WeBS

Waterbirds in the UK 2013/14

The annual report of the Wetland Bird Survey

BTO Looking out for birds

rspb giving nature a home

JNCC Joint Nature Conservation Committee

in association with WWT

WATERBIRDS IN THE UK 2013/14

This is the 33rd annual report of the Wetland Bird Survey (WeBS), produced in conjunction with an online report at **www.bto.org/webs-reporting**. 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.

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THE WeBS PARTNERSHIP

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

The permanent members of the WeBS Steering Committee in 2013/14 were Chas Holt (BTO), Andy Musgrove (BTO), David Stroud (JNCC), Simon Wotton (RSPB) and Richard Hearn (WWT).

THE WeBS TEAM AT BTO

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

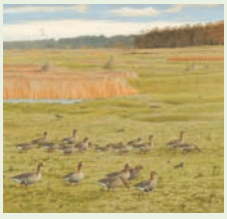
ACKNOWLEDGEMENTS

We are indebted to the efforts of all WeBS Counters and grateful to the following for providing technical assistance, supplementary information, additional data, or particularly invaluable help in 2013/14:
Carl Barimore, Bob Blogg,, Helen Boland, Niall Burton, Lee Cadwell, Aonghais Cook, Olivia Crowe, Iain Downie, Norman Elkins, Simon Gillings, Colette Hall, Paul Harvey, Martin Heubeck, Mark Holling, Menno Hornman, Andrew Joys, Maria Knight, Tom Langendoen, John Marchant, Veronica Mendez, Carl Mitchell, Nick Moran, Deborah Procter, Warren Read, John Shillitoe, William Skellorn, SOTEAG, Rick Vonk, Colin Wells, Chris Waltho and Karen Wright. Grateful thanks to all and apologies to anyone who has been inadvertently missed.

Members of the WeBS Local Organiser Advisory Committee (WeBS LOAC) in 2013/14 were: John Armitage, Neil Bielby, Gladys Grant, Andrew King, Ian Lees, Nick Mason, Dave Shackleton and Shane Wolsey. See the back cover of this report for a list of all WeBS Local Organisers, to whom we send our hearty thanks.

We are very grateful to the JNCC for funding the development of the online interface produced in conjunction with this paper report. The BTO Information Systems team continues to develop and provide support for *WeBS Online*.

Report content and production was by Chas Holt and Neil Calbrade, with the article on waterbird monitoring in Germany contributed by Johannes Wahl. The painting of Holkham Freshmarsh on the North Norfolk Coast, 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.



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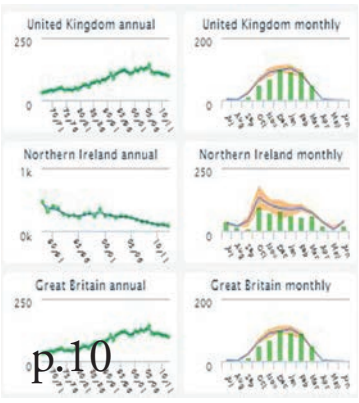


TURNSTONE BY JILL PAKENHAM, WIGEON BY JAMES MCCALLUM, BEAULIEU ESTUARY BY TONI CROSS

RECOMMENDED CITATION

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

ISBN 978-1-908581-54-9

Online Resources

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

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

The online and paper outputs in conjunction constitute the report *Waterbirds in the UK 2013/14.*

HEADLINE STORIES

Waterbird headlines from the WeBS-year

Just a small selection of notable stories from 2013/14

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

One of the most striking population trends (see pages 10-11) among the UK's migratory wintering waterbirds is the decline of **POCHARD**. In 2013/14, the WeBS index for Pochard dropped to its lowest ever point, indicating that the UK's wintering population has halved in under 20 years. Diving duck numbers present in the UK during the 2013/14 winter were not aided by the mild weather, which also resulted in one of the poorest winters on record for **SMEW** (see pages 14-15). The decline of the UK's non-breeding population of **SHELDUCK** continued in 2013/14 with a drop in the annual WeBS index evident for the fourth year in a row. The downward trends of **MALLARD** (see page 22) and **PINTAIL** continue.

DAVE KING

JOHN HARDING

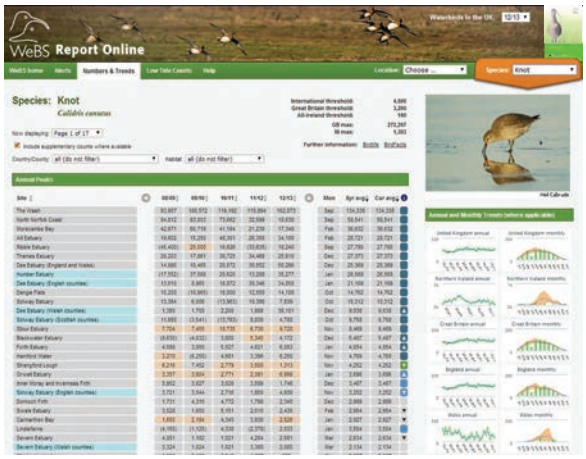
Numbers of **DUNLIN** and **RINGED PLOVER** in the UK have declined steadily since the mid 1990s, falling by approximately 50% during that period. Both species have now reached their lowest ever annual WeBS index values. Many site maxima of **RINGED PLOVER** in 2013/14 related to counts of passage birds in August rather than during the winter. A number of other waders associated with the UK's estuaries, including **OYSTERCATCHER, CURLEW** and **REDSHANK,** have also declined over the last two decades. In contrast, the increasing winter populations of **AVOCET** and Icelandic-breeding **BLACK-TAILED GODWIT** represent long-term success stories, however both exhibited slight declines in 2013/14 in terms of their respective annual WeBS index values.

WeBS Core Counts show that the UK's winter population of **TURNSTONES** has decreased by 44% in 25 years, and in 2013/14 the WeBS index fell to its lowest point since 1981/82. Reasons for the decline are unclear but may be linked to climate change. On pages 16–21 of this report, we review the UK's open coast, looking ahead to the next Non-Estuarine Waterbird Survey (NEWS) which will collect important information on species associated with the habitat. Monitoring of offshore seaducks, divers and coastal grebes is notoriously difficult, but WeBS counts continue to indicate declines in **LONG-TAILED DUCK** and **VELVET SCOTER** and therefore an associated need for coordinated monitoring across their wintering ranges.

DAVE KING

The online WeBS reporting interface

In 2014, all the WeBS numbers and trends were made available online - the major achievement of recent years



The new online WeBS reporting interface, launched in 2014, continues to be a significant success and recognised as one of the major achievements of the JNCC/BTO 2010-2016 Partnership. This annual report, *Waterbirds in the UK 2013/14*, is the third in the revised format that now combines the extensive online data resource with a summarised paper report.

The online interface provides searchable information on all aspects of WeBS data at site and species level, and has been widely welcomed by users. Importantly, the interface also includes the standardised WeBS Alerts, which provide a mechanism for rapidly identifying changes in waterbird populations across a range of temporal and spatial scales. The interface provides the user with an extremely interactive experience, such as the ability to scroll back through years to compare contemporary counts and associated five-year averages with historical counts.

If you are interested in site-based WeBS information, the online interface provides all the summarised tabular data you are likely to need. Species listed in site-based tables can be sorted taxonomically or alphabetically, as well as by the annual peak or five-year average. If information is needed about 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. As envisaged, this has proven to be particularly attractive to scientists, county bird recorders and amateur enthusiasts alike. On each species page, there are also links to other sources of web-based information - helping to make the interface a comprehensive data portal for anyone with an interest in the UK's waterbirds.

We look forward to being able to bring you more enhancements to the functionality of the WeBS reporting interface in the years ahead.

Developing the interactive nature of the Low Tide Count maps is a priority, and more generally, there is potential to incorporate additional tabs to sit alongside those for 'Numbers and Trends', 'Low Tide Counts' and 'WeBS Alerts'. Future additions may include tabs to report results from periodic surveys such as 'NEWS (Non Estuarine Waterbird Survey) and 'WinGS' (Wintering Gulls Survey).

FIND OUT MUCH MORE...

For the online report, see **www.bto.org/webs-reporting**

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

COVERAGE

3,100 registered WeBS volunteers

2013/14: WeBS Core Count coverage continues to grow

WeBS CORE COUNTS

During the period July 2013 to June 2014, WeBS Core Counts were carried out at 2,651 sites. This is a higher total than during the previous WeBS-year. Geographical coverage in 2013/14 is shown on page 7.

Core Count dates in 2013/14
21 July 2013
25 August 2013
22 September 2013
13 October 2013
10 November 2013
15 December 2013
19 January 2014
16 February 2014
16 March 2014
20 April 2014
18 May 2014
15 June 2014

NEIL CALBRADE

WeBS LOW TIDE COUNTS

WeBS Low Tide Counts were carried out on 17 estuaries in 2013/14. This included coverage of some irregularly covered sites such as the Medway Estuary (Kent), Deben Estuary (Suffolk), Pagham Harbour (Sussex) and Montrose Basin (Angus).

A review of the WeBS Low Tide Counts scheme in 2013/14 can be found on pages 32–36.

GOOSE CENSUSES

Many populations of wintering geese were censused using other surveys. Counts of Taiga Bean Geese were provided by the Bean Goose Action Group (Slamannan Plateau) and RSPB (Middle Yare Marshes). Surveys of Pink-footed and Icelandic Greylag Geese were undertaken at, primarily, roost sites in October to December 2013 as part of the Icelandic-breeding Goose Census. British Greylag Geese at key sites in Scotland were censused by a number of local management groups, including the Uist Greylag Goose Management Committee. Greenland White-fronted Geese were monitored by the Greenland White-fronted Goose Study. Greenland Barnacle Geese were counted by SNH on Islay and other key locations, while WWT counted Svalbard Barnacle Geese on the Solway. Data were also provided by the International Canadian Light-bellied Brent Goose census.

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

GRAHAM CATLEY

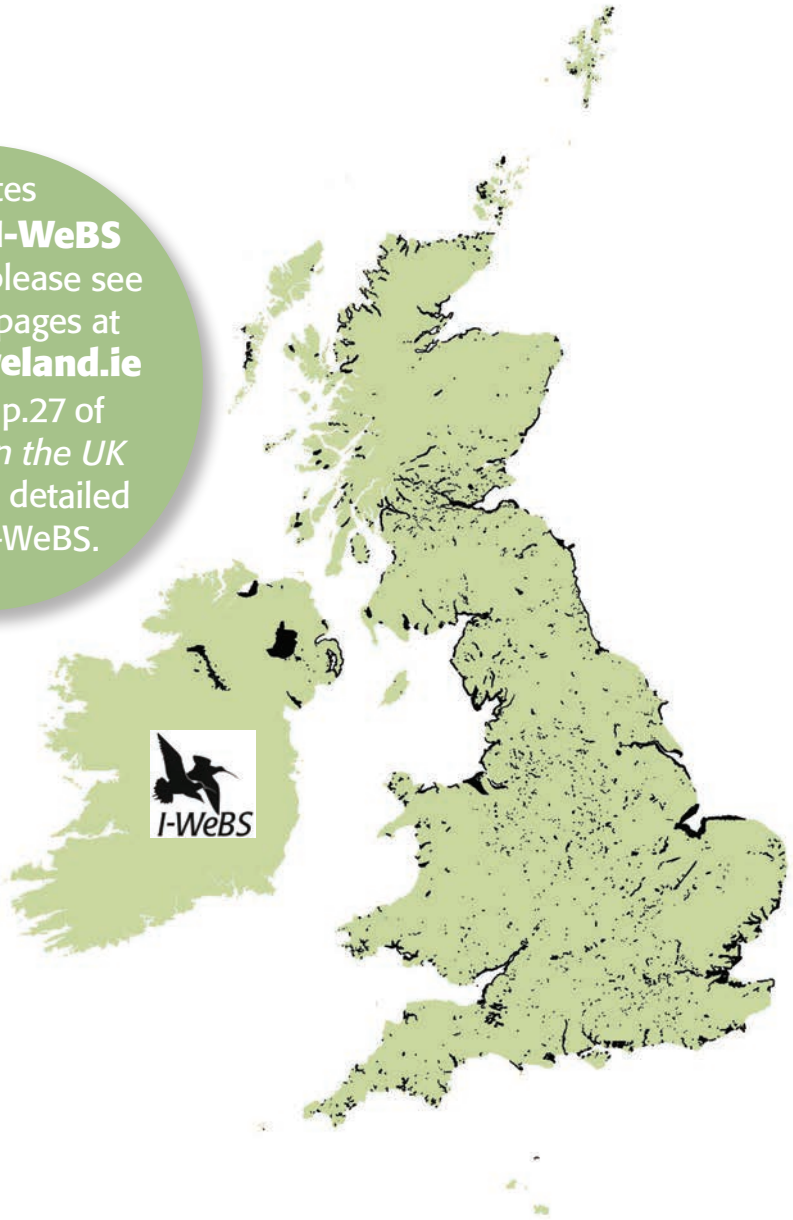
▲ **Taiga Bean Geese have declined in the UK. An international AEWA Action Plan is in preparation.**

WeBS coverage in 2013/14

Counts were carried out at **2,651 wetlands across the UK in 2013/14**. Areas shown in black were counted at least once - providing a picture of the excellent geographical coverage achieved.

However, coverage of some wetlands such as rivers and rocky shores (see pages 16-21) remains limited.

For sites covered by **I-WeBS in Ireland**, please see the I-WeBS pages at **birdwatchireland.ie** Also check p.27 of *Waterbirds in the UK 2011/12* for a detailed review of I-WeBS.



FOCUS ON... SCOTLAND

Nineteen WeBS sites in Scotland support on average >10,000 waterbirds in winter. These include the cross-border estuaries of the Solway and the Forth and a number of other important areas for wintering geese such as Loch of Strathbeg and Montrose Basin.

The majority of the UK's rocky shore habitat is in Scotland, making it very important for species such as Purple Sandpiper. Any help that WeBS counters can provide with the planned NEWS (see page 16-21) will be much appreciated. WeBS count sectors in Scotland that are currently not covered include Carse Bay on the Solway and 'Dee Mouth to Don Mouth' in Aberdeenshire. The WeBS Local Organiser for the outer north side of the Forth Estuary will shortly be retiring. If you can help, or wish to count a different site, please contact the WeBS office at **webs@bto.org**.


ADRIAN DANCY

▲ **Scotland is important for wintering Slavonian Grebes. A peak count of 96 birds was at Inner Firth of Clyde in 2013/14.**

WEATHER & BREEDING PRODUCTIVITY

2013/14: a return to mild winters and dry summers?

The 2013/14 winter proved to be very mild, with no prolonged spells of cold weather. Virtually all months were warmer than average, while storms in January-February 2014 delivered gales with inland and coastal flooding. The following 2013/14 summary is collated from the Meteorological Office website at **www.metoffice.gov.uk**.

July 2013 was settled with high pressure. Above average temperatures produced the UK's most notable heatwave since 2006.

August 2013 began with the highest temperatures of the year. After a brief period of unsettled weather, across the whole month the mean temperatures were slightly above average in most areas. It was the driest August since 2003.

The first half of September 2013 was fine and warm but conditions progressively became more unsettled. Overall, both mean temperature and rainfall were close to average.

October 2013 was another relatively unsettled month. Temperatures were 1.7°C above average, while rainfall levels were close to average across much of the UK.

November 2013 began with unsettled, wet conditions. From mid month, a shift to high pressure yielded more settled, colder conditions. It was drier and colder than typical Novembers in the UK, while in Scotland it was the sunniest since 1929.

A settled start to December 2013 soon gave way to stormy conditions as Atlantic weather systems during the second half of the month produced rain and associated flooding. It proved to be the windiest December since 1993.

January 2014 saw further Atlantic weather systems produce heavy rain and associated flooding in some places. The UK mean temperature was 4.8°C (which is 1.1°C above the 30-year average for January). Snow was confined to the Scottish mountains.

February 2014 was another stormy and very unsettled month, dominated by a succession of major winter storms continuing the sequence from January. Flooding affected the Somerset Levels and several areas adjacent to the River Thames.

After an unsettled start, March 2014 became dominated by high pressure and was characterised by dry, yet relatively warm, conditions. Southeast England experienced its second warmest March since 1910.

April 2014 was another warm month, the fifth successive month with above-average UK temperatures. The UK mean was 9.2°C (which is 1.8°C above the 30-year average).

A warm and settled start to May 2014 gave way to more unsettled conditions with rain. Temperature and rainfall were both above average, and it was the dullest May since 1991.

June 2014 was a mixed month, with temperatures slightly above average.

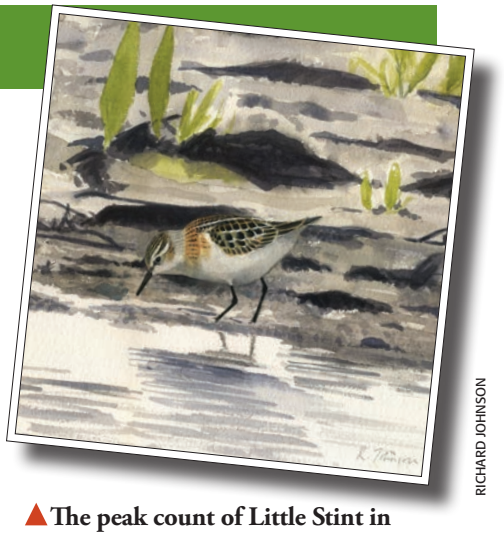
THE ARCTIC BREEDING SEASON

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

Summer temperatures varied across the Arctic, but generally figures were above average, continuing the recent trend. This was particularly evident in the early-summer period across all arctic areas. In contrast, the temperatures across some parts of arctic Canada and arctic Russia were below normal in late-summer.

Rodent abundance was considered to be low or average across the majority of the small number of sites where monitoring was undertaken in 2013. There was no clear pattern in terms of bird breeding success, with the situation unclear at many of the monitoring stations from where data were available.

In the UK, WeBS counts of Curlew Sandpiper and Little Stint can be a useful barometer of the breeding season for arctic-nesting species. Average numbers of both were reported in August-September 2013.



RICHARD JOHNSON

▲ **The peak count of Little Stint in 2013/14 was 11 on The Wash in August.**

GENERAL BACKGROUND

ROD CALBRADE

WeBS objectives, aims and methods

The Wetland Bird Survey (WeBS) aims to monitor 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;
- 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 the international wetland-related 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 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; 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**

This annual WeBS report presents a synthesis of data collected between July 2013 and June 2014, thereby updating data presented in previous years. This paper report forms a dual publication in conjunction with the online report available at **www.bto.org/webs-reporting**.

Within the dual publication, 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

POPULATION TRENDS

National trends

A concise summary of how the UK's most familiar waterbirds fared in 2013/14

GEESE & SWANS

The Bewick's Swan index fell to its lowest point for 40 years (probably in part due to a mild winter), while Whooper Swan numbers remained high. The Pink-footed Goose population reached its highest ever point, continuing the long-term trend after a poor year in 2011/12, and both the Svalbard and Canadian populations of Light-bellied Brent Goose were present in very similar numbers to 2012/13. Svalbard and Greenland Barnacle Geese, and both Egyptian Goose (see page 31) and naturalised Barnacle Goose, all attained high index values. European White-fronted Goose numbers dropped to their lowest ever level (after the atypical rise recorded two years previously). Numbers of Greenland White-fronted Goose were stable compared to 2012/13. Canada Goose and Greylag Goose (both the Icelandic and British populations) were both present in typically high numbers.

DUCKS

Dabbling duck trends were largely consistent with recent years. Pintail numbers remained at the same low level as recent years, following a marked decrease since 2005/06. Wigeon (see page 26-27) have been relatively stable since a drop on 2006/07, while Teal and Shoveler continue upward trends. The long-term decline of Mallard continues whereas Gadwall numbers remain high but have dropped since a peak in 2011/12. Shelduck showed a further drop to continue the recent decline; WeBS numbers have fallen by a quarter in just five years. Among the diving ducks, Pochard, Goldeneye and Red-breasted Merganser (see page 30) continued their respective downward trends, whereas Tufted Duck and Goosander have been relatively stable in recent years. Monitoring of seaducks through WeBS is difficult, but with Eider, Long-tailed Duck and Velvet Scoter all showing signs of decline, evidence continues to mount that targeted surveys of key sites are needed.

WADERS

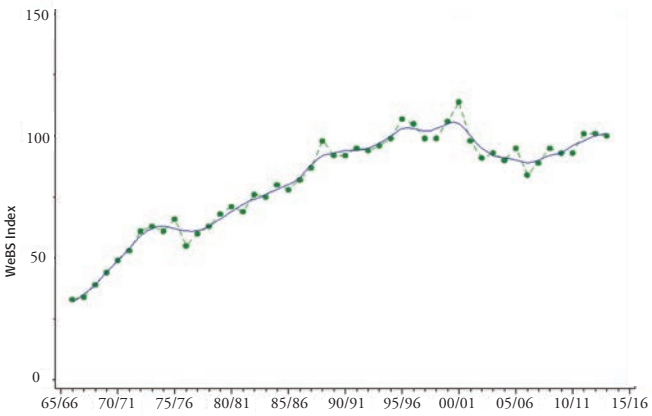
2013/14 was a poor year for waders. Annual WeBS indices for Dunlin and Ringed Plover reached record lows, while Turnstone, Redshank and Curlew also showed further declines to characterise their recent trends. Numbers of Grey Plover, Sanderling (see page 28-29), Knot, Bar-tailed Godwit and Purple Sandpiper appear to be stable, at least in the short-term. The number of Snipe counted by WeBS was low compared to an average winter, while Golden Plover and Lapwing, whose numbers tend to fluctuate more than other waders, both showed signs of an increase after recent poor winters. Numbers of Black-tailed Godwit and Avocet remain high, although both failed to reach the record WeBS highs attained in 2012/13.

GREBES, HERONS & RAILS

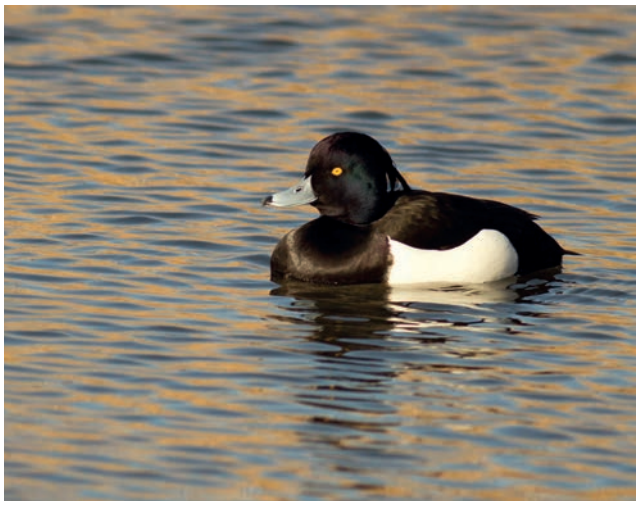
After a recent drop, numbers of Great Crested Grebes increased slightly in 2013/14. Little Grebe numbers remained stable. Little Egret continue to expand north and westward in England, and the UK trend rose to its highest ever point. WeBS trends for Grey Heron, Coot and Moorhen have all shown varying degrees of decline in recent years, while the once scarce Great White Egret and Spoonbill both continue to increase.

GULLS

Among the regular wintering gulls, Black-headed, Common and Great Black-backed have shown recent downward WeBS-based trends for the UK, whereas Herring Gull has been stable. Mediterranean Gull numbers remained high but short of the peak reached in 2010/11. The mild winter resulted in few records of Iceland or Glaucous Gulls.



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



MIKE DAWSON

WeBS

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

Species/population	25-year trend (1987/88–2012/13)	10-year trend (2002/03–2012/13)	Species/population	25-year trend (1987/88–2012/13)	10-year trend (2002/03–2012/13)
▲ Mute Swan	66	-6	▼ Eider *	-7	-7
▼ Bewick's Swan	-42	-8	▬ Goldeneye	-45	-32
▬ Whooper Swan	48	40	? Red-breasted Merganser	-15	-20
▲ Pink-footed Goose	100	25	▼ Goosander	26	9
▲ European White-fronted Goose	-71	-38	n/a Ruddy Duck	-98	-99
▼ Greenland White-fronted Goose	-11	-41	▲ Little Grebe	n/a	-12
▲ Icelandic Greylag Goose	-13	16	▼ Great Crested Grebe	19	-25
n/a British Greylag Goose	164	28	▲ Cormorant	74	-1
n/a Canada Goose	55	7	▬ Coot	8	-16
▲ Greenland Barnacle Goose	150	39	▼ Oystercatcher	-21	-19
▲ Svalbard Barnacle Goose	183	29	▬ Avocet	>1,000	58
▼ Dark-bellied Brent Goose	5	33	▼ Ringed Plover	-58	-42
▲ Canadian Light-b. Brent Goose	79	50	▼ Golden Plover	129	-25
▲ Svalbard Light-b. Brent Goose	120	2	▼ Grey Plover	-5	-12
▲ Shelduck	-23	-26	▬ Lapwing	41	-26
▬ Wigeon	33	-16	▬ Knot	-7	-9
▲ Gadwall	206	20	▲ Sanderling	29	4
▲ Teal	67	-3	▬ Purple Sandpiper	-55	-10
? Mallard	-39	-18	▬ Dunlin	-27	-24
▲ Pintail	-40	-43	▲ Black-tailed Godwit	370	49
▲ Shoveler	69	1	▲ Bar-tailed Godwit	-2	-11
▼ Pochard	-60	-41	▼ Curlew	-3	-13
▲ Tufted Duck	14	5	▬ Redshank	-23	-26
▼ Scaup	-39	-47	▲ Turnstone	-44	-11

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

The longer term smoothed trend refers to the 25 year period 1987/88 to 2012/13. The shorter term smoothed trend refers to the 10 year period 2002/03 to 2012/13. It is customary to calculate trends to an end-point of year (n-1) (where n = 2013/14).

Preceding each species is an indication of international trend, based on: Nagy, S., Delany, S., Flink, S. & Langendoen, T. (2012) *Fifth AEWA Report on the Conservation Status of Migratory Waterbirds in the Agreement Area*. Wetlands Int., NL. ▲increasing, ▼decreasing, ▬ stable, ? unknown.

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

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

Trends use WeBS data except for Pink-footed Goose, Greenland White-fronted Goose, Icelandic Greylag Goose, Greenland Barnacle Goose, Svalbard Barnacle Goose and Canadian Light-bellied Brent Goose, for which dedicated censuses are undertaken (see page 6).

For all trend graphs see the online report ...

www.bto.org/webs-reporting

P.GRANDFIELD & T.CLARK

▲ **Redshank: down 26% since 2002/03**

PRINCIPAL SITES

Largest waterbird aggregations

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

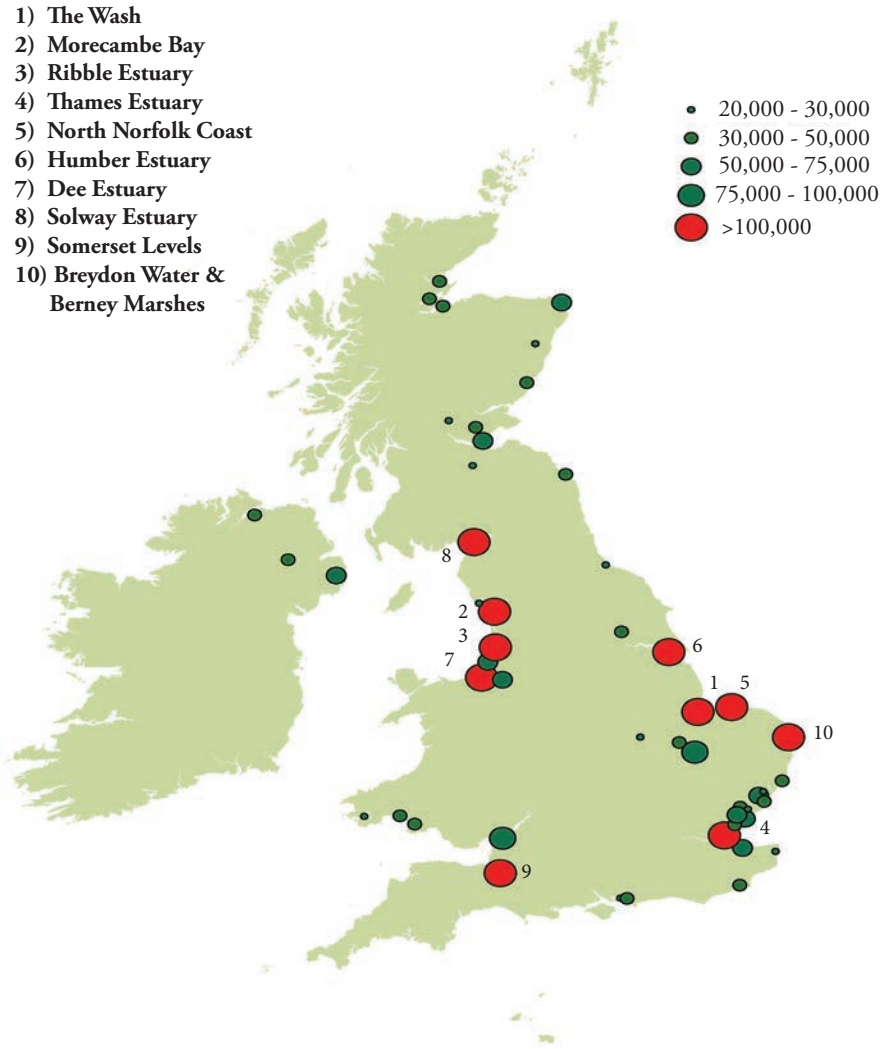
This section of *Waterbirds in the UK* summarises the sites that support the largest aggregations of waterbirds each year. Understanding precisely how many individual birds use a site is clearly very difficult to ascertain from counts alone, as many sites are used by migrants on passage and consequently there can be high turnover rates. Research through the use of colour-ringing studies and remote tracking of birds is on-going in order to improve knowledge of turnover rates.

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

Over 20,000 waterbirds were counted at a total of 52 WeBS sites in 2013/14. Typically, there are few changes between years to the top sites listed in the Principal Sites table, and the order of the most important sites tends to remain largely unchanged between years. However, several sites across the UK experienced changes of greater than 10% between 2012/13 and 2013/14, which were probably attributable to variation in weather conditions between the two winters affecting use of some sites more than others.

SITE FOCUS

In terms of total numbers, The Wash is the key site for wintering waterbirds in the UK. In 2013/14, the 429,759 birds there was above average. It was the highest total since 2009/10 and a marked improvement on the total recorded in 2011/12. The total reported from The Wash in 2009/10 continues to represent the highest site total in WeBS history. Numbers at the other top ten sites in 2013/14 (all of which have five-year averages of 100,000+ birds) were generally close to recent averages, although the total at North Norfolk Coast was much lower than expected. High peaks emanated from the two main inland sites, Somerset Levels and Ouse Washes. The total of 102,352 at Ouse Washes is the second highest ever at that site, only surpassed by 2010/11 when large influxes of waterbirds were associated with the coldest winter across northwest Europe for 35 years. Away from the top ten sites, 2013/14 also featured notable totals at Blackwater Estuary and Loch Leven.



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

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

Site	2009/10	2010/11	2011/12	2012/13	2013/14	5-year mean
The Wash	433,918	358,651	294,706	350,230	429,759	373,453
Morecambe Bay	236,649	239,424	201,861	170,648	163,288	202,338
Ribble Estuary	210,397	204,728	259,990	162,776	173,508	202,278
Thames Estuary	140,738	152,995	152,161	180,042	194,635	164,114
North Norfolk Coast	203,057	205,471	152,270	142,410	98,389	160,319
Humber Estuary	151,706	121,419	104,225	128,421	120,114	125,177
Dee Estuary	102,613	118,107	120,763	154,514	124,603	124,120
Solway Estuary	112,542	138,608	83,983	112,649	98,703	109,297
Somerset Levels	74,482	181,156	76,790	80,068	91,324	100,764
Breydon Water and Berney Marshes	92,402	93,666	91,014	109,182	113,903	100,033
Ouse Washes	65,211	104,415	63,938	63,280	102,352	79,839
Severn Estuary	67,359	75,551	83,603	75,151	74,810	75,295
Alt Estuary	60,282	107,806	64,034	67,871	62,343	72,467
Mersey Estuary	60,700	56,198	93,339	62,319	87,205	71,952
Strangford Lough	72,289	73,323	79,225	60,748	65,111	70,139
Blackwater Estuary	66,192	63,830	68,021	66,110	83,695	69,570
Forth Estuary	69,605	76,129	70,220	67,082	56,944	67,996
Swale Estuary	86,925	76,715	47,895	57,012	36,478	61,005
Dengie Flats	64,259	61,801	49,715	45,021	55,842	55,328
Stour Estuary	56,239	52,103	50,280	44,676	48,799	50,419
Hamford Water	35,207	41,485	41,404	63,372	62,228	48,739
Chichester Harbour	48,517	53,029	47,531	41,625	47,044	47,549
Loughs Neagh and Beg	46,455	40,697	49,512	44,462	46,443	45,514
Loch of Strathbeg	67,522	46,063	39,410	39,488	29,364	44,369
Carmarthen Bay	73,392	61,010	33,868	26,519	21,347	43,227
Loch Leven	46,526	32,058	40,868	36,030	60,456	43,188
Montrose Basin	22,753	84,110	76,611	14,110	18,185	43,154
Lindisfarne	36,131	45,169	47,878	50,968	29,954	42,020
Inner Moray and Inverness Firth	42,765	38,707	52,374	38,490	32,667	41,001
Lower Derwent Ings	36,297	39,020	38,105	29,914	27,911	34,429
Burry Inlet	28,429	27,943	38,500	46,318	29,972	34,232
Abberton Reservoir	36,218	29,515	45,634	23,725	35,059	34,030
Alde Estuary	32,480	35,274	32,994	31,000	32,988	32,947
Dungeness and Rye Bay	34,016	35,560	28,688	28,885	29,076	31,245
Cromarty Firth	30,814	32,496	39,196	22,375	30,884	31,153
Nene Washes	47,009	42,456	12,455	24,812	27,718	30,890
Crouch-Roach Estuary	33,982	32,316	33,233	25,496	29,239	30,853
Langstone Harbour	28,716	26,791	36,893	30,023	31,716	30,828
Dornoch Firth	26,270	36,873	42,824	23,066	23,768	30,560
WWT Martin Mere	29,289	24,897	30,330	22,662	41,861	29,808
Lough Foyle	29,742	20,733	26,921	32,424	34,312	28,826
Pegwell Bay	26,042	22,986	30,562	43,912	18,567	28,414
Rutland Water	30,931	26,282	33,633	16,539	28,701	27,217
Medway Estuary	17,795	35,170	29,003	14,589	28,876	25,087
Colne Estuary	20,750	15,667	31,616	30,213	26,687	24,987
Orwell Estuary	22,506	24,704	21,771	22,790	24,197	23,194
Carsebreck and Rhynd Lochs	23,111	20,795	24,044	23,661	15,466	21,145
Cleddau Estuary	18,979	22,736	26,494	17,902	20,868	21,396
Duddon Estuary	28,097	19,302	21,292	18,714	17,186	20,918
Wigtown Bay	19,997	17,664	21,944	22,950	21,197	20,750
West Water Reservoir	26,449	16,658	18,766	21,100	20,743	20,743

- 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.
- Naturalised species (such as Canada Goose and Ruddy Duck), gulls and terns are excluded.
- A more comprehensive table showing all sites supporting more than 10,000 waterbirds is available online via www.bto.org/webs.

Smew and the SPA network

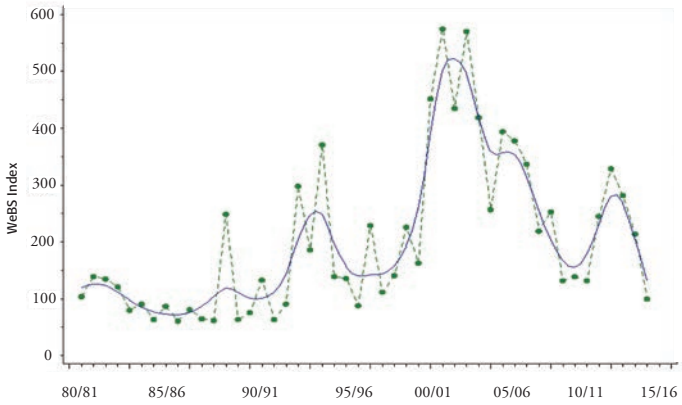
International research shows how protected areas help Smew respond to climate change

WeBS data have contributed to research showing how Europe's winter population of Smew has redistributed north-eastwards due to milder winter conditions in the last 25 years. The study (Pavón-Jordán *et al.* 2015, published in *Diversity and Distributions*) represented a collaboration between 16 countries and demonstrated that population growth has been twice as fast inside protected areas compared to unprotected areas.

In the UK, a small population of typically less than 200 Smew (and in mild winters just a few dozen birds) can be found in winter at favoured gravel pits and reservoirs in lowland England, with the population having approximately halved since the late 1990s. This study shows that Special Protection Areas (SPAs) classified under the EU Birds Directive, facilitate such distribution change across a species' entire range. Currently, one third of the total Smew population winters in north-east Europe (as shown on map opposite), compared to just 6% two decades ago. Population growth in this region was also twice as fast inside SPAs compared to unprotected areas over the last 25 years. Thus, well designed protected area networks can mitigate the effects of climate change on biodiversity by safeguarding high quality habitat as species adopt new distributions. These findings confirm that the existing SPA network can help species to cope with climate change. However, the results also highlighted severe gaps in the SPA network, especially in northern parts of the wintering range to where the Smew population is redistributing. Many countries designated their SPAs more than 20 years ago, before the rapid environmental changes that are now occurring. More than 80% of the Smew wintering in Latvia and Sweden do so in currently unprotected areas, and in Finland nearly all Smew winter outside the SPA network. Despite this range shift, it is still important to maintain the network at the southern end of the birds' range, so that they have somewhere to retreat in particularly harsh winters such as 2010/11.

MILOSZ KOWALEWSKI

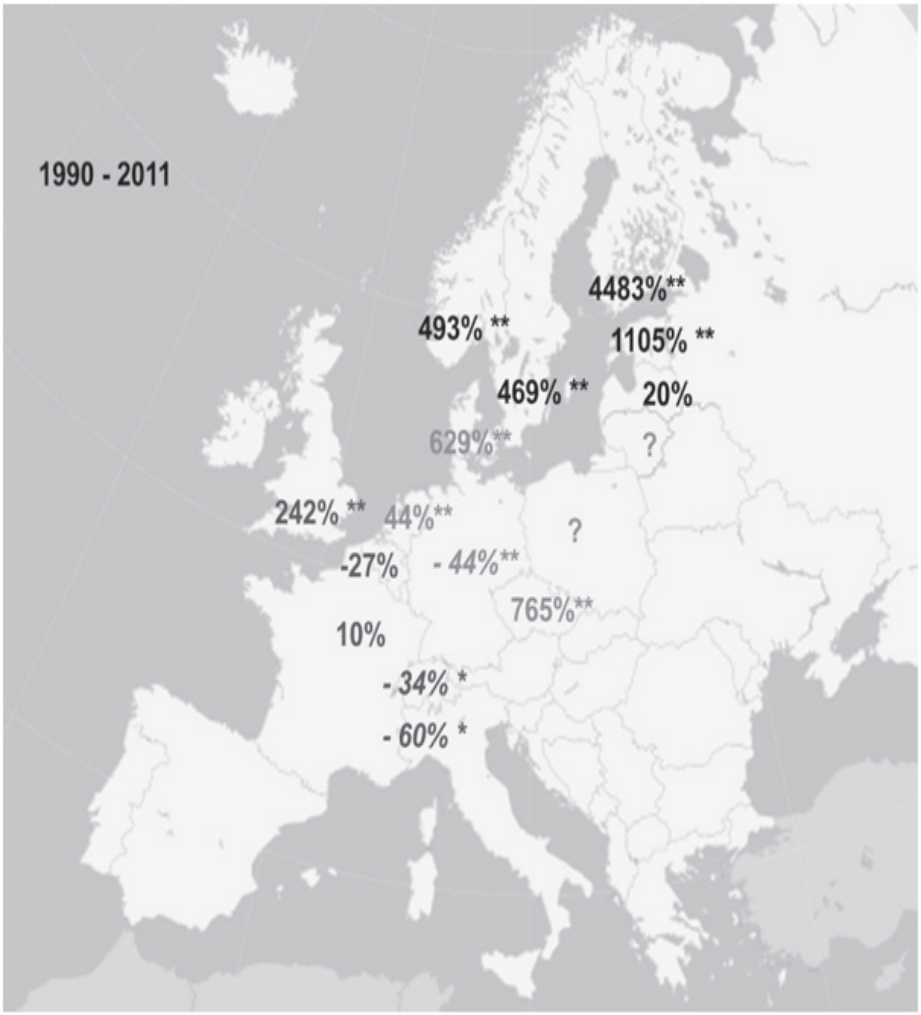
Studies such as this can help policy makers review protected area networks to ensure they keep pace with conservation needs. This paper, and others such as Johnston *et al.* (2013) (reviewed in *Waterbirds in the UK 2012/13*), are therefore especially timely and pertinent, as the JNCC and partners move towards completion of the third review of the UK's SPA network, updating Stroud *et al.* (2001).



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

SPA NETWORK

The map illustrates a long-term increase in numbers of Smew in the UK since 1990, largely attributable to the increased availability of favoured gravel-pit habitat. However, recent years since the late 1990s have seen a marked drop in the UK trend. As described on page 8, the 2013/14 winter was mild with no prolonged frozen weather. This resulted in low numbers of Smew in the UK (with records from 57 WeBS sites and a peak of just ten birds at Cotswold Water Park in February 2014).
As illustrated by this new paper, there is a need to ensure that the network of protected sites across the flyway is resilient to climate change. Climate change may well lead to unpredictable winters in northwest Europe in the future, and severe weather with frozen conditions is still likely to occur periodically. Countries at the southern edge of the range are likely to remain important refuges for wintering Smew, as was most recently demonstrated in the 2010/11 winter, the coldest winter across northwest Europe for 35 years.



▲ **Rate of change (%) in winter abundance of Smew during 1990–2011 in the countries in the north-west and central European flyway. Countries allocated to the north-eastern region are shown in black bold, countries in the central region are shown in light grey, and countries in the south-western region are shown in dark grey. Levels of significance are denoted by asterisks. Map reproduced from Pavón-Jordán *et al.* (2015).**

FIND OUT MORE...

Johnston, A. *et al.* (24 co-authors) 2013. Observed and predicted effects of climate change on species abundance in protected areas. *Nature Climate Change* - published online doi:10.1038/NCLIMATE2035

Pavón-Jordán, D. *et al.* (22 co-authors) 2015. Climate-driven changes in winter abundance of a migratory waterbird in relation to EU protected areas. *Diversity and Distributions* doi:10.1111/ddi.12300

Stroud, D.A. *et al.* (9 co-authors) 2001. *The UK SPA Network: its scope and content.* JNCC, Peterborough, UK.

USEFUL LINK...

For all the site and species-based information relating to the UK's SPA Network, see the online pages on the JNCC website: **www.jncc.defra.gov.uk/page-1412**

The UK's non-estuarine coast

A look at the status and trends of species strongly associated with rocky shores and the open coast

In this latest review of a particular wetland habitat, we explore the non-estuarine coast of the UK and the wintering waterbirds that are dependent upon it. The coastline of the UK that is not associated with estuaries tends to comprise rocky shores, sandy beaches or human modifications such as seawalls or breakwaters. The non-estuarine coastline offers distinct resources and invertebrate food supplies to those available on estuaries, and the habitat therefore tends to be important for a distinct suite of bird species.

The rocky shore element of the non-estuarine coast can include different habitat types such as steep rocky cliffs, platforms, rock pools and boulder fields, often featuring large beds of seaweed such as kelp. The combination of the tidal action with the wind, sunlight and other physical factors creates a complex habitat, with the organisms that live there experiencing daily fluctuations in their environment. For this reason, the algae and invertebrates that can be found on rocky shores must be able to tolerate extreme changes in temperature, salinity, moisture and wave action. The intertidal (or littoral) zone is the shoreward fringe between the high and low tidal limits, and can be an important area for foraging waders. Some species, such as Turnstone, Purple Sandpiper and Rock Pipit, may also associate with the supratidal (or splash) zone, the area towards the top of the shore that tends to be exposed to air other than during the highest tides.

Many stretches of the UK's non-estuarine coast support important numbers of waterbirds during the non-breeding season. These sites are therefore priorities for conservation, some being designated as SPAs (see *WeBS Alerts* on the online WeBS reporting interface).

PURPLE SANDPIPER

The UK's wintering population of Purple Sandpipers comprises birds which breed in eastern Canada, Scandinavia and Svalbard (breeding birds in Iceland and much of Greenland are considered more likely to be resident). Most Purple Sandpipers in the UK occur on Scotland's rocky shores which are monitored more effectively by NEWS (Non-Estuarine Waterbird survey), last carried out in 2007 (Austin *et al.* 2008). A discussion of some of the studies that have examined the breeding origin and population dynamics of Purple Sandpipers can be found in *Waterbirds in the UK 2012/13*.

Following a marked decline during the 1980s and 1990s, numbers have been relatively stable since the turn of the 2000s. There is a suggestion of a shift in the wintering distribution of this species with the proportion of birds found in the north-west of the UK having increased in recent years.

Some notable WeBS Core Counts of Purple Sandpiper were received in 2013/14, the largest of which was 312 on the Farne Islands (October) and 141 at Forth Estuary (January). Ten other sites held peaks of more than 50 birds, many of which are along the northeast coast of England. The maximum from the west coast was 51 at Workington Harbour. Historical WeBS maxima for Purple Sandpiper relate to a series of high counts from the Moray Coast in the late-1980s/early-1990s, the largest being 517 in 1988.

Table 3 illustrates the difficulty in obtaining representative data each year from key areas for non-estuarine coastal species. As shown, four of the most important WeBS sites in Scotland for Purple Sandpiper in recent years were either not counted during 2013/14 or the WeBS Counts undertaken had not been submitted in time for this report.

Table 3 Important sites for Purple Sandpiper

Site	2013/14 peak	Month	5-year mean
Papa Westray	216	Nov	332
Newark Bay, Deerness	-		280
Farne Islands	312	Oct	251
Ardivachar Point, South Uist	80	Mar	148
Egilsay	-		143
Forth Estuary	141	Jan	139
Dee Mouth to Don Mouth	-		120
Beadnell to Seahouses	98	Feb	100
Seahouses to Budle Point	89	Nov	83
Moray Coast	57	Dec	82
Scuthvie Bay	-		80
Dornoch Firth	88	Jan	79
Dee Estuary	21	Nov	70

• 2013/14 peak and month when recorded are shown. Five-year mean is for period 2009/10 to 2013/14.
• WeBS sites with five-year mean of 70+ Purple Sandpiper are listed.

DAVE WRAGG

The majority of the UK's wintering population of Purple Sandpiper are found on rocky shores, particularly in Scotland.

HABITAT FOCUS... THE OPEN COAST

TURNSTONE

Turnstones from two distinct breeding populations occur in the UK. The majority of those which winter here originate from Greenland and east Canada, while Siberian and Scandinavian breeders pass through in spring and autumn en route to and from wintering sites in west Africa. The UK is of major importance for Turnstones, supporting in excess of 50% of the Greenland/Canada flyway population in winter, yet a downward trend that has characterised the last 25 years appears to be continuing both in Britain and Northern Ireland. Pertinently, rocky shores and associated specialists have been identified as being vulnerable to the effects of changing climate, both due to possible loss of habitat as a result of rising sea levels, and to potential changes to invertebrate communities. With relatively poor WeBS coverage of the rocky shores around the UK, particularly in Scotland, it is difficult to interpret WeBS trends as any shifts in distribution around the coastline may not be detectable. Turnstone, like Purple Sandpiper, is reliant on periodic monitoring through NEWS to derive the most representative picture of its status in the UK.

In 2013/14, the peak at Morecambe Bay (1,119, Dec) was close to average, but less than the 1,659 there in 2012/13. Maxima in excess of 2,000 Turnstones were regular at Morecambe Bay up to the 1990s but numbers have declined since in keeping with the national trend. The second most important site is The Wash where a peak of 1,190 in August was the highest there for ten years. Historically, The Wash has held a monthly peak of as many as 2,596 Turnstones in July 1988, but even that total compares poorly with the all-time WeBS maximum of 3,795 at Morecambe Bay in August 1972. The peak monthly count at Outer Ards Shoreline, consistently the most important site in Northern Ireland, was lower than average for a third year in a row. It remains one of four sites surpassing the threshold for All-Ireland importance, the others being Belfast, Strangford and Carlingford Loughs.

JILL PAKENHAM

▲ **According to WeBS, Eider have declined by 7% in the UK since 2002/03.**

SEADUCKS, DIVERS & GREBES

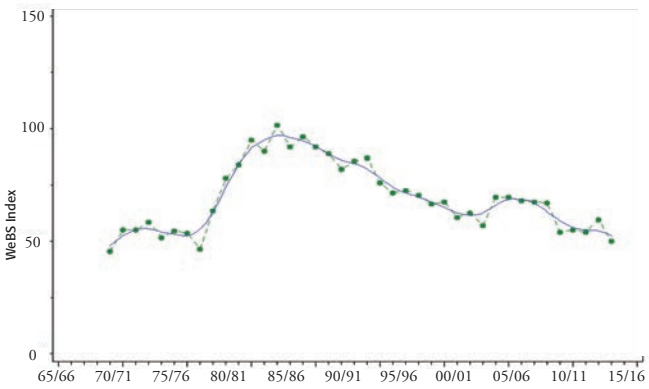
The open coast of the UK is very important for wintering seaduck, divers and grebes. However, generating accurate population trends is difficult, because a large proportion are not counted by schemes such as WeBS. One of the more robust WeBS-based seaduck trends is that for Eider, which has shown a slow yet consistent decline in the last 20 years. A range of theories have been suggested to explain changes in the abundance of Eider in northern Europe, some of which may be linked to a shift in the sex balance to a male-dominated population (Lehikoinen *et al.* 2008). In the UK, Eider numbers reported from some of the most important sites provide cause for concern. The population in the Firth of Clyde has crashed in the last 15 years; although a peak of over 17,500 birds was recorded in 1999/2000, recent censuses have yielded half that total. See Waltho & Coulson (2015) for a recent review and contemporary perspective on the species.

Among the offshore grebes and divers that use the UK's coastline in winter, an interesting story is developing with respect to Slavonian Grebes. Although numbers of Slavonian Grebes in the UK have been relatively stable in the last two decades (see page 20), recent years have seen an increasing proportion of birds being reported from Scottish waters whereas several traditional sites for the species on the south coast of England have hosted fewer birds. A particularly marked increase has been noted around Shetland (Harvey & Heubeck 2012), an area presumably used by Slavonian Grebes of Icelandic origin. It is tempting to speculate that the decline in numbers of Slavonian Grebes observed further south are due to fewer birds arriving from the Scandinavian breeding population, either linked to a shift in wintering range or a reduction in total population.

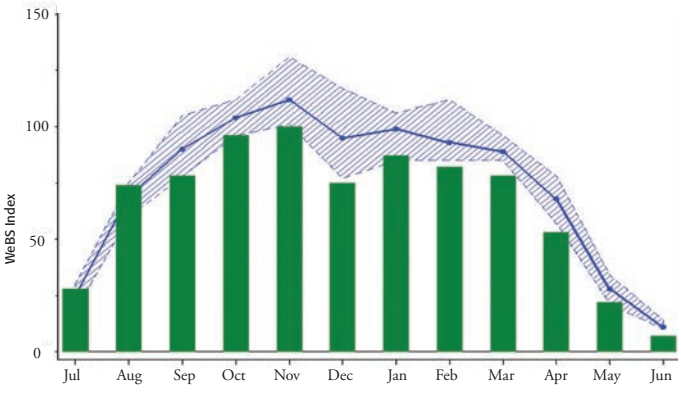
Table 4 Important sites for Turnstone

Site	2009/10	2010/11	2011/12	2012/13	2013/14	Peak Month	5-year mean
Morecambe Bay	1,394	1,071	1,339	1,659	1,119	Oct	1,316
The Wash	547	789	618	792	1,190	Aug	787
Outer Ards Shoreline	949	742	587	653	593	Nov	705
Forth Estuary	(699)	(605)	597	662	809	Nov	692
North Norfolk Coast	741	746	705	623	640	Jul	691
Farne Islands	349	(455)	716	879	425	Sep	592
Thames Estuary	382	703	428	664	685	Dec	572
Blackwater Estuary	502	(377)	422	630	646	Mar	550
Stour Estuary	459	710	447	542	511	Dec	534
Belfast Lough	537	612	483	(550)	469	Sep	530
Solway Estuary	402	380	(485)	706	491	Nov	495
Thanet Coast	624	529	410	407	(227)	Dec	493
Strangford Lough	391	406	449	637	211	Nov	419
Severn Estuary	251	327	490	474	414	Nov	391
Swale Estuary	314	(426)	301	423	347	Feb	362
Humber Estuary	553	379	276	181	(307)	Jan	347
Pagham Harbour	230	220	325	444	510	Feb	346
Climping	233	460	308	195	511	Jan	341
Southampton Water	406	324	349	290	260	Oct	326
Langstone Harbour	299	415	218	267	303	Oct	300

• Annual peaks and month in 2013/14 when recorded are shown. Brackets indicate coverage known to be incomplete. Five-year mean is for period 2009/10 to 2013/14.
• WeBS sites with five-year mean of >300 Turnstone are listed. Threshold for international importance = 1,400; threshold for national importance = 480 (GB), 95 (Ireland).



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



Monthly indices for Turnstone in UK.
Green bars = 2013/14; blue line/hatched area = previous 5-year mean/range.

RUTH WALKER

HABITAT FOCUS... THE OPEN COAST

PREPARE FOR 'NEWS 3'...

The next NEWS will repeat similar surveys undertaken in the winters 2006/07 (NEWS II), 1997/98 (NEWS I) and 1984/85 (Winter Shorebird Count). Past NEWS results showed that numbers of Ringed Plover, Sanderling, Purple Sandpiper, Bar-tailed Godwit and Turnstone had declined on the Scottish coast. Many of these species occur in internationally important numbers, yet the remote nature of rocky shores and other non-estuarine coastal habitats means it is poorly monitored by WeBS. Periodic coverage by NEWS is therefore a key part of the UK's waterbird monitoring programme. As well as waders, NEWS will include counts of inshore seaducks and passerines such as Rock Pipit, and collect information on the tidal wrack resource on beaches. Stretches of non-estuarine coast will be allocated to volunteers, and there should be opportunities for teams of keen birders to undertake expeditions to important but remote areas. We anticipate some professional fieldwork will be needed to fill gaps.

In the past, NEWS has been primarily funded by the UK Country Agencies (nowadays SNH, NE, NRW and NIEA). We remain hopeful that this important survey will be funded and go ahead in the 2015/16 winter, but we cannot yet confirm this. The volunteer network will be updated as soon as possible via the usual channels.

FIND OUT MORE...

Austin, G.E., Collier, M.P. & Rehfisch, M.M. 2007. Non-estuarine Coastal Waterbird Survey: population estimates and broad comparisons with previous surveys. *BTO Research Report* **501**. BTO, Thetford.

Harvey, P.V. & Heubeck, M. 2012. Changes in the wintering population and distribution of Slavonian Grebes in Shetland. *British Birds* **105**: 704–715.

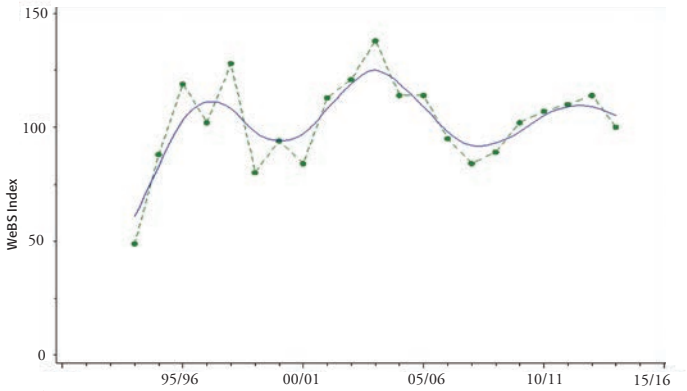
Lehikoinen, A. *et al.* (5 co-authors). 2008. Large scale change in the sex ratio of a declining eider *Somateria mollissima* population. *Wildlife Biology* **14**: 288–301.

Waltho, C. & Coulson, J. 2015. *The Common Eider*. T & AD Poyser.

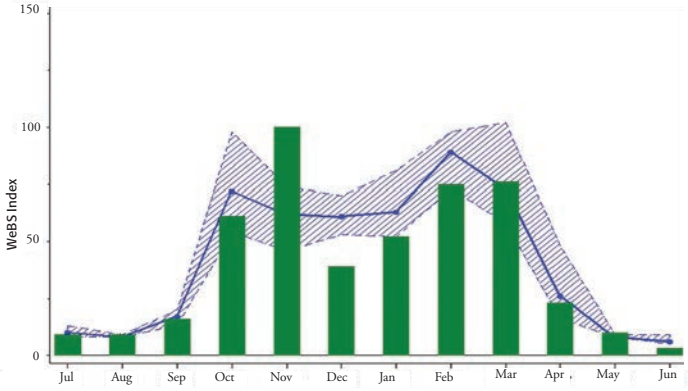
Table 5 Important sites for Slavonian Grebe

Site	2009/10	2010/11	2011/12	2012/13	2013/14	Month	5-year mean
Inner Firth of Clyde	47	84	70	64	96	Apr	72
Skelda Ness (Shetland) †	77	73	74	55	57	Feb	67
Wadbister Ness (Shetland) †	49	61	57	48	46	Feb	52
Holme Sound (Orkney)	37	30	55	38	74	Feb	47
Loch of Harray (Orkney)	45	53	31	58	39	Oct	45
Loch Ryan	46	31	57	38	50	Nov	44
Scapa Flow (Shetland) †	37	30	-	-	-		34
Loch Na Keal	30	41	23	39	34	Mar	33
Forth Estuary	29	19	30	52	31	Jan	32
Sound of Gigha	27	43	7	(38)	(29)	Oct	29
Sullom Voe †	-	-	29	21	32	Jan	27
Burra & Trondra (Shetland) †	-	-	31	20	-		26
Lough Foyle	60	15	7	3	43	Nov	25
Strangford Lough	34	14	33	33	21	Nov	24

• Annual peaks and month in 2013/14 when recorded are shown. Brackets indicate incomplete coverage. Five-year mean is for period 2009/10 to 2013/14.
• Sites with 5-year mean of >24 Slavonian Grebe are listed. Threshold for international importance = 55; threshold for national importance = 11 (GB), no threshold in Ireland.
† = supplementary data provided by the Shetland Oil Terminal Environmental Advisory Group (SOTEAG)



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



▲ **Monthly indices for Slavonian Grebe in UK.**
Green bars = 2013/14; blue line/hatched area = previous 5-year mean/range.

JAMES MCCALLUM

Great Northern Divers and Black-throated Divers are among the species frequenting the UK's open coast in winter, although monitoring their populations is difficult.

RESEARCH IN THE FLYWAY

Mallards in northern Europe

Recent international work on Mallards and its relevance to the situation in the UK

Dabbling ducks such as Mallard are important migratory quarry species, protected as a shared resource under international legislation. However, there is a lack of sufficient high-quality data on vital demographic rates and long-term trends in numbers. In response to reported declines in the northwest European flyway population of the Mallard, Dalby *et al.* (2013) collated data on the species in the Nordic countries up to 2010. Generally, national breeding numbers showed increasing trends, wintering abundance showed variable trends, and productivity measures were stable or showed increasing trends. Major knowledge gaps were identified, namely the size of hunting bags, influence of released Mallards and the role of short-stopping in explaining changing patterns of wintering abundance across the flyway.

Accurate bag statistics and numbers of released Mallards needs to be determined in order to judge the sustainability of the current levels of exploitation across the Mallard's range. Overall, none of the indicators examined by Dalby *et al.* (2013) showed alarming signs for the Mallard population in the Nordic countries when considered in isolation. However, the widespread decline in wintering numbers of Mallard elsewhere across northwest Europe, including the UK, requires pan-European action.

Recent studies have examined the effects of winter weather on the distribution and movements of Mallards across Europe. Sauter *et al.* (2010) showed greater movements in cold winters, while Meissner *et al.* (2015) found that water bodies in urban areas of Poland represent refuge areas in cold winters. This might mean that birds move to wetlands in or close to urban areas instead of moving towards regions (such as the UK) with typically milder weather. The WeBS trend for Mallard reveals a consistent decline in the UK since the mid 1980s, although this contrasts with an increase in the breeding population as shown by the Breeding Bird Survey (Harris *et al.* 2014). Understanding this difference and other aspects of Mallard population dynamics represent important opportunities for future research.

THELMA SYKES

FIND OUT MORE...

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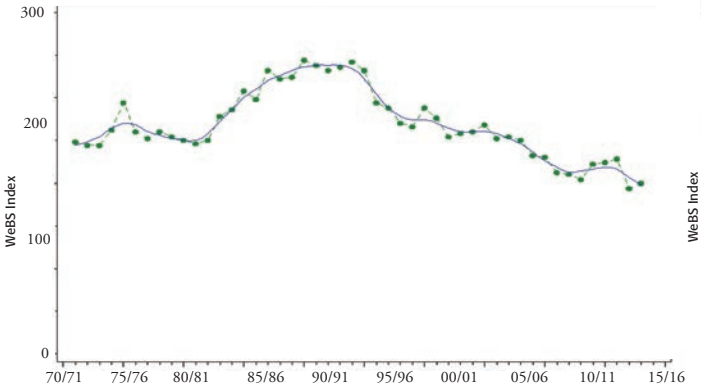
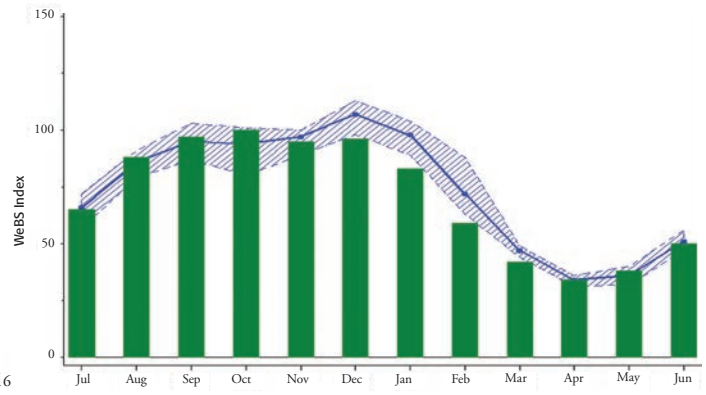
Sauter, A., Korner-Nievergelt, F. & Jenni, L. 2010. Evidence of climate change effects on within-winter movements of European Mallards *Anas platyrhynchos*. *Ibis* **152**: 600–609.



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



▲ **Monthly indices for Mallard in UK.**
Green bars = 2013/14; blue line/hatched area = previous 5-year mean/range.

'Short-stopping' unwrapped

Shifting distributions: what do we know and not know, and how best to describe them?

'Short-stopping' has become an increasingly familiar term in ecology to describe spatio-temporal changes in occurrence of migratory species. Spurred on by the insight that it is now being used in a variety of contexts, Elmberg e*t al.* (2014) reviewed its use in avian ecology. A literature search yielded 59 papers explicitly referencing short-stopping in birds, most of them published in peer-reviewed journals. Well-cited examples spearheaded by WeBS data and which represented the vanguard of northwest European research in this field include Austin & Rehfisch (2005) and Maclean *et al.* (2008).

'Short-stopping' was first used in 1967 to describe a northward shift in wintering Canada Geese in North America, and has been used with increasing frequency since then. Geese continue to dominate the associated literature, which is so far confined to the northern hemisphere. Short-stopping has been used to describe three basic phenomena: (i) a shortened autumn migration that results in a wintering distribution closer to breeding areas, (ii) a shortened spring migration that results in a breeding distribution closer to wintering areas, and (iii) a delay in autumn migration that leads to a perceived reduced abundance in some part of the winter range.

GRAHAM CATLEY

▲ **European White-fronted Geese: 'short-stopping' or 'shifting range'?**

Elmberg e*t al.* (2014) advocate that the term 'short-stopping' be used only to describe range shifts that involve shortening of the migratory corridor, and that they are qualified explicitly by season (i.e. breeding or winter) and degree (i.e. full or partial range shift). In other cases of breeding, wintering or entire range shifts where the migratory corridor is elongated or remains the same, it is recommended that the term 'range shift' is used, qualified by season, geography and orientation (i.e. the direction of the range shift). There is the need for spatially explicit avian count monitoring mechanisms (rather than capture–recapture or hunting bag data), designed specifically to track changes in distribution in the future.

The consequences of climate change for bird populations have received much attention in recent decades, yet comparatively little has been written on ducks (*Anatidae*) despite them being major elements of wetland diversity. Guillemain *et al.* (2013) reviewed the major known consequences of climate change for birds in general, and related those to the limited information available specifically for ducks.

Climate change can influence migration distance and phenology, thereby potentially affecting patterns of mortality, as well as distribution and reproductive success in ducks. Studies addressing effects of climate change are, however, restricted to a limited number of duck species, most recently through collaborative research led by Lehikoinen *et al.* (2013) and Pavon-Jordan *et al.* (2015) (see pages 14-15). Although shifts in duck distributions have been observed, the mismatch hypothesis (mis-timing between the periods of peak energy requirements for young and the peak of seasonal food availability) has received very little attention (or support) when it comes to ducks.

In order to fill these gaps, Guillemain *et al.* (2013) and others propose a range of monitoring initiatives, including population surveys, breeding success monitoring schemes and individual duck marking, all of which should later be integrated through population modelling and adaptive management methods.

FIND OUT MORE...

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Irish waterbird population estimates

WeBS and I-WeBS data have been used to derive new waterbird population estimates for Ireland

Population estimates for Ireland have recently been updated and published in *Irish Birds*. Estimates and the associated 1% thresholds were calculated for non-breeding waterbirds using data from the period 2006/07 to 2010/11, inclusive. Estimates were generated for the island of Ireland, as well as for the Republic of Ireland and Northern Ireland separately. Thanks to the efforts of the I-WeBS and WeBS counter networks, counts have been undertaken at key wetlands throughout Ireland each winter (September to March) since 1994/95. The new estimates also incorporate the results of other surveys, e.g. NEWS, where the quality of the estimates is improved by specific methodology and/or more intensive and focussed survey effort.

Data from 486 sites across the Republic of Ireland and Northern Ireland were used. A total of 867,510 waterbirds of 44 species was estimated, comprising 36% wildfowl, 59% waders, and 5% others. Golden Plover and Lapwing were the most numerous, collectively comprising more than 25% of the total. Wigeon was the most numerous wildfowl. Many species have declined since the all-Ireland estimates were previously calculated (using data for 1994/95 to 2003/04). For some species, such as Bewick's Swan and Pochard, these trends reflect altered migration patterns that are likely to be at least in part due to climate change. Particularly marked declines have occurred in a selection of non-estuarine coast specialists, such as Purple Sandpiper, Turnstone and Red-breasted Merganser.

FIND OUT MORE...

Crowe, O. & Holt, C. 2013. Estimates of waterbird numbers wintering in Ireland. *Irish Birds* **9**: 545–552.

RICHARD JOHNSON

▲ **Many species have declined in Ireland, but the recent population estimate for Shoveler shows a 14% increase in a decade.**

ANOTHER NATIONAL SCHEME

Waterbird counts in Germany

Johannes Wahl (DDA) coordinates the waterbird monitoring scheme in Germany

The counting of waterbirds has a long tradition in Germany with roots dating back to the 1940s. As in many other European countries, counts were focused initially on the "typical" species such as swans, geese, ducks and grebes. With the start of the International Waterbird Census (IWC) in 1966/67, a more systematic approach was adopted and synchronous count dates were introduced. In recent years, more than 1,800 sites have been counted for the IWC in January. However, many species reach their maxima in Germany during autumn or spring migration. Hence, monthly counts were established at many sites at the start of, or even before, the IWC. Nowadays, monthly counts take place at many sites from September to April. Since the early 2000s all waterbird species covered by the African-Eurasian Waterbird Agreement (AEWA) have been counted.

Along with the Baltic coast, the Wadden Sea is the most important area for waterbirds in Germany. Synchronous counts started in the German Wadden Sea in 1980/81 and were expanded from the late 1980s into year-round monitoring under the Trilateral Monitoring and Assessment Program (TMAP), which is carried out by Denmark, Germany and The Netherlands. In 1990, the Seabirds at Sea (SAS) programme was established in Germany leading to an increase in knowledge of the distribution and numbers of waterbirds offshore. The SAS counts are coordinated by the Research and Technology Centre Westcoast of the University of Kiel. In addition to these main programmes covering all waterbird species, additional "gap-filling" programmes exist that target specific species or groups, the most important being geese and swans. International censuses of Golden Plover, Lapwing, Bewick's Swan and Whooper Swan are undertaken every five to six years. Periodic coverage of Cormorant roosts is also achieved.

All these programmes contribute to the "Monitoring of migratory and wintering waterbirds", coordinated at national level by the DDA in close cooperation with many ornithological associations, the Federal Nature Conservation Agency (BfN) and federal state agencies within the national bird monitoring framework. The counts are conducted primarily by a network of 2,000+ dedicated volunteers, their annual contribution adding up to more than 100,000 hours of fieldwork. In October 2011, the portal **www.ornitho.de** went online, since when over 12 million casual observations have been submitted. These data complement the standardised waterbird counts.

In a recent review for EU Birds Directive reporting (Sudfeldt *et al.* 2013), data on 71 waterbird species (excluding non-natives) were analysed for the past 25 years. During this period, increases have taken place mainly in swans, geese and ducks, while many waders and offshore species have tended to decline. Twenty-three species showed a trend of less than 1% per year or no significant trend, and no trend information is available for nine species. Among non-native waterbirds, Canada Goose, Egyptian Goose, Ruddy Shelduck and Mandarin Duck are the most abundant, all having shown marked increases over the past 25 years. Over the long-term, Barnacle Goose, Greylag Goose, Gadwall, Red-crested Pochard, Cormorant, Spoonbill,

DAVE KING

▲ Winter numbers of Oystercatcher have decreased in Germany.

Great White Egret, Common Crane and Caspian Gull have shown the largest increases. The most marked long-term declines are evident in Taiga Bean Goose, Garganey, Long-tailed Duck, Ruff and Kentish Plover. Interestingly, while numbers of Bewick's Swan at the international level (and especially in the UK and Ireland) have strongly decreased since the mid-1990s, wintering numbers in Germany have increased markedly. Bewick's Swans have begun to move eastwards as early as late December in mild winters, and thus nowadays they stay much longer in Germany than they did 20 years ago. However, the increased number of Bewick's Swans in Germany does not compensate for decreases at the western end of the wintering range and hence of the species' northwest European population overall.

FIND OUT MORE...

Wahl, J., Dröschmeister, R., Langgemach, T. & Sudfeldt, C. 2011. Vögel in Deutschland – 2011. DDA, BfN, LAG VSW.

Sudfeldt, C. *et al.* (10 co-authors) 2013. Vögel in Deutschland – 2013. DDA, BfN, LAG VSW.

Both available from http://www.dda-web.de/publikationen

FOCUS ON... WIGEON

Wintering Wigeon: what can be learned from hunted birds?

Following a long term increase across Great Britain up to 2005/06, numbers of wintering Wigeon have dropped since then. Declines have been especially marked in Scotland.

Following the high WeBS index value that was reached in 2005/06, numbers of wintering Wigeon in Britain have declined by approximately 15% since then, although 2013/14 did see a slight increase compared to the previous winter. In 2013/14, by surpassing the five-year average threshold of 15,000 birds, five sites met the criterion for international importance for Wigeon. At Ribble Estuary, the peak of 62,748 recorded in October 2013 was very close to the recent site average, although some way short of the impressive total of more than 100,000 birds logged there six years previously. The two most important inland sites, Ouse Washes and Somerset Levels, both held typical peak counts compared to recent years. On the Somerset Levels, the peak during the widespread flooding in mid winter was 22,304 birds, less than half the maximum there three years previously. At Ouse Washes, the peak in 2013/14 was 33,139 in December. Among the additional 19 WeBS sites that surpass the national importance threshold based on recent five-year averages, particularly notable maxima were recorded at Thames Estuary, Morecambe Bay, and inland at Rutland Water.

Wigeon wintering in Britain largely comprise breeding birds from Iceland, Scandinavia and Russia. The species might therefore have been expected to have shown a climatic-induced shift in winter distribution towards the breeding range core. However, work by the Nordic Waterbirds and Climate Network (NOWAC) research group indicates that Wigeon has shown the least change in core distribution within Europe in response to climate of the six commonest dabbling duck species (Dalby *et al.* 2013). Yet, all else being equal, the long-term decline in Northern Ireland would tend to indicate that some degree of climate-induced distributional change has taken place. However, recent research has begun to examine in detail the population dynamics and responses to environmental change of this species during the non-breeding season.

Guillemain *et al.* (2013) used the change in proportion of juveniles in wing samples from hunted Wigeon in Finland, Denmark and UK, together with adult survival estimates from published literature, to estimate juvenile autumn survival. The results showed that autumn mortality is far higher in juvenile Wigeon than amongst adults, and may reflect a wider pattern in dabbling ducks. Such low survival rates are especially important in Wigeon given long-term declines in breeding productivity which have been shown to be correlated with temperature in breeding areas (Mitchell *et al.* 2008).

In addition, Fox *et al.* (2014) compared age and sex ratios among Wigeon, derived from Danish field observations and hunted birds throughout an entire winter. Sex ratios did not differ significantly between the two samples. However, first-year Wigeon were over three times more likely to be represented than adult males in the hunter sample compared with field samples, and were especially over-represented in the hunting sample at the beginning of the season. The results confirm the need to account for such bias and its temporal variation when using hunted birds to model population parameters. Given an understanding of such biases, hunter-shot age ratios may provide a long-term measure of reproductive success of dabbling duck flyway populations. The demographic situation with respect to Wigeon in the UK is unknown, therefore continuing to encourage collaborative research between researchers and the wildfowling community is likely to be of increasing importance in the years ahead.

FIND OUT MORE...

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Fox, A.D., Clausen, K.K., Dalby, L., Christensen, T.K. & Sunde, P. 2014. Age-ratio bias amongst hunter-based surveys of Eurasian Wigeon *Anas penelope* based on wing vs. field samples. *Ibis* doi: 10.1111/ibi.12229

Guillemain, M., Fox, A.D., Poysa, H., Vaananen, V-M., Christensen, T.K., Triplet, P., Schricke, V. & Korner-Nievergelt, F. 2013. Autumn survival inferred from wing-age ratios: Wigeon juvenile survival half that of adults at best? *J. Ornithology* **154**: 351–358.

Mitchell, C., Fox, A.D., Harradine, J. & Clausager, I. 2008. Measures of annual breeding success amongst Eurasian Wigeon *Anas penelope*. *Bird Study* **55**: 43–51.

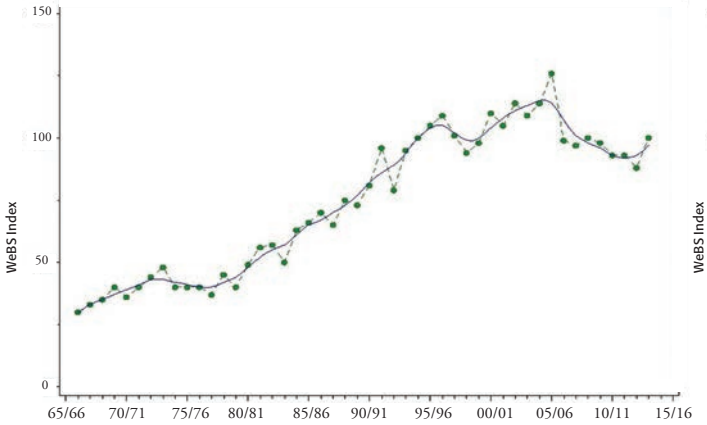
FOCUS ON... WIGEON

DAVE KING

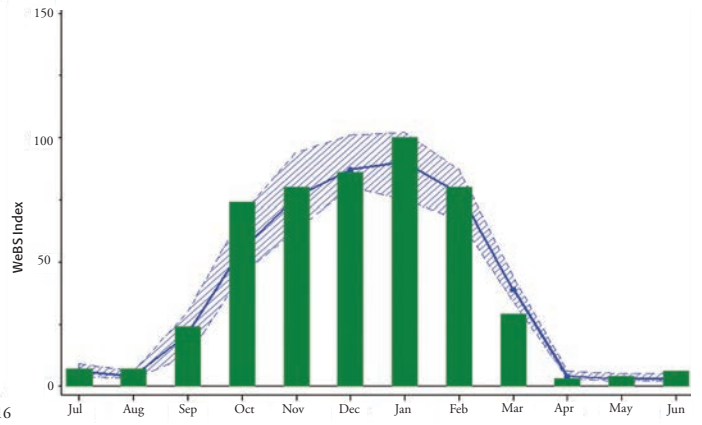
Table 7 Important WeBS sites for Wigeon

Site	2009/10	2010/10	2011/12	2012/13	2013/14	Month	5-year mean
Ribble Estuary	64,633	74,648	64,071	46,519	(62,748)	Oct	62,524
Ouse Washes	21,884	43,010	33,246	29,560	33,139	Dec	32,168
Somerset Levels	26,073	51,189	15,237	19,123	22,304	Jan	26,785
Breydon Water & Berney Marshes	22,770	29,370	16,300	24,073	22,805	Feb	23,064
Swale Estuary	25,848	14,800	6,246	13,641	(10,441)	Jan	15,134
Lower Derwent Ings	14,803	17,803	11,688	10,748	11,204	Feb	13,249
Nene Washes	22,571	20,460	3,050	5,923	11,423	Jan	12,685
Dornoch Firth	8,221	15,440	10,232	6,566	11,024	Oct	10,297
Thames Estuary	6,641	6,932	7,626	12,286	13,942	Jan	9,485
North Norfolk Coast	7,557	11,148	8,890	9,493	10,290	Feb	9,476
The Wash	13,224	8,062	(5,572)	8,476	8,438	Oct	9,550
Lindisfarne	(7,990)	(8,922)	10,160	8,627	7,220	Sep	8,732
Severn Estuary	7,676	(10,824)	7,673	5,961	6,740	Dec	7,667
Morecambe Bay	7,179	6,137	5,785	9,199	10,003	Jan	7,661
Alde Estuary	9,128	9,672	8,267	4,801	5,130	Jan	7,400
Dungeness & Rye Bay	5,574	13,852	9,348	3,459	2,057	Dec	6,858
Cromarty Firth	4,626	7,915	10,375	1,708	(8,668)	Oct	6,658
Cleddau Estuary	8,227	7,580	7,177	5,003	3,800	Oct	6,357

• Sites with five-year means of 6,300+ Wigeon are listed. Threshold for international importance = 15,000; threshold for national importance = 4,400 (GB), 630 (Ireland).
• Annual peaks and month in 2013/14 when recorded are shown. Brackets indicate incomplete coverage.
• Five-year mean refers to period 2009/10 to 2013/14.



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



Monthly indices for Wigeon in UK.
Green bars = 2013/14; blue line/hatched area = previous 5-year mean/range.

FOCUS ON... SANDERLING

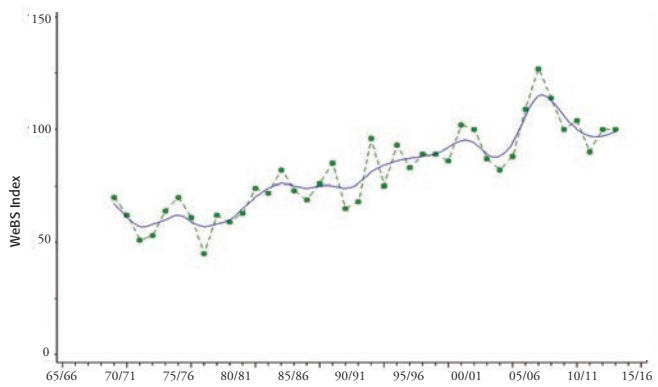
Sanderling success: a truly long distance migrant!

Conditions on Arctic breeding grounds can affect numbers of Sanderling seen in the UK and elsewhere along the flyway

Sanderling breed in the high Arctic and birds from both the Siberian and Greenland populations migrate south from northwest Europe. The long-term trend for Sanderling in the UK remains positive and numbers have increased in all four constituent countries, with an especially marked rise in Northern Ireland in recent years. The increase has occurred at the same time as a more rapid rise in The Netherlands (Hornman *et al.* 2015). The reasons behind these changes in national trends remain poorly understood, but may be linked to the temporal changes in the use of a network of key sites in northwest Europe (Reneerkens *et al.* (2009).

Five WeBS sites surpassed the threshold for international importance, based on recent five-year averages that use monthly maxima from throughout the year. These sites are The Wash, Ribble Estuary, Alt Estuary, Carmarthen Bay and North Norfolk Coast. In 2013/14, the largest count was from Ribble Estuary, where 6,084 in May was the highest peak since 2002/03. Maxima from the other four most important WeBS sites were typical of recent years. A further 26 WeBS sites, including Lough Foyle in Northern Ireland, surpass the relevant thresholds for national importance.

Following the review by Reneerkens *et al.* (2009), a project was established that created a large international network of collaborators to increase colour-ringing and resighting of Sanderlings, especially in under-represented countries.



▲ **Population trend for Sanderling in UK.**
Green dots = annual index value; blue line = smoothed trend.

Another goal was to conduct large-scale, targeted counts of Sanderlings. In particular, there has been an aim to increase coverage in areas where it has been necessary to achieve better knowledge of stop-over duration, phenology and turnover during migration, and to measure annual productivity by a combination of juvenile counts and age ratios from catches. For anyone interested in Sanderlings, see **www.waderstudygroup.org/projects/sanderling.html**.

Telescope scanning of shorebird flocks to age individuals by plumage characteristics has increasingly been used to assess the proportion of first-year birds in local populations. To standardise measurements of the proportion of juveniles for a local wintering population it is necessary to know when this can be measured without possible biases due to migration or moult. Over the course of three years, Lemke *et al.* (2012) investigated how the proportion of juvenile Sanderlings changed between mid July and early November on Tiree. They concluded by suggesting juvenile proportions of locally wintering Sanderlings in northwest Europe should be measured between mid September and the end of October, because by then migration has concluded and juveniles can still be aged using field characteristics. During this time of the year, the proportion of juveniles on Tiree was similar in the three years (6–9%).

FIND OUT MORE...

Hornman, M., Hustings, F., Koffijberg, K., Klaassen, O., Kleefstra, R., van Winden, E., Sovon Ganzen- en Zwanenwerkgroep & Soldaat, L. 2015. *Watervogels in Nederland in 2012/13*. Sovon rapport 2015/01, RWS-rapport BM 14.27. Sovon Vogelonderzoek Nederland, Nijmegen.

Lemke, H.W., Bowler, J. & Reneerkens, J. 2012. Establishing the right period to estimate juvenile proportions of wintering Sanderlings via telescope scans in western Scotland. *Wader Study Group Bulletin* **119**: 129-132.

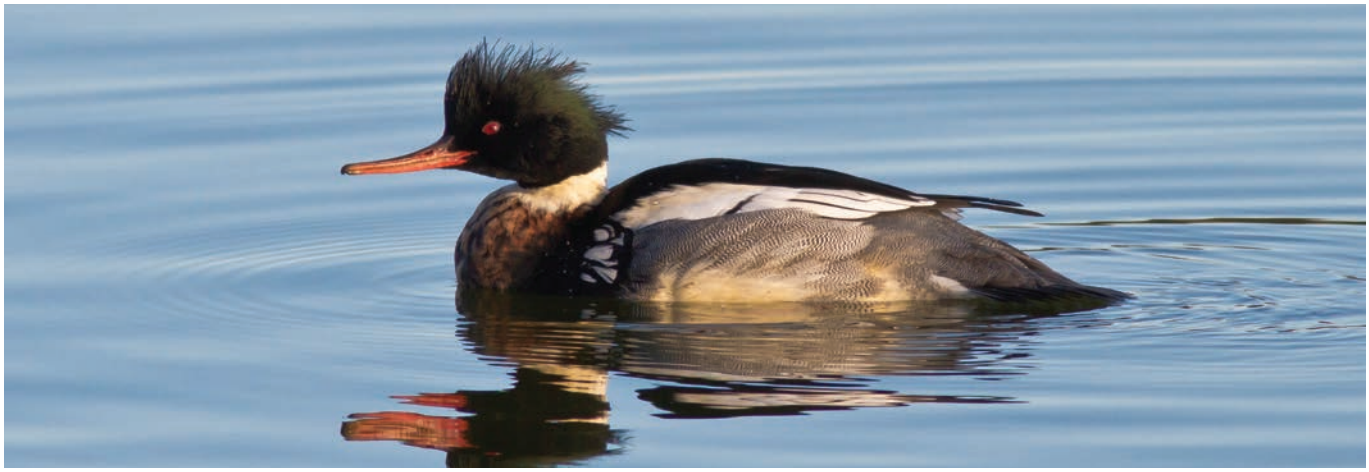
Reneerkens, J. *et al.* (17 co-authors) 2009. Sanderlings using African-Eurasian flyways: a review of current knowledge. *Wader Study Group Bulletin* **116**: 2-20.

Winter Sanderling numbers have risen by 29% in 25 years

DAVE KING

▲ **Numbers of Sanderling reach a peak in the UK during passage periods. The all-time Spring and Autumn peaks - both from Ribble Estuary in Lancashire - are 8,737 in May 1992 and 9,450 in July 1972, respectively.**

FOCUS ON... RED-BREASTED MERGANSER



ALLAN DREWITT

The decline in the UK's wintering population of Red-breasted Mergansers, evident since the mid 1990s, has slowed slightly. However, following a spike in numbers in 2010/11 (perhaps associated with the coldest winter across northwest Europe for 35 years), the annual index has since resumed its downward trajectory.

Given that numbers wintering to the east of the UK have increased steadily in the last 30-40 years, for example in The Netherlands, the observed trends are suggestive of a range shift perhaps induced by climate change - as has been demonstrated for other waterbirds. However, this hypothesis has not yet been tested for this species, and perhaps pertinently, large decreases have been reported from further east in the Baltic Sea (Skov *et al.* 2011).

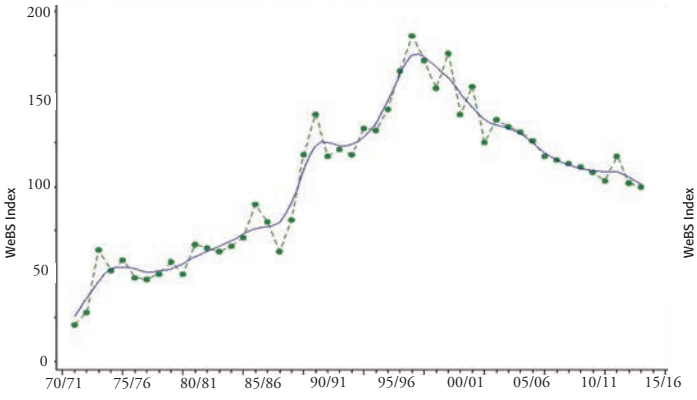
In 2013/14, Fleet & Wey (Dorset) continued to be the most important WeBS site in Britain for this species, based on five-year averages. Peak numbers have been largely stable there in recent years, and the site's position at the top of the WeBS site table has as much to do with the decline that has taken place at Forth Estuary in the last ten years. The maximum WeBS count on the Forth Estuary in 2013/14 of just 276 in November somewhat pales into insignificance when compared to counts here from the past. The historic peak relates to an exceptional count of 4,290 in January 1969, while 750+ were noted as recently as October 2002 and March 2004.

Peak counts at most other sites that surpass the threshold for national importance of Red-breasted Merganser were close to or below average. Twenty-five WeBS sites in Britain surpass the relevant thresholds for national importance for the species; please check the online WeBS reporting interface for full details. Numbers of Red-breasted Mergansers in Northern Ireland in 2013/14 were also underwhelming, particularly at Strangford Lough where the peak was well below par.

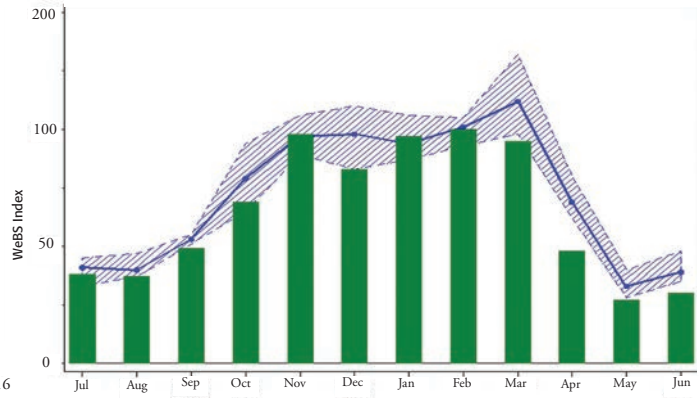
There undeniably remains a lot to be learned about Red-breasted Mergansers, both in the UK and further afield. It is anticipated that achieving good coverage of the non-estuarine coast during the next NEWS (see page 20) will improve the knowledge of the species' status in the UK.

FIND OUT MORE...

Skov, H. *et al.* (24 co-authors) 2011. *Waterbird Populations and Pressures in the Baltic Sea*. TemaNord 2011: 550. Nordic Council of Ministers, Copenhagen.



WeBS trend for Red-breasted Merganser in UK.
Green dots = annual index; blue line = smoothed trend.



Monthly indices for Red-breasted Merganser in UK.
Green bars = 2013/14; blue line/hatched area = previous 5-year mean/range.

FOCUS ON... EGYPTIAN GOOSE

DAVE KING

In 2013/14, the national index for Egyptian Goose remained at the same high level reached in 2011/12. A record number of WeBS sites featured the species in 2013/14, an increase of more than 50% over the course of the last four years. These included sites in Wales and Scotland. Typically, many of the highest counts emanated from Norfolk, although the listing of Eversley & Yateley Gravel Pits, Rutland Water and Summerleaze Gravel Pits among the top sites for this species (see relevant page on the online report) is strong evidence of the steady expansion that has taken place away from the East Anglian core since the ecology of the species in the UK was last studied in detail (Sutherland & Allport 1991).

There is every indication that Egyptian Geese will continue to expand across lowland Britain in the years ahead. Results from *Bird Atlas 2007-11* confirmed that the East Midlands is developing into a further stronghold (alongside East Anglia and Greater London). Away from those key areas, there were isolated winter records as far as Shetland, west Wales, southwest England and Ireland.

The *Bird Atlas 2007-11* maps indicate dispersal away from breeding areas as birds utilise a wider range of habitats, such as winter cereals, root crops and open pig units. The above-average WeBS monthly index value for July 2013 infers high productivity of an increasing breeding population (Holling *et al.* 2011), no doubt aiding this expansion. Across the North Sea, Egyptian Geese have also increased in the The Netherlands and Germany. By 2009, the Dutch population numbered *ca.* 10,000 pairs or 50,000 individuals post-breeding (Gyimesi & Lensink 2010, in Balmer *et al.* 2013). Are such numbers a realistic prospect for the UK too? Egyptian Goose will be one of a number of species for which the update of Musgrove *et al.* (2011) will make for interesting reading...

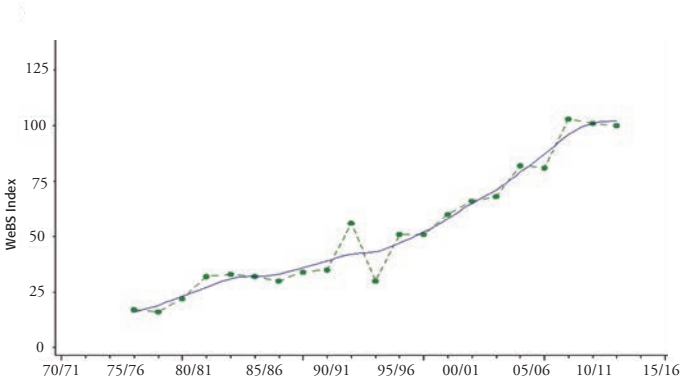
FIND OUT MORE...

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

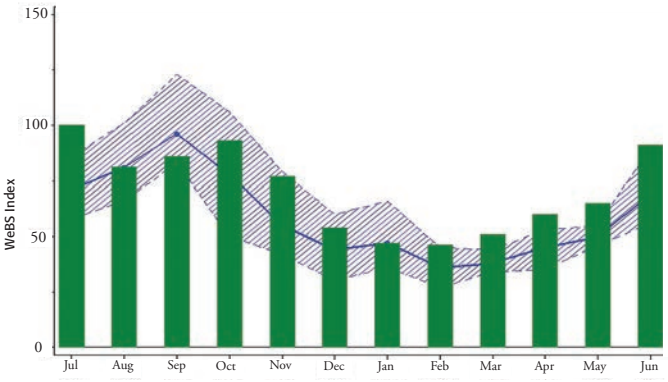
Holling, M. and the Rare Breeding Birds Panel. 2011. Non-native breeding birds in the United Kingdom in 2006, 2007 and 2008. *British Birds* **104**: 114–138.

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

Surtherland, W.J. & Allport, G. 1991. The distribution and ecology of naturalised Egyptian Geese in Britain. *Bird Study* **38**: 128–134.



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



▲ **Monthly indices for Egyptian Goose in UK.**
Green bars = 2013/14; blue line/hatched area = previous 5-year mean/range.

UK Low Tide Counts 2013/14

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

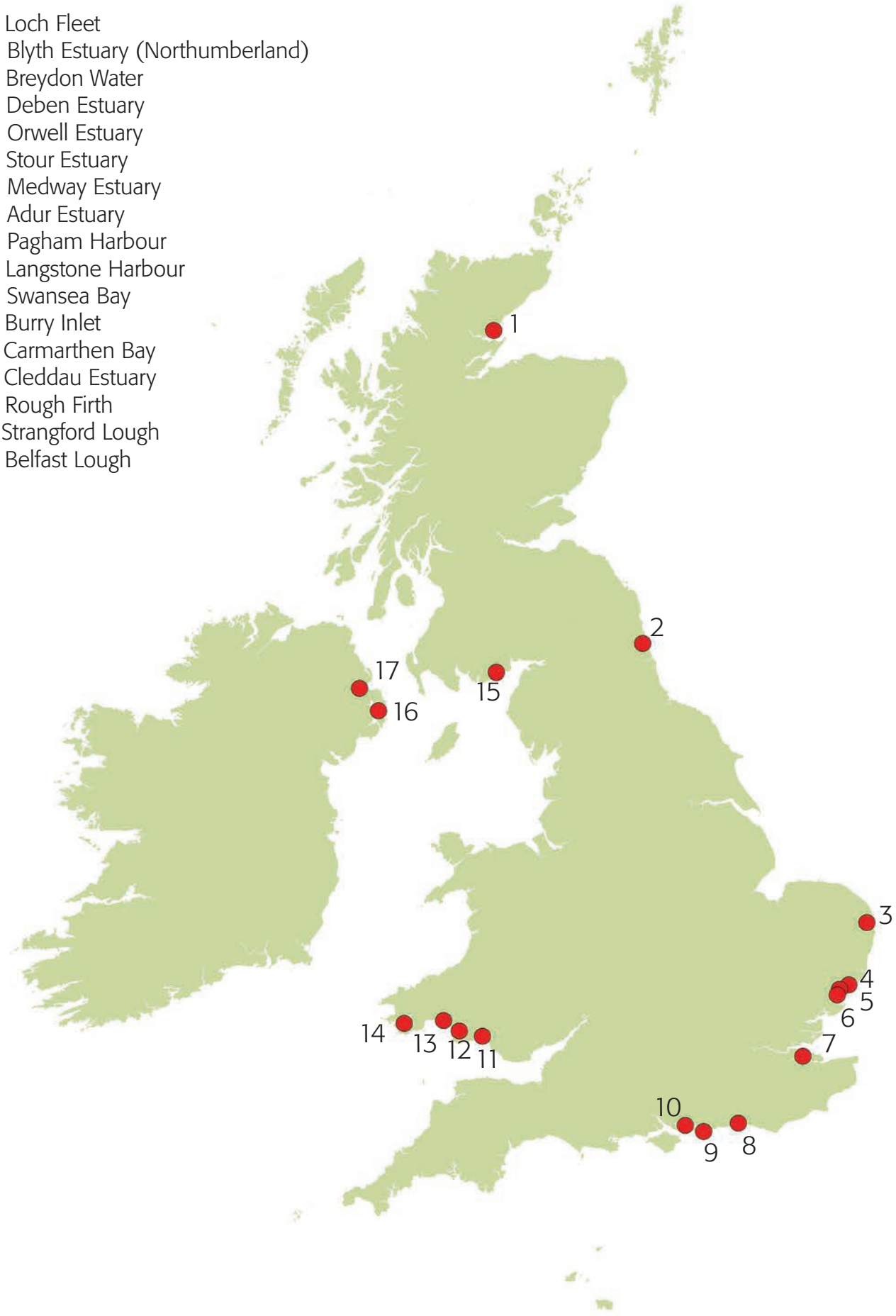
The WeBS Low Tide Count scheme facilitates the collection of information about use of the UK's estuaries by waterbirds at low tide. The scheme has flourished since its inception in the winter of 1992/93, with all the major estuaries in the UK having been counted at least once. The scheme aims to monitor,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

Information collected at low tide represents an important contribution to the conservation of waterbirds, by providing supporting information for the management of UK Ramsar Sites and SPAs, other site designations, and whole estuary conservation plans. On most estuaries, numbers of waterbirds feeding on predefined sectors of inter-tidal habitat are counted. Most individual estuaries are counted at low tide once every six years, although on some sites more frequent counts are undertaken. Coordinated counts of waterbirds are made each month from November to February inclusive, in the two-hour period either side of low tide. Each counted sector is divided into a maximum of three distinct habitat components: inter-tidal, sub-tidal, and non-tidal. Species data are divided among these habitats depending on the habitat preferences of the species concerned. Presentation of WeBS low tide information typically takes two forms: (i) tabulated statistics of peak numbers and mean densities, and (ii) dot density maps to give a visual representation of species' foraging densities across a site. Dots do not represent the precise positions of birds; they are assigned to habitat components proportionally and placed randomly within those areas. No information about distribution of birds at a finer scale than the count sector level should be inferred. For all maps, one dot is equivalent to one bird.

During 2013/14, WeBS Low Tide Counts were carried out at 17 estuaries. These included the Cleddau, Medway and Pagham Harbour, which were counted for the first time since 2005/06, 2006/07 and 1999/00, respectively, whilst the Blyth Estuary in Northumberland was counted for the first time under the WeBS Low Tide Count scheme. Results from the counts at Breydon Water and Burry Inlet are presented on pages 34-36 of this report. Further information about WeBS Low Tide Counts, including data summaries and distribution maps for different estuaries and species, are available online via **www.bto.org/webs-reporting-lowtide**.

LIZ CUTTING

1) Loch Fleet
2) Blyth Estuary (Northumberland)
3) Breydon Water
4) Deben Estuary
5) Orwell Estuary
6) Stour Estuary
7) Medway Estuary
8) Adur Estuary
9) Pagham Harbour
10) Langstone Harbour
11) Swansea Bay
12) Burry Inlet
13) Carmarthen Bay
14) Cleddau Estuary
15) Rough Firth
16 Strangford Lough
17) Belfast Lough



▲ **Estuaries in the UK counted as part of WeBS Low Tide Count scheme in 2013/14**

Breydon Water at low tide

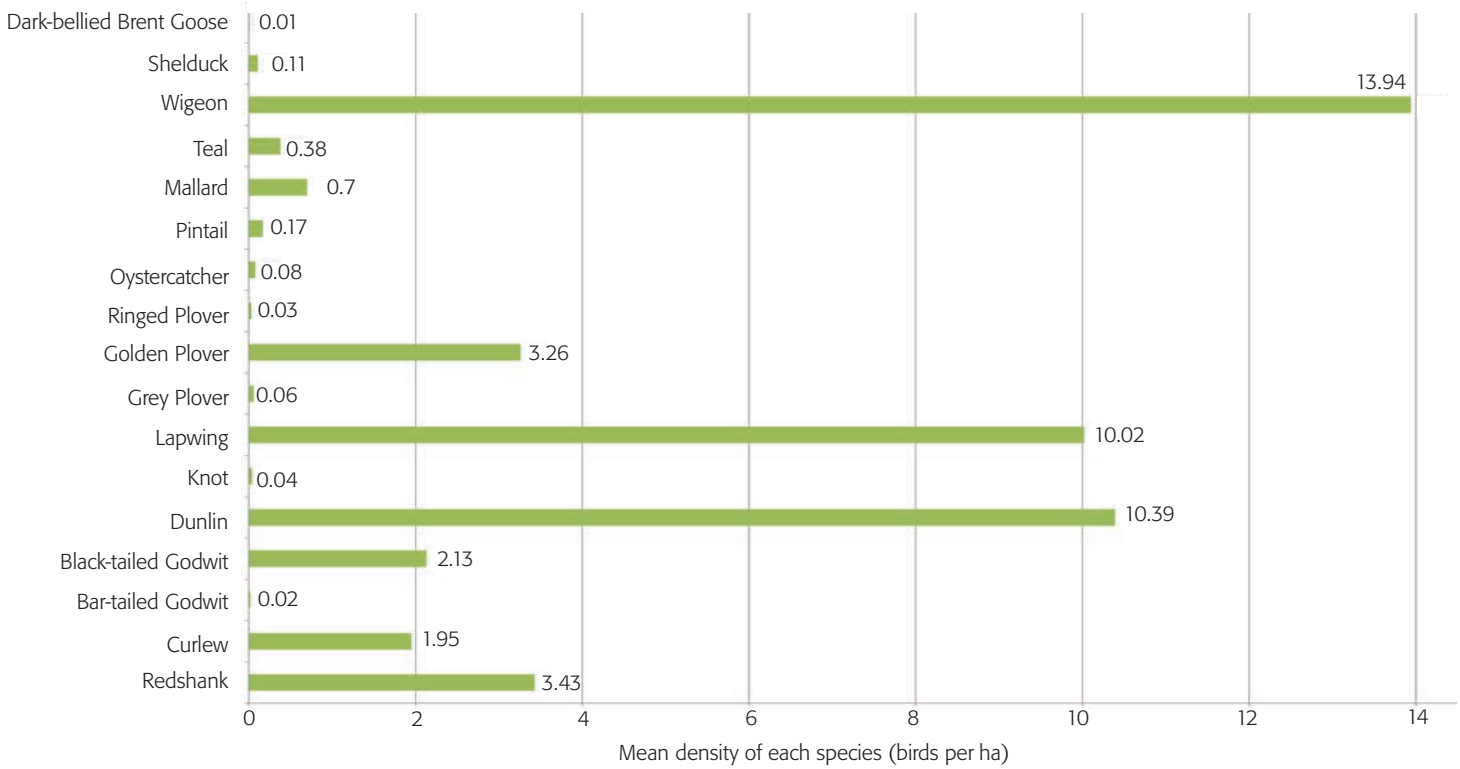
Some sites, including Breydon Water in Norfolk, are counted annually enabling comparison of data between years

Breydon Water is a bar-built estuary separated from the North Sea by the spit of land on which Great Yarmouth sits. The estuary forms the lower reaches of the Yare and Waveney rivers, which drain much of central East Anglia. The rivers are tidal for many miles inland, but only the estuary area from the confluence of the rivers is considered here. At high tide, Breydon Water forms a large lake but as the tide recedes, the only water that remains forms a narrow channel, well marked by buoys for the numerous leisure cruisers. There are small areas of saltmarsh, principally at the eastern end. To the north of the estuary stretches the huge area of Halvergate Levels, Breydon Marshes and Berney Marshes. These form an extensive area of grazing marsh that has been subject to varying degrees of drainage in recent years. The main high tide wader roost occurs reserve at Berney Marshes RSPB reserve (accessible by boat, train or a long walk) and in the eastern saltmarsh. The site is classified as an SPA. The main conservation issues in the area involve disturbance and grazing marsh management. The river channel leading out through Great Yarmouth to the sea is heavily industrialised.

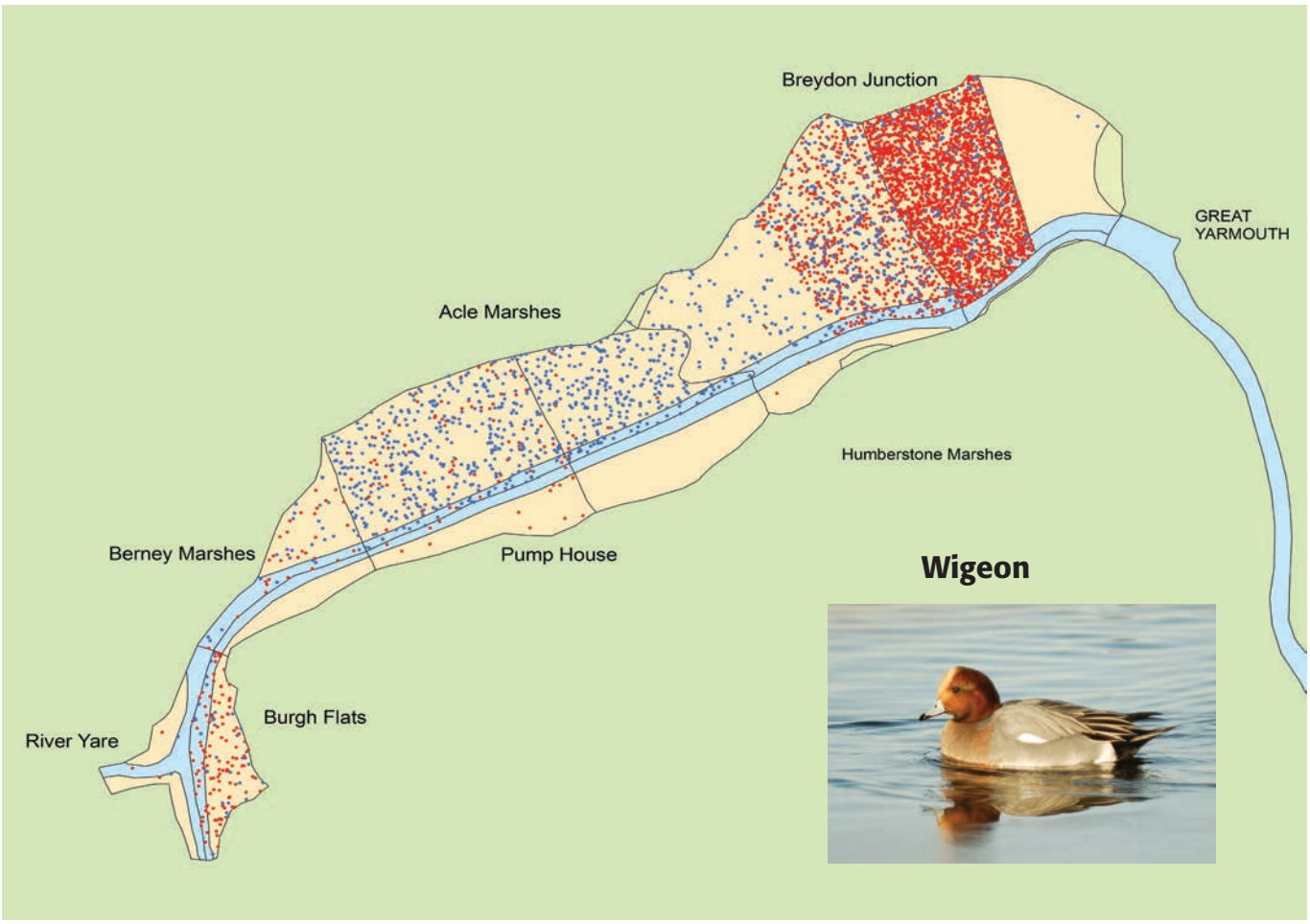
The distribution of two species are mapped on the opposite page. For Wigeon and Dunlin, distributions based on WeBS Low Tide Counts undertaken in 2003/04 are displayed for comparison with the respective distributions ten years later. Wigeon are present in internationally important numbers on Breydon Water. Despite the UK trend showing a decline in recent years (see pages 26-27), the mean winter counts at low tide at Breydon Water have doubled from 2,989 (6.23 birds per ha) in 2003/04, to 6,693 (13.94 birds per ha) in 2013/14. The largest concentration of Wigeon in 2013/14 was around Breydon Junction. Dunlin, present in nationally important numbers at Breydon Water, is another species that has shown a long-term decline in the UK population. As with Wigeon, this decline is not reflected by WeBS Low Tide Counts on this estuary, where the mean count for the winter of 2013/14 was 4,106 birds (10.39 birds per ha), compared to 2,939 (7.44 birds per ha) in 2003/04.

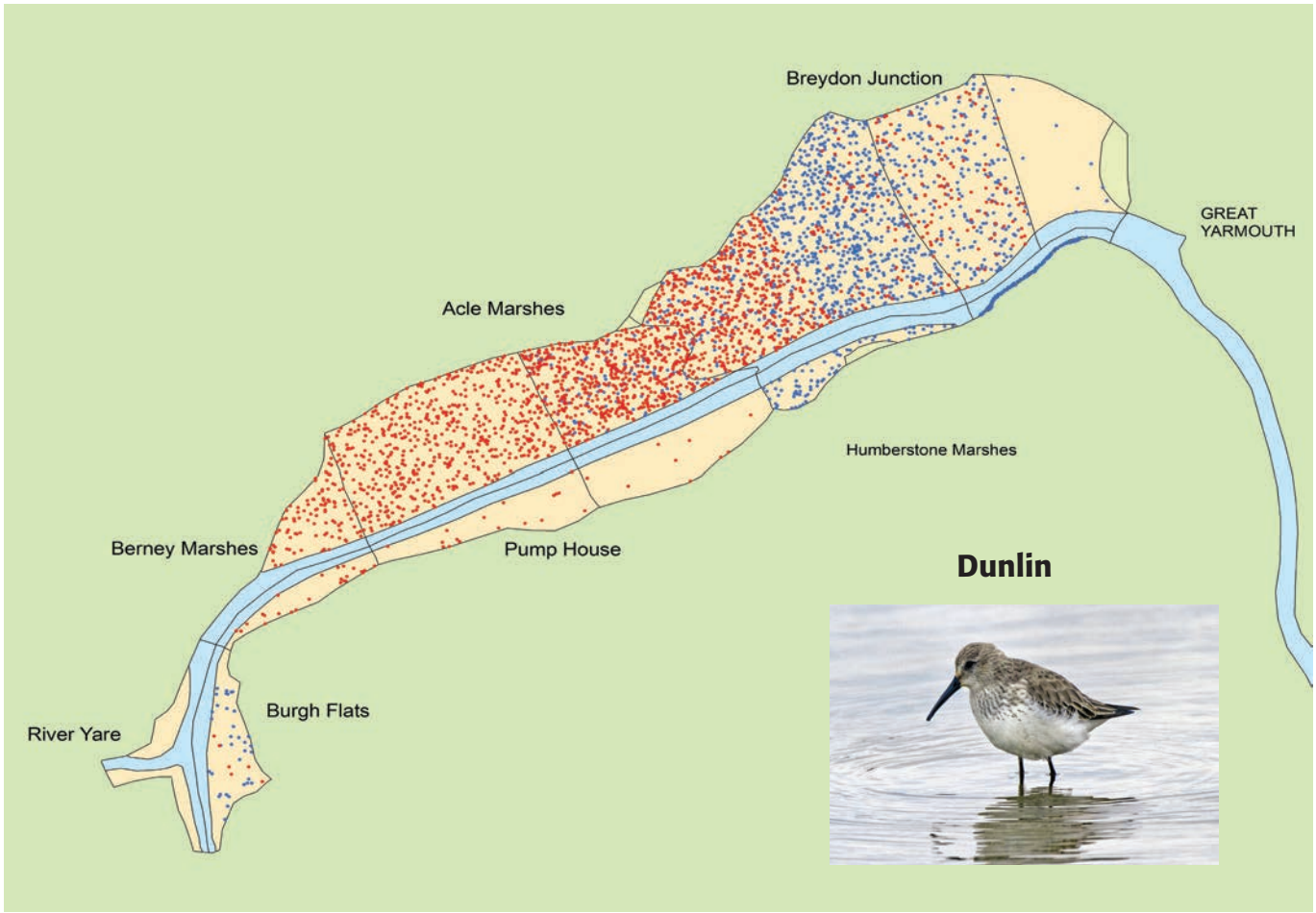
GENERAL STATISTICS FOR BREYDON WATER

Area covered: 480 ha
Mean total birds: 21,045
Mean bird density: 43.8 birds per ha



▲ **Mean densities of waterbirds at low tide at Breydon Water in 2013/14**





WIGEON BY NEIL CALBRADE; DUNLIN BY JOHN HARDING

▲ **Low tide distribution of Wigeon (1 dot = 2 birds) (above), and Dunlin (1 dot = 2 birds) (below) at Breydon Water, for the winters of 2013/14 (red) and 2003/04 (blue).**

LOW TIDE COUNTS 2013/14 - SITE FOCUS

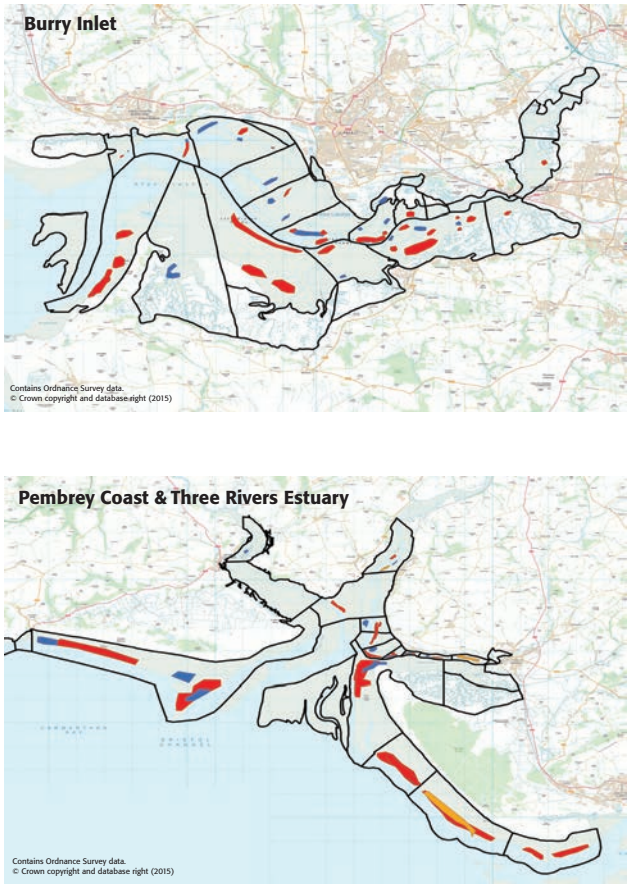
Burry Inlet and Pembrey Coast & Three Rivers Estuary study

Since 2006/07, WeBS Low Tide Counts have been carried out on the Burry Inlet SPA and Carmarthen Bay SAC to study the feeding activities and distribution of Oystercatcher and Knot

The Burry Inlet SPA and Carmarthen Bay between them support nationally and internationally important populations of wintering wildfowl and waders (specifically Shelduck, Pintail, Common Scoter, Oystercatcher, Grey Plover, Dunlin, Sanderling and Curlew). In 2006/07, Natural Resources Wales, formerly Countryside Commission for Wales, commissioned a study as part of their monitoring and management programme of to determine the food requirements of Oystercatcher and Knot, and to set monitoring targets and to help assess the implications of cockle and mussel fishing scenarios on the bird populations. The work focussed on Oystercatcher and Knot as they are species which feed predominantly on cockles and mussels and thus which might be affected by large shellfishing operations. Following the work undertaken in 2006/07, standard WeBS Low Tide Counts of the Burry Inlet SPA, Pembrey Coast and Three Rivers Estuary have been carried out annually to provide additional information on the feeding activity of Oystercatcher and Knot during the low tide period.

During the 2013/14 winter, WeBS Low Tide Counts were carried out by teams of volunteers once a month from November 2013 to February 2014. Count sectors matched those used in the previous years' surveys, counts focused on the priority species of Oystercatcher and Knot but included all waterbird species, and were undertaken during the two hours either side of low tide. In addition to the standard counts, the locations of feeding and roosting flocks were also mapped. In 2013/14, on average, 8,549 and 4,693 Oystercatcher were recorded across the winter in the Burry Inlet and on the Pembrey Coast and the Three Rivers Estuary, respectively. An average of 108 and 421 Knot were recorded across the winter at the two sites, respectively.

In terms of feeding locations, Oystercatcher were widely distributed in the Burry Inlet in the winter of 2013/14, with Whiteford Point and the mudflats south from Llanelli being favoured areas. Within the Pembrey Coast and the Three Rivers Estuary, the main feeding areas of Oystercatcher were along the Pembrey Coast and Pendine Burrows, whilst the inner sections by the mouth of the rivers were favoured by roosting birds.



▲ **The main feeding areas (red), roosting areas (blue) and mixed feeding/roosting flocks (orange) of Oystercatcher in the Burry Inlet (top) and Pembrey Coast & Three Rivers Estuary (bottom) in 2013/14.**

FIND OUT MORE...

Calbrade, N.A., Burton, N.H.K., Flannagan, A., Howells,R.J., Hughes, D.S., Hall, G. & Dodson, O. 2014. *Monitoring Waterbird Distributions and the Feeding Activity of Oystercatcher and Knot in the Burry Inlet SPA and Carmarthen Bay SAC - The winter of 2013/14.* Natural Resources Wales Evidence Report No. 19, 51 pp. NRW/BTO.

Oystercatcher feed primarily on cockles and mussels and so may be affected by shellfishing operations.

ALLAN DREWITT

WeBS DATA REQUESTS

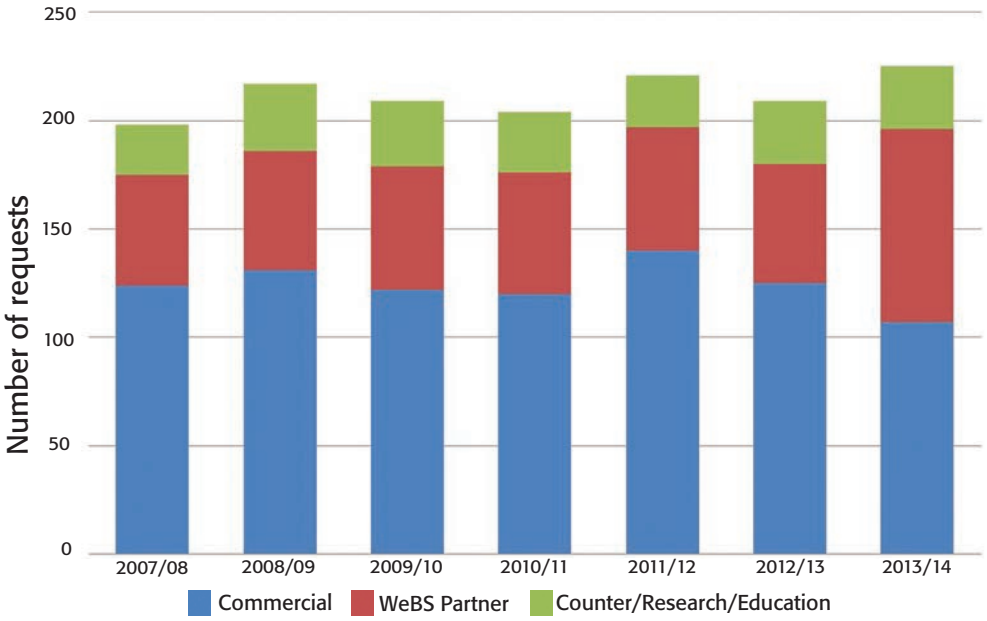
225 WeBS Data Requests in 2013/14

Uses of WeBS data 2013/14

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 2007/08. These are from a range of stakeholder groups, including country conservation agencies, environmental consultancies, academic researchers and bird clubs. Summarised WeBS data are also provided to several online environmental data portals. January WeBS data are supplied to Wetlands International for use inclusion in the International Waterbird Census, and summaries are used in outputs such as National Totals lists, Waterbird Population Estimates, and the AEWA Conservation Status Report.



▲ **WeBS Data Requests 2007/08 to 2013/14**

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 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 2013/14

Continued from back page

WALES

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

NORTHERN IRELAND

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

CHANNEL ISLANDS

Alderney	Alderney Wildlife Trust Ecologist
Channel Islands (inland)	Glyn Young
Guernsey Coast	Mary Simmons
Jersey Coast	Roger Noel

ISLE OF MAN

Isle of Man	Pat Cullen

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

In 2013/14, the WeBS Local Organiser Advisory Committee (WeBS LOAC) was comprised of John Armitage, Neil Bielby, Gladys Grant, Andrew King, Ian Lees, Nick Mason, Dave Shackleton and Shane Wolsey. Thanks to them for representing the wider LO network. 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 and not referenced elsewhere in this report

Austin, G.E., Calbrade, N.A., Mellan, H.J., Musgrove, A.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. & Holt, C.A. 2014. *Waterbirds in the UK 2012/13: The Wetland Bird Survey.* BTO/RSPB/JNCC. BTO, Thetford.

Baillie, S.R., Marchant, J.H., Leech, D.I., Massimino, D., Eglington, S.M., Johnston, A., Noble, D.G., Barimore, C., Kew, A.J., Downie, I.S., Risely, K. & Robinson, R.A. 2014. *BirdTrends 2013: trends in numbers, breeding success and survival for UK breeding birds.* BTO Research Report 652. BTO, Thetford. *www.bto.org/birdtrends*

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

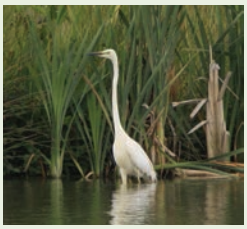
Chamberlain, D.E., Austin, G.E., Newson, S.E., Johnston, A.J. & Burton, N.H.K. 2013. Licensed control does not reduce local Cormorant *Phalacrocorax carbo* population size in winter. *Journal of Ornithology* **154**: 739–750.

Cook, A.S.C.P., Barimore, C., Holt, C.A., Read, W.J. & Austin, G.E. 2013. *Wetland Bird Survey Alerts 2009/10: Changes in numbers of wintering waterbirds in the UK, SPAs and SSSIs.* BTO Research Report 641. *http://blx1.bto.org/webs-reporting-alerts*

Hayhow, D.B., Conway, G., Eaton, M.A., Grice, P.V., Hall, C., Holt, C.A., Kuepfer, A., Noble, D.G., Oppel, S., Risely, K., Stroud, D.A., Wilkinson, N. & Wotton, S. 2014. *The state of the UK's birds 2014.* RSPB, BTO, WWT, NRW, JNCC, NE, NIEA and SNH, Sandy, Beds. *www.bto.org/SUKB*

Holling, M. and the Rare Breeding Birds Panel. 2013. Non-native breeding birds in the UK, 2009–11. *British Birds* **107**: 122–141.

Holt, C. 2013. The changing status of the Great White Egret in Britain. *British Birds* **106**: 246–257.



DAVE KING

Holt, C.A., Austin, G.E., Calbrade, N.A., Mellan, H.J.,Hearn, R.D., Stroud, D.A., Wotton, S.R. & Musgrove, A.J. 2012. *Waterbirds in the UK 2010/11: The Wetland Bird Survey.* BTO/RSPB/JNCC. BTO, Thetford. [last annual WeBS report in old format]

Mendez, V., Gill, J.A., Burton, N.H.K., Austin, G.E., Petchey, O.L. & Davies, R.G. 2012. Functional diversity across space and time: trends in wader communities on British estuaries. *Diversity and Distributions* **18**: 356–365.

Mitchell, C., Hearn, R. & Stroud, D. 2012.The merging of populations of Greylag Geese breeding in Britain. *British Birds* **105**: 498–505.

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

Nagy, S., Petkov, N., Rees, E., Solokha, A., Hilton, G., Beekman, J. & Nolet, B. 2012. Single Species Action Plan for the Conservation of the Northwest European Population of Bewick's Swan (*Cygnus columbianus bewickii*). *AEWA Technical Series No. 44.* Bonn, Germany.

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

WeBS

BTO
Looking out for birds

rspb giving nature a home

JNCC
Joint Nature Conservation Committee

in association with WWT

British Trust for Ornithology
The Nunnery
Thetford
Norfolk
IP24 2PU

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

SPECIAL THANKS

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

WeBS Local Organisers in 2013/14

ENGLAND

Avon (excl Severn Estuary)	Rupert Higgins
Bedfordshire	Richard Bashford
Berkshire	Ken White
Buckinghamshire (North)	Roger Warren (now Chris Coppock)
Buckinghamshire (South)	Roger Warren (now **VACANT**)
Cambridgeshire (incl Huntingdonshire)	Bruce Martin
Cambridgeshire (Nene Washes)	Charlie Kitchin
Cambridgeshire (Ouse Washes)	Paul Harrington
Cheshire (North)	Kane Brides
Cheshire (South)	David Cookson
Cleveland (excl Tees Estuary)	Chris Sharpe
Cleveland (Tees Estuary)	Mike Leakey
Cornwall (excl Tamar Complex)	Pete Roseveare
Cornwall (Tamar Complex)	Gladys Grant
Cotswold Water Park	Gareth Harris
Cumbria (Duddon Estuary)	Colin Gay
Cumbria (excl estuaries)	Dave Shackleton
Cumbria (Irt/Mite/Esk Estuary)	Peter Jones
Dee Estuary	Colin Wells
Derbyshire	Peter Gibbon
Devon (other sites)	Pete Reay
Devon (Exe Estuary)	Penny Avant
Devon (Taw/Torridge Estuary)	Brian O'Leary
Dorset (excl estuaries)	John Jones (now Malcolm Balmer)
Dorset (Poole Harbour)	Paul Morton
Dorset (Radipole and Lodmoor)	Toby Branston
Dorset (The Fleet and Portland Harbour)	Steve Groves
Durham	**VACANT**
Essex (Crouch/Roach Estuaries and South Dengie)	Peter Mason
Essex (Hamford Water)	Julian Novorol
Essex (North Blackwater)	John Thorogood
Essex (other sites)	Vacant (now Gavin Foster)
Essex (South Blackwater and North Dengie)	Anthony Harbott
Gloucestershire	Michael Smart
Greater London (excl Thames Estuary)	Helen Baker
Greater Manchester	Jamie Dunning
Hampshire (Avon Valley)	John Clark
Hampshire (estuaries/coastal)	John Shillitoe
Hampshire (excl Avon Valley)	Keith Wills
Herefordshire	Chris Robinson
Hertfordshire	Jim Terry
Humber Estuary (inner South)	Keith Parker
Humber Estuary (mid South)	Richard Barnard
Humber Estuary (North)	Nick Cutts
Humber Estuary (outer South)	John Walker
Isle of Wight	Jim Baldwin
Kent (Dungeness area)	David Walker
Kent (East)	Ken Lodge (now Norman McCanch)
Kent (North Kent estuaries)	Geoff Orton
Kent (Pegwell Bay)	Pete Findley (now Ian Hodgson)
Kent (West)	Vacant (now Norman McCanch)
Lancashire (East Lancs and Fylde)	Vacant (now Stephen Dunstan)
Lancashire (North inland)	Peter Marsh
Lancashire (Ribble Estuary)	Ken Abram
Lancashire (River Lune)	Jean Roberts
Lancashire (West inland)	Tom Clare
Lee Valley	Cath Patrick
Leicestershire and Rutland (excl Rutland Water)	Brian Moore
Leicestershire and Rutland (Rutland Water)	Tim Appleton
Lincolnshire (North inland)	Chris Gunn
Lincolnshire (South inland)	Bob Titman
Merseyside (Alt Estuary)	Steve White
Merseyside (inland)	Vacant (now Kevin Feeney)
Merseyside (Mersey Estuary)	Dermot Smith
Morecambe Bay (North)	Clive Hartley (now **VACANT**)
Morecambe Bay (South)	Jean Roberts
Norfolk (Breydon Water)	Jim Rowe
Norfolk (excl estuaries)	Tim Strudwick
Norfolk (North Nofolk Coast)	Michael Rooney
Northamptonshire (excl Nene Valley)	**VACANT**
Northamptonshire (Nene Valley)	Steve Brayshaw
Northumberland (coastal)	Daniel Turner
Northumberland (inland)	Steve Holliday
Northumberland (Lindisfarne)	Andrew Craggs
Nottinghamshire	David Parkin
Oxfordshire (North)	Sandra Bletchly
Oxfordshire (South)	Ian Lees (now Ben Carpenter)
Severn Estuary (England)	Harvey Rose
Shropshire	Michael Wallace
Solway Estuary (inner South)	Norman Holton
Solway Estuary (outer South)	Dave Shackleton
Somerset (other sites)	Eve Tigwell
Somerset (Somerset Levels)	Steve Meen
Staffordshire	Steve Turner (now Scott Petrek)
Suffolk (Alde Complex)	Ian Castle
Suffolk (Alton Water)	John Glazebrook
Suffolk (Blyth Estuary)	Adam Burrows
Suffolk (Deben Estuary)	Nick Mason
Suffolk (Orwell Estuary)	Mick Wright
Suffolk (other sites)	Alan Miller
Suffolk (Stour Estuary)	Rick Vonk
Surrey	Penny Williams
Sussex (Chichester Harbour)	Edward Rowsell (now James Parkin)
Sussex (other sites)	Richard Bown (now Helen Crabtree and Dave Boddington)
Thames Estuary (Foulness)	Chris Lewis
The Wash	Jim Scott
Warwickshire	Matthew Griffiths
West Midlands	Nick Lewis
Wiltshire	Julian Rolls (now Bill Quantrill)
Worcestershire	Andrew Warr
Yorkshire (East and Scarborough)	Jim Morgan
Yorkshire (Harrogate and Yorkshire Dales)	Bill Haines
Yorkshire (Huddersfield/Halifax area)	**VACANT**
Yorkshire (Leeds area)	Paul Morris
Yorkshire (South)	Vacant (now Jamie Dunning)
Yorkshire (Wakefield area)	Peter Smith

SCOTLAND

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

ISBN 978-1-908581-54-9