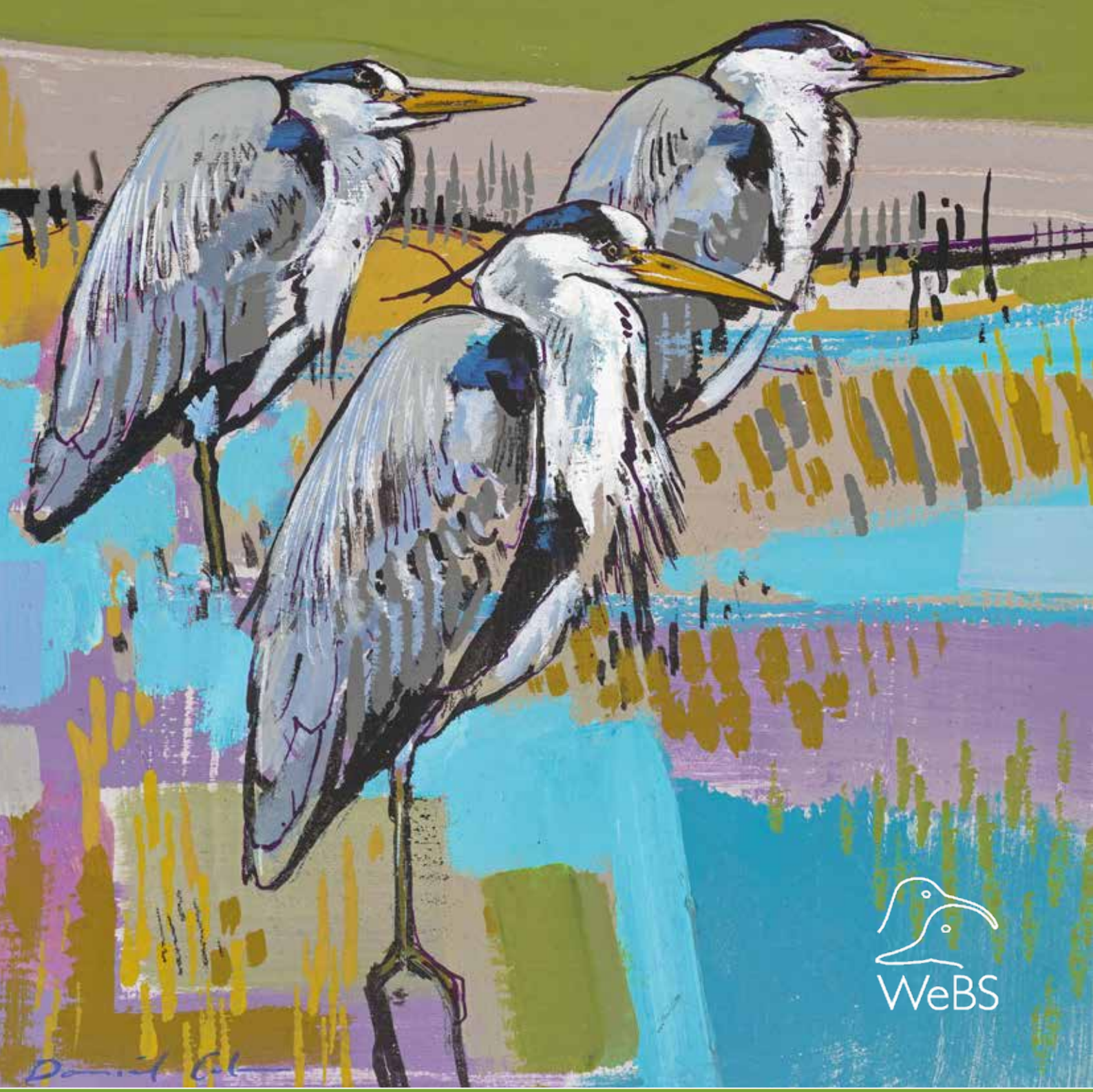

Waterbirds in the UK 2017/18

The annual report of the Wetland Bird Survey

BTO Looking out for birds
rspb giving nature a home
JNCC
in association with WWT

WATERBIRDS IN THE UK 2017/18

The Wetland Bird Survey (WeBS) is the principal scheme for monitoring the UK's wintering waterbird populations, providing an important indicator of their status and the health of wetlands. *Waterbirds in the UK 2017/18* is the 37th WeBS annual report and comprises this summary report and data at **www.bto.org/webs-reporting**.

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www.bto.org

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Peterborough
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Royal Society for the Protection of Birds
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Wildfowl & Wetlands Trust
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GL2 7BT
www.wwt.org.uk

THE WeBS PARTNERSHIP

The Wetland Bird Survey (WeBS) is a partnership jointly funded by BTO, RSPB and JNCC, in association with WWT, with fieldwork conducted by volunteers.

The permanent members of the WeBS Steering Committee in 2017/18 were Teresa Frost (BTO), Dawn Balmer (BTO), David Stroud (JNCC), Anna Robinson (JNCC), Simon Wotton (RSPB) and Richard Hearn (WWT).

THE WeBS TEAM AT BTO

Teresa Frost - WeBS National Coordinator
Heidi Mellan - Counter Network Organiser
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WeBS website: www.bto.org/webs

Other contacts:
Goose & Swan Monitoring Programme (GSMP)- organised and funded by WWT, JNCC and SNH.
Email: monitoring@wwt.org.uk

Other national waterbird surveys - details of (and contacts for) other waterbird surveys can be obtained via the websites of the WeBS partner organisations.

ACKNOWLEDGEMENTS

We are indebted to the time and skills of the thousands of WeBS Counters who collected the data used in this report and to the invaluable efforts of the WeBS Local Organisers who are listed on the back cover.

The WeBS Local Organiser Advisory Committee (LOAC) (members listed on page 39) provided advice on behalf of counters and Local Organisers. The BTO Information Systems team delivered essential technical assistance and continues to develop and provide assistance for WeBS Online and WeBS Report Online.

We are also grateful to the following for providing supplementary information, data inputting, proof-reading and particularly invaluable help in 2017/18: GSMP, Colette Hall, Deborah Newman, Jane Herridge, Nick Lewis, Kirsi Peck, RAFOS, SOTEAG and Chris Waltho. Grateful thanks to all and apologies to anyone who has been inadvertently missed.

Report content and production was by Teresa Frost, Dawn Balmer, Heidi Mellan and Neil Calbrade. The article on the Waterbird Bird Counts in France was contributed by Clémence Gaudard and Gwenaël Quaintenne (Ligue pour la Protection des Oiseaux (LPO)), the article on Curlew by Niall Burton (BTO), Grey Heron by Ian Woodward (BTO) and Barnacle Geese by Colette Hall (WWT).

The painting of Grey Herons used on the cover of this report is by Daniel Cole. For more of Daniel's work, see https://facebook.com/danielcoleartist/. All other artists and photographers are acknowledged on the pages of this report.

This report was printed by Swallowtail Print, Norwich.

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WIGEON AND REDSHANK BY EDMUND FELLOWES; WHITE STORK AND COMMON TERN BY NEIL CALBRADE

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Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Robinson, A.E., Stroud, D.A., Wotton, S.R. & Balmer, D.E. 2019. *Waterbirds in the UK 2017/18: The Wetland Bird Survey*. BTO, RSPB and JNCC, in association with WWT. British Trust for Ornithology, Thetford.

Published by the British Trust for Ornithology, Royal Society for the Protection of Birds and Joint Nature Conservation Committee, in association with Wildfowl & Wetlands Trust, May 2019.

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Online Resources

More information, including site tables and trends for all regular WeBS species, is available online at:
www.bto.org/webs-reporting

This summary report can be downloaded from the WeBS website at:
www.bto.org/webs-publications

The online and summary outputs in conjunction constitute the report *Waterbirds in the UK 2017/18.*

Waterbird headlines from the WeBS year

3,195 registered WeBS volunteers

Just a small selection of notable stories from 2017/18.

See all the numbers and trends at **www.bto.org/webs-reporting**

Two major assessments of winter waterbird population sizes have recently been published for both Great Britain and Northern Ireland (with the Republic of Ireland) using data from WeBS, I-WeBS and other sources. In Britain, the estimated total is 12.8 million waterbirds, comprising 4.9 million waders, 3.8 million gulls, 2.1 million ducks, 1.1 million geese, 500,000 rails, 170,000 cormorants, 70,000 swans, 60,000 herons, 30,000 divers and 30,000 grebes. Although this is similar to the estimated 12.5 million in 2011, there are changes in the species composition. Particularly noteworthy is a reduction of 142,000 birds in the estimated population of waders, off-set by an increase in geese of 175,000. The British estimates are given on pages 14–15. The all–Ireland estimate is 760,000 waterbirds, compared to 1.2 million 25 years earlier.

JOHN HARDING

GRAHAM CATLEY

The increase in the goose total is driven by upwards trends in Pink-footed Goose, Dark-bellied Brent Goose and the three Barnacle Goose populations: migratory populations that breed in Greenland and Svalbard, and the naturalised British population (pages 30–31). For some widespread species, the population estimation used a stratification approach, taking into account environmental factors. This approach is likely to be developed for more species in future; one of the habitats where it would be useful for WeBS coverage to be further enhanced to improve the model fit is rivers (pages 16–21). The WeBS index for Grey Heron is complementary to that produced by the long-running Heronries Census, which recently celebrated its 90th anniversary.

A record number of WeBS sites and count sectors were covered, thanks to the amazing dedication of the 3,195 skilled volunteers who took part in 2017/18. Counts are needed for all months, so that trends can be produced for populations such as British/Irish Greylag Goose and there is information available for species that have summer and passage populations in the UK (pages 26–27). Demand for data is as high as ever. Recent research using WeBS data includes assessing how waterbirds respond to weather and climate change to inform protected site networks (pages 22–23) and work on Curlew, which is one of the UK's most pressing bird conservation priorities (pages 28–29).

JOHN HARDING

WeBS Core Counts 2017/18 - in numbers

Core Counts were carried out at 5,146 WeBS sectors (count units) at 2,847 sites from July 2017 to June 2018.

Not all Core Counts are linked to individual counters in the WeBS Online database, but an increasing number are; 2,294 counters were associated with WeBS Core Count visits made in 2017/18. Including additional team members, the number of registered WeBS volunteers was 3,195.

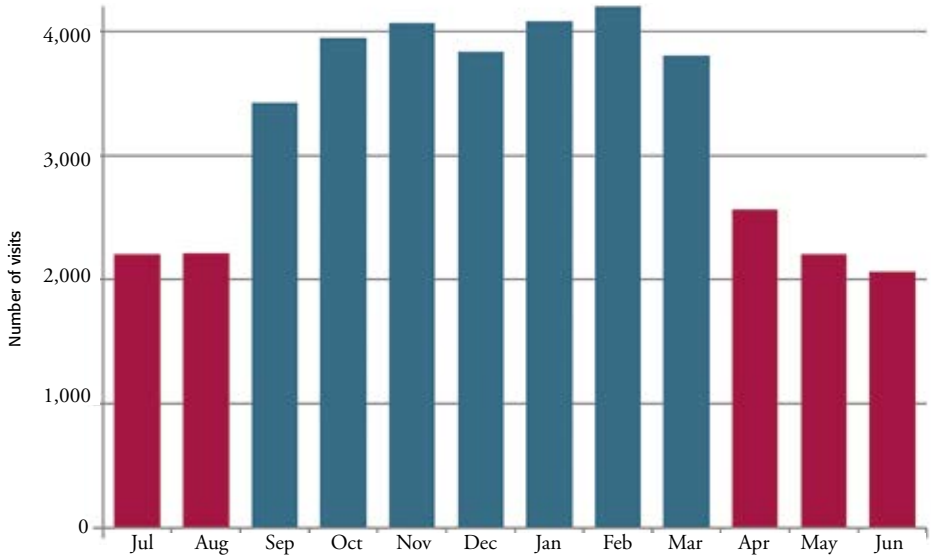
There were 38,864 count visits, 71% in the core September–March period (blue bars on graph).

Core Count dates in 2017/18

2017	2018
23 July	21 January
13 August	18 February
10 September	18 March
8 October	15 April
19 November	20 May
10 December	17 June

▲ **Number of WeBS sites and sectors covered 1967/68–2017/18.**

▼ **Number of WeBS Core Count visits in 2017/18 by month.**



Goose Censuses

Some populations of wintering geese were censused as part of the WWT/JNCC/SNH Goose & Swan Monitoring Programme. Counts of Taiga Bean Geese were provided by the Bean Goose Action Group (Slamannan Plateau) and RSPB (Middle Yare Marshes).

Surveys of Pink-footed and Icelandic Greylag Geese are undertaken at, primarily, roost sites in October and November as part of the Icelandic-breeding Goose Census. British Greylag Geese at key sites in Scotland were censused by a number of local management groups.

Greenland White-fronted Geese were monitored by the Greenland White-fronted Goose Study. In 2017/18 there was an international census of Greenland Barnacle Geese organised by WWT in Scotland and by National Parks and Wildlife Service in Ireland while WWT counted Svalbard Barnacle Geese on the Solway.

Results from goose surveys are described in more detail on the species account pages at **http://monitoring.wwt.org.uk/our-work/goose-swan-monitoring-programme/**

WeBS coverage in 2017/18

Counts were carried out at **2,847 wetlands in 2017/18**.

Areas shown in black were counted at least once by WeBS Core Counts - providing a picture of the excellent geographical coverage achieved.

For sites covered by **I-WeBS in Ireland**, please see the I-WeBS pages at **birdwatchireland.ie**

UK Low Tide Counts 2017/18

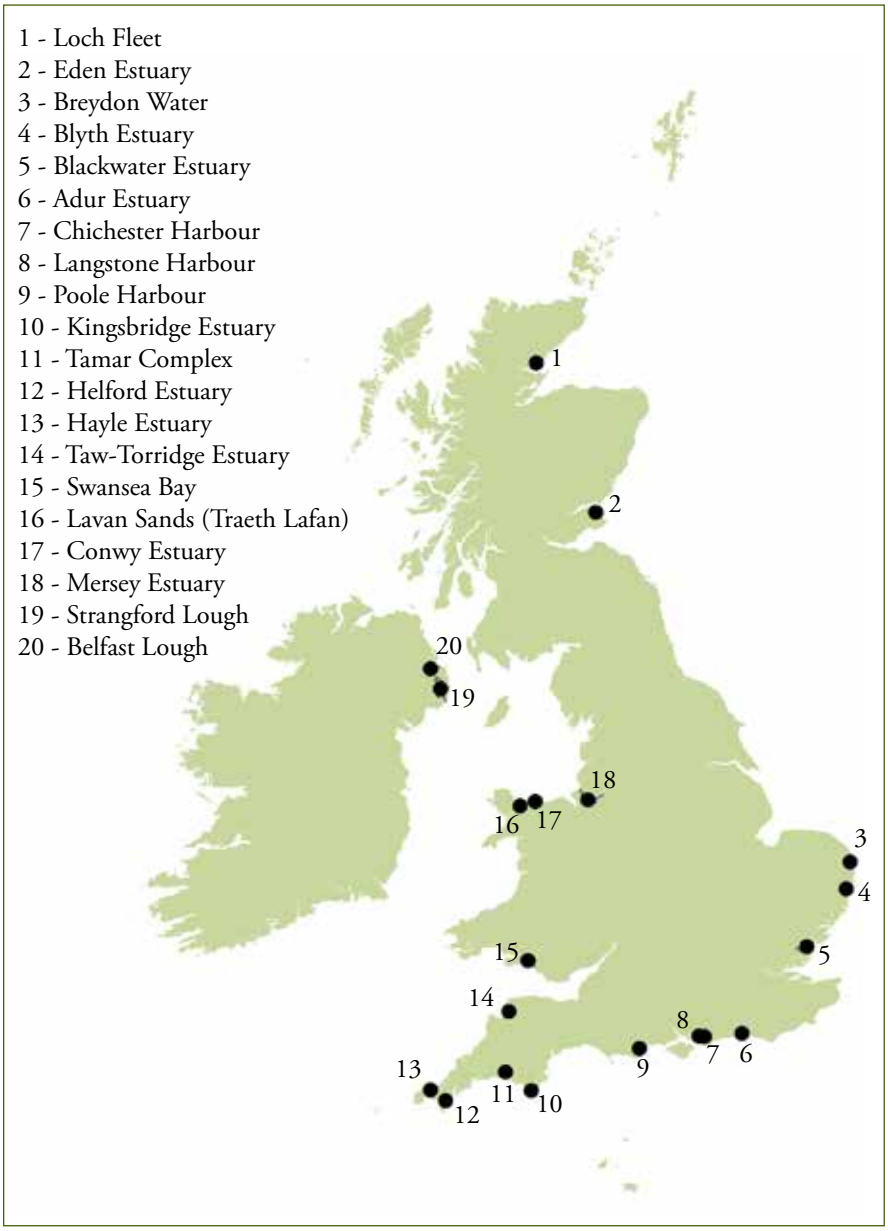
Twenty UK estuaries were counted at low tide, generating important data about feeding areas.

The WeBS Low Tide Count scheme facilitates the collection of information about use of the UK's estuaries by waterbirds at low tide. The scheme has flourished since its inception in the winter of 1992/93, with all the major estuaries in the UK having been counted at least once. The scheme aims to monitor, assess and regularly update information on the relative importance of intertidal feeding areas of UK estuaries for wintering waterbirds, and in doing so complements information gathered on populations through the WeBS Core Counts.

Information collected at low tide represents an important contribution to the conservation of waterbirds, by providing supporting information for the management of UK Ramsar Sites and Special Protection Areas, other site designations, and whole estuary conservation plans. Numbers of waterbirds present in predefined sectors are counted. Most individual estuaries are counted at low tide once every six years, although on some sites more frequent counts are undertaken.

Further information about WeBS Low Tide Counts are available online via **www.bto.org/websreporting-lowtide** including data summaries and dot density distribution maps for different estuaries and species. Dot density maps are now available for all species and years, including the facility to show any combination of site, species and year side by side for comparison. Presentation of WeBS low tide information typically takes two forms: (i) tabulated statistics of peak numbers and mean densities, and (ii) dot density maps to give a visual representation of species' foraging densities across a site. Dots do not represent the precise positions of birds; they are assigned to habitat components proportionally and placed randomly within those areas. No information about distribution of birds at a finer scale than the count sector level should be inferred. For all maps on the online reporting interface, one dot is equivalent to one bird.

During 2017/18, WeBS Low Tide Counts were carried out at 20 estuaries. On several sites - Poole Harbour, Kingsbridge Estuary, Blyth Estuary (Suffolk), Tamar Complex and Helford Estuary, Core Counts are carried out annually at low tide and data feed into both schemes, allowing assessment of distributional changes. Results from the counts in Chichester Harbour are presented on pages 34–35 of this report.



Estuaries counted as part of the WeBS Low Tide Count scheme in 2017/18.

2017/18: A series of cold snaps

Weather and migration context for 2017/18.

The weather in July and August 2017 was unsettled. September 2017 was generally wetter than average, but the rest of the autumn was dry, particularly in southeast Britain. Autumn temperatures were milder than average.

Although rather average overall in terms of both temperature and rainfall, a notable feature of the winter was several cold snaps. Wintry periods included the second week in December 2017 which coincided with the Core Count date on the 10th, with WeBS counters recording the highest average ice cover since February 2012. There was another period of wintry weather in the middle of January, again coinciding with the Core Count on the 21st, but this affected sites in northern and eastern Britain only.

At the end of February and the beginning of March, temperatures fell sharply, with a cold weather event widely nicknamed "the Beast from the East", with the main impacts in the period 27th February–3rd March. This took place in between the WeBS Core Count priority dates, which were 18th February and 18th March. There were anecdotal reports of some waders being displaced inland, in some cases being found dead. Perhaps relating to this, the March count of Redshank was lower than average.

A less severe cold spell, dubbed "the Mini Beast from the East" which brought strong winds and snow showers coincided with the March Core Count and as a result, reported ice cover was higher than is usual for March.

THE 2017 ARCTIC BREEDING SEASON

The Arctic spring in 2017 was unusually late and cold, and the summer cooler than average, although there were hot periods in some places. Rodent numbers were reported as very low in most of the Arctic stations, but abundant in Greenland. Although Arctic Fox numbers were generally average to rare, at Medusa Bay station on the Taimyr Peninsular high predation from foxes was noted.

Most of the Russian research stations reported average numbers of waders and geese to be present and average to bad breeding success. At Zackenburg in Greenland low numbers of wader nests were reported, perhaps due to rain leading to low food availability.

The WeBS peak count of Curlew Sandpiper was below average, at 51, but there were above average counts of Little Stint, with a peak of 141. BirdTrack reporting rates suggest that peak passage was a month later for these species than in 2016/17, which had been an unusually early year.

▲ Average WeBS sector ice cover for 2013/14–2017/18, as reported by counters for the months November–March.

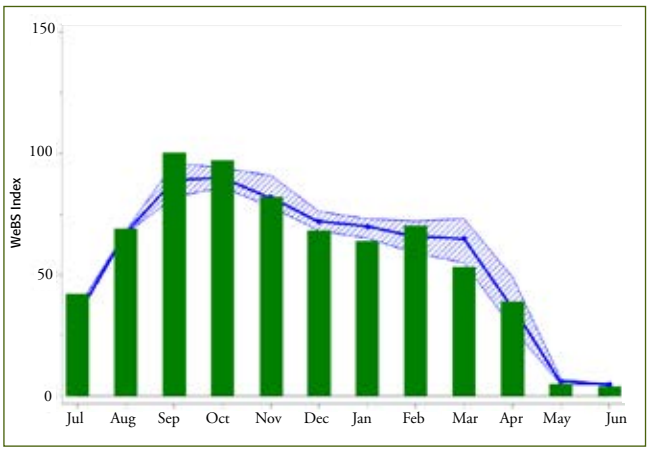
SOURCES...

Climate summaries from **www.metoffice.gov.uk**

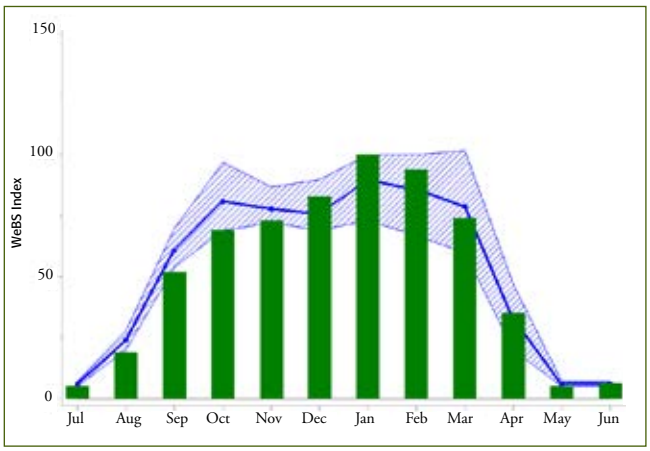
Migration updates from **btomigrationblog.blogspot.co.uk**

Arctic breeding from **www.arcticbirds.net**

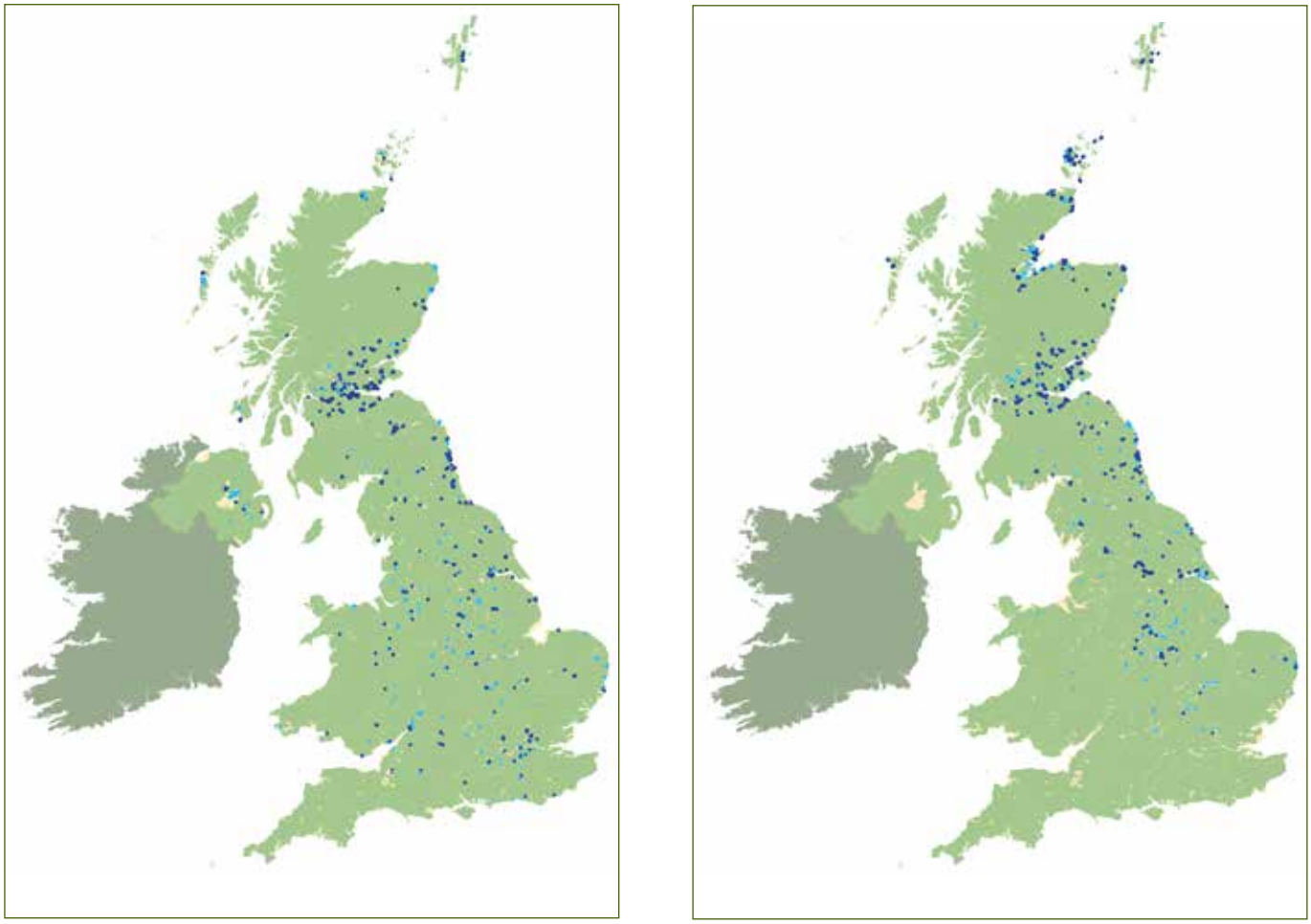
BirdTrack data from **www.birdtrack.net**



▲ **Redshank: The UK Redshank month index plot indicates a steeper than usual drop in March, perhaps related to severe weather conditions.** Green bars = 2017/18; blue line/hatched area = previous 5-year mean/range.



▲ **Shoveler: The UK Shoveler month index plot suggests lower than recent average numbers in autumn but higher in winter.** Green bars = 2017/18; blue line/hatched area = previous 5-year mean/range.



▲ **WeBS sites counted between 7th and 13th December 2017 (left) and 18th and 24th January (right). Light blue indicates ice cover between 5–50% and dark blue 50–100%, with other WeBS sites counted in the period in yellow.**

National trends

A concise summary of how the UK's most familiar waterbirds fared in 2017/18.

For all trend graphs see the online report...

www.bto.org/webs-reporting

WeBS annual species indices, with smoothed trends, are available under an open government licence from **https://www.bto.org/webs-annual-report** as a spreadsheet download and plotted in the WeBS Report Online for all waterbird species with sufficient data for the UK, Great Britain, Wales, Scotland, England and Northern Ireland. Table 1 contains 25- and 10-year trends for the most abundant waterbird species for the UK. Here we highlight some of the latest index and trend figures.

GEESE & SWANS

The swans continue to have mixed fortunes. The Whooper Swan index reached its highest ever value, and the Bewick's Swan its lowest. Mute Swan numbers have been notably stable since 2012/13.

The Egyptian Goose index reached a record high, although only just surpassing the past two years. Svalbard and Naturalised Barnacle Goose indices were also record highs. In contrast, the European White-fronted Goose 2017/18 index was the second lowest ever.

DUCKS

The indices for several species of duck with eastern European breeding populations, including Wigeon, Pintail, Teal and Tufted Duck, dropped back to more typical recent numbers after unusually high numbers in 2016/17, as cold weather on the continent in that year forced birds west.

The downward trend in Pochard numbers continued, with yet another record low index value and a 25-year trend of -70%. Similarly, there was a record low index value for Mallard and a 25-year trend of -39%. Goldeneye numbers continued to decline from an early 90s peak, with a 25-year trend of -61% and the lowest index value since 1978/79, while the Red-breasted Merganser index also continued its steady post mid-1990s decline, with a 25-year trend of -36%.

The only duck to reach a record high index value in 2017/18 was Mandarin Duck, which has a 10-year trend of +51%.

WADERS

Wintering Sanderling numbers were up and the index reached a record high, although the 10-year trend is stable.

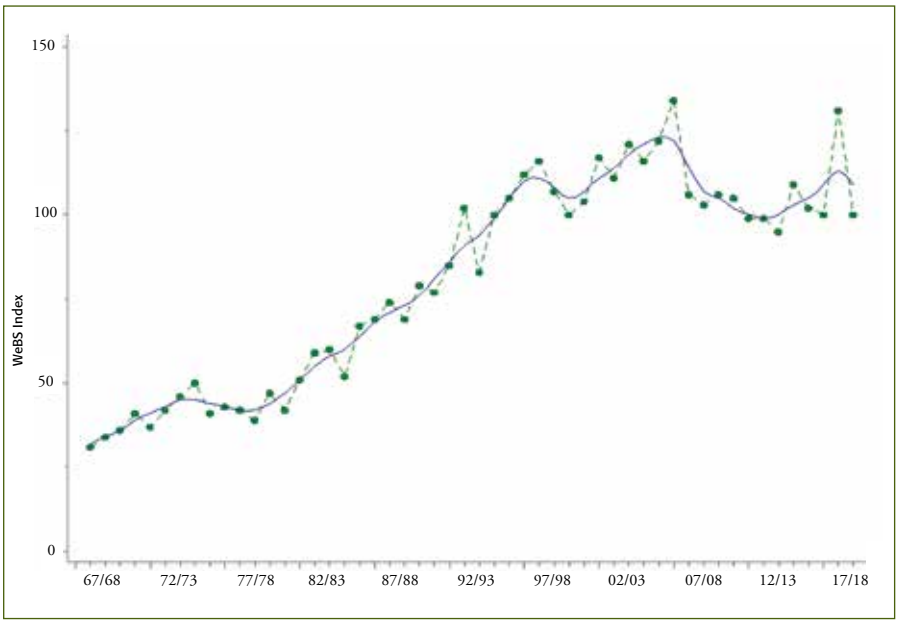
Some declining species such as Oystercatcher, Knot (both with 10-year trend -10%) and Ringed Plover (10-year trend -33%) showed signs of short-term stabilisation in numbers over the most recent five years. Dunlin numbers have stabilised in the medium-term, with a 10-year trend of 0%. However, the index value for Curlew in 2017/18 was the lowest since 1983/84.

GULLS

The WeBS trend for Common Gull has been declining since 1999/2000, and reached a record low. The trend for Black-headed Gull is also negative, but the index value for 2017/18 was slightly higher than that for the previous year. Caution is advised when interpreting gull results as the WeBS Core Count methodology is not ideal for this group.

OTHER WATERBIRDS

There were record low index values for both Moorhen (10-year trend -27%) and Coot (10-year trend -16%) in 2017/18. Great White Egret appears to be establishing itself: the 10-year trend for this species is very large as numbers were negligible a decade ago, and the 5-year trend for 2011/12–2015/16 is +500%, showing how rapidly numbers of this species are increasing.



▲ **WeBS trend for Wigeon in the UK.**
Green dots = annual index; blue line = smoothed trend.

Table 1 Population trends of non-breeding waterbirds in the UK

Species/population	25-year trend (1991/92–2016/17)	10-year trend (2006/07–2016/17)	Species/population	25-year trend (1991/92–2016/17)	10-year trend (2006/07–2016/17)
▬ Dark-bellied Brent Goose	-12	13	▼ Scaup	-29	-58
▬ Svalbard Light-b. Brent Goose	60	-11	n/a Eider*	-27	-8
▼ Canadian Light b. Brent Goose	47	16	▬ Goldeneye	-61	-31
n/a Canada Goose	59	10	▬ Goosander	-11	11
n/a Naturalised Barnacle Goose	406	146	▬ Red-breasted Merganser	-36	-22
▲ Greenland Barnacle Goose	137	31	▬ Little Grebe	104	-2
▲ Svalbard Barnacle Goose	227	61	▬ Great Crested Grebe	-1	-17
n/a British Greylag Goose	162	28	▼ Little Egret	n/a	47
▼ Icelandic Greylag Goose	-6	5	▼ Cormorant	57	19
▲ Pink-footed Goose	139	85	▬ Moorhen	n/a	-27
▼ Greenland White-fronted Goose	-31	-19	▬ Coot	-2	-16
▬ European White-fronted Goose	-68	-9	▬ Oystercatcher	-24	-10
n/a Mute Swan	28	-5	▲ Avocet	463	34
▼ Bewick's Swan	-81	-67	▼ Lapwing	-20	-26
▲ Whooper Swan	174	41	▬ Golden Plover	30	-35
n/a Egyptian Goose	n/a	118	▼ Grey Plover	-31	-16
▬ Shelduck	-32	-18	▼ Ringed Plover	-53	-27
n/a Mandarin	n/a	51	▼ Curlew	-27	-17
▲ Shoveler	76	15	▲ Bar-tailed Godwit	-16	13
▲ Gadwall	139	21	▲ Black-tailed Godwit	266	38
▼ Wigeon	24	-1	▲ Turnstone	-42	-24
▬ Mallard	-39	-14	▬ Knot	-18	-10
▬ Pintail	-25	-35	▬ Sanderling	31	-1
▲ Teal	38	15	▬ Dunlin	-40	0
▼ Pochard	-70	-46	▼ Purple Sandpiper	-55	-10
▼ Tufted Duck	2	6	▼ Redshank	-15	-10

Trends are % changes, for the most abundant waterbirds.

The longer term smoothed trend refers to the 25 year period 1991/92 to 2016/17. The shorter term smoothed trend refers to the 10 year period 2006/07 to 2016/17. It is customary to calculate trends to an end-point of year (n-1) (where n = 2017/18).

Preceding each species is an indication of flyway population trend, based on: Nagy, S. & Langendoen, T. 2018. *Seventh AEWA Report on the Conservation Status of Migratory Waterbirds in the Agreement Area*. Wetlands Int., NL. ▲ increasing, ▼ decreasing, ▬ stable, **n/a** not applicable as population is non-native (Canada Goose, Egyptian Goose, Mandarin) or non-migratory (Mute Swan, British Greylag Goose, Naturalised Barnacle Goose and Eider*).

*Eider trends exclude birds on Shetland (of *faeroeensis* race).

Trends use WeBS data except for Pink-footed Goose, Greenland White-fronted Goose, Icelandic Greylag Goose, Greenland Barnacle Goose, Svalbard Barnacle Goose and Canadian Light-bellied Brent Goose, for which dedicated censuses are undertaken (see page 5).

Wigeon up 24% since 1991/92.

JEFF BAKER

Largest waterbird aggregations

Millions of waterbirds are dependent on the UK's wetlands each winter.

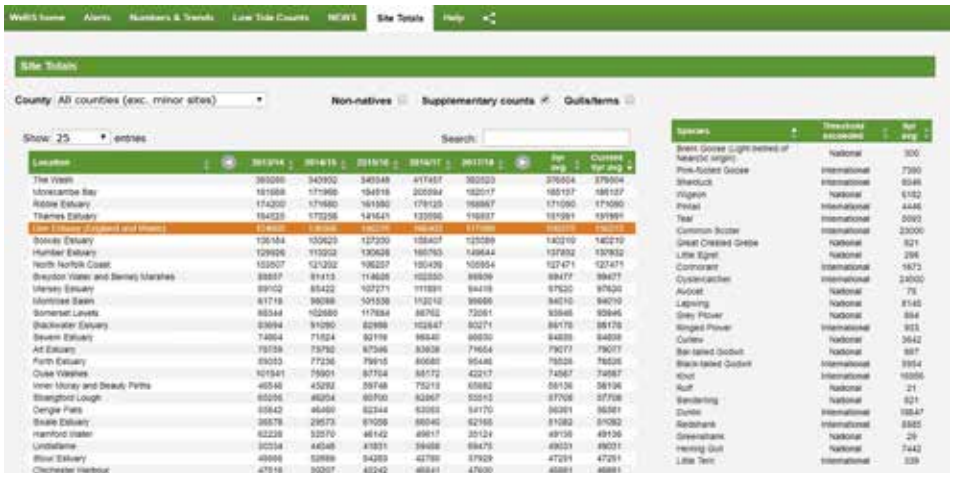
WeBS site totals indicate which sites support the largest aggregations of waterbirds each year. Understanding precisely how many individual birds use a site is clearly very difficult to ascertain from counts alone, as many sites are used by migrants on passage and consequently there can be high turnover rates.

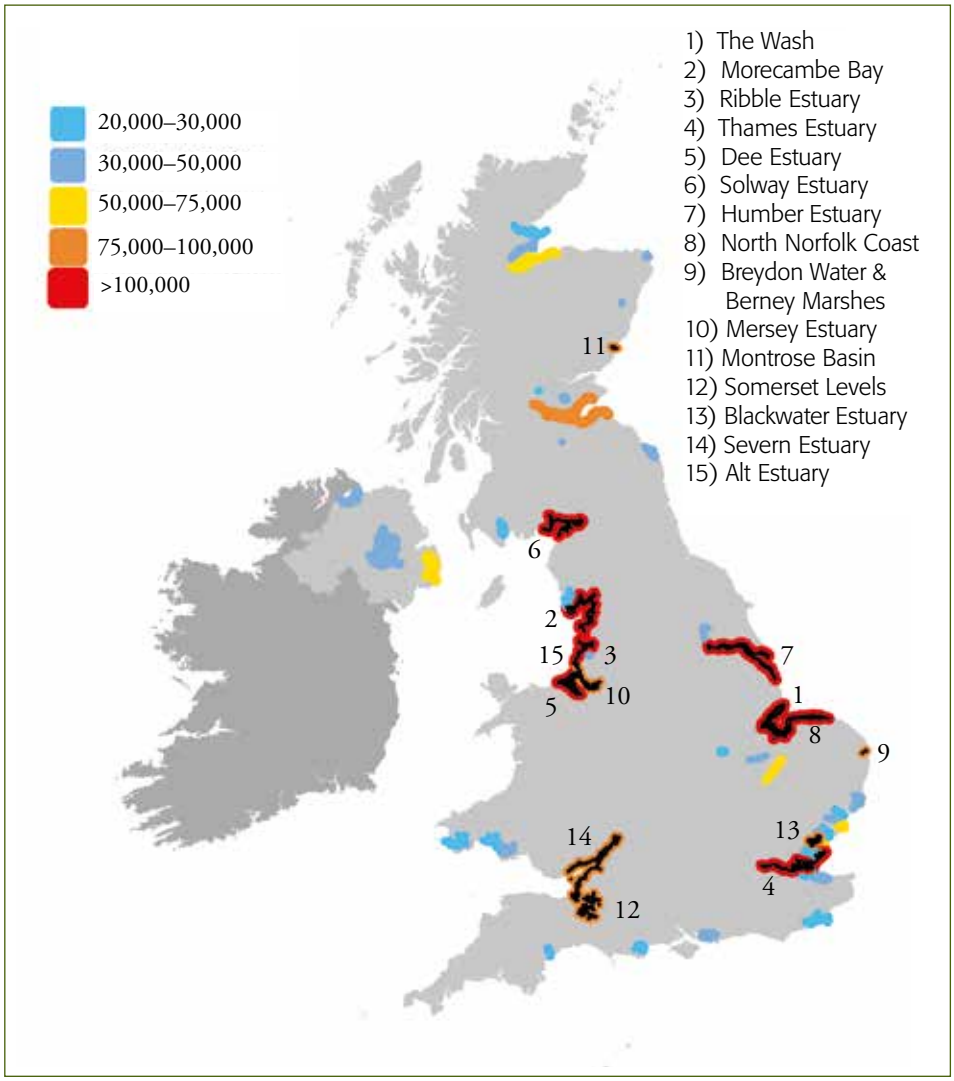
Table 2 lists the Principal Sites for non-breeding waterbirds. The totals are the summed counted maxima for each species during the course of the WeBS year (missing counts are not imputed; supplementary counts are included). Sites with a five-year average of 20,000+ waterbirds are listed. Non-native species (e.g. Canada Goose and Mandarin) have been excluded from the totals. Although an important component of a site's waterbird fauna, gulls and terns are also excluded, since the recording of them during WeBS Counts is optional.

In addition to Table 2, it is possible to view the totals for all WeBS sites via the new WeBS Online Report 'Site Totals' tab. In the interactive table of sites non-native species, gulls and terns and supplementary counts can be included or omitted as desired by the user and either all sites in a county or just the major sites with over 1,000 birds listed. Selecting a site will show the species for which that site holds more birds than the national or international importance threshold.

SITE FOCUS

The order of the sites in Table 2 has changed very little since 2016/17, though a low count of just over 42,000 birds compared with the 5-year average of just over 74,500 birds saw the Ouse Washes fall one place from 16th to 17th. This low count coincided with a 5-year high count of just over 50,000 birds on the nearby Nene Washes.





▲ **Top - Screenshot of Sites Totals page on the Online Report. Bottom - Sites with largest waterbird aggregations in the UK.**

Table 2 Principal Sites for non-breeding waterbirds in the UK

Site	2013/14	2014/15	2015/16	2016/17	2017/18	5-year mean
The Wash	393,260	343,932	345,348	417,457	382,523	376,504
Morecambe Bay	181,689	171,968	184,518	205,594	182,017	185,157
Ribble Estuary	174,200	171,680	161,580	179,125	168,867	171,090
Thames Estuary	194,525	173,258	141,641	133,598	116,937	151,991
Dee Estuary (England and Wales)	124,605	136,506	146,276	166,403	177,588	150,275
Solway Estuary	136,184	153,623	127,250	158,407	125,589	140,210
Humber Estuary	129,926	113,202	130,628	165,763	149,644	137,832
North Norfolk Coast	153,507	121,202	106,257	150,436	105,954	127,471
Breydon Water and Berney Marshes	88,857	91,413	114,626	102,550	99,939	99,477
Mersey Estuary	89,102	85,422	107,271	111,891	94,416	97,620
Montrose Basin	61,718	98,098	101,538	112,010	96,686	94,010
Somerset Levels	88,344	102,680	117,884	88,762	72,061	93,946
Blackwater Estuary	83,694	91,090	82,988	102,847	80,271	88,178
Severn Estuary	74,864	71,524	92,119	98,840	86,830	84,835
Alt Estuary	78,759	73,792	87,346	83,838	71,654	79,077
Forth Estuary	59,353	77,236	79,915	80,680	95,446	78,526
Ouse Washes	101,941	75,901	87,704	65,172	42,217	74,587
Inner Moray and Beauly Firths	46,548	43,292	59,748	75,213	65,882	58,136
Strangford Lough	65,256	46,204	60,700	62,867	53,513	57,708
Dengie Flats	55,842	46,460	62,344	63,093	54,170	56,381
Swale Estuary	36,578	29,573	61,058	66,040	62,165	51,082
Hamford Water	62,228	52,570	46,142	49,617	35,124	49,136
Lindisfarne	30,334	44,048	41,831	59,468	69,475	49,031
Stour Estuary	48,566	52,699	54,283	42,780	37,929	47,251
Chichester Harbour	47,518	50,207	42,242	46,841	47,600	46,881
Loch Leven	62,335	35,861	34,530	39,973	44,780	43,495
Cromarty Firth	34,493	36,296	43,413	56,092	44,333	42,925
Loughs Neagh and Beg	46,828	49,043	38,345	41,890	34,210	42,063
WWT Martin Mere	41,861	31,340	45,859	44,712	44,228	41,600
Loch of Strathbeg	29,411	73,013	43,837	41,352	19,401	41,402
West Water Reservoir	28,200	29,600	83,148	15,300	48,395	40,928
Burry Inlet	29,984	47,103	44,265	33,695	48,065	40,622
Nene Washes	27,718	26,037	34,682	42,794	50,736	36,393
Loch of Skene	30,146	50,649	33,349	35,969	29,724	35,967
Lower Derwent Ings	27,911	34,686	35,647	41,267	36,462	35,194
Lough Foyle	33,973	30,187	32,046	35,317	31,384	32,581
Abberton Reservoir	35,059	37,613	32,911	29,780	27,400	32,552
Medway Estuary	28,876	22,481	32,618	42,499	34,340	32,162
Dornoch Firth	24,639	30,383	24,851	36,479	37,470	30,764
Alde Estuary	32,988	36,646	25,774	29,810	25,071	30,057
Langstone Harbour	32,217	27,957	29,091	31,534	25,731	29,306
Crouch-Roach Estuary	24,595	29,958	24,311	30,337	25,620	26,964
Dungeness and Rye Bay	29,076	25,430	25,444	26,668	24,838	26,291
Carsebreck and Rhynd Lochs	23,051	25,265	26,841	22,806	31,156	25,823
Colne Estuary	26,889	41,136	23,525	16,507	19,958	25,603
Poole Harbour	22,851	24,692	21,329	26,184	24,201	23,851
Duddon Estuary	19,028	25,395	19,473	28,134	26,351	23,676
Rutland Water	28,702	18,537	22,521	24,274	21,653	23,137
Exe Estuary	22,003	22,368	24,805	23,922	22,517	23,123
Carmarthen Bay	21,347	30,646	20,408	19,739	19,291	22,286
Cleddau Estuary	20,833	16,414	20,905	30,765	22,058	22,195
Orwell Estuary	24,776	26,121	22,249	20,626	14,686	21,691
Wigtown Bay	21,284	20,406	21,843	22,228	19,450	21,042

- Totals are the sum of species maxima during the WeBS-year at each site, using data from all months. This summary does not account for missed visits or reduced coverage.
- Some totals may differ slightly from those published in previous annual WeBS reports due to late or amended data.
- Non-native species (such as Canada Goose and Ruddy Duck), are excluded, as are gulls and terns due to incomplete coverage.
- A more comprehensive table showing all sites is available online via **www.bto.org/webs-reporting-site-totals**

Waders wain while geese gain

A new analysis of data from WeBS, NEWS and other sources has resulted in revised national population estimates for wintering waterbirds.

Assessment of the size of non-breeding waterbird populations is one of the three main objectives of WeBS. The latest assessment for Great Britain was published in the March 2019 issue of British Birds and the 2019 issue of Irish Birds for Ireland. Estimates were produced for 98 different waterbird populations for the average peak winter population, based on data pertaining to the 2012/13 to 2016/17 winters, or the most recent possible. January-only estimates are given for 48 of these populations, which should be useful for international assessments, as January is the focus of global waterbird monitoring via the International Waterbird Census. The estimates are given in Table 3, but the original article should be referred to for important background information and notes.

Changes from earlier assessments were caused by improved methods and data, as well as genuine change, meaning there has to be some caution in comparing the results. However, for those species where it is considered there has been genuine change, there is a picture emerging of many goose populations doing well and waders declining, with the estimated total number of wintering geese increasing by approximately 175,000 since the assessment eight years previously, and a loss of approximately 142,000 wintering waders.

METHODS

A range of methods had to be used to generate the best possible estimates for each species. The estimates for Dark-bellied Brent Goose, Gadwall and other species that are well represented on WeBS sites use WeBS counts, multiplied by extrapolation factors to account for birds on non-WeBS sites. Species that utilise the open coast such as Turnstone, Purple Sandpiper and Great Northern Diver rely heavily on Non-Estuarine Waterbird Survey (NEWS III) population estimates for the non-estuarine coast, added to estimates for other habitats where appropriate.

The environmental stratified model reported in Waterbirds in the UK 2014/15 p26–27 was used to estimate numbers of some of the most widespread species that occur on small and large wetlands, such as Teal.

MOSS TAYLOR

▲ **The population estimate for Teal has increased due to a new method of population modelling.**

One of the biggest changes in recent years has been both the demand for information on, and increased knowledge of, waterbirds using the offshore marine environment. The estimates presented for marine waterbirds are likely to be underestimates and more research and data collation would help improve our knowledge of these populations.

VOLUNTEER EFFORT

The estimates summarise data gathered by thousands of birdwatchers across Great Britain and Ireland and are based on huge numbers of hours in the field. As well as counts collected by 2,900 WeBS volunteers on WeBS Core Counts and supplementary visits, data gathered by the WWT/JNCC/SNH Goose & Swan Monitoring Programme (GSMP), 860 participants in the 2015/16 NEWS and 600 participants in the BTO Heronries Census were used. More information extracted from specialist reports, BirdTrack and almost 100 county bird reports relied upon countless additional hours by many thousands of birdwatchers, county recorders and bird club committees to collect, digitise and summarise information on wetland birds.

FIND OUT MORE...

Burke, B., Lewis, L.J., Fitzgerald, N., Frost, T., Austin, G. & Tierney, T.D. 2018. Estimates of waterbird numbers wintering in Ireland, 2011/12 – 2015/16. *Irish Birds* **41**: 1–12.

Frost, T.M., Austin,G.E., Hearn, R.D., McAvoy, S.G., Robinson, A.E., Stroud, D.A., Woodward, I.D. & Wotton, S.R. 2019. Population estimates of wintering waterbirds in Great Britain. *British Birds* **112(3)**: 130–145.

Musgrove, A.J., Austin, G.E., Hearn, R.D., Holt, C.A., Stroud, D.A. & Wotton, S.R. 2011. Population estimates of British non-breeding waterbirds. *British Birds* **104**: 364–397.

Table 3 Population estimates of wintering waterbirds in Great Britain

Species/population	Winter estimate	January estimate	Method	Species/population	Winter estimate	January estimate	Method
Dark-bellied Brent Goose	98,000	96,000	W	Spoonbill	110	-	O
Svalbard Light-b. Brent Goose	3,400	1,500	W	Bittern	800	-	M
Canadian Light-b. Brent Goose	1,600	1,400	W	Cattle Egret	65	-	O
Canada Goose	160,000	140,000	S	Grey Heron	45,000	-	C
Naturalised Barnacle Goose	4,400	-	O	Great White Egret	72	-	O
Greenland Barnacle Goose	56,000	-	C	Little Egret	11,000	3,400	S
Svalbard Barnacle Goose	43,000	-	C	Shag	110,000	-	R
Snow Goose	75	-	O	Cormorant	62,000	45,000	WN
British Greylag Goose	140,000	96,000	W	Water Rail	-	-	n/a
Icelandic Greylag Goose	91,000	-	C	Moorhen	300,000	260,000	W
Taiga Bean Goose	230	-	C	Coot	200,000	170,000	S
Tundra Bean Goose	300	-	O	Crane	180	-	M
Pink-footed Goose	510,000	-	C	Oystercatcher	290,000	260,000	WN
Greenland White-fronted Goose	12,000	-	C	Avocet	8,700	7,800	W
European White-fronted Goose	2,100	2,100	W	Lapwing	620,000	-	R
Mute Swan	50,000	45,000	S	Golden Plover	400,000	-	R
Bewick's Swan	4,400	-	C	Grey Plover	33,000	29,000	WN
Whooper Swan	16,100	-	C	Ringed Plover	42,000	19,000	WN
Egyptian Goose	5,600	3,500	W	Whimbrel	38	17	W
Shelduck	47,000	47,000	WN	Curlew	120,000	100,000	WN
Mandarin Duck	13,000	-	M	Bar-tailed Godwit	50,000	42,000	WN
Shoveler	19,000	19,000	W	Black-tailed Godwit	39,000	30,000	W
Gadwall	31,000	30,000	W	Turnstone	40,000	36,000	W
Wigeon	450,000	440,000	WN	Knot	260,000	210,000	WN
Mallard	670,000	620,000	W	Ruff	900	390	W
Pintail	20,000	19,000	W	Sanderling	20,000	18,000	WN
Teal	430,000	420,000	S	Dunlin	340,000	320,000	WN
Red-crested Pochard	570	480	W	Purple Sandpiper	9,700	8,900	WN
Pochard	23,000	22,000	W	Little Stint	8	6	W
Tufted Duck	130,000	130,000	S	Woodcock	1,400,000	-	R
Scaup	3,900	-	O	Jack Snipe	100,000	-	R
Eider (except Shetland)	77,000	-	O	Snipe	1,000,000	-	R
Eider (Shetland)	4,600	-	O	Common Sandpiper	52	43	W
Velvet Scoter	3,400	-	O	Green Sandpiper	290	-	O
Common Scoter	130,000	-	O	Redshank	94,000	77,000	WN
Long-tailed Duck	13,000	-	O	Spotted Redshank	67	49	W
Goldeneye	19,000	18,000	WN	Greenshank	810	640	WN
Smew	130	89	W	Kittiwake	-	-	n/a
Goosander	15,000	14,000	WN	Black-headed Gull	2,200,000	-	R
Red-breasted Merganser	10,000	9,500	WN	Little Gull	-	-	n/a
Ruddy Duck	19	-	M	Mediterranean Gull	4,000	-	O
Red-throated Diver	21,000	-	O	Common Gull	700,000	-	R
Black-throated Diver	560	-	R	Great Black-backed Gull	76,000	-	R
Great Northern Diver	4,300	-	O	Glaucous Gull	160	-	O
White-billed Diver	80	-	M	Iceland Gull	330	-	O
Little Grebe	15,000	11,000	W	Herring Gull	730,000	-	R
Red-necked Grebe	59	-	O	Caspian Gull	130	-	O
Great Crested Grebe	17,000	12,000	S	Yellow-legged Gull	840	-	O
Slavonian Grebe	920	-	O	Lesser Black-backed Gull	120,000	-	R
Black-necked Grebe	120	99	W	Sandwich Tern	53	-	O
Glossy Ibis	27	-	O				

Method: **W** - WeBS + extrapolation; **WN** - WeBS + extrapolation + NEWS; **C** - species-specific census data; **S** - WeBS + environmental stratification approach; **O** - compilation of county/regional/other sources data; **M** - miscellaneous; **R** - estimate repeated from Musgrove *et al.* (2011).

Further details on estimate reliability and species-specific method notes are in Frost *et al.* (2019).

Rivers

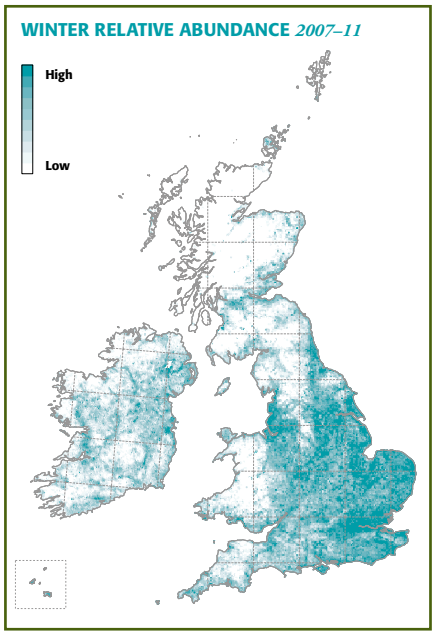
A look at rivers in the UK and four species that use this habitat.

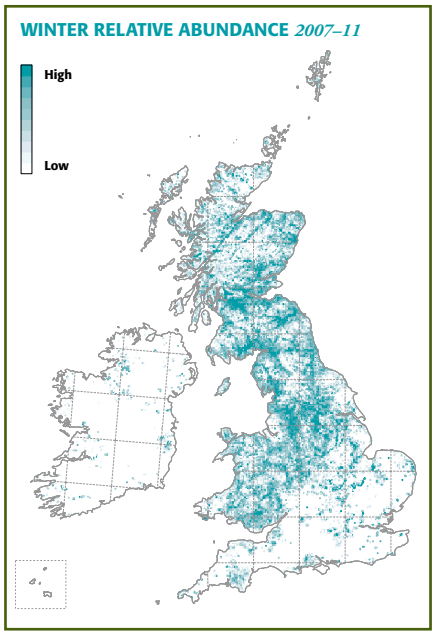
Rivers connect wetland habitats but also support populations of both generalist and specialist waterbirds. The natural river extends beyond the blue line on a map, into grazing marshes and fields that are quickly taken advantage of by waterbirds during flooding events. The deeper water of the mid-channel is the home of Mute Swan, Little Grebe, Coot and Goosander. Birds of the river edge include Mallard, Moorhen, Grey Heron and Kingfisher. Artificial linear waterways such as drains and canals, and heavily modified rivers, are also used by waterbirds.

Rivers are perhaps the least represented wetland type in WeBS compared to the real resource available. In the Ordnance Survey Open Rivers layer for Great Britain, which does not include small streams and watercourses, there are over 140,000 km of rivers and the equivalent figure from the Northern Ireland Open Data River Segments layer (excluding small features) is almost 3,500 km. In 2017/18, WeBS monitored 619 sectors with either river or marsh habitat according to the WeBS site database, equating to 3,208 km.

For birds associated with rivers, this means that WeBS indices may not be reflective of trends on that habitat. The WeBS trend for Common Sandpiper (a summer visitor) is not dissimilar to the trend from the BTO/JNCC/RSPB Breeding Bird Survey (BBS), whereas the trend from the Waterways Breeding Bird Survey (WBBS), which only surveys linear features, shows a steeper decline of 50% since the mid-1980s. The reason for the difference is not completely understood, but it highlights the potential for habitat bias on population indices.

▲ **Rivers (dark blue), drains (light blue) and river/marsh WeBS sites surveyed in 2017/18 (black circles).**





◀ **Distribution maps from *Bird Atlas 2007-11* show that Moorhen (left) is a bird that favours lowland wetlands, whereas Goosander (right) is typical of faster flowing river habitats.**

Goosanders often favour fast-flowing rivers during the day, many of which are not counted for WeBS, and only appear on WeBS sites to roost.

DAVID TIPLING

GOOSANDER

Our winter Goosander population includes birds that breed in Fennoscandia, Russia, Germany, the Netherlands and the UK. Resident British birds typically winter within 150-km of their breeding sites; only a handful of Goosander winter in Northern Ireland. As a breeder, Goosander is a relatively recent colonist, with confirmed breeding records in 1871 in Scotland, 1941 in England and 1968 in Wales.

The monthly index shows a drop in September and October. At this time, most of the British males, having left the females incubating and congregated on inland waters, undertake a moult migration to fjords around Nordkepp in Norway (Little & Furness 1985). There they join almost all of the drake Goosanders from western Europe.

This is a species that can benefit from targeted surveys, with many of the largest aggregations submitted to WeBS as supplementary roost counts, rather than being observed on Core Counts. Several of the sites with nationally important numbers are on the Cumbrian coast, and the same birds are involved, commuting between the sea and nearby inland waterbodies (Shackleton 2015). The concentration was first noted in the cold winter of 2009/10, and has been observed in subsequent winters.

The 25-year UK trend is -11% while the 10-year trend is +11%. The UK and England indices peaked in the mid-1990s, while the Scottish index peaked in the early 1980s but the Wales index reached its highest level in the cold winter of 2010/11 and remains high.

This could be due to variation in the proportions of migrant and resident birds in different areas, perhaps with a decrease in winter migrants due to short stopping contrasting with an increase in residents birds (the 35-year UK breeding trend based on the Waterways Bird Survey/Waterways Breeding Bird Survey is +142%).

FIND OUT MORE...

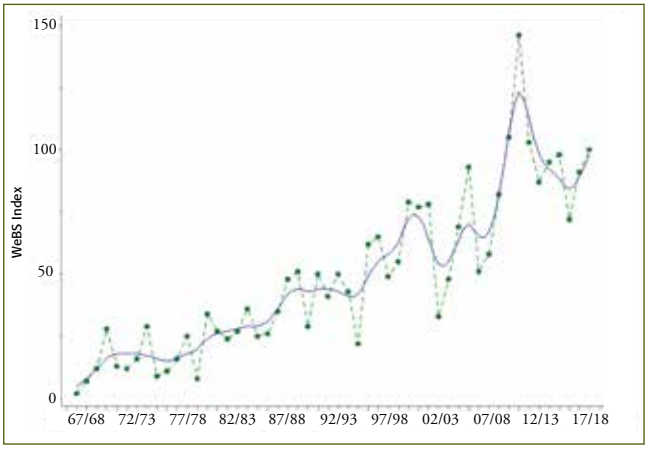
Little, B. & Furness, R.W. 1985. Long-distance moult migration by British Goosanders *Mergus merganser*. *Ringing & Migration* **6(2)**: *77–82.*

Shackleton, D. 2015. Monitoring of Goosanders in West Cumbria in the winters of 2013/14 and 2014/15. *Cumbria Bird Club Bird News* **26(2)**: 34–43.

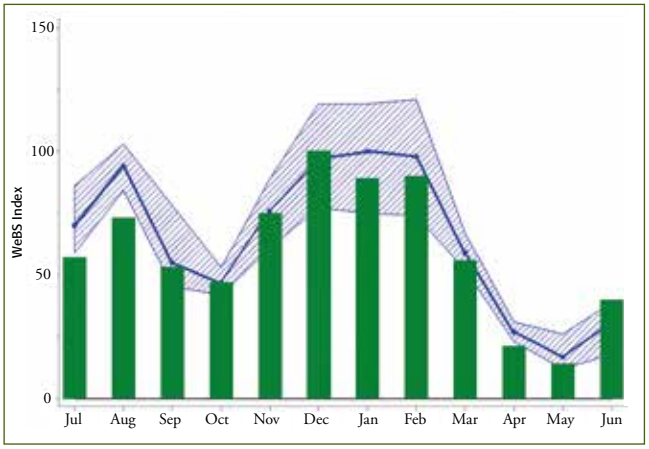
Table 4 Nationally important WeBS sites for Goosander

Site	2013/14	2014/15	2015/16	2016/17	2017/18	Month	5-year mean
Loch Leven †	211	306	358	382	406	Dec	333
Forth Estuary	170	(346)	137	694	251	Aug	320
Loch Lomond	(62)	279	225	342	(152)	Jul	282
Tweed Estuary †	264	384	356	182	78	Aug	253
Soddy Gap Pools †	422	361	120	85	(8)	Dec	247
Berwick North Shore	328	452	246	143	10	Jul	236
Tay Estuary	(155)	163	259	(165)	(139)	Jun	211
Spittal to Cocklawburn	332	128	282	92	126	Sep	192
River Derwent Workington to Nr Stainburn Hall Farm †	153	321	179	110	93	Dec	171
St Bees Head to Mawbray †	171	339	169	68	17	Dec	153
Lavan Sands †	242	110	144	82	81	Jul	132
Tyninghame Estuary	162	170	119	112	46	Jun	122

• Annual peaks and month in 2017/18 when recorded are shown. Brackets indicate incomplete coverage. Five-year mean is for period 2013/14 to 2017/18.
† = Counts include supplementary data.



▲ **WeBS trend for Goosander in Wales.**
Green dots = annual index; blue line = smoothed trend.



▲ **Monthly indices for Goosander in the UK.**
Green bars = 2017/18; blue line/hatched area = previous 5-year mean/range.

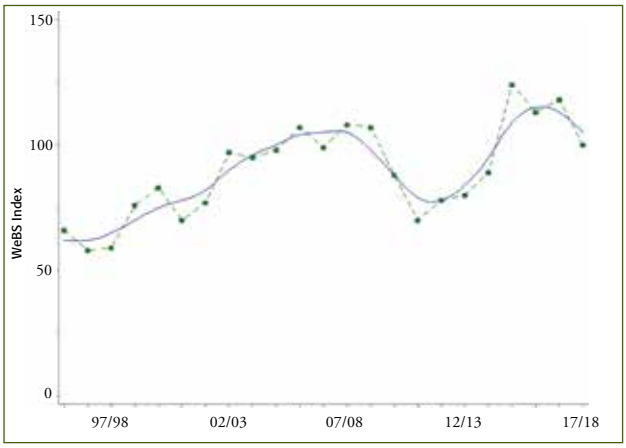
Little Grebe and Kingfisher are two of the more recent additions to non-breeding waterbird monitoring, with Little Grebe added in 1985/86 and Kingfisher in 1991/92, although recording was patchy in the first few years as count forms were renewed, so indices start a few years later.

KINGFISHER

Ringing recoveries indicate Kingfisher is a resident species in Britain and Ireland, with only occasional winter movements to and from the continent. They are frequent in coastal areas in winter, as they need ice-free waters and are susceptible to high mortality in harsh winters. The WeBS index shows a similar pattern to the breeding BBS index, with a low in the cold winters of 2009/10 and 2010/11 followed by a recovery, but the WBBS index does not show such a clear recent revival.

LITTLE GREBE

Little Grebe shows a similar response to hard winters as Kingfisher. Detectability of Little Grebe is low compared to many waterbirds and, together with its use of small waterbodies and rivers, the proportion counted by WeBS is likely to be low. This is one of the species that would benefit from improved coverage of rivers and smaller waterbodies. The maximum WeBS total for 2017/18 was 5,912, compared to a population estimate of 15,000. The Northern Ireland total was 678. Relatively little is known about the movements of this rather secretive species, but recoveries of birds ringed in Denmark, The Netherlands, Germany and Latvia suggest there are at least some winter migrants to Britain and Ireland from further afield.



▲ **WeBS trend for Kingfisher in the UK.**
Green dots = annual index; blue line = smoothed trend.

NEIL CALBRADE

NEIL CALBRADE

▲ **WeBS trend for Little Grebe in the UK.**
Green dots = annual index; blue line = smoothed trend.

GREY HERON

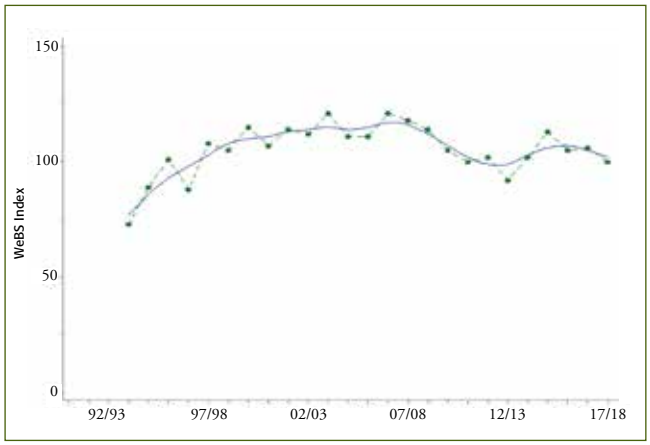
The vast majority of species monitored during winter by WeBS are ducks, geese and swans and waders, but WeBS also covers some waterbirds which do not fit into these groups, including Kingfisher and gulls and terns (with the latter two groups optional but covered by an increasing number of observers). Another such group is the herons, of which the Grey Heron is the most common species, despite the recent colonisation of the UK by other wading species including Little, Cattle and Great White Egrets and Spoonbill.

WeBS recently celebrated its 70th anniversary, with the original survey in 1947 counting wildfowl in Britain, which was subsequently integrated with wader counts. This milestone is a fantastic achievement, yet there is one ongoing annual survey which predates WeBS – the BTO's Heronries Census which began in 1928 and hence celebrated its 90th anniversary last year. Herons have been included in WeBS since 1992; the results from these two long-running surveys therefore complement each other, particularly now that many inland sites are being covered by WeBS throughout the year. Although this means that some WeBS counts overlap with Heronries Census counts, the census measures "apparently occupied nests" at breeding colonies, and therefore is not necessarily monitoring the same individuals as WeBS, which measures abundance and trends at wetland sites, and includes non-breeding immature birds as well as adults.

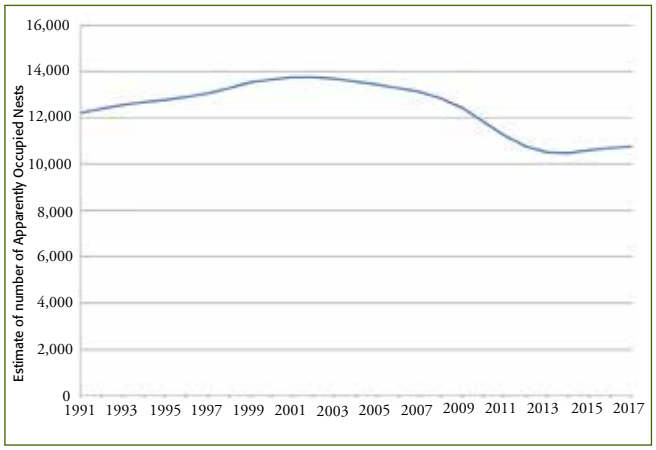
A notable feature of the monthly WeBS index for Grey Heron is the dip in abundance in March, contrasting with the pattern for many other WeBS species when a dip typically occurs during the summer months after wintering birds have left the UK. This fits exactly with our knowledge of Grey Heron ecology: herons begin nesting activity as early as February and the recommended time for making Heronries Census visits to count the number of apparently occupied nests is during late March or April, when young will already be present in some nests. Heronries are often located in woodland, sometimes some distance from water, and hence lower numbers of adults will be observed on wetland sites in March when up to half of adult birds will be incubating eggs at any one time. By April, some pairs will already be foraging to feed growing young and hence may be more visible in wetland habitat.

Herons are particularly susceptible to severe weather when waterways and lakes are frozen, and the effects of severe weather in the early 1960s are clearly apparent in the long-term Heronries Census trend. Comparing recent trends from WeBS with those from the Heronries Census is also interesting as both trends are remarkably similar. A decline in both trends is apparent during the late 2000s, and coincides with several colder winters at this time. Many Grey Herons are resident in the UK and therefore the fact that these trends match is perhaps not surprising. However ringing recoveries show that movements between the UK and Europe do occur and the recent Non-Estuarine Waterbird Survey (NEWS) estimated over 400 Grey Herons were present during the winter on the Shetland Isles and over 250 on the Orkney Isles. Breeding does not occur in either location and most of these birds on Shetland (and perhaps also those on Orkney) are thought to originate from Scandinavia. The fact that the trends do match perhaps suggests that a relatively small amount of immigration from Europe occurs elsewhere, or that trends for both UK and European breeding birds wintering in the UK are mostly influenced by conditions in winter.

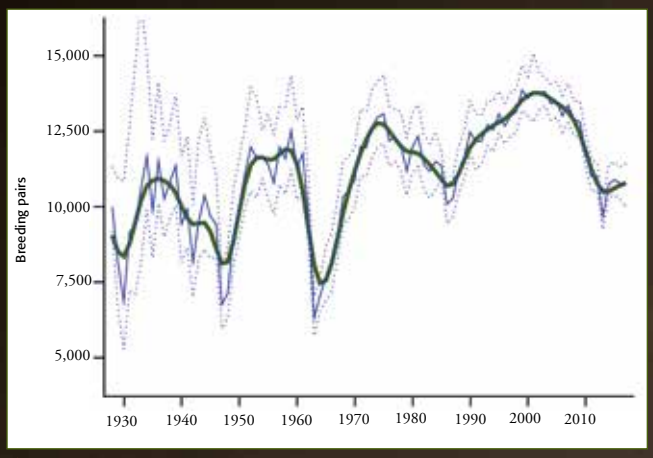
The Heronries Census aims to monitor all nesting herons in the UK, and includes very large colonies (some with over 100 occupied nests) and also sites where single one-off nesting attempts take place. We would therefore welcome all observations of any nesting herons (as well as any Egret species, Spoonbill and Cormorants) that you see during your WeBS counts or elsewhere. We are grateful for the contributions to the Heronries Census from the many WeBS volunteers who already count nests at heronries on their site, and would welcome records from any other observers (**herons@bto.org**).



▲ **WeBS trend for Grey Heron in the UK.**
Green dots = annual index; blue line = smoothed trend.



▲ **Heronries Census Counts in the UK 1991–2017.**



▲ **Heronries Census Trend in the UK 1928–2017.**

BENCE MÁTÉ

How can weather affect European wintering waterbird population distributions?

Variation in European winter weather causes short- and long-term distribution changes in waterbirds, but response varies by habitat group.

Analysis of data from January WeBS counts and similar counts for 25 waterbird species from across 21 European countries shows that wintering areas can change depending on winter weather. Warm winters allow some species to shift their wintering areas northeastwards, whereas cold spells push birds southwestwards.

The study shows that waterbirds respond to both year-to-year and long-term changes in winter weather conditions, which is evident by the changes in local abundances during winter. The changes in abundances across the range can be summarised by the location of the average bird in the population – the "population centroid". The weather can be summarised using the NAO index (see box).

Not all waterbirds respond equally to changes in weather conditions. Species preferring shallow and deep water are responding fastest to annual variation in temperature, whereas farmland species like geese, show weak responses. The study showed that the population centroid of some waterbird species can shift more than 100-km in some years, suggesting that dramatic changes in relative abundances may be occurring at the edges of the range, although the majority wintering in the central part of the range may not be responding so strongly.

CLIMATE CHANGE

In addition to the year-to-year variation, the study also shows that there is a long-term shift of the centre of the wintering population of species preferring deep waters, which progressively moved northeastwards during the 1990s and 2000s. The centre of the wintering population of species preferring shallow waters moved northeastwards during the 1990s and early 2000s but southwestwards after mid-2000s, coinciding with several consecutive harsh winters in Europe.

According to the latest Intergovernmental Panel on Climate Change (IPCC) report released in October 2018, winters will become milder in the near future, which this study suggests will affect average abundances of waterbirds across Europe. There are likely be to local extinctions at some wetlands at the southern edge of the distribution of many species, and colonisations of new wetlands in the northern edge of the distribution.

However, increased variability in winter weather conditions also reported by the IPCC can cause large year-to-year fluctuations in abundances, pushing and pulling individuals northeast and southwest along the migration flyway. Such changes in distribution areas and abundances of waterbirds create challenges to protect and monitor species and means international assessments are important for understanding what protected wetlands are needed to allow for both long-term and short-term changes in distribution.

The study was carried out thanks to collaboration between research centres and NGOs across Europe, including WeBS, and the enormous effort of Wetlands International coordinating the citizen-science-based International Waterbird Census (IWC) worldwide.

What is the NAO index?

The NAO index is a long running time series of the atmospheric pressure difference between a station in Portugal (Lisbon) and one in Iceland (Reykjavik).

The mean winter NAO index is a useful metric for summarising European weather for a winter at a continental scale.

When the index is strongly positive it is associated with warmer and wetter conditions in western and northern Europe and drier conditions in southern Europe.

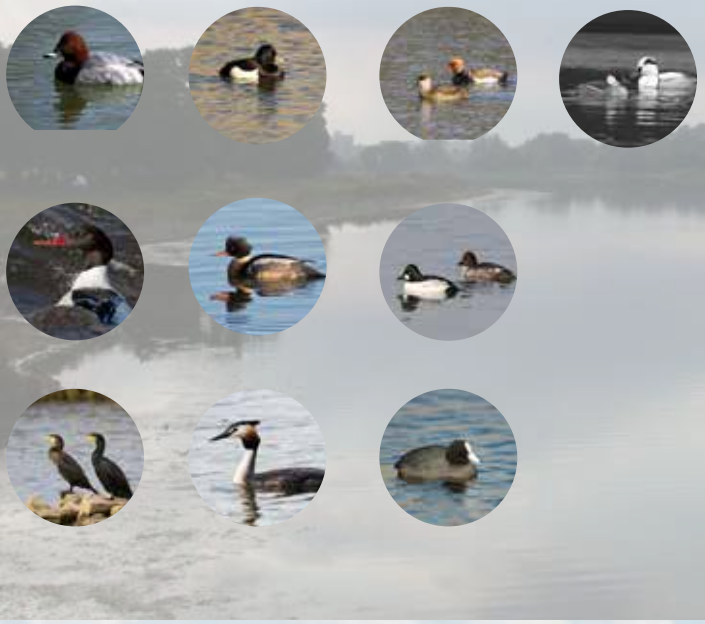
When the index is strongly negative it is associated with colder and drier conditions in western and northern Europe.

FIND OUT MORE...

Pavón-Jordán, D. & 26 co-authors. 2019. Habitat- and species- mediated short- and long-term distributional changes in waterbird abundance linked to variation in European winter weather. *Diversity and Distributions* **25(2):** 225–239.

SHALLOW WATER SPECIES:

- Short-term: Shift northeastwards by an increasing distance with average or warmer and wetter conditions (less negative to strongly positive NAO)
- Long-term: Shifted northeastwards in the 1990s and early 2000s, but southwestwards after this (as variability in the harshness of winters increased)



DEEP WATER SPECIES:

- Short-term: Shift northeastwards in years when western and northern Europe is not very cold (less negative NAO) but do not respond as NAO becomes more positive
- Long-term: Shifted northeastwards over the course of the study

FARMLAND SPECIES:

- There was a relationship between shifts northeastwards and NAO, but it was not statistically significant
- This may be because of ample food resources and safe roosting sites in the main part of the species wintering range, so changes at sites at the edges of the wintering range do not significantly affect the population centroid

SHOVELER, MALLARD, GADWALL, SHELDUCK, COOT AND TEAL BY NEIL CALBRADE; BEWICK'S SWAN AND POCHARD BY JILL PAKENHAM; GREY HERON AND CORMORANT BY JOHN HARDING; GOLDENEYE, RED-CRESTED POCHARD, SMEW AND WIGEON BY DAVE KING; WHITE-FRONTED GOOSE AND BRENT GOOSE BY GRAHAM CATLEY; BARNACLE GOOSE, PINTAIL, MUTE SWAN AND GOOSANDER BY EDMUND FELLOWES; GREYLAG GOOSE BY TONI CROSS; WHOOPER SWAN BY ROD CALBRADE; RED-BREASTED MERGANSER BY ALLAN DREWITT; TUFTED DUCK BY MIKE DAWSON AND GREAT CRESTED GREBE BY AMY LEWIS

IWC Count organisation and reporting in France

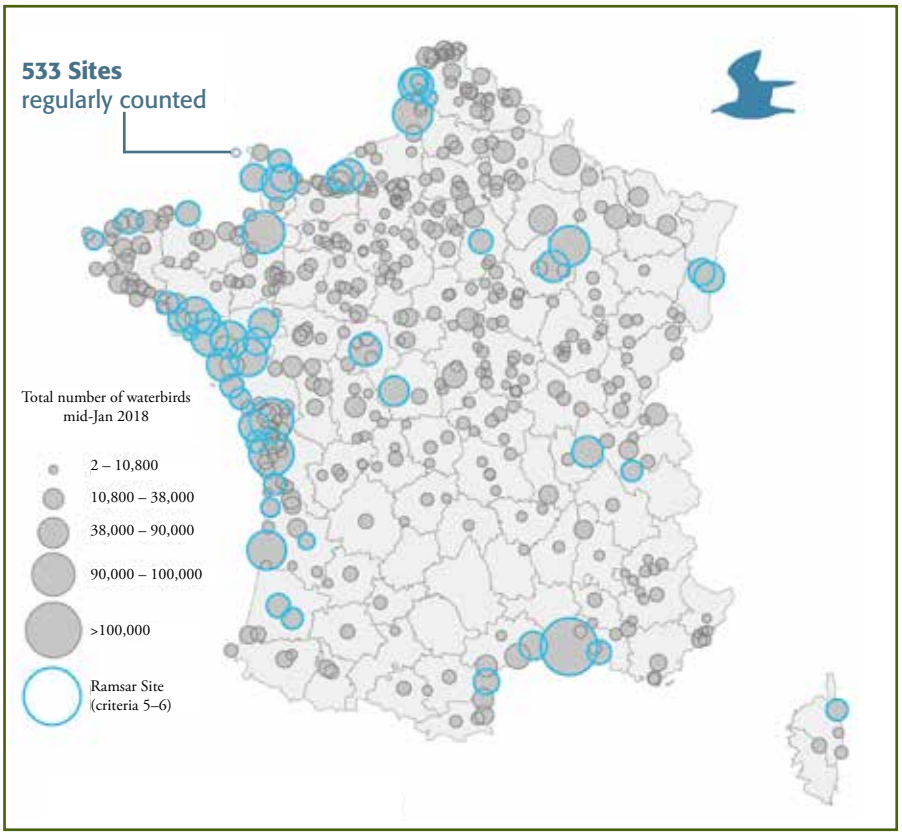
Clémence Gaudard and Gwenaël Quaintenne (LPO) present results from annual waterbird counts in France.

In 2018 a brand new tool was implemented for the French International Waterbird Census (IWC) Network. Henceforth data can be entered directly by the counters in a dedicated module at **https://www.faune-france.org/** and even in the field with the NaturaList app for smartphones. This will allow us to improve the accuracy and consistency of the data submitted and to publish the annual report more quickly.

The French IWC Report has been reshaped for the 2018 synthesis. Now it is divided into two parts: (1) a public summary of the results and (2) a technical appendix of species fact sheets which compiles the main results of the monitoring of 95 waterbird species. While the main document would be difficult for a non-French-speaker to understand, the species fact sheets are more accessible for English-speakers looking for numbers and trends observed in France.

RESULTS OF THE FRENCH WATERBIRD CENSUS 2017/18

After a dry summer and autumn in 2017, mild weather conditions observed in Europe at the beginning of winter may explain the moderate numbers of ducks, divers and grebes counted in mid-January 2018 in France, significantly lower than during the previous years, without any influx from northern Europe. The numbers of Tundra Bean Goose (1,132 individuals), Bewick's Swan (284), Smew (153), Goldeneye (1,258) and Great Crested Grebe (33,265) were particularly low. The French "Common Crane Network" has also reported that in 2018 there were low numbers in the Aquitaine region, probably due to weather conditions at stopover sites in northern Europe. On the contrary, it was a great year for the White Stork, in the context of long-term increase, with a record number of 1,552 individuals. Numbers of Glossy Ibis, Spoonbill, and Greater Flamingo also reached record numbers, particularly in the Camargue which accounts for most of the numbers of those species.



▲ **French waterbird census sites**. Total number of waterbirds counted during the 2018 mid-January census in France and location of sites meeting criteria for international importance (blue circle = mean 2014–2018)

Regarding waders, numbers were similar to previous years (854,020 individuals) with around 271,250 Lapwings recorded. Low numbers of Curlew (25,110), falling to the 2010 level, were reported in 2018, as well as of Turnstone (22,092) and Sanderling (24,781).

IMPORTANT SITES

The main French wetlands - those holding more than 10 species exceeding the 1% threshold for the flyway population - are the Camargue (total ~190,600; 21 species >1% threshold e.g. Mallard, Greater Flamingo, Teal); Aiguillon Bay (~89,300; 11 species e.g. Dunlin, Shelduck, Knot); the Gulf of Morbihan (~56,500; 11 species e.g. Black-headed Gull,

Dunlin, Barnacle Goose); Lake Der-Chantecoq (~71,000; 10 species e.g. Common Crane, Lapwing, Teal); and the natural reserve of Moëze-Oléron Bay (~ 93,700; 10 species e.g. Dunlin, Barnacle Goose and Shelduck).

GULL 2017/18 CENSUS

A total of 1,025,368 individuals were counted during winter 2017/18. Compared to the previous Census (2011–12), the numbers of Black-headed Gull and Herring Gull are still declining and there was a low number of Great Black-backed Gull counted. It is unclear what is the cause with possible factors including weather conditions in northern Europe and non-exhaustive counts. A large number of Caspian Gulls was reported (1,066 ind. compared with 83 in 2011–12) and there was also an increase in both Caspian and Yellow-legged Gull numbers.

SHORT-TERM TRENDS

The strongest increases are seen within the "larger wading birds" – e.g. Cattle Egret, Glossy Ibis, Spoonbill, Greater Flamingo and Great White Egret – and also Shoveler. The strongest declines mainly concern diving ducks, Eider, Scaup and Slavonian Grebe, with significantly lower trends than the flyway populations long-term trends.

FIND OUT MORE...

Gaudard C., Quaintenne G., Dupuy J. 2018. *Comptage des Oiseaux d'eau à la mi-janvier en France. Résultats 2018 du comptage Wetlands International*. LPO BirdLife France - Service Connaissance, Wetlands International, Ministère de la Transition écologique et solidaire. pp. 24, et Annexes pp. 104, Rochefort.
https://www.lpo.fr/images/actualites/2019/resultats_wetlands_2018/synthesewetland2018_v5_web.pdf

Crane numbers were low in the Aquitaine region in 2018.

FABRICE CAHEZ

Counting waterbirds in the warmer months

Core Counts from outside the main winter period are important for monitoring many waterbird species.

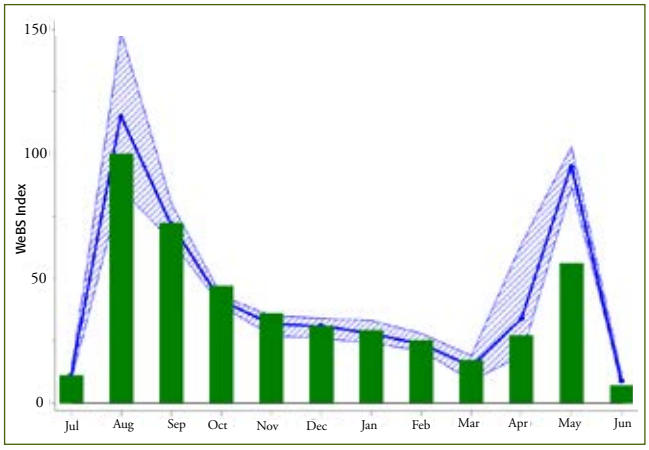
The majority of the species indices and trends in this report relate to the winter period – either September to March, or November to March. Why then, are WeBS counters asked to carry out their monthly counts throughout the spring and summer as well? Not only does this allow indices to be produced for summer visiting species such as Garganey (see *Waterbirds in the UK 2016/17* p.21), it also ensures information is available for passage migrants and for resident and passage populations to be disaggregated from winter visitors.

WeBS trends for summer visitors are complementary to results from breeding bird monitoring schemes. Common Sandpiper is recorded by WeBS on both river sectors, and on passage, at estuaries and other large sites, as well as by the Breeding Bird Survey and Waterways Breeding Bird Survey (see page 16). Another summer visiting wader is the Little Ringed Plover; the first breeding pair in the UK nested at Tring Reservoirs in 1938. Numbers have increased since then, but relatively slowly and this species is still monitored by the Rare Breeding Birds Panel. The WeBS trend gives an indication of its fortunes, although there are large inter-year fluctuations in the index, as expected for scarcer species which may not always be detected during Core Count surveys.

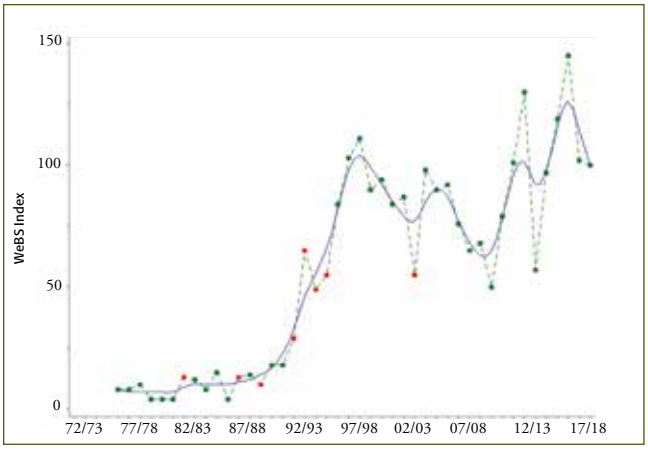
The index for Ringed Plover is calculated for overwintering birds. However, as with some other species such as Sanderling, the largest numbers of individuals are present during passage periods, peaking in August and May. Migration staging areas are critical for species conservation, and large numbers of birds using particular sites during passage may result in the site being designated for that species. Monitoring of protected sites such as Chichester Harbour and Duddon Estuary, where internationally important numbers are present on passage, particularly benefit from summer counts.

Sandwich Tern now winters in large enough numbers to have a winter population estimate of 53 in Great Britain (see page 15). It is, however, still largely a summer visitor, with a WeBS peak count of 14,129 in July 2017. The sites with 5-year averages over 1,000 are North Norfolk Coast (5,031), Dee Estuary (1,551), Forth Estuary (1,531) and The Wash (1,327). Breeding tern colonies are counted as part of the Seabird Monitoring Programme which provides population trends on breeding numbers. The WeBS indices for Sandwich Tern and Common Tern are based on April-September, so reflect summer and passage numbers.

Two populations of Greylag Goose occur in the UK: the migratory Icelandic population and the resident British/Irish population. Although the latter may migrate within the UK, there is no evidence of international movements for this population. Formerly, the British/Irish Greylag could be itself separated into two distinct populations based on geographic range, these being the relict native population restricted to Northwest Scotland, and the population of re-established birds largely restricted to England. However, with both the resident populations expanding their ranges, by winter 2009/10 rising levels of range overlap had made separate reporting of these two populations (indistinguishable in the field) untenable and from that winter onwards the two populations have been considered as merged. Since *Waterbirds in the UK 2011/12*, the summer months of April to September have been used for calculating the index for British/Irish Greylag Goose, to ensure exclusion of anything other than trivial numbers of Greylag from the Icelandic population. The British/Irish Greylag Goose population was increasing, but seems to have levelled off since 2010/11. The 25-year trend is +162% and the 10-year trend +28%.



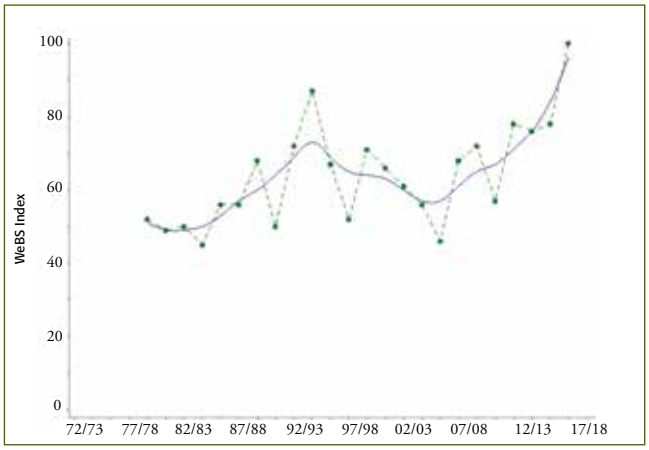
▲ **Monthly indices for Ringed Plover in the UK.**
Green bars = 2017/18; blue line/hatched area = previous 5-year mean/range.



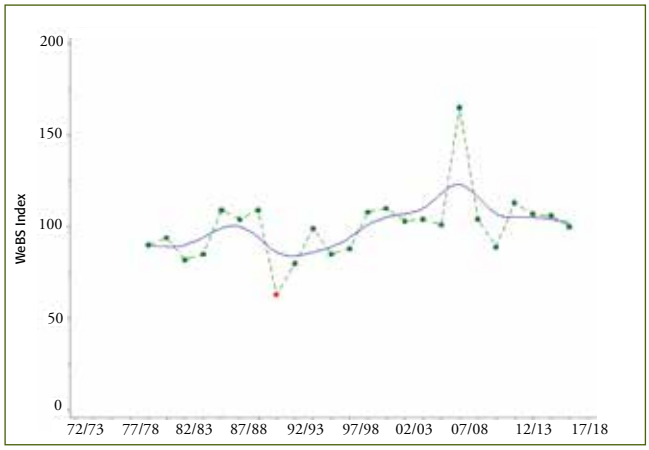
▲ **WeBS trend for Little Ringed Plover in the UK.**
Green dots = annual index; red dots = sparse data; blue line = smoothed trend.

EDMUND FELLOWES

Although small numbers of Common Sandpipers winter in the UK, it is the summer counts that are used to calculate their population trends.

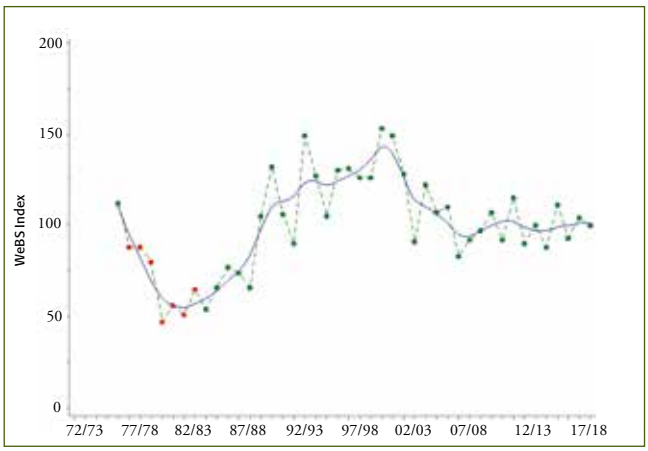


WeBS trend for Sandwich Tern in the UK.
Green dots = annual index; blue line = smoothed trend.



WeBS trend for Common Tern in the UK.
Green dots = annual index; red dots = sparse data; blue line = smoothed trend.

WeBS trend for British/Irish Greylag Goose in the UK.
Green dots = annual index; red dots = sparse data; blue line = smoothed trend.



WeBS trend for Common Sandpiper in the UK.
Green dots = annual index; red dots = sparse data; blue line = smoothed trend.

Curlew in crisis

The decline in Curlew has been well documented in recent years, both as a breeding and wintering species as Niall Burton (BTO) explains...

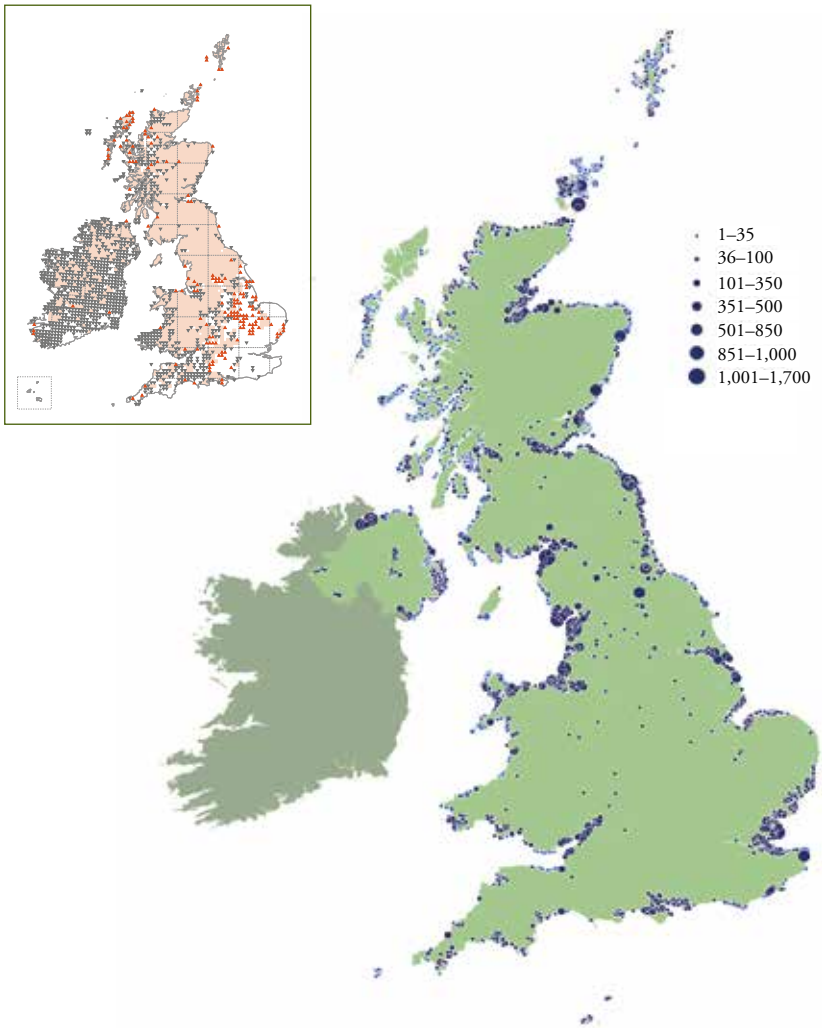
The Curlew is one of our most familiar waders, both as a breeding bird when its bubbling calls epitomise upland and grassland areas, and during winter. The UK holds up to one quarter of the world breeding population of Curlew. Nevertheless, despite its familiarity, the Curlew is in sharp decline, in common with several other godwit and curlew species around the world (Pearce-Higgins *et al.* 2017). In the UK, Breeding Bird Survey results showing a 48% decline from 1995–2016. The Curlew is included on the Red List of UK Birds of Conservation Concern and as Near Threatened on the IUCN Red List.

The present UK breeding population of Curlew is estimated to be 68,000 pairs (Musgrove *et al.* 2013), although this figure doesn't reflect the species recent continued decline. Some of these birds move to Ireland in winter, and small numbers winter in France or Spain; those which remain in the UK are joined by birds arriving from Scandinavia and northern Europe. The WeBS monthly index shows a peak in numbers through July to October as birds move into and through the country, with slightly lower numbers present through the winter, and a peak again in February as birds move back to breeding grounds.

The Curlew's British winter population is presently estimated to be 120,000 individuals (see pages 14–15). Curlew occur on both estuarine and non-estuarine coastal habitats in winter, as well as inland grassland sites; a total of 44,344 Curlew was estimated to winter on the UK's non-estuarine coast by the 2015/16 Non-Estuarine Waterbird Survey (NEWS). The WeBS 25-year trend is -27% and the 10-year trend is -17%.

In the UK, only Morecambe Bay holds internationally important numbers of Curlew, with a further 23 sites holding nationally important numbers. The UK WeBS winter index for Curlew increased through the 1980s, when adult survival rates increased following a ban on hunting (Taylor & Dodd 2013), but has declined steadily since the mid-1990s. This pattern is repeated in population estimates for the non-estuarine coast.

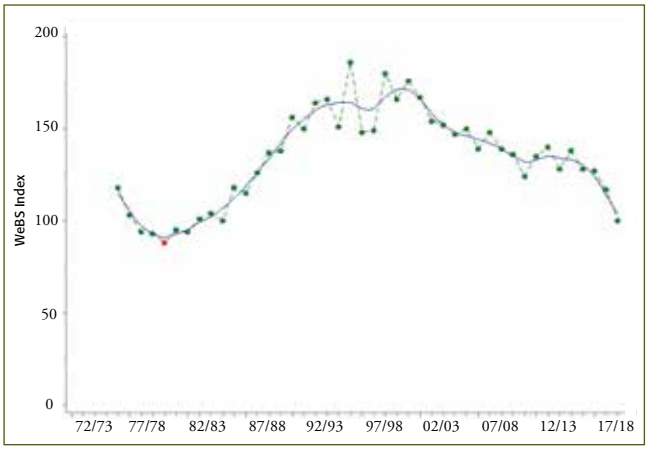
The Curlew has been declared the UK's most pressing bird conservation priority (Brown *et al.* 2015). Possible factors negatively affecting the species during the breeding season include: intensive agriculture, forestry, increases in generalist predator populations and climate warming (Franks *et al.* 2017). Current research is assessing regional variation in the species' wintering numbers using WeBS data and the other factors that might also affect Curlew at this time and thus be contributing to its present status, including: weather, the availability of grassland foraging habitat, water quality and the disturbance associated with urbanisation at coastal sites.



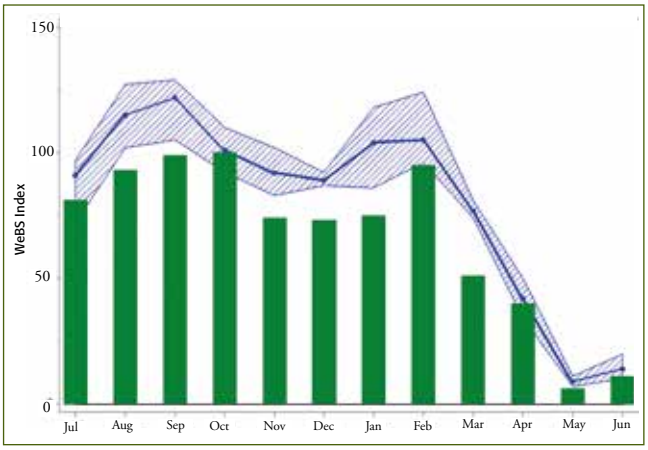
▲ Curlew winter (December 2017–February 2018) counts from WeBS (dark blue dots) and NEWS III (light blue dots) with inset map showing breeding presence from *Bird Atlas 2007–11* - pink areas have been used for breeding since the 1968–72 atlas, red upwards arrows show expansion of breeding areas and black downward arrows show range contraction since then.

PAUL HILLION

▲ **Curlew numbers can be difficult to assess using high tide counts as birds will often fly inland to feed in agricultural fields over the high tide period.**



▲ **WeBS trend for Curlew in the UK.**
Green dots = annual index; red dots = sparse data; blue line = smoothed trend.



▲ **Monthly indices for Curlew in the UK.**
Green bars = 2017/18; blue line/hatched area = previous 5-year mean/range.

FIND OUT MORE...

Brown, D., Wilson, J., Douglas, D., Thompson, P., Foster, S., McCulloch, N., Phillips, J., Stroud, D. & Whitehead, S. 2015. The Eurasian Curlew - the most pressing bird conservation priority in the UK? *British Birds* **108**: 660–668.

Franks, S.E., Douglas, D.J.T., Gillings, S. & Pearce-Higgins, J.W. 2017. Environmental correlates of breeding abundance and population change of Eurasian Curlew *Numenius arquata* in Britain. *Bird Study* **64**: 393–409.

Musgrove, A.J., Aebischer, N.J., Eaton, M.A., Hearn, R.D., Newson, S.E., Noble, D.G., Parsons, M., Risely, K. & Stroud, D.A. 2013. Population estimates on birds in Great Britain and the United Kingdom. *British Birds* **106**: 64–100.

Pearce-Higgins, J.W. *et al.* (34 co-authors). 2017. A global threats overview for *Numeniini* populations: synthesising expert knowledge for a group of declining migratory birds. *Bird Conservation International* **27**: 6–34.

Taylor, R.C. & Dodd, S.G. 2013. Negative impacts of hunting and suction-dredging on otherwise high and stable survival rates in Curlew *Numenius arquata*. *Bird Study* **60 (part 2)**: 221–228.

Population booms

Colette Hall (WWT) looks at the increase of Barnacle Goose numbers in the UK.

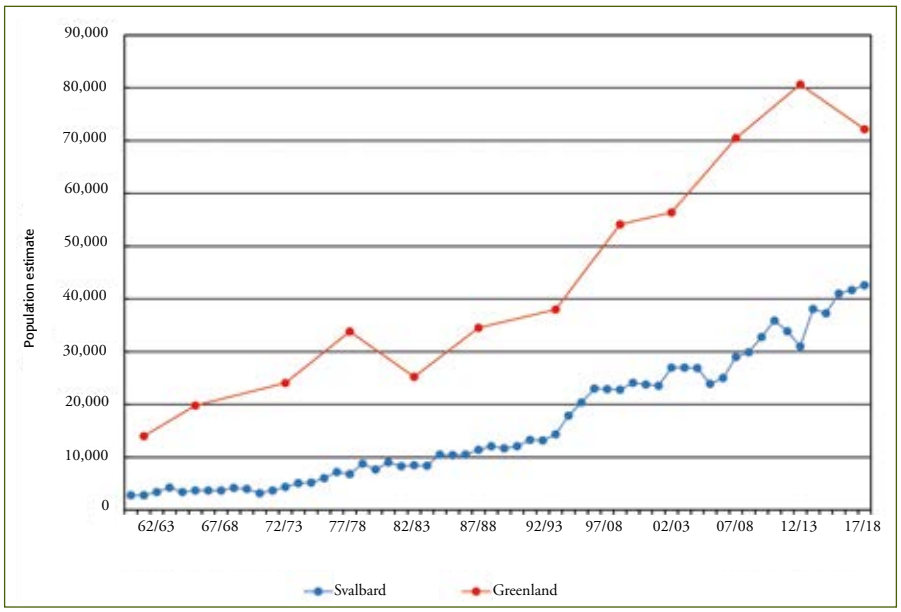
There are three populations of Barnacle Goose that occur in the UK. The smallest is the naturalised population which is resident in the country throughout the year, predominately in England with smaller numbers also occurring in Wales. This population is regularly monitored through WeBS, and the long-term trend clearly shows a rapid increase in numbers since the 1980s, in particular since the mid-2000s, with the index indicating a 146% increase in the last ten years. The population's size is currently estimated to be 4,400 individuals (see pages 14–15), which is over 60% higher than the previous estimate of 2,700 when last assessed in 2011.

The other two populations of Barnacle Goose are migratory, with both wintering entirely in Britain and Ireland: there is the Greenland population, which breeds in northeast Greenland (as well as a small recently established population in Iceland) and winters along the west and north coasts of Ireland and Scotland, mainly on offshore islands; and the Svalbard population, which breeds in the Svalbard archipelago, mostly on western Spitsbergen (the largest of the islands), and winters predominately on the Solway Estuary. Monitoring these two populations requires rather bespoke approaches, most of which is undertaken through the Goose & Swan Monitoring Programme.

A number of the islands visited by the wintering Greenland Barnacle Geese are rather remote, meaning a complete census of the population in Scotland and Ireland requires both ground and aerial counts. Given the associated costs, such censuses are currently carried out every five years, with the most recent taking place in March 2018. In the early 1960s, the Greenland population numbered around 14,000 birds; however, the 2018 census results suggest this has grown to c.72,000, equating to a five-fold increase over the last 50+ years. The 2018 census total was, however, 10.5% lower than the previous total in 2013, although still the second highest to date. The main reason for the decrease is the ongoing management of this population in Scotland designed to reduce population size and conflict with agriculture. Poor productivity in recent years and mortality from shooting in Iceland (where the geese are legal quarry) are also likely to be contributing factors.

The increase in the abundance of the Greenland population has largely occurred at just a few core areas, with the trend at these sites clearly mirroring that of the whole population. The five key areas - North Uist (Outer Hebrides); Islay, Tiree/Coll and Oronsay/Colonsay (Inner Hebrides); and South Walls (Orkney) - regularly hold the majority of geese, with total numbers recorded there during the 2018 census accounting for c.92% of the Scotland total and c.72% of the overall population. Islay alone regularly supports over half the wintering population, and the island is now also a major arrival point for the geese after the autumn migration; although in recent years, a proportion of the geese have moved on to winter in other areas.

The WeBS trend for the Greenland population in the UK mirrors that for the population as a whole, as a result of annual counts from a number of these key Scottish sites feeding into the analysis. The index shows an 1,379% increase since the late 1980s and highlights the recent fall in numbers in 2018.



▲ **Population size estimates for the Greenland Barnacle Goose (Britain & Ireland; five-yearly) and Svalbard Barnacle Goose (recorded at the Solway Estuary), 1960/61–2017/18.**

ROB ROBINSON

▲ **Three different populations of Barnacle Geese occur in the UK, including migratory populations from Svalbard and Greenland.**

Like the Greenland population, the Svalbard Barnacle Goose population has grown rapidly since the early 1960s; increasing from just c.3,000 birds to 42,600 in 2017/18. The WeBS index, which includes data from the annual censuses, highlights the rapid increase, with the 2017/18 value being 1,011% higher than the first in 1965/66. The recovery of the population can be greatly attributed to conservation actions implemented throughout its flyway. However, the Svalbard population remains small compared with other goose populations in northwest Europe, and as a result it is afforded the highest conservation priority (listed in category A3a) by the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA).

As the wintering Svalbard Barnacle Geese are highly concentrated, it makes counting them much easier compared with their Greenland counterpart. The population size can be assessed annually through ground counts, and a coordinated count is undertaken at the Solway at least once a month from September through to May. By mid-winter, the majority of the population regularly utilise a few key areas within the Inner Solway. However, as the population has grown, the distribution has spread west towards the Outer Solway, with geese now visiting additional sites on a fairly regular basis. During recent winters, a few thousand Barnacle Geese have been recorded staging/wintering at Budle Bay on the Northumberland Coast, and the sighting of ringed birds indicates that these geese are of Svalbard origin. It will be interesting to see if the importance of this eastern site increases as the Svalbard population continues to grow.

There is a third migratory population of Barnacle Goose that occurs in northwest Europe, one that breeds in the Russian Arctic and the Baltic, and winters in countries along the Baltic and North Seas. During the 1980s, the estimated size of all three migratory populations totalled c.112,000 individuals, but since then, numbers have increased dramatically and now equate to around 1,300,000, making it the most numerous goose species wintering in northwest Europe (AEWA 2018). Unfortunately, this has led to conflicts with human activities, including agricultural damage and risks to aviation, and as a consequence, an International Single Species Management Plan has been developed by AEWA to provide a mandate for developing population-specific Adaptive Flyway Management Programmes that will direct the AEWA range states in their conservation and management of the three populations.

FIND OUT MORE...

AEWA. 2018. International Species Management Plan for the Barnacle Goose
https://www.unep-aewa.org/en/document/draft-international-species-management-plan-barnacle-goose-branta-leucopsis

Goose & Swan Monitoring Programme (GSMP) species accounts
https://monitoring.wwt.org.uk/our-work/goose-swan-monitoring-programme/species-accounts/

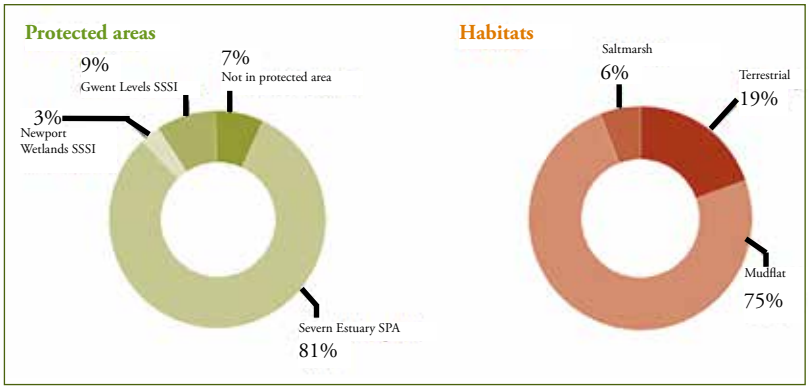
EDMUND FELLOWES

Most of our wintering Redshanks occur on the coastline, so are well covered by WeBS. The Non-Estuarine Waterbirds Survey in 2015/16 estimated the UK open coast population to be 17,122–19,758. The most recent population estimate for Great Britain is 94,000, down from 120,000 estimated in 2011. Redshanks wintering in Britain are a combination of three populations (Delany *et al.* 2009): nominate *totanus* (breeding in northern Europe); *T. t. robusta* (breeding in Iceland and the Faeroe Islands); and *T. t. britannica* (breeding in Britain & Ireland). There has been a northwesterly shift in core wintering range, suggestive of short-stopping towards Iceland (Maclean *et al.* 2008).

The WeBS 25-year trend (1991/92 to 2016/17) is -15%, with a 10-year trend of -10%. The UK index reached a low point in 1982/83, then increased to 1989/90, and remained stable until it declined again from 2001/02. Since 2011/12 there has been a shallow increase in the index. The trends for England and Scotland are similar, whereas in Northern Ireland the decline from the early 2000s has continued, with no sign of recovery, whilst in Wales, the index has increased since the mid-1990s.

Sites with the highest five year average are Dee Estuary (England and Wales), Morecambe Bay, Severn Estuary and The Wash; all hosting in excess of 5,000 birds. Ten sites surpass the associated thresholds for international importance, with the Dee Estuary qualifying for England and Wales separately, as well as combined. Nineteen sites exceed the British importance threshold, and Strangford Lough surpasses the All-Ireland national importance threshold. Typically, the monthly maxima is recorded in September and October; only in Wales is the monthly maxima in November.

As part of a recent study on the Severn Estuary on behalf of Tidal Lagoon Power, wintering Redshank were caught and fitted with remote-download GPS tags. Redshank feeding near Cardiff regularly flew 14-km to the Newport Wetlands Site of Special Scientific Interest (SSSI), usually at night. Redshank had larger home ranges than found by previous BTO research and they used larger areas at night than by day. Redshank spent most of their time in protected areas, notably the Severn Estuary SPA, and although they spent 75% of their time on mudflats, they used terrestrial areas more than expected (19%).



▲ **Protected area and habitat use by GPS-tagged Redshank on the Severn Estuary.**

FIND OUT MORE...

Delany, S., Scott, D., Dodman, T. & Stroud, D.A. 2009. *The Wader Atlas: an Atlas of Wader Populations in Africa and Western Eurasia*. Wetlands International, Wageningen

Maclean, I.M.D., Austin, G.E., Rehfisch, M.M., Blew, J., Crowe, O., Delany, S., Devos, K., Deceuninck, B., Gunther, K., Laursen, K., Van Roomen, M. & Wahl, J. 2008. Climate change causes rapid changes in the distribution and site abundance of birds in winter. *Global Change Biology* **14**: 2489–2500.

Focus on... Shelduck

MOSS TAYLOR

The Shelduck is one of the most estuarine of wildfowl, congregating in winter on mudflats where they typically feed on crustaceans and molluscs by scything in wet mud.

Most adult Shelduck from western Eurasia, including birds from the UK, undertake a moult migration to Helgoland Blight on the Wadden Sea. During the moulting period, 80% of the East Atlantic Flyway population can be found there. A proportion of British and Irish Shelduck moult locally at sites including Bridgwater Bay on the Severn, Forth and Humber Estuaries and The Wash.

According to the most recent five years of WeBS Counts, nine sites held internationally important numbers, with the largest aggregation a 5-year mean of 10,618 birds on the Mersey Estuary.

A further 21 sites held nationally important numbers based on their 5-year means.

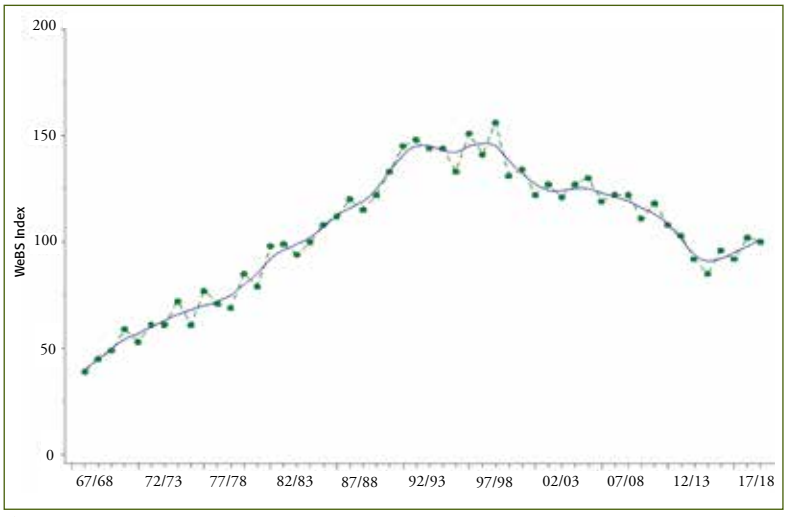
The latest estimate of British wintering numbers is 47,000 for both the overwinter maximum and January (see page 15). The majority are found on estuaries, with the non-estuarine estimate from NEWS III for Great Britain 1,995 (1,272–2,846) (see *Waterbirds in the UK* 2015/16).

The Breeding Bird Survey UK trend for 1995–2016 was -12%, but with wide confidence intervals. However, Shelduck are increasingly breeding inland in Great Britain, resulting in a range expansion of +42% British tetrads between the 1968–72 and 2007–11 atlases.

The WeBS Shelduck index indicates a decline, with a 10-year UK trend of -18% and a 25-year UK trend of -32%. However, there are signs of a more recent revival, with an upturn in the trend from the 2013/14 winter.

The UK WeBS index is largely driven by England (25-year trend -39%), which is where the largest populations are to be found. Wales (25-year trend -19%), Scotland (25-year trend +20%) and Northern Ireland (25-year trend +43%) have indices that exhibit more interannual fluctuations, without the consistent decline from the early 1990s that is a feature of the England, GB and UK indices.

Most Shelduck present over winter are thought to be resident, but some breed on the continent, with ringing recoveries indicating some breeders from the Baltic and France overwinter here.



▲ **WeBS trend for Shelduck in the UK.**
Green dots = annual index; blue line = smoothed trend.

▲ **Internationally Important Sites (large circles) and Nationally Important Sites (small squares) for Shelduck (based on WeBS five-year mean 2013/14–2017/18).**

Chichester Harbour at low tide

Low Tide Counts have been carried out in the UK since 1992/93, with repeat visits to sites enabling a comparison of data between years.

Chichester Harbour is a large and complex site situated between Chichester and Havant and is linked to Langstone Harbour to the west by a channel along the north side of Hayling Island. The Harbour is a land-locked area of deep salt-water channels; bounded by mud banks which are covered twice daily by tides flowing through the narrow entrance. There are sandbanks and shingle near the entrance and much of the shore at the high-tide mark is of shingle. The river channels are muddy whereas the intertidal areas south of Thorney Island are much sandier, and also support extensive areas of eelgrass and algae. Chichester Harbour is covered by international legislation, being designated as a Ramsar site and (combined with neighbouring Langstone Harbour) as an SPA. The estuary is extremely popular with watersports enthusiasts, so although the majority of the shoreline is undeveloped with restricted access, those areas with public access are heavily used.

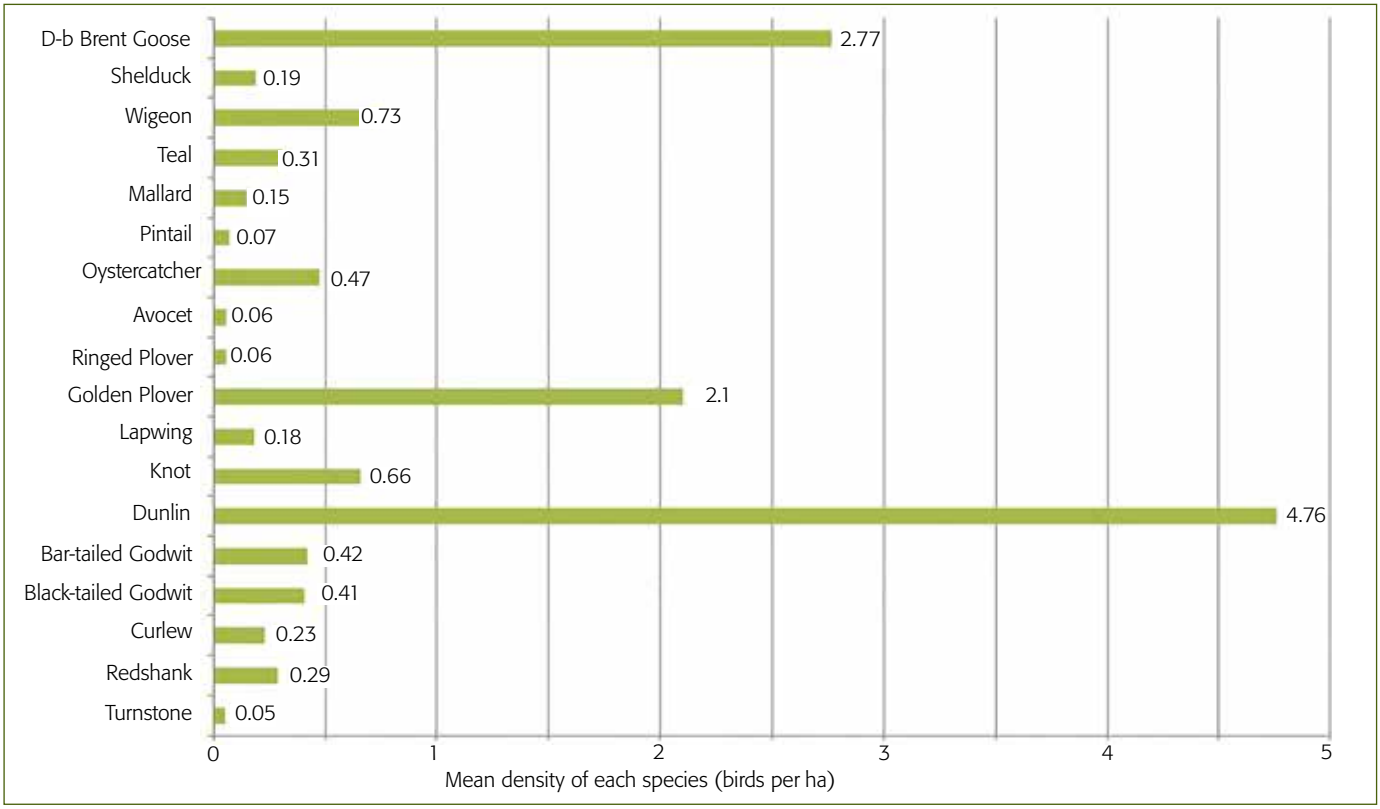
The distribution of two species are mapped on the opposite page: Teal and Bar-tailed Godwit distributions based on WeBS Low Tide Counts undertaken in 2017/18 are displayed for comparison with the respective distributions from 2010/11.

Teal are distributed widely around Chichester Harbour, though typically favouring the channels, particularly Chichester Channel and the Great Deeps, rather than the open harbour areas. Numbers of Teal decreased slightly between 2010/11 and 2017/18 on both Core and Low Tide Counts falling from 698 (0.40 birds per ha) in 2010/11 to 511 (0.31 birds per ha) in 2017/18.

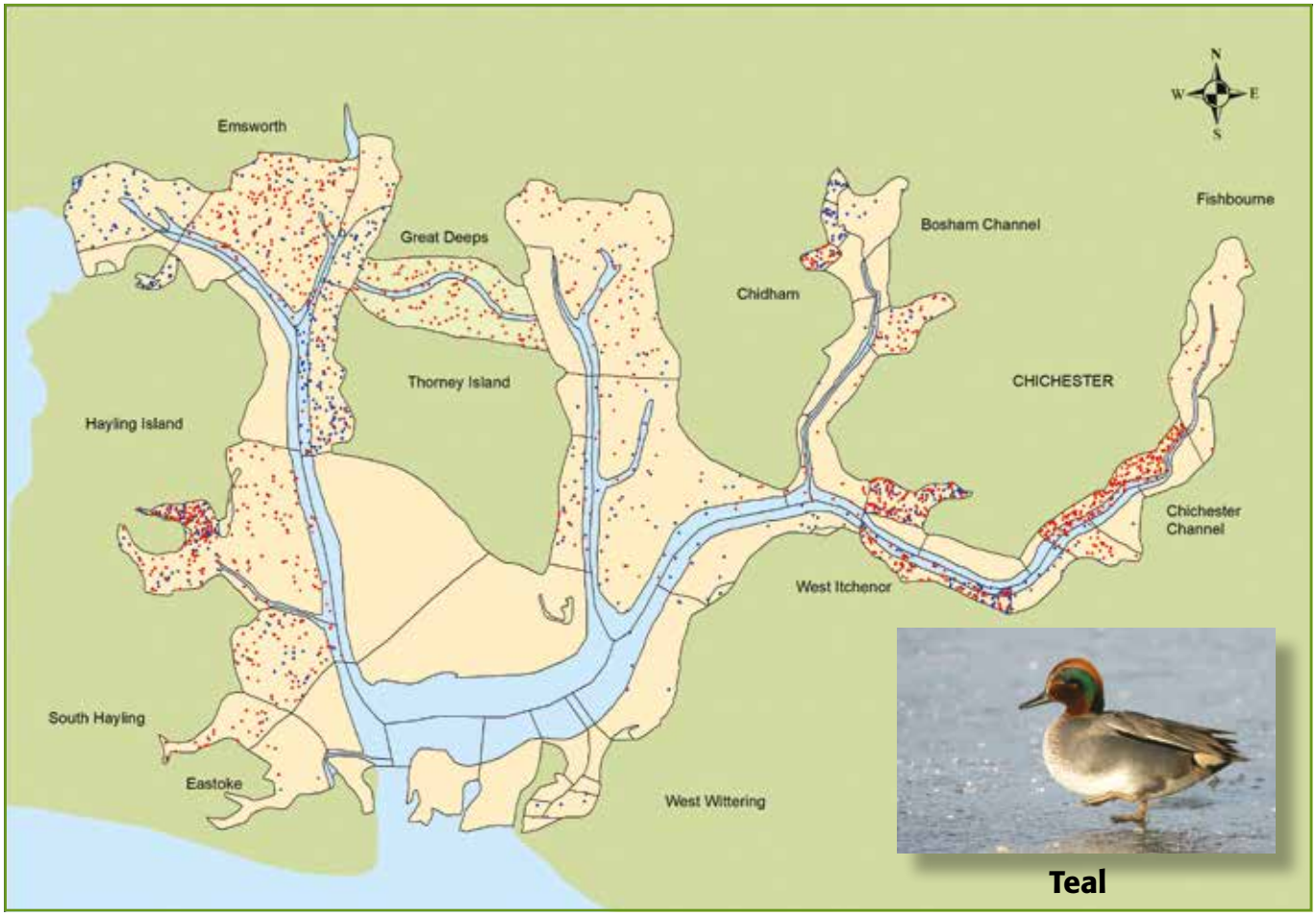
Bar-tailed Godwit are present in nationally important numbers, with a five-year average of 715 birds showing a decrease in recent years. The mean winter counts at low tide in Chichester Harbour have reflected this with 399 (0.42 birds per ha) in 2017/18, compared with 987 (0.78 birds per ha) in 2010/11. The largest concentrations of Bar-tailed Godwits in both 2017/18 and 2010/11 were on the south side of Thorney Island, though in 2017/18 birds also favoured the West Wittering and Chichester Channel areas.

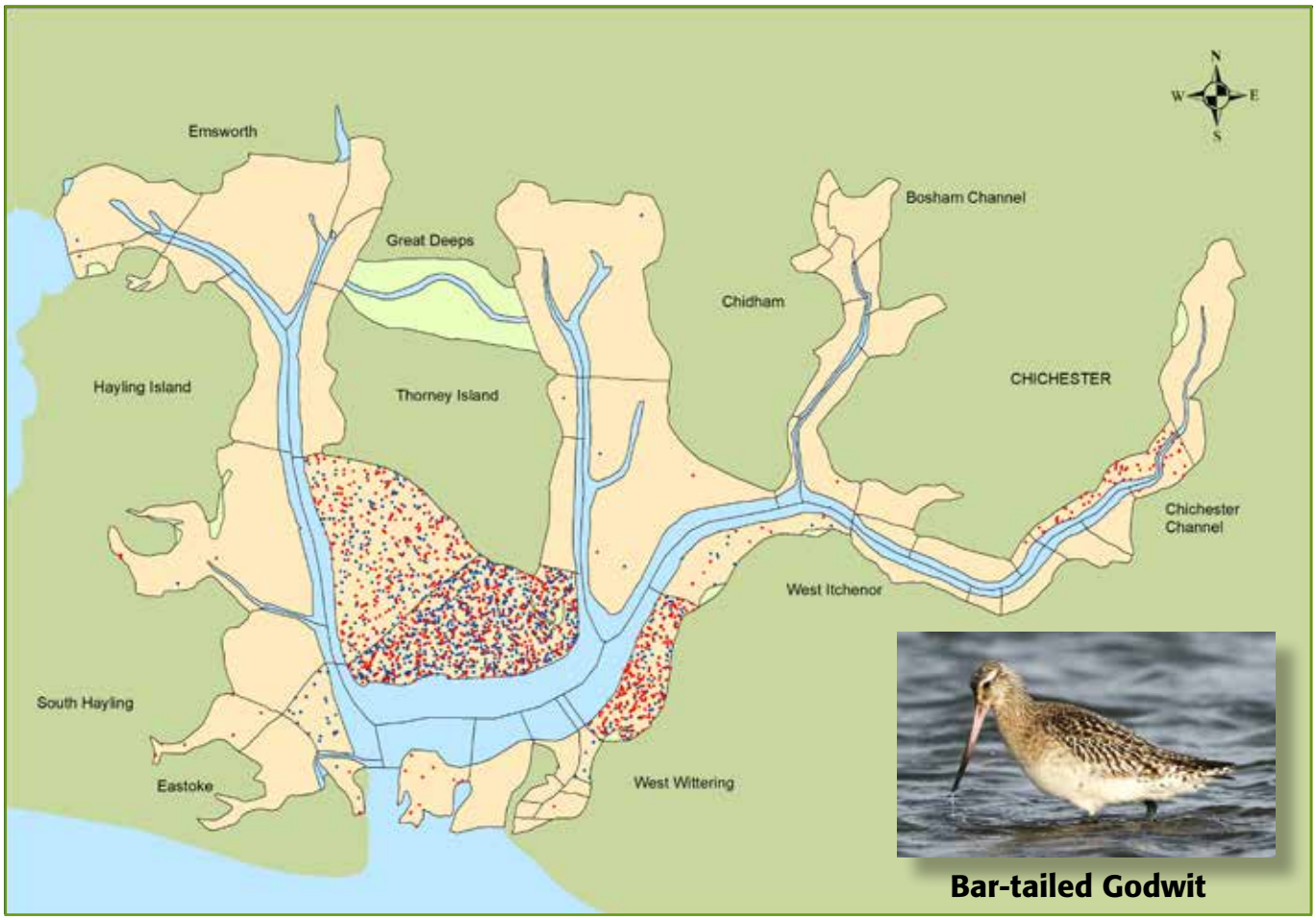
GENERAL STATISTICS FOR CHICHESTER HARBOUR 2017/18

Area covered: 3,161 ha
Mean total birds: 28,968
Mean bird density: 9.16 birds per ha



▲ **Mean densities of waterbirds at low tide in Chichester Harbour in 2017/18.**





TEAL BY EDMUND FELLOWES AND BAR-TAILED GODWIT BY JOHN DUNN

▲ **Low tide distribution of Teal (1 dot = 2 birds) and Bar-tailed Godwit (1 dot = 1 bird) in Chichester Harbour, for the winters of 2017/18 (red) and 2010/11 (blue).**

MARK WILSON

WeBS objectives, aims and methods

The Wetland Bird Survey (WeBS) monitors non-breeding waterbirds in the UK in order to provide the principal data on which the conservation of their populations is based. To this end, WeBS has three main objectives:

- to assess the size of non-breeding waterbird populations in the UK;
- to assess trends in their numbers and distribution; and
- to assess the importance of individual sites for waterbirds.

These results also form the basis for informed decision-making by conservation bodies, planners and developers, and contribute to the sustainable use and management of wetlands and their dependent waterbirds. The data and this annual WeBS report also fulfil some of the objectives of relevant international Conventions and Directives to which the UK is a signatory. WeBS also provides data to Wetlands International to assist their function of coordinating and reporting upon waterbird status at an international flyway scale. WeBS continues the traditions of two long-running count schemes which formed the mainstay of UK waterbird monitoring since 1947.

WeBS Core Counts are carried out at a wide variety of wetlands. Coordinated, synchronous counts are advocated to prevent double-counting or birds being missed. Priority dates are recommended nationally, but due to differences in tidal regimes around the UK, counts take place at some estuaries on other dates in order to match the most suitable local conditions. Weather and counter availability also sometimes result in counts being undertaken on alternative dates.

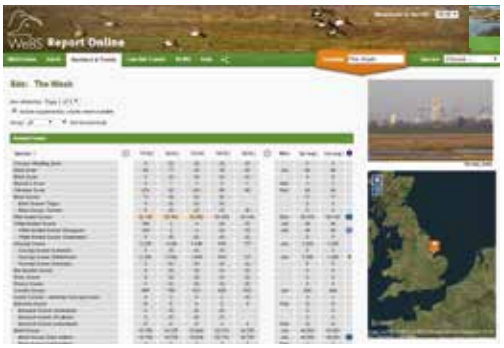
In addition, WeBS Low Tide Counts are undertaken on selected estuaries with the aim of identifying key areas used during the low tide period, principally by feeding birds. It also identifies areas not otherwise noted for their importance from data collected during Core Counts which are normally conducted at, or close to, high tide.

The success and growth of these count schemes reflects the enthusiasm and dedication of the several thousands of participating volunteer ornithologists. It is largely due to their efforts that waterbird monitoring in the UK is held in such high regard internationally.

Full details of WeBS field and analytical methodologies are available via the WeBS website: **www.bto.org/webs**.

Waterbirds in the UK 2017/18 (comprising this summary report together with numbers and trends available from WeBS Report Online at **www.bto.org/webs-reporting**) presents the results of WeBS in 2017/18. Data from other national and local waterbird monitoring schemes, notably the WWT/JNCC/SNH Goose & Swan Monitoring Programme, are included where WeBS data alone are insufficient to fulfil specified aims. The annual WeBS report therefore provides a single, comprehensive source of information on waterbird status and distribution in the UK.

WeBS Report Online



Explore species trends, peak counts and more at **www.bto.org/webs-reporting**

This annual report, *Waterbirds in the UK 2017/18*, combines an extensive online data resource, WeBS Report Online, with this summarised written report.

The WeBS Report Online interface provides access to the latest tables of WeBS Core Count data at site and species level via the 'Numbers and Trends' tab, together with low tide summaries and distribution density maps for estuaries via the 'Low Tide Counts' tab. Results from the Non-Estuarine Waterbird Survey (NEWS) are in the 'NEWS' tab.

Since *Waterbirds in the UK 2016/17,* a 'Site Totals' tab has been added, summarising waterbird aggregations at WeBS sites. The default view shows a table of sites with 1,000 or more birds and includes supplementary counts but excludes gulls and terns and non-native species, as is standard in the Principal Sites table (see page 12–13). Users can choose to view all sites, including those with fewer than 1,000 birds, for a county or country and optionally include gulls/terns, non-native species and supplementary counts. Selecting a site name brings up a list in the right-hand panel of species at the site where counts exceed national or international importance thresholds.

In the Low Tide section, maps have been upgraded so that up to four interactive distribution density maps can be viewed simultaneously (see page 7) and maps can be viewed for all waterbird species recorded during the survey. Estuaries can be chosen from the Location menu and the survey year from the Low Tide Count year menu. Selecting a species will display a map with count sectors separated into intertidal, subtidal and non-tidal habitats and random dots indicating the count of birds in the sector.

In the 'Numbers and Trends' section, searching for a site of interest from the menu allows users to explore which species have ever been recorded at the site. Users can see the peak numbers of each species recorded at the site throughout the year, the five-year mean peak count and the month in which the peak count was recorded. The table can be sorted alphabetically or taxonomically by species or by the peak counts. By scrolling back through the years, contemporary counts and associated 5-year averages can be compared with historical counts at the site.

For those looking for information on a particular species (or biogeographic population) of waterbird, every species ever recorded by WeBS features on its own page, with every site where the species has been recorded listed. As well as offering the functionality to sort sites in tables either alphabetically, by annual peak, or by five-year average, the interface also allows the user to filter sites by country, county and/or habitat. Annual and monthly trend plots for the UK and constituent countries are shown (where applicable) and there are also links to other sources of web-based information. Supplementary counts can be included or excluded in the tables. For reference purposes, data from reports for previous years can be accessed by choosing the appropriate WeBS year from the 'Waterbirds in the UK' drop-down menu.

In the NEWS section, users can view maps of counts and coverage for a selected species occurring in a selected region. Tables of regional counts from NEWS and estimates for non-estuarine coastal habitats within the region are given for each species. Results are available for the Winter Shorebird Count and all three NEWS surveys.

FIND OUT MUCH MORE...

Access WeBS Report Online at **www.bto.org/webs-reporting**

The Numbers & Trends section features species trends (for the UK and constituent countries) and site tables for all species (with facility to filter by country, county and habitat), alongside sections on NEWS, Low Tide Counts, Site Totals and WeBS Alerts. There is also a Help section containing tutorials, to help you make the most of the resource.

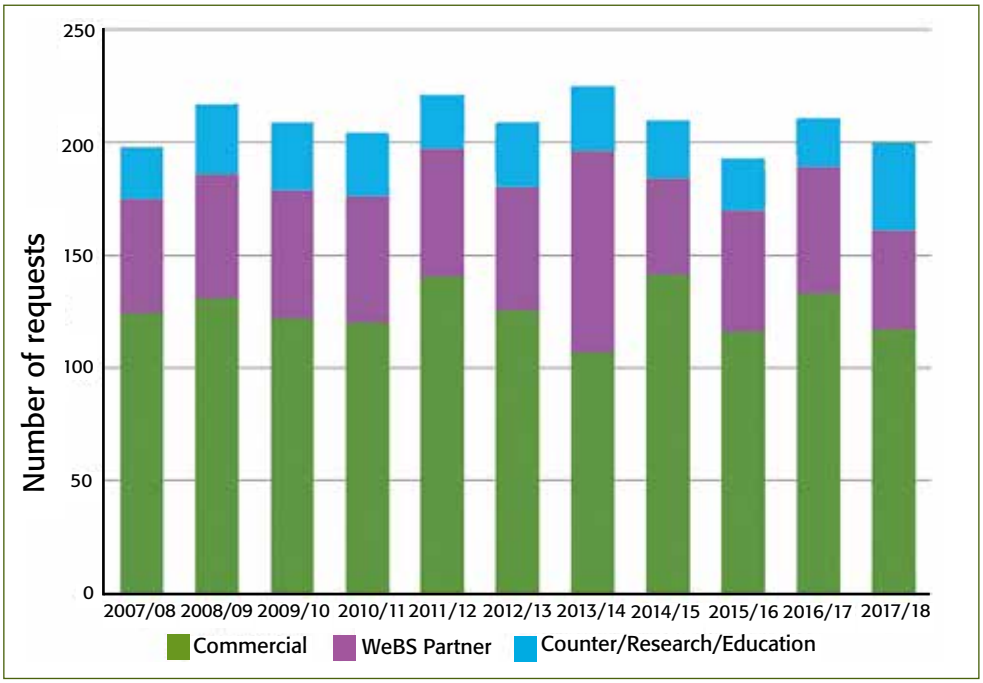
Uses of WeBS data 2017/18

200 WeBS Data Requests in 2017/18

With the UK host to internationally important numbers of over-wintering waterbirds, one of the principal aims of WeBS is to provide data to facilitate their conservation. Indeed, there have been many high-profile examples over the years in which WeBS data have proved to be fundamental in securing the protection of important wetland sites.

A summary of site-based WeBS information is presented on the WeBS Report Online and available for use with an Open Government Licence. Data at a finer level (both spatial and temporal) are available in a user-friendly format through a bespoke WeBS Data Request. We recommend that WeBS-based information that is to be incorporated into site evaluation work, such as Environmental Impact Assessments (EIAs), should be sourced through a WeBS Data Request.

The graph shows the number of Data Requests processed by the WeBS office each year since 2007/08. These are from a range of stakeholder groups, including country conservation agencies, environmental consultancies, academic researchers and bird clubs. Summarised WeBS data are also provided to several online environmental data portals.



▲ **WeBS Data Requests 2007/08 to 2017/18.**

January WeBS data are supplied to Wetlands International for inclusion in the International Waterbird Census, and summaries are used in outputs such as waterbird population estimates, and African-Eurasian Migratory Waterbird Agreement (AEWA) Conservation Status reports.

The WeBS Partnership is keen to encourage WeBS data use within environmental research. A number of scientific papers and reports that have used WeBS data in recent years are referenced within the pages of this annual report, and there is of course an extensive suite of other research questions relating to waterbird ecology and wider wetland management issues to which WeBS data would lend themselves, at both national and international scales.

Academic researchers, students and potential collaborators interested in using WeBS data can email the WeBS office at **websdata@bto.org** for more information.

WeBS DATA REQUESTS

More information about the WeBS Data Request Service is available from **www.bto.org/webs-data** where you can see coverage by WeBS of different sites, check data request charges, and view examples of the data that can be provided.

WeBS Local Organisers in 2017/18

Continued from back page

WALES

Anglesey	Ian Sims
Breconshire	Andrew King
Burry Inlet	Lyndon Jeffery
Caernarfonshire	Rhion Pritchard
Caernarfonshire (Foryd Bay)	Simon Hugheston-Roberts
Cardigan (incl Dyfi Estuary)	Russell Jones
Carmarthenshire	Terry Wells (now **VACANT**)
Clwyd (coastal)	Henry Cook
Clwyd (inland)	Duncan Halpin
East Glamorgan	Daniel Jenkins-Jones
Gwent (excl Severn Estuary)	Al Venables
Merioneth (estuaries)	Jim Dustow
Merioneth (other sites)	Jim Dustow
Montgomeryshire	Jane Kelsall
Pembrokeshire	Annie Haycock
Radnorshire	Peter Jennings
Severn Estuary (Wales)	Al Venables
West Glamorgan	Lyndon Jeffery

NORTHERN IRELAND

Antrim (Larne Lough)	Doreen Hilditch
Antrim (other sites)	Adam McClure
Armagh (excl Loughs Neagh and Beg)	Stephen Hewitt
Belfast Lough	Shane Wolsey
Down (Carlingford Lough)	Jenny Lynch
Down (Dundrum Bay)	Patrick Lynch
Down (other sites)	Shane Wolsey
Down (Outer Ards)	NIEA
Down (South Down Coast)	Shane Wolsey
Down (Strangford Lough)	Kerry Mackie
Fermanagh	Michael Stinson
Londonderry (Bann Estuary)	Hill Dick
Londonderry (Lough Foyle)	Matthew Tickner
Londonderry (other sites)	Shane Wolsey
Loughs Neagh and Beg	NIEA
Tyrone (excl Loughs Neagh and Beg)	Michael Stinson

CHANNEL ISLANDS

Alderney	Alderney Wildlife Trust Ecologist
Guernsey Coast	Mary Simmons
Jersey (inland)	**VACANT**
Jersey Coast	Roger Noel

ISLE OF MAN

Isle of Man	Pat Cullen

We would be grateful for help organising WeBS in areas currently without a Local Organiser (marked **VACANT**). If you live in one of these areas and would be interested in taking on the role, please let us know. Email: webs@bto.org

In 2017/18, the WeBS Local Organiser Advisory Committee (WeBS LOAC) comprised Allan Brown, Eve Tigwell, Andrew King, Chris Gunn, Brian Moore, Colin Wells, Bob Swann and Kerry Mackie. Many thanks to them for representing the wider LO network. Further information about the WeBS LOAC can be found at **www.bto.org/webs/loac**.

WeBS ONLINE REPORT

Further information, including site tables and trends for all the regular WeBS species, is available in the online report at **www.bto.org/webs-reporting**

Selected further reading

Recent studies that have used WeBS data

Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. & Balmer, D.E. 2018. *Waterbirds in the UK 2016/17: The Wetland Bird Survey*. BTO/RSPB/JNCC. BTO, Thetford.

Amano, T., Székely, T., Sandel, B., Nagy, S., Mundkur, T., Langendoen, T., Blanco, D., Soykan, C.U. & Sutherland, W. J. 2018. Successful conservation of global waterbird populations depends on effective governance. *Nature*. **553(7687)**: 199–202.

Austin, G.E., Frost, T.M., Mellan, H.J. & Balmer, D.E. 2017. *Results of the third Non-Estuarine Waterbird Survey, including population estimates for key waterbird species.* Research Report 697. BTO, Thetford.

Burke, B., Lewis, L.J., Fitzgerald, N., Frost, T., Austin, G. & Tierney, T.D. 2018. Estimates of waterbird numbers wintering in Ireland, 2011/12–2015/16. Irish Birds **41**: 1–12.

Cook, A.S.C.P., Barimore, C., Holt, C.A., Read, W.J. & Austin, G.E. 2013. *Wetland Bird Survey Alerts 2009/10: Changes in numbers of wintering waterbirds in the UK, SPAs and SSSIs*. BTO Research Report 641. **www.bto.org/webs-alerts**

Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. & Gregory, R.D. 2015. Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds* **108**: 708–746.

Frew, R.T., Brides, K., Clare, T., Maclean, L., Rigby, D., Tomlinson, C.G. & Wood, K.A. 2018. Temporal changes in the sex ratio of the Common Pochard *Aythya ferina* compared to four other duck species at Martin Mere, Lancashire, UK. *Wildfowl*. **68**: 140–154.

Frost, T.M., Austin,G.E., Hearn, R.D., McAvoy, S.G., Robinson, A.E., Stroud, D.A., Woodward, I.D. & Wotton, S.R. 2019. Population estimates of wintering waterbirds in Great Britain. *British Birds* **112(3)**: 130–145.

Méndez, V., Gill, J.A., Alves, J.A., Burton, N.H.K. & Davies, R.G. 2018. Consequences of population change for local abundance and site occupancy of wintering waterbirds. *Diversity and Distributions*. **24**: 24–35.

Pavón-Jordán, D. et al. (26 co-authors). 2019. Habitat- and species-mediated short- and long-term distributional changes in waterbird abundance linked to variation in European winter weather. *Diversity and Distributions*. **25(2)**: 225–239.

van Roomen, M., Nagy, S., Foppen, R., Dodman, T., Citegetse, G. & Ndiaye, A. 2015. *Status of coastal waterbird populations in the East Atlantic Flyway 2014. With special attention to flyway populations making use of the Wadden Sea*. Programme Rich Wadden Sea, Leeuwarden, The Netherlands.

Sanders, J.D. & Rees, E.C. 2018. Arrival and departure patterns of Eurasian Curlew *Numenius a.arquata* wintering on the River Severn estuary, Gloucestershire, southwest England. *Wildfowl*. **68**: 155–171.

Stroud, D.A., Bainbridge, I.P., Maddock, A., Anthony, S., Baker, H., Buxton, N., Chambers, D., Enlander, I., Hearn, R.D., Jennings, K.R, Mavor, R., Whitehead, S. & Wilson, J.D. (eds). 2016. *The status of UK SPAs in the 2000s: the third network review*. JNCC, Peterborough.

Woodward, I.D., Massimino, D., Hammond, M.J., Harris, S.J., Leech, D.I., Noble, D.G., Walker, R.H., Barimore, C., Dadam, D., Eglington, S.M., Marchant, J.H., Sullivan, M.J.P., Baillie, S.R. & Robinson, R.A. 2018. *BirdTrends 2018: trends in numbers, breeding success and survival for UK breeding birds*. Research Report 708. BTO, Thetford. **www.bto.org/birdtrends**

WeBS

BTO
Looking out for birds

rspb giving nature a home

JNCC

in association with WWT

British Trust for Ornithology
The Nunnery
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www.bto.org/webs

SPECIAL THANKS

We wish to thank all surveyors and Local Organisers for making WeBS the success it is today. Unfortunately space does not permit all observers to be acknowledged individually, but we would especially like to credit the Local Organisers for their efforts.

WeBS Local Organisers in 2017/18

ENGLAND

Avon (excl Severn Estuary)	Rupert Higgins
Bedfordshire	Richard Bashford
Berkshire	Ken White (now Sean Murphy)
Buckinghamshire (North)	Chris Coppock
Buckinghamshire (South)	**VACANT**
Cambridgeshire (incl Huntingdonshire)	Bruce Martin
Cambridgeshire (Nene Washes)	Charlie Kitchin
Cambridgeshire (Ouse Washes)	Paul Harrington
Cheshire (North)	Kane Brides (now **VACANT**)
Cheshire (South)	David Cookson (now Paul Miller)
Cleveland (excl Tees Estuary)	Chris Sharp
Cleveland (Tees Estuary)	Adam Jones
Cornwall (excl Tamar Complex)	Pete Roseveare
Cornwall (Tamar Complex)	Gladys Grant
Cotswold Water Park	Gareth Harris (now Ben Welbourn)
Cumbria (Duddon Estuary)	Colin Gay
Cumbria (excl estuaries)	Dave Shackleton
Cumbria (Irt/Mite/Esk Estuary)	Peter Jones
Dee Estuary	Colin Wells
Derbyshire	**VACANT**
Devon (other sites)	Pete Reay
Devon (Exe Estuary)	Penny Avant
Devon (Taw/Torridge Estuary)	Tim Davis
Dorset (excl estuaries)	Malcolm Balmer
Dorset (Poole Harbour)	Paul Morton
Dorset (Radipole and Lodmoor)	Stephen Hales
Dorset (The Fleet and Portland Harbour)	Steve Groves
Durham	**VACANT**
Essex (Crouch/Roach Estuaries and South Dengie)	Stephen Spicer
Essex (Hamford Water)	Julian Novorol (now Leon Woodrow)
Essex (North Blackwater)	John Thorogood
Essex (other sites)	Anthony Harbott
Essex (South Blackwater and North Dengie)	Anthony Harbott
Gloucestershire	Michael Smart
Greater London (excl Thames Estuary)	Andrew Moon
Greater Manchester	Tim Wilcox
Hampshire (Avon Valley)	John Clark
Hampshire (estuaries/coastal)	John Shillitoe
Hampshire (excl Avon Valley)	Keith Wills
Herefordshire	Chris Robinson
Hertfordshire	Jim Terry
Humber Estuary (inner South)	Keith Parker
Humber Estuary (mid South)	Richard Barnard
Humber Estuary (North)	Nick Cutts
Humber Estuary (outer South)	John Walker
Isle of Wight	Jim Baldwin
Kent (Dungeness area)	David Walker
Kent (East)	**VACANT**
Kent (Medway Estuary))	Geoff Orton (now Bob Knight)
Kent (Pegwell Bay)	Ian Hodgson (now Steffan Walton)
Kent (Swale Estuary)	Geoff Orton (now Brian Watmough)
Kent (Thames Estuary - Hoo)	Geoff Orton (now Murray Orchard)
Kent (West)	**VACANT**
Lancashire (East Lancs and Fylde)	Stephen Dunstan
Lancashire (North inland)	Peter Marsh
Lancashire (Ribble Estuary)	Ken Abram
Lancashire (River Lune)	Jean Roberts
Lancashire (West inland)	Tom Clare (now **VACANT**)
Lee Valley	Cath Patrick
Leicestershire and Rutland (excl Rutland Water)	Brian Moore
Leicestershire and Rutland (Rutland Water)	Tim Appleton
Lincolnshire (North inland)	Chris Gunn
Lincolnshire (South inland)	Bob Titman
Merseyside (Alt Estuary)	Steve White
Merseyside (inland)	Kevin Feeney
Merseyside (Mersey Estuary)	Dermot Smith
Morecambe Bay (North)	Peter Hearn
Morecambe Bay (South)	Jean Roberts
Norfolk (Breydon Water)	Jim Rowe
Norfolk (excl estuaries)	Tim Strudwick
Norfolk (North Nofolk Coast)	Neil Lawton
Northamptonshire (excl Nene Valley)	Barrie Galpin
Northamptonshire (Nene Valley)	Steve Brayshaw
Northumberland (coastal)	Kathy Evans
Northumberland (inland)	Steve Holliday
Northumberland (Lindisfarne)	Andrew Craggs
Nottinghamshire	David Parkin
Oxfordshire (North)	Sandra Bletchly
Oxfordshire (South)	Ben Carpenter
Severn Estuary (England)	Harvey Rose
Shropshire	Michael Wallace
Solway Estuary (inner South)	David Blackledge
Solway Estuary (outer South)	Dave Shackleton
Somerset (other sites)	Eve Tigwell
Somerset (Somerset Levels)	Trish Harper
Staffordshire	Scott Petrek
Suffolk (Alde Complex)	Ian Castle
Suffolk (Alton Water)	John Glazebrook
Suffolk (Blyth Estuary)	Will Russell
Suffolk (Deben Estuary)	Nick Mason
Suffolk (Orwell Estuary)	Mick Wright
Suffolk (other sites)	Alan Miller
Suffolk (Stour Estuary)	Rick Vonk
Surrey	Penny Williams
Sussex (Chichester Harbour)	Peter Hughes
Sussex (other sites)	Helen Crabtree and Dave Boddington
Thames Estuary (Foulness)	Chris Lewis
The Wash	Jim Scott
Warwickshire	Matthew Griffiths
West Midlands	Nick Lewis
Wiltshire	Claire Young
Worcestershire	Andrew Warr
Yorkshire (East and Scarborough)	Jim Morgan
Yorkshire (Harrogate and Yorkshire Dales)	Bill Haines
Yorkshire (Huddersfield/Halifax area)	**VACANT**
Yorkshire (Leeds area)	Paul Morris
Yorkshire (South)	Grant Bigg
Yorkshire (Wakefield area)	Peter Smith

SCOTLAND

Aberdeenshire	Moray Souter
Angus (excl Montrose Basin)	**VACANT**
Angus (Montrose Basin)	Anna Cheshier
Argyll Mainland	Nigel Scriven
Arran	Jim Cassels
Ayrshire	Dave Grant
Badenoch and Strathspey	Keith Duncan
Borders	Andrew Bramhall
Bute	Ian Hopkins
Caithness	Sinclair Manson
Central (excl Forth Estuary)	Neil Bielby
Clyde Estuary	John Clark
Dumfries and Galloway (Auchencairn and Orchardtown Bays)	Euan MacAlpine
Dumfries and Galloway (Fleet Bay)	David Hawker
Dumfries and Galloway (Loch Ryan)	Paul Collin
Dumfries and Galloway (other sites)	Andy Riches
Dumfries and Galloway (Rough Firth)	Judy Baxter (now Andy Riches)
Dumfries and Galloway (Wigtown Bay)	Paul Collin
Fife (excl estuaries)	Allan Brown
Fife (Tay and Eden Estuaries)	Norman Elkins
Forth Estuary (inner)	Michael Bell
Forth Estuary (outer North)	Alastair Inglis
Forth (outer South)	Duncan Priddle
Glasgow/Renfrewshire/Lanarkshire	John Clark
Harris and Lewis	Yvonne Benting
Islay, Jura and Colonsay	David Wood
Isle of Cumbrae	**VACANT**
Lochaber	John Dye (now Kirstie & Callum Ross)
Lothian (excl estuaries)	Allan Brown
Lothian (Tyninghame Estuary)	Tara Sykes
Moray and Nairn (inland)	David Law
Moray and Nairn (Lossie Estuary)	Bob Proctor
Moray Basin Coast	Bob Swann
Mull	Nigel Scriven
Orkney	Morag Wilson (now Sarah Money)
Perth and Kinross (excl Loch Leven)	Michael Bell
Perth and Kinross (Loch Leven)	Jeremy Squire
Shetland	Paul Harvey
Skye and Lochalsh	Jonathan Jones
Solway Estuary (North)	Andy Riches
Sutherland (excl Moray Basin)	**VACANT**
Tiree and Coll	John Bowler
Uists and Benbecula	Yvonne Benting
West Inverness/Wester Ross	Andy Douse

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