley, Declan Clarke, John Clarke, Aidan Crean, Richard Donaghey, Ian Forsyth, Steven Fyffe, David Galbraith, Philip Galbraith, Julian Garth Greenwood, Owen Hegarty, Nicholas Hesford, Richard Hoy, Ian Humphreys, George Hynes, Nigel Ireland, Dean Jones, Kerry Leonard, Kerry 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, Siobhán Porter, William Porter, Shanna Rice, Sarah Rogers, Eimear Rooney, Marc Ruddock, Brian Sutton, Hugh Thurgate, Niall Waterman and Shane Wolsey.

Two ringing groups were registered in Northern Ireland in 2015: Belfast and Down Ringing Group and Copeland Bird Observatory.

Republic of Ireland 74 ringers (29 A permit holders, 31 C permit holders and 14 trainees).
Adrian Allen, Sam Bayley, Chris Benson, Lorraine Benson, Mark Berney, Dermot Breen, Phil Brennan, John Boyd Bryce, Brian Burke, David Cabot, Michael Casey, Damian Clarke, Anna Collins, Kevin Collins, Richard Collins, Declan Coney, Alex Copland, Maura Culligan, Sinéad Cummins, David Daly, Susan Doyle, Mary Ann Duggan, Darío Fernández-Bellon, Domhnall Finch, Ann Fitzpatrick, Steve Gaites, Christopher Honan, Mark Jessopp, Brendan Kavanagh, Tom Kealy, David James Kelly, Seán Kelly, Sean Kingston, Alan Lauder, John Lusby, Áine Lynch, Declan Manley, Katie-Mai Manley, Patrick Manley, Nicola Marples, Rosemarie McDonald, Derek McLoughlin, David McNicholas, Allan Mee, Sandra Molloy, Gerard Murray, Tony Murray, Tony Nagle, Tyrone Nelson, Stephen Newton, Gabriel Noonan, Irene O'Brien, Darren O'Connell, Michael Edward O'Donnell, Barry O'Donoghue, Susan O'Donohoe, Raymond O'Haire, John O'Halloran, Barry O'Mahony, William O'Shea, James Declan Power, Graham Prole, John Leo Quinn, Wendy Stringer, Dave Suddaby, David Tierney, Niall Tierney, Alyn Walsh, Paul M. Walsh, Michael Whelan, Ricky Whelan, Howard Williams, Stephen Wing and Saskia Wischnewski.

There were six ringing groups registered in the Republic of Ireland in 2015: Cape Clear Bird Observatory, Great Saltee Ringing Station, National Parks and Wildlife Service, Wicklow Murrough Ringing Group, Irish Midlands Ringing Group and Munster Ringing Group.

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Notes

An Arctic-breeding goose capitalising on man-made foraging opportunities within a busy port in winter

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Introduction and field rcords

Internationally important numbers of the Light-bellied Brent Goose *Branta bernicla hrota* (hereafter referred to as Brent Goose) occur in Dublin Bay between October and April each winter (I-WeBS 2016, Tierney *et al.* 2016). On arrival, the geese feed almost exclusively on sea grass *Zostera* spp. in intertidal areas (largely on Sandymount Strand near the Merrion Gates). During mid-winter, their diet contains green algae *Ulva lactuca,* and *Enteromorpha* spp., but terrestrial grass comprises an increasing proportion of the diet as the winter progresses, and by April, the birds are almost exclusively feeding on amenity grassland areas (Inger *et al.* 2006).

The Alexandra Basin, located within Dublin Port on the north side of the River Liffey (53.3489° N, 6.2203° W), is an operational quay used for loading and unloading agricultural produce, such as maize and soya meal. As part of the Dublin Bay Birds Project, the number of seabirds and waterbirds using this area was monitored during the four winters 2012/13 to 2015/16.

Brent Geese were observed on 31 separate occasions. On fourteen occasions there were greater than 100 geese present, and a peak count of 465 geese was recorded on 15 January 2014. An additional seven species; Great Cormorant *Phalacrocorax carbo,* Black-headed Gull *Chroicocephalus ridibundus,* Common Gull *Larus canus,* Lesser Black-backed Gull *Larus fuscus,* Herring Gull *Larus argentatus,* Great Black-backed Gull *Larus marinus* and Black Guillemot *Cepphus grylle* were recorded on at least one visit. Black-headed Gulls and Herring Gulls were the most frequently encountered species with peaks of 162 and 58 birds recorded, respectively.

The flyway population of this goose is intensively studied

Plate 227. Light-bellied Brent Geese feeding on spilled agricultural produce on the quay walls adjacent to the Alexandra Basin in Dublin Port (Ricky Whelan).

Plate 228. Aerial photographic representation of the quay walls surrounding the Alexandra Basin in Dublin Port. The red rectangle is the primary area used by the foraging geese and gulls. The water in the foreground is used by the geese when waiting to access the quay walls (Google Maps).

by the Irish Brent Goose Research Group and about 4% of the birds are marked with individually identifiable colour-rings (G. McElwaine, personal communication). Due to concentrated research in the Dublin area since 2009, the proportion of colour-ringed geese in Dublin Bay is much greater.

A total of 83 observations of 31 individual colour-ringed geese have been recorded since January 2013 (G. McElwaine, personal communication) within the Alexandria basin. Individuals were recorded between one and 12 occasions, with three individuals being re-sighted on the docks over three consecutive winters. One bird was re-sighted on 12 occasions between January 2013 and January 2014, and another was observed six times between December 2013 and January 2016.

Many goose species are opportunistic feeders, and have learned to capitalise on the abundant foods produced by agriculture; particularly crops left over as residue after harvest, and improved monoculture grassland. For example, the discovery and exploitation of new food sources, in the form of harvested beet remains, lead to an expansion of the winter range of Pink-footed Geese *Anser brachyrhynchus* (Gill *et al.* 1996). At the South Slob, Wexford, Brent Geese were observed feeding on recently-sown barley seed in April 1984 (Ruttledge 1985). The Brent Geese in Dublin have been exploiting man-made habitats in the form of grassland since the 1980s (Ó Briain & Healy 1991) and tolerate significant levels of human disturbance to achieve this. Benson (2009) listed 60 inland feeding sites in Dublin, noting that the number of these areas used by foraging geese increased by a factor of six in the ten years prior to the 2008/09 winter.

Within the port, the birds must contend with high levels of noise and vehicular disturbance, feed in an area that is overlooked by tall buildings and cranes, and often endure a long wait on the water for the feeding area to be sufficiently clear of vehicle and crane operations for them to alight on the quay walls and commence foraging, all of which suggests that the resource is particularly desirable.

While there is no shortage of amenity grasslands in the Dublin area for the birds to exploit, availing of these may be constrained by the distance to them from the roost sites on the coast. Therefore, despite the disturbance issues that the birds must cope with in the port, exploiting this high energy processed food source relatively close to the main roost (about 5 km away at Bull Island), may be a more efficient way of meeting calorific requirements. Exploiting this feeding opportunity may also allow some birds to avoid competition from conspecifics in (more) natural foraging sites.

However, whether feeding on spilled agricultural produce results in a reduction in dietary diversity, and whether this food has the necessary nutritional components required to build adequate reserves for cold weather, migration and reproduction, is not known.

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First record of non-reciprocal allopreening in the Hooded Crow *Corvus cornix*

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Introduction and field records

Preening is the principal behavioural defence used by birds to combat ectoparasites, remove foreign material from, and maintain the quality of their plumage (Clayton *et al.* 2010, Waite *et al.* 2012). Although non-reciprocal allopreening (the non-mutual preening of one individual exclusively by another of the same species, usually the mate or parent) is known to occur in a wide variety of bird species (see Harrison 1965), to our knowledge, it has not previously been recorded in the Hooded Crow *Corvus cornix* – a widely distributed species in Ireland and Scotland. However, this behaviour has previously been observed in many other species of Corvidae, such as the closely related Carrion Crow *Corvus corone* (Summers-Smith 1959), Rook *Corvus frugilegus* and Raven *Corvus corax* (Harrison 1965). Interestingly, there is a previous record of reciprocal (i.e. mutual) allopreening in the Hooded Crow in Egypt (Goodwin (1959) – commenting on the observations of Summers-Smith (1959)), although Harrison (1965) does not cite the Summers-Smith or Goodwin records. This note describes two recent field records of non-reciprocal allopreening in the Hooded Crow. The observations are discussed in relation to increased fitness and the maintenance of species integrity of the Hooded Crow and Carrion Crow via sexual selection and assortative mating.

The first observation was recorded and photographed by SR on 29 November 2015 at Glounthaune, County Cork. A series of photographs (Plate 229) show that the dorsal area was being preened (i.e. the nape) up to the base of the crown, and the photographs also show that the bird being preened adopted a submissive posture, with its head turned away. However, in the second case seen and photographed by JDL in June 2016 at Killarney National Park, County Kerry, the ventral area was being allopreened – specifically the breast, throat and chin (Plate 230).

Plate 229. Hooded Crows allopreening dorsal area, Glounthaune, County Cork, November 2015 (Seán Ryan).

Plate 230. Hooded Crows allopreening ventral area, Killarney National Park, County Kerry, June 2016 (Jason D. Luscier).

Discussion

Mutual preening is considered an ambiguous term, particularly in relation to the Corvidae where the preening appears to be mainly non-reciprocal (Harrison 1965). However, Harrison (1965) does suggest that allopreening, in the Corvidae, is initiated by the male. Equally, the preening behaviour appears to be conducted in a ritualised fashion, which begins when the female adopts a submissive posture. This is considered to have the overall effect of aggression reduction. In addition, while allopreening (both reciprocal and non-reciprocal) is primarily associated with the retention of the pair bond, it may also yield considerable fitness benefits (Radford & Du Plessis 2006, Villa *et al.* 2016). For example, reciprocal allopreening has been observed in moulting Macaroni Penguins *Eudyptes chrysolophus,* where it is performed by each pair member when either one or both become infected with ticks (mostly *Ixodes* (*Ceratixodes) uriae*) (Brooke 1985). These ticks are well known vectors of viruses and other pathogens (Labuda & Nuttall 2004), and therefore their removal will reduce adverse effects on the birds' fitness. In addition, the chances of a bird being selected as a mate are reduced by ectoparasite infestations (or

'lousiness') (Hamilton & Zuk 1982, Clayton 1990). Allopreening can reduce the number ('load') of ectoparasites, such as feather lice (Pthiraptera) (Clayton *et al.* 2010, Villa *et al.* 2016), and therefore may be an important process in sexual selection in sympatric populations of Hooded and Carrion Crows.

Previously, in the Carrion Crow, Summers-Smith (1959) described the 'active bird' as appearing to remove 'something from the feathers (possibly parasites) and eating it'. As birds normally use an 'oil like' secretion from the uropygial ('preen') gland when preening their own plumage (e.g. Fulop *et al.* 2016) it would be interesting to establish if the gland secretions are also employed during allopreening. In the November observation the 'active bird' was seen to be either removing what may have been a very small feather, or preening it into a better condition or position, but swallowing was not recorded during either this or the June episode.

While it is well known that the Hooded Crow is a monogamous breeder and that the pair bond is 'of long duration' (Cramp & Perrins 1994, and references therein), an interesting feature of these observations is that allopreening appears to extend from the pre-breeding interval in November, through to the post-breeding phase in June. Therefore, these observations would suggest continuous maintenance of the pair bond outside of the breeding season. In addition, it has recently been demonstrated that sexual selection and assortative mating are the primary mechanisms involved in the maintenance of the genetic and phenotypic differences (i.e. plumage colour) between Hooded and Carrion Crows (Poelstra *et al.* 2014). Further observations of pair-bonded Hooded Crows, and the accumulation of non-reciprocal allopreening records, is required to confirm this hypothesis.

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First record of Red Grouse *Lagopus lagopus scotica* killed by aircraft in Ireland and Britain

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Keywords: Airports, aviation, birdstrike mortality, impact damage, *Lagopus lagopus,* Red Grouse

Introduction

Red Grouse *Lagopus lagopus scotica* (a sub-species of the Willow Grouse *Lagopus lagopus;* Cramp & Simmons (1980)) is considered a species of particular conservation concern in Ireland (Cummins *et al*. 2015). A radical reduction in suitable habitat (bogs and moorland with heather cover) over the last 60 years caused by factors such as drainage, large-scale forest planting, extensive heather burning, and the expansion of infrastructural developments (see Cummins *et al.* 2015) has resulted in a significant decline (about 50%) of Red Grouse numbers across the island of Ireland (Allen *et al.* 2005, Bracken *et al.* 2008, Crowe *et al*. 2010, Cummins *et al.* 2015). Currently, the overall population estimate of Red Grouse in Ireland is approximately 4000 to 4500 adult birds. However, individual populations of these generally single brooded birds are mostly small and fragmented (McMahon *et al.* 2012, Cummins *et al.* 2015). Moreover, due to the sedentary nature

of the Red Grouse, its populations are extremely vulnerable to habitat change.

Collisions between birds and aircraft (known as birdstrikes) are a serious and growing threat to aviation safety, which *inter alia* have led to human fatalities and major economic losses for the global aviation industry (Kelly & Allan 2006, Crain *et al.* 2015, Dolbeer *et al.* 2015). Therefore, airports use a variety of control and mitigation measures to minimise and manage the hazards presented by birds and other wildlife. Thus, there is a requirement to identify to species level, and the cause of death, any animal remains discovered on airfields or adhering to aircraft. Here we report, what is to our knowledge, the first known record of a Red Grouse collision with an aircraft in Ireland and Britain.

Carcass identification

Partial remains were found on the north side of the midpoint of Runway 09/27 at Ireland West Airport Knock, Charlestown, Co. Mayo, Ireland (ARP: 535437N 0084907W; elevation: 203 m; about 29 km inland), on 27 September 2014 at 06.57 hours. Preliminary analysis of the carcass and feather markings suggested the remains belonged to a single Red Grouse. DNA analysis subsequently confirmed the partial remains as that of Red Grouse. DNA was extracted using the QIAGEN DNeasy™ Blood and Tissue kit. A 680bp region of the CO1 mitochondrial DNA gene was amplified using the primers of Dove *et al.* (2008) and the resulting PCR product was sequenced. A BLAST search using the NCBI standard nucleotide blast search tool revealed the sample to be from a Red Grouse with a 98% match to the voucher specimen.

Probability of impact damage of a Red Grouse strike on the aircraft

The probable impact damage caused by a collision involving Red Grouse to the two aircraft types with the greatest number of movements at airfields in the Republic of Ireland; namely, the Boeing 737 800 and the Airbus A320, is shown in Table 1. The Kinetic Energy, measured in joules, of a body of mass (m), in kilograms, moving with speed (v), in meters per second, is obtained from the well-known expression $KE = \frac{1}{2} mv^2$ – and here we assume the typical take-off and landing speeds of, for example, an Airbus A320 or Boeing 737 800, of approximately 155 and 166 mph (135 and 145 knots respectively). The Kinetic Energies are presented in the more usual Foot-pounds (1 joule = 0.738 ft-lbs) corresponding to the lower and upper masses, in grams (Red Grouse typically weigh 525-700 g), together with the typical landing and rotation speeds expressed in miles per hour. It should be noted that in obtaining these estimates we ignore the secondary effects of the speed of the bird.

As an illustrative example, in the specific case of a 700 g Red Grouse striking an A320 aircraft in its take-off mode, the estimated Kinetic Energy is 1437.89 ft. lbs. and the relative acceleration due to gravity is 32.174 $ft.s^{-1}$. The impact effect of the bird striking the moving aircraft may then be interpreted as being equivalent to the effect of allowing a mass of 44.69 (= 1437.89/32.174) lbs. (20.27 kg) to fall through a distance of 1 foot (30 cm) onto the wing. Thus, while Red Grouse birdstrike incidents are clearly rare, it is considered likely that collisions with this species could cause damage. Equally, a collision involving an "ingestion" of a Red Grouse into the moving parts of an aircraft jet-engine could also result in mechanical damage.

Concluding Remarks

This is, to our knowledge, the first record of a birdstrike incident involving Red Grouse within Ireland and Britain. However, advances in DNA analysis techniques have only recently made it possible to identify severely damaged remains and blood smears found on aircraft. Therefore, it is possible that Red Grouse have previously been killed by aircraft, but remained unidentified. Nevertheless, a majority of birdstrike remains are now identified to species level. Therefore, it appears that aircraft related mortality is unlikely to have any impact on Red Grouse populations in Ireland. However, while it appears that Red Grouse rarely collide with aircraft in Ireland and Britain, other galliform species are

Table 1. Kinetic Energies of Red Grouse strikes with aircraft. Kinetic Energies are calculated using the typical maximum and minimum Red Grouse mass (g) and the typical maximum speeds observed during take-off and or landing of aircraft (mph). Note: "other aircraft" would include the Boeing 747 or similar sized hulls.

Striking aircraft	Mass (g)	Max speed (mph)	Kinetic Energy (ft-lbs)	Impact relative to gravity (ft-lbs)
A320	700	166.9	1437.89	44.69
	525		1078.43	33.52
B737 800	700	161.1	1339.7	41.64
	525		1004.78	31.23
Other aircraft	700	250	3226.24	100.28
	525		2419.68	75.21

known to be struck elsewhere in Britain, for example, Pheasant *Phasianus colchicus,* Red-legged Partridge *Alectoris rufa* and Grey Partridge *Perdix perdix* have all previously collided with aircraft there (Rochard & Horton 1980).

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The occurrence of nesting Sand Martins *Riparia riparia* in built structures during the 2016 breeding season

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Keywords: Built structures, nesting, *Riparia riparia,* Sand Martin

Plate 231. Sand Martin, Trim Castle (Dick Coombes).

Introduction and field records

The Sand Martin *Riparia riparia* usually nests by burrowing into sand and clay in river banks and sea cliffs, but a wide range of artificial, although similar, types of nesting site are also used, especially associated with sand and gravel quarrying and rock crushing operations. Road cuttings and other excavations which provide vertical sand or clay banks are also readily used, as are unusual sites such as peat cuttings and stacks of drying turf in areas where few other opportunities for nesting exist (Sharrock 1976). Holes in built structures may also be used, and Gilbert White in a letter to Daines Barrington in 1774 described Sand Martins utilising holes in walls as nesting sites in Britain (Hellyar 1927). This behaviour has been recorded and described sporadically in the literature ever since. The present note describes observations of Sand Martins nesting in built structures at ten locations throughout Ireland during the 2016 breeding season. Some previous observations of nesting in built structures in County Cork are also referred to. For the purposes of this note 'built structures' are defined as any man-made structure built of stone and mortar or concrete.

The ten records obtained in 2016 are listed in Table 1. On 27 April RW and Seán Kelly observed Sand Martins visiting

Plate 232. Sand Martins, Knockainey Castle (Michael O'Clery).

holes in the masonry of the River Shannon quay wall in the harbour on the south side of the river channel at Banagher, County Offaly. Thereafter, adult birds were observed repeatedly visiting and carrying food to a number of Apparently Occupied Nests (AONs) in the quay wall, confirming that breeding was taking place. Following this observation, several other records of similar behaviour were obtained from various contributors at different locations around the country. Information obtained for each record included location, structure type, minimum number of AONs, other species sharing the nesting structure and details of surrounding habitats. The records are from eight different counties, with five colonies located in quay and river walls, three colonies in castle walls and single colonies in a large stone built warehouse and in a row of two storey terrace houses. Nine colonies were in a riparian location (i.e. <50 m of a river, lake or the coast), and only one was in a non-riparian location. The largest colonies were in a castle in Limerick and in a Cork city centre warehouse (minimum of 30 and 15 AONs, respectively). Other sites held from one to nine nests, the smallest being in the lower floor wall of the local post office in the rural village of Shillelagh, County Wicklow. Nest holes were at various heights above ground or the water with the lowest being at the Cork, Dublin and Offaly quay and harbour wall sites (ca. 1 m at high tide). The Wicklow nest hole was at about 2 m and the Cork warehouse and Leitrim sites had holes more than 7.5 m above ground. The three recorded nest holes at Trim Castle (Meath) were at 1.5, 2.5 and 5.5 m, respectively. In three cases other species also bred at the site; House Martins *Delichon urbicum* at the Cork city warehouse, Black Guillemots *Cepphus grylle* at the Dublin quay wall, and Common Swifts *Apus apus* at the Knockainey (Limerick) site (see Waldon 2004).

Previous records from County Cork include the following: at least 13 pairs nesting in holes drilled for explosives in a stone river bridge at Killavullen in 1957 (Ruttledge 1958); a few pairs nesting in drainage pipes in a concrete wall beside Ballycotton pier in the 1970s (Pat Smiddy); four pairs nesting in holes in a stone wall at Buttevant in 2013 (Seán Fleming); and about seven pairs nesting in holes in the masonry beneath a stone river bridge at Conna in 2015 (Pat Smiddy).

The ten sites recorded here for 2016 are not exhaustive, and it is probable that records exist for most (or all) Irish counties. This behaviour is not a new observation but the frequency of occurrence and the variability of sites is of interest. All bar one of the sites described are in close proximity to a river, lake or the coast, which fits closely with what is known about the ecological requirements of the species. The common factor linking all the nest sites is the historic nature of the structure containing the colonies. The location and size of the colonies makes them somewhat

Table 1. Sand Martin colonies in built structures in Ireland recorded in 2016.

County	Location	Structure	AONs*	Surrounding habitat
Cork	City centre	Converted warehouse	ca. 15	Riparian, urban
Cork	River Lee	Quay wall	ca. 7	Riparian, urban
Dublin	River Liffey	Quay wall	5	Riparian, urban, coastal
Kerry	Blennerville	Quay wall**	5	Riparian, urban, coastal
Leitrim	Parke's Castle	Castle wall	1+	Riparian, urban, grassland
Limerick	Knockainey	Castle wall	ca. 30	Non-riparian, agricultural
Limerick	Bruff	Quay wall	5	Riparian, urban
Meath	Trim Castle	Battlement wall	3	Riparian, urban, grassland
Offaly	Banagher	Harbour wall	9	Riparian, urban, grassland
Wicklow	Shillelagh	Terrace, Post Office**	1	Riparian, urban, grassland

* = Apparently Occupied Nest.

** = Known to be occupied in a previous year.

difficult to detect and the apparent sporadic occupation of some sites makes them difficult to monitor. In turn, the nature of the sites makes them difficult to protect, for example the Banagher colony was affected by moored boats and adult Sand Martins were physically blocked from entering nest holes at times, which led to at least one nest being abandoned. The Shillelagh Post Office site is also in a precarious location with constant disturbance associated with customers entering and exiting the building, although this did not seem to have negatively affected the nesting pair. Conservation issues may arise, similar to that of the Common Swift, in that nest sites may be subject to renovation resulting in the filling of nesting cavities. There are also questions about potential competition for nest sites with the Common Swift and what affect parasite burdens may have on the longevity of the sites, all of which merits further study.

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Unprecedented numbers of Black-tailed Godwits *Limosa limosa* at the Blackwater Estuary (Youghal Harbour), Counties Cork and Waterford in January and February 2016

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Keywords: Black-tailed Godwit, census, *Limosa limosa*, unprecedented numbers

The Icelandic race of the Black-tailed Godwit *Limosa limosa islandica* is a common winter visitor, mostly to Irish south coastal wetlands, and many estuaries hold populations of at least 1,000 birds (Hutchinson 1989, Crowe 2005). Only a few counts of 4,000+ individuals have ever been obtained in Ireland in winter, although much larger numbers have been counted regularly during spring migration at the Shannon Estuary (Clare) and the Little Brosna Callows in the River Shannon valley (Offaly) (Hutchinson 1989, I-WeBS data).

The Blackwater Estuary (Cork & Waterford) has a regular wintering population of Black-tailed Godwits (Smiddy 1996, Crowe 2005), which in recent years has increased and occasionally exceeded 1,000 individuals. In January 2016 unprecedented numbers occurred on the Blackwater Estuary (Table 1). Numbers peaked in the early part of the month, but exceptionally high numbers (for this site) were still present in early February. There was no indication of exceptionally high (or low) numbers at other sites immediately east and west of Blackwater Estuary (Dungarvan Harbour to Ballycotton) during January 2016 (Pat Smiddy, personal observations).

Table 1. Counts of Black-tailed Godwits at Blackwater Estuary between September 2015 and March 2016, showing the unprecedented numbers present in January and February 2016.

Date	Number
22 September 2015	330
20 October 2015	420
25 November 2015	801
10 December 2015	750
10 January 2016	4,550
12 January 2016	4,690
20 January 2016	5,150
1 February 2016	2,175
18 February 2016	497
15 March 2016	186

I am grateful to Helen Boland and Olivia Crowe for supplying data on high counts of this species from the I-WeBS database.

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The oldest Dipper *Cinclus cinclus* in Ireland and Britain, thus far

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Keywords: *Cinclus cinclus,* Dipper, longevity, ringing

The ecology of the Dipper *Cinclus cinclus* has been studied in southwest Ireland since the 1980s. Dipper chicks are ringed each year at a number of small rivers, and fully grown birds are also ringed following capture at roost sites during the non-breeding season. The consistent ringing and capturing regime over several decades has resulted in a large proportion of the birds in the population being ringed, and the generation of a large body of recapture data. Recent examination of recapture data has revealed some old birds, and those that have lived to over seven years of age are detailed in Table 1.

The first bird listed in Table 1 (SX17304; at 8 years, 9 months, 4 days) exceeds the previous oldest recorded by British Trust for Ornithology ringing (at 8 years, 4 months, 11 days) (Robinson *et al.* 2016). The latter bird was ringed in Cornwall and recovered 30 km away in Devon. In southwest Ireland, post-juvenile dispersal in Dippers begins in June and continues throughout the autumn and into the winter. There is strong site fidelity by both sexes once established in a breeding territory. Juvenile males and females have dispersed maximum distances of 35.2 km and 37.5 km respectively, and dispersal across watersheds is not uncommon (O'Halloran *et al.* 2000). An annual survival rate of 68% has been estimated for the Irish population for the period 1989-1996 (O'Halloran *et al.* 1999); rather similar to that recorded in Scotland (Bryant & Newton 1996).

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Table 1. Longevity records in years, months and days of Dippers ringed in southwest Ireland.

Ring No.	Age/sex	Date	Movement
SX17304	Nestling male	05.05.1998	-
Last capture	8 years, 9 months, 4 days	09.02.2007	6.5 km
XS56007	Nestling female	09.05.1983	-
Last capture	8 years, 6 days	15.05.1991	5.0 km
RX22171	Nestling male	22.04.1992	-
Last capture	7 years, 6 months, 12 days	03.11.1999	20.0 km
SX41117	First-year male	28.09.1993	-
Last capture	7 years, 3 months, 11 days	08.01.2001	9.0 km
XS60973	Nestling female	10.04.2000	-
Last capture	7 years, 20 days	30.04.2007	7.0 km
RW77858	Nestling female	15.04.2003	-
Last capture	7 years, 7 days	22.04.2010	6.0 km

Eurasian Oystercatcher *Haematopus ostralegus* at Skerries, County Dublin exhibiting progressive greying of plumage

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Keywords: Colour aberration, Eurasian Oystercatcher, *Haematopus ostralegus,* progressive greying

On 8 November 2016, GMC observed and photographed an unusually coloured adult Eurasian Oystercatcher *Haematopus ostralegus* exhibiting 'progressive greying' amongst a small flock of normally coloured congenitors feeding in the grounds of Scoil Réalt na Mara (53.5805°N, 6.1209°W), Skerries, Co. Dublin (Viney 2016). On 13 November, the same aberrantly coloured specimen was observed again amongst a flock of about 20 normally coloured Oystercatchers feeding nearby on the playing fields beside Skerries Mills (53.5744°N, 6.1102°W). Although the colour of the bill, feet and eyes were normal, the aberrant specimen exhibited randomly spread white feathers on the head, neck, and back.

Sage (1962, 1963) reported a total of 3,134 cases of 'partial or complete albinism' in 161 species of wild British birds, including 38 cases of 'albinism' in the Oystercatcher. Although specific colour aberrations, variously described as 'albino', 'partial albino', 'leucism', and 'partial leucism' have been reported in the Oystercatcher from several parts of Europe, including Ireland (Table 1), it is likely that at least some of these cases were due to progressive greying rather than true leucism or albinism.

There is a long history of documenting abnormal colouration in birds (Sage 1962, 1963, Gross 1965, McCardle 2012), but only recently has the physiological basis for the varying conditions been understood. Historically, many individuals with any sort of lack of plumage colouration were erroneously termed 'albino', despite this term having a very specific meaning and the condition being extremely rare in wild populations. Cases of extreme melanism, where the bird appears entirely black, are equally rare. In some cases the term 'partial albinism' has also been used, but by definition, the condition is impossible (Van Grouw 2006). However, cases of partial under-expression of pigments (leucism, progressive greying, brown, dilution, and ino) are more common, and these can exhibit a wide range of phenotypes from light or dark patches, to an overall dilution of pigment (Van Grouw 2013, Koparde *et al.* 2014, Bond & Diamond 2016, Mahabal *et al.* 2016).

Plate 233. Oystercatcher showing 'progressive greying', Skerries, Co. Dublin, November 2016 (Gearóid MacCoitir).

Van Grouw (2013) acknowledged that leucism and 'progressive greying' are hard to distinguish in the field, especially when specimens exhibiting the latter colour aberration have reached an advanced age. However, he noted that the white pattern caused by leucism is normally patchy and bilaterally symmetrical, so the presence of a few white outer primaries on both sides and/or some white feathers in the face is typical of leucism. Although both conditions are characterised by either partial or total lack of melanin in feathers (and skin), leucism is caused by a congenital and heritable failure of the pigment-producing melanoblasts to migrate to some or all areas of the skin and feathers whereas 'progressive greying', defined as the progressive loss of pigment cells with age, may or may not be a heritable condition. In some cases, 'progressive greying' may be solely related to age, while in other cases, it may be due to disorders such as vitiligo. Van Grouw (2013) noted that 'progressive greying' is much more common than leucism and is particularly common in Blackbirds *Turdus merula,* House Sparrows *Passer domesticus* and Jackdaws *Corvus monedula.*

The Oystercatcher can be a relatively long-lived species. The current age record for a British ringed bird is over 40 years (Shackleton 2012). Contrary to popular belief, birds with a colour aberration (other than true albinism) do not necessarily fall victim to natural predators and often survive for a long time (Van Grouw 2012). Sage (1962) noted that the persistence with which individual birds return year after year to the same area can be observed if abnormally marked individuals are involved. He specifically referred to two cases

Table 1. Colour aberrations reported in Eurasian Oystercatchers in European countries (1977-2016).

Date	Location	Colour aberration	Observer	Reference
c.1977	UK	albino	D.Goodwin	Roberts (1978)
1995	Sweden	partial albino	K.Bengtsson	Bengtsson (1995)
19/05/2004	Stavanger, Norway	partial albino	G.O.Toft	Toft (2005)
10/04/2005	Little Eye, Dee Estuary, UK	albino	P.Bennett	http://bit.ly/2kiMo4V
02/04/2006	Stranraer, Loch Ryan, Scotland	albino	A.Saunders	Saunders *et al.* (2006)
30/10/2008	Godelmuendung, Foehr, North Frisian Islands, Germany	albino	.Herring	http://bit.ly/2kcZzCl
July 2009	Dawlish Warren National Nature Reserve, Devon, UK	albino	C.Flemming	http://bit.ly/2kcZzCl
18/01/2010	Sellafield, Cumbria, UK	partial albino	D.Shackleton	Shackleton (2012)
09/02/2012	SW Spiekeroog, East Frisian Islands, Germany	partial leucism	E.Schonart	http://bit.ly/2kcZzCl
06/05/2012	SW Spiekeroog, East Frisian Islands, Germany	albino chick		http://bit.ly/2kcZzCl
08/05/2012	Wolsty, S of Silloth, Solway, Cumbria, UK	partial albino	D.Shackleton	Shackleton (2012)
Autumn 2012	North Bull Island, Co Dublin, Ireland	leucism	Ger Franck	Cooney (2013)
14/02/2013	Llanddulas, North Wales	albino	R.Hughes	http://bit.ly/2kn0Ysg
06/10/2013	Germany	albino	F.Uhl	http://bit.ly/2kM4727
21/10/2013	Dawlish Warren National Nature Reserve, Devon, UK	partial albino	J.Kleinschmidt	http://bit.ly/2kcZzCl
11/03/2014	Italy	albino	L.Antonutti	http://bit.ly/2kn7tve
27/06/2014	Netherlands	half-albino		http://bit.ly/2kQzgB1
August 2014	North Bull Island, Co Dublin, Ireland	albino	E.Garrett	Viney (2004)
15/02/2015	Corrubedo, Galicia, NW Spain	albino	T.Reed	http://bit.ly/2kQEpZT
27/06/2015	Hazelhead Academy, Grampian, Scotland	leucism (chick, ringed T37)	B.Pirie	http://bit.ly/2knoVzg
10/10/2015	Port de Carantec, Finistere, NW France	leucism/ part-albino		http://bit.ly/2kO5gK1
16/04/2016	Perth and Kinross, Scotland	leucism/albino	S.Love	http://bit.ly/2kM5q11
26-27/09/2016	Baldoyle, Co Dublin, Ireland	albino		http://bit.ly/2jz1izK
08/11/2016	Skerries, Co Dublin, Ireland	progressive greying	G.MacCoitir	Viney (2016); this paper
29/11/2016	South Walney, Cumbria, UK	leucism/part-albino		http://bit.ly/2jz808S
17/12/2016	Llanon, Ceredigon, Wales	leucism	J.A.Davis	http://bit.ly/2jz8yM4

of 'white' Oystercatchers, one of which was seen in Morayshire (Scotland), almost annually over a period of 21 years from 1937 to 1956, and another on the Exe Estuary (Devon, England), each year over a period of 16 years from 1940 to 1955. A 'leucistic' Oystercatcher has been observed every August/September on the North Bull Island (Dublin Bay) on an annual basis since 2009 (Cooney 2013, Cooney personal communication). Roberts (1978) noted that although birds tend usually to ignore members of their own species which are conspicuously abnormal, he reported repeated aggression by normally coloured Oystercatchers towards a white individual which kept trying to join their group. However, in contrast, Toft (2005) noted aggressive dominance behaviour in a 'partially albino' female Oystercatcher during the breeding season and suggested that aberrantly coloured individuals may breed successfully with normally coloured conspecifics, albeit in atypical polygamous liaisons.

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Recovery of Wren *Troglodytes troglodytes* populations after the severe winter of 2010/11

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Keywords: Population decline, recovery, *Troglodytes troglodytes,* winter weather, Wren

Wrens *Troglodytes troglodytes* are amongst the most common resident breeding birds in Ireland occupying a wide range of habitats, including offshore islands (Hutchinson 1989). Population fluctuations are not unusual, although major declines have occurred during severely cold winters (Marchant *et al.* 1990, Robinson *et al.* 2015). At North Bull Island (53.3705° N, 6.1440° W) in Dublin Bay, Wrens were winter visitors up to the 1950s (Kennedy 1953), but a small resident population had become established by the early 1980s. In May 1998 an informal survey of the breeding population on the island was carried out by the author in conjunction with a birdwatching event (Stubbs 1998), and this produced a minimum of 17-20 territories (five on the northern end and 12-15 on the southern end). During the cold winter of 2010/11 when heavy snowfall and record low temperatures were recorded in Ireland (Met Éireann 2011), Wrens were absent from many areas on North Bull Island, and it became obvious that the population had declined severely. To monitor their recovery all breeding territories recorded from March to early July 2011-2014 were mapped using satellite imagery (scale 1: 5000) and GPS (Garmin GPS 72H). In 2015 only the north end of the island was surveyed. A map of their breeding distribution during 2011-2015, plotted by hectare, was produced using QGIS (v.1.8 and v.2.16). The extent of the wintering range was established by recording hectares with Wrens during regular but casual visits to all areas of the island in the winter of 2013/14. Mapping of breeding and wintering distributions were part of a study of passerine populations on the island (Cooney 2013a, b).

The results confirmed that a severe decline had taken place with only eight territories located in 2011. In 2012 the number of territories doubled to 17 (+115%), but the rate of increase was lower in subsequent years with 24 (+41%) in 2013 and 29 (+21%) in 2014. In 2011 the entire breeding range had contracted to the southern end of the island where patches of dense scrub presumably provided prime habitats for nesting. Recolonisation based on the most northerly occupied hectare annually, was from south to north (Figure 1). It was not until 2015 that nesting recommenced at the most northerly breeding site used in 1998. This direction of recolonisation suggests the recovery was mainly, though possibly not exclusively, by the islands resident population.

Declines in bird populations are not unusual during severely cold winters and the impact of the 2010/11 winter on a number of Irish passerines, including Wrens, has already been documented (Lovatt & Madden 2012). Although the population at North Bull Island was severely reduced by the winter of 2010/11, it recovered within a year or two. A primary driver of Wren populations are overwintering survival rates (Robinson et al. 2015) and it seems likely that the mild winter of 2011/12, with above average air temperatures in the Dublin

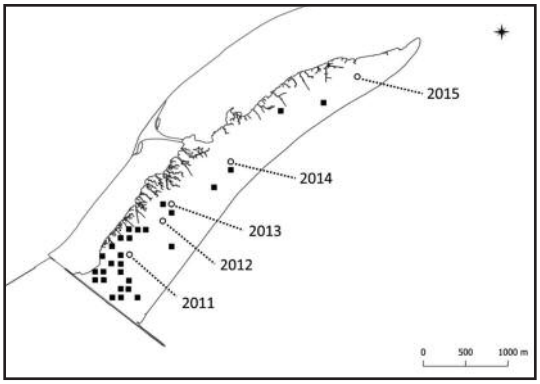

Figure 1. Breeding distribution of Wrens (plotted by hectare) at North Bull Island in 2011 to 2015. Open circles and dated dashed lines indicate the most northerly occupied hectares annually.

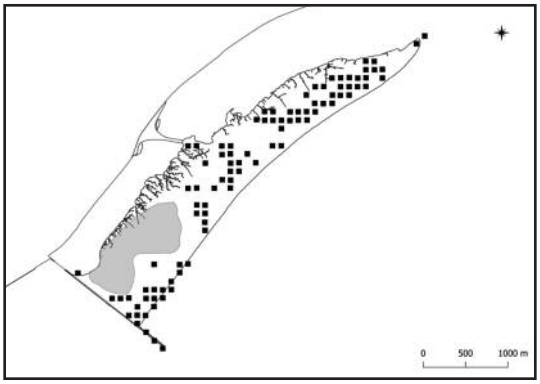

Figure 2. Breeding distribution of Wrens at North Bull Island in 2013 (shaded area) and winter distribution (plotted by hectare) November 2013 to February 2014.

region (Met Éireann 2012) contributed to their rapid recovery at North Bull Island. Another factor which may have influenced their recovery is the ability of Wrens to exploit a wide range of habitats in winter not usually associated with this species. During the survey of their wintering range Wrens were regularly encountered foraging in Marram *Ammophila arenaria* grasslands, Mediterranean salt meadows *Juncetalia maritimi,* Atlantic salt meadows *Glauco-Puccinellietalia maritimae,* in beach debris and amongst seaweed covered rocks.

Information of local movements and site fidelity of Wrens are based mainly on British ringing recoveries, and Conway (2002) states that 'we know almost nothing about local movements' in Ireland. In this context it is interesting to note that seasonal movements were also detected at North Bull Island. Each winter, Wrens were found in all areas on the island up to the most northerly point. The distance between the breeding range in 2011 and the most northerly wintering record in 2011/12 was approximately 4.5 km. Even if some of the wintering birds on the north of the island had originated from the mainland, this would still have involved a migration of 3.5 km. This pattern of nesting on the southern end of the island and expanding to all areas in winter was repeated annually (Figure 2). The distance between the northern limits of the summering and wintering ranges reduced as the resident breeding population expanded northwards.

In conclusion, the resident Wren populations at North Bull Island declined during the winter of 2010/11 but the number of breeding territories appears to have recovered within two years. Recolonisation of the former breeding range took four years to complete. A seasonal population movement between summer and winter was detected. Although the results of this study were site specific, it seems unlikely that these events occurred in isolation and that similar population and range retractions and expansions occurred at other coastal dune systems in Ireland.

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Reviews

The Most Perfect Thing: inside (and outside) a bird's egg

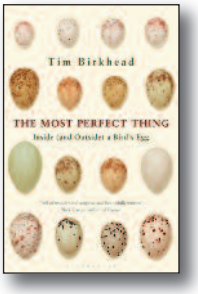
Tim Birkhead. Bloomsbury, London & New York, 2016.
ISBN: 978-1-4088-5125-8, Hardback, xvi + 288 pp.

This book is about the amazing array of colour, pattern, size and shape exhibited by birds' eggs, between and sometimes within species. But it is much more than that; the author takes the reader on a journey 'through' an egg from the shell to the yolk and, when fertilised, the embryo. He begins his account in a chapter about egg collecting – or oology, as it was called – and considers some of the people involved in that now discredited 'scientific' activity.

At many seabird colonies around the world, egg collecting – for human consumption, as well as for cabinet specimens – was carried out on an industrial scale. The practice of 'climming' (a Yorkshire term for climbing) and collecting on the Bempton cliffs on the English east coast is described in some detail, as are the people involved in this 'trade', notably George Lupton, a wealthy lawyer from Lancashire. Entire cliff ledges were cleared of freshly laid eggs several times each season, done so assiduously that many individual seabirds never got to reproduce a single chick in their entire lives; no wonder then that serious declines and local extinctions followed.

The author then describes how shells are made, and he goes on to pose the questions as to how eggs of different shapes are made, and why eggs are the shape they are, because there are great differences in egg shape between different bird families. Contrary to what might be expected, egg shape is determined by the membrane layer inside the shell before the shell is laid down rather than by the actual laying down of the outer shell of calcium, which comes last. The sharply pointed shape (although there is considerable variation both in size and shape) of the single egg laid by the Common Guillemot is discussed in some detail as an example of research into the adaptive significance of egg shape. The assumption that the shape of the egg is an adaptation to prevent it from rolling from a bare cliff ledge is often cited in the popular literature (I checked one popular work on Irish birds while writing this review and it uncritically follows the 'accepted' view, without quoting a reference, that the egg would 'roll in a tight circle' if knocked against by a parent bird when leaving the nesting ledge).

However, the results of research are far from convincing that this is so. Common Guillemot eggs will 'spin' or 'roll' in an arc on their long axis, but the substrate on which the egg is laid may aid, or prevent, this. As guillemot eggs develop during incubation their centre of gravity changes as the air cell inside the broad end of the egg increases in size. This results in the propensity of the egg to roll in a tighter circle later in the incubation period than earlier on. However, the eggs of all 10,000 or so bird species change in this way as incubation advances, although most are protected inside often very elaborate nests. Moreover, the nearest relative of the Common Guillemot (Brünnich's Guillemot of the Arctic) nests on even narrower ledges, but lays an egg that is less pointed than the former species. The author concludes that 'pointedness probably serves some purpose other than rolling-in-an-arc', and that the egg shape of the Common Guillemot 'remains a tantalising biological puzzle'. The reader can peruse the as yet unpublished views of the author and his research team on the adaptive significance of egg shape in the Common Guillemot in the epilogue.



The book then goes on to deal with the issues of how and why egg shells are coloured, and it describes the albumen (the white outer part) and yolk (the yellow inner part) (familiar to most people at the breakfast table), the war waged by microbes continuously attempting to 'invade' the inside of the egg, fertilisation, laying, incubation and hatching of the chicks. An important aspect of this book is the admission that so much is not known about many aspects of the biology of the eggs of birds and the fact that most of what we do know has been the result of work by poultry industry research biologists (evidently working to maximise output and profits), rather than by ornithologists. This is another very valuable piece of work by Tim Birkhead, and it should certainly be read by anyone with an interest in the breeding biology of Irish birds. It is written in a style that should be easily understood by ornithologists of all levels of expertise, and it is well referenced for anyone wanting to follow through on any aspect of the topics discussed.

Pat Smiddy

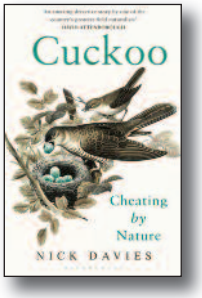
Cuckoo: cheating by nature

Nick Davies. Bloomsbury, London & New York, 2015.
ISBN: 978-1-4088-5656-7, Paperback, xxii + 289 pp.

The author of this book, Nick Davies, is a well-known behavioural ecologist who has studied a wide range of species, including the Pied Wagtail and the Dunnock, but especially the brood parasitic behaviour of the Common Cuckoo (hereafter Cuckoo). His most important work has been done at Wicken Fen, near Cambridge, in the fenlands of central England, much of which has been drained to make way for intensive agricultural land. Davies was inspired to study behavioural ecology when he read the work of David Lack on the Robin and that of Niko Tinbergen on the Herring Gull.

He devotes much space in this book to the extraordinary work of Edgar Chance, a Birmingham businessman. Chance (an egg collector, or an oologist) studied the Cuckoo intensively at Pound Green Common (Worcestershire) from 1918 to 1922, where the host species was the Meadow Pipit. At that time there was disagreement as to how the Cuckoo placed the egg in the host nest (some believed it placed the egg in the host nest with its beak, having laid it initially on the ground), but Chance was the first to show that it laid its egg directly into the nest of the host, then removed one of the host's eggs with its beak, and it did it all in a matter of seconds. The laying event was recorded on black-and-white film and on photographs by Edward Hawkins and Oliver Pike, both hired by Chance for this purpose. In order to film footage of the laying, Chance had to predict which Meadow Pipit nest was next to be used as a host nest by the Cuckoo; this involved enormously detailed observation of the host species and its nesting activity, as well as manipulation of the timing of breeding by removal of their eggs in order to induce re-laying at the correct time. Cuckoos need to lay their eggs in a host nest at a very critical time in order to give their offspring a good chance of survival. Chance exploited this fact in order to get the desired film footage, and to collect parasitised clutches.

The work of Davies at Wicken Fen has been on a parasitised population of Reed Warblers. Here he admirably and simply describes the so-called 'evolutionary arms race' going on between the Cuckoo and its host where one is constantly attempting to outwit the other; the Cuckoo in developing ever more sophisticated methods to produce eggs so similar to its host that the host does not recognise them as different, and the Reed Warbler developing and honing its skills at recognition of eggs that are different to its own, truly fascinating research indeed.



What of Cuckoos and their hosts in Ireland? There has been no systematic study of the Cuckoo here, but there are many individual records of the egg or young of the Cuckoo being found in host nests. Eleven passerine species have been recorded as hosts, and like in British moorland, the Meadow Pipit is the main one, and the only one recorded as having reared a young Cuckoo to fledging in Ireland (*Irish Birds* 5: 381-390). Different Cuckoos specialise on a particular host, and it is now recognised that these are, in effect, different subspecies. Evidently, the common subspecies here is the one specialising on Meadow Pipit hosts; but little more can be said in the absence of a systematic study. Interestingly, the Reed Warbler is a recent colonist here (*Irish Birds* 6: 23-28), therefore one would not expect this species to be parasitised by the Cuckoo; but we do not know for sure! One thing we do know is that the range of the Cuckoo has contracted significantly in Ireland in recent decades (by 26% over the last 40 years; *Bird Atlas 2007-11*), and most of these losses have been in the south and east, where most of the Irish Reed Warbler population is breeding.

In conclusion, Davies has produced a beautifully written book on a subject that has intrigued naturalists for centuries. Let us hope that future generations can continue to hear and see this harbinger of spring all over Ireland, although it has become all too rare in the south and east in recent years. I highly recommend this book to readers of *Irish Birds*.

Pat Smiddy

Recent publications on Irish birds

Pat Smiddy

Acampora, H., Lyashevska, O., Van Franeker, J.A. & O'Connor, I. 2016. The use of beached bird surveys for marine plastic litter monitoring in Ireland. *Marine Environmental Research* 120: 122-129.

Bennison, A. & Jessopp, M. 2015. At-sea surveys confirm a North Atlantic biodiversity hotspot. *Bird Study* 62: 262-266.

Surveys of seabirds carried out on voyages between Galway and St. Johns (Canada).

Bracken, F. & Bolger, T. 2006. Effects of set-aside management on birds breeding in lowland Ireland. *Agriculture, Ecosystems and Environment* 117: 178-184.

Burke, B.J., Clarke, D., Fitzpatrick, A., Carnus, T. & McMahon, B.J. 2015. Population status and factors affecting the productivity of Peregrine Falcon *Falco peregrinus* in County Wicklow, Ireland, 2008-2012. *Biology and Environment: Proceedings of the Royal Irish Academy* 115B: 115-124.

Carter, M.I.D., Cox, S.L., Scales, K.L., Bicknell, A.W.J., Nicholson, M.D., Atkins, K.M., Morgan, G., Morgan, L., Grecian, W.J., Patrick, S.C. & Votier, S.C. 2016. GPS tracking reveals rafting behaviour of Northern Gannets *(Morus bassanus)*: implications for foraging ecology and conservation. *Bird Study* 63: 83-95.

Marked at Grassholm (Wales), but some foraged close to the Waterford and east Cork coasts.

Chivers, L.S., Lundy, M.G., Colhoun, K., Newton, S.F., Houghton, J.D.R. & Reid, N. 2013. Identifying optimal feeding habitat and proposed Marine Protected Areas (pMPAs) for the Black-legged Kittiwake *(Rissa tridactyla)* suggests a need for complementary management approaches. *Biological Conservation* 164: 73-81.

Christmas, S.E., Scott, K., Gray, S., Brides, K., Findlay, C. & Halton, W.J. 2014. Movements of ringed Mute Swans *Cygnus olor* across the Irish Sea. *Ringing & Migration* 29: 41-43.

Movements involving northwest Britain, Isle of Man and Northern Ireland.

Clark, J.A., Thorup, K. & Stroud, D.A. 2009. Quantifying the movement patterns of birds from ring recoveries. *Ringing & Migration* 24: 180-188.

Colhoun, K., Mawhinney, K. & Peach, W.J. 2015. Population estimates and changes in abundance of breeding waders in Northern Ireland up to 2013. *Bird Study* 62: 394-403.

Coughlan, N.E., Kelly, T.C., Davenport, J. & Jansen, M.A.K. 2015. Humid microclimates within the plumage of Mallard ducks *(Anas platyrhynchos)* can potentially facilitate long distance dispersal of propagules. *Acta Oecologica* 65-66: 17-23.

Coughlan, N.E., Kelly, T.C. & Jansen, M.A.K. 2015. Mallard duck *(Anas platyrhynchos)*-mediated dispersal of Lemnaceae: a contributing factor in the spread of invasive *Lemna minuta? Plant Biology* 17 (Supplement 1): 108-114.

Coughlan, N.E., Kelly, T.C. & Jansen, M.A.K. 2016. "Step by step": high frequency short-distance epizoochorous dispersal of aquatic macrophytes. *Biological Invasions* doi: 10.1007/s10530-016-1293-0.

The three papers (above) by Coughlan *et al.* involved experimental work using Mallards.

Donnelly, A., Geyer, H. & Yu, R. 2015. Changes in the timing of departure and arrival of Irish migrant waterbirds. *PeerJ* 3: e726; doi: 10.7717/peerj.726.

Donnelly, A., Yu, R. & Geyer, H. 2016. Determining if Irish winter migrant waterbirds are changing their duration of stay as temperature warms. *Biology and Environment* 116B: 75-86.

Of the 19 species examined, two arrived earlier and one later, but none extended their duration of stay.

Gittings, T. & O'Donoghue, P. 2016. The effects of intertidal oyster culture on the spatial distribution of waterbirds. *Wader Study* 123: doi: 10.18194/ws.00050.

Grecian, W.J., Witt, M.J., Attrill, M.J., Bearhop, S., Godley, B.J., Grémillet, D., Hamer, K.C. & Votier, S.C. 2012. A novel projection technique to identify important at-sea areas for seabird conservation: an example using Northern Gannets breeding in the north east Atlantic. *Biological Conservation* 156: 43-52.

Includes Irish birds.

Green, R.E. 2008. Demographic mechanism of a historical bird population collapse reconstructed using museum specimens. *Proceedings of the Royal Society* 275B: 2381-2387.

The Corncrake; one Wexford specimen included.

Greenwood, J.G. 2010. Black Guillemots at Bangor, Co. Down: a 25-year study. *British Wildlife* 21: 153-158.

Greenwood, J.G. 2013. Pre-breeding moult in adult Black Guillemots *Cepphus grylle. Ringing & Migration* 28: 47-49.

Research at Bangor Harbour (Down).

Greenwood, J.J.D. 2009. 100 years of ringing in Britain and Ireland. *Ringing & Migration* 24: 147-153.

Harris, M.P., Wanless, S., Ballesteros, M., Moe, B., Daunt, F. & Erikstad, K.E. 2015. Geolocators reveal an unexpected moulting area for Isle of May Common Guillemots *Uria aalge. Bird Study* 62: 267-270.

Shows ring recoveries on the Irish coast, but the moulting area was in the North Sea.

Hilgerloh, G., O'Halloran, J., Kelly, T.C. & Burnell, G.M. 2001. A preliminary study on the effects of oyster culturing structures on birds in a sheltered Irish estuary. *Hydrobiologia* 465: 175-180.

Irwin, S., Pedley, S.M., Coote, L., Dietzsch, A.C., Wilson, M.W., Oxbrough, A., Sweeney, O., Moore, K.M., Martin, R. & Kelly, D.L. 2014. The value of plantation forests for plant, invertebrate and bird diversity and the potential for cross-taxon surrogacy. *Biodiversity and Conservation* 23: 697-714.

Jessopp, M., Cronin, M., Doyle, T., Wilson, M., McQuatters-Gallop, A., Newton, S. & Phillips, R. 2013. Transatlantic migration by post-breeding Puffins: a strategy to exploit a temporarily abundant food resource? *Marine Biology* 160: 2755-2762.

Geolocators used on birds from Skellig Michael (Kerry).

Lance, A.N. 2015. Red Grouse population performance on western Irish blanket bog. *Irish Naturalists' Journal* 34: 32-44.

Lehikoinen, A., Jaatinen, K., Vähätalo, A.V., Clausen, P., Crowe, O., Deceuninck, B., Hearn, R., Holt, C.A., Hornman, M., Keller, V., Nilsson, L., Langerdoen, T., Tománková, I., Wahl, J. & Fox, A.D. 2013. Rapid climate driven shifts in wintering distributions of three common waterbird species. *Global Change Biology* 19: 2071-2081.

Leonard, K. & Wolsey, S. Editors. 2014. *Northern Ireland Seabird Report 2013*. BTO, Thetford.

Leonard, K. & Wolsey, S. Editors. 2015. *Northern Ireland Seabird Report 2014*. BTO, Thetford.

Leonard, K. & Wolsey, S. Editors. 2016. *Northern Ireland Seabird Report 2015*. BTO, Thetford.

Lewis, L.J. & Tierney, T.D. 2014. *Low tide waterbird surveys: survey methods and guidance notes.* Irish Wildlife Manual, No. 80. National Parks & Wildlife Service, Dublin.

Lovatt, J.K. 2006. *Birds in County Cavan.* BirdWatch Ireland, Dublin.

Past ornithological literature, habitat changes and impacts since 1970 and impacts of introduced species; comprehensive systematic list and a list of 128 map references of lakes in the county.

McIntyre, O. & O'Halloran, J. 2016. The gulf between legal and scientific conceptions of ecological 'integrity': the need for a shared understanding in regulatory policymaking. Pages 124-140 In: Byrne, E., Mullally, G. & Sage, C. Editors. *Transdisciplinary Perspectives on Transitions to Sustainability.* Routledge, Abingdon.

Of relevance to the protection of Natura 2000 sites.

McLoughlin, D.T., Beaubier, J.E., Sowter, D.J., Corse, C.J., Raine, A.F., Benson, C. & Cotton, D.C. 2012. The biometrics of Twite *Carduelis flavirostris* in Ireland and Britain. *Ringing & Migration* 27: 76-82.

McLoughlin, D.T., Benson, C., Williams, B. & Cotton, D.C. 2010. The movement patterns of two populations of Twite *Carduelis flavirostris* in Ireland. *Ringing & Migration* 25: 15-21.

Monaghan, N.T. 2016. Bronze Age Great Spotted Woodpecker *(Dendrocopos major)* from Co. Clare caves. *Irish Naturalists' Journal* 35: 72.

Moran, P. & Wilson-Parr, R. 2015. *Hen Harrier Special Protection Area (SPA) habitat mapping project 2014.* Irish Wildlife Manual, No. 83. National Parks & Wildlife Service, Dublin.

Mulraney, R. & Moran, J. 2016. An assessment of the Bunduff machair habitat and its utilisation by wintering waders. *Irish Naturalists' Journal* 35: 35-43.

Murray, T. & Cabot, D. 2015. The breeding status of Great Cormorant *(Phalacrocorax carbo carbo)* in Co. Wexford. *Irish Naturalists' Journal* 34: 89-94.

Murray, T., Clotworthy, C. & Bleasdale, A. 2013. *A survey of Red Grouse* (Lagopus lagopus scoticus) *in the Owenduff/Nephin complex Special Protection Area, Co. Mayo.* Irish Wildlife Manual, No. 77. National Parks & Wildlife Service, Dublin.

Nelson, E.C. 2010. James Parsons Burkitt (1870-1959): activities and natural history of a renowned Irish amateur ornithologist. *Irish Naturalists' Journal* 31: 10-17.

Nixon, J. & Quigley, D.T.G. 2015. European Otter *(Lutra lutra* (L.)) predation on Cormorant or Shag *(Phalacrocorax* sp.). *Irish Naturalists' Journal* 34: 152-153.

Ó Tuathail, L. 2016. Corr Scéal: *Crane Notions.* Careful Publications, Letterkenny.

Many interesting aspects of Common Cranes in Ireland, and of crane lore.

Patrick, S.C., Bearhop, S., Grémillet, D., Lescroël, A., Grecian, W.J., Bodey, T.W., Hamer, K.C., Wakefield, E., Le Nuz, M. & Votier, S.C. 2014. Individual differences in searching behaviour and spatial foraging consistency in a central place marine predator. *Oikos* 123: 33-40.

Gannets, and includes Irish birds.

Raleigh, P.J., Flynn, O., O'Connor, M., O'Donovan, T., Purcell, B., De Burca, M., Regazzoli, V., Minihan, D., Connell, J., Markey, B.K. & Sammin, D.J. 2009. Avian influenza viruses detected by surveillance of waterfowl in Ireland during 2003-2007. *Epidemiology and Infection* 137: 464-472.

Totals of 1,937 and 1,404 waterfowl were sampled at the Wexford Slobs and the rest of the country, respectively. It was concluded that targeted surveillance at sites such as the Wexford Slobs was a cost-effective way of monitoring the circulation of new avian influenza viruses in waterfowl, whereas widespread opportunistic sampling was considered unproductive and wasteful of resources.

Roulin, A. 2015. Spatial variation in the decline of European birds as shown by the Barn Owl *Tyto alba* diet. *Bird Study* 62: 271-275.

1,081 (3.8%) birds recorded as prey in 19 Irish studies, 111 identified to species level, 21.5% being House Sparrows.

Roulin, A. 2016. Strong decline in the consumption of invertebrates by Barn Owls from 1860 to 2012 in Europe. *Bird Study* 63: 146-147.

Fifteen (0.05%) invertebrates recorded as prey in 19 Irish studies.

Roulin, A. 2016. Shrews and moles are less often captured by European Barn Owls *Tyto alba* nowadays than 150 years ago. *Bird Study* 63: 559-563.

Includes data from 19 Irish studies.

Ruddock, M., Mee, A., Lusby, J., Nagle, T., O'Neill, S. & O'Toole, L. 2016. *The 2015 national survey of breeding Hen Harrier in Ireland.* Irish Wildlife Manual, No. 93. National Parks & Wildlife Service, Dublin.

Scales, K.L., Miller, P.I., Embling, C.B., Ingram, S.N., Pirotta, E. & Votier, S.C. 2014. Mesoscale fronts as foraging habitats: composite front mapping reveals oceanographic drivers of habitat use for a pelagic seabird. *Journal of the Royal Society* 11: 20140679; doi: 10.1098/rsif.2014.0679.

Gannets from Grassholm (Wales) foraged close to the south and east coasts of Ireland.

Shoji, A., Elliott, K.H., Greenwood, J.G., McClean, L., Leonard, K., Perrins, C.M., Fayet, A. & Guilford, T. 2015. Diving behaviour of benthic feeding Black Guillemots. *Bird Study* 62: 217-222.

This work was carried out at Bangor Harbour and Lighthouse Island (Down).

Smiddy, P. 2015. Dusting in sand by a Common Kestrel *(Falco tinnunculus). Irish Naturalists' Journal* 34: 148-149.

Smiddy, P. 2015. 'The Wild Swans at Coole'. *Irish Naturalists' Journal* 34: 149-150.

The swans mentioned by William Butler Yeats in his poem 'The Wild Swans at Coole' are considered more likely to have been Mute Swans, although sometimes referred to in literary and ornithological sources as Whooper Swans.

Tománková, I., Harrod, C., Fox, A.D. & Reid, N. 2014. Chlorophyll-a concentrations and macroinvertebrate declines coincident with collapse of overwintering diving duck populations in a large eutrophic lake. *Freshwater Biology* 59: 249-256.

At Lough Neagh, Northern Ireland.

Tománková, I., Reid, N., Enlander, I. & Fox, A.D. 2013. Ringing and recovery data provide little utility in detecting migratory short-stopping of diving ducks throughout Europe. *Ringing & Migration* 28: 30-38.

Votier, S.C., Bearhop, S., Witt, M.J., Inger, R., Thompson, D. & Newton, J. 2010. Individual responses of seabirds to commercial fisheries revealed using GPS tracking, stable isotopes and vessel monitoring systems. *Journal of Applied Ecology* 47: 487-497.

Gannets from Grassholm (Wales) foraged off the south coast of Ireland.

Wallace, D.I.M., McGeehan, A. & Allen, D. 2001. Autumn migration in westernmost Donegal. *British Birds* 94: 103-120.

Wilson, M.W., Fernández-Bellon, D., Irwin, S. & O'Halloran, J. 2017. Hen Harrier *Circus cyaneus* population trends in relation to wind farms. *Bird Study* 64: 20-29.

Wotton, S.R., Eaton, M., Ewing, S.R. & Green, R.E. 2015. The increase in the Corncrake *Crex crex* population of the United Kingdom has slowed. *Bird Study* 62: 486-497.

A survey in 2009, with data for Northern Ireland between 1978/79 and 2014 included.

Wyse Jackson, P.N. 2009. Robert Ball (1802-1857): naturalist. *Irish Naturalists' Journal* 30: 15-18.

Robert Ball was a significant contributor to William Thompson's *Natural History of Ireland* (1849-1856), especially to the volumes on ornithology (1849-51).

Wyse Jackson, P.N. 2009. William Thompson (1805-1852): zoologist and biogeographer. *Irish Naturalists' Journal* 30: 119-122.

William Thompson was the most important Irish ornithologist of the first half of the 19th century.

Zuberogoitia, I., Arroyo, B., O'Donoghue, B., Zabala, J., Martínez, J.A., Martínez, J.E. & Murphy, S.G. 2012. Standing out from the crowd: are patagial wing tags a potential predator attraction for harriers (*Circus* spp.)? *Journal of Ornithology* 153: 985-989.

Correction

Genetic identity of wintering Common Chiffchaffs *Phylloscopus collybita* trapped in County Kerry in 2015

Barry O'Mahony, Davey Farrar and Martin Collinson

Irish Birds 10: 268-270 (2015)

Note that the surname of the second named author was spelled incorrectly in the original publication.

Request for information

Aberrantly coloured birds in Ireland

I am currently working on a review on the incidence of colour aberrations in wild birds throughout Ireland and I would be grateful for details on any known records (either published or unpublished) as well as preserved specimens that may reside in museums and private collections (e.g. houses, pubs, restaurants, hotels etc).

Declan Quigley, Sea Fisheries Protection Authority, Howth, Co. Dublin

declanquigley@eircom.net