WeBS

Waterbirds in the UK 2014/15

The annual report of the Wetland Bird Survey

BTO Looking out for birds
rspb giving nature a home
JNCC Joint Nature Conservation Committee
in association with WWT

WATERBIRDS IN THE UK 2014/15

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 2014/15* is the 34th WeBS annual report and comprises this summary report and data at **www.bto.org/webs-reporting**.

British Trust for Ornithology

The Nunnery
Thetford
Norfolk
IP24 2PU
www.bto.org

Joint Nature Conservation Committee

Monkstone House
City Road
Peterborough
PE1 1JY
www.jncc.defra.gov.uk

Royal Society for the Protection of Birds

The Lodge
Sandy
Bedfordshire
SG19 2DL
www.rspb.org.uk

Wildfowl & Wetlands Trust

Slimbridge
Gloucestershire
GL2 7BT
www.wwt.org.uk

THE WeBS PARTNERSHIP

The Wetland Bird Survey (WeBS) is run by the British Trust for Ornithology (BTO). It is a partnership funded by the BTO, the Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservation Committee (JNCC) (the last on behalf of the statutory nature conservation agencies: Natural England, Natural Resources Wales and Scottish Natural Heritage and the Department of the Environment Northern Ireland), in association with the Wildfowl & Wetlands Trust (WWT).

The permanent members of the WeBS Steering Committee in 2014/15 were Chas Holt (BTO), Andy Musgrove (BTO), David Stroud (JNCC), Simon Wotton (RSPB) and Richard Hearn (WWT).

THE WeBS TEAM AT BTO

Teresa Frost - WeBS National Coordinator
Heidi Mellan - Counter Network Organiser
Neil Calbrade - Low Tide Count Organiser
Graham Austin - Database Manager
Dave Turvey - Web Software Developer
Dawn Balmer - Head of Surveys
Email: firstname.surname@bto.org

General enquiries to WeBS:
WeBS, BTO, The Nunnery, Thetford, Norfolk IP24 2PU
Email: webs@bto.org Tel: 01842 750050

WeBS website: www.bto.org/webs

Other contacts:

Goose & Swan Monitoring Programme - 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. Chas Holt left the WeBS team in spring 2015 and we thank him for all his work developing and managing WeBS over the past seven years.

We are also grateful to the following for providing supplementary information, data inputting, proof-reading and particularly invaluable help in 2014/15: Niall Burton, Mark Eaton, GSMP, Colette Hall, Jane Herridge, Maria Knight, Tom Langendoen, Nick Lewis, John Marchant, Veronica Mendez, Richard Minter, Andy Musgrove, Deborah Proctor, RAFOS, Marc van Roomen, Kathryn Ross and SOTEAG. Grateful thanks to all and apologies to anyone who has been inadvertently missed.

Report content and production was by Teresa Frost, Dawn Balmer and Neil Calbrade, with assistance on layout from Sarah Harris. The article on waterbird monitoring in Finland was contributed by Aleksi Lehikoinen.

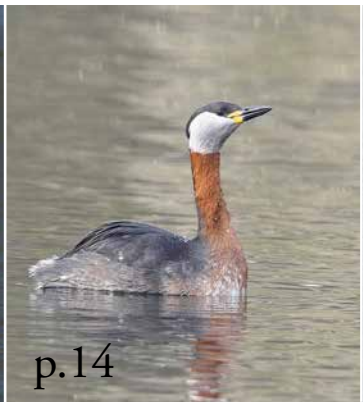
The painting of Mallards, used on the cover of this report, is by Colin Blanchard. For more of Colin's work, see **www.colinblanchard.com**. All other artists and photographers are acknowledged on the pages of this report.

FSC
www.fsc.org
MIX
Paper from responsible sources
FSC® C113523

Maps in this report contain Ordnance Survey data © Crown Copyright and database right 2016.

This report was printed by Swallowtail Print.

CONTENTS...



SHELDUCK BY JILL PAKENHAM, RED-NECKED GREBE BY DAVE KING, SPOTTED REDSHANK BY TOM BICKERTON, HAYLE ESTUARY BY DAWN BALMER

CITATION

Frost, T.M., Austin, G.E., Calbrade, N.A., Holt, C.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. & Balmer, D.E. 2016. *Waterbirds in the UK 2014/15: 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 2016. Principal Sites Table (page 13) revised June 2016.

© British Trust for Ornithology, Royal Society for the Protection of Birds and Joint Nature Conservation Committee, in association with Wildfowl & Wetlands Trust, 2016.

ISBN 978-1-908581-66-2

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 2014/15.*

Waterbird headlines from the WeBS-year

Just a small selection of notable stories from 2014/15

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

The birds most frequently recorded on a WeBS count tend to be widespread species that are recorded all year round. The top 10 most recorded species were Mallard (present on 27,637 WeBS sector core count visits between July 2014 and June 2015), Mute Swan (17,940), Black-headed Gull (17,624), Moorhen (16,601), Coot (16,346), Cormorant (14,786), Tufted Duck (14,561), Grey Heron (14,548), Teal (11,847) and Canada Goose (11,218). Some of the most ubiquitous waterbirds are the most challenging when it comes to estimating non-breeding populations. New research into using habitat classes to produce estimates for such species is reported on pages 26–27 and emphasises the value of counts from small waterbodies as well as large ones. Pages 16–21 focus on some ubiquitous birds of inland still freshwaters – Mute Swan, Moorhen and Tufted Duck.

COOT: RIC JACKSON

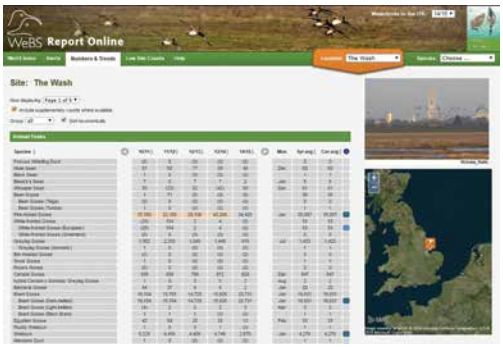
OYSTERCATCHER: JILL PAKENHAM

Data on non-breeding waterbirds from the Wetland Bird Survey is essential for assessing species status. UK WeBS trends for many estuarine species such as Shelduck, Curlew, Redshank, Dunlin and Oystercatcher have shown steady declines, whereas the UK indices for some fish-eating species such as Little Egret have increased rapidly in the past 25 years. An East Atlantic Flyway-wide assessment finds a similar pattern (pages 22–23). Bar-tailed Godwit is a coastal species with a more stable long-term trend (pages 30–31). Many coastal species are red-listed in the latest UK's Birds of Conservation Concern (pages 14–15). Pochard has also joined the red-list due to its ongoing decline, with the overwinter trend in the UK decreasing by two thirds between 1987/88 and 2013/14.

The winter weather of 2014/15 was fairly typical for the UK and the recent series of typical maritime mild winters appears to have allowed recovery in species such as Little Grebe. News from waterbird monitoring in Finland shows a general trend for waterbirds making use of Finnish wetlands in winter as milder winters become more frequent (pages 24–25). Some of the scarcer waders in winter have seen UK mid-winter numbers increase (pages 28–29) – could this be climate related? Shoveler responds rapidly to weather drivers and is another species that is increasing (page 33) as is Crane, which is being given a helping hand through a reintroduction project (page 32).

LITTLE GREBE: LIZ CUTTING

WeBS Report Online



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

This annual report, Waterbirds in the UK 2014/15, is the fourth in the revised format that 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 certain sites via the 'Low Tide Counts' tab.

In the 'Numbers and Trends' section, selecting their 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 five-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. This useful feature is appreciated by scientists, conservationists, county bird recorders and amateur enthusiasts alike.

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 - helping to make WeBS Report Online a comprehensive data portal for anyone with an interest in the UK's waterbirds.

Supplementary counts can be included or excluded in the tables. For reference purposes, data from annual reports for previous years can be accessed by choosing the appropriate WeBS year from the 'Waterbirds in the UK' drop-down menu.

Whilst not part of the WeBS annual report, WeBS Report Online also includes the latest available information on the status of waterbirds at Special Protection Areas and Sites of Special Scientific Interest that are designated for their waterbird features via the 'WeBS Alerts' tab. Future additions may include sections to report results from periodic surveys such as NEWS (Non-Estuarine Waterbird Survey). WeBS Report Online, launched in 2014, continues to be a significant success and is recognised as one of the major achievements of the JNCC/BTO 2010 – 2016 Partnership.

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 **Low Tide Counts** and **WeBS Alerts**. There is also a **Help** section containing tutorials, to help you make the most of the resource.

2014/15: WeBS Core Count coverage continues to grow

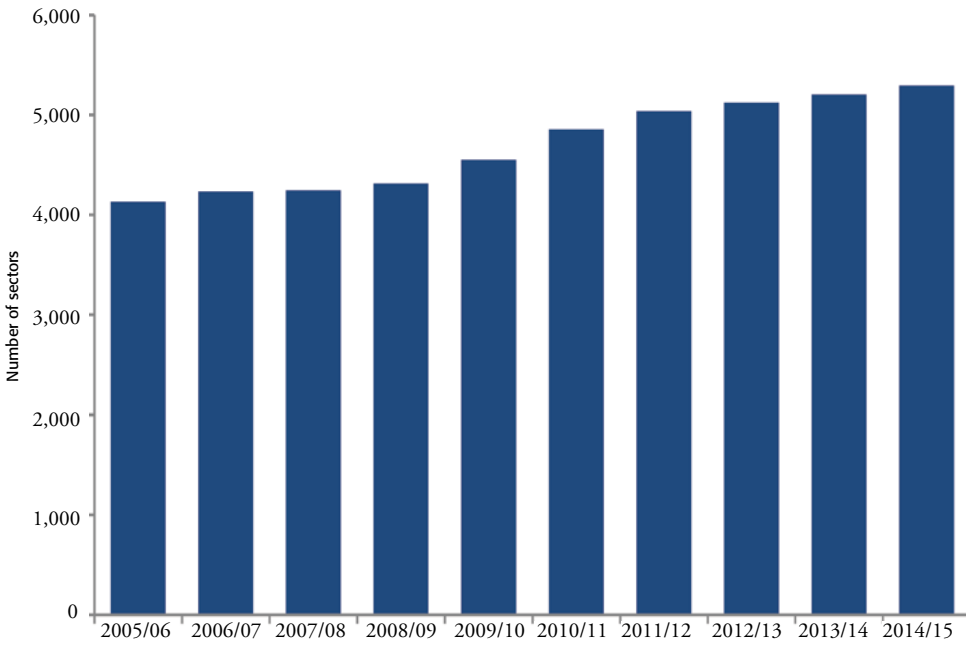
3,130 registered WeBS volunteers

WeBS CORE COUNTS

Core Counts were carried out at a record 5,292 WeBS sectors (count units) at 2,799 sites from July 2014 to June 2015. Not all Core Counts are linked to individual counters in the WeBS Online database, but an increasing number are; 2,031 counters were associated with WeBS Core Count visits made in 2014/15, an increase of 5% on the previous year.

Core Count dates in 2014/15

2014	2015
13 July	18 January
10 August	8 February
7 September	8 March
12 October	19 April
9 November	17 May
7 December	14 June



▲ **Numbers of WeBS Count sectors covered 2005/06 to 2014/15.**

WeBS LOW TIDE COUNTS

WeBS Low Tide Counts were carried out on 16 estuaries in 2014/15. This included coverage of some irregularly covered sites such as the Dee Estuary (Cheshire/Clwyd), Hamford Water (Essex), Alt Estuary (Merseyside), Kent and Wyre Estuaries (Lancashire) and Portsmouth Harbour (Hampshire).

A review of the WeBS Low Tide Counts scheme in 2014/15 can be found on pages 34–36.

GOOSE CENSUSES

Many populations of wintering geese were censused using other surveys. 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 were undertaken at, primarily, roost sites in October to December 2014 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, including the Uist Greylag Goose Management Committee.

Greenland White-fronted Geese were monitored by the Greenland White-fronted Goose Study. Greenland Barnacle Geese were counted by SNH on Islay and other key locations, while WWT counted Svalbard Barnacle Geese on the Solway. Data were also provided by the International Canadian Light-bellied Brent Goose census.

For progress reports on goose censuses in the UK, see *GooseNews*, WWT's annual newsletter of the Goose & Swan Monitoring Programme. Further goose and swan information is available via **http://monitoring.wwt.org.uk**.

JOHN DUNN

▲ **Light-bellied Brent Goose numbers have shown a long-term increase in the UK.**

WeBS coverage in 2014/15

Counts were carried out at **2,799 wetlands across the UK in 2014/15**. Areas shown in black were counted at least once - 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** Also check p.27 of *Waterbirds in the UK 2011/12* for a detailed review of I-WeBS.

2014/15: a warm autumn and typical winter

The 2014/15 UK winter saw a typical number of days with air frost and temperatures near average. Higher than usual rainfall in northwest Scotland and Northern Ireland contrasted with drier than usual conditions in the east, a pattern that continued in spring. The following 2014/15 weather summary is collated from the Meteorological Office website at **www.metoffice.gov.uk**.

July 2014 saw widespread warmer than average temperatures. South-west Britain received below average rainfall, but localised downpours gave above average rainfall in East Anglia.

In contrast to the preceding eight months, which had all been warmer than average, August was the coolest since 1993, with early ground frosts in the second half of the month. The remnant of Hurricane Bertha brought high winds and heavy rain to many areas. The unsettled weather resulted in 155% of typical August rainfall.

A return to fine and settled conditions throughout September gave rainfall of only 24% of the 1981–2010 average for the month, but with temperatures returning to above normal.

Unsettled conditions returned in October with southerly winds bringing wet weather with few dry periods, although it was also warmer than average.

The pattern of wet, windy, warm weather continued into November. The UK rainfall was 102% of average but this disguised double the average rainfall in parts of Northern Ireland, eastern Scotland and southern England whereas western and central Scotland, north-west England and north Wales were drier than usual.

December saw unsettled weather from moist, warm Atlantic air flows alternating spells of cool and mild temperatures, dry and wet or snowy days. It was the second sunniest December since 1929.

The first half of January 2015 was stormy, particularly in the north, and mild; whereas the second half was colder with frosts and some snow. Rainfall was above average. Temperatures in England and Wales were above average but were below average in Scotland and Northern Ireland.

Rainfall was slightly below average for many areas in February. The month began with a cold northerly airflow, followed by dry and quiet weather from 5th to 12th and then milder unsettled weather from the west.

In March, south-eastern Britain and north-eastern Scotland had low rainfall but above average in northwest Scotland and average precipitation in-between meant the UK rainfall total was exactly equal to the 30-year mean. The weather was generally unsettled apart from a quieter spell mid-month.

As April progressed the weather became more settled with some very warm weather mid-month; however the weather turned cold for the last week of April with some overnight frosts. Rainfall was 64% of average.

The airflow was predominately north-westerly in May bringing wetter and cooler conditions than is typical. It was the fourth May out of the last five to be substantially wetter than average and the coldest since 1996.

June was mostly rather cool, with unsettled conditions over Scotland but drier further south.

THE ARCTIC BREEDING SEASON

Arctic breeding conditions for birds that winter in the UK are summarised from the International Breeding Conditions Survey on Arctic Birds, available from **www.arcticbirds.net**.

Arctic spring in 2014 was generally late with cold, rainy and windy conditions reported from many stations. Overall bird breeding success was mostly reported to be average or unclear, with some stations mentioning reduced breeding success for insect-eating birds as a result of the poor weather.

Rodent abundance was considered to be low or average across the majority of arctic regions where monitoring was undertaken. However, rodent numbers were high in Taimyr in northern Siberia, where it was noted that although usually this results in high wader breeding success due to reduced predation from Arctic Fox, in summer 2014 this effect was not seen and wader breeding success was believed to be low.

BEN GREEN

▲ **The peak count of Wood Sandpipers in 2014/15 was six on the North Norfolk Coast in July.**

LES FOSTER

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 2014/15 (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 2014/15. 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.

National trends

A concise summary of how the UK's most familiar waterbirds fared in 2014/15

GEESE & SWANS

The Mute Swan WeBS index has dropped slightly in the past few years but remains stable in the medium term (see pages 20–21). Whooper Swan numbers remain high and Bewick's Swan low.

Naturalised goose populations continued to increase with record or near record numbers of Barnacle, Egyptian, Canada and Greylag Geese. The picture for visiting wintering geese was more mixed. Another record high was set for Pink-footed Geese and another record low for European White-fronted Geese. Numbers remained high for Svalbard and Greenland Barnacle Geese but Greenland White-fronted Geese continued their decline. Dark-bellied Brent Geese numbers increased by 25% compared with 2013/14 whereas both Nearctic and Svalbard Light-bellied Brent Geese continued a short-term decline.

DUCKS

There was a halt in the year-on-year decreases in the Shelduck index. Pintail numbers increased very slightly after declines were recorded in six of the past eight years, with a total now half that counted in 2005/06. Mallard numbers are now 7% higher than the all-time low recorded in 2012/13. Shoveler (see page 33) and Teal numbers remained around historic highs as did Gadwall, despite being 15% lower than the 2011/12 peak.

Red-breasted Merganser and Pochard numbers fell again slightly, continuing a pattern seen in 12 of the past 15 years for both species. Goosander and Tufted Duck (see pages 18–19) numbers remain stable and Goldeneye numbers were up slightly, but in the context of a 50% long-term decline.

WADERS

Long-term declining species Ringed Plover, Oystercatcher and Dunlin showed small year-on-year increases. Numbers of Lapwing returned to similar numbers to the past six years after the increase recorded in 2013/14, and Golden Plover was also down. Sanderling numbers were unchanged compared to the previous year.

There are tentative signs that Redshank numbers are stabilising after a period of decline. However declines continued in Turnstone, Purple Sandpiper and Curlew, and Grey Plover numbers dropped again after a brief upturn.

Ruff numbers were up, with the highest index for ten years (see pages 28–29).

Counts of Black-tailed Godwit and Avocet remain high and although Bar-tailed Godwit numbers dropped they were within the normal range for this species (see pages 30–31).

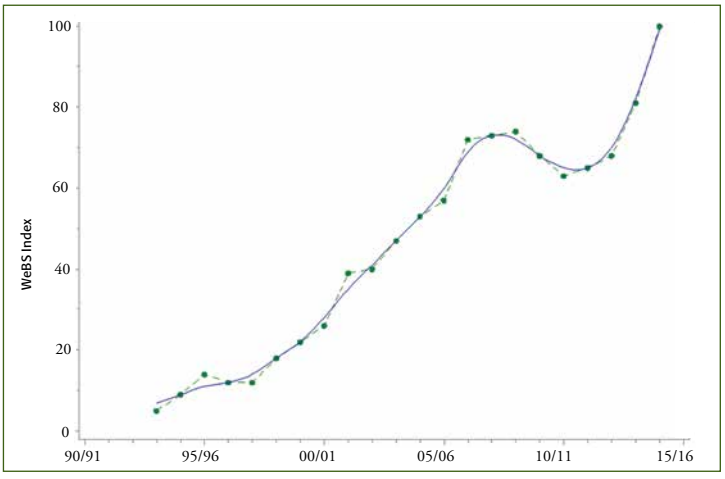
RAILS, GREBES & HERONS

The WeBS indices for Water Rail, Coot and Moorhen (see page 20) all increased in 2014/15 compared with 2013/14. Little Grebe numbers increased by 20% and are back to 2005/06 – 2009/10 levels, perhaps indicating recovery after the cold 2009/10 and 2010/11 winters.

The Little Egret index continues to increase rapidly as the population range expands, with the number of birds reported from Scotland WeBS counts doubling compared with 2013/14. Wintering Grey Heron numbers appear to have increased for the second year after a period of decline.

GULLS

There is a sustained decline in the WeBS trends for Common, Black-headed and Lesser Black-backed Gulls where the indices are a third to a half of those in the late 1990s. Shallower declines in Great Black-backed and Herring Gulls also continued in 2014/15.



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

ANDY MUSGROVE

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

Species/population	25-year trend (1988/89–2013/14)	10-year trend (2003/04–2013/14)	Species/population	25-year trend (1988/89–2013/14)	10-year trend (2003/04–2013/14)
▲ Mute Swan	49	-8	▼ Eider *	1	-9
▼ Bewick's Swan	-77	-60	▼ Goldeneye	-50	-32
▲ Whooper Swan	98	-51	▼ Red-breasted Merganser	-15	-20
▲ Pink-footed Goose	102	33	▼ Goosander	20	12
▲ European White-fronted Goose	-79	-47	n/a Ruddy Duck	-99	-100
▼ Greenland White-fronted Goose	-24	-41	▼ Little Grebe	n/a	-9
▲ Icelandic Greylag Goose	-15	8	▼ Great Crested Grebe	15	-22
n/a British Greylag Goose	149	31	▼ Cormorant	60	0
n/a Canada Goose	49	8	▼ Coot	1	-18
▲ Greenland Barnacle Goose	188	59	▼ Oystercatcher	-26	-19
▲ Svalbard Barnacle Goose	210	35	▲ Avocet	910	46
▼ Dark-bellied Brent Goose	15	46	▬ Ringed Plover	-60	-39
▲ Canadian Light-b. Brent Goose	60	37	▼ Golden Plover	96	-25
▲ Svalbard Light-b. Brent Goose	77	-13	▬ Grey Plover	-17	-11
▼ Shelduck	-28	-28	▼ Lapwing	14	-27
▼ Wigeon	33	-16	▬ Knot	-12	-13
▲ Gadwall	170	15	▲ Sanderling	30	10
▬ Teal	52	1	▬ Purple Sandpiper	-59	-11
▬ Mallard	-40	-17	▼ Dunlin	-34	-23
▼ Pintail	-41	-46	▲ Black-tailed Godwit	335	45
▼ Shoveler	68	5	▲ Bar-tailed Godwit	-3	-6
▼ Pochard	-65	-41	▼ Curlew	-9	-12
▼ Tufted Duck	10	9	▬ Redshank	-23	-22
▬ Scaup	-34	-46	▲ Turnstone	-46	-18

Trends are % changes, for the most abundant wildfowl and waders.

The longer term smoothed trend refers to the 25 year period 1988/89 to 2013/14. The shorter term smoothed trend refers to the 10 year period 2003/04 to 2013/14. It is customary to calculate trends to an end-point of year (n-1) (where n = 2014/15).

Preceding each species is an indication of international trend, based on: Nagy, S., Flink, S. & Langendoen, T. (2015) *Sixth AEWA Report on the Conservation Status of Migratory Waterbirds in the Agreement Area*. Wetlands Int., NL. ▲ increasing, ▼ decreasing, ▬ stable.

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

Insufficient data series to calculate 25-year trend for Little Grebe.

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 6).

For all trend graphs see the online report ...

www.bto.org/webs-reporting

Purple Sandpiper: down 59% since 1988/89.

DAVE WRAGG

Largest waterbird aggregations

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

This section of *Waterbirds in the UK* summarises the sites that 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. Current research uses colour-ringing and remote tracking technologies in order to improve knowledge of turnover rates.

Table 2 lists the Principal Sites for non-breeding waterbirds in the UK as monitored by WeBS. The totals are the summed maxima for each species during the course of the WeBS year. Sites with a five-year average of 20,000+ waterbirds are listed. Non-native species (e.g. Canada Goose and Ruddy Duck) have been excluded from the totals. Gulls and terns are also excluded since the recording of them during WeBS Counts is optional and thus they are inconsistently included in totals.

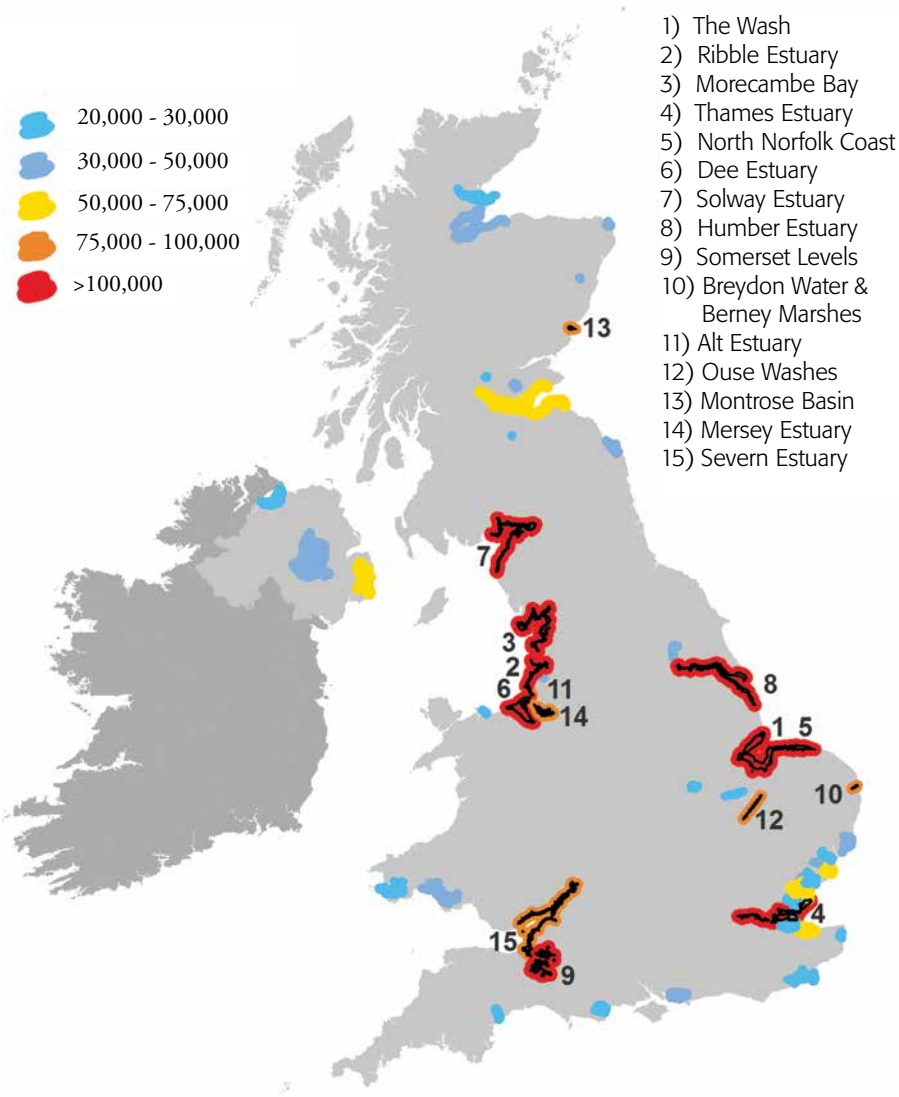
A total of 53 WeBS sites in 2014/15, one more than in 2013/14, had a five-year average of over 20,000 waterbirds. Typically, there are few changes between years to the top sites listed in the Principal Sites table, and the order of the most important sites tends to remain largely unchanged between years. However, several sites across the UK experienced changes of greater than 10% between 2013/14 and 2014/15, which were probably attributable to variation in weather conditions between the two winters affecting use of some sites more than others.

SITE FOCUS

The Wash remains the premier site for wintering waterbirds in the UK. This is despite the five-year average reducing by 18,000 birds, from 366,094 in 2013/14 to 348,097 in 2014/15, due to the record high count in 2009/10 no longer appearing in the table. The removal of the high count of 151,681 in 2009/10 from the five-year period and a lower-than-average year in 2014/15 has seen the Humber Estuary fall two places in the Principal Sites table.

Numbers at many of the top sites were lower in 2014/15 than they were in 2013/14, only the Dee Estuary and Somerset Levels recording an increase between years. The Somerset Levels total was the highest there since the hard winter of 2010/11.

Outside of the top ten sites, Montrose Basin and Blackwater Estuary both featured notable totals in 2014/15. Lower than expected totals at some sites are partially attributable to missing counts for key species in certain months.



▲ **Largest waterbird aggregations in the UK.**
Sites are those listed in Table 2, with top fifteen sites labelled on the map.

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

Site	2010/11	2011/12	2012/13	2013/14	2014/15	5-year mean
The Wash	358,651	294,609	350,031	393,260	343,932	**348,097**
Ribble Estuary	204,741	259,990	178,318	174,200	171,680	**197,786**
Morecambe Bay	239,424	201,581	191,056	181,689	171,968	**197,144**
Thames Estuary	152,995	152,161	179,961	194,525	168,515	**169,631**
North Norfolk Coast	205,471	158,303	121,563	153,506	121,195	**152,008**
Dee Estuary (England and Wales)	118,107	120,763	151,290	124,605	136,507	**130,254**
Solway Estuary	149,697	83,643	112,311	133,097	122,360	**120,222**
Humber Estuary	121,417	104,213	128,117	129,926	113,202	**119,375**
Somerset Levels	181,156	76,790	93,386	88,701	102,726	**108,552**
Breydon Water and Berney Marshes	93,666	91,014	96,523	88,857	91,413	**92,295**
Alt Estuary	107,806	64,034	87,950	78,759	73,792	**82,468**
Ouse Washes	103,761	63,938	63,088	101,941	75,902	**81,726**
Montrose Basin	81,591	76,509	77,483	61,677	98,060	**79,064**
Mersey Estuary	56,443	93,696	62,347	88,453	83,910	**76,970**
Severn Estuary	75,630	83,603	75,151	74,834	71,453	**76,134**
Blackwater Estuary	63,830	68,017	66,111	83,696	91,090	**74,549**
Forth Estuary	75,957	69,930	74,156	57,819	64,038	**68,380**
Strangford Lough	72,761	78,759	60,881	65,256	43,337	**64,199**
Hamford Water	41,485	41,404	63,372	62,228	52,570	**52,212**
Dengie Flats	61,801	49,715	45,021	55,842	46,460	**51,768**
Swale Estuary	76,768	54,773	57,012	36,358	29,352	**50,853**
Stour Estuary	52,096	50,276	44,520	48,735	52,699	**49,665**
Chichester Harbour	53,167	47,769	41,661	47,518	50,207	**48,064**
Loughs Neagh and Beg	40,696	49,692	45,100	46,828	49,043	**46,272**
Loch of Strathbeg	46,063	38,960	39,388	29,364	72,936	**45,342**
Inner Moray and Beauly Firths	37,070	42,064	41,643	46,202	42,532	**41,902**
Loch Leven	32,724	39,979	37,629	60,774	35,236	**41,268**
Lindisfarne	45,109	47,878	36,519	30,334	44,048	**40,778**
Burry Inlet	27,943	38,500	47,254	29,972	46,863	**38,106**
Carmarthen Bay	61,010	33,868	26,519	21,347	30,646	**34,678**
Abberton Reservoir	29,515	45,634	23,725	35,059	37,613	**34,309**
Alde Estuary	35,024	32,994	31,011	32,988	36,643	**33,732**
Cromarty Firth	31,582	33,678	34,210	31,993	35,172	**33,327**
Loch of Skene	28,693	19,658	35,718	29,946	50,149	**32,833**
Lower Derwent Ings	39,020	38,105	29,914	27,911	26,704	**32,331**
Langstone Harbour	26,791	36,893	30,025	32,217	27,957	**30,777**
WWT Martin Mere	24,897	30,330	22,672	41,861	31,340	**30,220**
Dungeness and Rye Bay	35,560	28,688	28,886	29,076	25,432	**29,528**
Colne Estuary	15,667	31,616	30,213	26,889	41,136	**29,104**
Lough Foyle	20,733	26,917	32,437	34,309	31,106	**29,100**
Dornoch Firth	33,277	32,215	24,996	23,789	29,363	**28,728**
Crouch-Roach Estuary	30,283	26,087	22,881	24,595	29,958	**26,761**
Nene Washes	42,456	12,455	24,812	27,718	26,037	**26,696**
Medway Estuary	33,459	27,014	14,589	28,876	22,477	**25,283**
Pegwell Bay	22,893	30,562	43,813	18,503	10,009	**25,157**
Rutland Water	26,282	33,633	16,539	28,702	18,537	**24,739**
Orwell Estuary	24,068	21,377	22,155	25,283	26,121	**23,801**
Carsebreck and Rhynd Lochs	20,749	22,584	24,024	22,632	25,183	**23,034**
West Water Reservoir	16,658	18,794	20,254	28,200	29,600	**22,701**
Colwyn and Penrhyn Bays	-	-	-	-	21,975	**21,975**
Poole Harbour	17,074	21,662	23,272	22,807	24,673	**21,898**
Cleddau Estuary	22,736	26,494	17,902	20,833	16,414	**20,876**
Duddon Estuary	19,302	21,292	18,723	19,028	25,395	**20,748**
Exe Estuary	20,316	18,623	19,154	22,003	22,368	**20,493**

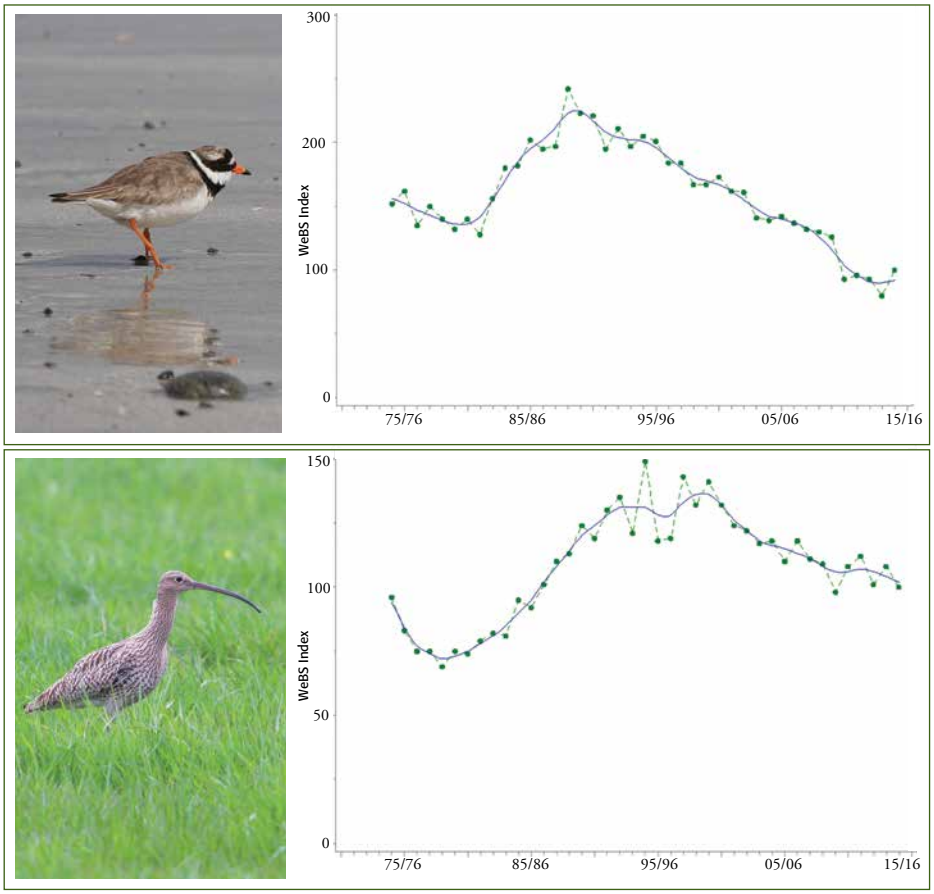
- Totals are the sum of species maxima during the WeBS-year at each site, using data from all months. This summary does not account for missed visits or reduced coverage.
- Some totals may differ slightly from those published in previous annual WeBS reports.
- Non-native species (such as Canada Goose and Ruddy Duck), are excluded, as are gulls and terns due to incomplete coverage.
- A more comprehensive table showing all sites supporting more than 10,000 waterbirds is available online via www.bto.org/webs.

Birds of Conservation Concern 4

An overview of changes in the conservation status of wetland bird species in the UK, Channel Islands and Isle of Man

The 2015 review of the status of bird species in the UK, Channel Islands and Isle of Man, *Birds of Conservation Concern 4* is the fourth such report since the first conservation status lists were produced in 1996 (Eaton *et al.*, 2015). Non-breeding population trend information from the Wetland Bird Survey and the Goose and Swan Monitoring Programme formed important evidence for the species assessments, together with other information such as global threat according to the IUCN Red List and breeding population trends from the BTO/JNCC/RSPB Breeding Bird Survey.

For species that regularly breed in Britain, assessments of non-breeding data (including WeBS population trends) were only carried out if there is also a substantially separate non-breeding population of the species. Assessments of 25-year trends covered the 1986/87–2011/12 period and used smoothed index values. Long-term trend assessments used data from 1966/67 for wildfowl and 1974/75 for waders.



▲ **WeBS indices for newly red-listed species Ringed Plover (top) and Curlew (bottom).** Green dots = annual population index; blue line = smoothed trend.

WADERS

The WeBS trend for over-wintering **Curlew** has declined since 2000; however, it is the evidence of declines in UK breeding populations which has led to the Red listing of **Curlew** (previously on the Amber list). As a result of this decline, together with **Curlew**'s European and Global "Near Threatened" status, and the international importance of the UK population, **Curlew** has been called "the most pressing bird conservation priority in the UK" (Brown *et al.*, 2015).

Lapwing, **Whimbrel**, **Black-tailed Godwit**, **Ruff** and **Red-necked Phalarope** remain on the Red list due to declines in their breeding population and/or range and are joined by **Dotterel** and **Woodcock**.

Ringed Plover has been moved up to the Red list due to severe non-breeding decline over 25 years: numbers have decreased by 52%. Conversely, **Dunlin** moved from the Red list to the Amber list as its long-term decline fell just short of the 50% threshold, at 49%. **Greenshank**, **Sanderling** and **Curlew Sandpiper** move from the Green list, joining thirteen other wader species remaining on the Amber list. Only four wader species remain on the Green list.

SEA DUCKS AND GREBES

Red listed **Scaup** and **Common Scoter** are joined by **Long-tailed Duck** from the Green list and **Velvet Scoter**, **Red-necked Grebe** and **Slavonian Grebe** from the Amber list. **Long-tailed Duck**, **Velvet Scoter** and **Slavonian Grebe** are classified as globally "Vulnerable" under IUCN Red List criteria. The WeBS 1992/93 to 2011/12 trend (earliest available data) for **Red-necked Grebe** has decreased by 72%.

WILDFOWL

As forecast in its Species Focus in *Waterbirds in the UK 2011/12*, **Pochard** has been Red listed due to a 51% decline in the WeBS 25-year trend. Its longer term trend shows a decline of 34%. **White-fronted Goose** is now Red listed at the species level as well both UK races (**European** and **Greenland**) as the

Table 3 Status of waterbirds in BoCC4

Mute Swan	g	Scaup		Bittern	r	Little Stint		Red-necked Phalarope	
Bewick's Swan		Eider		Little Egret	a	Curlew Sandpiper	g	Kittiwake	a
Whooper Swan		Long-tailed Duck	g	Grey Heron		Purple Sandpiper		Black-headed Gull	
Bean Goose		Common Scoter		Spoonbill		Dunlin	r	Little Gull	a
Pink-footed Goose		Velvet Scoter	a	Water Rail		Ruff		Mediterranean Gull	
White-fronted Goose	g	Goldeneye		Spotted Crake		Jack Snipe	a	Common Gull	
Greylag Goose		Smew		Moorhen		Snipe		Lesser Black-backed Gull	
Barnacle Goose		Red-breasted Merganser		Coot		Woodcock	a	Herring Gull	
Brent Goose		Goosander		Crane		Black-tailed Godwit		Yellow-legged Gull	
Shelduck		Red-throated Diver	a	Oystercatcher		Bar-tailed Godwit		Caspian Gull	
Wigeon		Black-throated Diver		Avocet		Whimbrel		Iceland Gull	
Gadwall		Great Northern Diver		Little Ringed Plover		Curlew	a	Glaucous Gull	
Teal		Little Grebe	a	Ringed Plover	a	Common Sandpiper		Great Black-backed Gull	
Mallard		Great Crested Grebe		Dotterel	a	Green Sandpiper		Little Tern	
Pintail		Red-necked Grebe	a	Golden Plover	a	Spotted Redshank		Black Tern	a
Garganey		Slavonian Grebe	a	Grey Plover		Greenshank	g	Sandwich Tern	
Shoveler		Black-necked Grebe		Lapwing		Wood Sandpiper		Common Tern	
Pochard	a	Cormorant		Knot		Redshank		Roseate Tern	
Tufted Duck	a	Shag	a	Sanderling	g	Turnstone		Arctic Tern	

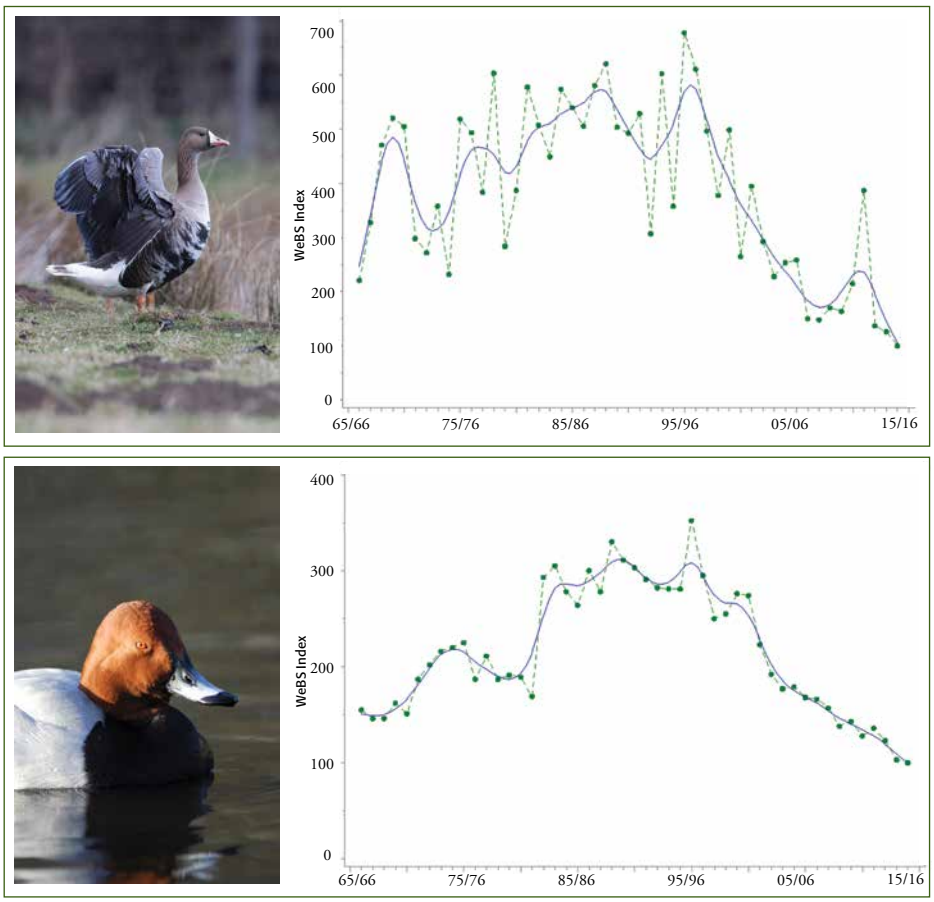
r - species on Red list previously, a - species on the Amber list previously and g - species on Green list previously

smoothed index decreased by 60% over 25 years. **Mute Swan** joined the Amber list due to the internationally important UK population.

GREEN-LISTED SPECIES

Results from the latest 2015 European Red List of Birds assessment resulted in **Red-throated Diver**, **Little Gull**, **Black Tern**, **Jack Snipe** and **Tufted Duck** all moving to the Green BOCC4 list, signifying they are of lesser conservation concern, although in some cases the move was due to changes in the European Red List assessment process rather than a genuine improvement in birds' status.

Golden Plover had previously been Amber listed due to the estimated international importance of the UK population (over 20% of that of the East Atlantic Flyway). **Little Grebe** was Green listed after the latest assessment from UK breeding surveys. The rapid expansion in UK breeding **Little Egrets** saw this species too changing from Amber to Green status.



▲ **WeBS indices for newly red-listed species White-fronted Goose(top) and Pochard (bottom).** Green dots = annual population index; blue line = smoothed trend.

FIND OUT MORE...

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

Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D. & Gregory, R. 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.

CURLEW BY DAVE KING; EUROPEAN WHITE-FRONTED GOOSE BY GRAHAM CATLEY; RINGED PLOVER BY JILL PAKENHAM; POCHARD BY NEIL CALBRADE

Birds of lakes and ponds

A look at the status and trends of three species closely associated with still freshwater

Natural Inland Still Water as a WeBS habitat category encompasses a huge variety of areas of open freshwater waterbird habitats, from ponds, tarns and small lakes to the UK's largest freshwater lakes – Lough Neagh in Northern Ireland, Loch Lomond in Scotland, Windermere in England and Llyn Tegid in Wales.

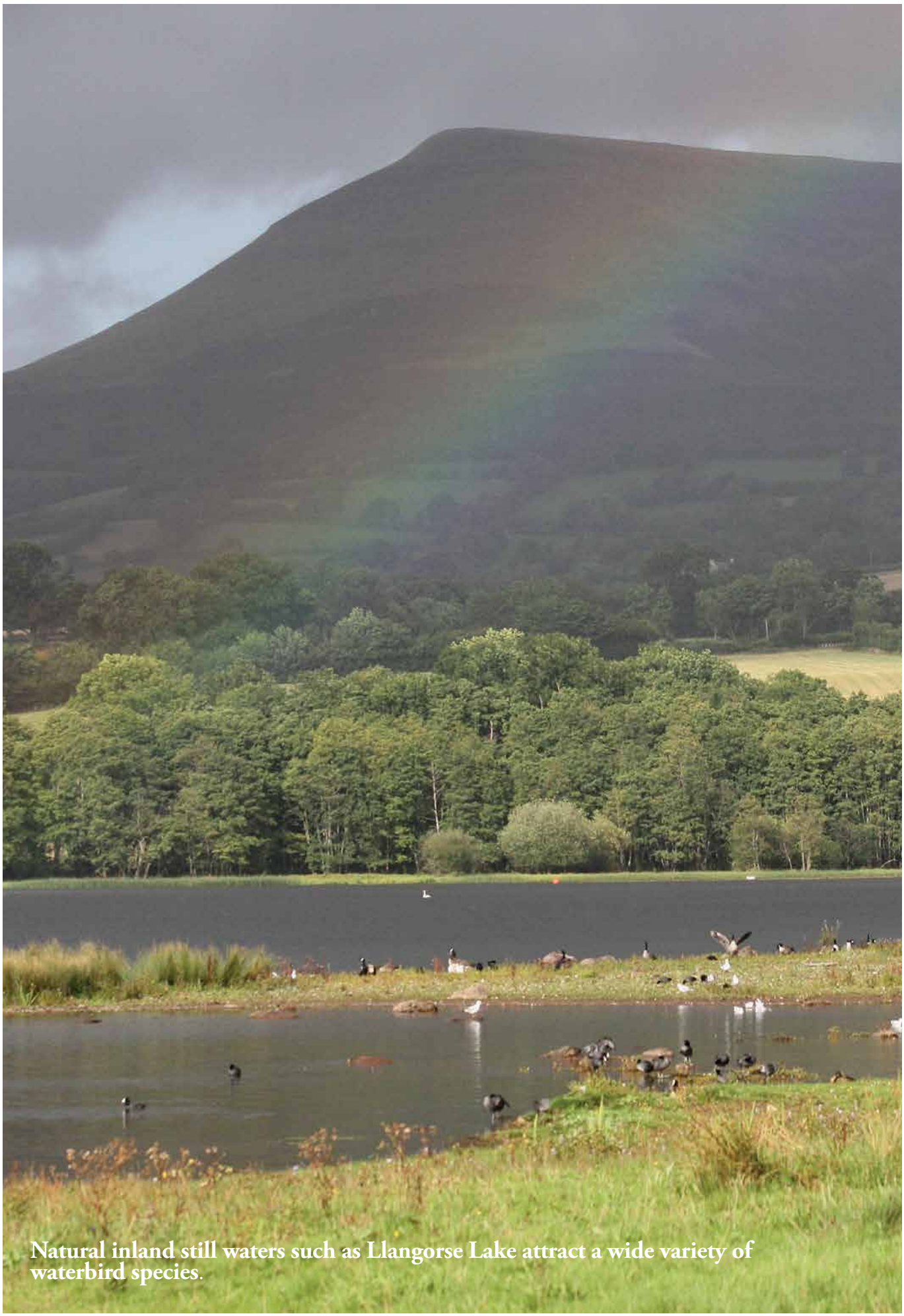
Inland still water occurs throughout the UK, including on many small islands, but local geology and conditions influence the types of natural waterbodies and their attractiveness to different waterbird species. Most of the larger deeper lakes are glacial in origin and found in north and western Britain and Northern Ireland. These oligotrophic waterbodies attract relatively small numbers of ducks and grebes but can be important roost sites for gulls and geese. Higher concentrations of waterbirds can be found in the lowlands, particularly in base-rich areas of chalk or limestone which support greater plant and invertebrate life for the birds to feed on.

Meres (shallow lakes) are important for swans, geese and dabbling ducks such as Shoveler and Gadwall. Some ephemeral pools, meres and turloughs regularly disappear due to rainfall variations or fluctuations in the water table, but can still attract waterbirds while present.

As with all wetland habitats, WeBS coverage is most complete for the largest wetlands in the lowlands and near major population centres. However, when aggregated, small upland tarns and lochans and lowland ponds and lakes hold considerable numbers of dispersed waterbirds such as Mallard, Teal and Goosander; so counts from these are particularly useful for refining population estimates (see pages 26–27).

Open water is an important component of several important wetland complexes designated for their waterbirds, such as Broadland Special Protection Area (SPA). Several of the larger mesotrophic and eutrophic lakes such as Loch Leven and Hornsea Mere support internationally important concentrations of waterbirds and have SPA status.

The fortunes of the species cited for individual SPAs can be compared in the WeBS Alerts section of WeBS Report Online (see page 5). The Numbers & Trends section allows the exploration of the importance of natural inland still water for Mute Swan, Goldeneye, Mallard, Coot and many other WeBS species by selecting the appropriate option in the habitat drop down on species' pages.



LLANGORSE LAKE BY KEITH NOBLE

Natural inland still waters such as Llangorse Lake attract a wide variety of waterbird species.

TUFTED DUCK

The aptly named Tufted Duck congregates in flocks of hundreds of birds on some of our largest lakes, but is also widely dispersed at much smaller waterbodies. It is correspondingly one of the most widely recorded species in the Wetland Bird Survey and was observed at 2,586 individual WeBS count sectors (49%) at 1,735 sites (62%) in 2014/15.

The largest aggregations are recorded at Loughs Neagh and Beg in Northern Ireland and Loch Leven in Scotland. Many of the other sites which hold numbers of Tufted Duck greater than the nationally important thresholds for this species are large artificial waterbodies: reservoirs and gravel pits in southern Britain (Table 4).

The rapid breeding colonisation of Britain by Tufted Duck from the mid-1800s is believed to have been aided by the introduction of the non-native Zebra Mussel in 1825.

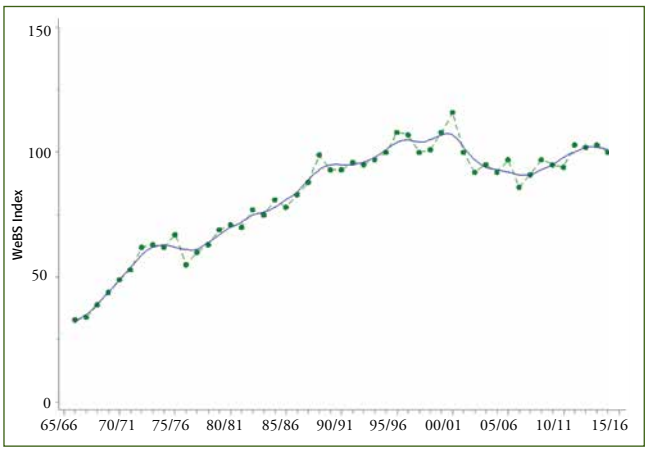
As can be inferred from the monthly indices, the resident UK and Ireland population is augmented in winter by birds from abroad; ringing recoveries suggest many birds which breed in Iceland migrate to Ireland whilst many wintering visitors to south-east England breed in Fennoscandia and north-west Russia.

NEIL CALBRADE

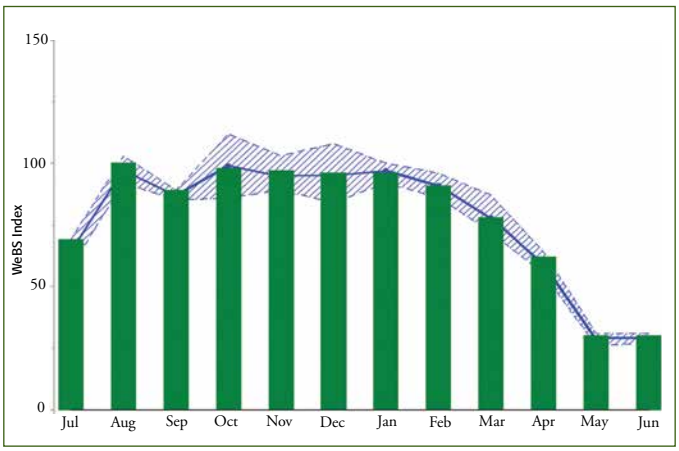
The WeBS index trend for Great Britain has increased almost three-fold since 1966/67, but has been stationary in the past four years. However, changes are occurring in the wintering distribution across the flyway.

There have been decreases in France and in Ireland, including Northern Ireland where the WeBS trend declined by a third between the mid-1990s and mid-2000s (although numbers appear to have stabilised now).

Scandinavia, where early winter temperatures increased 3.8ºC between 1980 and 2010, has seen corresponding increases in the number of wintering Tufted Ducks. The number of Tufted Ducks in Finland increased by almost 20% a year over 30 years, estimated to result in an increase of over 100,000 birds wintering in Finland and Sweden; read more about the situation in Finland on pages 24–25.



▲ **WeBS trend for Tufted Duck in UK.**
Green dots = annual population index; blue line = smoothed trend.



▲ **Monthly indices for Tufted Duck in UK.**
Green bars = 2014/15; blue line/hatched area = previous 5-year mean/range.

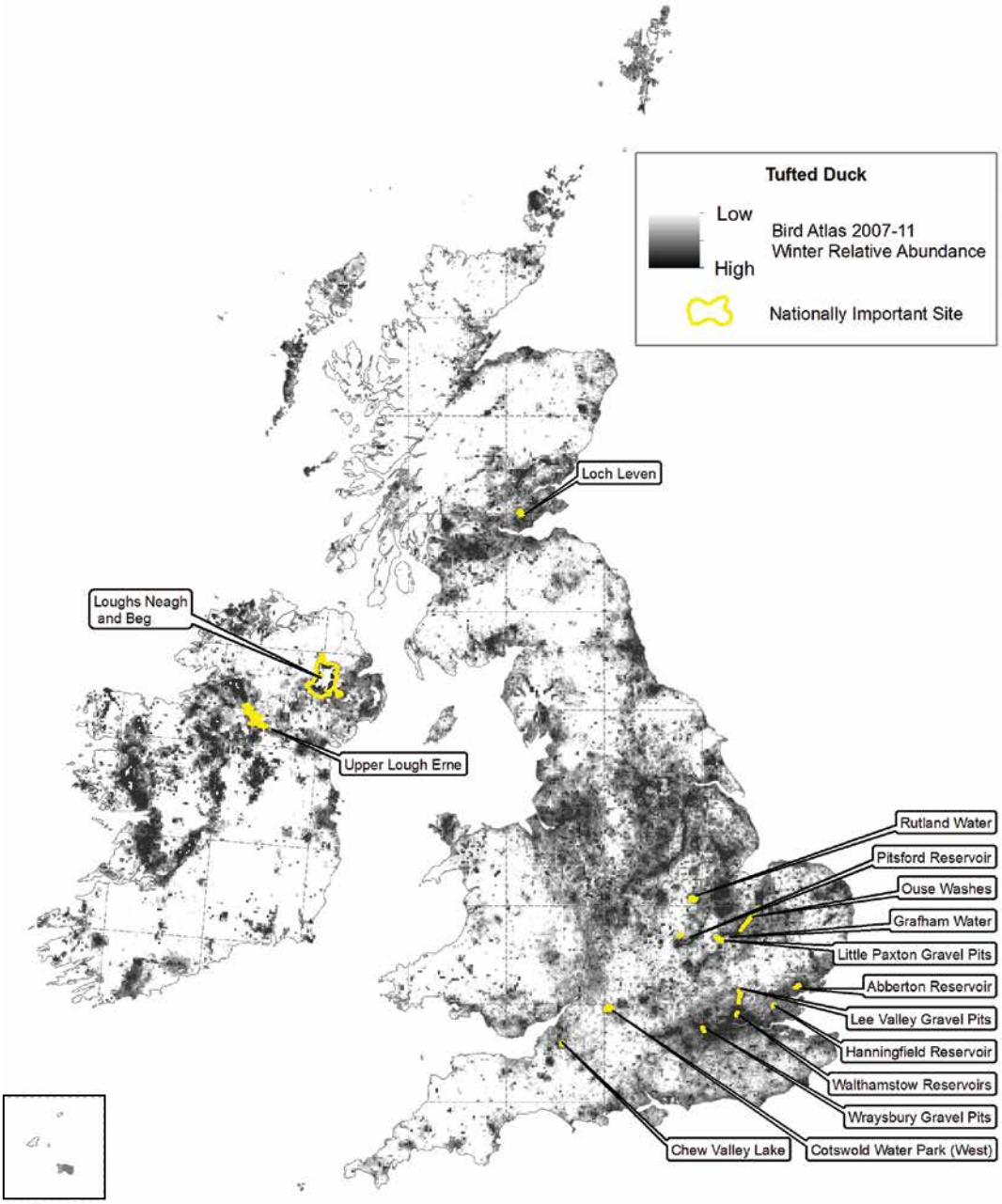


Table 4 Nationally important sites for Tufted Duck

Site	2010/11	2011/12	2012/13	2013/14	2014/15	Month	5-year mean
Loughs Neagh and Beg	8,078	9,009	8,547	7,682	6,526	Jan	7,968
Loch Leven	6,455	(7,193)	5,863	11,614	5,657	Oct	7,397
Rutland Water	5,449	7,692	4,984	6,114	3,560	Sep	5,560
Abberton Reservoir	2,790	2,872	2,075	2,729	2,874	Oct	2,668
Chew Valley Lake	2,420	2,100	2,475	2,100	2,355	Sep	2,290
Ouse Washes	1,548	665	3,933	1,916	2,912	Feb	2,195
Upper Lough Erne	2,836	2,348	1,451	1,354	2,152	Dec	2,028
Hanningfield Reservoir	1,596	1,866	1,465	2,454	2,628	Aug	2,002
Grafham Water	1,815	1,645	1,421	1,937	2,031	Dec	1,770
Walthamstow Reservoirs	1,490	1,978	1,725	562	1,693	Aug	1,490
Pitsford Reservoir	1,164	1,492	1,104	1,434	2,218	Sep	1,482
Cotswold Water Park (West)	1,429	1,470	1,599	1,230	1,378	Feb	1,421
Wraysbury Gravel Pits	1,214	1,260	1,510	1,585	1,469	Nov	1,408
Lee Valley Gravel Pits	1,409	1,453	1,097	1,244	1,183	Nov	1,277
Little Paxton Gravel Pits	707	1,563	547	879	2,617	Oct	1,263

• Five-year mean is for period 2010/11 to 2014/15.
• Threshold for sites of national importance = 1,100 (Great Britain), 310 (All-Ireland).

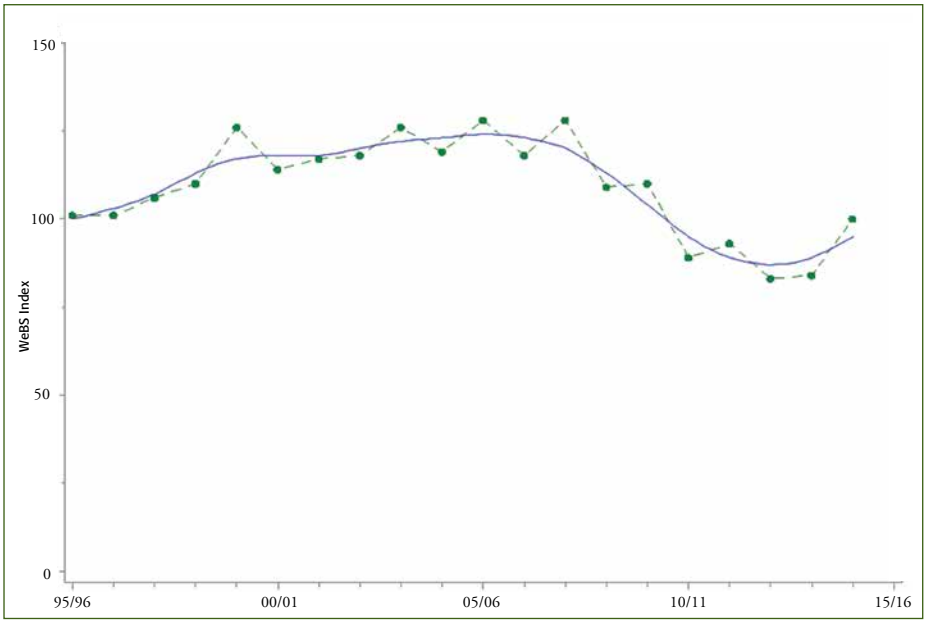
MOORHEN

Moorhens have a widespread distribution throughout the UK and occur in a wide variety of wetland habitats, notably including small ponds and ditches.

Unlike Tufted Duck, they do not congregate in large numbers but remain dispersed all year, including wintering visitors. Consequently Moorhens are relatively poorly monitored by WeBS and there are no sites containing nationally (or internationally) important numbers.

The UK breeding trend for this species is volatile, with numbers dropping after hard winters. Moorhen was added to the WeBS scheme in 1993/4 and the WeBS trend indicates that numbers at WeBS sites had been declining for a decade, but the index for 2014/15 is the highest since 2009/10 – perhaps in response to recent milder winters.

In 2014/15, the counted British maximum for Moorhen at 14,349 was similar to that of recent years, with the highest site maxima during the year being 344 at Severn Estuary in February.



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

MUTE SWAN

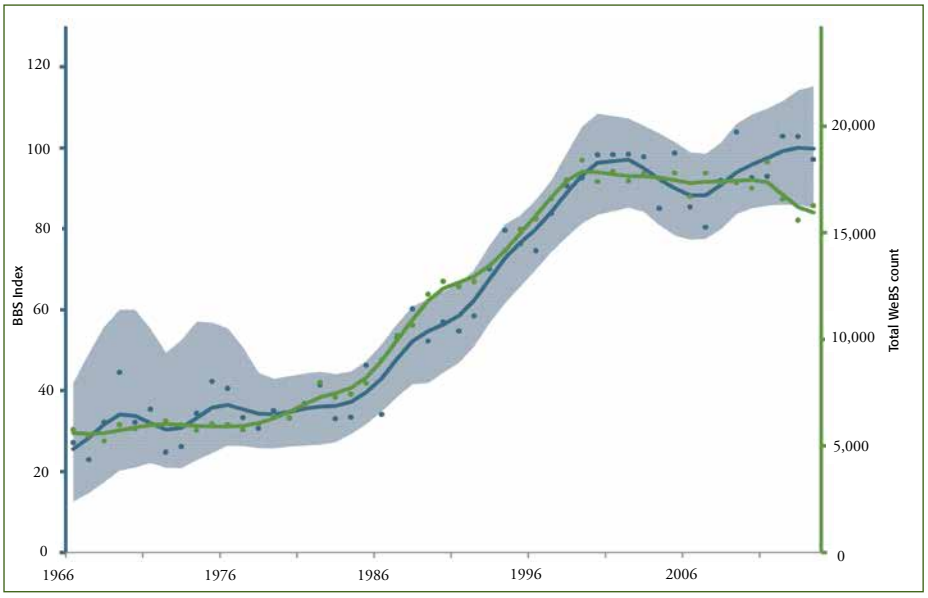
Like Tufted Duck and Moorhen, Mute Swan is a widely dispersed species, more numerous in the lowlands. Due to its history as a semi-domestic species, it is a species often found near human habitation.

The population increase in the 1980s and 1990s is attributed to the recovery of Mute Swan populations after the ban in 1987 of most sizes of lead fishing weights. Since 2000, annual indices have been steady; in the most recent years, a slight decline in 2012/13 and 2013/14 has been somewhat reversed in 2014/15.

Mute Swans in Britain and Ireland are largely sedentary, and hence the populations are considered separate from both one another and from birds on the Continent. Consequently, sites of national importance in Britain and All-Ireland importance in Northern Ireland are recognised as being of international importance. The absence of a migratory component to the wintering population, unusual among WeBS species, results in mirrored trends from the Breeding Bird Survey and WeBS - implying the larger waterbodies included in WeBS are representative for this species.

Whilst successful pairs of Mute Swans often remain on their breeding territories to moult and throughout the winter, non-breeders and immature birds often form herds (Rowell and Spray, 2004). As sites can fall in and out of favour with winter herds, at the site level there is a mixed picture. Internationally important sites with recent declines include Rutland Water in the Midlands and the Stour Estuary in Essex.

However, the Welsh side of the Severn Estuary continued recent increases in peak WeBS counts with a record number 345 birds in August. The largest natural lake in the West Midlands – Aqualate Mere



▲ **CBC/BBS and mean winter WeBS count for Mute Swan in UK 1966-2014.**
Left axis - CBC/BBS index: blue line = CBC/BBS index smoothed trend, pale blue = CBC/BBS 85% confidence interval, Blue dots = CBC/BBS annual index values.
Right axis - Green line = WeBS smoothed trend and Green dots = mean WeBS count.

Table 5 Internationally important sites for Mute Swan

Site	2010/11	2011/12	2012/13	2013/14	2014/15	Month	5-year mean
Loughs Neagh and Beg	951	857	851	1,050	1,101	Sep	962
Somerset Levels	951	1,074	823	869	1,072	Dec	958
Fleet and Wey	922	774	743	695	799	Dec	787
Loch Leven	428	665	685	524	686	Jul	598
Upper Lough Erne	650	440	399	692	722	Oct	581
Rutland Water	637	542	497	396	403	Sep	495
Ouse Washes	437	247	749	505	436	Dec	475
Stour Estuary	575	586	473	393	294	Nov	464
Abberton Reservoir	428	549	465	479	390	Aug	462
Loch Bee (South Uist)	481	398	509	420	437	Oct	449
Severn Estuary	334	368	365	365	500	Aug	386
Loch of Harray	320	357	394	368	368	Jan	361
Tweed Estuary	456	390	228	314	360	Aug	350
Loch of Strathbeg	298	215	458	437	282	Aug	338
Lower Lough Erne	245	150	217	144	152	Oct	182
Strangford Lough	186	123	195	187	100	Nov	158

• Five-year mean is for period 2010/11 to 2014/15.
• Threshold for International importance = 320 (British Population), 100 (Irish population).

– has seen numbers increase from under 10 birds in the 1960s and 1970s. With counts only reaching three figures for the first time in 2011, in 2014/15 the peak WeBS count was an impressive 387 birds.

Some internationally important sites have peaks in mid-winter, such as the Somerset Levels where the December WeBS count of 1,072 was the highest in Britain in 2014/15, and at Fleet and Wey with a December peak of 799. Others see their maxima earlier in the WeBS year - the highest WeBS count in 2014/15 was at Loughs Neagh and Beg in Northern Ireland, where 1,101 swans were recorded in September. The highest Scottish site WeBS count of 686 was at Loch Leven in July, a traditional moulting site for the species.

FIND OUT MORE...

Rowell, H.E. & Spray, C.J. 2004. *The Mute Swan* Cygnus olor *(Britain and Ireland populations) in Britain and Northern Ireland 1960/61–2000/01*. Waterbird Review Series, The Wildfowl & Wetlands Trust/Joint Nature Conservation Committee, Slimbridge.

TONI CROSS

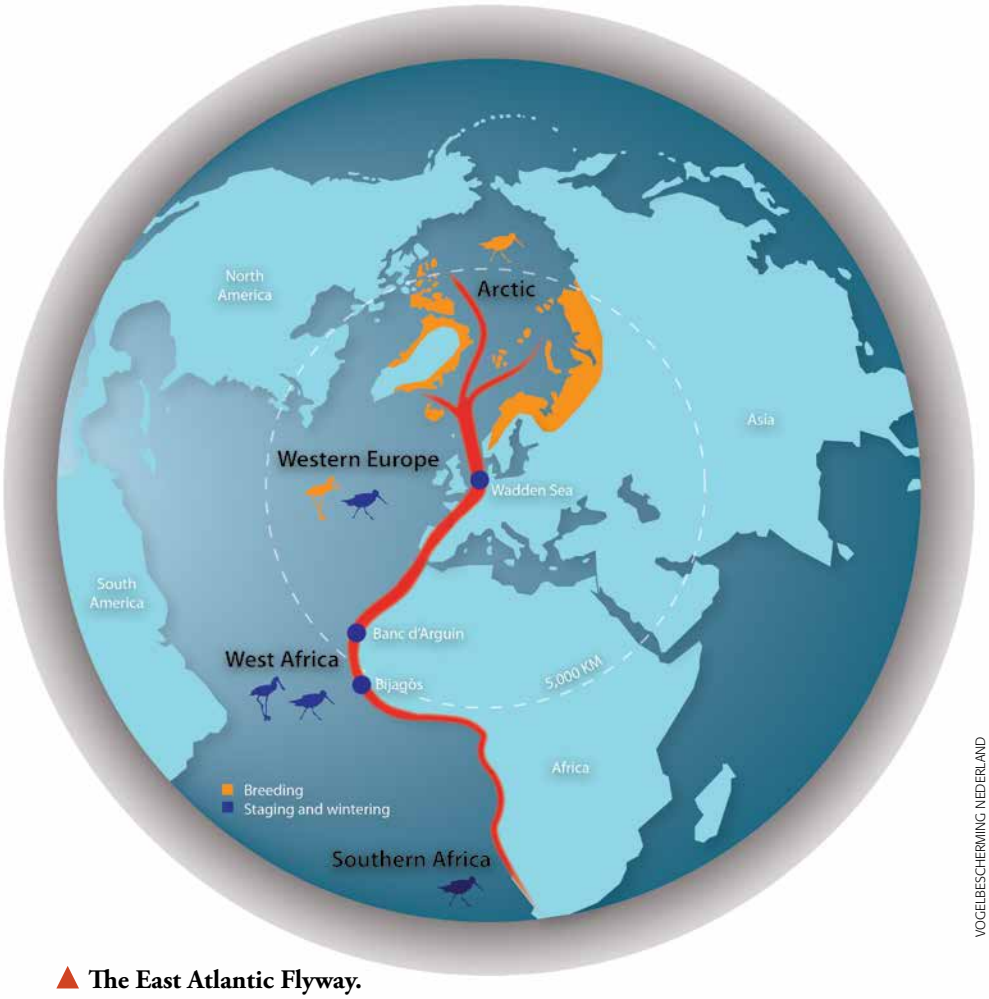
East Atlantic Flyway monitoring

Latest results from monitoring coastal waterbird populations reveal declines in benthivore species

Coastal waterbirds migrating along the East Atlantic Flyway ecologically connect the high Arctic with southern Africa. The coastal wetlands of western Europe and Africa are critical to many species of the Flyway. A consortium of the Wadden Sea Flyway Initiative, Wetlands International and BirdLife International, co-operating with national bird wintering and breeding monitoring schemes such as WeBS, enables reporting at the Flyway scale: essential context for understanding local and national data.

Status of coastal waterbird populations in the East Atlantic Flyway 2014 reports on population sizes and trends (van Roomen *et al.*, 2015). The primary data source was the International Waterbird Census for wintering waterbirds (including January WeBS counts from the UK). Data from the Pan-European Common Bird Monitoring Scheme (including WBBS/BBS data from the UK) was available for four species of waterbird included in the report: Redshank, Curlew, Whimbrel and Black-headed Gull.

Cooperation following the East Atlantic Flyway Monitoring Strategy has improved the availability of data for western Africa by incorporating historical count data in to the International Waterbird Census database and coordinating counting efforts (supported by WeBS and other organisations; see the article in *WeBS News* Issue 30).



VOGELBESCHERMING NEDERLAND

▲ **The East Atlantic Flyway.**

ENVIRONMENTAL CHANGE

The report notes that of the 66 East Atlantic Flyway populations assessed, 35% show an increasing trend and 35% a decreasing trend over the 2003–2014 period, suggesting both positive and negative drivers from environmental change.

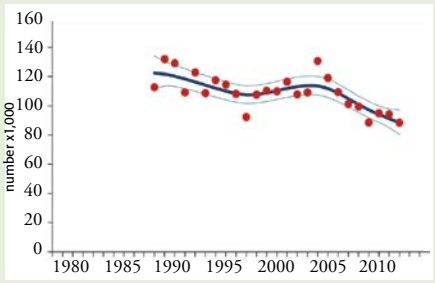
Of the assessed Flyway populations, 40 occur in internationally important numbers in the Wadden Sea, an important intertidal site along the coasts of parts of the Netherlands, Denmark and Germany. Of these, a high proportion of the fish-eating (piscivore) species demonstrated increasing population trends. However, most benthivore species that feed on shellfish, crabs, worms and other invertebrates have declining trends – and this was especially true of species that have high proportions of populations using the Wadden Sea. It was estimated that the total number of benthivores along the Flyway decreased by 2.5 million birds between 2003 and 2014.

FIND OUT MORE...

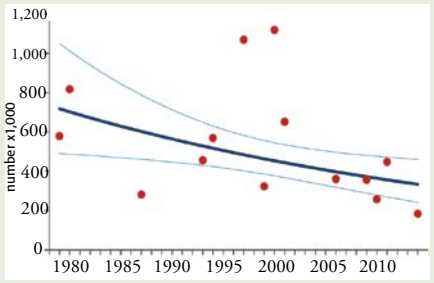
van Roomen, M., Nagy, S., Foppen, R., Dodman, T., Citegetse, G., & Ndiaye, A. 2015. *Status of coastal waterbird populations in the East Atlantic Flyway 2014. With special attention to flyway populations making use of the Wadden Sea*. Leeuwarden, The Netherlands.

www.waddensea-secretariat.org/management/publications/status-of-coastal-waterbird-populations-in-the-east-atlantic-flyway-2014

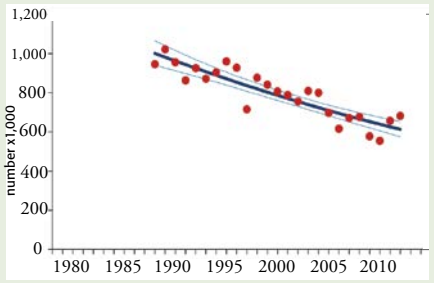
Redshank

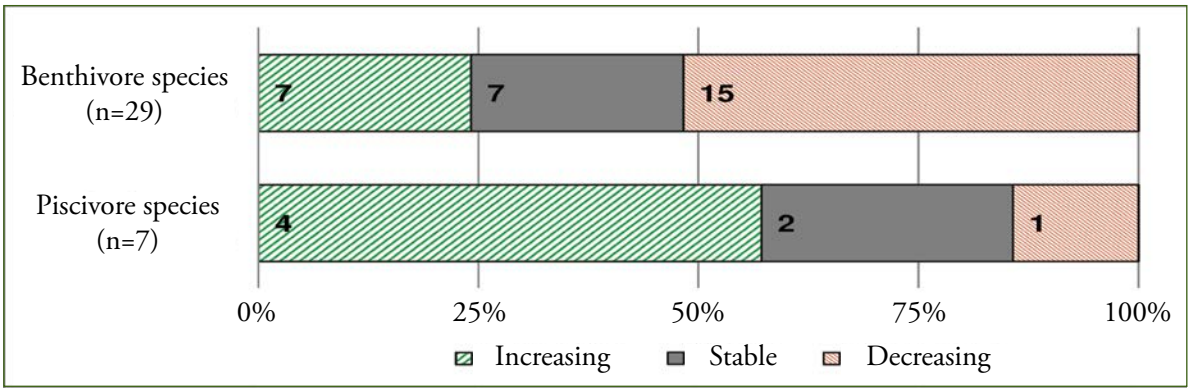


Curlew Sandpiper

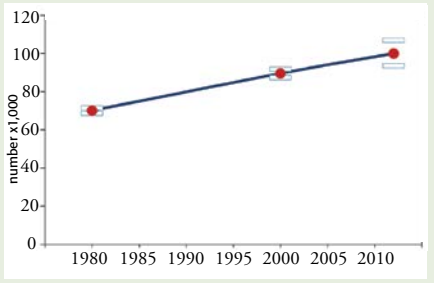


Oystercatcher

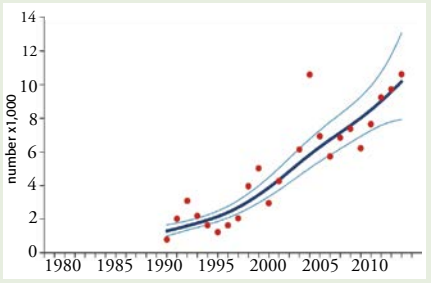




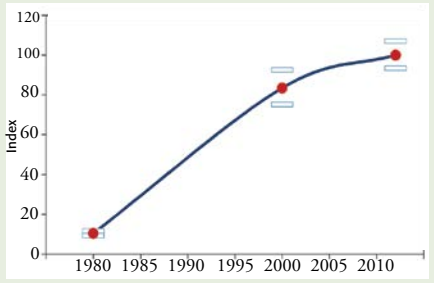
Sandwich Tern



Spoonbill



Cormorant



▲ The proportion of increasing, stable and decreasing flyway trends in 2003-2014 of benthivore and piscivore populations for which the Wadden Sea is an important staging or wintering area. Individual flyway trends are shown for benthivore species Redshank, Curlew Sandpiper, Oystercatcher and piscivore species Sandwich Tern, Spoonbill and Cormorant (from van Roomen *et al.*, 2015).

REDSHANK BY AL DOWNIE, CURLEW SANDPIPER BY TOMMY HOLDEN, OYSTERCATCHER BY JOHN HARDING, SANDWICH TERN BY JILL PAKENHAM, SPOONBILL BY AMY LEWIS, CORMORANT BY JOHN HARDING

Diving ducks on the rise in Finland

Aleksi Lehikoinen introduces the waterbird monitoring scheme in Finland

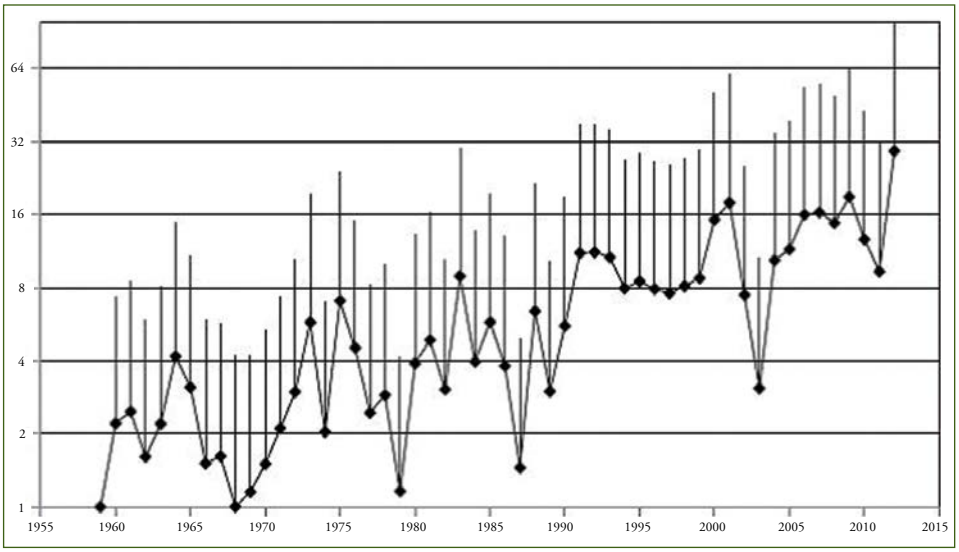
Monitoring of wintering birds has long traditions in Finland. The Finnish Museum of Natural History has coordinated winter bird counts since 1956/57. In winter bird counts all birds, including waterbirds, are counted along freely chosen line transects (c. 10 km long), but the museum has coordinated routes so they are not overlapping.

Traditionally Finnish coastal waters used to be mainly covered by ice, but due to climate change, water areas especially in the south-west archipelago remains nowadays ice free and have become suitable wintering areas for waterbirds. Due to these historical reasons winter bird counts have been the main Finnish contribution to the International Waterbird Counts (IWC). Other additional IWC surveys include three shipborne surveys and the first aerial surveys were started in the winter of 2015/16. In the winter bird counts, the survey effort has been relatively constant between 423 and 632 routes annually for more than 50 years.

There are three census seasons: 1–15 November (counted since 1975), 25 December to 7 January (since winter 1956/57) and 21 February to 6 March (since 1967). The mid-winter counts are more popular than the two other seasons. The counts are done by volunteers (c. 1,000 observers annually), often in small groups. Habitats of the counted birds as well as the amount of habitat along the routes is measured using eight categories: a) dumping ground or fur farm; b) urban settlement; c) rural settlement; d) arable land; e) forest; f) clear-cut area or stand of saplings; g) reed-bed or shore scrub; and h) other. The last category includes birds in wetlands. The observers are also asked to report weather conditions, crop size of rowan berries and in recent years sex ratios of observed species if possible (since 2010).

The recent trend analyses show that waterbirds, especially diving ducks such as Tufted Duck, Goldeneye and Smew have increased rapidly (more than 40 fold increases in these species) and simultaneously wintering numbers on the southern edge of the flyway in Central Europe, such as Ireland, France and Switzerland have decreased.

Climate change will likely increase abundance of wintering waterbirds in Finnish waters as larger water areas remain ice free. Understanding the context of these changes has required redevelopment of the monitoring program, and also international collaboration to understand the local changes in wintering numbers along the flyway.



▲ **Relative abundance of 10 common waterbird species in Finland - Whooper Swan, Mallard, Tufted Duck, Long-tailed Duck, Goldeneye, Goosander and Black-headed, Common, Herring and Great Black-backed Gulls (from Fraixedas *et al.* 2015). Only positive error bars of 95% confidence intervals are shown.**

FIND OUT MORE...

Fraixedas Nuñez, S., Lehikoinen, A. & Lindén, A. 2015. Impact of climate and land change on wintering bird populations in Finland. *Journal of Avian Biology* **46**: 63–72.

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

Goldeneye numbers in Finland have increased rapidly as larger water areas now remain ice free in the winter.

GRAHAM CATLEY

Stratified population estimates

A new approach for estimating waterbird populations using information about the distribution of wetland habitats

One of the principal aims of WeBS is to "assess the size of non-breeding waterbird populations in the UK". In the latest estimates of overwinter waterbird population in Great Britain, Musgrove *et al.* (2011) recommended that there should be continued development into population estimation methods for species in the wider countryside, away from the large wetlands that are regularly counted for WeBS.

Méndez *et al.* (2015) used WeBS data to investigate whether environmental data could help inform population estimates for nineteen widely dispersed waterbird species of inland wetlands.

STRATIFYING BRITAIN BY WETLAND HABITATS

Great Britain was divided into 5x5 km squares, each assigned to a wetland environmental stratum depending on whether the square had:

- low or high proportion of urban land cover;
- colder or milder mean winter temperature than the GB average;
- upland or lowland habitats;
- high or low amounts of still freshwater;
- high or low still freshwater complexity; and
- linear freshwater eatures which were canals/drains or rivers.

Of the 64 possible combinations, there were examples of 62 strata.

The freshwater variables were determined using a Principal Component Analysis. This allowed just three summary variables to capture most of the variation in ten separate inland wetland variables: total lake area; number of lakes; mean lake area; largest lake area; mean lake perimeter; longest lake perimeter; river length; drain length; canal length; and coast length. The figure opposite shows which wetland measurements contributed to the three components.

STRATIFIED POPULATION ESTIMATES

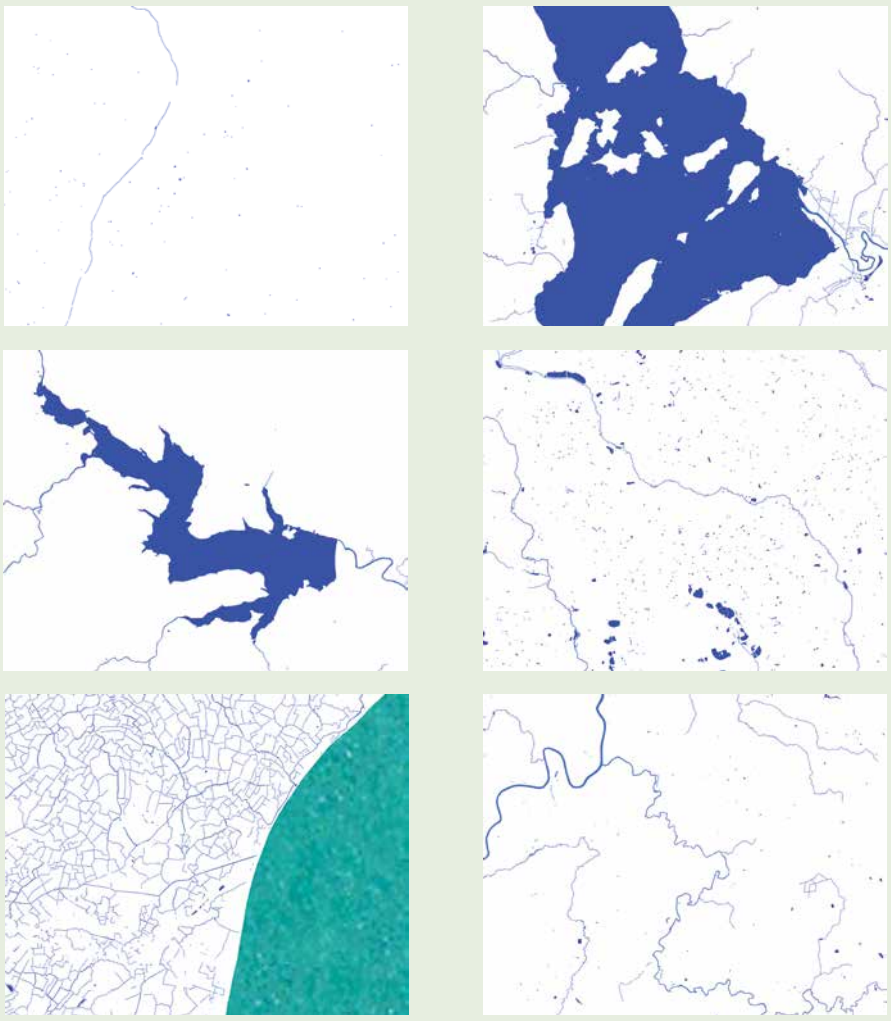
The use of stratified wintering population estimates was recommended for six species. The estimates for Teal, Tufted Duck and Coot were higher than the published estimates, which are based on simple extrapolation of WeBS counts. However, the authors suggest that the extrapolation factors used previously may be too low, given how widespread the species are (for example, see the Tufted Duck map, page 19). This approach would increase the Teal population estimate from 210,000 to 388,000; the Tufted Duck estimate from 110,000 to 133,500 and the Coot estimate from 180,000 to 237,000.

The Canada Goose stratified estimate is smaller than the published estimate, at 167,000 rather than 190,000. This is a species that appears to be expanding more rapidly into small water habitats such as drainage ditches in the wider countryside. These are less well represented in WeBS counts, which may be affecting the stratified estimate. The Mute Swan stratified estimate is also smaller than the published estimate, at 58,000 rather than 74,000 birds. However this is perhaps more in keeping with the breeding Mute Swan census estimate of 31,700 individuals.

The sixth species was Great Crested Grebe, where the published estimate of 19,000 birds overlaps the 95% confidence interval of the stratified population estimate, 16,100–19,100. The stratified habitat approach only estimates inland individuals. To account for birds on the coast, it may be possible to use the approach developed for Cormorant (Chamberlain *et al.*, 2013), where coastal and inland estimates are combined, for Great Crested Grebe and possibly also other species with coastal populations such as Goldeneye.

WHY ARE POPULATION ESTIMATES NEEDED?

- The UK and Ireland are particularly important for waterbird populations due to the mild climate, strategic position on the East Atlantic Flyway and productive coastal and inland wetlands.
- High concentrations of overwintering waterbirds means UK data is also very important for estimating European and World waterbird populations of some species.
- Thresholds for identifying sites of national importance and international importance for species compare numbers at the site with national and international population estimates. Identifying sites regularly supporting important numbers is crucial for protecting wetland habitats.



Still freshwater

Low/High

Mean, total and largest lake area and mean, total and longest lake perimeter

Complexity

Low/High

Total number of lakes and total lake perimeter compared to lake area

Linear features

Drains/Rivers

Length of drains and/or coast compared to length of rivers

▲ **Examples of high and low scoring areas for the three freshwater principal components.**

VALUE OF COUNTS FROM SMALLER SITES

In general, the stratified population estimates tended to be higher than the published estimates for species that are widely dispersed, yet have a significant proportion of their population on a few sites, such as Gadwall, Shoveler and Pintail. They tended to be lower for species with a more uniform distribution such as Grey Heron, Mallard and Moorhen.

The most influential strata for satisfactory modelling of dispersed waterbird populations tended to be mild lowland regions with urban areas. Two influential strata were particularly under-represented by WeBS Counts, both with riverine features. One is the class of cold, rural, upland 5 km squares with low amounts of still water and low freshwater complexity. The other contains mild, lowland, urban areas, also with relatively low amounts of still water; but what there is, is relatively complex.

WeBS prioritises regular survey of sites with large concentrations of waterbirds, as the information from these sites is crucial for estimating waterbird trends and populations for many species and for protecting important sites.

However, counters of small wetlands make a vital contribution to improved estimates of populations of dispersed species such as Teal and Coot. Méndez *et al.* (2015) suggest that improved coverage of small waterbodies and rivers could also enable more accurate estimation of widespread unobtrusive species such as Moorhen and Little Grebe.

FIND OUT MORE...

Chamberlain, D.E., Austin, G.E., Green, R.E., Hulme, M.F., & Burton, N.H.K. 2013. Improved estimates of population trends of Great Cormorants *Phalacrocorax carbo* in England and Wales for effective management of a protected species at the centre of a human-wildlife conflict. *Bird Study* **60**: 335–344.

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

Méndez, V., Austin, G.E., Musgrove, A.J., Ross-Smith, V.H., Hearn, R.D., Stroud, D. A., Wotton, S.R. & Holt, C.A. 2015. Use of environmental stratification to derive non-breeding population estimates of dispersed waterbirds in Great Britain. *Journal for Nature Conservation* **28**: 56–66.

Increasing numbers of some scarcer wintering wader species

Some wader species traditionally seen on passage are wintering in increasing numbers in recent years

RUFF: DAVE KING

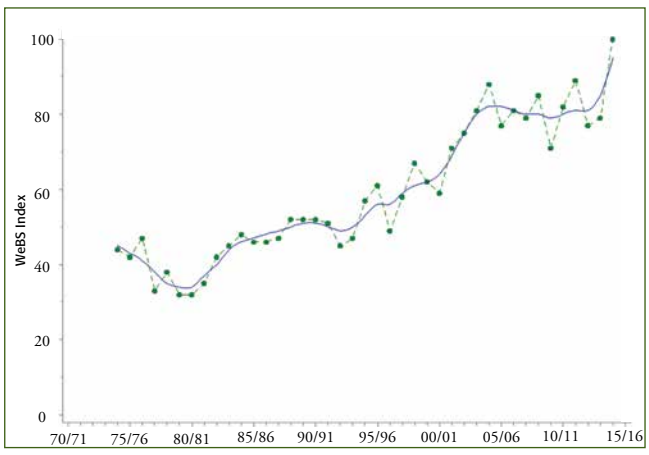
If we are lucky, and depending on where we go birdwatching, we may encounter one of the less common wintering wader species such as Whimbrel, Greenshank, Spotted Redshank and Ruff. Scarcer still are Little Stint and Curlew Sandpiper which tend to peak in August or September, but just a few remain to over-winter.

GREENSHANK

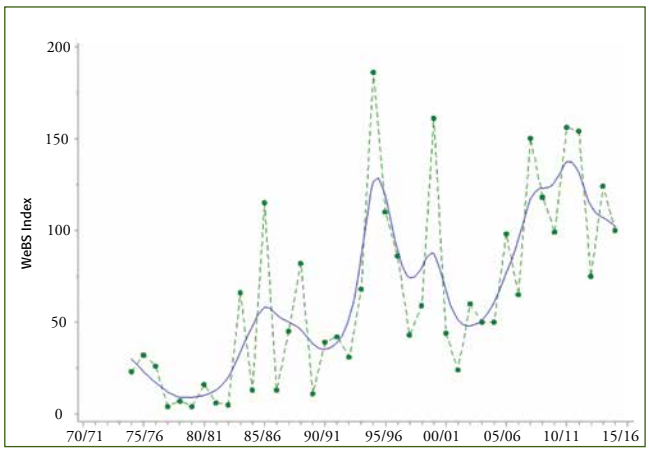
The number of Greenshank present during winter in the UK has increased over the last two decades, probably at least in part due to milder climatic conditions. There were 721 observations of Greenshank recorded between 1 November 2014 and 31 March 2015 with peak counts recorded at Strangford Lough (59, Feb), Chichester Harbour (52, Nov) the Tamar Complex (51, Feb) and Taw-Torridge Estuary (41, Nov). Outside of the winter months, the peak passage occurs in September (England) and October (Wales and Scotland) when birds are migrating south; the peak autumn count was at Chichester Harbour (96, Sep).

WHIMBREL

Whimbrel have a pronounced passage through the UK in spring and autumn, with a small breeding population in northern Scotland. Between 1 November 2014 and 31 March 2015, 49 records were received through WeBS, from 16 sites in Britain and one in Northern Ireland (Outer Ards). In Britain, most records were from the south coast, though interestingly, two were recorded at Borron Point on the Solway Estuary in November 2014. Winter numbers ranged from 1–3, with Chichester Harbour (Central) and Bury Marsh at Southampton Water each recording a peak of three, both on 8 November. The long-



▲ **November to March WeBS trend for Greenshank in UK.** Green dots = annual population index; blue line = smoothed trend.



▲ **November to March WeBS trend for Whimbrel in UK.** Green dots = annual population index; blue line = smoothed trend.

WHIMBREL: DAVE WRAGG

term pattern in November to March numbers suggests an increase.

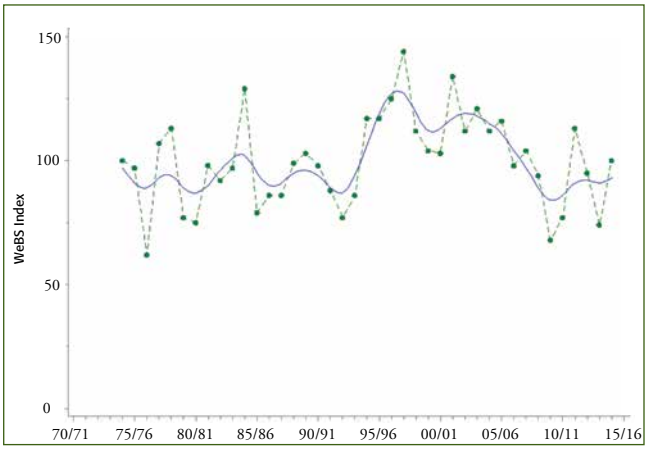
SPOTTED REDSHANK

The winter trend for Spotted Redshank is now similar to mid 1970s, though there was a distinct peak in the late 1990s, after which numbers dropped again. Peak months are March and October, during the main passage periods; the peak count for 2014/15 was at Old Hall Marshes in the Blackwater Estuary (60, Oct). In the 2014/15 winter months November–March we received 143 records with peak counts at Humber Estuary (12, Nov) and North Norfolk Coast (10, Nov).

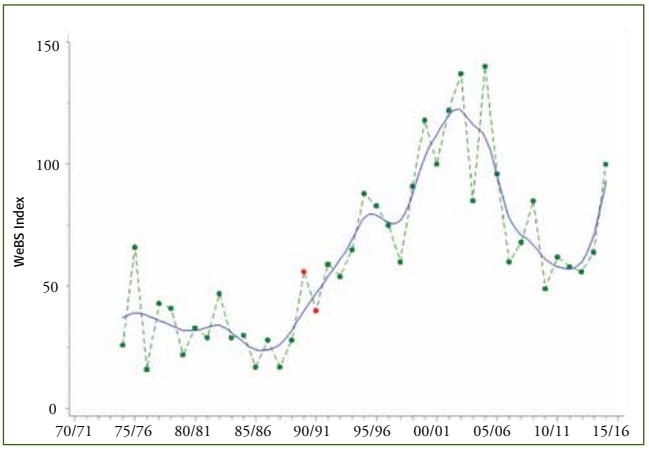
RUFF

After a marked increase in winter Ruff numbers at WeBS sites during the 1990s and early 2000s, there was a downward trend until 2011/12, after which the trend shows an increase again. This is primarily a passage species, with the peak months being March and September; breeding was last confirmed in 2012, though lekking has been recorded in recent years. A total of 185 records were received for the period November 2014 to March 2015, with peak counts at Lower Derwent Ings (131, Dec), North Norfolk Coast (124, Nov), Ouse Washes (84, Feb) and WWT Martin Mere (78, Jan).

The winter trends shown by WeBS suggests that these scarce wintering waders are either stable or increasing in number; although the reasons for this are unclear, but milder winter climatic conditions may be a strong influence.



▲ **November to March WeBS trend for Spotted Redshank in UK.** Green dots = annual population index; blue line = smoothed trend.



▲ **November to March WeBS trend for Ruff in UK.** Green dots = annual population index; blue line = smoothed trend.

Globe-trotting Godwits

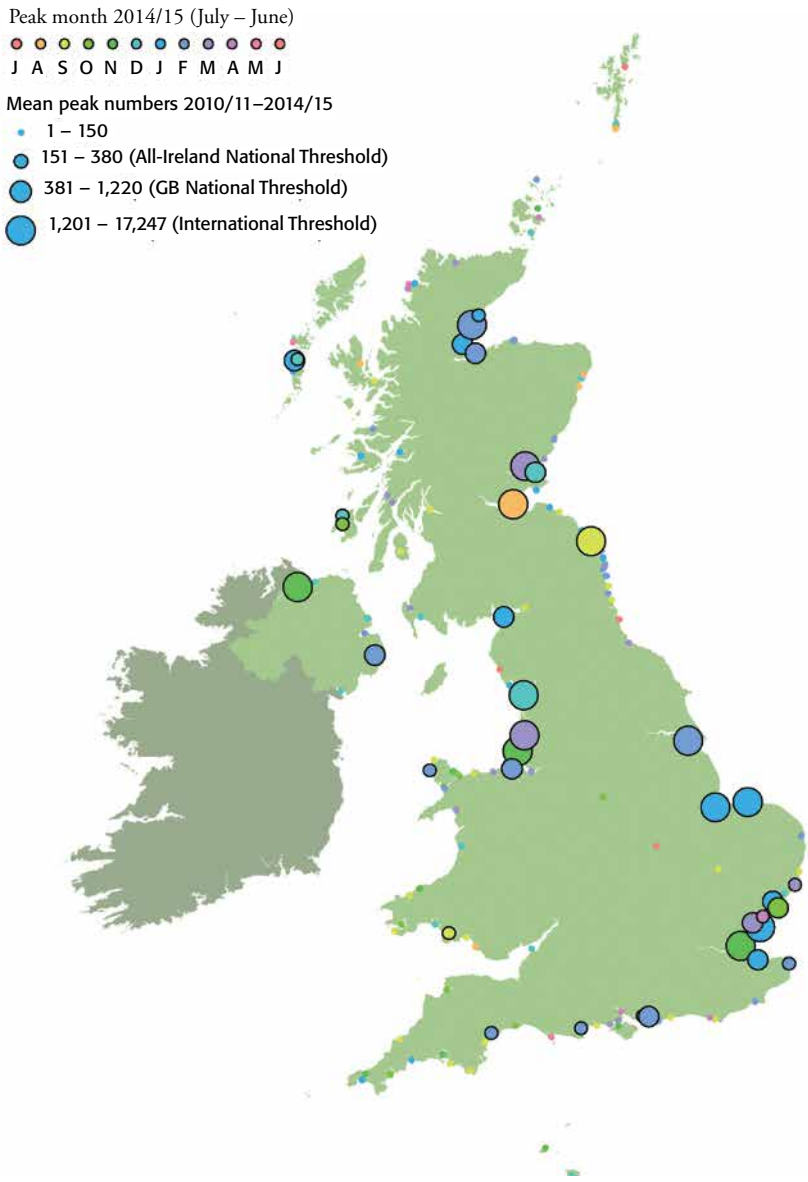
Bar-tailed Godwits are globally widespread with several subspecies migrating huge distances along the flyways

Coastal in its winter habits, the Arctic-breeding Bar-tailed Godwit is found on estuaries around the UK. Peak numbers of between 11,000 and 22,000 occur on the Wash and aggregations of several thousand birds are recorded by WeBS in mid-winter on other estuarine sites around the UK coast. Five-year mean peak counts currently exceed national or international importance thresholds at twenty-six sites.

The 40-year UK trend for Bar-tailed Godwit is steady in the long-term with fairly large inter-year variability and a possible cyclic pattern of typically 5-7 years between peaks. The annual index peaked at 1.7 times the current level in 1996/7 and a minimum of 86% of current numbers was seen in 2005/06. There was an apparent decline in the index from the turn of the millennium onwards but this has been somewhat reversed in recent years.

The *lapponica* subspecies of Bar-tailed Godwit breeds in Fennoscandia and winters mostly in the UK and the Netherlands but also reaches as far south as the Iberian peninsula. It increased in numbers between 1988 and 2003 and has since stabilised (Nagy *et al.*, 2014).

The *taymyrensis* sub-species breeds in central Siberia and "leap-frogs" the *lapponica* population, migrating along the flyway in spring and autumn to spend mid-winter in west and south-west Africa. Although based on limited data, there is a suggestion that this sub-species is declining (van Roomen *et al.*, 2015).



The peak count on most of the Bar-tailed Godwit's major UK sites is December and the WeBS month index likewise usually peaks mid-winter. Counts on other WeBS sites are often highest in other months and the peak reporting rate for this species in BirdTrack, as measured by the proportion of birdwatchers' complete lists each week recording the species, peaks in September with a secondary peak in early May. This may relate to additional *taymyrensis* passage migrants occurring more widely across the country, as well as passage movement of *lapponica* individuals that over-wintered more locally.

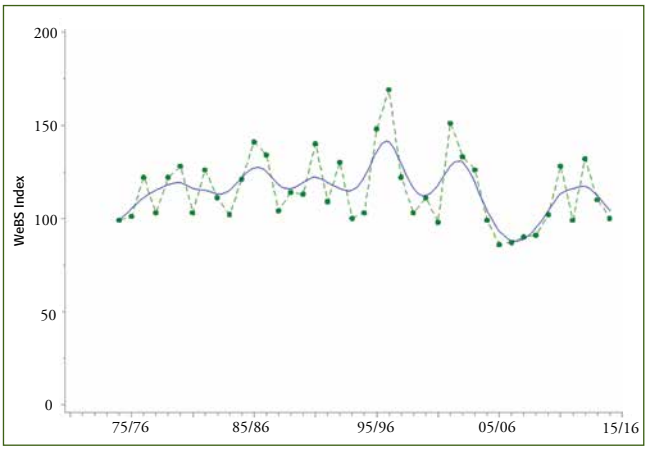
FIND OUT MORE...

Nagy, S., Flink, S., & Langendoen, T. 2014. *Waterbird trends 1988–2012: Results of trend analyses of data from the International Waterbird Census in the African-Eurasian Flyway*. Ede, The Netherlands.

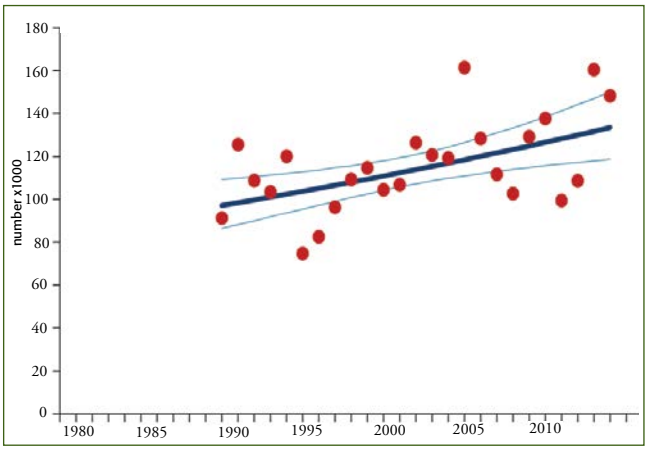
van Roomen, M., Nagy, S., Foppen, R., Dodman, T., Citegetse, G., & Ndiaye, A. 2015. *Status of coastal waterbird populations in the East Atlantic Flyway 2014. With special attention to flyway populations making use of the Wadden Sea*. Leeuwarden, The Netherlands.

NEIL CALBRADE

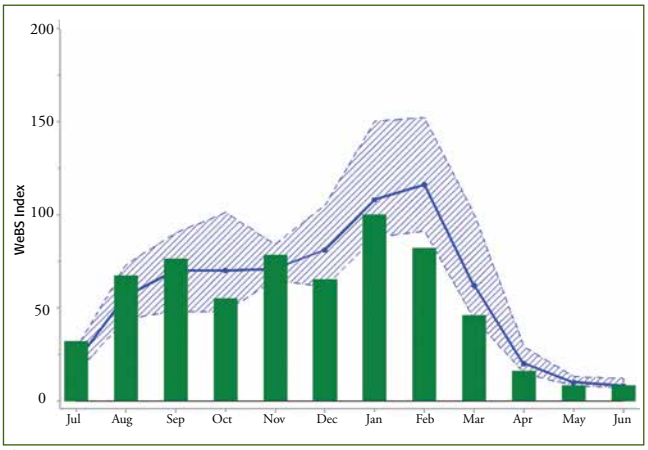
Bar-tailed Godwits have the longest known non-stop migratory flight of any bird. One satellite tagged individual flew 11,680 km (7,258 miles) from Alaska to New Zealand without stopping.



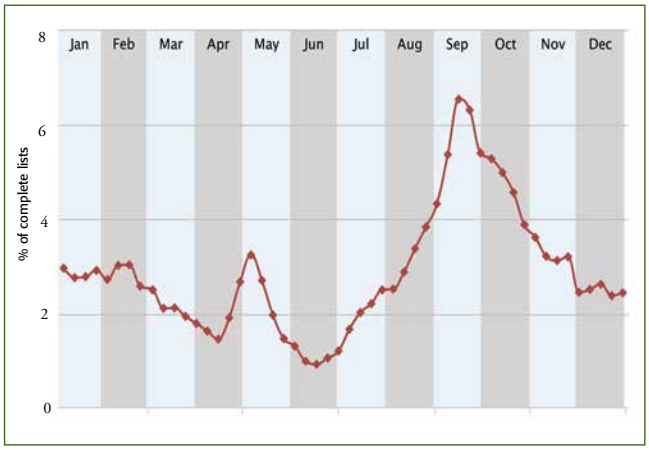
WeBS trend for Bar-tailed Godwit in UK.
Green dots = annual index; blue line = smoothed trend.



Population trend of Bar-tailed Godwit (*lapponica* race) wintering in the East Atlantic Flyway based on January IWC counts.



Monthly indices for Bar-tailed Godwit in UK.
Green bars = 2014/15; blue line/hatched area = previous 5-year mean/range.



Bar-tailed Godwit observations as a proportion of historical complete BirdTrack lists, indicating how relatively widespread they are throughout the year.

Focus on... Crane

NEIL CALBRADE

It is claimed that no other wild bird appears in so many British places names as the Crane. There is also archaeological and documentary evidence that it was once a well-known bird in Britain as a breeder, as well as a wintering visitor, as far north as Orkney (Boisseau & Yalden, 1998). There are now welcome signs of a comeback for this charismatic bird, slowly regaining its place in the British wetland avifauna. The WeBS winter index has increased rapidly in the past six years, although counters at only a favoured few sites are fortunate enough to record the species routinely.

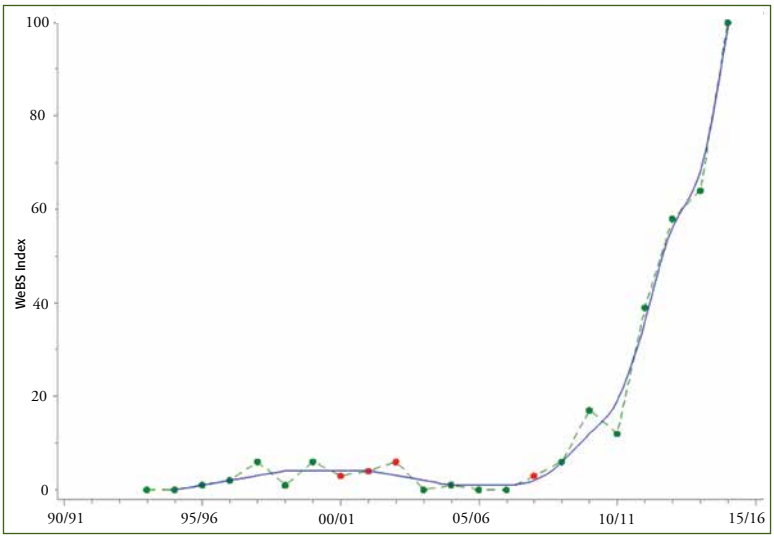
Extinct as an Irish breeding bird since c.1300s and as a British breeding bird since c.1600, sightings became very rare as the Crane declined across Europe. Thankfully in the 20th century continental populations began to recover, resulting in annual British records from the early 1950s onwards. A particularly notable influx of around 500 birds along the south coast was recorded in late autumn 1963, in response to cold weather (Stanbury, 2011).

There are currently four main centres of population, with the British breeding birds largely sedentary. The oldest population centre is in the Broads of East Anglia, where a pair arrived in autumn 1979, stayed, and bred in 1981. Breeding has taken place here every year since. Breeding has also taken place in Yorkshire since 2002, in the East Anglia fens since 2007 and north-east Scotland since 2012. There is a known link between birds in the East Anglian fens and Broads but it is unknown whether individuals in Yorkshire and Scotland originated from the Broads population.

Stanbury (2011) notes the Broads wintering population to be over 40 birds, but that, as the population has increased, accurate counting is more difficult as birds do not all roost together and disperse widely to feed on grazing marsh and surrounding arable fields. In recent years, a wintering flock has built up in the East Anglian fens.

Winter WeBS Core Counts see Cranes most regularly recorded at St Benet's Levels, Nene Washes and Lakenheath Fen, Severn Estuary and Somerset Levels and Thorne Moors WeBS sites.

Due to the low productivity and slow natural spread from east England, the Great Crane Project aimed to double the British population. Between 2010 and 2015, 93 birds from German stock were raised and released in the Somerset Levels. A higher proportion of these reintroduced birds have been captured in monthly WeBS counts, explaining the recent very rapid increase in the index. Now these releases have ended, it will be very interesting to see whether the Crane population index will continue to increase.



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

FIND OUT MORE...

Boisseau, S. & Yalden D.W. 1998. The former status of the Crane *Grus grus* in Britain. *Ibis* **140**: 482–500.

Stanbury, A. 2011. The changing status of the Common Crane in the UK. *British Birds* **104**: 432–447.

WWT, RSPB, Pensthorpe Conservation Trust and Viridor Credits. 2015. Great Crane Project Annual Report 2014–2015. **www.thegreatcraneproject.org.uk/news/annual-reports**

Focus on... Shoveler

NEIL CALBRADE

Shoveler is a highly migratory species that responds rapidly to local environmental factors of food availability and temperature. In winter it favours shallow freshwater and flooded meadows but can also be found in brackish marshes and estuaries.

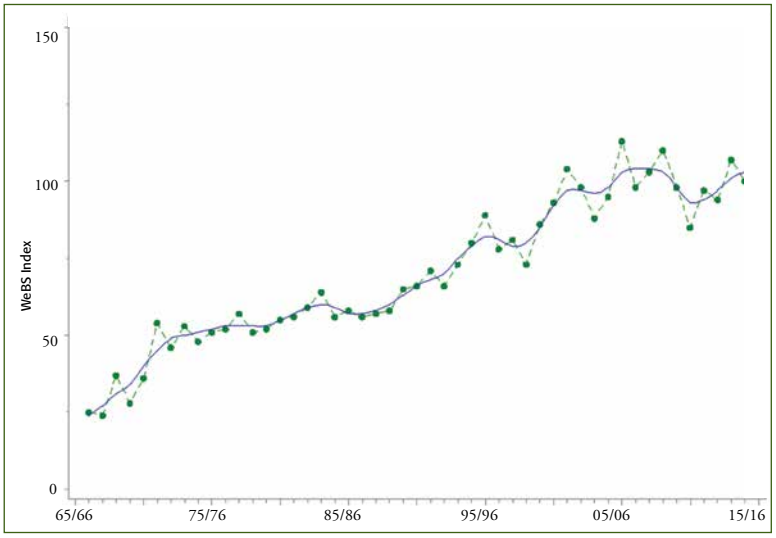
Shoveler favours wintering in warmer conditions than other regularly occurring dabbling duck species, with the mean temperature experienced by European populations in January being around 9ºC, compared with 4 – 8ºC for Wigeon, Gadwall, Teal and Pintail and around 3ºC for the hardy Mallard (Dalby *et al.*, 2013). Shoveler are sensitive to freezing conditions which prevent feeding. As a specialist feeder of freshwater invertebrates, Dalby *et al.* (2013) speculated that higher crustacean densities associated with warmer water temperatures also influence Shoveler European distribution.

Guillemain *et al.* (2000) found that food abundance is of crucial importance for winter habitat selection, and that if zooplankton density decreased at a site over winter then Shovelers moved on from the site.

The UK WeBS index includes passage migrants and overwintering birds from eastern Europe and Russia. In the 1950s UK maxima were in February and March whereas in the 1960s and 1970s numbers declined throughout the winter after a November peak. More recently the trend is for birds to be present in more equal numbers throughout the September – March period, although in keeping with Shoveler mobility in response to conditions, there is variation from year to year.

Nine sites surpassed the threshold for international importance with a five-year mean peak of over 400 birds. Four of these had maxima greater than their five-year mean. After a record peak at Abberton Reservoir in 2013/14 of 2,031 birds, the 2014/15 maxima of 651 in August was the lowest for six years. Conversely, at the Somerset Levels, the peak of just 2,020 in January 2015 was the highest since 2007/08.

Most sites with nationally important numbers of Shoveler are in England. The Welsh side of the Severn and Llynnau Y Fali in Anglesey are the only non-English sites qualifying in Great Britain. The index for Northern Ireland more than halved between 2002/03 and 2012/13, but numbers appear to have started to recover in the past two years, a pattern mirrored in both sites with numbers above the Irish national threshold. Strangford Lough had the highest total since 2009/10 with 104 birds and Loughs Neagh and Beg the highest since 2007/08 with 72 birds.



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

FIND OUT MORE...

Guillemain, M., Fritz, H. & Guillon, N. 2000. Foraging behavior and habitat choice of wintering Northern Shoveler in a major wintering quarter in France. *Waterbirds* **23**: 353–363.

Dalby, L., Fox, A.D., Petersen, I.K., Delany, S., & Svenning, J.C. 2013. Temperature does not dictate the wintering distributions of European dabbling duck species. *Ibis* **155**: 80–88.

UK Low Tide Counts 2014/15

Sixteen 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 inter-tidal feeding areas of UK estuaries for wintering waterbirds, and in doing so complements information gathered 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. On most estuaries, numbers of waterbirds feeding on predefined sectors of inter-tidal habitat are counted. Most individual estuaries are counted at low tide once every six years, although on some sites more frequent counts are undertaken.

Coordinated counts of waterbirds are made each month from November to February inclusive, in the two-hour period either side of low tide. Each counted sector is divided into a maximum of three distinct habitat components: inter-tidal, sub-tidal, and non-tidal. Species data are divided among these habitats depending on the habitat preferences of the species concerned.

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 2014/15, WeBS Low Tide Counts were carried out at 16 estuaries. These included the Dee Estuary, Alt Estuary, Hamford Water and Portsmouth Harbour, all of which were counted for the first time since 2008/09. Results from the counts at Portsmouth Harbour are presented on pages 36–37 of this report.

Further information about WeBS Low Tide Counts, including data summaries and distribution maps for different estuaries and species, are available online via **www.bto.org/websreporting-lowtide**.

SANDERLING: JILL PAKENHAM

1) Loch Fleet
2) Breydon Water
3) Orwell Estuary
4) Stour Estuary
5) Hamford Water
6) Adur Estuary
7) Pagham Harbour
8) Langstone Harbour
9) Portsmouth Harbour
10) Swansea Bay
11) Burry Inlet
12) Dee Estuary
13) Alt Estuary
14) Wyre Estuary
15) Kent Estuary
16) Strangford Lough

▲ **Estuaries in the UK counted as part of WeBS Low Tide Count scheme in 2014/15.**

Portsmouth Harbour at low tide

Most sites are counted on a cyclical basis enabling comparison of data between years

This large harbour in the Solent lies between Portsmouth to the east, and Gosport and Fareham to the west. The main freshwater inflow is Wallington River to the north-west. This meets the saltwater at Fareham Lake, which restricts the freshwater input to the Harbour. The connection to the Solent is only 200 metres wide at the narrowest point.

Saltmarsh is a relatively limited habitat around the shores of the estuary. However, eelgrass and algal growth on the mudflats is more extensive. The shores of the harbour are heavily industrialised, including port and housing developments, along with major naval docks and installations. Future developments and dock expansion may impact the site; the pressure to reduce MOD activity/spending could lead to the release of land adjacent to the Harbour for development (D. Bill pers. comm.).

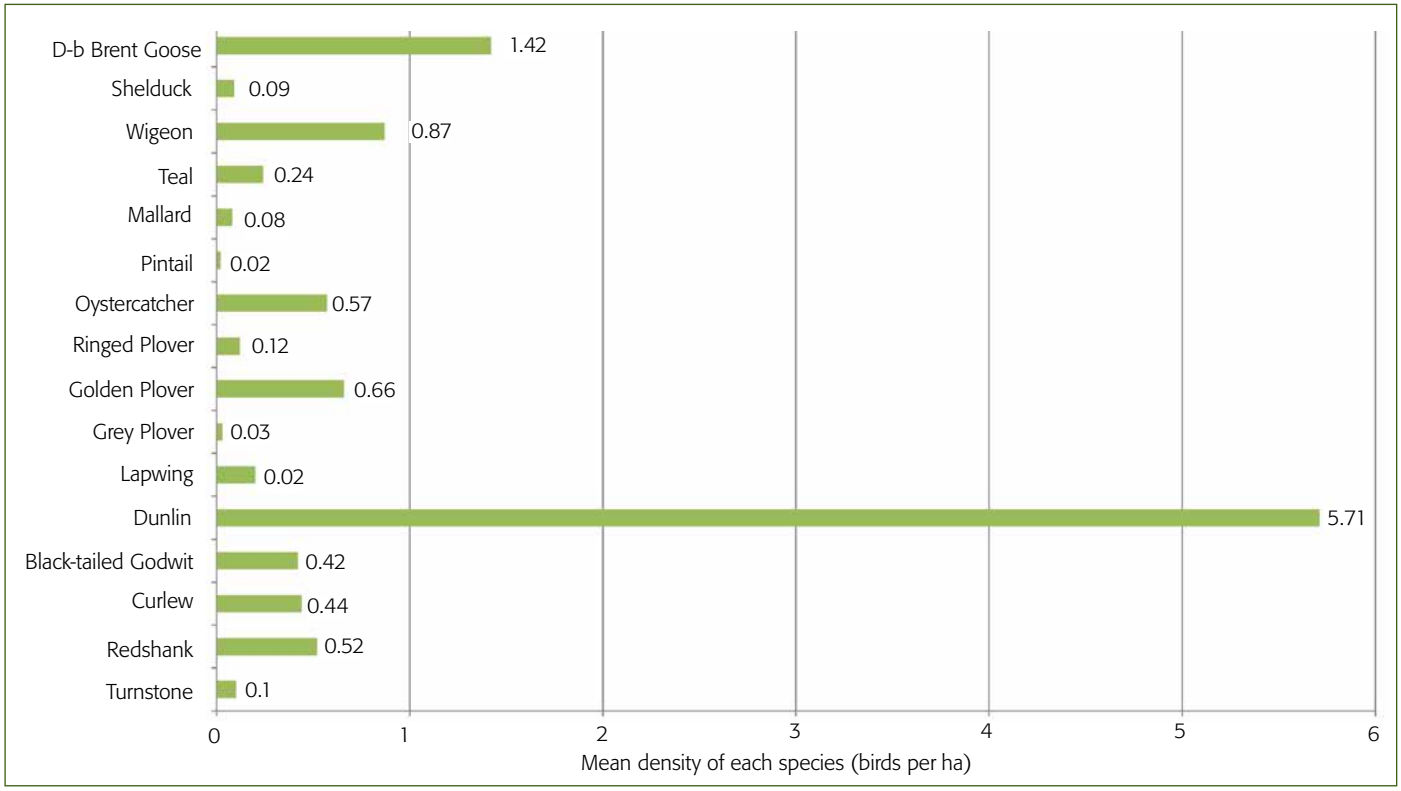
The distribution of two species are mapped on the opposite page. For Dark-bellied Brent Goose and Black-tailed Godwit, distributions based on WeBS Low Tide Counts undertaken in 2008/09 are displayed for comparison with the respective distributions from 2014/15.

Dark-bellied Brent Geese are present in internationally important numbers in Portsmouth Harbour with a five-year average of 2,578 birds. The mean winter counts at low tide in Portsmouth Harbour have remained stable with 2,204 (1.44 birds per ha) in 2008/09, compared to 2,238 (1.42 birds per ha) in 2014/15. The largest concentrations of Dark-bellied Brent Geese in 2014/15 were in Paulsgrove Lake, Tipner Lake and Forton Lake whereas in 2008/09 they were more widely distributed.

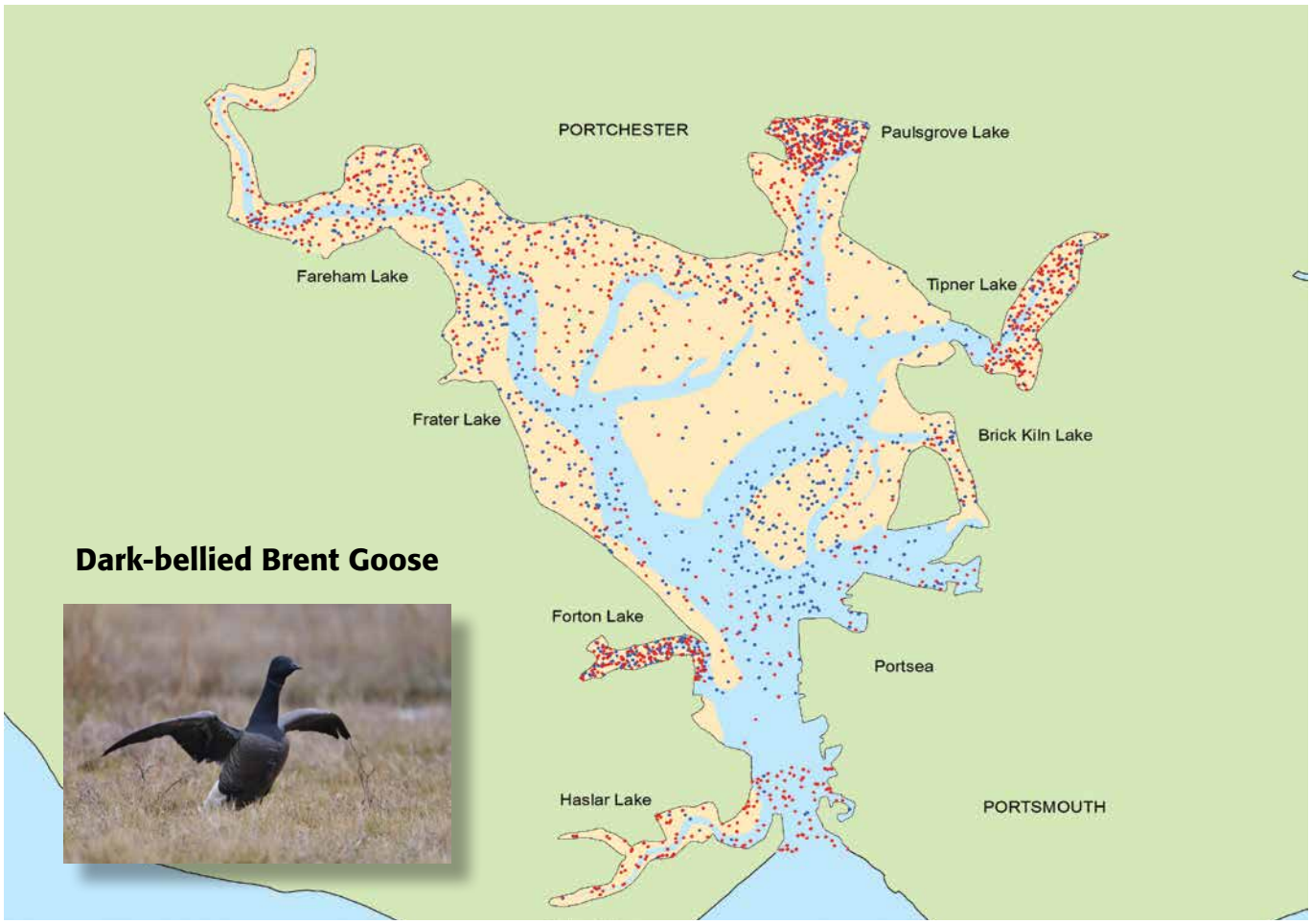
Black-tailed Godwit is another species that has shown a long-term increase in the UK population. Despite this national increase, between 2008/09 and 2014/15, the mean winter low tide counts at Portsmouth Harbour almost halved from 249 birds (0.42 birds per ha), in 2014/15 compared to 481 (0.81 birds per ha) in 2008/09. The largest concentrations in both winters were in Fareham Lake and Paulsgrove Lake.

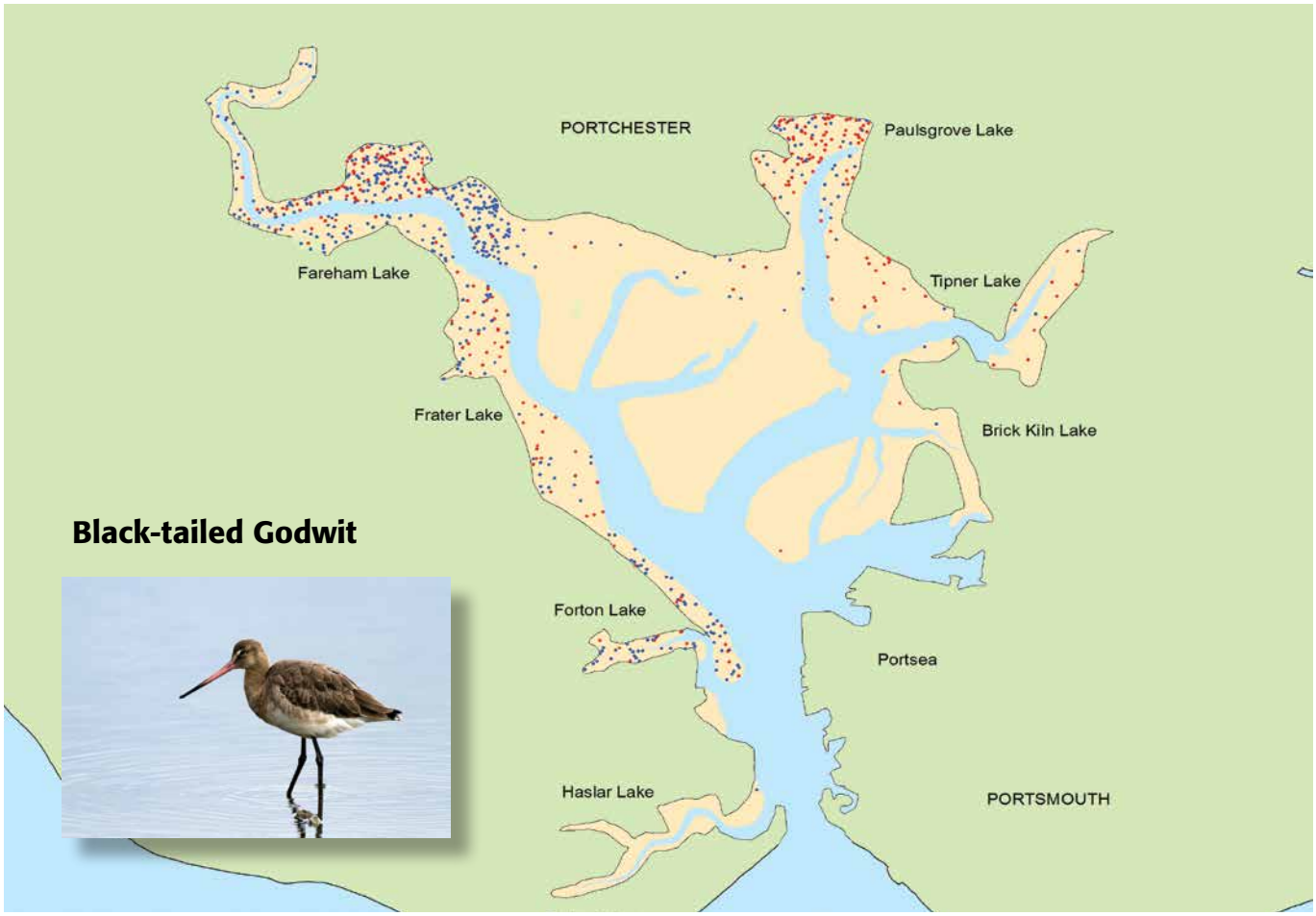
GENERAL STATISTICS FOR PORTSMOUTH HARBOUR

Area covered: 968 ha
Mean total birds: 9,739
Mean bird density: 10.1 birds per ha



▲ **Mean densities of waterbirds at low tide at Portsmouth Harbour in 2014/15.**





DARK-BELLIED BRENT GOOSE BY GRAHAM CATLEY; BLACK-TAILED GODWIT BY JOHN HARDING

▲ **Low tide distribution of Dark-bellied Brent Goose (1 dot = 2 birds) and Black-tailed Godwit (1 dot = 1 bird) at Portsmouth Harbour, for the winters of 2014/15 (red) and 2008/09 (blue).**

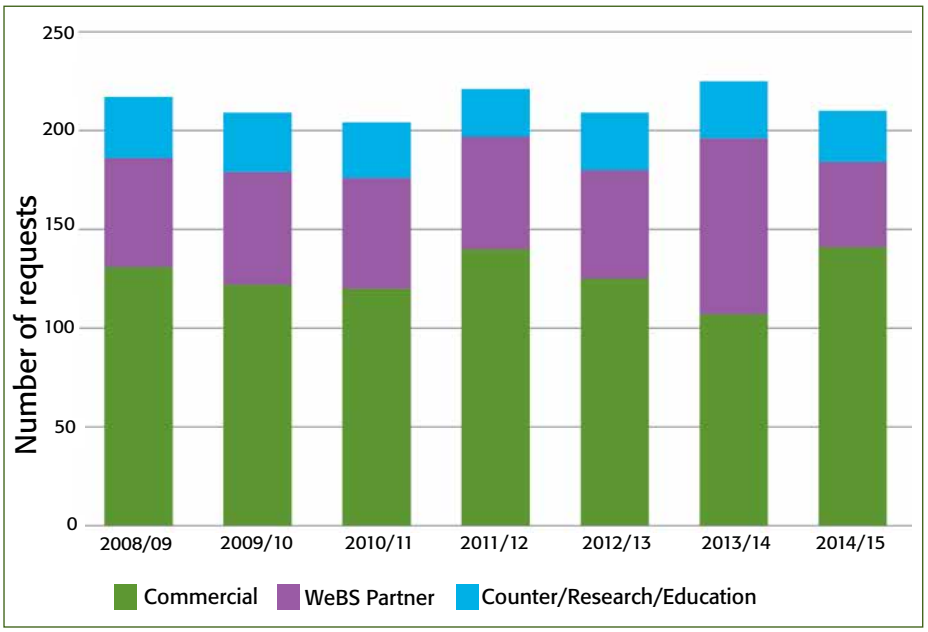
Uses of WeBS data 2014/15

210 WeBS Data Requests in 2014/15

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 online interface, but data at a finer level (both spatial and temporal) are available in a user-friendly format through a bespoke WeBS Data Request. Any 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 to ensure the data have been validated and summarised appropriately.

The graph shows the number of Data Requests processed by the WeBS office each year since 2008/09. 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 2008/09 to 2014/15**

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 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 **webs@bto.org**.

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 2014/15

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
Clwyd (coastal)	**VACANT**
Clwyd (inland)	Duncan Halpin
East Glamorgan	Daniel Jenkins-Jones
Gwent (excl Severn Estuary)	Al Venables
Merioneth (estuaries)	Jim Dustow
Merioneth (other sites)	Trefor Owen
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)	Shane Wolsey
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)	Vacant (now Michael Stinson)

CHANNEL ISLANDS

Alderney	Alderney Wildlife Trust Ecologist
Channel Islands (inland)	Glyn Young
Guernsey Coast	Mary Simmons
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 2014/15, the WeBS Local Organiser Advisory Committee (WeBS LOAC) comprised John Armitage, Neil Bielby, Gladys Grant, Andrew King, Nick Mason, Brian Moore, Dave Shackleton and Shane Wolsey. 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

Holt, C.A., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. & Musgrove, A.J. 2015. *Waterbirds in the UK 2013/14: The Wetland Bird Survey.* BTO/RSPB/JNCC. BTO, Thetford.

Austin, G.E. & Burton, N.H.K. 2014. *Notes on the WeBS-Defra Annual Cormorant Index.* BTO Research Report 678. BTO, Thetford.

Austin, G.E. 2015. *The Use of Wetland Bird Survey (WeBS) Data for Rapid Condition Assessment of Non-Breeding Waterbird SPAs in England.* Research Report 670. BTO, Thetford.

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. **http://blx1.bto.org/webs-reporting-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.

Fox, A.D., Dalby, L., Christensen, T.K., Nagy, S., Balsby, T.J.S., Crowe, O., Clausen, P., Deceuninck, B., Devos, K., Holt, C., Hornman, M., Keller, V., Lehikoinen, A., Lorentsen, S.-H., Molina, B., Nilsson, L., Stipniece, A., Svenning , J.-C. & Wahl, J. 2016. Seeking explanations for recent changes in abundance of wintering Eurasian Wigeon (*Anas penelope*) in northwest Europe. *Ornis Fennica* 93:12–25.

Hayhow D.B., Bond A.L., Eaton M.A., Grice P.V., Hall C., Hall J., Harris S.J., Hearn R.D., Holt C.A., Noble D.G., Stroud D.A. & Wotton S. 2015. *The state of the UK's birds 2015*. RSPB, BTO, WWT, JNCC, NE, NIEA, NRW and SNH, Sandy, Bedfordshire. **www.bto.org/SUKB**.

Méndez, V., Austin, G.E., Musgrove, A.J., Ross-Smith, V.H., Hearn, R.D., Stroud, D.A., Wotton, S.R., & Holt, C.A. 2015. Use of environmental stratification to derive non-breeding population estimates of dispersed waterbirds in Great Britain. *Journal for Nature Conservation* 28: 56–66.

Pavón-Jordán, D., Fox, A.D., Clausen, P., Dagys, M., Deceuninck, B., Devos, K., Hearn, R.D., Holt, C.A., Hornman, M., Keller, V., Langendoen, T., Ławicki, Ł., Lorentsen, S.H., Luigujõe, L., Meissner, W., Musil, P., Nilsson, L., Paquet, J.Y., Stipniece, A., Stroud, D.A., Wahl, J., Zenatello, M., & Lehikoinen, A. 2015. Climate-driven changes in winter abundance of a migratory waterbird in relation to EU protected areas. *Diversity and Distributions* 21: 571–582.

Pearce-Higgins, J.W. & Holt, C.A. 2013. Impacts of climate change on waterbirds. *Marine Climate Change Impacts Partnership Science Review 2013*: 149–154.

Robinson, R.A., Marchant, J.H., Leech, D.I., Massimino, D., Sullivan, M.J.P., Eglington, S.M., Barimore, C., Dadam, D., Downie, I.S., Hammond, M.J., Harris, S.J., Noble, D.G., Walker, R.H. & Baillie, S.R. 2015. *BirdTrends 2015: trends in numbers, breeding success and survival for UK breeding birds.* BTO Research Report 678. BTO, Thetford. **www.bto.org/birdtrends**.

Ryan, L.J. Green, J.A. & Dodd, S.G. 2016. Weather conditions and conspecific density influence survival of overwintering Dunlin *Calidris alpina* in North Wales. *Bird Study* 63: 1–9.

WeBS

BTO
Looking out for birds

rspb giving nature a home

JNCC
Joint Nature Conservation Committee

in association with WWT

British Trust for Ornithology
The Nunnery
Thetford
Norfolk
IP24 2PU

01842 750050
webs@bto.org
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 2014/15

ENGLAND

Avon (excl Severn Estuary)	Rupert Higgins
Bedfordshire	Richard Bashford
Berkshire	Ken White
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
Cheshire (South)	David Cookson
Cleveland (excl Tees Estuary)	Chris Sharpe
Cleveland (Tees Estuary)	Mike Leakey
Cornwall (excl Tamar Complex)	Pete Roseveare
Cornwall (Tamar Complex)	Gladys Grant
Cotswold Water Park	Gareth Harris
Cumbria (Duddon Estuary)	Colin Gay
Cumbria (excl estuaries)	Dave Shackleton
Cumbria (Irt/Mite/Esk Estuary)	Peter Jones
Dee Estuary	Colin Wells
Derbyshire	Peter Gibbon
Devon (other sites)	Pete Reay
Devon (Exe Estuary)	Penny Avant
Devon (Taw/Torridge Estuary)	Brian O'Leary
Dorset (excl estuaries)	Malcolm Balmer
Dorset (Poole Harbour)	Paul Morton
Dorset (Radipole and Lodmoor)	Toby Branston
Dorset (The Fleet and Portland Harbour)	Steve Groves
Durham	**VACANT**
Essex (Crouch/Roach Estuaries and South Dengie)	Peter Mason
Essex (Hamford Water)	Julian Novorol
Essex (North Blackwater)	John Thorogood
Essex (other sites)	Gavin Foster
Essex (South Blackwater and North Dengie)	Anthony Harbott
Gloucestershire	Michael Smart
Greater London (excl Thames Estuary)	Helen Baker
Greater Manchester	Jamie Dunning
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)	Norman McCanch
Kent (North Kent estuaries)	Geoff Orton
Kent (Pegwell Bay)	Ian Hodgson
Kent (West)	Norman McCanch
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
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)	**VACANT**
Morecambe Bay (South)	Jean Roberts
Norfolk (Breydon Water)	Jim Rowe
Norfolk (excl estuaries)	Tim Strudwick
Norfolk (North Nofolk Coast)	Michael Rooney (now Neil Lawton)
Northamptonshire (excl Nene Valley)	**VACANT**
Northamptonshire (Nene Valley)	Steve Brayshaw
Northumberland (coastal)	Daniel Turner (now 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)	Norman Holton
Solway Estuary (outer South)	Dave Shackleton
Somerset (other sites)	Eve Tigwell
Somerset (Somerset Levels)	Steve Meen
Staffordshire	Steve Turner (now Scott Petrek)
Suffolk (Alde Complex)	Ian Castle
Suffolk (Alton Water)	John Glazebrook
Suffolk (Blyth Estuary)	Adam Burrows (now 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)	James Parkin
Sussex (other sites)	Richard Bown (now Helen Crabtree and Dave Boddington)
Thames Estuary (Foulness)	Chris Lewis
The Wash	Jim Scott
Warwickshire	Matthew Griffiths
West Midlands	Nick Lewis
Wiltshire	Bill Quantrill
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)	Jamie Dunning
Yorkshire (Wakefield area)	Peter Smith

SCOTLAND

Aberdeenshire	Vacant (now Moray Souter)
Angus (excl Montrose Basin)	**VACANT**
Angus (Montrose Basin)	Anna Cheshier
Argyll Mainland	Paul Daw
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
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	John Armitage (now David Wood)
Isle of Cumbrae	**VACANT**
Lochaber	John Dye
Lothian (excl estuaries)	Allan Brown
Lothian (Tyninghame Estuary)	Bobby Anderson
Moray and Nairn (inland)	David Law
Moray and Nairn (Lossie Estuary)	Bob Proctor
Moray Basin Coast	Bob Swann
Mull	Paul Daw
Orkney	Eric Meek (now Morag Wilson)
Perth and Kinross (excl Loch Leven)	Michael Bell
Perth and Kinross (Loch Leven)	Jeremy Squire
Shetland	Paul Harvey
Skye and Lochalsh	Robert Macmillan
Solway Estuary (North)	Andy Riches
Sutherland (excl Moray Basin)	**VACANT**
Tiree and Coll	John Bowler
Uists and Benbecula	Yvonne Benting
West Inverness/Wester Ross	Vacant (now Andy Douse)

ISBN 978-1-908581-66-2