



AH - 9. II. 2017 -

Waterbirds in the UK 2015/16

The annual report of the Wetland Bird Survey

WATERBIRDS IN THE UK 2015/16

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 2015/16* is the 35th 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

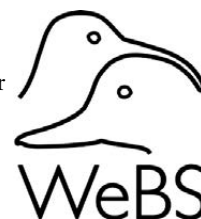
THE WeBS PARTNERSHIP

The Wetland Bird Survey (WeBS) is run by the British Trust for Ornithology (BTO). It is a partnership between 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 bodies: Natural England (NE), Natural Resources Wales (NRW) and Scottish Natural Heritage (SNH) and the Department of Agriculture, Environment and Rural Affairs, Northern Ireland (DAERA)) in association with the Wildfowl and Wetlands Trust. (WWT).

The permanent members of the WeBS Steering Committee in 2015/16 were Teresa Frost (BTO), Andy Musgrove (BTO), Dawn Balmer (BTO), David Stroud (JNCC), Deborah Procter (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
Matthew Baxter - 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 and NEWS Counters who collected the data used in this report and to the invaluable efforts of the NEWS Local Organisers and 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.

NEWS was funded by SNH, NE, NRW, DAERA, WeBS and I-WeBS.

We are also grateful to the following for providing supplementary information, data inputting, proof-reading and particularly invaluable help in 2015/16: Andy Musgrove, Deborah Procter, GSMP, Sarah Harris, Jane Herridge, Mark Hammond, Nick Lewis, Richard Minter, RAFOS, SOTEAG and Steve Pritchard. Grateful thanks to all and apologies to anyone who has been inadvertently missed.

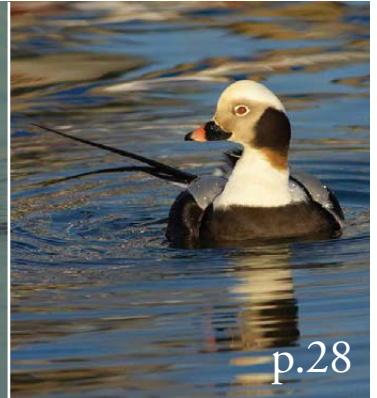
Report content and production was by Teresa Frost, Dawn Balmer, Heidi Mellan and Neil Calbrade. The article on waterbird monitoring in Sierra Leone was contributed by Papanie Bai-Sesay (Conservation Society of Sierra Leone), the article on SPA Review by David Stroud (JNCC) and seaduck monitoring by Colette Hall (WWT).

The painting of NEWS counting on the Isle of Skye, used on the cover of this report, is by Alan Harris. For more of Alan's work, see www.alanharrisbirdartist.co.uk. All other artists and photographers are acknowledged on the pages of this report.



Maps in this report contain Ordnance Survey data © Crown Copyright and database right 2017. This report was printed by Swallowtail Print, Norwich.

CONTENTS...



Waterbird Headlines..... 4	SPA Review 22	Species Focus - Grey Plover..... 33
Species in the news in 2015/16.	WeBS Counts fed into the SPA Review.	A detailed look at Grey Plover in the UK.
The WeBS Year..... 5	Another National Scheme..... 24	Low Tide Counts..... 34
Coverage and weather in 2015/16.	Waterbird monitoring in Sierra Leone.	Low Tide Count scheme in 2015/16.
Population Trends..... 10	Investigating Trends..... 26	Online Reporting Interface 37
National trends for waterbirds wintering in the UK in 2015/16.	Looking at links to potential drivers of waterbird declines.	An overview of the online WeBS reporting interface.
Principal Sites..... 12	Species Focus - Seaducks..... 28	Uses of WeBS Data..... 38
Sites with the largest aggregations of wintering waterbirds.	A detailed look at monitoring of seaducks in the UK.	Review of how WeBS data were utilised in 2015/16.
NEWS III..... 14	Species Focus - Oystercatcher.... 30	WeBS Local Organisers..... 39
A summary of the Non-Estuarine Waterbird Survey III.	A detailed look at Oystercatcher in the UK.	A list of WeBS Local Organisers and members of the WeBS LOAC.
NEWS Habitat Focus..... 16	Species Focus - Great Crested Grebe ... 32	Special Thanks back cover
The UK's non-estuarine coast.	A detailed look at Great Crested Grebe in the UK.	

CITATION

Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hall, C., Hearn, R.D., Stroud, D.A., Wotton, S.R. & Balmer, D.E. 2017. *Waterbirds in the UK 2015/16: 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 2017.

© British Trust for Ornithology, Royal Society for the Protection of Birds and Joint Nature Conservation Committee, in association with Wildfowl & Wetlands Trust, 2017.

ISBN 978-1-908581-76-1

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 2015/16*.

Waterbird headlines from the WeBS year

Just a small selection of notable stories from 2015/16

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

3,092
registered
WeBS
volunteers

This edition of *Waterbirds in the UK* reports on the Non-Estuarine Waterbird Survey (NEWS III) together with results from WeBS for 2015/16. Regional maps and results from NEWS are now available in the WeBS Report Online (page 37). Coverage was impressive, with visits to over 53% of all UK NEWS sectors and 79% of priority sectors - equating to 9,200 km of coastline. One of the major outputs of NEWS is population estimates for waterbirds on the non-estuarine coast (page 15). Results show the most numerous gull on the open coast is Herring Gull (estimate of 107,900 individuals), the most numerous wader Oystercatcher (69,900; pages 30–31) and the most numerous wildfowl Wigeon (44,600).



EDMUND FELLOWES



JUSTIN CARR

NEWS is particularly important for gathering information on intertidal shore specialists. Sanderling numbers increased compared to previous surveys (the WeBS trend likewise has been increasing), but fewer Turnstone, Purple Sandpiper and Ringed Plover (pages 18–19) were recorded. NEWS surveyors also recorded habitat information, including extent and volume of tidal wrack deposits, which will help further understanding of how birds use coastal habitats (pages 16–17). Ducks, divers and grebes that winter offshore are an important component of the UK winter waterbird fauna. Both NEWS and WeBS results suggest that Great Northern Diver numbers are on the up (page 21). Great Crested Grebe is another species that makes use of offshore as well as inland habitats in winter (page 32). Monitoring seaducks is challenging, but both WeBS and NEWS play an important part in increasing our understanding of these species, many of which are of conservation concern (pages 28–29).

The UK Special Protection Area (SPA) network has been reviewed, revealing the value of the contribution WeBS volunteer-collected evidence makes (pages 22–23). Data for over half of all “interest features”, meaning the species that have been used to classify each individual SPA, came from WeBS. For over 50 species of waterbird the only national data source were WeBS counts. Over a third of non-breeding waterbirds occur within SPAs, with coverage particularly good for species that aggregate at high densities. A site that is also used for migration stopover can support many more individuals than the annual peak count for this site implies, as was found in a study of Grey Plover at the Swale Estuary in Kent (page 33).



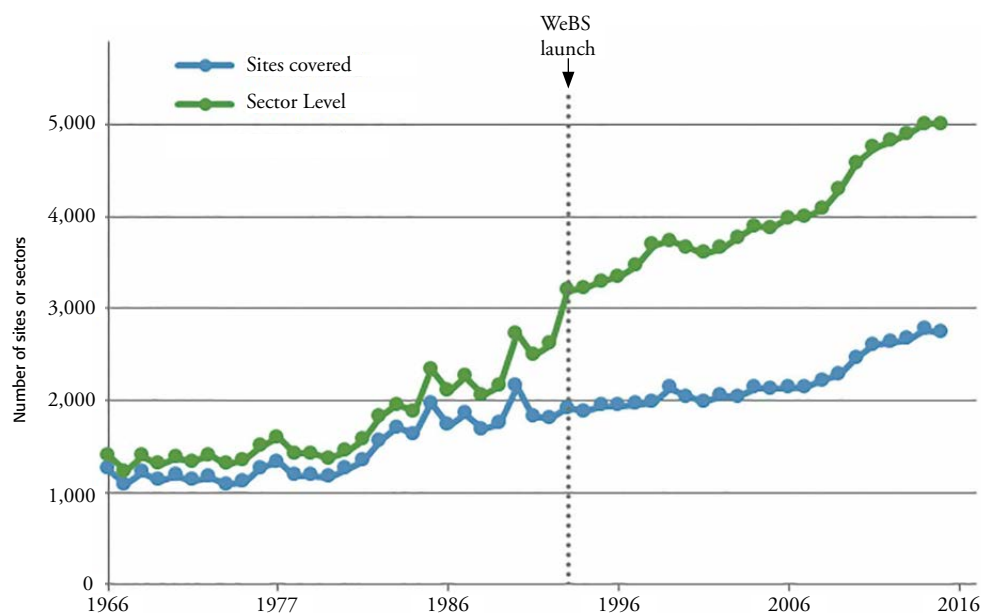
JILL PAKENHAM

WeBS Core Counts 2015/16 - in numbers

Core Counts were carried out at 5,005 WeBS sectors (count units) at 2,733 sites from July 2015 to June 2016.

Not all Core Counts are linked to individual counters in the WeBS Online database, but an increasing number are; 2,071 counters were associated with WeBS Core Count visits made in 2015/16, an increase of 2% on the previous year.

There were 37,664 count visits, 71% in the core September–March period.

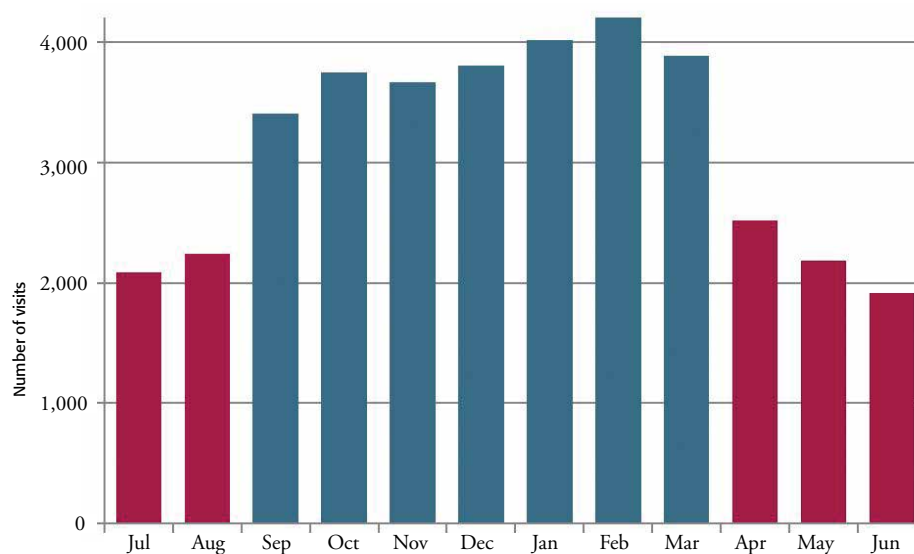


▲ Number of WeBS sites and sectors covered 1966/67–2015/16.

Core Count dates in 2015/16

2015	2016
19 July	17 January
16 August	21 February
13 September	13 March
18 October	10 April
15 November	8 May
13 December	5 June

▼ Number of WeBS Core Count visits in 2015/16 by month.



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 are undertaken at, primarily, roost sites in October and November as part of the Icelandic-breeding Goose

Census. British Greylag Geese at key sites in Scotland were censused by a number of local management groups.

Greenland White-fronted Geese were monitored by the Greenland White-fronted Goose Study. Greenland Barnacle Geese were counted by Scottish Natural Heritage on Islay and other key locations by RSPB Scotland and volunteers, while

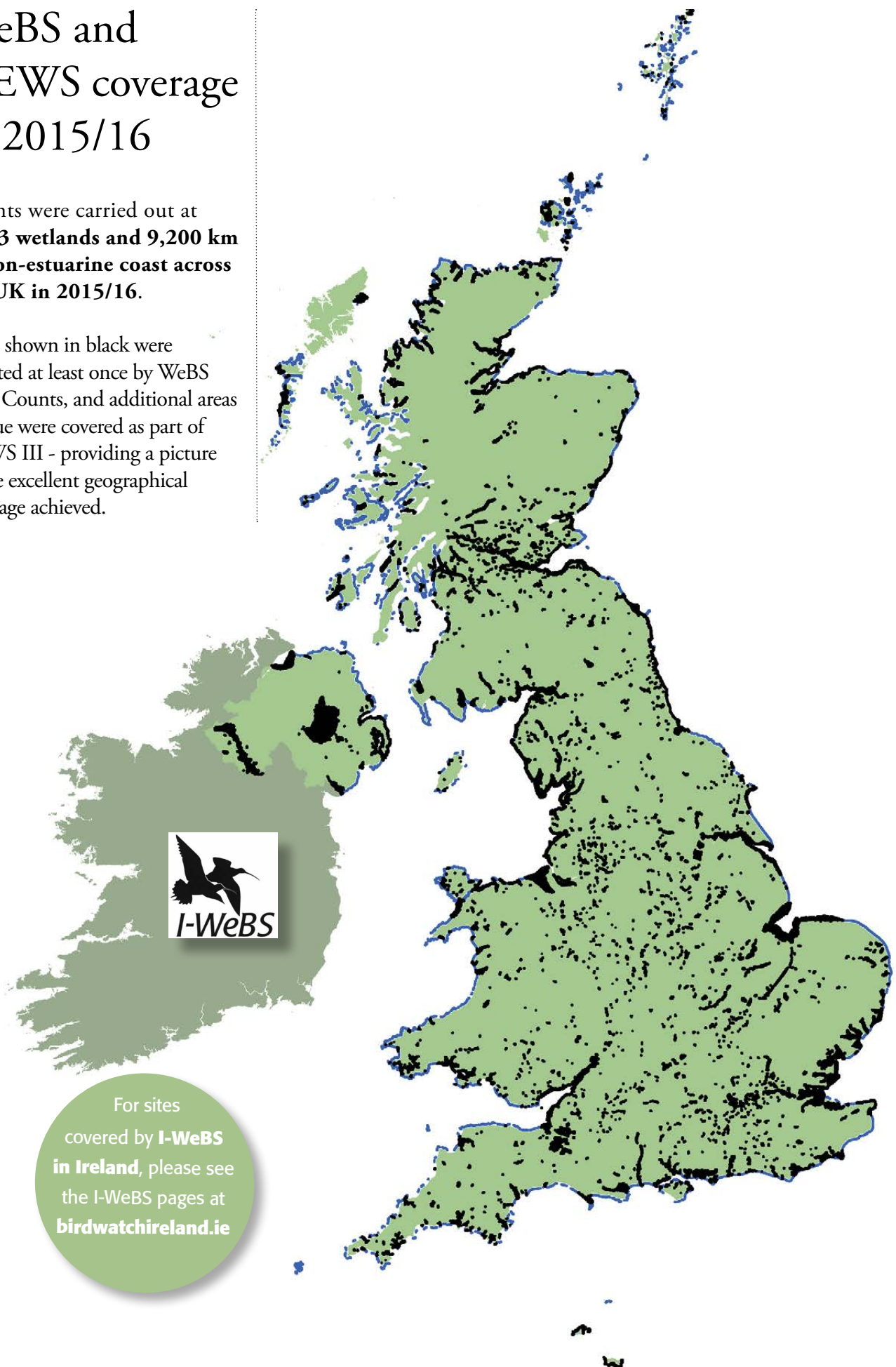
WWT counted Svalbard Barnacle Geese on the Solway.

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

WeBS and NEWS coverage in 2015/16

Counts were carried out at **2,733 wetlands and 9,200 km of non-estuarine coast across the UK in 2015/16.**

Areas shown in black were counted at least once by WeBS Core Counts, and additional areas in blue were covered as part of NEWS III - providing a picture of the excellent geographical coverage achieved.



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

UK Low Tide Counts 2015/16

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



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

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

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

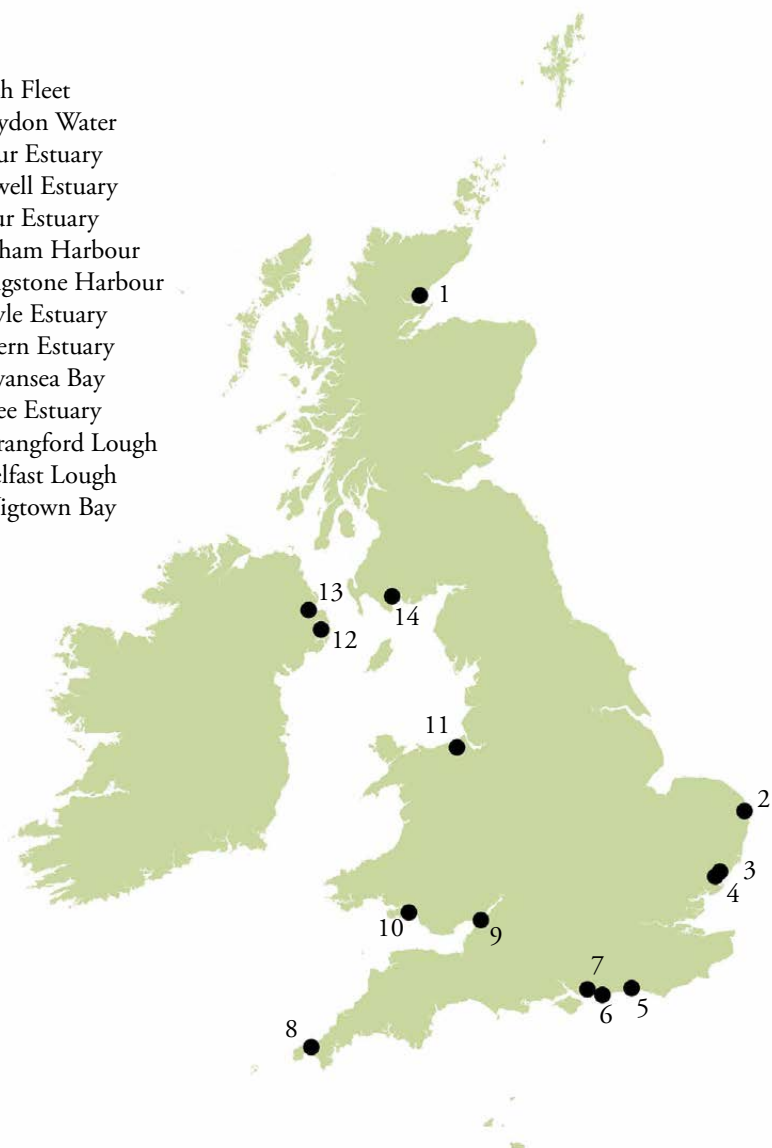
components proportionally and placed randomly within those areas. No information about distribution of birds at a finer scale than the count sector level should be inferred. For all maps on the online reporting interface, one dot is equivalent to one bird.

During 2015/16, WeBS Low Tide Counts were carried out at 14 estuaries. Results from the counts

at Pagham Harbour are presented on pages 34–35 of this report.

Further information about WeBS Low Tide Counts are available online via www.bto.org/websreporting-lowtide, including data summaries and distribution maps for different estuaries and species from 2015/16 and previous years.

- 1 - Loch Fleet
- 2 - Breydon Water
- 3 - Stour Estuary
- 4 - Orwell Estuary
- 5 - Adur Estuary
- 6 - Pagham Harbour
- 7 - Langstone Harbour
- 8 - Hayle Estuary
- 9 - Severn Estuary
- 10 - Swansea Bay
- 11 - Dee Estuary
- 12 - Strangford Lough
- 13 - Belfast Lough
- 14 - Wigtown Bay



▲ Estuaries counted as part of WeBS Low Tide Count scheme in 2015/16.

An exceptionally mild and wet winter

Weather and migration context for 2015/16

Autumn 2015 began with many periods of high pressure in September and October bringing settled conditions. November in contrast was mild and unsettled, and the winter of 2015/16 was notably warm and wet. The north and west of the UK suffered from high rainfall and severe flooding, with many areas having over double the 1981–2010 average rainfall. Only 2013/14 had higher rainfall since 1910.

Temperature records were broken, with it being the warmest winter for England and Wales and the third warmest for the UK since current records began in 1910. This was mostly due to a warm December - the warmest recorded since the Central England Temperature series began in 1659. Temperatures were above average throughout the UK, but particularly in central southern and eastern England, which was over 2.5 degrees warmer than the 1981–2010 average.

Spring 2016 was unremarkable by comparison, with mixed weather. There was a settled period in mid-March. Frosts in northern and eastern areas in April were followed by a fairly dry and warm May.

The 2015 Arctic Breeding Season

Reports from arctic bird studies suggested 2015 saw an early spring. Low rodent abundance may have increased predation from Arctic Foxes and breeding success was thought to be average or below average for most species.

Migration Notes

In late July adult arctic-breeding waders began to pass through the UK and small flocks of moulting Spotted Redshank were being recorded at inland waterbodies.

Juvenile arctic waders started appearing in early August. There were notable flocks of Wood Sandpiper with 34 at Seaton Marshes in Devon and 22 at Pennington Marshes in Hampshire at the end of August. Although these flocks were not picked up by WeBS Core Counts, the August WeBS count total for this species was the highest for three years.

In mid-October, high pressure extended from the North Sea to central Russia and easterly winds brought some migrant waterbirds, with several hundred Shoveler seen arriving off the sea in north Norfolk on the 15th. Bewick's Swans were seen flying over Falsterbo, Sweden and a few days later the individual that arrived at WWT Slimbridge, Gloucestershire on the 11th October was the earliest ever.

Movements of Whooper Swans increased their reporting rate on www.birdtrack.net complete lists in the second week of November. Later in November the beginning of the unsettled weather resulted in increased sightings of Goldeneye, Scaup, Long-tailed Duck, Common Scoter and Velvet Scoter at coastal watchpoints, as well as Red-throated and Great Northern Divers.

Central Europe also experienced

mild weather, and waterbodies to the north and east remaining ice-free in December was thought to have led to some short stopping, with birds not needing to travel on to the UK.

The stormy weather in December and at times in January and February increased Great Northern Divers in inland waterbodies and led to increased numbers of rare and scarce gull species. Slightly colder weather in mid-January led to some late arrivals of European White-fronted Geese and Bewick's Swan.

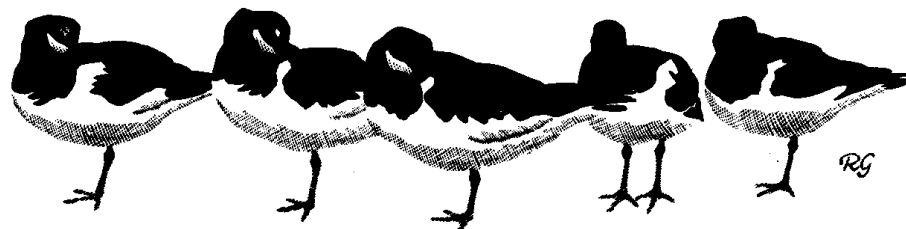
By mid-March swans and geese were on the move. Southerly winds at the beginning of April helped Brent Geese and Common Scoter head to their breeding grounds and later in April the start of Bar-tailed Godwit and Whimbrel passage was noted on the coast, although cold northerly winds generally kept movements later than usual. A reported inland wader passage of Grey Plover, Little Stint and Curlew Sandpiper in mid-May was after the WeBS Core Count date that month.

SOURCES...

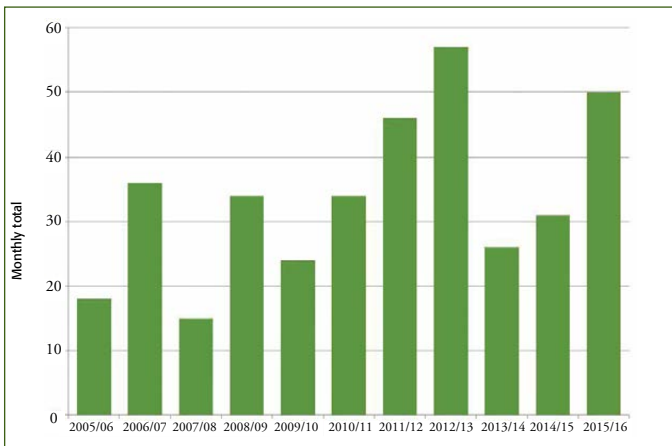
Climate summaries from www.metoffice.gov.uk

Migration updates from btomigrationblog.blogspot.co.uk

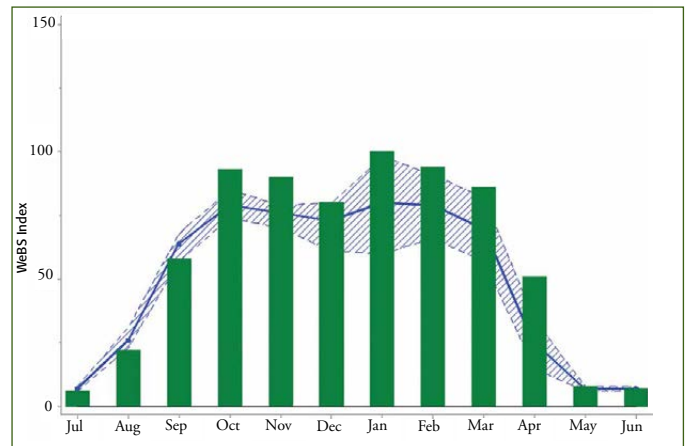
Arctic breeding from www.arcticbirds.net



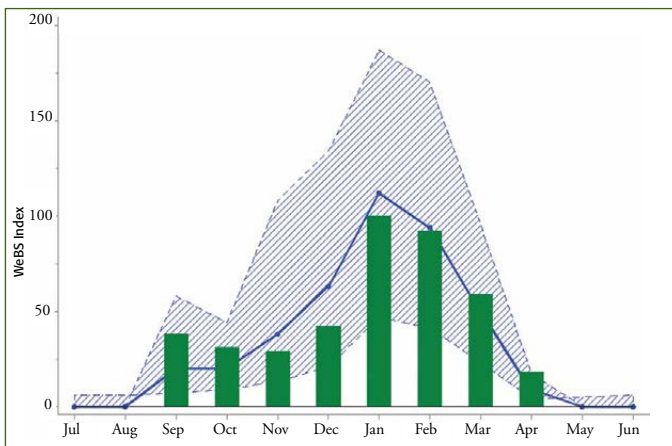
PETER CHRISTIAN



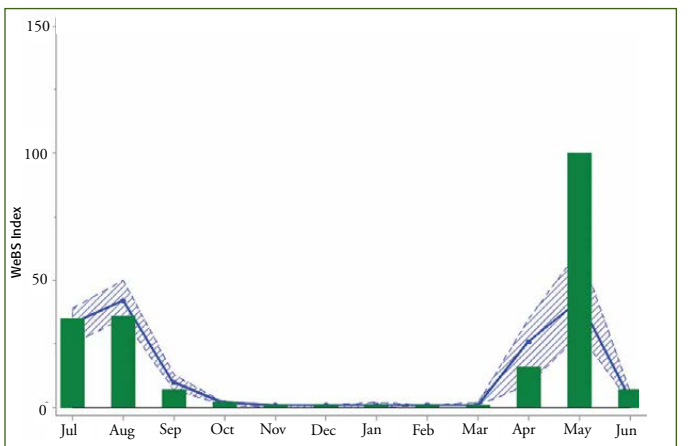
▲ Autumn passage: August WeBS count total of Wood Sandpiper in Great Britain 2005/06 to 2015/16.



▲ Autumn arrival: The Shoveler month index plot suggests higher than normal numbers arriving in October. Green bars = 2015/16; blue line/hatched area = previous 5-year mean/range.



▲ Winter arrival: European White-fronted Geese numbers peaked in January. Green bars = 2015/16; blue line/hatched area = previous 5-year mean/range.



▲ Late passage: The 2015/16 Whimbrel monthly index plot shows fewer birds than the previous five-year mean in April and more in May. Green bars = 2015/16; blue line/hatched area = previous 5-year mean/range.

National trends

A concise summary of how the UK's most familiar waterbirds fared in 2015/16

WeBS annual species indices, with smoothed trends, are available in the WeBS Report Online for all waterbird species with sufficient data. Table 1 contains 25- and 10-year trends for the most abundant waterbird species. Here we highlight some of the latest index and trend figures.

GEESE & SWANS

Whooper Swan and Bewick's Swan indices were both lower than in 2014/15. Recent trends of increasing indices continued for most goose species. Species doing less well such as Greenland and European White-fronted Geese and Taiga Bean Goose also saw indices higher than the previous year.

DUCKS

Indices for most ducks decreased slightly on 2014/15. The Mallard index saw a record low, 4% below the previous low in 2012/13, as did the Pochard index which continues its steady decline. The 25-year trends for these two species are now -41% and -67% respectively. Recent declines in Wigeon, Shelduck and Pintail also continued.

Although the WeBS methodology is not ideally suited to seaducks, the WeBS indices provide useful context to NEWS and other data (see page 28). The Velvet

Scoter index was the highest for ten years, three times that of the intervening period.

The Common Scoter trend has been increasing since the early 1980s; the 2015/16 index was 20% higher than in 2014/15, but 20% lower than in 2013/14. Eider numbers were on a par with recent years and Red-breasted Merganser continued their two decade decline from their peak in 1994/95, with the lowest index since 1984/85.

WADERS

Of the open shore species, the Turnstone WeBS index was 4% higher than 2014/15, but the long-term trend for this species remains downwards.

The Purple Sandpiper WeBS index has remained fairly stable for the past twelve years but it was encouraging to see an increase of over 20% compared to the previous year. Oystercatcher, Ringed Plover and Dunlin neared their record lows of 2013/14.

The Redshank index continues to show signs of stabilising at around 20% lower than in the 1985–2004 period. Grey Plover (see page 33) continued its decline since its mid-1990s zenith, with the index 43% of its peak and back at levels last seen in the early 1980s.

However, the Avocet index reached a new high.

DIVERS

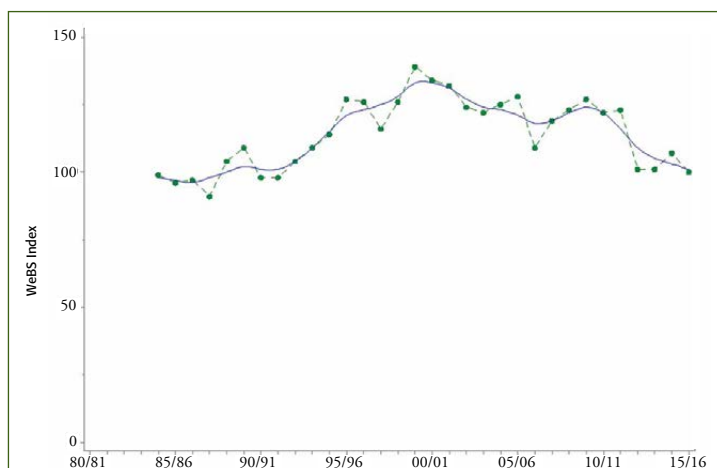
WeBS indices for both Great Northern (see page 21) and Black-throated Divers increased compared to 2014/15, but long-term trends are up for Great Northern and stable for Black-throated. Although Red-throated Diver don't show a pronounced long-term trend, it was notable that the 2015/16 index was the lowest for ten years.

RAILS, GREBES & HERONS

Generally indices and trends were somewhat depressed for these groups in 2015/16. Black-necked, Great Crested and Little Grebes did not sustain the increases they showed in 2014/15, with Black-necked Grebe falling back to 2009/10 levels. Moorhen, Water Rail and Coot showed a similar reduction compared to the previous year. Even Little Egret, a species with a strong upward trend, had an index value 9% lower than the 2014/15 figure.

GULLS

Compared to recent years and declining long-term trends, WeBS indices for Great Black-backed, Lesser Black-backed, Herring and Black-headed Gulls all showed marked increases.



▲ WeBS trend for Coot in UK.

Green dots = annual index; blue line = smoothed trend.



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

Species/population	25-year trend (1989/90 – 2014/15)	10-year trend (2004/05 –2014/15)	Species/population	25-year trend (1989/90 –2014/15)	10-year trend (2004/05 –2014/15)
n/a Mute Swan	33	-10	n/a Eider *	-17	-7
▼ Bewick's Swan	-95	-74	▼ Goldeneye	-53	-31
▲ Whooper Swan	21	17	▼ Red-breasted Merganser	-20	-20
▲ Pink-footed Goose	120	51	▼ Goosander	6	11
▲ European White-fronted Goose	-69	-32	n/a Ruddy Duck	-100	-100
▼ Greenland White-fronted Goose	-31	-35	▼ Little Grebe	98	6
▲ Icelandic Greylag Goose	-10	9	▼ Great Crested Grebe	6	-21
n/a British Greylag Goose	345	58	▼ Cormorant	50	3
n/a Canada Goose	55	12	▼ Coot	1	-16
▲ Greenland Barnacle Goose	175	57	▼ Oystercatcher	-26	-15
▲ Svalbard Barnacle Goose	221	48	▲ Avocet	718	41
▼ Dark-bellied Brent Goose	17	42	— Ringed Plover	-59	-37
▲ Canadian Light-b. Brent Goose	81	65	▼ Golden Plover	76	-30
▲ Svalbard Light-b. Brent Goose	47	-10	— Grey Plover	-30	-19
▼ Shelduck	-32	-27	▼ Lapwing	-3	-32
▼ Wigeon	26	-18	— Knot	-16	-16
▲ Gadwall	149	15	▲ Sanderling	29	10
— Teal	41	5	— Purple Sandpiper	-59	-9
— Mallard	-41	-17	▼ Dunlin	-40	-19
▼ Pintail	-38	-46	▲ Black-tailed Godwit	300	33
▼ Shoveler	70	7	▲ Bar-tailed Godwit	-11	2
▼ Pochard	-67	-42	▼ Curlew	-15	-13
▼ Tufted Duck	6	7	— Redshank	-20	-18
— Scaup	-22	-51	▲ Turnstone	-47	-24

Trends are % changes, for the most abundant waterbirds.

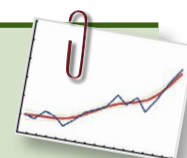
The longer term smoothed trend refers to the 25 year period 1989/90 to 2014/15. The shorter term smoothed trend refers to the 10 year period 2004/05 to 2014/15. It is customary to calculate trends to an end-point of year (n-1) (where n = 2015/16).

Preceding each species is an indication of flyway population 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, n/a not applicable as population is non-native (Canada Goose, Ruddy Duck) or non-migratory (Mute Swan, British Greylag Goose and Eider*)

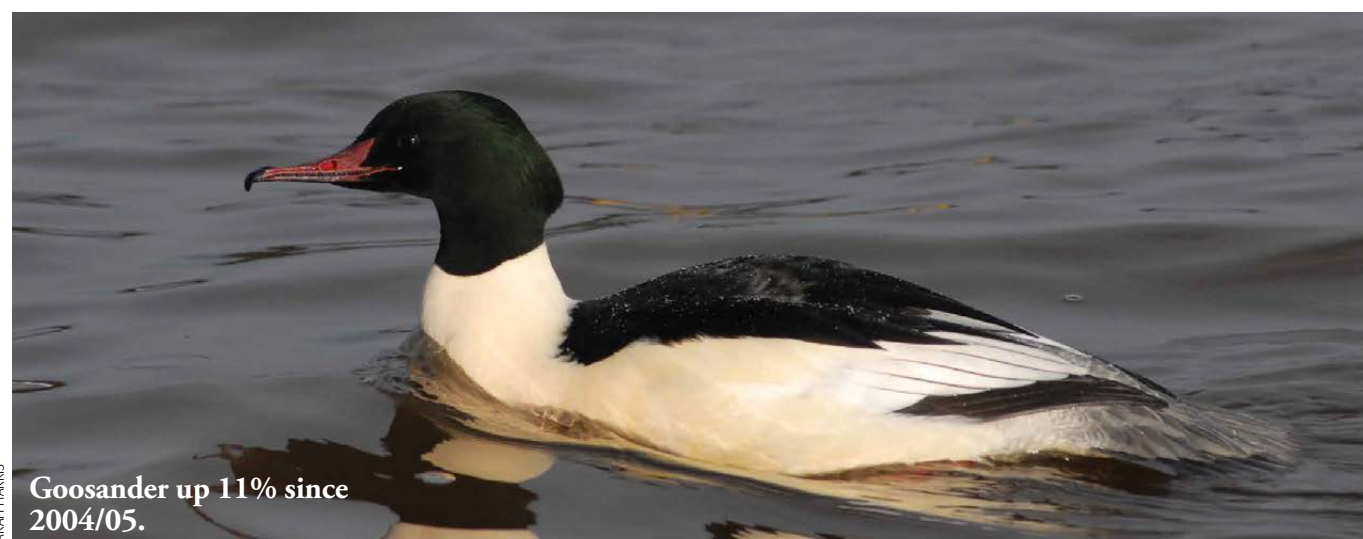
*Eider trends exclude birds on Shetland (of *faeroensis* race).

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

For all trend graphs see
the online report...



www.bto.org/webs-reporting



Goosander up 11% since
2004/05.

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. See page 33 on Grey Plover on the Swale Estuary for an example of how collecting other data can give contextual information on turnover rates at a site. 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 counted maxima for each species during the course of the WeBS year (missing counts are not imputed). 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. Although an important component of a site's waterbird fauna, gulls and terns are also excluded, since the recording of them during WeBS Counts is optional and thus they are inconsistently included in totals.

A total of 54 WeBS sites in 2015/16, one more than in 2014/15, 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.

SITE FOCUS

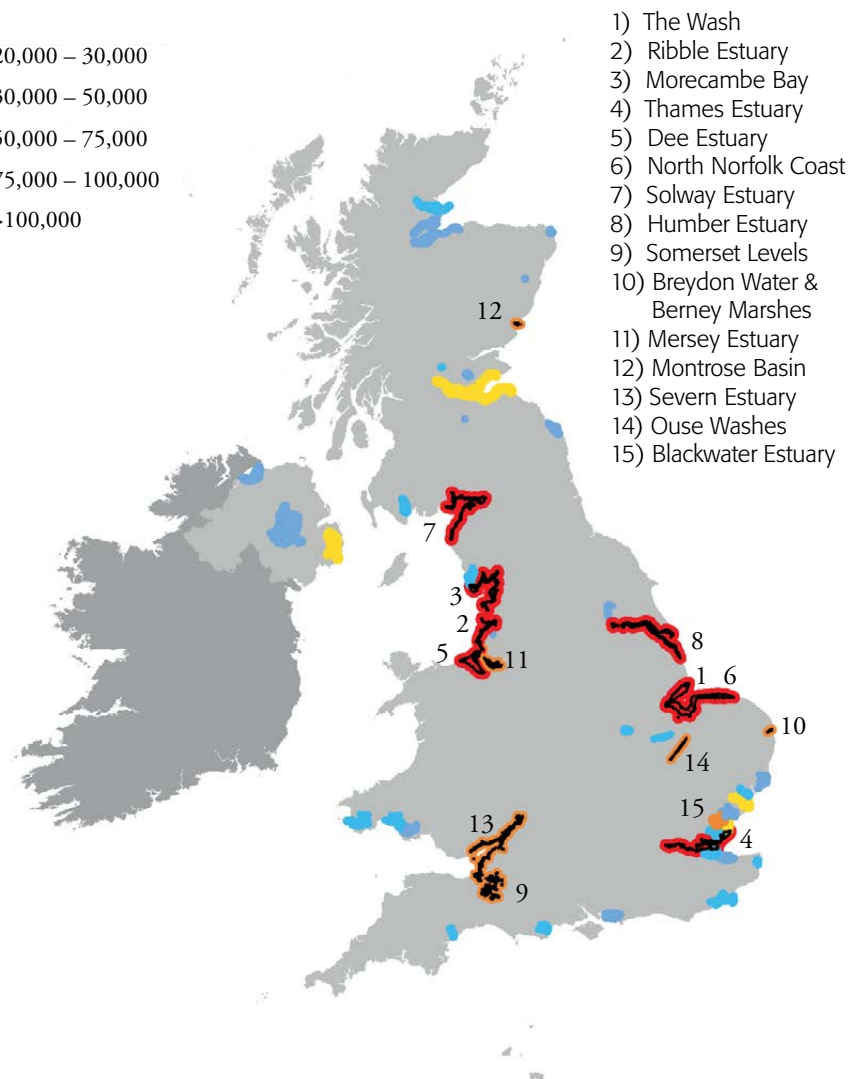
The Wash remains the premier site for wintering waterbirds in the UK. The high counts of 103,761 and 107,806 from the Ouse Washes and Alt Estuary, respectively, in 2010/11 now fall outside of the latest five-year period, resulting in a lower ranking of these sites in the Principal Sites table.

Outside of the top ten sites, totals for the Swale Estuary returned to above 50,000. This was largely due to large numbers of Wigeon and Lapwing in the Elmley marshes sector of the site, which was not covered in 2013/14 or 2014/15.

As an increasing species which tends to occur in large groups, Pink-footed Goose can have a big influence on the principal sites table. Fewer Pink-footed Geese at Loch of Strathbeg

sees a reduction of 29,000 birds in 2015/16 compared to 2014/15 and likewise 17,000 fewer birds at Loch of Skene. However, record counts at West Water Reservoir saw the total there increase from around 20–30,000 a year to over 80,000, meaning it climbed 18 places up the table.

Notably low totals at Pegwell Bay may be due to a reduction in supplementary counts being made at that site since 2014/15.



- 1) The Wash
- 2) Ribble Estuary
- 3) Morecambe Bay
- 4) Thames Estuary
- 5) Dee Estuary
- 6) North Norfolk Coast
- 7) Solway Estuary
- 8) Humber Estuary
- 9) Somerset Levels
- 10) Breydon Water & Berney Marshes
- 11) Mersey Estuary
- 12) Montrose Basin
- 13) Severn Estuary
- 14) Ouse Washes
- 15) Blackwater Estuary

▲ Largest waterbird aggregations in the UK.

Sites are those listed in Table 2, with top 15 sites labelled on the map.

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

Site	2011/12	2012/13	2013/14	2014/15	2015/16	5-year mean
The Wash	294,609	350,031	393,260	343,932	345,366	345,440
Ribble Estuary	259,990	178,318	174,200	171,680	160,906	189,019
Morecambe Bay	201,581	191,056	181,689	171,968	183,770	186,013
Thames Estuary	152,161	179,961	194,525	173,331	141,064	168,208
Dee Estuary (England and Wales)	120,763	151,290	124,605	136,507	146,277	135,888
North Norfolk Coast	158,303	121,563	153,507	121,202	106,257	132,166
Solway Estuary	106,767	112,658	139,738	153,676	126,320	127,832
Humber Estuary	104,213	128,117	129,926	113,202	130,628	121,217
Somerset Levels	76,790	93,386	88,701	102,726	122,057	96,732
Breydon Water and Berney Marshes	91,014	96,523	88,857	91,413	114,626	96,487
Mersey Estuary	94,564	63,412	89,102	85,422	107,271	87,954
Montrose Basin	76,611	77,551	61,718	98,098	101,538	83,103
Severn Estuary	83,605	75,151	74,834	71,476	92,107	79,435
Ouse Washes	63,938	63,088	101,941	75,902	87,704	78,515
Blackwater Estuary	68,017	66,111	83,696	91,090	82,988	78,380
Alt Estuary	64,034	87,950	78,759	73,792	87,308	78,369
Forth Estuary	70,412	76,301	59,353	77,236	79,427	72,546
Strangford Lough	78,759	60,881	65,256	46,204	60,683	62,357
Hamford Water	41,404	63,372	62,228	52,570	46,142	53,143
Dengie Flats	49,715	45,021	55,842	46,460	62,344	51,876
Stour Estuary	50,276	44,520	48,566	52,699	54,283	50,069
Inner Moray and Beaully Firths	45,574	42,359	46,548	43,292	59,442	47,443
Swale Estuary	54,773	57,012	36,358	29,352	57,924	47,084
Chichester Harbour	47,769	41,661	47,518	50,207	42,210	45,873
Loughs Neagh and Beg	49,692	45,100	46,828	49,043	38,345	45,802
Loch of Strathbeg	39,635	39,589	29,411	73,013	43,837	45,097
Loch Leven	43,847	38,542	62,335	35,861	34,530	43,023
Burry Inlet	38,527	47,270	29,984	47,103	44,265	41,430
Lindisfarne	47,878	36,519	30,334	44,048	41,831	40,122
Cromarty Firth	38,240	38,110	34,493	36,296	43,310	38,090
West Water Reservoir	18,794	20,254	28,200	29,600	83,148	35,999
Abberton Reservoir	45,634	23,725	35,059	37,613	32,911	34,988
WWT Martin Mere	30,330	22,672	41,861	31,340	45,859	34,412
Loch of Skene	20,768	35,988	30,146	50,649	33,349	34,180
Lower Derwent Ings	38,105	29,914	27,911	34,686	35,647	33,253
Alde Estuary	32,994	31,011	32,988	36,646	25,774	31,883
Lough Foyle	26,917	32,437	34,309	31,106	32,672	31,488
Langstone Harbour	36,893	30,025	32,217	27,957	29,091	31,237
Colne Estuary	31,616	30,213	26,889	41,136	23,525	30,676
Dornoch Firth	36,874	25,925	24,639	30,383	22,383	28,041
Dungeness and Rye Bay	28,688	28,886	29,076	25,432	25,444	27,505
Carmarthen Bay	33,868	26,519	21,347	30,646	20,475	26,571
Crouch-Roach Estuary	26,087	22,881	24,595	29,958	24,311	25,566
Nene Washes	12,455	24,812	27,718	26,037	34,682	25,141
Medway Estuary	27,014	14,589	28,876	22,481	32,471	25,086
Rutland Water	33,633	16,539	28,702	18,537	22,521	23,986
Carsebreck and Rhynd Lochs	24,044	24,260	23,051	25,260	20,732	23,469
Orwell Estuary	21,377	22,155	25,283	26,121	22,249	23,437
Poole Harbour	21,662	23,272	22,807	24,673	21,264	22,736
Pegwell Bay	30,562	43,813	18,503	10,009	7,899	22,157
Exe Estuary	18,623	19,154	22,003	22,368	24,806	21,391
Duddon Estuary	21,292	18,723	19,028	25,395	19,473	20,782
Cleddau Estuary	26,494	17,902	20,833	16,414	20,904	20,509
Wigtown Bay	21,981	15,735	21,284	20,406	21,843	20,250

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

Non-Estuarine Waterbird Survey

A summary of the results of the 2015/16 NEWS III survey

During December, January and February of winter 2015/16, the BTO ran the fourth in a series of intermittent surveys of the UK's non-estuarine coast (NEWS III). As with NEWS I and NEWS II, the survey was a joint survey with I-WeBS covering the coast of Britain and Ireland. The Channel Islands and Isle of Man were also surveyed.

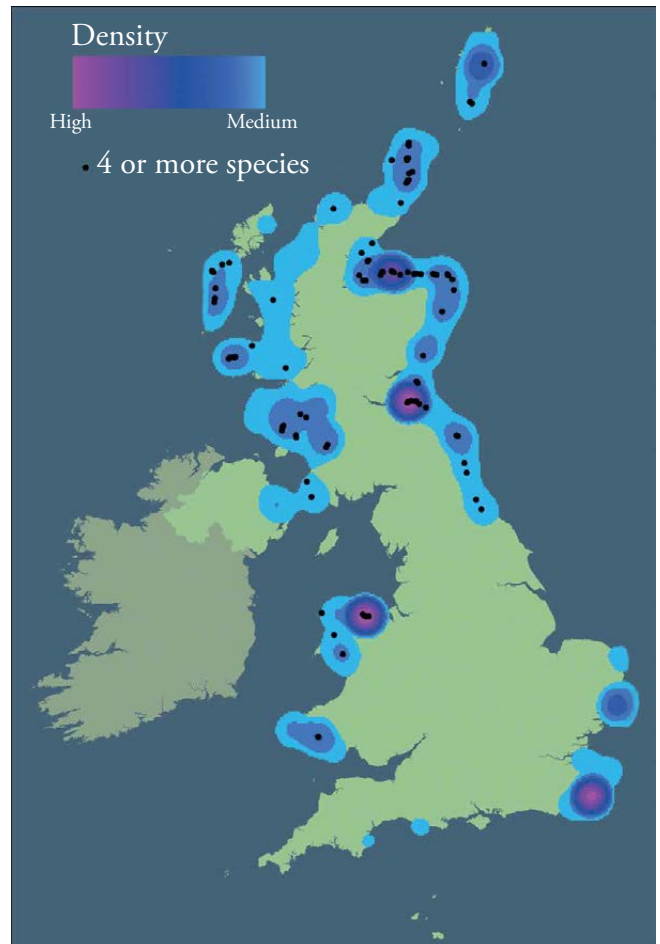
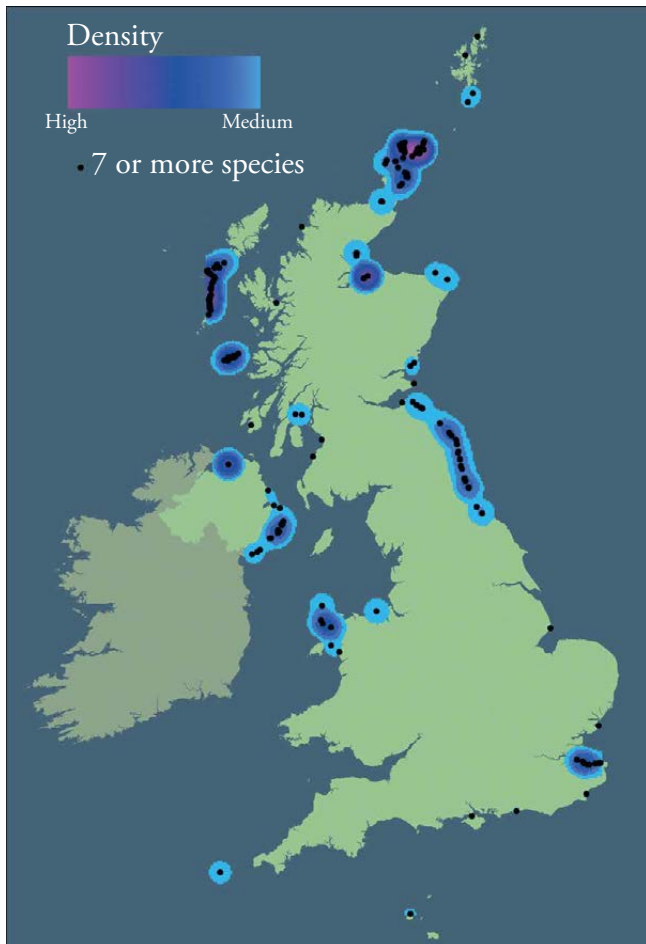
A main objective of NEWS is to provide evidence of the numbers of birds using the non-estuarine coast. A bootstrap approach was used to derive regional estimates for the numbers of key coastal waterbird species to be found on

the open coast during the winter of 2015/16. These estimates can be viewed on the NEWS Report Online. The regional estimates in turn are used to derive separate estimates for the UK (Table 3) and each of its four constituent countries (Austin *et al.* 2017).

Compared to NEWS II estimates for 2006/07, the estimates for wader non-estuarine specialists Ringed Plover, Purple Sandpiper and Turnstone on the open coast decreased, although only in the case of Turnstone did the 95% confidence intervals for the two surveys not overlap. The estimate

for Sanderling increased compared to NEWS II. More detailed analysis is planned to look at change between the surveys by pairwise sector comparison.

The NEWS Report Online has maps for each region for every waterbird species: from the most widespread and numerous species Oystercatcher and Herring Gull; to single sightings of Surf Scoter (Conwy), Black Scoter (Northumberland), Avocet (Sutherland), Spotted Redshank (Anglesey) and Hudsonian Whimbrel (Cornwall). Information is also available online for the three previous non-estuarine surveys.



▲ Open coast with high density and diversity of key waders species (left; includes Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Purple Sandpiper, Dunlin, Bar-tailed Godwit, Curlew, Redshank, and Turnstone) and sea ducks, divers and grebes (right; includes Eider, Long-tailed Duck, Common Scoter, Velvet Scoter, Goldeneye, Red-breasted Merganser, Red-throated Diver, Great Northern Diver and Great Crested Grebe).

Table 3 UK population estimates for key species of waterbird and seabird on the open coast (excludes estuarine and offshore)

Species	NEWS head count	Open coast estimate	Open coast 95% confidence interval
Greylag Goose	5,332	14,078	10,110 – 17,900
Brent Goose (Dark-bellied)	1,829	2,011	1,119 – 3,842
Brent Goose (Light-bellied)	1,040	1,534	820 – 2,920
Shelduck	1,342	2,042	1,338 – 2,916
Wigeon	22,619	44,600	36,714 – 53,228
Teal	5,596	10,329	7,990 – 13,177
Mallard	6,898	15,098	12,762 – 16,809
Eider	11,736	23,946	17,604 – 37,183
Long-tailed Duck	2,994	4,834	3,334 – 7,085
Common Scoter	10,111	10,543	4,500 – 22,111
Goldeneye	867	2,136	1,336 – 3,309
Red-breasted Merganser	2,723	7,424	6,553 – 8,323
Red-throated Diver	2,134	2,765	1,504 – 5,908
Great Northern Diver	1,727	4,398	3,728 – 5,234
Great Crested Grebe	5,715	5,751	900 – 12,697
Fulmar	29,772	66,309	48,202 – 90,750
Gannet	3,166	9,994	1,200 – 44,698
Cormorant	9,638	15,792	11,863 – 21,288
Shag	13,608	34,217	28,348 – 42,394
Grey Heron	2,172	5,365	4,834 – 5,932
Oystercatcher	44,116	69,905	64,204 – 75,545
Ringed Plover	8,240	16,203	13,245 – 18,541
Golden Plover	10,978	18,513	11,238 – 30,825
Grey Plover	855	1,012	675 – 1,481
Lapwing	10,613	17,490	14,148 – 22,178
Knot	2,332	2,683	1,213 – 4,484
Sanderling	8,903	12,903	10,248 – 17,268
Purple Sandpiper	5,603	10,184	7,780 – 13,945
Dunlin	13,336	19,415	12,737 – 26,634
Snipe	1,807	4,848	4,097 – 5,769
Bar-tailed Godwit	3,325	6,217	4,314 – 9,501
Curlew	24,735	44,344	38,324 – 50,613
Redshank	11,267	18,513	17,122 – 19,758
Turnstone	14,215	25,988	23,552 – 29,324
Kittiwake	2,699	4,029	2,141 – 7,447
Black-headed Gull	50,572	64,198	53,243 – 80,086
Common Gull	31,871	54,239	45,544 – 61,989
Lesser Black-backed Gull	1,676	2,470	1,944 – 2,928
Herring Gull	107,900	159,782	144,377 – 172,784
Great Black-backed Gull	11,064	20,333	18,335 – 22,552
Guillemot	15,576	42,481	8,241 – 111,665
Razorbill	1,415	2,396	1,597 – 3,632
Black Guillemot	1,012	3,551	2,830 – 4,082

FIND OUT MORE...

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

NEWS tab on the WeBS Online Report at www.bto.org/webs-reporting-news

Coastal Habitats

A look at the habitat information recorded during NEWS III and three species that use these habitats

The importance of the non-estuarine coastline of the UK has been the subject of a previous habitat focus review, in *Waterbirds in the UK 2013/14*. Here we report some of the main habitat findings from NEWS III (see page 14), where surveyors were asked to record habitats as well as birds and mammals, and we look at three species that make extensive use of these habitats.

Most NEWS surveyed sectors were categorised as open coast. A small number were estuarine in nature and the rest were categorised as bay or exposed or sheltered sea loch. Such habitats are particularly important for species such as Great Northern Diver (page 21).

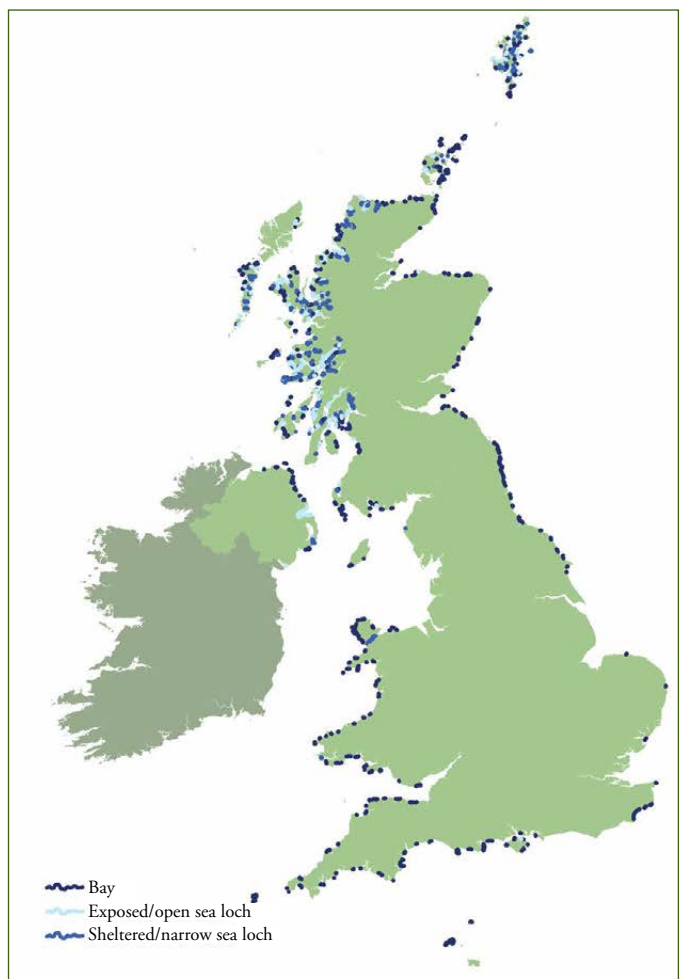
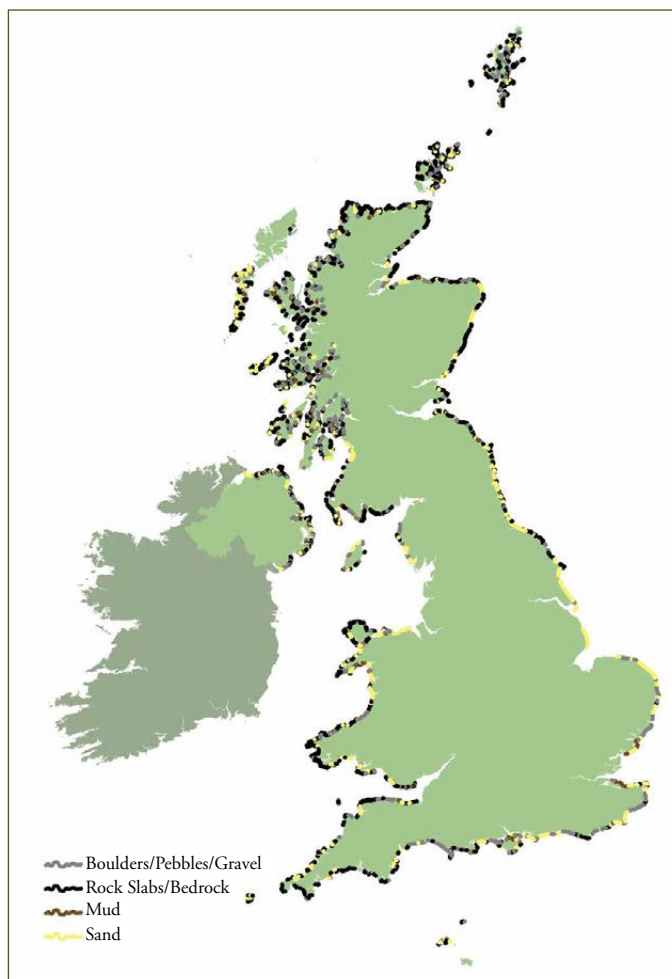
Looking landward, grassland habitats, including maritime grassland and pastoral farmland, dominated, with over 56% of sectors recording these. 12% of sectors were industrial, suburban or urban in character. Adaptable species such as Black-headed Gull (page 20) can make use of all these coastal adjacent habitats.

The primary intertidal habitat was recorded as being bedrock on just under half of sectors. Sand was the primary substrate on 23% of sectors. Most eastern England sectors were sandy or pebbly, whereas bedrock predominates in the north and west.

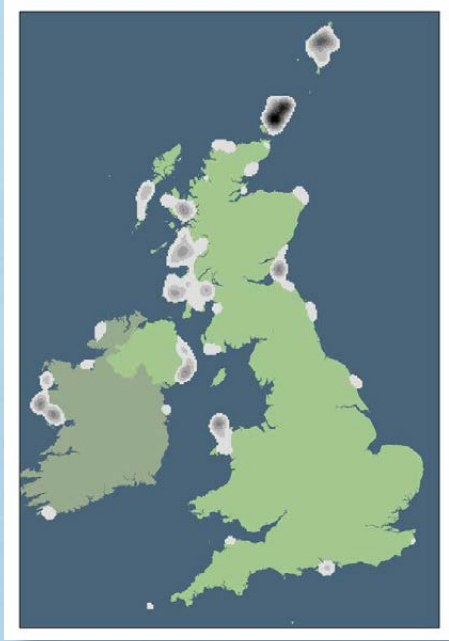
Areas which were reported as having

large amounts of tidal wrack deposits include the east of Northern Ireland around the Ards peninsula, Anglesey in Wales, and the Solent, the Yorkshire coast around Flamborough Head, and the north Northumberland coast in England. In Scotland coastlines reported as having high wrack densities include those of Fife, Orkney, Shetland and much of west Scotland.

Initial mapping of the highest densities of wrack deposits (page 17) and waders (page 14) suggests a possible correlation. Observers were also asked to record which species were using the strandline on their NEWS sector. Work is planned to explore the importance of the tidal wrack resource further.



▲ Some of the coastal habitats recorded by NEWS: Primary intertidal habitat (left) and seaward bays and lochs (right).



▲ Areas with high density of wrack deposits, as recorded during NEWS III in the UK and the Republic of Ireland.



Curlew are one of many species that forage among carpets of wrack.

RINGED PLOVER

Ringed Plover hit the headlines last year when it was added to the Birds of Conservation Concern (BoCC) Red List due to non-breeding declines. The Wetland Bird Survey makes an important contribution to the species assessment for the BoCC every five years. WeBS information revealed a declining winter trend of -59% over 25 years 1988/89–2013/14, and a 10-year trend (2003/04–2013/14) of -38%. Based on the WeBS data, Ringed Plover is on 'High Alert' for Northern Ireland and Wales, 'Medium Alert' for England, whilst in Scotland, long-term trends have remained stable (Cook *et al.* 2013). The WeBS Alert process was last carried out in 2013, and identified significant long-term declines on a number of Special Protection Areas (SPAs): Chichester and Langstone Harbours SPA, Humber Estuary SPA, Lindisfarne SPA, Medway Estuary and Marshes SPA, Outer Ards SPA, Solent and Southampton Water SPA and the Stour and Orwell Estuaries SPA. It is now timely to repeat the Alerts work given the continued decline of the



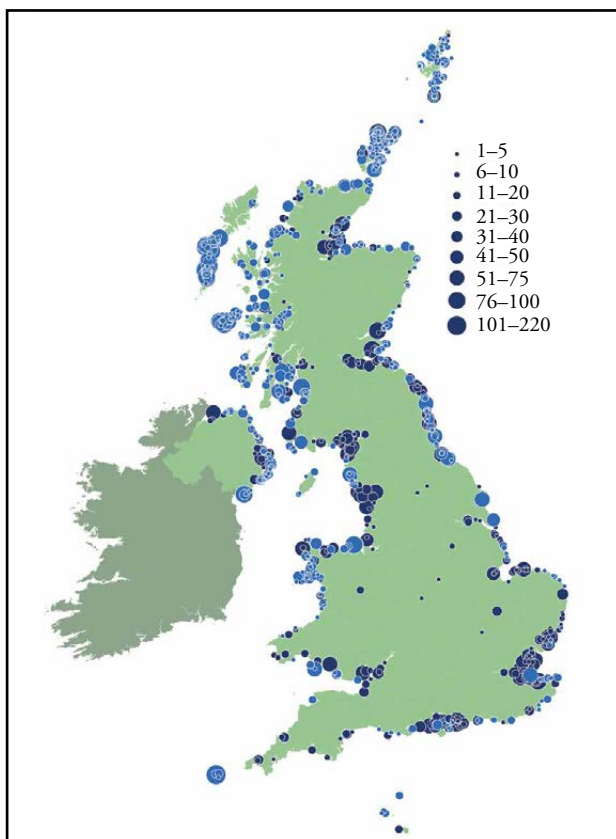
DAVE KING

winter Ringed Plover population. Although WeBS covers Ringed Plover reasonably well, a significant proportion of their winter population is found on rocky shores.

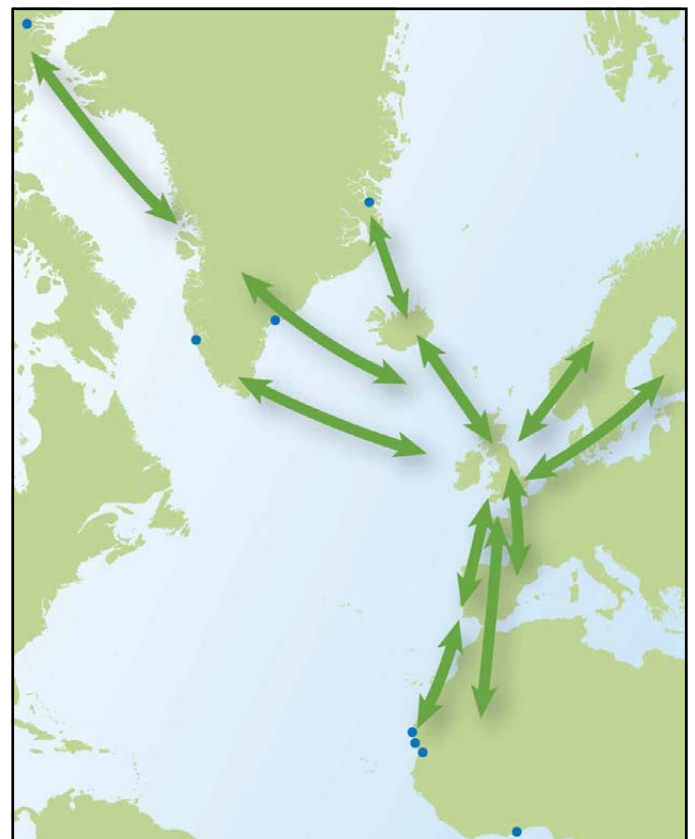
During 2015/16, the Non-Estuarine Waterbird Survey (NEWS III) focused survey effort on this important and under-recorded habitat. The population on the open coast has been estimated at 16,203, compared

to 18,575 in the last NEWS survey of 2006/07 (Austin *et al.* 2017).

The published estimate of UK winter population size (all habitats) suggests 34,000 birds, based on counts from 2004/05–2008/09 (Musgrove *et al.* 2011). In terms of winter range, fieldwork for Bird Atlas 2007–11 showed +2% change in the number of occupied 10 km squares in Britain since the 1981–84 Winter Atlas,



▲ The distribution and relative abundance of Ringed Plovers recorded by NEWS III (light blue) and WeBS (dark blue).



▲ Migration routes of Ringed Plover through Britain and Ireland (from *A Time to Fly* by Jim Flegg 2004). Blue dots = long-distance recoveries of British and Irish birds.

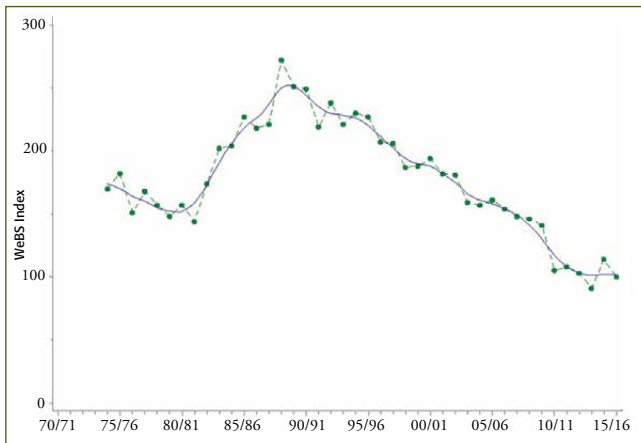
and -2% change in range in Ireland (Balmer *et al.* 2013).

Britain and Ireland plays a pivotal role for a significant proportion of the East Atlantic flyway populations; either as a wintering area or stopover site. During migration there is a noticeable passage of Ringed Plover of the race *tundrae*; these birds breed in northern Fennoscandia and Russia and winter in eastern and southern Africa. These *tundrae* birds appear smaller and have darker brown upperparts. In addition, birds that breed in Canada, Greenland and Iceland pass through Britain and Ireland, mainly on the coast, to wintering areas in Spain and West Africa. So whilst our breeding birds, of the race *hiaticula*, are settling

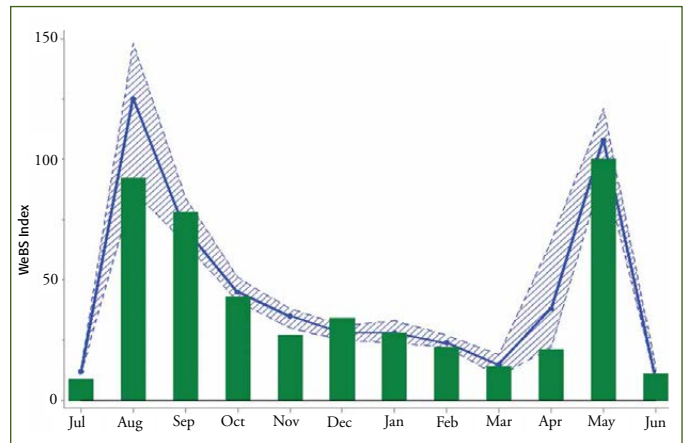
down to breed, we also see significant spring passage of birds that will breed further north.

As a breeding bird, Ringed Plover falls within the 'monitoring gap'. It is too common to be monitored by the Rare Breeding Birds Panel, but not common enough to be monitored by the Breeding Bird Survey. The breeding distribution is mainly coastal, with significant gaps only in southwest England, Yorkshire, and southwest Wales. *Bird Atlas 2007–11* showed a 7% decline in range in Britain since the 1988–91 Breeding Atlas, and a 2% decline in Ireland. Inland breeding occurs in a range of mainly wetland habitats including along rivers, by lochsides and

gravel pits. Gains since the 1988–1991 Breeding Atlas have mostly been inland at such wetlands, whereas the Breckland population has continued to decline, despite little apparent loss of habitat. Highest breeding abundance was recorded on Orkney, Shetland and the Outer Hebrides. The breeding population has been monitored through periodic surveys run by BTO; the last survey in 2007 showed that the British breeding population had declined by c.37% during 1984–2007 and estimated 5,400 pairs in the UK (Conway *et al.* 2008). Disturbance at coastal sites can be a particular issue for breeding Ringed Plover; other issues such as predation are not fully understood.



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



▲ Monthly indices for Ringed Plover in the UK showing the spring and autumn passage peaks.
Green bars = 2015/16; blue line/hatched area = previous 5-year mean/range.

FIND OUT MORE...

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

Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. & Fuller, R.J. (eds) 2013. *Bird Atlas 2007–11: the breeding and wintering birds of Britain and Ireland*. BTO Books, Thetford.

Conway, G.J., Burton, N.H.K., Handschuh, M. & Austin, G.E. 2008. *UK population estimates from the 2007 Breeding Little Ringed Plover and Ringed Plover surveys*. Research Report 510. BTO, Thetford.

Cook, A.S.C.P., Barimore, C., Holt, C.A., Read, W.J. & Austin, G.E. 2013. *Wetland Bird Survey Alerts 2009/2010: Changes in numbers of wintering waterbirds in the Constituent Countries of the United Kingdom, Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs)*. Research Report 641. BTO, Thetford. www.bto.org/webs-alerts

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(7)**: 364–397.

BLACK-HEADED GULL

Gulls; you either love them or loathe them. We encourage all our WeBS counters to count the gulls on their site, but if you're faced with thousands it's easy to understand why they might not be your favourite group of birds.

The largest aggregations of Black-headed Gull are recorded at Lower Derwent Ings in Yorkshire (60,000), Bowl Water on Kent/Sussex border (33,600), Abberton Reservoir in Essex (18,855), The Wash (12,988) and the Severn Estuary (12,372). The counts for WeBS are usually made as part of the Core Counts or Low Tide Count, rather than a specific visit to record gulls coming into roost in the evening. However, the monthly counts, by the same counters, provide enough information for a 10-year trend to be calculated; an 8% decline in population between 2004/05–2014/15.

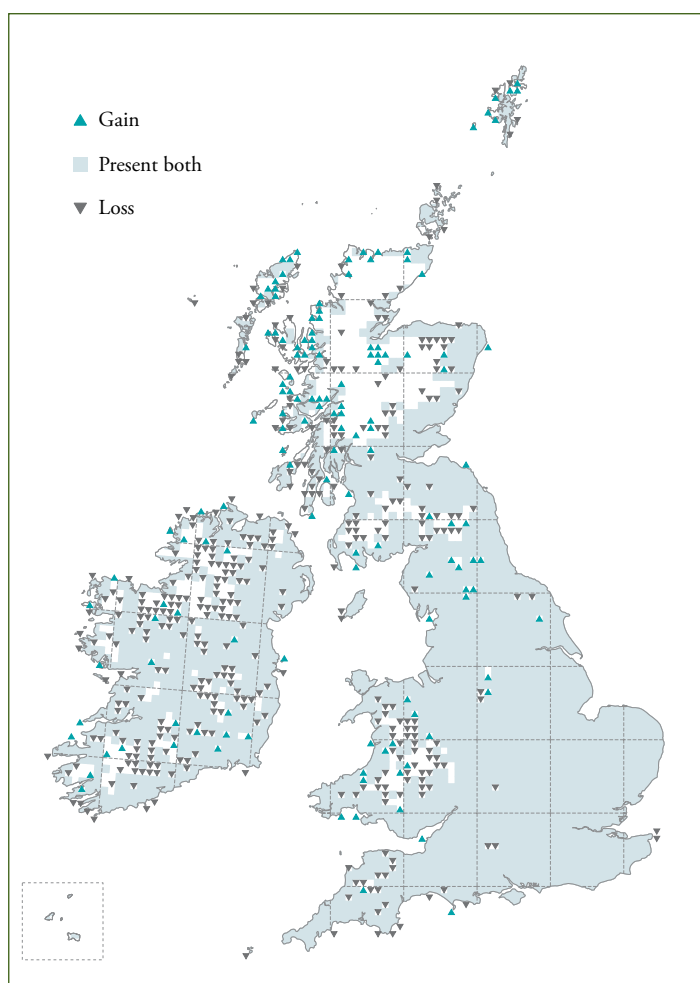
Wintering gulls generally forage away from wetlands during the day and are not adequately covered by WeBS. More targeted surveys, based on counts at roosts exist but are infrequent. The most recent Winter Gull Roost Survey (WinGS) was carried out in 2003/04–2005/06 (Burton *et al.* 2013) and is the most comprehensive survey of winter gulls to date; with counts undertaken at know key roost sites and sample counts away from key sites. Previous surveys in 1953, 1963, 1973, 1983 and 1993 had just focused on known roost sites.

The UK population estimate derived from the 2003/04–2005/06 survey was 2,200,000 (2,100,000–2,300,000). Analyses of the decadal roost counts indicate that, although numbers have increased significantly since 1953, they reached a peak during 1973–93, and have since declined (Banks *et al.* 2009). Given the recent decline in numbers

noted by WeBS, more robust annual monitoring, particularly at key sites, augmented by more comprehensive counts at roosts every few years, is needed.

Information on the winter distribution of Black-headed Gull comes from Bird Atlas 2007–11 (Balmer *et al.* 2013). The change in winter distribution between 1981–84 and 2007–11 is shown below; there was a 4% loss of range in Britain and a 19% loss of range in Ireland.

The colour-ringing of Black-headed Gulls has provided a tremendous insight into the movements of birds within Britain and Ireland, and abroad. There are 8,465 records of birds ringed in Britain and Ireland and found abroad, most commonly in Denmark, Finland, Germany, Sweden and The Netherlands.



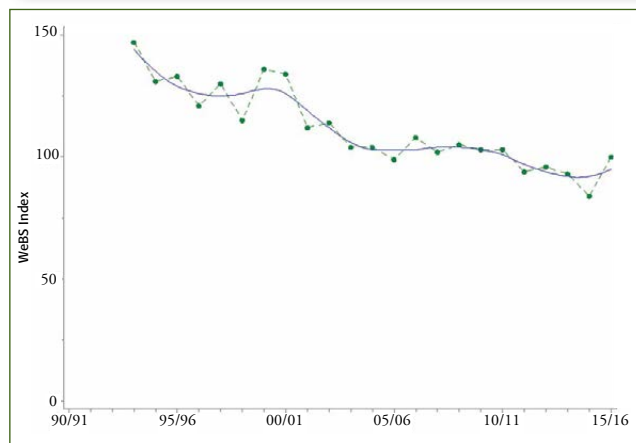
▲ Winter distribution change between 1981–84 and 2007–11.

FIND OUT MORE...

Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. & Fuller, R.J. (eds). 2013. *Bird Atlas 2007–11: the breeding and wintering birds of Britain and Ireland*. BTO Books, Thetford.

Burton, N.H.K., Banks, A.N., Calladine, J.R., and Austin, G.E. 2013. The importance of the United Kingdom for wintering gulls: population estimates and conservation requirements. *Bird Study*, **60(1)**, 87–101.

Banks, A.N., Burton, N.H.K., Calladine, J.R. & Austin, G.E. 2009. Indexing winter gull numbers in Great Britain using data from the 1953 to 2004 Winter Gull Roost Surveys. *Bird Study*: **56**: 103–19.



▲ WeBS trend for Black-headed Gull in UK. Green dots = annual index; blue line = smoothed trend.

GREAT NORTHERN DIVER

Of the three diver species most commonly found in the UK, the Great Northern Diver is the largest and is primarily a winter visitor to the coasts of the north and west. It is assumed wintering birds come from the nearest breeding populations of Iceland and Greenland and possibly as far as Canada, but there have been very few birds ringed in Europe and no foreign recoveries of birds ringed in the UK to confirm this.

Most of the world's Great Northern Divers breed and winter in North America, where it is known as the Common Loon. Studies there suggest they prefer shallow waters less than 35m deep (in some areas less than 20m deep) with high chlorophyll concentrations (Winiarski *et al.* 2013), and that individuals have high site fidelity to the same coastal wintering locations (Paruk *et al.* 2015).

NEWS and WeBS counts for 2015/16 show Great Northern Diver to be most frequent on the sheltered lochs of the west coast of Scotland, Orkney and Shetland and Northern Ireland. The species is also recorded in numbers in sheltered bays in southwest England and Wales, but can occur anywhere around the coast, as well as at larger inland lakes and reservoirs.

In Britain, communal night roost rafting during winter has been reported from Shetland, Skye and Mull. For sites where this occurs, counting birds at a roost when conditions are good is an effective monitoring method, and results in higher totals than day counts (Shackleton 2012).

Both the WeBS index and NEWS population estimates reached their highest recorded levels in 2015/16, an increase on 1997/98 values for both of around 140%; however there was a difference in between with the

2006/07 NEWS estimate lower than would have been expected from the WeBS trend. The 2015/16 NEWS estimate for the non-estuarine coast was between 3,728 and 5,234 birds.

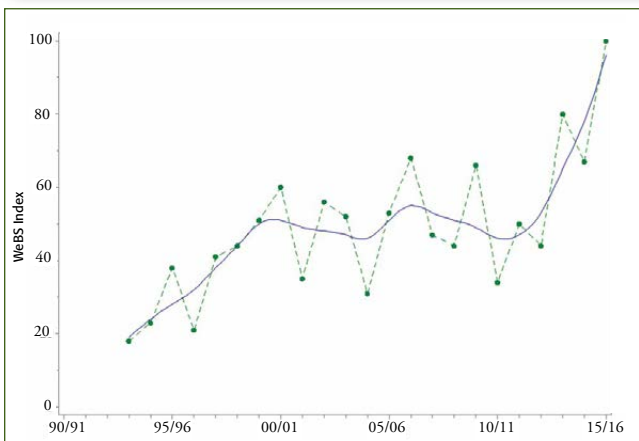
It is possible that the 2015/16 winter's storms encouraged birds closer inshore, increasing the proportion picked up by coastal counts, although poor conditions can also sometimes hamper counting. Continued regular coverage of remote coastal WeBS sites, periodic NEWS surveys, together with supplementary counts such as of night roost rafts, will greatly assist with increasing our knowledge of the status of Great Northern Diver in the UK.

FIND OUT MORE...

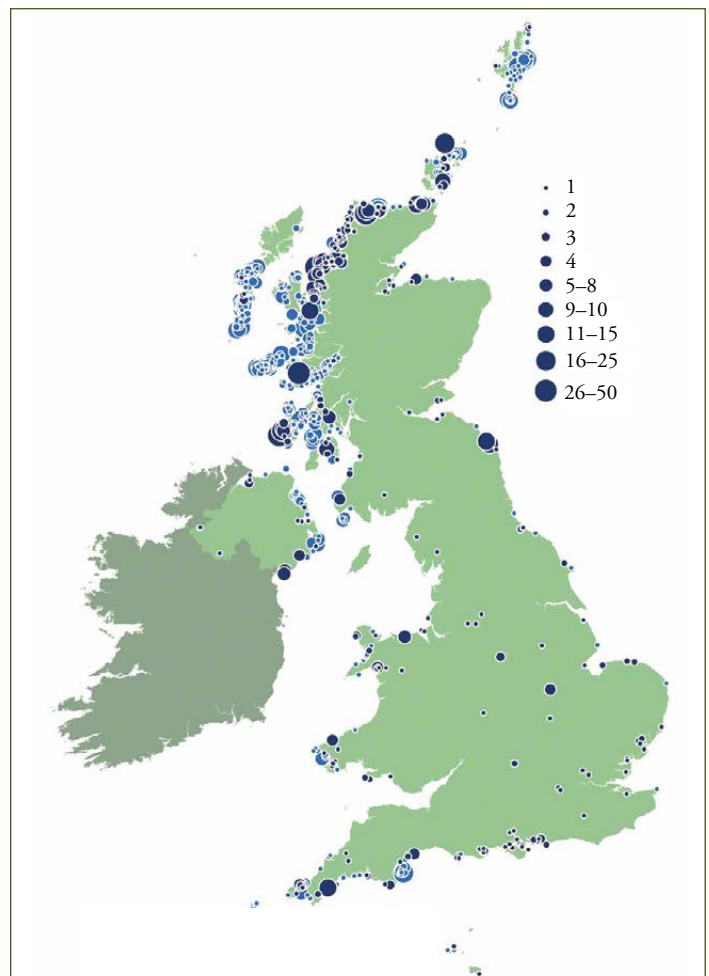
Paruk, J.D. *et al.* (10 co-authors). 2015. Winter site fidelity and winter movements in Common Loons (*Gavia immer*) across North America. *The Condor*: **117**: 485–493.

Shackleton, D. 2012. Night rafting behaviour in Great Northern Divers (*Gavia immer*) and its potential use in monitoring wintering numbers. *Seabird*: **25**: 39–46.

Winiarski, K.J., Miller, D.L., Patton, P.W.C. & McWilliams, S.R. 2013. Spatially explicit model of wintering Common Loons: Conservation implications. *Marine Ecology: Progress Series* **492**: 273–283.



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



▲ **Peak counts of Great Northern Diver recorded during NEWS III (light blue dots) and WeBS (dark blue dots).**

The state of the UK

Special Protection Area network

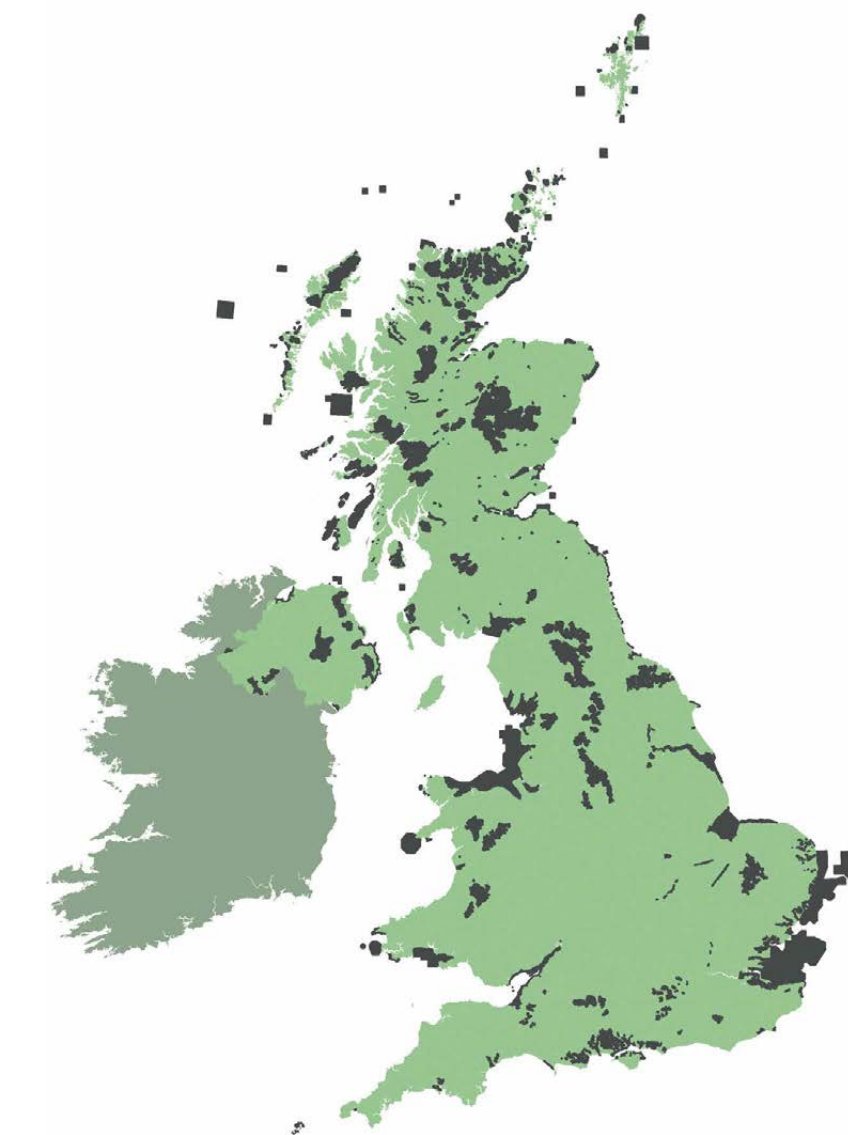
David Stroud (JNCC) details the findings of a review of the SPA network in the UK

A third national review of the UK's network of 270 Special Protection Areas (SPA) - internationally important sites protected under the EU Birds Directive - was submitted by JNCC, on behalf of the country agencies, to Ministers in October 2016. This followed reviews published in 1990 and 2001. All three can be found at <http://jncc.defra.gov.uk/page-7307>.

The network includes the most important sites for waterbirds in the UK and literally extends across the length and breadth of the UK: from Hermaness in the extreme north of Shetland, to the Isles of Scilly in the south, and from Pettigoe Plateau in the extreme west, to Great Yarmouth North Denes in the east.

WeBS data formed a major part of this assessment. Indeed, of the 1,516 'interest features' (all bird species at all the SPAs that have been classified for them), data for 814 (54%) was provided by WeBS, with another 59 (4%) from the Goose & Swan Monitoring Programme. This reflects the extreme importance of the UK for non-breeding waterbirds, both those visiting us from arctic breeding areas, and those staging en route to winter on African wetlands such as in Sierra Leone (see page 24). This importance is reflected in the comprehensive and proportionately significant protection provided by the SPA network.

WeBS provides all the SPA data for 50 species of waterbird. This highlights the enormous importance of the scheme to government; without these counts we would have little knowledge of the changing status of waterbirds on these statutorily



▲ The extent of the UK's SPA network as at 31st March 2016.

protected sites. Across the network as a whole, the Review found that 85% of all site-species records were collected by volunteers - an extraordinary public input to national conservation.

The network is of central importance for UK waterbird conservation. The

Review documented that, following development of the network since 2001, overall nearly 2,500,000 non-breeding waterbirds occur within SPAs: 37% of the total occurring in the UK (Table 4). However, coverage varies by taxa. A higher proportion (67%) of the highly aggregating geese

Table 4 Total SPA network provision in the UK in the 1990s and 2000s

	Total in SPA suites in 1990s	Total in SPA suites in 2000s	Total of relevant UK populations in 2000s	% of population in SPA suites in 2000s
Non-breeding waterbirds (individuals), including	2,279,545	2,487,993	6,639,846	37%
Divers, grebes and seaducks	7,048	144,706	158,100	92%
Geese and swans	392,539	470,703	699,804	67%
Ducks	499,726	470,108	1,820,180	26%
Waders	1,363,541	1,381,751	3,725,590	37%
Breeding waterbirds (pairs), including	453,957	41,668	327,153	13%
Waders	22,400	28,171	281,397	10%

and swans occur in SPAs than do more dispersed duck species (26%). These are minimum numbers and only include birds on those sites that have been legally classified for the species concerned. A much greater number will occur as non-qualifying species – occurring on sites protected for other waterbirds. A current WeBS project is attempting to estimate this ‘grand total’.

The Review compared the state of the network in the 2000s with the 1990s (as reported in 2001). Whilst a degree of change had been anticipated, not least due to known ‘short-stopping’ effects as reported in previous WeBS Reports for species such as European White-fronted Goose, Icelandic Greylag Goose and Bewick’s Swan, the overall extent of change was surprising and significant. Full details and the advice provided to government can be found in the published Review, but some of the issues include the need to:

- ensure that boundaries of WeBS count areas match SPAs to ensure that data can be appropriately used for such monitoring;
- ensure that all parts of relevant SPAs are covered by WeBS to ensure that assessments are complete for the sites concerned;
- review/consider further SPA provision as a positive conservation measure for species such as Cormorant, Icelandic Greylag Geese, Greenland White-fronted Goose, Red-breasted Merganser, Goosander, in response to declines in numbers and/or contractions of range;
- provide at least some SPAs for Annex I listed species such as Little Egret, Smew, Spoonbill, Crane and Mediterranean Gull, as a result of changes in legal understanding; and
- review boundaries of already classified SPAs to ensure that

areas used for feeding or other functional needs are included (for several goose species, Golden Plover, Lapwing and Curlew).

Overall, however, the Review found that current SPA provision was sufficient for most non-breeding waterbirds, with no other factors suggesting the need to revise previously identified SPAs for the species.

The Review concluded as follows: “It is important to acknowledge that this SPA network assessment would simply not have been possible without the massive voluntary efforts of many tens of thousands of volunteers who have given their time (and resources) to participate in systematic surveys and monitoring of UK birds since the 1960s. We acknowledge their huge input and interest, without which knowledge of the UK’s changing bird populations would be immeasurably poorer.”

FIND OUT MORE...

Stroud, D.A., Bainbridge, I.P., Maddock, A., Anthony, S., Baker, H., Buxton, N., Chambers, D., Enlander, I., Hearn, R.D., Jennings, K.R., Mavor, R., Whitehead, S. & Wilson, J.D. - on behalf of the UK SPA & Ramsar Scientific Working Group (eds.) 2016. *The status of UK SPAs in the 2000s: the third network review*. JNCC, Peterborough.
<http://jncc.defra.gov.uk/page-7309>



Monitoring waterbirds in the mudflats, mangroves and rice fields of Sierra Leone

Papanie Bai-Sesay (Conservation Society of Sierra Leone) introduces the waterbird monitoring scheme in Sierra Leone, which has been supported by WeBS in recent years

Every year in January, the Conservation Society of Sierra Leone (CSSL) together with other organisations (such as the Ministry of Fisheries and Marine Resources, Ministry of Agriculture Forestry and Food Security, National Association of Certified Tour Guides and Njala University) and community representatives collaborate to carry out the Sierra Leone Waterbird Census. This is part of a global waterbird monitoring programme, the International Waterbird Census (IWC), coordinated by Wetlands International. The census has three major objectives:

1. to obtain information on an annual basis of waterbird populations at wetlands in the region during the non-breeding period of most species (January);
2. as a basis for evaluation of sites and monitoring of populations, to monitor on an annual basis the

status and condition of wetlands; 3. to encourage greater interest in waterbirds and wetlands amongst people, and thereby promote the conservation of wetlands and waterbirds in the region.

Waterbirds counted during the census include all types of waterbirds regularly encountered at wetlands, including cormorants, pelicans, herons, egrets, storks, ibises, spoonbills, flamingos, and terns. In addition, raptors, kingfishers and other wetland-dependent birds were also recorded. Count data are entered onto standardised count forms.

Yawri Bay is by far the most important wetland for coastal waterbirds. The vast mudflat areas hold very high numbers of waders and herons. It is the only area with substantial numbers

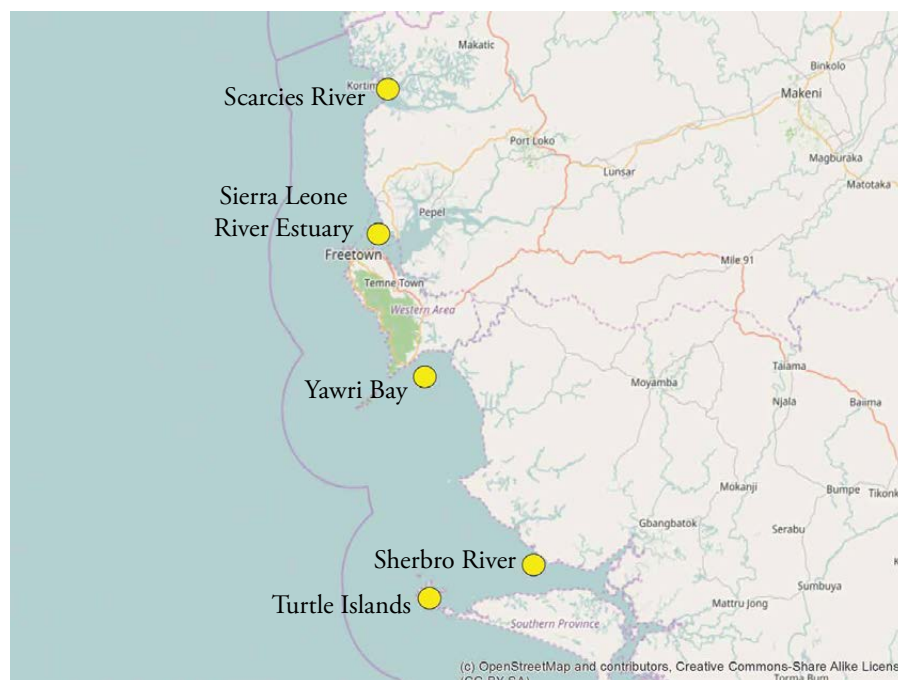
of Red Knot, Oystercatcher, Avocet, Black-tailed Godwit and Little Stint. Apart from waders, a large flock of Great White Pelicans are sometimes present and for African Spoonbill and Greater Flamingo it is the only wetland of importance in the country.

The wetlands are faced with numerous challenges which have affected birds and other marine species. The wetlands have changed due to reclamation of mangrove forests into rice fields. These fields are not intensively used and are intercepted with many creeks and small patches of mangroves. Several bird species are likely to profit from these changes.

In other areas, mangrove forests still dominate the intertidal areas with smaller or larger mudflats bordering them. Mudflats are used for collecting shellfish (e.g. cockles and oysters) all by manual methods. Fishing in the wetlands is common practice with all kinds of net types used.

In general small boats are used for transport and small creeks are used for trapping fish moving in and out. In Yawri Bay, small scale salt production is practiced. Birds (all species) and other wildlife (sea turtles, manatees, otters, and monkeys) are hunted by local villagers in an unknown intensity. Local hunters hunt adult birds as well as collecting eggs and young birds in breeding colonies for consumption.

The monitoring in Sierra Leone is part-funded by WeBS, through the Wadden Sea Flyway Initiative, which is developing coordinated monitoring of coastal waterbird populations along the East Atlantic Flyway.



▲ Map of the key non-breeding waterbird sites monitored in Sierra Leone.



▲ Counting from a boat in Sierra Leone.

Greater Flamingos occur at Yawri Bay in Sierra Leone.

Investigating Trends

Two recent papers have explored hypotheses about the downwards trend in Pochard and other duck species

Pochard is now a species of conservation concern, moving from the Amber to Red List in the UK and Least Concern to Vulnerable on the IUCN Red List of Threatened Species following assessments in 2015. In the UK, numbers have halved in the past twenty-five years. As a result, researchers have begun to look into which factors might be influencing the population trend, such as climate change, breeding success or lead poisoning.

Fox *et al.* (2016) examined a number of these other possible causes of decline in the abundance of breeding Pochard across Europe, which affects wintering numbers in the UK. Historical records show an expansion of this species' European breeding range northwest-wards in the second half of the 19th century to countries as far as the UK, Iceland and Sweden. The reason for this is unclear, although later increases in the 20th century were linked to creation of man-made waterbodies.

However, since the late 20th century, in the European countries with

the largest breeding populations, numbers have been decreasing rapidly, matching declines recorded in wintering populations. These declines have been attributed to various causes across the European breeding range, from late summer hunting, to increases in nest predators. Other factors which the authors identified as likely major contributors in multiple countries included:

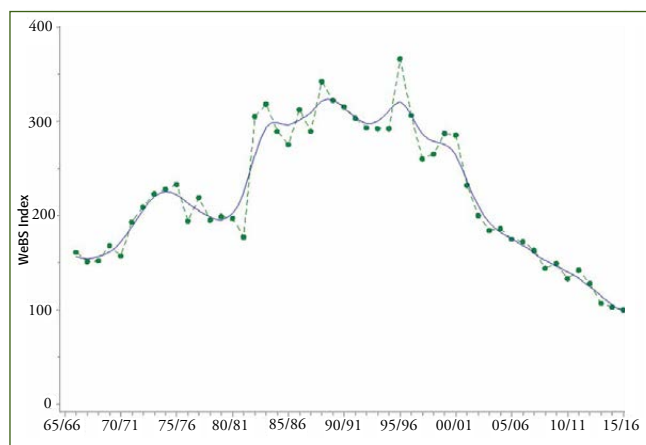
- changes in wetland management – intensification or abandonment of fish ponds and other lowland wetland habitats has become widespread in many countries, making these areas less suitable for Pochard;
- deterioration in water quality – whilst some degree of eutrophication can benefit Pochard, hyper-eutrophication can result in reduced food availability and excessive growth of emergent vegetation that can decrease the open water available;
- abstraction and drought, resulting in falling water tables and reducing ephemeral wetlands favoured by Pochard, especially in

southeast Europe;

- non-native predators, particularly American Mink, are a problem in many countries, as are non-native fish such as Carp which directly compete for similar food resources in the Mediterranean region;
- a decrease in Black-headed Gull colonies, which can act as guardians for nearby nesting Pochard, may be a factor in some areas (but there could be a common factor affecting both species).

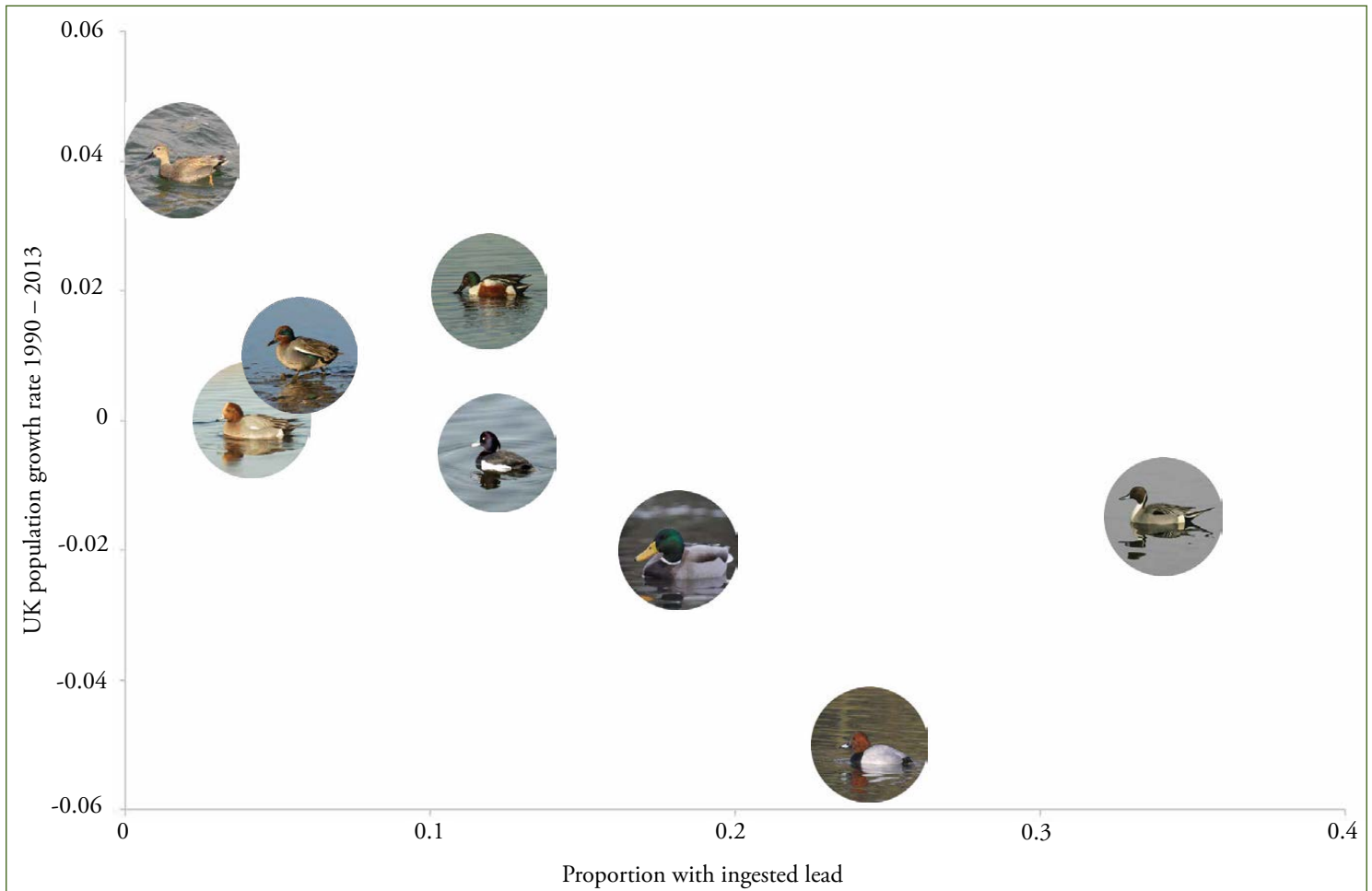
Green & Pain (2016) looked at the possible effects of ingested lead gunshot on UK wintering duck populations. It has long been known from observational and experimental studies that ducks which ingest lead shot suffer additional mortality. The African-Eurasian Migratory Waterbird Agreement (AEWA) requires Parties (including the UK) to phase out the use of lead gunshot for shooting wildfowl or over wetlands. Although such use is now forbidden in the UK, surveys have found that even after the ban had been in effect, in about 70% of ducks offered for sale in England had been shot using lead; and the proportion of wildfowl found dead that had died from lead poisoning did not change after the ban was put in place.

Examination of birds that are shot or trapped in ten European countries and those found dead in the UK have previously found that some species are more likely to have ingested lead shot than others, due to differences in their diet or foraging behaviour. Leaf-feeders like Gadwall and Wigeon tend to ingest small particles of grit, whereas seed-feeders ingest larger pieces of grit and so are more likely to ingest lead shot. The most affected species are Pochard, Pintail and Mallard, with Pochard



▲ WeBS trend for Pochard in UK.

Green dots = annual index; blue line = smoothed trend.



▲ Mean annual growth rate of the wintering population of ducks in the UK between the 1990/91 and 2013/14 winters in relation to the proportion of hunted and trapped European ducks with ingested lead shot, adjusted for country effects. Redrawn from Green & Pain (2016).

having the highest incidence of ingested lead shot in post-mortems of birds found dead in the UK, and Pintail the highest incidence in data from birds shot or trapped.

However, it remains unclear whether lead poisoning incidence is at a level that could have population level effects, compared with other factors. Green & Pain (2016) set out to explore correlations between the population growth rates of the common freshwater dabbling ducks (Gadwall, Shoveler, Teal, Wigeon, Mallard and Pintail) and diving ducks (Tufted Duck and Pochard) and information on the amount of lead ingested by each of those species.

In the paper, the authors compared average changes in smoothed WeBS indices with the prevalence of lead shot for the eight species and reported that the species with higher incidence of lead shot tended to have more negative population trends. They modelled their measure of

UK population changes (based on WeBS indices) together with their previously published estimates of extra mortality poisoning on ducks and found that it is theoretically possible that this could be the sole mechanism for the population trends observed. However, they emphasise that the modelling results do not demonstrate causality. Other factors could also be responsible for the decline in Pochard and some other ducks.

Migratory species may be exposed to lead ammunition differently according to their migration routes, because the prevalence of ingested lead shot varies between countries. The authors noted it is possible that lower survival of female Pochard, which tend to winter further south than males, might be related to greater exposure to lead, although it could also be due to increased hunting pressure in their wintering grounds compared with males, or other natural factors.

Information from WeBS is vital evidence for what is happening to our duck populations and, when combined by scientists with other evidence across flyways, it helps increase our understanding of not only how our wetland communities are changing, but why. There is still more research needed to be able to fully explain why Pochard is becoming a rarer sight on monthly WeBS counts.

FIND OUT MORE...

Fox, A.D., Caizergues, A., Banik, M. V, Devos, K., Dvorak, M. & Sjenic, J. 2016. Recent changes in the abundance of Common Pochard *Aythya ferina* breeding in Europe. *Wildfowl* **66**: 22–40.

Green, R.E. & Pain, D.J. 2016. Possible effects of ingested lead gunshot on populations of ducks wintering in the UK. *Ibis* **158**, 699–710.

Monitoring our offshore waterbirds

Colette Hall (WWT) on the need for monitoring seaduck populations in spite of the challenges

A large raft of seaducks bobbing on the open sea is an impressive spectacle, but it's something that few of us often get to see. During the winter, seaducks tend to gather in nearshore and offshore waters, and often the flocks extend too far from shore to be seen clearly, if at all, even with a powerful telescope. Needless to say, this makes counting them consistently, and thus monitoring their population status, rather challenging.

The use of aircraft and boats to survey nearshore and offshore areas has been around for many years and in the last decade or two the increased need for assessing the importance of different marine waters - whether it be for designating protected sites or for offshore renewable energy developments - has led to a large increase in offshore surveys. In turn, this has resulted in a vast improvement in our knowledge of seaduck populations, as well as wintering divers and grebes which are typically surveyed at the same time. A number of countries, such

as the Netherlands, Germany and Denmark, have established national programmes of offshore surveys, and in recent years, progress has been made towards conducting coordinated marine waterbird surveys at the international level, with a complete survey of the Baltic Sea and parts of the North Sea taking place in winter 2015/16: only two other surveys of this scale have taken place since the early 1990s (in the mid-1990s and during 2007–09). This increase in surveying has also been in response to the deteriorating status of a number of seaduck species, including Long-tailed Duck and Velvet Scoter which are now listed as globally Vulnerable on the IUCN Red List.

However, to date no coordinated surveys have taken place across the whole winter range of most of these marine waterbirds. In the UK, there is no long-term monitoring programme in place that adequately covers offshore areas and enables robust population estimates and trends to be developed. Here, the

majority of aerial or boat surveys are usually carried out either for protected site monitoring or for industry, such as windfarm developments. The development of a national monitoring programme, synchronised with efforts elsewhere in relevant flyways, is urgently needed as the UK supports internationally important concentrations of species such as Common Scoter and Red-throated Diver. Without coordinated surveys that include the UK it will remain difficult to track the population status of these species.

Unfortunately, the high costs of aerial surveys means that even if a national coordinated census is initiated, it is unlikely to be undertaken more than about once a decade. Given this, consistent counts of seaducks and other marine waterbirds from land can continue to play a useful role in our efforts to track the status of these enigmatic species and provide key information about the use of the UK's inshore waters.

Carmarthen Bay - ideal for Common Scoter and counters alike

Carmarthen Bay is a perfect spot for wintering Common Scoter, with its shallow waters providing easy access to the bivalves they take as food. Not only that, the landscape of the bay also makes it ideal for those that want to sit and count them: the shallow waters are close to the coast and there are a number of good vantage points along the shore that provide the right elevation and aspect for covering the bay. The site regularly supports over 20,000 Common Scoter, with over 40,000 seen there in February 2010, and it is because of its importance for the species that the site became the first marine Special Protection Area to be designated in the UK.

Because of the nature of the site, researchers have been able to design a specific methodology for monitoring the scoter. The surveys require experienced counters, who will have already visited the site a number of times previously for practice counts, usually with someone who has carried out the surveys before. Conditions on the day need to be

good: visibility exceeding 4 km, light sea swell and preferably overcast (to prevent glare). The site is surveyed from two to three vantage points, with the counter covering a different part of the bay from each location - using a compass and a map to work out the count sections.

During the count, groups of birds are observed for a minute or more to check for any that may be underwater or hidden behind waves, and the entire visit to each location takes one to two hours. Although Carmarthen Bay lends itself to counting Common Scoter, the method used can be adapted for other locations, with the basic procedures mentioned here being amongst the main requirements for counting marine waterbirds from land.

Carmarthen Bay is a great place to practice counting. So if you are ever passing by on a calm winter's day, it is definitely worth stopping at Pembrey Burrows, Dolwen Point (near Pendine) or Merrifields (near Arbroth) to take a look from shore - particularly if you happen to have a scope - and see if you can locate a vast raft of scoters sitting out at sea...and maybe have a practice counting them too whilst you're there!



GINNY SELLORS

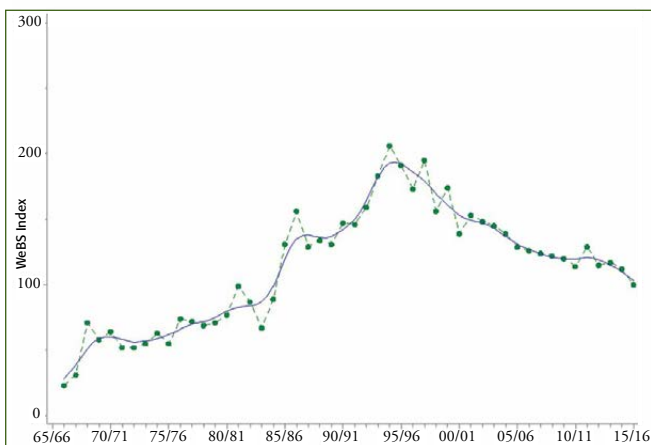
▲ As with many seaducks, Long-tailed Duck numbers have declined dramatically.

Due to the well-known difficulties faced when counting birds at sea from land (i.e. birds being too far from the coast, poor weather conditions and sea state, lack of suitable vantage points for seeing further offshore), consistent counts from land are not possible everywhere, but where they are they are likely to remain hugely important to our understanding of the status of seaducks, divers and grebes for the foreseeable future.

Key to maximising their value is to determine a repeatable way of counting the site. This is likely to require a dedicated count conducted on a different day to the standard WeBS Core Count and submitted as a supplementary count to WeBS. Counts of seaducks, divers and grebes from land need optimal conditions - a high vantage point, calm seas and good visibility - that are also comparable to other counts that have been made previously.

Counters will also need a good quality telescope for counting birds at a distance. However, even with the right conditions, observers will only be able to count and identify (though not always) birds that are around 1–2 km out from the coast. If the stretch of coast or estuary is relatively large, more than one counter may be needed in order to carry out a coordinated count. Counters also need to be confident in their identification of birds at a distance and in their ability to count large flocks, some of which can be quite extensive. At some sites, it might be possible to only monitor some species consistently well. For example, Eider and Red-breasted Merganser are typically found closer to shore than scoters and Long-tailed Duck, and it may be that few birds will be missed (though this does differ between sites).

If you are lucky enough to have seaduck at your count site and would like further advice on the best way to approach monitoring them, please contact the WeBS Office or the WWT Monitoring Unit.



▲ Red-breasted Merganser is relatively well covered by WeBS. There has been a steady decline since the mid 1990s. Green dots = annual index; blue line = smoothed trend.

Adaptable Oystercatchers

Oystercatchers were one of the most widely recorded species during the NEWS III counts

The Oystercatcher is one of the most striking, most familiar and most studied of our wader species. It was recorded on more NEWS stretches than any other species, with an estimated 70,000 on open coast habitats; the only areas where they are noticeably absent being the eastward facing parts of the Holderness and East Anglia coasts.

Even larger numbers are present on estuaries. Over 200,000 were counted during WeBS counts in October 2015. The UK is very important for the nominate sub-

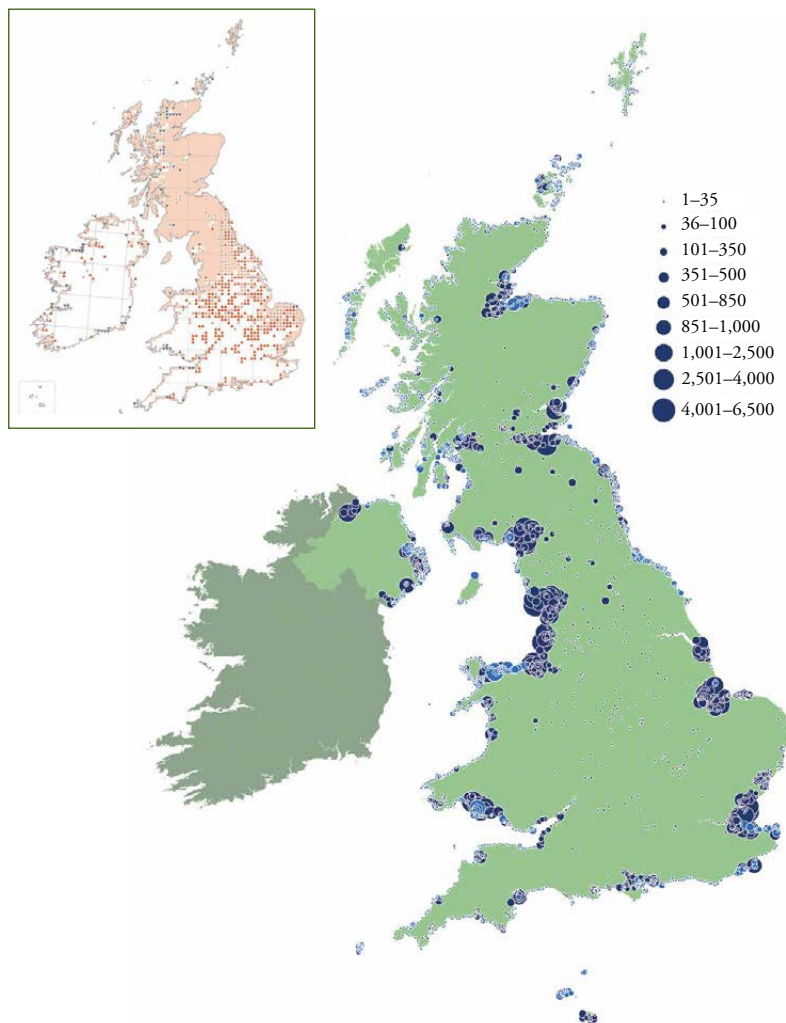
species: home to just under a third of the breeding population, and over a third of the wintering population (van de Pol *et al.* 2014). Internationally important numbers occur at Morecambe Bay, Solway Estuary, Dee Estuary, The Wash, Thames Estuary, Ribble Estuary, Burry Inlet and Carmarthen Bay.

Whilst commonest in coastal habitats throughout the year, Oystercatchers have proved themselves to be adaptable and have taken advantage of changes in the landscape. The first UK inland nest outside the

Highlands was on the River Eden in Cumbria in 1889 and since then they have spread further inland each year, first along rivers and then more widely on agricultural grasslands and roofs. Movements to breeding grounds can be seen by the spring decrease in the WeBS monthly index and a corresponding increase in the BirdTrack reporting rate, as birds disperse more widely.

The UK WeBS winter index for Oystercatcher today is similar to that at the start of the time series in 1974/75; however, it peaked twenty-five years ago in 1990/91 at 50% more than the current value. This corresponds to an annual decline of 2% a year over the past 25 years.

This recent rate of decline is repeated at the population level which, in 2015, prompted the IUCN Red Listing of this species to Near Threatened. It is not known if the recent declines are part of a long-term fluctuation. At a site level, overexploitation and disease of shell fisheries are known to have a negative effect and the future conservation status of Oystercatcher will depend on whether numbers stabilise and if conservation actions around shell fisheries lead to population recovery (Birdlife International 2016).



▲ Oystercatcher winter (December 2015 – February 2016) counts from WeBS (dark blue dots) and NEWS III (light blue dots) with inset map showing breeding presence from Bird Atlas 2007–11 - pink areas have been used for breeding since the 1968–72 atlas, upwards arrows show expansion of breeding areas since then.

FIND OUT MORE...

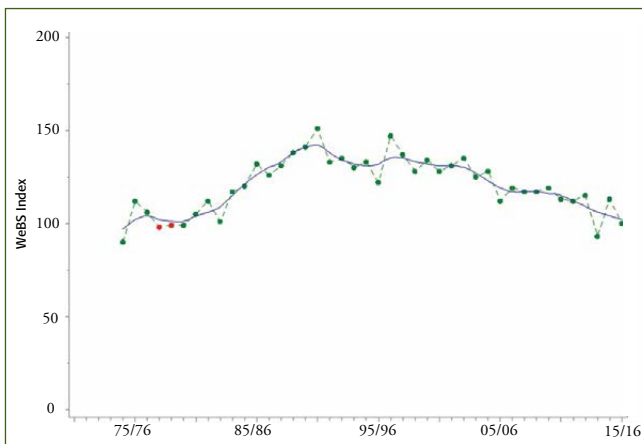
BirdLife International. 2016. *Haematopus ostralegus*. The IUCN Red List of Threatened Species 2016: <https://tinyurl.com/n6grjem>

van de Pol *et al.* (15 co-authors). 2014. A global assessment of the conservation status of the nominate subspecies of Eurasian Oystercatcher *Haematopus ostralegus ostralegus*. *International Wader Studies*: **20**: 27–61.

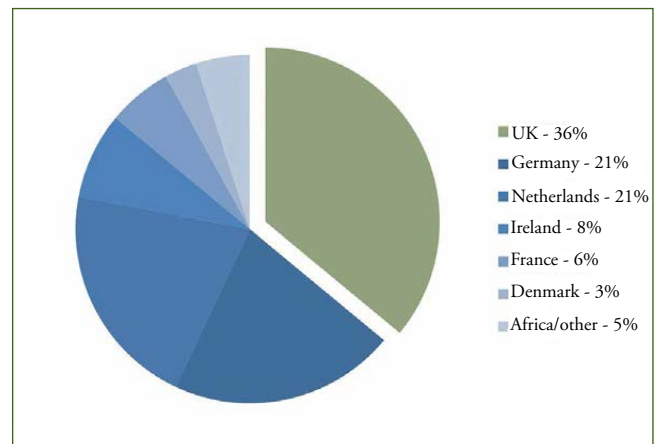
DAVE KING



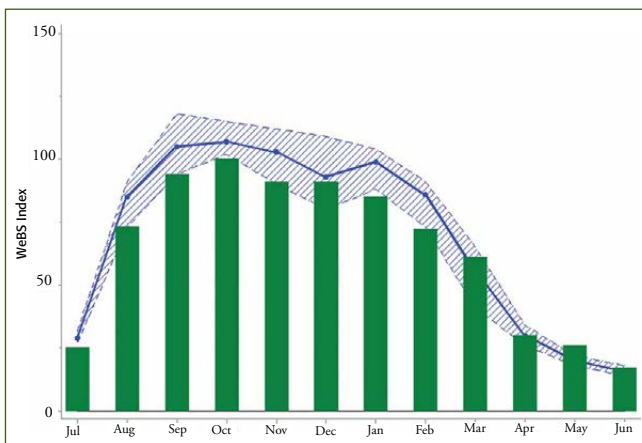
▲ Oystercatchers are a very adaptable species and can be found in a variety of habitats from rocky shore and intertidal mudflats to agricultural fields and urban areas.



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



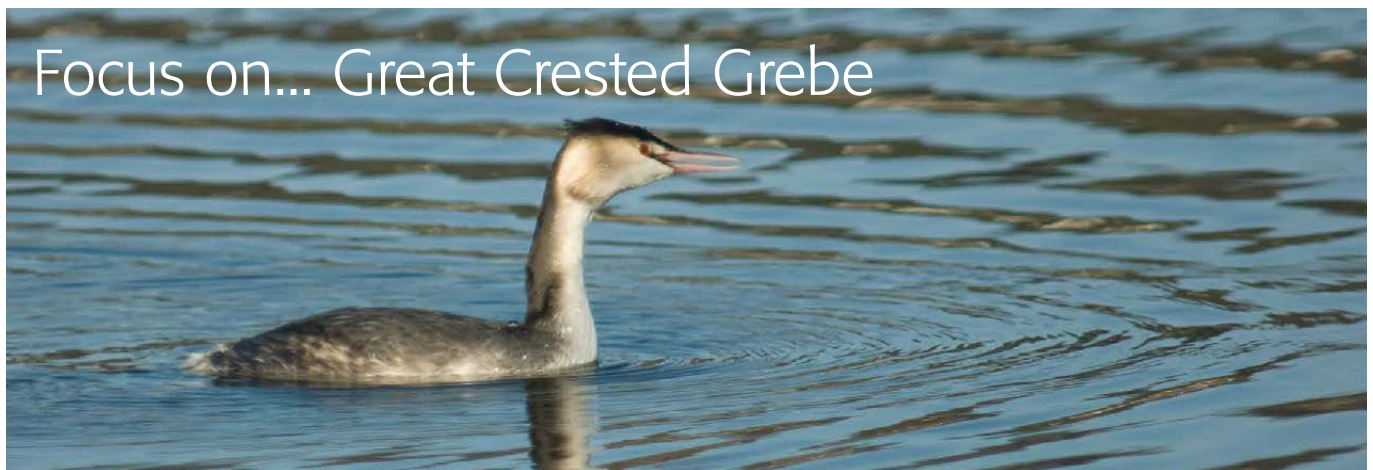
▲ Wintering distribution of nominate subspecies of Oystercatcher (data from van de Pol *et al.* 2014)



▲ Monthly indices for Oystercatcher in UK.
Green bars = 2015/16; blue line/hatched area = previous 5-year mean/range.



▲ Oystercatcher observations as a proportion of complete BirdTrack lists, related to increased dispersal during the breeding season (Mar-Jul).



Throughout the winter, Great Crested Grebes are found on estuaries, shallow sea coasts and on lowland lakes. Inland, birds in winter are most concentrated in central and southern England, central Scotland and in Ireland on the lakes that are north of a diagonal band from Co. Kerry in the west to Co. Antrim and Co. Down in the east. On the coast, winter abundance is highest in the major estuaries and at other shallow coastal sites.

The highest counts on WeBS sites in 2015/16 come from Dungeness and Rye Bay (2,420), Abberton Reservoir (1,276), Dee Estuary (961), Loughs Neagh and Beg (696), Chew Valley Lake (575), Rutland Water (425), Cotswold Water Park (369) and Hanningfield Reservoir (331). Counts at Dungeness and Rye Bay have been consistently high

in recent years, with a peak of 3000 in 2012/13.

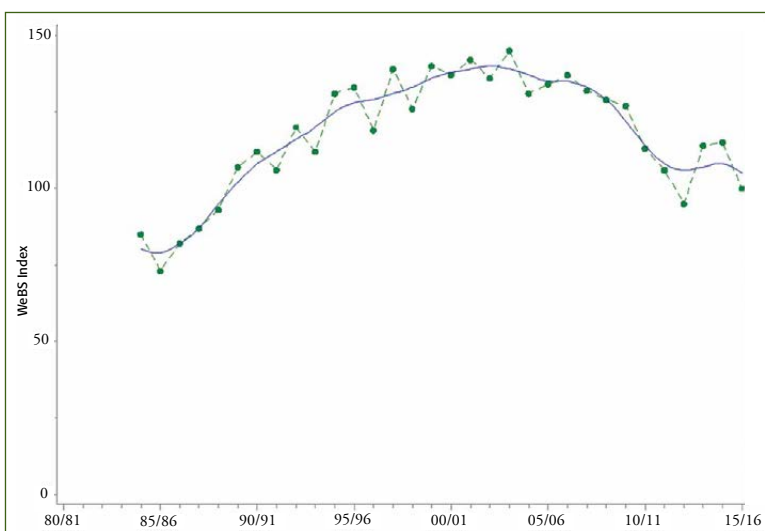
Birds in coastal habitats are often difficult to monitor due to the sea state or unfavourable weather conditions (see pages 28–29).

The system of WeBS Alerts (Cook *et al.* 2013) identified Medium Alerts for Northern Ireland (short- and mid-term) and for Wales (short-, mid- and long-term). In addition, High Alerts were identified for some key Special Protection Areas e.g. Belfast Lough, Firth of Forth, Lough Foyle, Medway Estuary and Marshes, Mersey Estuary, Morecambe Bay and Upper Solway Flats and Marshes.

Given the continuing declines on WeBS sites, a repeat of the WeBS Alerts work would be timely.

The winter fieldwork for Bird Atlas 2007–11 revealed a 22% increase in winter range size in Britain and Ireland since the 1981–84 Winter Atlas.

Despite the increase in range, information from WeBS and I-WeBS suggests a decline in numbers in the short-term trends. The 25 year WeBS trend (1989/90–2014/15) for the UK shows a 6% increase in numbers, whilst the 10-year trend 2004/05–2014/15 reveals a 21% decline; in the Republic of Ireland the 5-year trend (2008/09–2013/14) is -18% and the 10-year trend (2004/05–2013/14) is 16%. Some of this may reflect fewer continental immigrants from declining northwest European breeding populations (Hornman *et al.* 2012, Wetlands International 2017).



▲ WeBS trend for Great Crested Grebe in UK.
Green dots = annual index; blue line = smoothed trend.

FIND OUT MORE...

Hornman, M., Hustings, F., Koffijberg, K., Kleefstra, R., Klaassen, O., van Winden, E., SOVON Ganzen- en Zwanenwerkgroep & Soldaat, L. 2012. *Watervogels in Nederland in 2009/2010*. SOVON-monitoringrapport 2012/02, Waterdienst-rapport BM 12.06. SOVON Vogelonderzoek Nederland, Nijmegen.

Wetlands International. 2017. Waterbird Population Estimates. <http://wpe.wetlands.org> [25 April 2017].

Focus on... Grey Plover



PAUL HILLON

Frequenting the mudflats of large estuaries, when not gathering in high tide roosts, Grey Plover tend to feed and travel singly or with only a few others.

The UK WeBS index of this arctic-breeding species has declined by more than half since its 1993/94 peak, and reached the lowest value for thirty years in 2015/16. In the East Atlantic Flyway the number of birds wintering in west Africa is also declining. However, in the Netherlands the recent trend is slightly increasing, and as the Flyway trend is stable, the recent UK decline is likely to be related to shifts in wintering distribution.

Concordantly, the 2015/16 WeBS maximum monthly total was a low 23,490, in February. The number of birds recorded for NEWS III reached its lowest level, resulting

in the latest open coast estimate of 1,012 birds (Table 3, page 15).

Six sites still surpassed the threshold for international importance with a five-year mean peak of over 2,500 birds. All of these had smaller maxima in 2015/16 than their five-year mean. A further 17 sites had a five-year mean peak of over 430 birds, surpassing the threshold of national importance.

The Kent and Essex mudflats of the Greater Thames Estuary are very important for this species in the UK, having nine sites of international or national importance. A long-term study at one of these, the Swale Estuary, collected data on age, primary moult and mass and analysed it together with WeBS year-round counts and ringing recoveries.

The results showed that birds used

the Swale in many ways: some remain for the whole winter whereas others stopover on southward migration. Birds spend just the start, just the end, or their entire moult on the Swale. It is thought the July Swale WeBS count represents the over-summering population of first year birds, with numbers indicating the success of the previous breeding season and subsequent survival rates. The study implies that the number of individuals supported by the Swale is higher than the WeBS peak count may suggest if turnover is not taken into account (Smith *et al.* 2016).

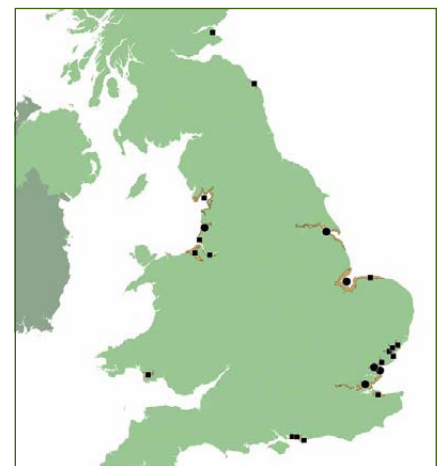
FIND OUT MORE...

Smith, R., Derrett, K. & Tardivel, N. 2016. Use of the Swale Estuary, SE England, by Grey Plovers *Pluvialis squatarola*. *Wader Study* **123(3)**: 213–225.



▲ WeBS trend for Grey Plover in UK.

Green dots = annual index; blue line = smoothed trend.



▲ Internationally Important Sites (large circles) and Nationally Important Sites (small squares) for Grey Plover (based on WeBS five-year mean for 2011/12 – 2015/16).

Pagham Harbour at low tide

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

Pagham Harbour is a relatively small estuary located just east of Selsey Bill, one of the few undeveloped stretches of the Sussex coast. A central area of mudflats and saltmarsh is flanked by brackish marsh and damp pastures. The outlet to the sea is a narrow channel flowing through a shingle beach. There is a brackish lagoon at Pagham and a small pool at Sidlesham Ferry. The area was once claimed as agricultural land but was flooded again early in the 20th century. The harbour is now a designated Ramsar Site and SPA. Only a limited amount of sailing takes place in the harbour and fishing is strictly regulated. In January 2012, the RSPB took over the day-to-day management of the site from West Sussex County Council, who remain a very important partner, helping to fund this large and complex site.

The distribution of two species are mapped on the opposite page. For Wigeon and Dunlin, distributions based on WeBS Low Tide Counts undertaken in 1995/96 are displayed for comparison with the respective distributions from 2015/16.

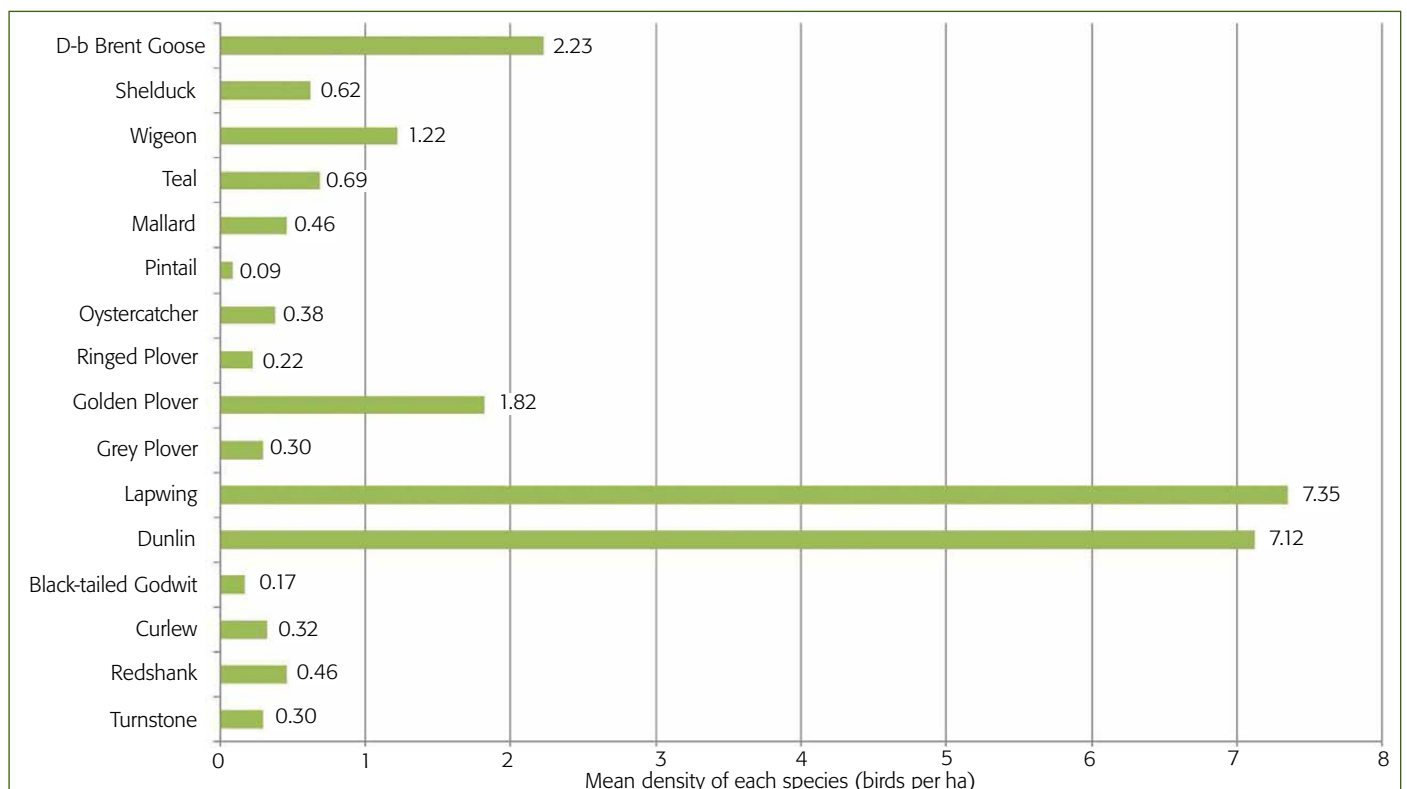
Wigeon are present in large, though not in nationally or internationally important numbers with a five-year average of 2,271 birds. The mean winter counts at low tide in Pagham Harbour have fallen slightly with 643 (2.59 birds per ha) in 1995/96, compared with 466 (1.22 birds per ha) in 2015/16. The largest concentrations of Wigeon in 2015/16 were by Ferry House, north of the Pagham Wall and the main flats off Pagham, whereas in 1995/96 they were more numerous on the Church Norton side of the harbour

and along the Mill Channel.

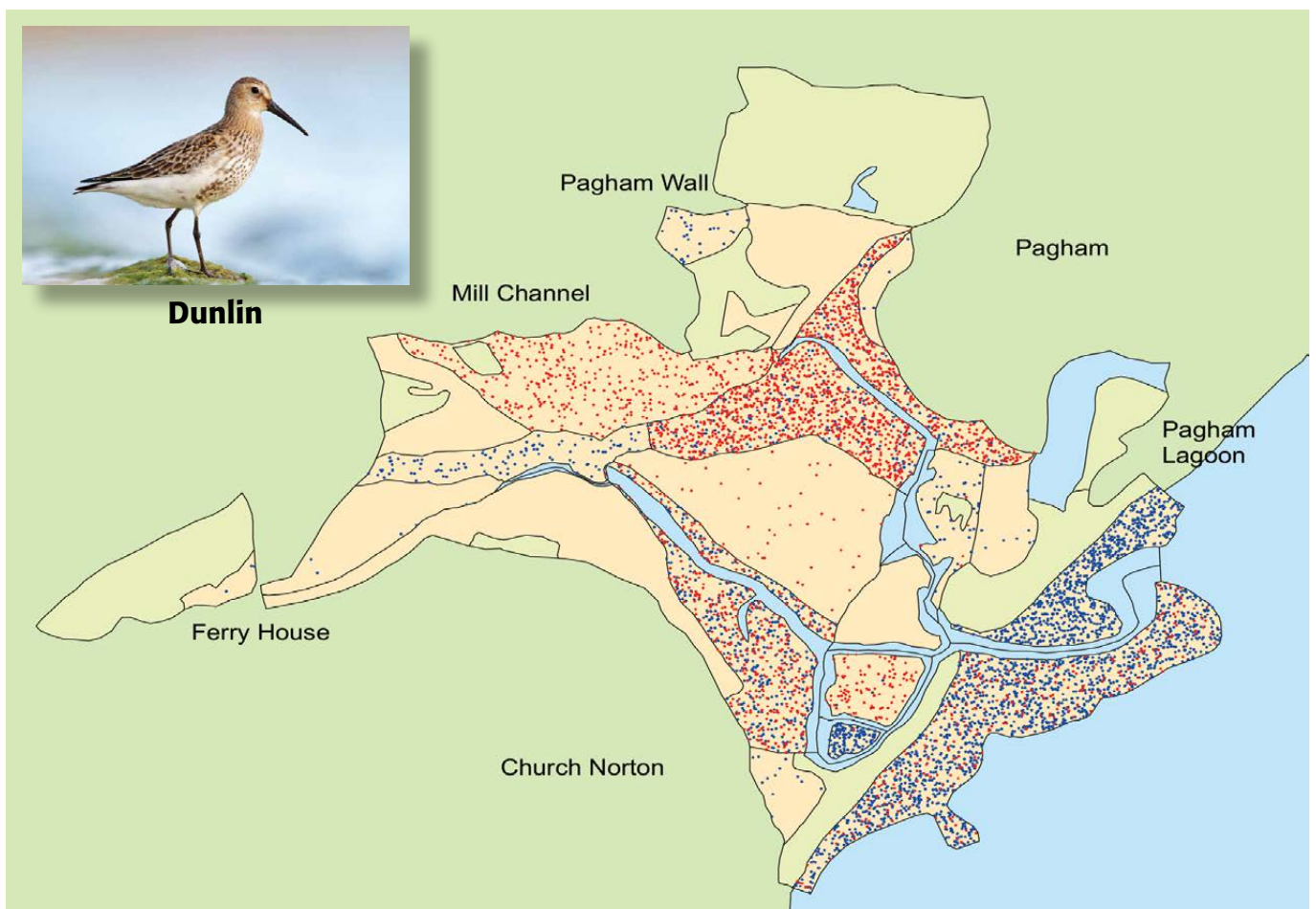
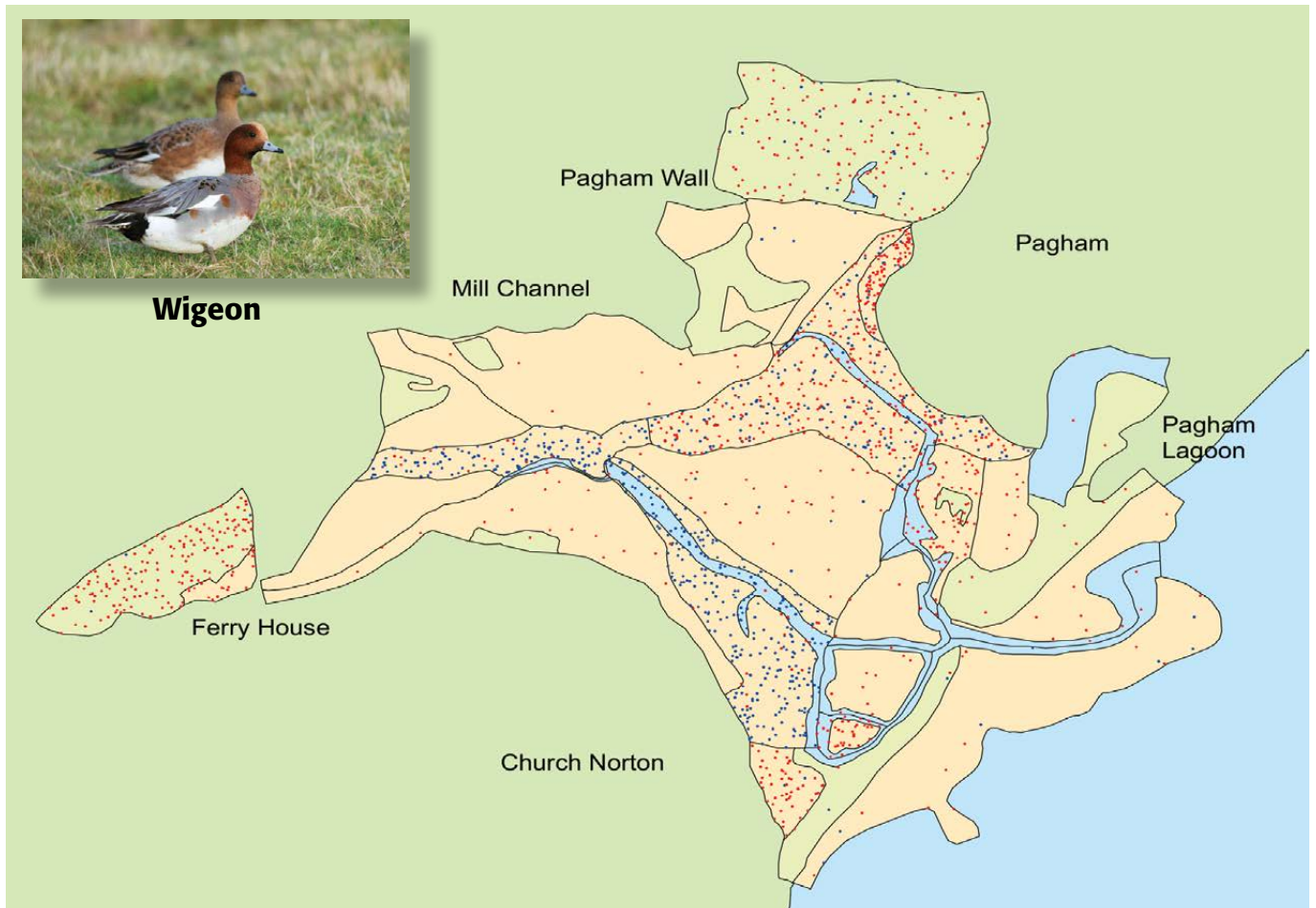
Dunlin is a species that has shown a long-term decline in the UK and likewise in Pagham Harbour. This decline has been very evident between 1995/96 and 2015/16, with the mean winter low tide counts in 2015/16 (7.12 birds per ha) being less than half that recorded in 1995/96 (19.23 birds per ha). In 1995/96 the largest concentration was at the mouth of the estuary, but in 2015/16 most Dunlin were within the main estuary.

GENERAL STATISTICS FOR PAGHAM HARBOUR

Area covered: 290 ha
 Mean total birds: 5,606
 Mean bird density: 19.3 birds per ha



▲ Mean densities of waterbirds at low tide at Pagham Harbour in 2015/16.



WIGEON BY JOHN HARDING, DUNLIN BY NICK CLAYTON

▲ Low tide distribution of Wigeon (1 dot = 1 bird) and Dunlin (1 dot = 1 bird) at Pagham Harbour, for the winters of 2015/16 (red) and 1995/96 (blue).



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.

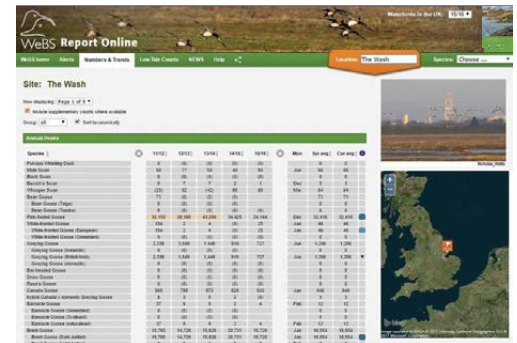
In addition, WeBS Low Tide Counts are undertaken on selected estuaries with the aim of identifying key areas used during the low tide period, principally by feeding birds. It also identifies areas not otherwise noted for their importance from data collected during Core Counts which are normally conducted 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 2015/16 (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 2015/16. Data from other national and local waterbird monitoring schemes, notably the WWT/JNCC/SNH Goose & Swan Monitoring Programme, are included where WeBS data alone are insufficient to fulfil specified aims. The annual WeBS report therefore provides a single, comprehensive source of information on waterbird status and distribution in the UK.

WeBS Report Online



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

This annual report, *Waterbirds in the UK 2015/16*, 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. For *Waterbirds in the UK 2015/16* a new NEWS tab has been added.

In the NEWS section, users can select a region and then see a table of species occurring in that region, including the regional count from NEWS and estimate for the extent of the non-estuarine coast in that region. On selecting a species, a regional map is then displayed showing the counts recorded during the survey together with species-specific coverage information. If, for example, the intertidal habitat of a sector was covered, but seaward

and landward habitats were not, the effective coverage for particular species will vary.

In addition to data from the latest 2015/16 survey, NEWS III, data on counts and coverage is also available from WSC, NEWS I and NEWS II to facilitate comparisons between surveys, by selecting the appropriate survey from the drop-down box.

In the 'Numbers and Trends' section, selecting a site from the menu allows users to explore which species have 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.

Annual and monthly trend plots for the UK and constituent countries are shown (where applicable) and there are also links to other sources of web-based information. Supplementary counts can be included or excluded in the tables. For reference purposes, data from annual reports for previous years can be accessed by choosing the appropriate WeBS year from the 'Waterbirds in the UK' drop-down menu.

FIND OUT MUCH MORE...

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



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

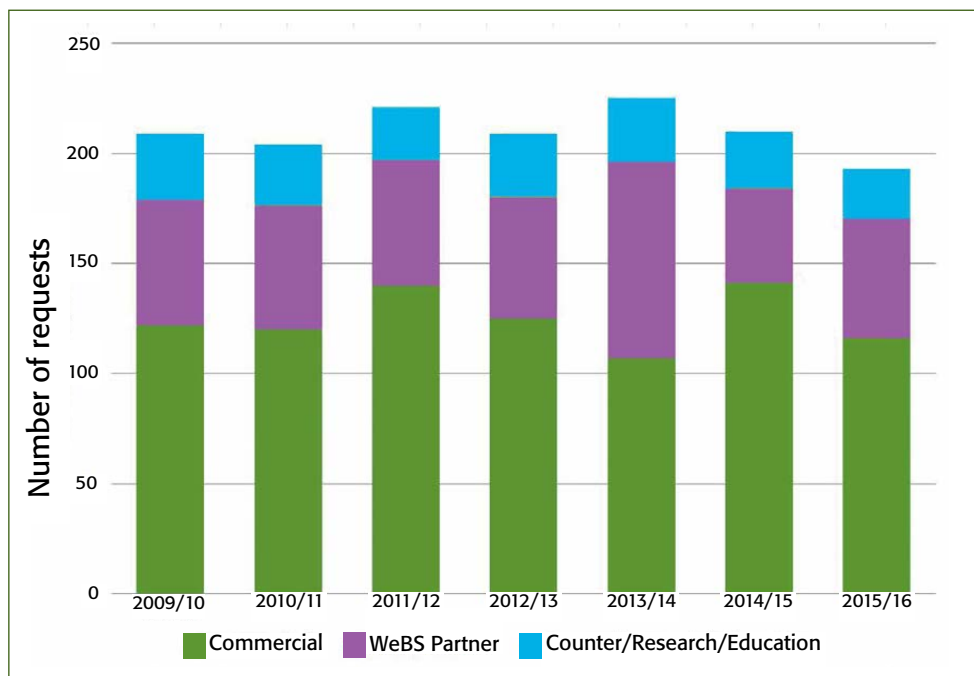
Uses of WeBS data 2015/16

193
WeBS Data
Requests in
2015/16

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 2009/10. 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 2009/10 to 2015/16.

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

The WeBS Partnership is keen to encourage WeBS data use within environmental research. A number of scientific papers and reports that have used WeBS data in recent years are referenced within

the pages of this annual report, and there is of course an extensive suite of other research questions relating to waterbird ecology and wider wetland management issues to which WeBS data would lend themselves, at both national and international scales.

Academic researchers, students and potential collaborators interested in using WeBS data can email the WeBS office at 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 2015/16

Continued from back page

WALES

Anglesey
Breconshire
Burry Inlet
Caernarfonshire
Caernarfonshire (Foryd Bay)
Cardigan (incl Dyfi Estuary)
Carmarthenshire
Clwyd (coastal)
Clwyd (inland)
East Glamorgan
Gwent (excl Severn Estuary)
Merioneth (estuaries)
Merioneth (other sites)
Montgomeryshire
Pembrokeshire
Radnorshire
Severn Estuary (Wales)
West Glamorgan

Ian Sims
Andrew King
Lyndon Jeffery
Rhion Pritchard
Simon Hugheston-Roberts
Russell Jones
Terry Wells
VACANT
Duncan Halpin
Daniel Jenkins-Jones
Al Venables
Jim Dustow
Trefor Owen
Jane Kelsall
Annie Haycock
Peter Jennings
Al Venables
Lyndon Jeffery

NORTHERN IRELAND

Antrim (Larne Lough)
Antrim (other sites)
Armagh (excl Loughs Neagh and Beg)
Belfast Lough
Down (Carlingford Lough)
Down (Dundrum Bay)
Down (other sites)
Down (Outer Ards)
Down (South Down Coast)
Down (Strangford Lough)
Fermanagh
Londonderry (Bann Estuary)
Londonderry (Lough Foyle)
Londonderry (other sites)
Loughs Neagh and Beg
Tyrone (excl Loughs Neagh and Beg)

Doreen Hilditch
Adam McClure
Stephen Hewitt
Shane Wolsey
Shane Wolsey
Patrick Lynch
Shane Wolsey
NIEA
Shane Wolsey
Kerry Mackie
Michael Stinson
Hill Dick
Matthew Tickner
Shane Wolsey
NIEA
Vacant (now Michael Stinson)

CHANNEL ISLANDS

Alderney
Channel Islands (inland)
Guernsey Coast
Jersey Coast

Alderney Wildlife Trust Ecologist
Glyn Young
Mary Simmons
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 2015/16, the WeBS Local Organiser Advisory Committee (WeBS LOAC) comprised John Armitage, Neil Bielby, Brian O'Leary, Andrew King, Chris Gunn, Brian Moore, Colin Wells and Kerry Mackie. Many thanks to them for representing the wider LO network. Further information about the WeBS LOAC can be found at www.bto.org/webs/loac.

WeBS ONLINE REPORT

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



Selected further reading

Recent studies that have used WeBS data

Frost, T.M., Austin, G.E., Calbrade, N.A., 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/JNCC. BTO, Thetford.

Austin, G.E., Frost, T.M. & Ross, K. 2017. *Providing data for rapid condition assessment of non-breeding waterbird SPAs in England: Phase II*. Research Report 684. BTO, Thetford.

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

Bowgen, K.M. 2016. *Predicting the effect of environmental change on wading birds: insights from individual-based models*. PhD Thesis, Bournemouth University.

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

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

Green, R.E. & Pain, D.J. 2016. Possible effects of ingested lead gunshot on populations of ducks wintering in the UK. *Ibis* **158**: 699–710.

Hall, C., Crowe, O., McElwaine, G., Einarsson, Ó., Calbrade, N., & Rees, E.C. 2016. Population size and breeding success of Icelandic Whooper Swans *Cygnus cygnus*: results of the 2015 international census. *Wildfowl* **66**: 75–97.

Hayhow D.B., Bond A.L., Douse A., Eaton M.A., Frost T., Grice P.V., Hall C., Harris S.J., Havery S., Hearn R.D., Noble D.G., Opper S., Williams J., Win I. & Wotton S. 2017. *The state of the UK's birds 2016*. RSPB, BTO, WWF, DAERA, JNCC, NE, NRW & SNH, Sandy, Bedfordshire. www.bto.org/SUKB

Robinson, R.A., Leech, D.I., Massimino, D., Woodward, I., Eglinton, S.M., Marchant, J.H., Sullivan, M.J.P., Barimore, C., Dadam, D., Hammond, M.J., Harris, S.J., Noble, D.G., Walker, R.H. & Baillie, S.R. 2016. *BirdTrends 2016: trends in numbers, breeding success and survival for UK breeding birds*. Research Report 691. BTO, Thetford. www.bto.org/birdtrends

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

Smith, R., Derrett, K. & Tardivel, N. 2016. Use of the Swale Estuary, SE England, by Grey Plovers *Pluvialis squatarola*. *Wader Study* **123(3)**: 213–225.

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

Wood, K.A., Newth, J.L., Hilton, G.M., Nolet, B.A. & Rees, E.C. 2016. Inter-annual variability and long-term trends in breeding success in a declining population of migratory swans. *Journal of Avian Biology* **47**: 597–609.



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 2015/16

ENGLAND

Avon (excl Severn Estuary)
Bedfordshire
Berkshire
Buckinghamshire (North)
Buckinghamshire (South)
Cambridgeshire (incl Huntingdonshire)
Cambridgeshire (Nene Washes)
Cambridgeshire (Ouse Washes)
Cheshire (North)
Cheshire (South)
Cleveland (excl Tees Estuary)
Cleveland (Tees Estuary)
Cornwall (excl Tamar Complex)
Cornwall (Tamar Complex)
Cotswold Water Park
Cumbria (Duddon Estuary)
Cumbria (excl estuaries)
Cumbria (Irt/Mite/Esk Estuary)
Dee Estuary
Derbyshire
Devon (other sites)
Devon (Exe Estuary)
Devon (Taw/Torridge Estuary)
Dorset (excl estuaries)
Dorset (Poole Harbour)
Dorset (Radipole and Lodmoor)
Dorset (The Fleet and Portland Harbour)
Durham
Essex (Crouch/Roach Estuaries and South Dengie)
Essex (Hamford Water)
Essex (North Blackwater)
Essex (other sites)
Essex (South Blackwater and North Dengie)
Gloucestershire
Greater London (excl Thames Estuary)
Greater Manchester
Hampshire (Avon Valley)
Hampshire (estuaries/coastal)
Hampshire (excl Avon Valley)
Herefordshire
Hertfordshire
Humber Estuary (inner South)
Humber Estuary (mid South)
Humber Estuary (North)
Humber Estuary (outer South)
Isle of Wight
Kent (Dungeness area)
Kent (East)

Kent (North Kent estuaries)
Kent (Pegwell Bay)
Kent (West)

Lancashire (East Lancs and Fylde)
Lancashire (North inland)
Lancashire (Ribble Estuary)
Lancashire (River Lune)
Lancashire (West inland)
Lee Valley
Leicestershire and Rutland (excl Rutland Water)

Leicestershire and Rutland (Rutland Water)
Lincolnshire (North inland)
Lincolnshire (South inland)
Merseyside (Alt Estuary)
Merseyside (inland)
Merseyside (Mersey Estuary)
Morecambe Bay (North)
Morecambe Bay (South)
Norfolk (Breydon Water)
Norfolk (excl estuaries)
Norfolk (North Norfolk Coast)
Northamptonshire (excl Nene Valley)

Northamptonshire (Nene Valley)
Northumberland (coastal)
Northumberland (inland)
Northumberland (Lindisfarne)
Nottinghamshire
Oxfordshire (North)
Oxfordshire (South)

Rupert Higgins
Richard Bashford
Ken White
Chris Coppock
VACANT
Bruce Martin
Charlie Kitchin
Paul Harrington
Kane Brides
David Cookson
Chris Sharpe
Mike Leakey (now Adam Jones)
Pete Roseveare
Gladys Grant
Gareth Harris
Colin Gay
Dave Shackleton
Peter Jones
Colin Wells
Peter Gibbon (now **VACANT**)
Pete Reay
Penny Avant
Brian O'Leary (now Tim Davis)
Malcolm Balmer
Paul Morton
Toby Branston
Steve Groves
VACANT
Peter Mason (now Stephen Spicer)
Julian Novorol
John Thorogood
Gavin Foster (now **VACANT**)
Anthony Harbott

Michael Smart
Helen Baker
Jamie Dunning (now Tim Wilcox)
John Clark
John Shillitoe
Keith Wills
Chris Robinson
Jim Terry
Keith Parker
Richard Barnard
Nick Cutts
John Walker
Jim Baldwin
David Walker
Norman McCanch (now **VACANT**)
Geoff Orton
Ian Hodgson
Norman McCanch (now **VACANT**)
Stephen Dunstan
Peter Marsh
Ken Abram
Jean Roberts
Tom Clare
Cath Patrick
Brian Moore

Tim Appleton

Chris Gunn
Bob Titman
Steve White
Kevin Feeney
Dermot Smith
VACANT
Jean Roberts
Jim Rowe
Tim Strudwick
Neil Lawton
VACANT
Steve Brayshaw
Kathy Evans
Steve Holliday
Andrew Craggs
David Parkin
Sandra Bletchly
Ben Carpenter

Severn Estuary (England)
Shropshire
Solway Estuary (inner South)
Solway Estuary (outer South)
Somerset (other sites)
Somerset (Somerset Levels)
Staffordshire
Suffolk (Alde Complex)
Suffolk (Alton Water)
Suffolk (Blyth Estuary)
Suffolk (Deben Estuary)
Suffolk (Orwell Estuary)
Suffolk (other sites)
Suffolk (Stour Estuary)
Surrey
Sussex (Chichester Harbour)
Sussex (other sites)

Thames Estuary (Foulness)
The Wash
Warwickshire
West Midlands
Wiltshire
Worcestershire
Yorkshire (East and Scarborough)
Yorkshire (Harrogate and Yorkshire Dales)
Yorkshire (Huddersfield/Halifax area)
Yorkshire (Leeds area)
Yorkshire (South)
Yorkshire (Wakefield area)

SCOTLAND

Aberdeenshire
Angus (excl Montrose Basin)
Angus (Montrose Basin)
Argyll Mainland
Arran
Ayrshire
Badenoch and Strathspey
Borders
Bute
Caithness
Central (excl Forth Estuary)
Clyde Estuary
Dumfries and Galloway (Auchencairn and Orchardtown Bays)
Dumfries and Galloway (Fleet Bay)
Dumfries and Galloway (Loch Ryan)
Dumfries and Galloway (other sites)
Dumfries and Galloway (Rough Firth)
Dumfries and Galloway (Wigtown Bay)
Fife (excl estuaries)
Fife (Tay and Eden Estuaries)
Forth Estuary (inner)
Forth Estuary (outer North)
Forth (outer South)
Glasgow/Renfrewshire/Lanarkshire
Harris and Lewis
Islay, Jura and Colonsay
Isle of Cumbrae
Lochaber
Lothian (excl estuaries)
Lothian (Tynninghame Estuary)

Moray and Nairn (inland)
Moray and Nairn (Lossie Estuary)
Moray Basin Coast
Mull
Orkney
Perth and Kinross (excl Loch Leven)
Perth and Kinross (Loch Leven)
Shetland
Skye and Lochalsh
Solway Estuary (North)
Sutherland (excl Moray Basin)
Tiree and Coll
Uists and Benbecula
West Inverness/Wester Ross

Harvey Rose
Michael Wallace
Norman Holton (now David Blackledge)
Dave Shackleton
Eve Tigwell
Steve Meen (now Trish Harper)
Scott Petrek
Ian Castle
John Glazebrook
Adam Burrows (now Will Russell)
Nick Mason
Mick Wright
Alan Miller
Rick Vonk
Penny Williams
James Parkin (now Peter Hughes)
Helen Crabtree and Dave Boddington
Chris Lewis
Jim Scott
Matthew Griffiths
Nick Lewis
Bill Quantrill
Andrew Warr
Jim Morgan
Bill Haines
VACANT
Paul Morris
Jamie Dunning
Peter Smith

Moray Souter
VACANT
Anna Cheshire
Paul Daw
Jim Cassels
Dave Grant
Keith Duncan
Andrew Bramhall
Ian Hopkins
Sinclair Manson
Neil Bielby
John Clark
Euan MacAlpine

David Hawker
Paul Collin
Andy Riches
Judy Baxter
Paul Collin
Allan Brown
Norman Elkins
Michael Bell
Alastair Inglis
Duncan Priddle
John Clark
Yvonne Benting
David Wood
VACANT
John Dye
Allan Brown
Bobby Anderson (now Tara Sykes)
David Law
Bob Proctor
Bob Swann
Paul Daw (now Nigel Scriven)
Morag Wilson
Michael Bell
Jeremy Squire
Paul Harvey
Robert Macmillan
Andy Riches
VACANT
John Bowler
Yvonne Benting
Vacant (now Andy Douse)



British Trust for Ornithology
The Nunnery
Thetford
Norfolk
IP24 2PU

01842 750050
webs@bto.org
www.bto.org/webs