Waterbirds in the UK 2019/20

The annual report of the Wetland Bird Survey

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

WATERBIRDS IN THE UK 2019/20

The Wetland Bird Survey (WeBS) is the principal scheme for monitoring the UK's wintering waterbird populations, providing an important indicator of their status and the health of wetlands. *Waterbirds in the UK 2019/20* is the 39th WeBS annual report and comprises this summary report and data at: **www.bto.org/webs-reporting**

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THE WeBS PARTNERSHIP

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

The permanent members of the WeBS Steering Committee in 2019/20 were Teresa Frost (BTO), Dawn Balmer (BTO), James Pearce-Higgins (BTO), Anna Robinson (JNCC), Kirsi Peck (JNCC), Simon Wotton (RSPB), Richard Hearn (WWT), Colette Hall (WWT) and Eileen Rees (WWT).

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

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

We are also grateful to the following for providing supplementary information, data inputting, proof-reading and particularly invaluable help in 2019/20: GSMP, Deborah Newman, Jane Herridge, Kirsi Peck, Royal Air Force Ornithological Society (RAFOS), Shetland Oil Terminal Environmental Advisory Group (SOTEAG) and Chris Waltho. Grateful thanks to all and apologies to anyone who has been inadvertently missed.

Report content and production was by Teresa Frost, Dawn Balmer, Gillian Birtles and Neil Calbrade. The article on the Goose and Swan Monitoring Programme (GSMP) was by Colette Hall (WWT), Icelandic Greylag Goose by Kane Brides (WWT), Bewick's Swan was by Eileen Rees (WWT) and the article on Taiga Bean Geese was by Angus Maciver and Brian Minshull (Bean Goose Action Group).

The painting of the Scaup used on the cover of this report is by Kirsty Yeomans (Crow Artist). For more of Kirsty's work, see https://crowartist.co.uk. All other artists and photographers are acknowledged on the pages of this report.

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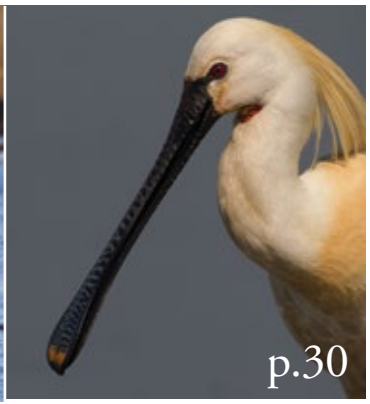

KNOT BY DAVE KING; PINK-FOOTED GOOSE BY TOM CADWALLENDER/BTO; BEWICK'S SWAN BY CHRIS KNIGHTS/BTO AND SPOONBILL BY EDMUND FELLOWES/BTO

CITATION

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Online Resources

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

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

The online and summary outputs in conjunction constitute the report *Waterbirds in the UK 2019/20.*

Waterbird headlines from the WeBS year

3,450 registered WeBS volunteers

Just a small selection of notable stories from 2019/20.

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

The 2019/20 WeBS year was a challenging one, with counting affected by Storm Ciara in February and COVID-19 pandemic restrictions limiting surveying from March. Despite these challenges in the latter half of the WeBS year, a record number of count sectors and sites were covered at least once during the year by dedicated WeBS volunteers, with 5,287 sectors covered at least once, and over 4,000 were counted in each of the mid-winter months of November, December and January. Low Tide Counts were carried out on 18 estuaries, including the Ythan Estuary (pages 34–35). Many migratory species were present in low numbers, especially those wildfowl species that could take advantage of a record warm winter for Europe and mild temperatures in the Baltic Sea (page 8) to avoid a longer migration to the UK.

Daytime surveys of waterbodies and coastal sites at high tide that comprise WeBS Core Counts gather excellent monitoring data for many waterbirds. However, the method is less suitable for some species, either due to their cryptic nature or because they feed in terrestrial habitats during the day. Jack Snipe (page 33) is extremely challenging to detect – could new technology help? Gulls, including Lesser Black-backed Gull (page 32) are best surveyed at their roosts; but the Winter Gull Survey (WinGS) has not been carried out recently due to lack of funding. Many goose and swan species are similarly best surveyed at their roosts, the long-standing WWT/JNCC/NatureScot Goose & Swan Monitoring Programme (GSMP) organises tailored surveys for these species (pages 16–23).

Waterbird range shifts have been the subject of much research activity using WeBS data and data from other countries in recent years. One such study looked at Scaup and found that far fewer are now wintering in the UK due to a range shift; however, the species has declined across northwest Europe, and is threatened by intensive fishing in the Baltic Sea (pages 28–29). Another study found that protected areas helped waterbirds shift their ranges in response to climate change (page 25). Range changes may be one driver affecting wader populations on the non-estuarine coast. A recent paper on the 2015/16 Non-estuarine Waterbird Study (NEWS III) revealed density declines for many species on stretches of the coast where repeat surveys were carried out (pages 26–27).

LOCH AN EILEAN BY TONI CROSS; BARNACLE GEESE BY NEIL CALBRADE; PURPLE SANDPIPER BY SCOTT MAYSON/BTO

WeBS Core Counts 2019/20 – in numbers

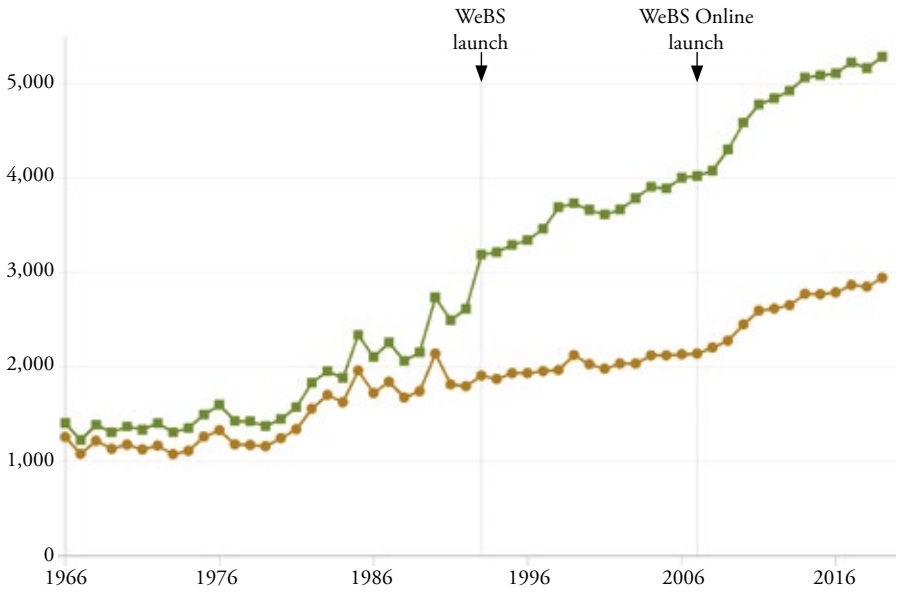
Core Counts were carried out at 5,287 WeBS sectors (count units) at 2,946 sites from July 2019 to June 2020.

Not all Core Counts are linked to individual Counters in the WeBS Online database, but some are; 2,358 Counters named as the lead counter were associated with WeBS Core Count visits made in 2019/20. Including additional team members, the number of registered WeBS volunteers was 3,450.

There were 34,988 count visits, 79% in the core September–March period (green bars on lower graph). The number of visits was lower than usual due to Storm Ciara in February (see page 8) and due to COVID-19 pandemic restrictions from April to June.

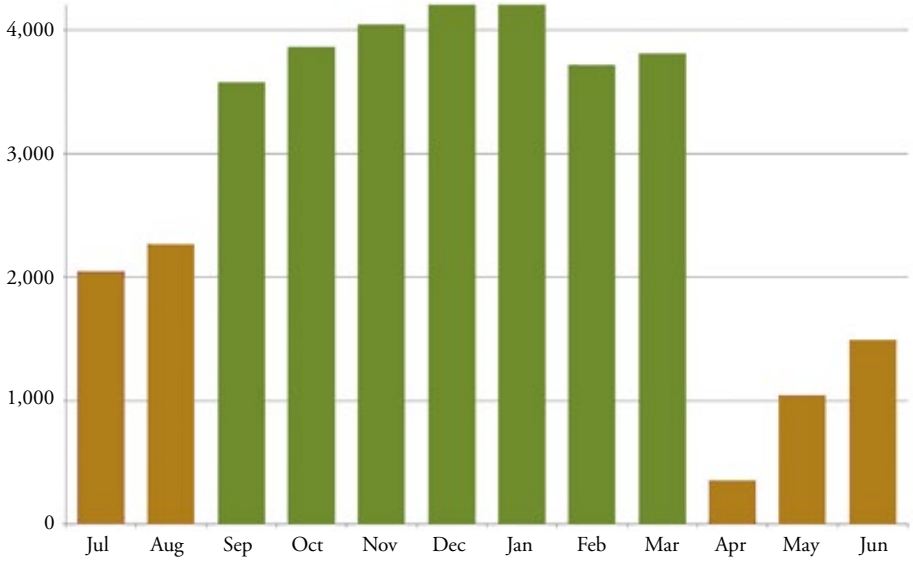
Core Count dates in 2019/20

2019	2020
7 July	12 January
4 August	9 February
15 September	8 March
13 October	12 April
17 November	10 May
15 December	7 June



▲ **Number of WeBS count sectors (green squares) and sites (gold circles) covered annually 1966/67–2019/20.**

▼ **Number of WeBS Core Count visits in 2019/20 by month during the core winter period (green bars) and the rest of the year (gold bars).**



Goose Censuses

The status of some of the UK's native goose populations are reported through the WWT/JNCC/NatureScot Goose & Swan Monitoring Programme (GSMP) (see article on pages 16–17).

Counts of Taiga Bean Goose are provided by the Bean Goose Action Group (Slamannan Plateau) and RSPB (Middle Yare Marshes). The Icelandic-breeding Goose Census, organised by WWT, covers Pink-footed and Icelandic Greylag Goose. Counts of British Greylag are carried out at a few key sites in Scotland by NatureScot, RSPB and local management groups.

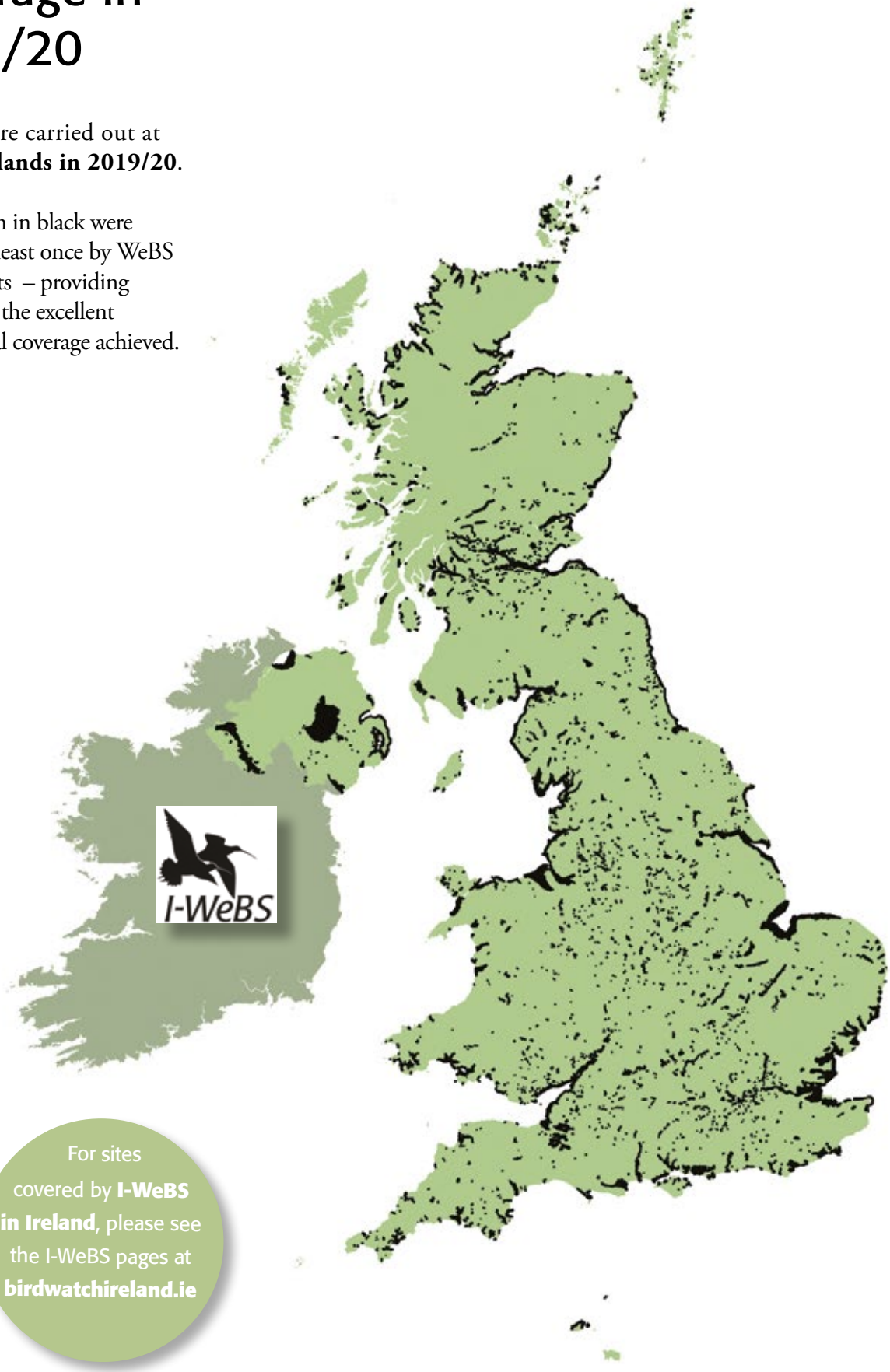
A census of the Greenland White-fronted Goose population is organised by the Greenland White-fronted Goose Study. Greenland Barnacle Goose are counted at key locations in Scotland by NatureScot, RSPB and volunteers, and a census of the Svalbard Barnacle Goose population is organised by WWT.

Results from goose surveys are described in more detail on the GSMP website at: **https://monitoring.wwt.org.uk/our-work/goose-swan-monitoring-programme/species-accounts**

WeBS coverage in 2019/20

Counts were carried out at **2,946 wetlands in 2019/20**.

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



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

UK Low Tide Counts 2019/20

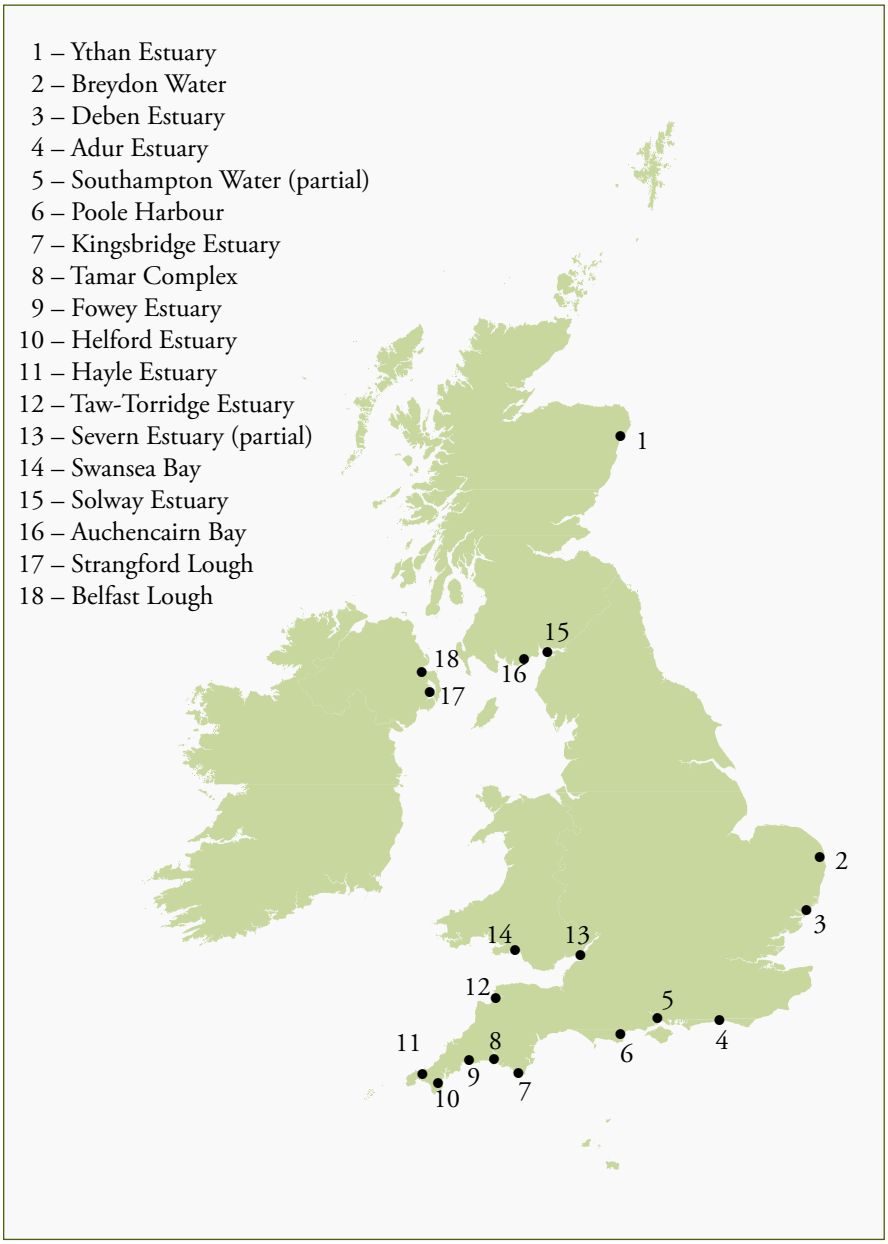
Seventeen UK estuaries were counted at low tide, generating important data about feeding areas.

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 since then. The scheme aims to monitor, assess and regularly update information on the relative importance of intertidal feeding areas of UK estuaries for wintering waterbirds, and in doing so complements information gathered on populations through the WeBS Core Counts.

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

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

During 2019/20, complete WeBS Low Tide Counts were carried out at 16 estuaries, and on selected sectors on a further two estuaries. On several sites – Poole Harbour, Kingsbridge Estuary, Tamar Complex and Helford Estuary – Core Counts are carried out annually at low tide and data feed into both schemes, allowing assessment of distributional changes. Results from the counts on the Ythan Estuary are presented on pages 34–35 of this report.



Estuaries counted as part of the WeBS Low Tide Count scheme in 2019/20.

2019/20: Warm winter and a stormy February

Weather and migration context for 2019/20.

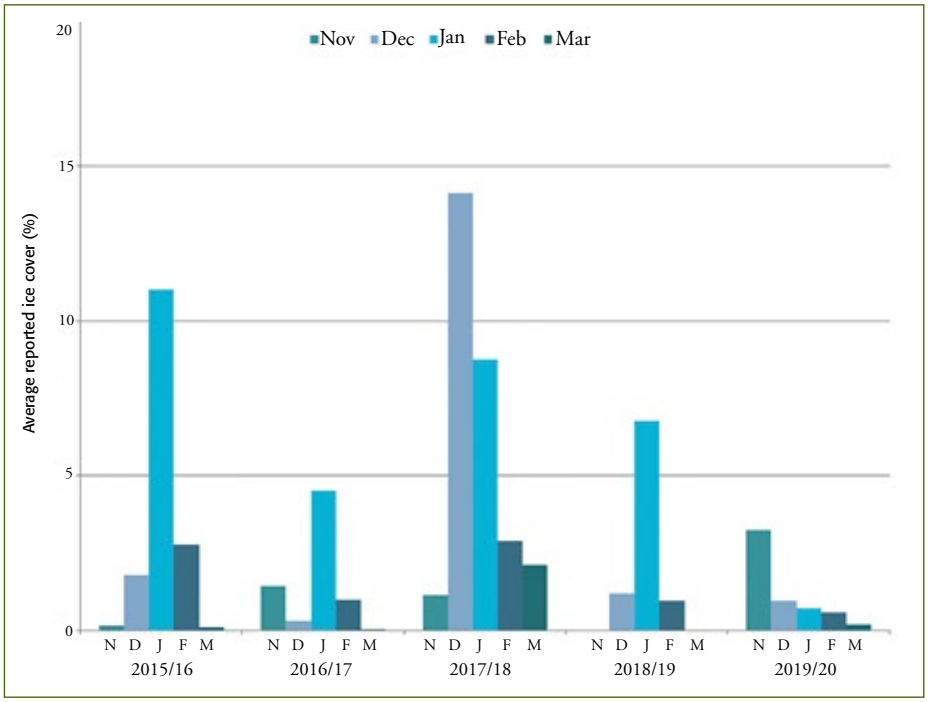
July and August 2019 saw above average temperatures and rainfall. The autumn weather was unsettled with slightly below average temperatures.

The winter was milder than average with very few cold periods. This was reflected in ice cover reported by WeBS Counters, with no months seeing significant ice reported. The highest proportion was, unusually, around the Core Count on 17 November, at a national average of 3.3%. The majority of sites affected were in central Scotland.

Rainfall totals were average from November to January, but it was the wettest February for at least 150 years. There were three named storms in February, with Storm Ciara coinciding with the Core Count on the 9 February. Only a third of the normal number of visits were able to be made on the Sunday, with another third moved to a day earlier and the remaining third missed. Winter river flows were normal or higher than normal across the whole country. The unsettled weather continued to mid-March but was followed by a dry, settled warm and sunny spring.

Winter temperatures were much milder than normal in the Baltic, and for Europe as a whole the winter was the warmest on record. This could be contributing to lower populations in winter of species such as Coot, Smew and Gadwall. The 2019 arctic breeding season was reported to be average or good at most research stations.

▲ WeBS sites counted between 14 and 20 November 2019 with recorded ice cover of 5% or more.



◀ Average WeBS sector ice cover for 2015/16–2019/20, as reported by Counters for the months November –March.

SOURCES

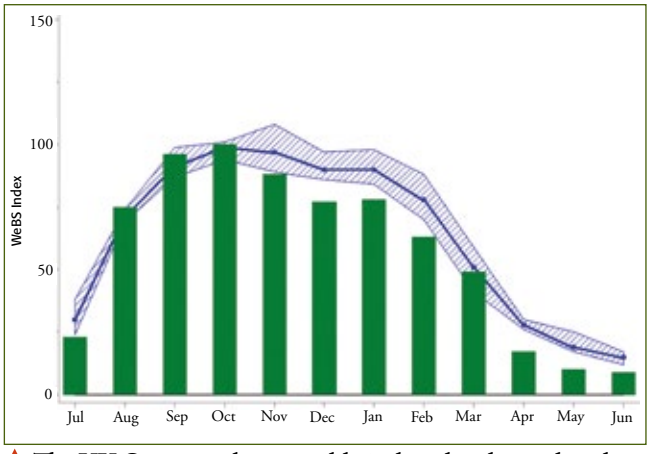
Climate summaries from: **metoffice.gov.uk** and **en.ilmatieteenlaitos.fi**

Hydrological summaries from: **nrfa.ceh.ac.uk**

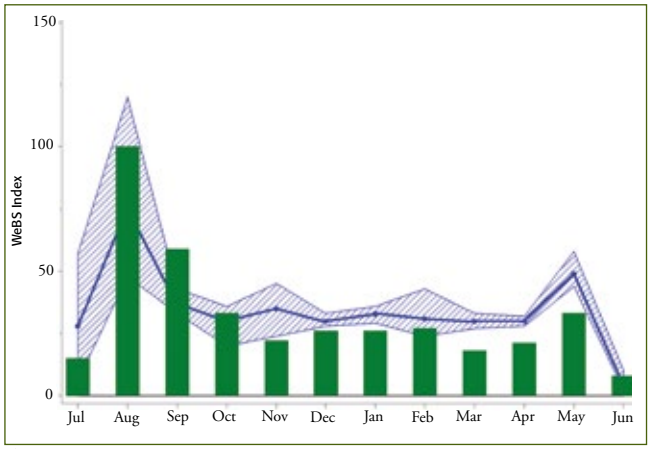
Arctic breeding from: **www.arcticbirds.net**

SANDERLING BY LIZ CUTTING/BTO

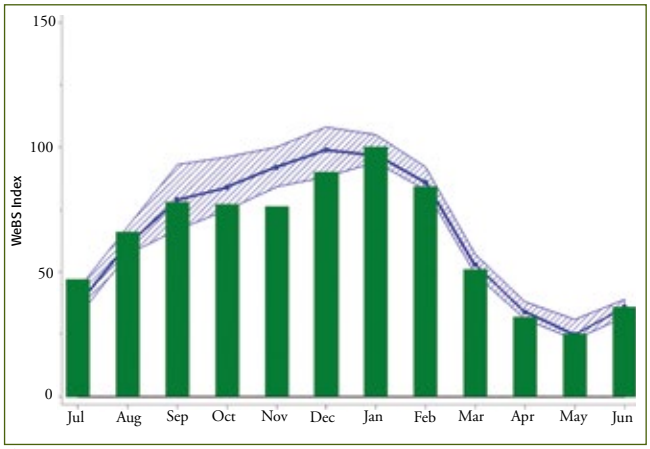
▲ **The number of counts on the Sunday priority core count date, the Saturday in the same weekend and other dates in the month in February 2020 (light green) compared with 2019 (dark green) shows the impact of Storm Ciara.**



▲ **The UK Oystercatcher monthly index plot shows that the number of birds present during the autumn were typical of recent years, but winter counts were lower than usual.** Green bars = 2019/20; blue line/hatched area = previous five-year mean/range.



▲ **The UK Sanderling monthly index plot indicates high passage in August, but low numbers of overwintering birds compared to recent years. This led to a fall in the annual index.** Green bars = 2019/20; blue line/hatched area = previous five-year mean/range.



▲ **The UK Gadwall monthly index plot shows numbers were lower than usual in October–December.** Green bars = 2019/20; blue line/hatched area = previous five-year mean/range.

National trends

A concise summary of how the UK's most familiar waterbirds fared in 2019/20.

Indices and smoothed indices are plotted in the WeBS Report Online for all waterbird species with sufficient data for the UK, Great Britain, Wales, Scotland, England and Northern Ireland. Annual species indices, smoothed indices, and 25- and 10- year trends are available under an Open Government Licence from **www.bto.org/webs-annual-report** as a spreadsheet download. Table 1 contains 25- and 10-year trends for the most abundant waterbird species for the UK and Table 2 contains the equivalent trends for Scotland, Northern Ireland, England and Wales. For further detail, please refer to the WeBS Report Online and spreadsheet download.

For the first time, 25-year trends are given for Egyptian Goose (+818%), Mandarin Duck (+336%) and Little Egret (+1400%).

GEESE & SWANS

Bewick's Swan (see pages 20–21), Taiga Bean Goose (see pages 22–23) and Icelandic Greylag Goose (see pages 18–19) all declined year-on-year as well as having 10-year and 25-year declining trends. European White-fronted Goose numbers were slightly up on the previous year but have declined by 70% since 1993/94.

Resident geese continue to do well with Canada Goose, Naturalised Barnacle Goose, British/Irish Greylag Goose and Egyptian Goose all stable or increasing.

DUCKS

Species that migrate from the east, including Mallard, Teal, Pochard, Goosander and Scaup (see pages 28–29), were down compared with the previous winter, likely related to the exceptionally mild weather across Europe (see page 8). Eider (excluding Shetland birds) and Mallard both had their lowest ever indices, and Scaup (10-year trend -60%) and Red-breasted Merganser (10-year trend -23%) their lowest index values since the 1980s.

WADERS

Many of the common wintering wader species are declining, with only Avocet, Black-tailed Godwit and Sanderling having long-term increases. The latest index values were lower than 2018/19 for declining species Oystercatcher (lowest index value except first year of series), Lapwing, Grey Plover, Bar-tailed Godwit (record low), Dunlin (record low), Purple Sandpiper (record low) and Redshank. Sanderling had a notably low index value after two years of high numbers.

Golden Plover, Ringed Plover, Curlew, Turnstone and Knot all saw higher numbers present during winter than the previous year, notwithstanding negative 10-year and 25-year trends. Knot counts were particularly noteworthy compared with the trend, with the highest index value since 2000/01 and the monthly index being higher than the previous five-year mean in every winter month except March.

GULLS

10-year and 25-year trends were negative for Black-headed Gull, Great Black-backed Gull, Lesser Black-backed Gull (see page 32) and Common Gull. Herring Gull is stable, with a 10-year trend of +1%.

Caution is advised when interpreting gull results as WeBS Core Count methodology is not ideal for this group so trends, whilst available online, are not included in Table 1.

OTHER WATERBIRDS

Declines continued for Moorhen (10-year trend -26%) and Coot (10-year trend -24%) which both saw record low index values. Most grebe and diver species have negative 10-year trends and had index values for 2019/20 lower than 2018/19 with the exceptions of Great Northern Diver (10-year trend +32%) which had a similar index to the previous year, and Red-throated Diver (10-year trend -24% and Red-necked Grebe (10-year trend -18%) which were slightly up on 2018/19. Uncertainty due to low numbers and incomplete coverage means most of these species are not included in Table 1.

There were record index values for Spoonbill (see pages 30–31) as well as Cattle Egret and Great White Egret both of which continue year-on-year increases; more Cattle Egrets were observed on WeBS counts than Great White Egret for the first time. Little Egret populations appear to be stabilising in Wales and England, but are increasing rapidly in Scotland and Northern Ireland (see page 13).

For all trend graphs see the online report:

www.bto.org/webs-reporting

GREAT CRESTED GREBE BY NEIL CALBRADE

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

	Species/population	25-year trend (1993/94–2018/19)	10-year trend (2008/09–2018/19)		Species/population	25-year trend (1993/94–2018/19)	10-year trend (2008/09–2018/19)
▬	Dark-bellied Brent Goose	-23	11	▼	Scaup	-47	-60
▬	Svalbard Light-b. Brent Goose	54	-27	n/a	Eider*	-27	-17
▼	Canadian Light-b. Brent Goose	85	10	▬	Goldeneye	-58	-26
n/a	Canada Goose	68	14	▬	Goosander	-6	14
n/a	Naturalised Barnacle Goose	348	81	▬	Red-breasted Merganser	-47	-23
▲	Greenland Barnacle Goose	115	23	▬	Little Grebe	71	-3
▲	Svalbard Barnacle Goose	164	32	▬	Great Crested Grebe	-8	-14
n/a	British/Irish Greylag Goose	165	21	▼	Little Egret	1,400	36
▼	Icelandic Greylag Goose	-6	-6	▼	Cormorant	54	30
▲	Pink-footed Goose	111	47	▬	Moorhen	n/a	-26
▼	Greenland White-fronted Goose	-34	-10	▬	Coot	-15	-24
▬	European White-fronted Goose	-70	-16	▬	Oystercatcher	-24	-16
n/a	Mute Swan	25	-4	▲	Avocet	255	20
▼	Bewick's Swan	-88	-81	▼	Lapwing	-40	-9
▲	Whooper Swan	239	36	▬	Golden Plover	-6	-14
n/a	Egyptian Goose	818	102	▼	Grey Plover	-44	-24
▬	Shelduck	-28	-11	▼	Ringed Plover	-50	-19
n/a	Mandarin	336	45	▼	Curlew	-33	-18
▲	Shoveler	62	17	▲	Bar-tailed Godwit	-21	-5
▲	Gadwall	120	10	▲	Black-tailed Godwit	188	26
▼	Wigeon	-1	-6	▲	Turnstone	-42	-21
▬	Mallard	-35	-15	▬	Knot	-13	-3
▬	Pintail	-25	-22	▬	Sanderling	22	-15
▲	Teal	24	7	▬	Dunlin	-45	-7
▼	Pochard	-69	-39	▼	Purple Sandpiper	-52	-16
▼	Tufted Duck	-6	-3	▼	Redshank	-21	-9

Trends are % changes of smoothed population index values for the most abundant waterbirds in the UK. *Eider trends exclude birds on Shetland (of *faeroeensis* race).

The longer term smoothed trend refers to the 25-year period 1993/94 to 2018/19. The shorter term smoothed trend refers to the 10-year period 2008/09 to 2018/19. Note, it is customary to truncate the final year when reporting smoothed trends, so whilst data from 2018/19 have been used in creating the smoothed index values, the trend period assessed and reported is until 2018/19.

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

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

Great Crested Grebe down 14% since 2008/09.

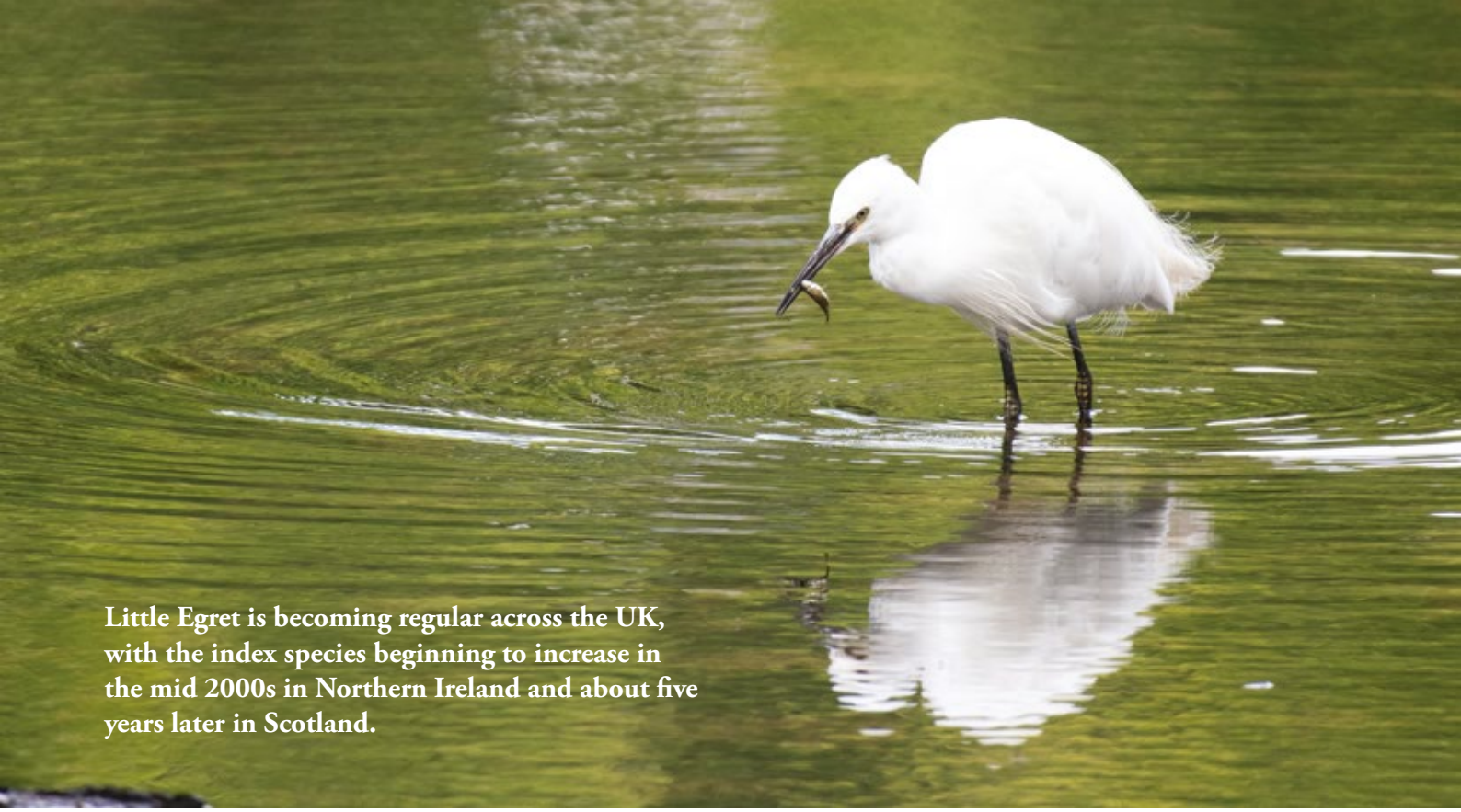
Table 2 Population trends of non-breeding waterbirds in the constituent countries.

Species/population	Scotland		Northern Ireland		England		Wales	
	25-year trend (1993/94–2018/19)	10-year trend (2008/09–2018/19)	25-year trend (1993/94–2018/19)	10-year trend (2008/09–2018/19)	25-year trend (1993/94–2018/19)	10-year trend (2008/09–2018/19)	25-year trend (1993/94–2018/19)	10-year trend (2008/09–2018/19)
Dark-bellied Brent Goose					-22	11	-70	-58
Svalbard Light-bellied Brent Goose	600	-38			52	-28		
Canadian Light-bellied Brent Goose	1,540	165	71	6	16,400	114	2,000	58
Canada Goose	767	100	1	22	48	10	500	23
Naturalised Barnacle Goose			152	-9	293	77	10,700	440
Greenland Barnacle Goose	66	-6						
Svalbard Barnacle Goose	164	32						
British/Irish Greylag Goose	4,100	50			165	24	126	-13
Icelandic Greylag Goose	-7	-6						
Pink-footed Goose	92	61			179	3		
Greenland White-fronted Goose	-32	-7						-48
European White-fronted Goose					-70	-15	227	10
Mute Swan	23	8	-24	28	29	-9	126	-12
Bewick's Swan			-100	-100	-88	-81	-90	-93
Whooper Swan	76	24	94	25	429	41	79	-35
Egyptian Goose					818	102		
Shelduck	16	10	6	-26	-35	-13	-2	-9
Mandarin					340	43		
Shoveler	-48	19	-31	10	68	17	51	-19
Gadwall	169	61	-18	55	116	6	514	177
Wigeon	-11	2	-37	12	1	-9	36	0
Mallard	-45	-15	-17	-6	-34	-16	-29	-10
Pintail	60	36	162	19	-38	-27	9	-50
Teal	54	26	50	20	18	2	26	13
Pochard	-79	-63	-75	-28	-63	-37	-78	-63
Tufted Duck	-2	4	-71	-1	23	-5	32	11
Scaup	-22	-26	-60	-77	-88	-54	-77	65
Eider *	-29	-23	179	-6	-48	-3	40	48
Goldeneye	-38	4	-89	-71	-38	-22	-43	-18
Goosander	-9	41			-10	-1	184	44
Red-breasted Merganser	-51	-7	-37	-23	-47	-33	-45	-43
Little Grebe	181	19	20	34	66	-10	80	-5
Great Crested Grebe	-38	-17	-51	-48	2	-7	95	-7
Little Egret		4,150		276	1,650	35	5,350	7
Cormorant	-25	-2	21	-15	79	41	62	22
Moorhen		4		3		-28		5
Coot	-38	6	-27	111	-12	-29	-29	-29
Oystercatcher	-37	-16	-21	-26	-24	-13	-13	-21
Avocet					255	20		
Lapwing	-58	-24	-59	-31	-39	-7	-17	-8
Golden Plover	-40	-11	-48	-36	5	-12	-38	-19
Grey Plover	-69	-57	-60	-37	-42	-21	-51	-47
Ringed Plover	-23	21	-51	-12	-57	-30	-54	-10
Curlew	-26	-12	-27	-17	-34	-21	-43	-14
Bar-tailed Godwit	-54	-16	27	47	-17	-7	-46	-24
Black-tailed Godwit	693	250	660	153	169	21	188	7
Turnstone	-47	-25	-55	-44	-38	-18	-15	35
Knot	-32	6	-55	-38	-10	-2	44	-26
Sanderling	261	51	1,569	52	7	-16	-1	-51
Dunlin	-37	26	-53	-7	-46	-7	-45	-23
Purple Sandpiper	15	-25	-62	-59	-65	5		
Redshank	-21	3	-29	-32	-22	-10	6	8

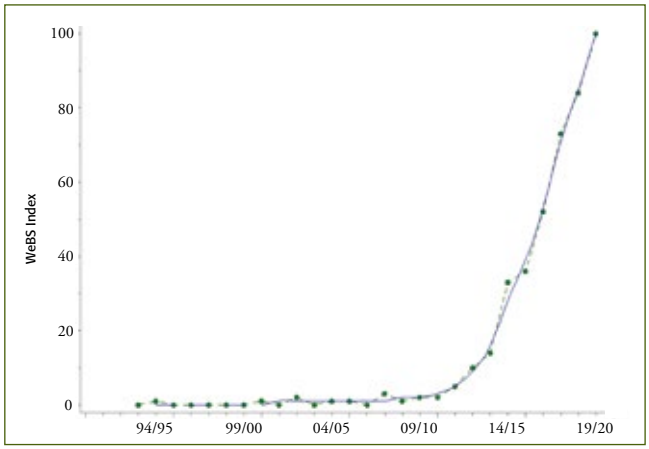
Trends are % changes of smoothed population index values for the most abundant waterbirds in the UK; note these may only be present in small numbers in some countries.
*Eider trends exclude birds on Shetland (of *faeroeensis* race).

The longer term smoothed trend refers to the 25-year period 1993/94 to 2018/19. The shorter term smoothed trend refers to the 10-year period 2008/09 to 2018/19. Note, it is customary to truncate the final year when reporting smoothed trends, so whilst data from 2019/20 have been used in creating the smoothed index values, the trend period assessed and reported is until 2018/19.

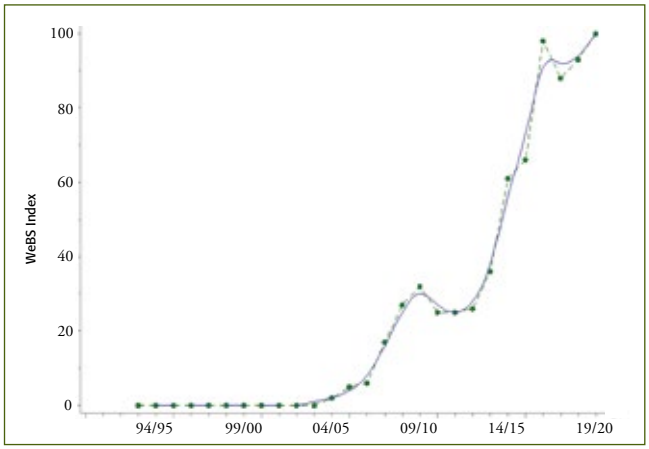
Trends use WeBS data except for Pink-footed Goose, Greenland White-fronted Goose, Icelandic Greylag Goose, Greenland Barnacle Goose, Svalbard Barnacle Goose and Canadian Light-bellied Brent Goose, for which dedicated censuses are undertaken (see page 5).



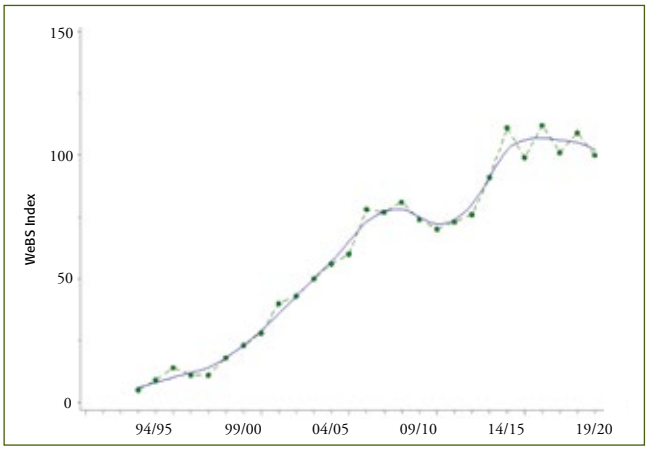
Little Egret is becoming regular across the UK, with the index species beginning to increase in the mid 2000s in Northern Ireland and about five years later in Scotland.



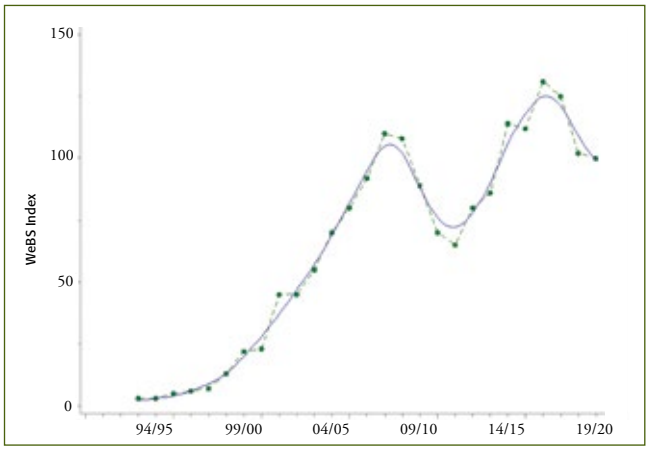
▲ **WeBS trend for Little Egret in Scotland.**
Green dots = annual index; blue line = smoothed trend.



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



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



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

LITTLE EGRET BY NEIL CALBRADE

Largest waterbird aggregations

The UK's wetlands support millions of waterbirds each winter.

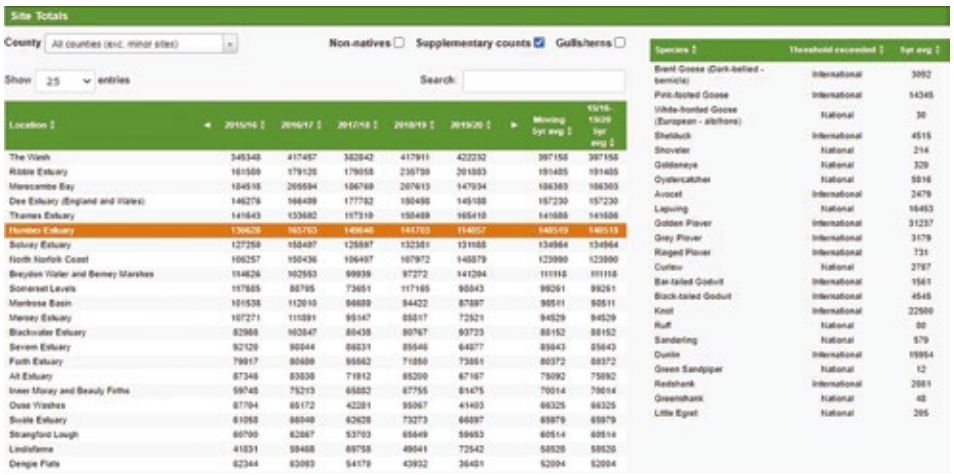
WeBS site totals indicate which sites support the largest aggregations of waterbirds each year. Understanding precisely how many individual birds use a site is clearly very difficult to ascertain from counts alone, as many sites are used by migrants on passage and consequently there can be high turnover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

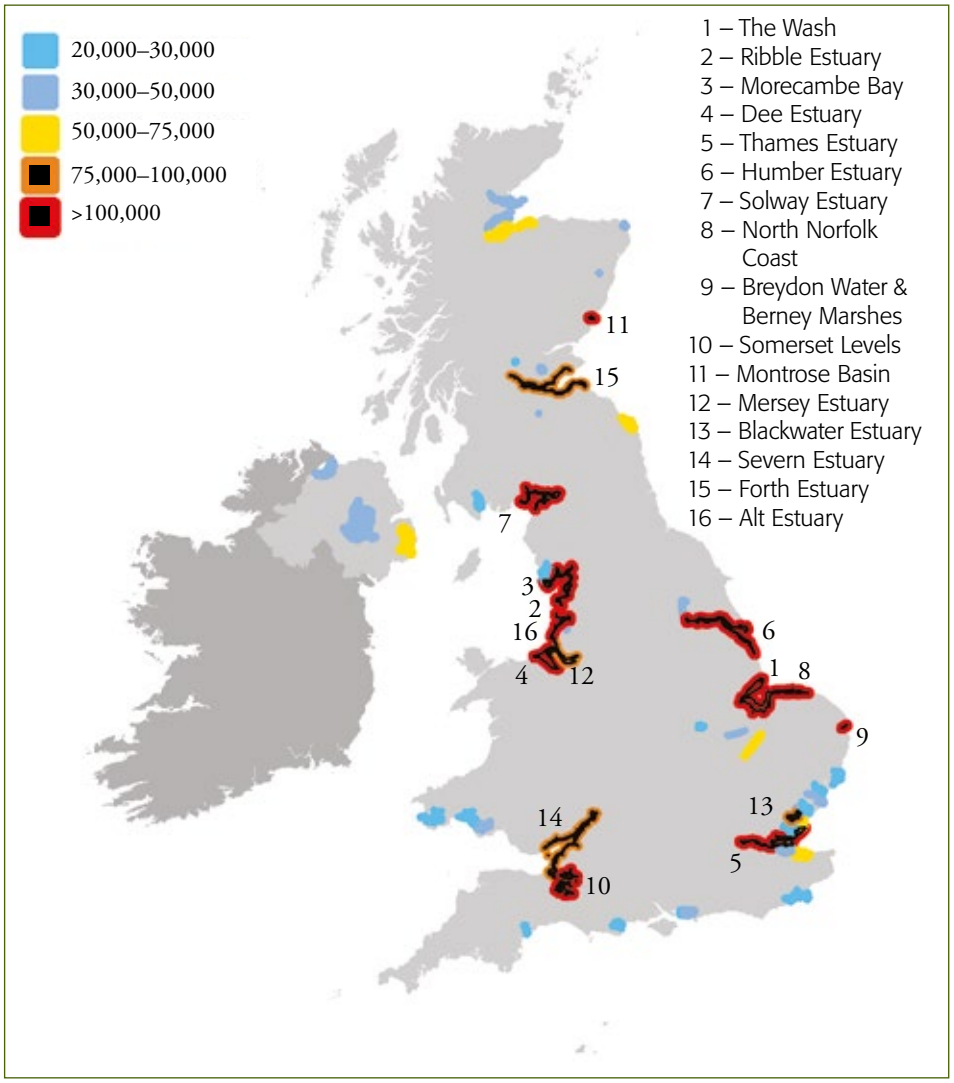
Table 3 lists the Principal Sites for non-breeding waterbirds. The totals are the summed counted maxima for each species during the course of the WeBS year (missing counts are not imputed; supplementary counts are included). Sites with a five-year average of 20,000+ waterbirds are listed. Non-native species (*e.g.* Canada Goose and Mandarin) have been excluded from the totals. Although an important component of a site's waterbird fauna, gulls and terns are also excluded, since the recording of them during WeBS Counts is optional.

In addition to Table 3, it is possible to view the totals for all WeBS sites via the WeBS Online Report 'Site Totals' tab. In the interactive table of sites, non-native species, gulls and terns and supplementary counts can be included or omitted as desired by the user. By default only the major sites with over 1,000 birds are listed, but the filter can be changed to all sites in a county or country. Selecting a site will show the species for which that site holds more than the national or international importance thresholds.

SITE FOCUS

The number of sites with a five-year average in excess of 100,000 birds fell to nine, two fewer than in 2018/19. Meanwhile, 51 sites had a five-year average in excess of 20,000 birds, which is three fewer than in 2018/19 with the Orwell Estuary, Carmarthen Bay and the Colne Estuary no longer appearing in the table opposite. The Ribble Estuary reclaimed second place in the principal sites table from Morecambe Bay.





▲ Top – Screenshot of Sites Totals page from the WeBS Online Report. Bottom – Sites with the largest waterbird aggregations in the UK.

Table 3 Principal Sites for non-breeding waterbirds in the UK.

Site	2015/16	2016/17	2017/18	2018/19	2019/20	5-year mean
The Wash	345,348	417,457	382,842	417,911	422,232	397,158
Ribble Estuary	161,580	179,128	179,058	235,780	201,883	191,485
Morecambe Bay	184,518	205,594	186,760	207,613	147,034	186,303
Dee Estuary (England and Wales)	146,276	166,409	177,782	150,498	145,188	157,230
Thames Estuary	141,643	133,602	117,310	150,469	165,410	141,686
Humber Estuary	130,628	165,763	149,648	141,703	114,857	140,519
Solway Estuary	127,250	158,407	125,597	132,381	131,188	134,964
North Norfolk Coast	106,257	150,436	106,407	107,972	148,879	123,990
Breydon Water and Berney Marshes	114,626	102,553	99,939	97,272	141,204	111,118
Somerset Levels	117,885	88,765	73,651	117,165	98,843	99,261
Montrose Basin	101,538	112,010	96,689	94,422	87,659	98,470
Mersey Estuary	107,271	111,891	95,147	85,817	72,521	94,529
Blackwater Estuary	82,988	102,847	80,438	80,767	93,723	88,152
Severn Estuary	92,120	98,844	86,831	85,546	64,877	85,643
Forth Estuary	79,917	80,680	95,562	71,850	73,851	80,372
Alt Estuary	87,346	83,838	71,912	65,200	67,167	75,092
Inner Moray and Beauly Firths	59,748	75,213	65,882	67,755	81,475	70,014
Ouse Washes	87,704	65,172	42,281	95,067	41,403	66,325
Swale Estuary	61,058	66,040	62,628	73,273	66,897	65,979
Strangford Lough	60,700	62,867	53,703	65,649	59,653	60,514
Lindisfarne	41,831	59,468	69,758	49,041	72,542	58,528
Dengie Flats	62,344	63,093	54,170	43,932	36,481	52,004
Stour Estuary	54,283	42,780	37,933	53,091	38,119	45,241
Cromarty Firth	43,413	56,092	44,333	39,037	38,769	44,328
Loughs Neagh and Beg	38,345	41,980	35,799	52,644	46,243	43,002
Hamford Water	46,142	49,617	35,125	42,119	41,196	42,839
Chichester Harbour	42,242	46,844	47,601	39,062	33,658	41,881
Loch Leven	34,530	39,973	44,812	44,622	39,016	40,590
Nene Washes	34,682	42,795	50,823	31,918	39,728	39,989
Medway Estuary	32,618	42,499	36,274	43,544	43,327	39,652
Burry Inlet	44,265	33,695	48,066	38,110	18,208	36,468
Loch of Skene	33,349	35,969	29,724	57,377	25,113	36,306
WWT Martin Mere	45,859	44,712	44,323	25,988	18,116	35,799
West Water Reservoir	83,148	15,300	48,414	24,204	6,800	35,573
Lower Derwent Ings	35,647	41,267	36,748	29,023	34,493	35,435
Abberton Reservoir	32,911	29,780	27,400	45,478	37,595	34,632
Lough Foyle	32,046	35,317	32,005	36,477	29,991	33,167
Crouch-Roach Estuary	24,311	30,337	25,620	26,988	55,436	32,538
Dornoch Firth	24,851	36,479	37,470	29,920	25,712	30,886
Loch of Strathbeg	43,837	41,352	19,445	23,170	23,908	30,342
Langstone Harbour	29,091	31,534	25,775	24,324	25,745	27,293
Carsebreck and Rhynd Lochs	26,841	22,806	31,218	26,576	27,571	27,002
Alde Estuary	25,774	29,810	25,071	22,393	30,416	26,692
Dungeness and Rye Bay	25,444	26,669	24,958	28,540	22,142	25,550
Duddon Estuary	19,473	27,634	26,461	23,218	29,474	25,252
Poole Harbour	21,329	26,184	24,215	25,688	27,798	25,042
Cleddau Estuary	20,959	30,765	22,936	24,836	21,931	24,285
Rutland Water	22,521	24,274	21,674	21,395	25,213	23,015
Exe Estuary	24,806	23,930	22,823	21,626	19,484	22,533
Wigtown Bay	21,843	22,228	19,451	26,828	16,421	21,354

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

Goose & Swan Monitoring Programme

An overview of goose and swan monitoring in the UK.

By **Colette Hall** WWT

Every year, thousands of geese and swans migrate to Britain and Ireland from their arctic breeding grounds to winter in various wetland habitats, such as inland waters, coastal grazing marshes and estuaries, as well as agricultural habitats that are predominately utilized as feeding areas. The countries support eleven native goose and two migratory swan populations, with almost the entire population of eight of these wintering there.

It was recognised during the early decades of wildfowl monitoring that standard daytime counts at wetland sites (like the WeBS counts) only picked up a fraction of the total number of geese and swans present due to birds leaving their roosts early in the day to feed on *e.g.* farmland: though there are a few exceptions. Hence, separate censuses were gradually developed and in due course the Goose & Swan Monitoring Programme (GSMP) was established (see Table 4).

The GSMP monitors the abundance and breeding success of the UK's native geese and migratory swans during the non-breeding season. It is a partnership between WWT, JNCC and NatureScot, with the Secretariat currently held at WWT. While WWT coordinates the GSMP, a number of the censuses are run by other organisations, often with separate funding. Although the GSMP is a UK-based programme, through collaboration with colleagues elsewhere in Europe, the programme reports on the status of each population at a flyway scale.

Unlike the WeBS counts, the goose and swan surveys aim to assess the overall size of the wintering populations. The difference in ranges and population sizes necessitates a different census

PINK-FOOTED GOOSE BY CHRIS KNIGHTS/BTO

for each and in some cases an internationally coordinated survey is required to cover the whole population. The varying resources and costs needed to monitor each population also affects how often a complete census can be undertaken.

As well as monitoring abundance, the GSMP also collates data on annual reproductive success. Age assessments are mainly carried out at wintering and autumn stop-over sites and comprise two measures: the proportion of young (first-winter) birds in non-breeding flocks and the average brood size. As the timing of migration and post-juvenile moult differs between species, the time period in which breeding success data can be collected varies between species.

Data from the goose and swan censuses are used for many of the same purposes as WeBS data, such as, conservation and policy (*e.g.* designation of important sites, meeting commitments of international conventions), UK indicators and assessments (*e.g.* APEP population estimates, Birds of Conservation Concern status assessments) and environmental impact assessments (*e.g.* for developments). Data are also used for other conservation purposes throughout Europe, for example, by the AEWA European Goose Management Platform, which addresses the conservation and management of goose populations in Europe.

In some circumstances, the level of skill needed and the coverage required to monitor a particular goose or swan population means it is necessary to involve trained staff or contract individuals to carry out the fieldwork. However, the vast majority of surveys are carried out by networks of volunteers, without whom many of these surveys would not be possible.

For further details see the GSMP website at: **https://monitoring.wwt.org.uk/our-work/goose-swan-monitoring-programme**

Table 4 The GSMP monitors the abundance and breeding success of the UK's native goose and migratory swans by collating data from a variety of sources.

Population	Abundance	Breeding success
Icelandic Whooper Swan NW European Bewick's Swan	Monitored annually by WeBS and I-WeBS (partial coverage of populations). International Swan Census. Complete census every five years in January. Coordinated across Europe. Surveys involve ground and aerial counts (latter in Iceland and Ireland). Next census in 2025.	Annual surveys in Britain and Ireland, once a month from November to January: includes a coordinated survey with the rest of Europe.
Greenland/Iceland Pink-footed Goose	Icelandic-breeding Goose Census. Annual coordinated census in each of October and November, with a three-yearly coordinated survey in spring. Covers Iceland, Faeroes, South Norway, Ireland and Britain. Surveys involve ground counts and aerial surveys (latter in Iceland).	Annual survey in autumn at sites in England and Scotland.
Icelandic Greylag Goose		Annual survey in autumn at sites in Caithness, Scotland, only: few sites known to predominately hold Icelandic Greylags during the winter.
British/Irish Greylag Goose	The UK trend for the population is monitored through WeBS. Annual counts and age assessments at key sites in Scotland where Greylags are actively managed. Surveys usually carried out in late summer.	
Taiga Bean Goose	Surveys at the two key sites. Slamannan Plateau, Falkirk: annual counts and age assessments organised by the Bean Goose Action Group. Yare Marshes, Norfolk: annual counts carried out by RSPB.	
European White-fronted Goose	The UK trend for the population is monitored through WeBS.	Annual survey at sites in England, usually in January to synchronise with the International Waterbird Census (IWC) counts when age assessments take place elsewhere in Europe.
Greenland White-fronted Goose	Complete census and age assessments undertaken annually. Organised by the Greenland White-fronted Goose Study. Covers Britain and Ireland. One coordinated count in autumn and one in spring, plus counts from any month November–February.	
Greenland Barnacle Goose	Annual counts at key sites in Scotland during the winter. International Greenland Barnacle Goose Census. Complete census every 3–5 years, usually in spring, covering all sites in Ireland and Scotland. Surveys involve ground and aerial counts.	Annual surveys at key sites in Scotland during the autumn/winter.
Svalbard Barnacle Goose	Annual census carried out at the Solway Estuary, with counts each month from October to May.	Annual surveys at the Solway Estuary in autumn.
Dark-bellied Brent Goose	The UK trend for the population is monitored through WeBS.	Annual surveys at sites in England, from September to March.
Canadian Light-bellied Brent Goose	Complete census and age assessments undertaken annually. Organised by the Irish Light-bellied Brent Goose Research Group. Covers Britain, Ireland, Iceland and France. One coordinated count in autumn and one in spring.	
East Atlantic Light-bellied Brent Goose	The UK trend for the population is monitored through WeBS.	Annual surveys at Lindisfarne, Northumberland, with adhoc age assessments at other sites in England if birds are present.

Monitoring mayhem – when two populations of the same species merge!

The difficulties in monitoring the population of Icelandic Greylag Geese.

By **Kane Brides** WWT

Monitoring goose populations of the same species in Britain and Ireland is relatively straightforward thanks, in part, to the almost distinct separation in sites frequented by each: such as the Solway Firth and the west coast of Scotland being home to the Svalbard and Greenland populations of Barnacle Goose, respectively. Unfortunately, however, this is not the case for the Iceland Greylag Goose population. As their name suggests, Iceland is probably the only location where these Greylags can be identified and classified to population level in the field, without the need to use telemetry, colour-marking or isotope analysis. However, somewhere over the Atlantic once autumn migration is underway, the population crosses an invisible line and as the geese arrive in Britain and Ireland to winter, with no difference in plumage, the Icelandic birds blend in beautifully with the British/Irish population.

So what now? Some may ask why counts are not undertaken in Iceland before autumn migration commences: count them when they are separate to their British/Irish counterparts. A number of things either prevent this from happening or make it difficult to achieve, such as the population's wide distribution throughout Iceland, often in difficult and inaccessible locations. What about trying to count them as they gather on the southern lowlands of Iceland just prior to migration? Again, this is not easy. The vast flocks consisting of thousands of birds can often hide themselves away in tall crops of Barley fields, twinned with the Greylags merging with feeding flocks of Greenland White-fronted and Pink-footed Geese prior to migration, makes separation of the species during aerial surveys difficult. Finally, Iceland's waterbird monitoring network is not as geared up to undertake population estimate counts at such scale, as we are in Britain and Ireland.

Therefore, the majority of data used to assess the population size of the Iceland Greylag Goose is collected in Britain and Ireland, thanks to the sterling efforts of the GSMP volunteers. Whilst WeBS covers many wetland sites in Britain, the dispersal of Greylag Geese to non-wetland habitats (usually farmland) during the day to feed means that large numbers of geese can often go undetected during WeBS counts. Therefore, specially designed surveys are used and the Icelandic-breeding Goose Census (IGC) has been assessing the population of Icelandic Greylag Geese annually since 1960.

Counts are undertaken during November when the bulk of the Icelandic population have arrived in Britain and Ireland. In order to produce an updated population estimate each year, the GSMP team must take in to account several things. It is vital that we have the most up to date estimate of the number of British/Irish birds in the key areas where the Icelandic birds winter. However, this information is lacking for many areas and we mainly rely on local knowledge and information sent in by Local Organisers and counters: with the exception of Orkney, the main stronghold for the Icelandic birds, where a summer survey of British Greylags has been undertaken. Being a quarry species, we also need to take in to account any birds from the British/Irish population that have been harvested prior to the Icelandic birds arriving. Such information is hard to come by, as it is not routinely collected in Britain and Ireland. However, it is available for Orkney and the number of shot birds between a certain period is deducted from the total count of British Greylags for the site. Estimates of the number of British/Irish birds present are then deducted from the winter counts to produce the overall Icelandic population estimate.

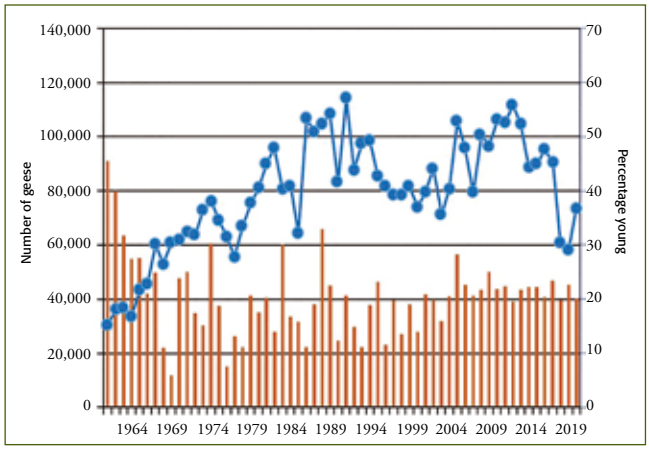
Due to the overlap between the two populations, it has also become increasingly difficult to undertake age assessments of the Icelandic Greylags, and there are now very few sites where the wintering geese present are thought to be predominately from the Icelandic population. There is only one area – Caithness, Scotland – where breeding success is now assessed, and even these surveys have become more difficult in recent years, with very small sample sizes monitored. As per the abundance counts, carrying out age assessments in Iceland could be an alternative; however, this also brings with it similar issues to those mentioned above.

The fortunes of Icelandic Greylag Geese over the 60 years of the IGC have shown both increases and decreases in population size over time (Figure 1). From 1960, the population showed a steady increase to an all-time high of 114,393 in 1990. Between 1991 and 2004, the population showed signs of decline and fluctuated between 71,000–98,000 birds. The birds' accessibility to hunting in Iceland has led to over 30,000 being harvested annually and during the 1990s there were fears that that level of hunting was unsustainable. However, with a shift in winter distribution during the 2000s, which now sees 50–60% of the entire population on Orkney and a reduction in the number being shot during the winter, the

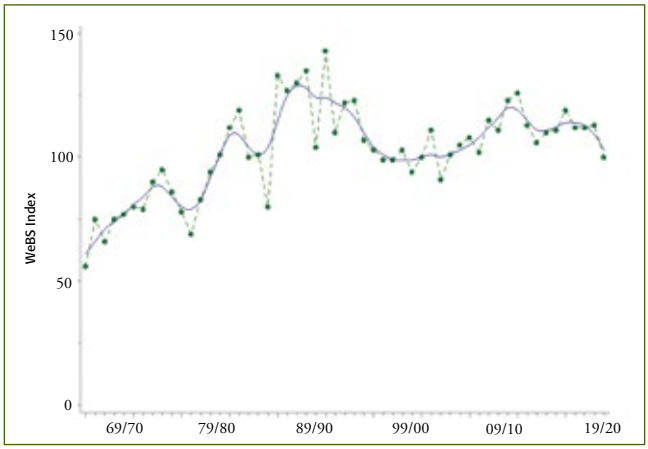
GREYLAG GOOSE BY TOM STREETER/BTO

population appeared to stabilise, climbing back up to over 100,000 birds between 2009–12, although there are signs that the population has started to decline again in very recent years.

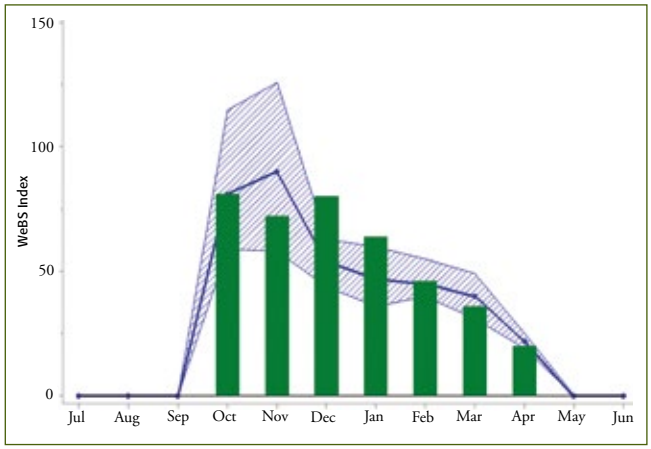
Population estimates derived from monitoring Icelandic-breeding geese have largely been gathered by volunteer counters and their efforts have been rewarded with a far better understanding of the distribution and abundance of geese in Britain. However, as we look towards the future, challenges still do lie ahead. Given the recent possible declines, the trajectory of the Icelandic Greylag Goose population needs carefully monitoring and countries across the flyway need to continue working together to explore options that could help better monitor this population.



▲ **Figure 1.** The population estimate (line) and percentage of young (columns) for Icelandic Greylag Goose, 1960–2019.



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



▲ **Monthly indices for Icelandic Greylag Goose in the UK.** Green bars = 2019/20; blue line/hatched area = previous five-year mean/range.

Northwest European Bewick's Swans: a national and flyway perspective

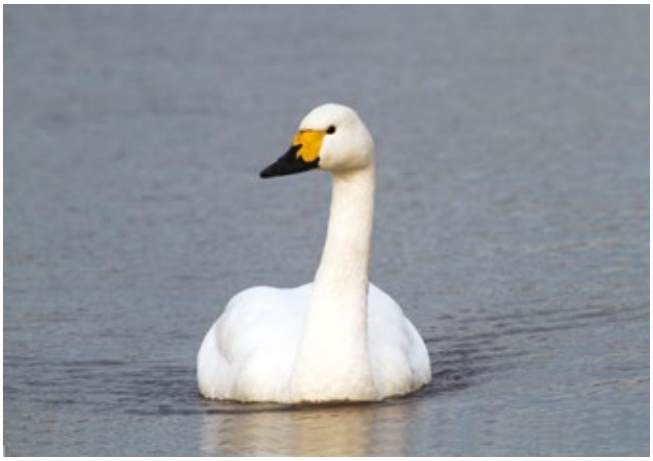
Analysing the decline of Bewick's Swan across Europe.

By **Eileen Rees** WWT

The Bewick's Swan *Cygnus columbianus bewickii*, the Palearctic subspecies of the Tundra Swan, is one of the most iconic migratory waterbirds to visit our shores. It breeds across the Russian arctic tundra but follows geographically separate migration routes to the wintering grounds, resulting in three populations currently described based on its winter distribution: the NW European, Caspian and Eastern populations (Rees 2006). Recent tracking studies have found additional separation within the Eastern population, with two subpopulations identified, which follow the 'East Asian continental flyway' to China and the 'West Pacific flyway' to Japan respectively (Fang *et al.* 2020).

Of the three main populations, the NW European Bewick's Swan population is certainly the best known. Detailed observations of individual birds wintering at WWT Slimbridge in SW England, identifiable by their natural bill markings, were famously initiated by Peter Scott and his family in winter 1963/64, and a ringing programme commenced in 1967 to gain information on the birds during migration or if they changed wintering sites. Since then, interest in the species has expanded into a population-level study, with a network of ornithologists identifying colour-marked birds sighted throughout the range. Over the years, WWT and other research groups have caught and marked the swans with leg rings and neck collars at different sites during winter (in the UK, Netherlands and Belgium), on the staging grounds (in Estonia) and in the breeding and moulting areas (in Russia). Tracking individuals fitted with GPS loggers, following technological advances in the 21st century, has also confirmed migration routes and site use at different times of year, including emphasising the importance of areas within European arctic Russia for the species during the summer months.

Population estimates have been made for the Eastern population only relatively recently (Fang *et al.* 2020), and the size and distribution of the Caspian population remains far from clear. Numbers in the NW European conversely have been monitored closely for over 50 years. Initially population size and trends were determined from the International Waterbird Censuses (the IWCs), which synthesises the systematic surveys of waterbirds at wetland sites undertaken by national count programmes across Europe. From the mid-1970s onwards, however, Bewick's Swans increasingly flew to arable land to feed during the day, and it was felt that total population size estimates derived from the IWCs were not sufficiently



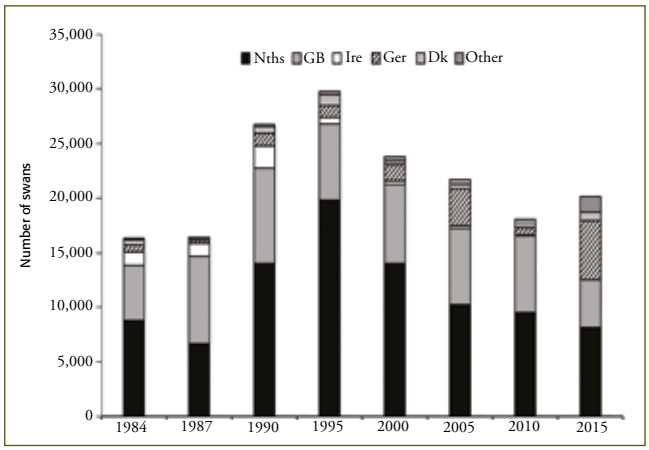
BEWICK'S SWAN BY JOHN HARDING/BTO

accurate, for instance for determining sites of international importance for the species. Coordinated International Swan Censuses (the ISCs) therefore were introduced for Bewick's Swans across Europe in the mid-1980s, undertaken under the auspices of the Wetlands International/IUCN-SSC Swan Specialist Group. The ISCs extended to include the Icelandic and NW Mainland European Whooper Swans in 1986 and 1990 respectively, and these have been made at five-year intervals since then. Collation and publication of census results for the Icelandic Whooper Swan population is now undertaken within the GSMP, with the GSMP also collating and contributing the UK component of the international Bewick's Swan census results.

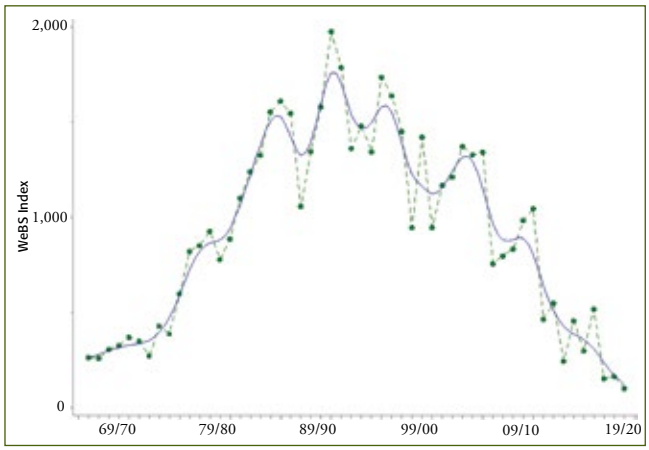
During the early years of monitoring Bewick's Swans across Europe, the IWCs put the population size at *c.*6,000–7,000 birds in the late 1960s, rising to to 9,000–10,000 by the mid-1970s, and both the IWCs and the ISCs estimated 17,000–18,000 birds by the mid-1980s (Rees 2006, Beekman *et al.* 2019). Numbers increased further in the late 1980s and early 1990s to a peak of 29,780 birds in January 1995, followed by a rapid (39%) decline to 18,057 birds recorded in January 2010 (Beekman *et al.* 2019, Figure 2). The scale and the rate of change gave great cause for concern, and an International Single Species Action Plan (ISSAP) developed for the NW European population was adopted by AEWA in May 2012. The initial remit was to halt the ongoing decline and the overall goal is to hold the population minimally at its 2000 level (*i.e.* 23,000 birds; Nagy *et al.* 2012). The 2015 census encouragingly showed a partial recovery to 20,149 birds, and changes in distribution across the wintering range were also recorded.

In addition to the population decline, a shift in winter distribution has also occurred in recent years, with a higher proportion of the population now remaining in more easterly countries (notably Germany) in mid-winter. Only a handful of birds now migrate as far west as Ireland, whereas >1,000 reached there during the 1980s. The proportion of birds wintering in Britain held up well until 2010, but by 2015 there was a marked increase in the proportion of the population wintering in Germany and a concomitant drop in the proportion recorded wintering in Britain and Ireland (Beekman *et al.* 2019, Figure. 2). This finding was supported by analysis of colour-mark sightings, which showed that individuals have decreased their migratory distances with warmer winters, and now remain further east (Nuijten *et al.* 2020a).

In addition to taking forward active conservation measures, the Action Plan includes requirements to continue monitoring the status of the population and to determine the drivers of population change. Population modelling indicates that low productivity has been a main reason underlying the population trends over the years (Nuijten *et al.* 2020b). Moreover, an average of 9.1% juvenile birds recorded during annual age assessments in the Netherlands and the UK during winters 2010/11–2019/20 inclusive (Tijsen & Koffijberg 2020) is insufficient to offset adult mortality of *c.*13–23% per annum (Wood *et al.* 2018). The results of the January 2020 census, currently being compiled, will inform the 10-year review of the ISSAP scheduled for 2022, including assessing whether a new ISSAP is required for the species. The 2020 census has also been extended to include countries that provide wintering haunts for the Caspian population, to provide better information into the future of potential population-level shifts in distribution between wintering areas.



▲ **Figure 2.** Total number of Bewick's Swans recorded in each range country during the International Swan Censuses (ISC), from Beekman *et al.* (2019).



▲ **WeBS trend for Bewick's Swan in the UK.** Green dots = annual index; blue line = smoothed trend.

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Eye of the Taiga

Studying the Slamannan Plateau population of Taiga Bean Geese.

By **Angus Maciver** and **Brian Minshull** Bean Goose Action Group

There are just two wintering populations of Taiga Bean Geese in the UK: one associated with the Yare Valley in East Anglia, which has dwindled to just a few individuals present for a relatively brief period each winter, as a result of 'short-stopping' caused by climate change; and a second, larger, population on the Slamannan Plateau in Central Scotland.

The Taiga Bean Geese which winter on the Slamannan Plateau have been intensively monitored by keen amateur ornithologists since they were first discovered to be using fields there for feeding purposes in the late 1980s (at which time they were roosting at Carron Valley Reservoir some 12 kilometres to the northwest).

Data relating to field usage patterns (number of birds in individually denoted fields) have been collected on a regular basis throughout each of the subsequent wintering periods following broadly the same methodology that was established by John Simpson during winter 1989/90. This invariably has involved several visits to locate feeding or loafing flocks of birds each week, from when the birds first appear in early autumn until when the last birds disappear in early spring. Other visits are also made to undertake roost counts at the various waterbodies on the Plateau the geese now use for roosting purposes.

For much of this time, this routine monitoring has been conducted under the auspices of the Bean Goose Action Group (BGAG). This is a group of people representing various statutory and non-statutory bodies (including NatureScot, two unitary authorities, RSPB, *etc.*) together with various local ornithologists. BGAG is committed to delivering the Local Biodiversity Action Plans (LBAPs) of the two unitary authorities involved (Falkirk and North Lanarkshire), and so furthering the conservation and protection of this unique wintering population of Taiga Bean Geese.

▲ **Taiga Bean Goose 7T during processing in October 2013.**

The monitoring involved has generated a wealth of data, and is a very good example of the value of 'citizen science'. For example, an SPA was devised and designated in the mid-2000s to provide for better protection of the geese, and this process was facilitated by the robust dataset already available. Throughout the vast majority of this time, the routine monitoring has been led by Angus Maciver, who is referred to as the Bean Goose Monitoring Officer, and is very much central in the small team of volunteers who undertake this key work.

However, nowadays, the traditional monitoring is complemented by modern technology. A long-held aspiration of the LBAPs was to achieve the catching and marking of some of the Taiga Bean Geese.

Eventually, (after several false starts when others suggested it wasn't going to be possible) Carl Mitchell and Larry Griffin of the WWT attempted a catch in October 2011. After three days, 15 birds were successfully cannon-netted and marked. At this time only five Bean Geese had previously been ringed in Britain and Ireland.

Subsequently, a further 32 birds have also been captured and marked. Some of those captured have been fitted with tracking devices which have revealed huge amounts about these birds. The tracking has added greatly to our understanding of movements of birds whilst they are wintering on the plateau, complementing what was already known from monitoring using conventional approaches.

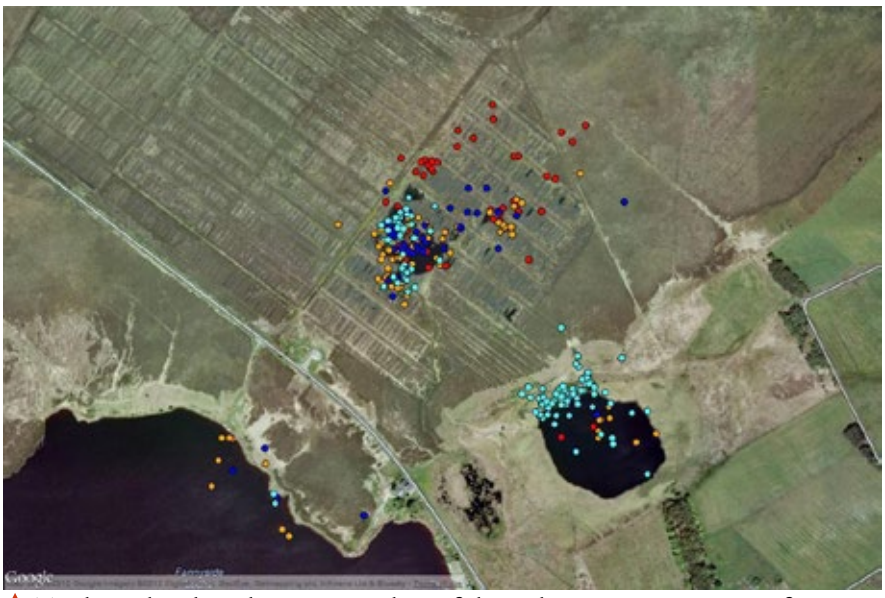
TAIGA BEAN GOOSE BY BEAN GOOSE ACTION GROUP

The tracking has been revelatory about the lives of the birds when they are not on the Plateau. Whilst it was always suspected that they originated from breeding grounds somewhere in Scandinavia, we know now precisely where the sub-population involved breeds, and further, we know about 'stepping stones' or staging areas the birds use between the breeding grounds and the Slamannan Plateau or vice versa during the autumn and spring migrations.

Although the first batch of tracking devices fitted to birds captured in October 2011 failed to work, within months of this huge disappointment we were thrilled to hear that some of 'our' neck-collared birds had been reported on staging grounds north of Oslo by Simon Rix (aka the 'Oslo Birder'). This relates to what is one of the most rewarding aspects of working on these birds; Simon is very much part of an ever-increasing international network of committed individuals all working in the same sub-population of taiga bean geese wherever they are in the flyway, be it Scotland, or Denmark, or Norway, or Sweden.

The tracking data have already provided for a series of papers relating to these fascinating birds.

We very much hope we can continue to improve the conservation status of the Scottish wintering population of Taiga Bean Geese.

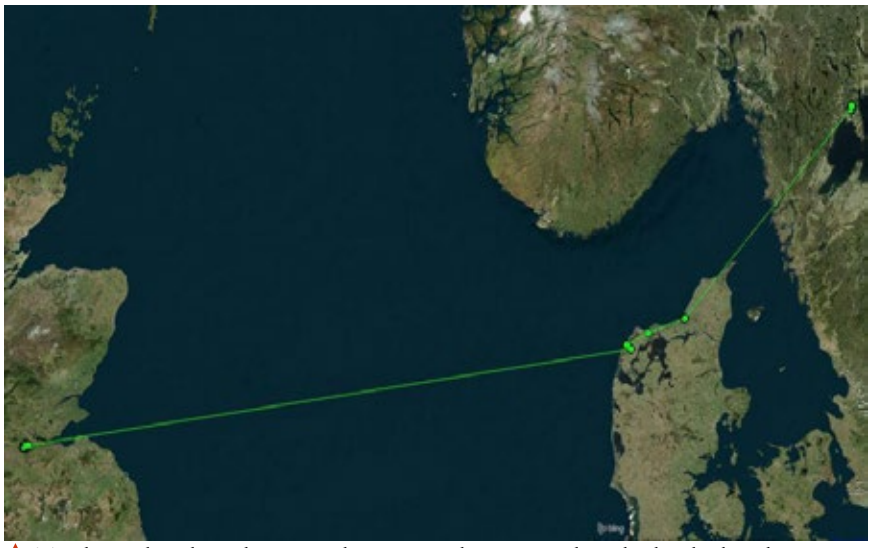


▲ **Tracking data have been extremely useful in relation to monitoring of roosting activity, as this image indicates.**

However, as ever, in such situations, resources are a significant issue. We are entirely dependent on voluntary effort; although some mileage expenses are funded, the volunteers give up their time purely for the privilege of working with these birds. Further, recently we were very sorry to learn that Carl Mitchell and Larry Griffin have left WWT but we very much hope that they can continue to be a crucial part of our team all the same. Lastly, just as we are really beginning to understand more and more about 'our' birds we have initial indications that in the next few decades we may lose them.

Some marked birds are known to have been short-stopping in Denmark in the past couple of winters, and initial analysis of the first and last known dates the birds are present on the plateau each winter indicates that the wintering period is getting shorter and shorter; when monitoring began in the late 1980s birds were present on the plateau until as late as mid-March, nowadays they are all leaving by early February.

This is a dramatic pace of change, showing how adaptive the birds are. As we often say, "the more we know, the less we know".



▲ **Tracking data have been revelatory in relation to what the birds do when not on the Slamannan Plateau; this image indicates the migration route of the bird referred to as Tag 7T in spring 2015.**

FIND OUT MORE

Bean Goose Action Group. 2021. Scotland's Bean Geese. **https://sites.google.com/view/scotlands-bean-geese/home**

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Drones and wintering waterbirds

The use of drones for monitoring waterbirds has been put forward as a possible tool, but the disturbance they cause may limit their use.

Drone use has increased sharply in recent years, facilitated by mass production and much-reduced retail prices. To research impacts, and possible use of drones for monitoring outside the breeding season, BTO scientists flew a commercially available quadcopter drone towards waterbird flocks in coastal, freshwater and arable farmland habitats around the Firth of Forth. While one researcher flew the drone at a standardised speed and height, another observed the flocks through a telescope to record any responses to the drone as it approached, including alarm calls, signs of heightened alert levels and taking flight.

The results showed that larger flocks were more likely to take flight than smaller flocks, and large flocks also took flight at a greater distance from the drone than smaller flocks. This is probably because the larger the flock, the more likely there is to be a sensitive individual present – in almost all cases, once one bird had responded to the drone, the rest of the flock followed. Habitat type also had a strong effect on birds' responses to drones. Birds at inland lochs, which were already subject to lots of human activity, were found to be very unlikely to respond to drone presence, while birds at coastal sites were more likely to respond. Birds in arable farmland were particularly sensitive – flocks feeding in this habitat are probably more susceptible to disturbance because of the need to be vigilant to potential predators.

This research suggests that off-the-shelf quadcopter drones are unlikely to be a useful aide for WeBS and other non-breeding waterbird monitoring. It has been suggested that images from drones for counting large flocks could be useful, especially at sites where viewing is difficult, but this study suggests that large flocks are likely to flush at coastal and arable sites as a drone approaches. Disturbance caused by such monitoring would have to be carefully evaluated.

The mass proliferation of drones and the likelihood of commercial and recreational drone use taking place in proximity to wildlife creates a new and potentially significant source of disturbance to wild birds. Such disturbance causes birds to waste energy and reduces their feeding time. In extreme cases, birds might stop using an area altogether and be forced to feed elsewhere, where feeding opportunities may be poorer or the risk of predation higher. This could be particularly harmful during the cold winter months. If recreational drone use were to become more frequent at important sites for our wintering waterbirds, and birds did not become accustomed to this novel form of disturbance, then the resulting increases in energy expenditure and stress may negatively affect their populations.

Inland lochs – few flocks flushed

Coastal sites >50% flocks flushed

Stubble fields – all flocks flushed

▲ The study found larger flocks and waterbirds in arable farmland were most likely to respond to drones.

FIND OUT MORE

The Drone and Model Aircraft Code. **https://dronesafe.uk/drone-code**

Jarrett, D., Calladine, J., Cotton, A., Wilson, M.W. & Humphreys, E. 2020. Behavioural responses of non-breeding waterbirds to drone approach are associated with flock size and habitat. *Bird Study* **67**: 1–7.

FORTH ESTUARY BY ANNE COTTON/BTO; STUBBLE FIELD DISTURBANCE BY ANNE BURGESS; LOCH BY TERESA FROST

Helping waterbirds adjust to a changing world

New research suggests that international protected area networks can advance range shifts of wintering waterbirds.

Climate change has tended to move the suitable climate window for waterbirds northwards, but species may have a so-called climatic debt, where shifts in species ranges lag behind shifts in temperature isoclines. A recent study investigated the impact of protected areas on range shifts of wintering waterbirds in Europe and North Africa.

The research used a 'community temperature index' (CTI) to track change in species communities over time at a continental scale. The CTI indicates the extent to which species at a location tend to be associated with warm or cold temperatures. Waterbird communities were found to be changing 40% faster inside protected areas, shifting by an average of 90-km in 25 years, compared to 50-km outside protected areas.

Protected areas not only aid the colonisation in the northern areas, but also act against local extinctions on the southern range of species, compared to non-protected areas. Protected areas can thus expand the overall range of species, assessed in the study by CTI_{SD}, a measure of the variation in CTI.

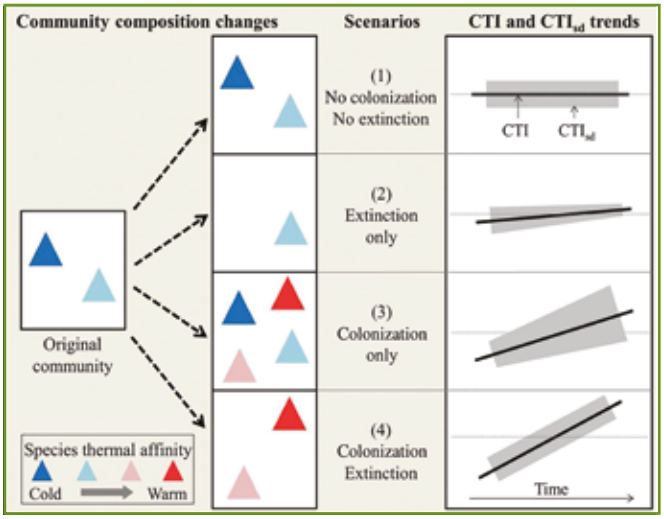
The protected network as a whole influenced the spread of waterbird species. Shifts in species communities were faster in areas which had a dense protected area network compared to areas where the network was sparse. In common with previous research by BTO and others, the findings highlight that protected areas networks, historically established to protect established habitats and species, are now also important to mitigate the negative effects of climate warming on biodiversity.

In the UK, a negative CTI trend suggests that waterbird populations have failed to respond to warming, leading to an increasing climatic debt and reduced climatic breadth. This is probably due to increases in some of the geese populations (associated with cold temperatures) and decreases in wader populations (associated with warm temperatures) which may mask other climate-driven changes.

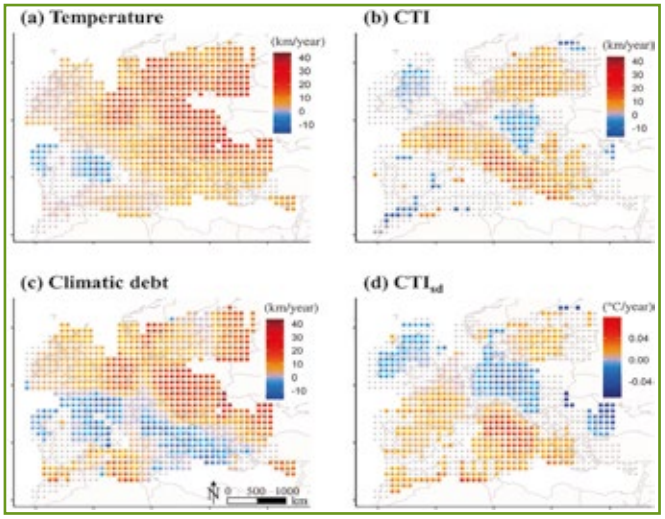
The research was based on data from the International Waterbird Census (IWC) and utilised tens of thousands of waterbird surveys covering 97 species from 39 countries during 25 years, including WeBS counts.

FIND OUT MORE

Gaget, E., Pavón-Jordán, D., Frost ,T. & 47 co-authors. 2020. Benefits of protected areas for nonbreeding waterbirds adjusting their distributions under climate warming. *Conservation Biology*. doi:10.1111/cobi.13648.



Models of the four theoretical scenarios of species colonisation or extirpation relative to species thermal affinities (triangles = species). Community changes in response to climate warming are revealed by trends of community temperature index (CTI) (*i.e.* thermal average) and CTI standard deviation (CTI_{SD}) over time. The CTI slopes depend on both rate of colonisation or extirpation and on the species temperature index values.



Spatiotemporal trends from 1993 to 2017 of (a) temperature, (b) community temperature index (CTI), (c) climatic debt, and (d) thermal heterogeneity (CTI_{SD}). Red = positive trend, $p < 0.05$; blue = negative trend, $p < 0.05$; grey = not significant; colour gradient, the darker the colour, the greater the intensity.

Densities of waders on the non-estuarine coast

Analysing the densities of different wader species from NEWS III.

The Non-Estuarine Waterbird Survey (NEWS III) in the winter of 2015/16 extended coverage of the coast by regular WeBS counts across the UK's entire non-estuarine coastline. The initial results, including population estimates for the open coast, were reported in *Waterbirds in the UK 2015/16*. Now a further analysis has been carried out on the data to assess the changes in densities of 11 wader species since the three previous surveys, Winter Shorebird Count (WSC) in 1984/85, NEWS I in 1997/98 and NEWS II in 2006/07.

PAIRED COMPARISONS

The new analysis used only those count stretches that had been covered in multiple surveys. Coverage of these was good in NEWS III, as volunteer counters were asked to prioritise certain coastal stretches, before signing up for additional stretches.

Focusing on the percentage changes in densities (birds per km) at the count stretch level provided the best comparison between the surveys, overcoming potential biases resulting from geographical and habitat coverage in the surveys. These comparisons were done for the intertidal habitat and the all-habitat data (*i.e.* intertidal, landward and seaward habitats).

CHANGE IN BIRD DENSITY

To evaluate recent trends, the change in density from NEWS I (medium-term, 18 years) and NEWS II (short-term, nine years) with NEWS III was modelled for England, Scotland and Wales. Unfortunately there was too much uncertainty in model results for Northern Ireland for conclusions to be drawn. Significant declines in 'all-habitat' densities at the country-level were recorded over the short- and medium-term in 27 of 66 possible cases. The only increases recorded were for Sanderling in Scotland and Purple Sandpiper in England over the medium-term.

COUNTRY COMPARISONS

The study revealed density differences between the countries. Curlew densities were highest in Scotland and Wales, whereas for Redshank densities were highest in Scotland and England. Dunlin densities showed smaller differences between countries.

TRACKING DECLINES

The four non-estuarine surveys have tracked declines in the majority of the wader species using these habitats over the past 30 years. However, the UK coast still supports significant numbers of these species. Planned further work on the NEWS III data will look at how tidal wrack deposits influence wader distributions.

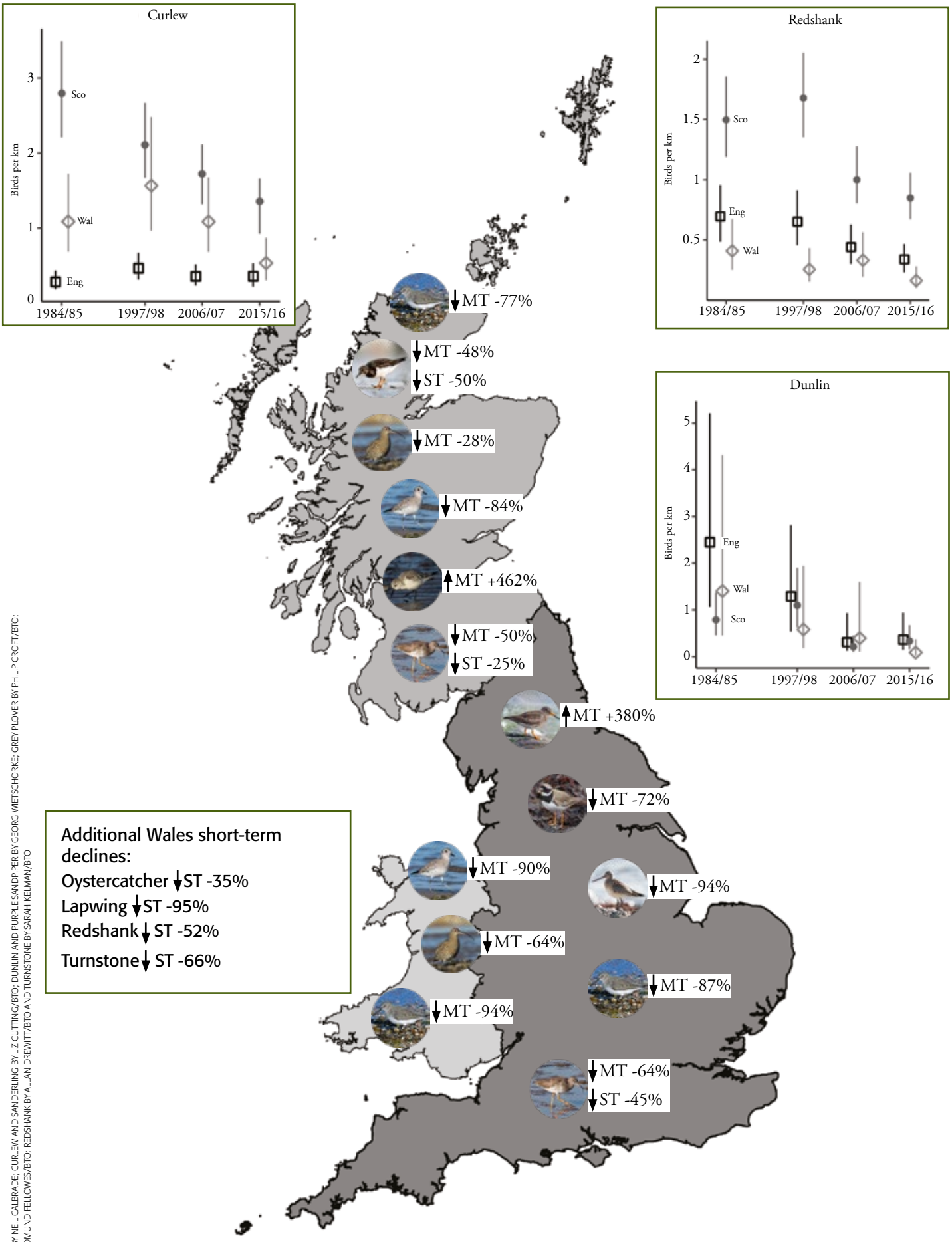
Maps in the NEWS section of the WeBS Report Online show coverage by whether all (dark blue) or some (light blue) of the relevant intertidal, landward, and seaward habitats were counted, together with counts for each species (yellow dots), here for Purple Sandpiper (PS). Maps are available for all waterbird species (including non-wader waterbirds) for NEWS III and the three historic surveys, so change can be explored at a regional level.

FIND OUT MORE

Humphreys, E.M., Austin, G.E., Frost, T.M., Mellan, H.J., Boersch-Supan, P., Burton, N.H.K & Balmer, D.E. 2021. Wader populations on the United Kingdom's open coast: results of the 2015/16 Non-Estuarine Waterbird Survey (NEWS III) and a review of population trends. *Bird Study* **67 (3)**: 371–384.

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

Detailed maps showing counts along the non-estuarine coast in all regions for all four surveys are available through the WeBS Report Online at: **www.bto.org/webs-reporting-news**



BAR-TAILED GODWIT BY NEIL CALBRADE; CURLEW AND SANDERLING BY LIZ CUTTING/BTO; DUNLIN AND PURPLE SANDPIPER BY GEORG WIETSCHORKE; GREY PLOVER BY PHILIP CROFT/BTO; RINGED PLOVER BY EDMUND FELLOWES/BTO; REDSHANK BY ALLAN DREWITT/BTO AND TURNSTONE BY SARAH KELMAN/BTO

▲ Species that that showed significant changes in all-habitat densities in Scotland, England and Wales. MT: Medium-term, NEWS I → NEWS III. ST: Short-term, NEWS II→NEWS III. Medium-term declining species are pictured in the relevant country. Insets are density plots over all four surveys for Redshank, Curlew and Dunlin showing birds per km per country per survey.

Scaup on the slide

Once a familiar duck around Britain and Ireland's coast, Scaup have since declined dramatically and there has been a shift in their core range.

Scaup have a circumpolar distribution. In Europe, they breed in Iceland and along the northern coasts of Scandinavia. These birds spend the winters in Britian and Ireland, through Scandinavia and the eastern Adriatic Sea, the northern and western Black Sea and the southwestern Caspian Sea.

In the UK, Scaup are most numerous in Northern Ireland and Scotland, but are now scarce around the English and Welsh coasts. Although predominately a marine species, Scaup are occasionally found on inland waters, sometimes in small flocks, such as 19 at Chew Valley Lake and 15 at Abberton Reservoir in 2019/20.

As with other seaducks, Scaup populations have declined severely. Coordinated counts over the last 30 years has revealed a 38.1% decline in the population in north-west Europe, where 309,000 wintering Scaup in 1988–91 reduced to *c.*192,300 during 2015–18 (Marchowski *et al.* 2020).

There has also been a marked shift in the distribution during this period, with trends in wintering numbers differing throughout the range. Numbers decreased in the UK, Ireland, and in the Netherlands, while numbers remained stable in Denmark. Meanwhile Germany, Poland, Sweden, and Estonia all showed increasing populations, suggesting that the distribution of the species within its wintering grounds is shifting north and east.

This decline is reflected in the WeBS annual indices, where the Scottish wintering population has seen a long slow decline since its peak in 1973/74, with a decline of 22% since 1993/94. The decline in Northern Ireland, however, has been much more recent, the peak in the index as recent as 2007/08, and the index has declined by 77% since 2008/09.

Following this distribution shift to the east and north, Scaup have declined due to a lack of effective implementation of conservation measures in SPAs, with unsustainable levels of bycatch and declining food quality due to intensive fishing in their most important wintering areas in the Baltic Sea, around coastal Poland and Germany (Marchowski *et al.* 2019, 2020).

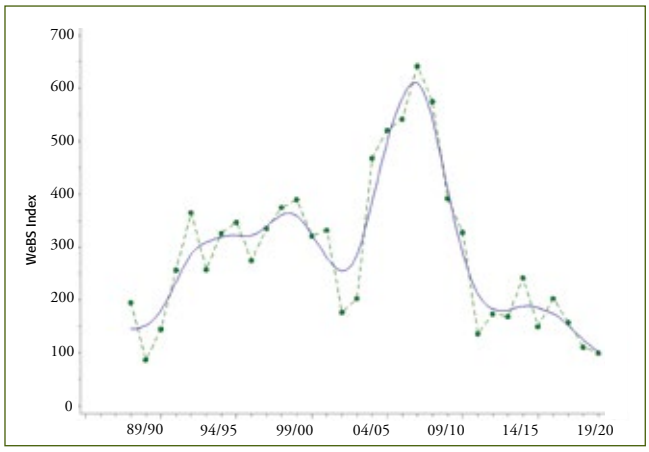
Globally Scaup are listed as Least Concern, but such has been the rate of decline in Europe that Scaup is currently classified as Vulnerable on the European Red List of Birds (Birdlife International 2015).

Eleven sites hold nationally important numbers (above 39 individuals in GB, 25 in Ireland) of Scaup (see Table 5). The five-year average for Scaup at the Forth Estuary in the first half of the 1970s was in excess of 17,000 birds, but the most recent average was just 21, below the national importance threshold. Numbers wintering on the Forth declined rapidly in the late 1970s, with the decline linked to reduction in distillery waste and sewage inputs. Today, Loughs Neagh and Beg is the key site in the UK, with a five-year average of 1,679 birds and Loch Ryan, Cromarty Firth and Solway Estuary hold the highest numbers in Great Britain.

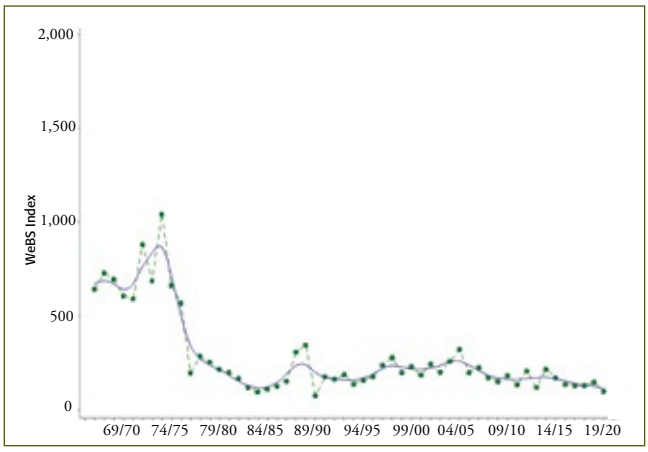
Table 5 Nationally important WeBS sites for Scaup.

Site	2015/16	2016/17	2017/18	2018/19	2019/20	Month	5-year mean
Loughs Neagh and Beg	1,772	2,739	1,680	970	1,233	Mar	1,679
Loch Ryan†	737	1,350	679	962	1,057	Dec	957
Cromarty Firth	846	700	711	433	413	Jan	621
Solway Estuary	1,404	61	464	476	577	Nov	596
Inner Moray and Beauly Firths	184	173	420	(116)	185	Jan	241
Loch of Stenness	165	231	183	252	230	Mar	212
Belfast Lough†	210	55	155	110	80	Dec	122
Fleet Estuary	0	120	350	115	3	Dec	118
Loch of Harray	56	64	109	29	152	Oct	82
Loch Eye	0	76	97	84	72	Dec	66
St Andrews Bay†	2	97	(110)	40	62	Dec	62

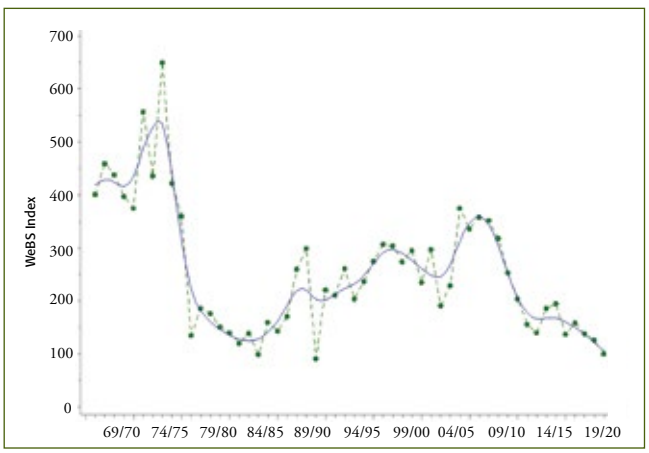
• Annual peaks and month in 2019/20 when recorded are shown. Brackets indicate incomplete coverage. Five-year mean is for period 2015/16 to 2019/20.
† = Counts include supplementary data.



▲ **WeBS trend for Scaup in the Northern Ireland.**
Green dots = annual index; blue line = smoothed trend.



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



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

FIND OUT MORE

BirdLife International. 2015. *Aythya marila*. The IUCN Red List of Threatened Species 2015: e.T22680398A59969832.

Marchowski, D., Jankowiak, Ł., Ławicki, Ł., Wysocki, D., Calbrade, N.A. & 15 others. 2020. Effectiveness of the European Natura 2000 network to sustain a specialist wintering waterbird population in the face of climate change. *Scientific Reports* **10**: 20286 (2020).

Marchowski, D., Jankowiak, Ł., Ławicki, Ł., Wysocki, D., & Chylarecki, P. 2019. Fishery bycatch is among the most important threats to the European population of Greater Scaup *Aythya marila*. *Bird Conservation International* **30**:1–18.

SCAUP BY GRAHAM CATLEY

Spoonbill on the rise

Another recent colonist in the UK, the Spoonbill are becoming established at several sites and in increasingly large numbers.

Full of character with their unique, distinctive shaped bill, Spoonbills are always a delight to see as they march through wetlands with long, slow strides, sweeping their open bill through the water, collecting invertebrates. In flight, they are swan-like while much smaller and faster, with neck outstretched and long legs trailing. But of course, with a bill like a large wooden spoon, they are unlikely to be mistaken.

The Spoonbill population has always been stable and high in Continental Europe, but they are a rarer sight in the UK. As such, they are classed as an Amber-listed species in the UK (Eaton *et al.* 2015), but in the rest of Europe and the world, they are classed as Least Concern (BirdLife Datazone).

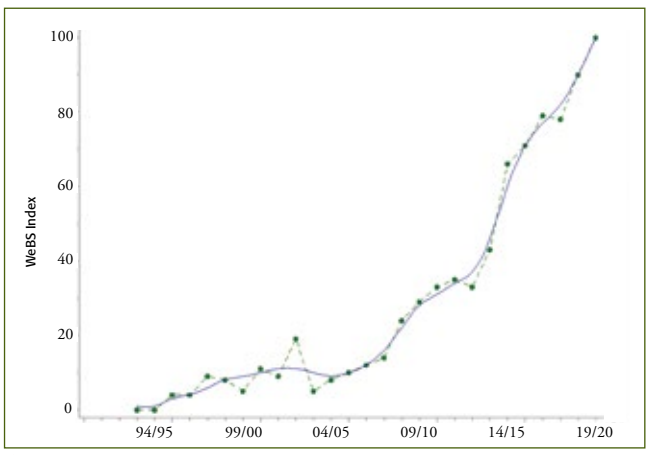
Despite this, it is now possible to see flocks of individuals feeding together when once it would have been a rare treat to see one Spoonbill. The maximum WeBS tally in 2019/20 was 198 individuals in September, a record number compared with 15 years ago when the maximum tally was 18 individuals. The 10-year WeBS trend is an increase of 309% and there is no indication that this growth might slow down in the near future. However, research into the Spoonbill population at the Wadden Sea in the Netherlands (where 1,529 breeding pairs were counted in 2015) has found that food availability in the feeding areas surrounding colonies limits and regulates population size (Oudman *et al.* 2017). This may potentially be a major factor that affects the Spoonbill population in the UK in the coming years.

In 2019/20, Spoonbills were recorded on 45 WeBS sites, with double figure counts at eight of these – North Norfolk Coast, where due to successful breeding since 2010, the peak count was 133 birds, and also at Poole Harbour, The Wash, Humber Estuary, Beaulieu Estuary, North West Solent, Swale Estuary and Burry Inlet.

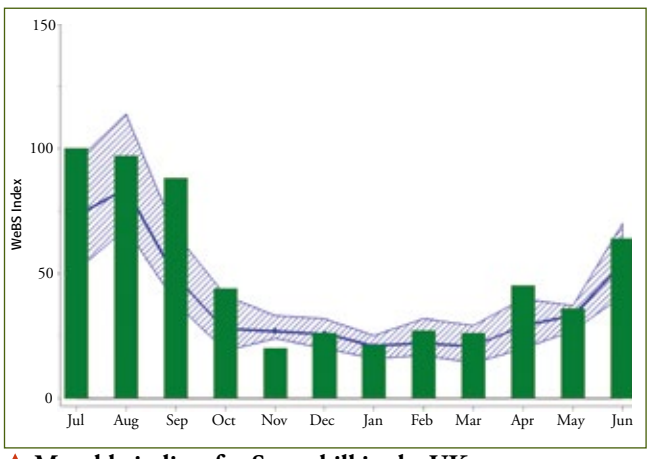
This large range in the UK is partly due to the fact that Spoonbills can inhabit and feed in a large variety of wetland habitats from extensive shallow wetlands with mud, clay or fine sand substrates (del Hoto *et al.* 1992) to either fresh, brackish or saline marshes, rivers, lakes and flooded areas (Hancock *et al.* 1992, Snow & Perrins 1998). They also frequent sheltered marine habitats during the winter such as deltas, estuaries, tidal creeks and coastal lagoons (Hancock *et al.* 1992, del Hoyo *et al.* 1992).

Globally, Spoonbills have an incredibly large range, stretching from eastern China to the northwest African coast. There is a variety in the migration habits between populations, with some populations fully migrating (del Hoyo *et al.* 1992), while others only travel a short distance from breeding and wintering grounds (Snow & Perrins 1998) and other populations are resident and nomadic or only partially migratory (del Hoyo *et al.* 1992). In the UK, we are now able to see Spoonbills all year round, with a spike in June, July and August (shown through WeBS data) as birds travel to the UK from their breeding grounds in southern Europe, central and Southern Asia and North Africa.

Spoonbills are a rare breeder in the UK, but there have been several success stories in recent years, with successful nests reported on the North Norfolk Coast, RSPB Havergate Island, Suffolk and RSPB Fairburn Ings, West Yorkshire. There has also been an amazing record from 2018, where one pair bred, fledging two or three young from a nest among a gull colony in Orkney.



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



▲ **Monthly indices for Spoonbill in the UK.**
Green bars = 2019/20; blue line/hatched area = previous five-year mean/range.

SPOONBILL BY EDMUND FELLOWES/BTO

Table 6 Key WeBS sites for Spoonbill.

Site	2015/16	2016/17	2017/18	2018/19	2019/20	Month	5-year mean
North Norfolk Coast	48	86	104	122	133	Sep	99
Poole Harbour	46	38	58	71	56	Oct	54
The Wash	16	16	24	14	22	Sep	18
Humber Estuary	7	20	23	14	19	Aug	17
Beaulieu Estuary	15	12	15	15	18	Feb	15
North West Solent	5	14	8	12	10	Jan	10
Swale Estuary	1	7	0	(6)	24	Oct	8
Breydon Water & Berney Marshes†	6	9	6	8	2	Jul	6
Taw-Torridge Estuary	6	10	7	3	5	Dec	6
Dee Estuary (England and Wales)	3	12	0	4	7	Sep	5
Burry Inlet	0	3	3	5	10	Mar	4
Fairburn Ings	0	4	3	5	9	Jun	4
Newtown Estuary	0	(0)	4	8	4	Feb	4
Thames Estuary	5	0	6	0	7	Sep	4
Tamar Complex	(3)	4	3	1	2	Nov	3

• Annual peaks and month in 2019/20 when recorded are shown. Brackets indicate incomplete coverage. Five-year mean is for period 2015/16 to 2019/20.
† = Counts include supplementary data.

FIND OUT MORE

Birdlife Datazone http://datazone.birdlife.org/species/factsheet/eurasian-spoonbill-platalea-leucorodia

del Hoyo, J., Elliot, A. & Sargatal, J. 1992. *Handbook of the Birds of the World, Vol. 1: Ostrich to Ducks.* Lynx Edicions, Barcelona, Spain.

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

Hancock, J.A., Kushlan, J.A. & Kahl, M.P. 1992. *Storks, ibises and spoonbills of the world*. Academic Press, London.

Oudman T., de Goeij P., Piersma T. & Lok T. 2017. Colony-breeding Eurasian Spoonbills in The Netherlands: local limits to population growth with expansion into new areas. *Ardea* **105**: 113–124.

Snow, D.W. & Perrins, C.M. 1998. *The Birds of the Western Palearctic. Volume 1: Non-Passerines*. Oxford University Press, Oxford.

Focus on... Lesser Black-backed Gull

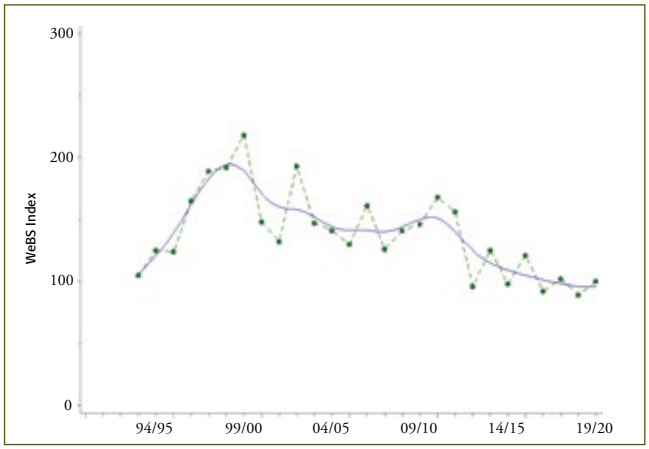
In winter, Lesser Black-backed Gull is a widespread species across much of the UK, though absent from upland areas and scarce in northeast Scotland. This hasn't always been the case, and *Bird Atlas 2007–11* showed a remarkable change in the status of this species with increases in range in both the winter and the breeding season. The increase in winter range since the *1981–84 Winter Atlas* is particularly notable in Ireland, Wales, southwest England, East Anglia and in Scotland. Much of the expansion has been inland where the ability to exploit a wide range of feeding opportunities and safe places to roost could be among the reasons for the increased tendency to remain to winter in the UK.

The increasing range of Lesser Black-backed Gulls over the last 40 years is not the whole story though. Our wintering populations comprises breeding birds from the UK, Iceland, the Faeroes and northwest Europe *graellsii* subspecies and passage migrants of the *intermedius* subspecies from Denmark, southern Sweden and Atlantic coast of Norway. Small numbers of the Baltic *fuscus* population also occur.

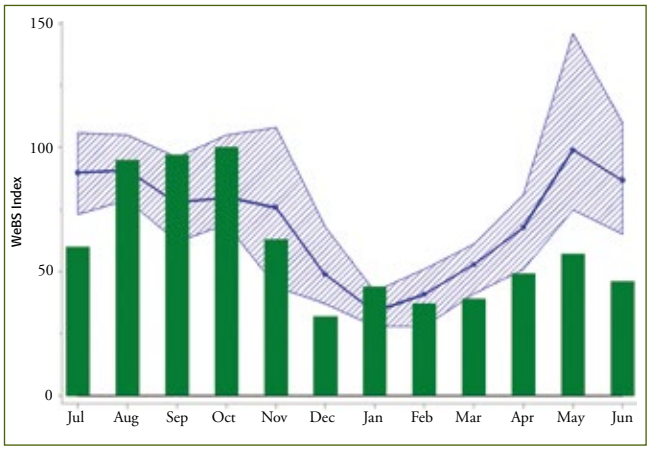
Through tagging studies and field sightings of colour-marked birds, we have learnt more about the remarkable movements of this species. Whilst many UK breeding birds remain to winter here, others migrate southwards along the western seaboard of continental Europe, most wintering in Iberia, with smaller numbers in western North Africa and West Africa. The UK monthly graph from WeBS shows spring and autumn peaks, highlighting the passage of Lesser Black-backed Gulls through the UK to breeding grounds further north.

The breeding population is being assessed through the ongoing 'Seabirds Count' national seabird census, with counts at both coastal and inland sites. The breeding population is also monitored annually at sample sites through the Seabird Monitoring Partnership.

The UK wintering population, as measured through WeBS, shows a 9% decline over the 10 year period 2008/09–2018/19, and a 33% decline over the 25-year period 1993/94–2018/19. Lesser Black-backed Gull is currently Amber-listed in the Birds of Conservation Concern, based on breeding localism and breeding international importance. A winter roost survey is long overdue, the last Winter Gull Roost Survey was in 2003/04–2005/06.



▲ **WeBS trend for Lesser Black-backed Gull in the UK.** Green dots = annual index; blue line = smoothed trend.



▲ **Monthly indices for Lesser Black-backed Gull in the UK.** Green bars = 2019/20; blue line/hatched area = previous five-year mean/range.

LESSER BLACK-BACKED GULL BY ANNE COTTON

Focus on... Jack Snipe

Secretive and a master of camouflage, Jack Snipe is perhaps the common winter wader migrant that WeBS is least able to monitor adequately, together with the woodland-dwelling Woodcock. Unlike Common Snipe, Jack Snipe is a strictly winter and passage visitor from Fennoscandia and Russia, with no breeding confirmed in the UK.

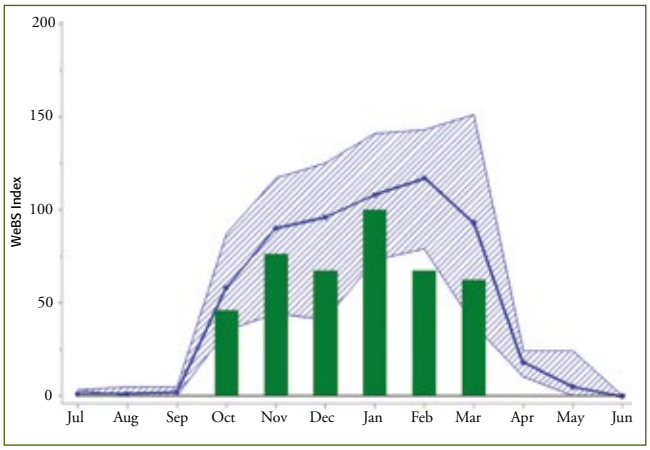
Jack Snipe are easiest to see when frozen ground encourages them to feed, with characteristic bobbing action, near remaining running or open water. The annual WeBS index shows large fluctuations, as only small numbers are recorded despite its widespread lowland distribution; the maximum WeBS tally for Britain in 2019/20 was 135 birds in January. This is a small proportion of the estimated 100,000 birds that winter there.

The winter estimate of 100,000 birds is one of the more tentative wintering waterbird estimates. It is based on a calculation using old annual shot tallies of 10,000 birds, before the species was removed from the quarry list in 1981. Another calculation, based on it being around a tenth of the number of Common Snipe (itself an estimate using ringing recoveries of shot birds) gives a similar figure.

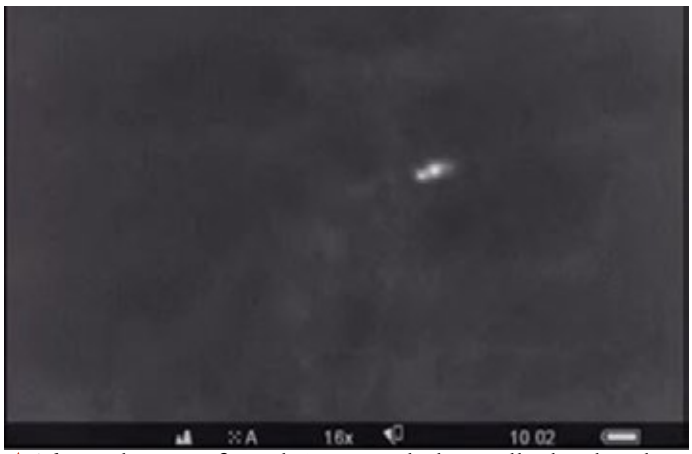
Given the challenges in monitoring this species, there has been much recent interest in using new technology to census Jack Snipe on individual sites. The Belvide ringing group in Staffordshire has been using thermal imaging cameras since 2016, a method that works best in dull weather. Another related research project in Hampshire is looking at locating Jack Snipe using thermal imaging and mapping with habitat data to further understand their habitat preferences. Local studies like these could really help improve our knowledge of the wintering habits of this characterful but enigmatic wader, and perhaps in time such methods can help improve our estimates of its population and trends.

FIND OUT MORE

McShane, C. 2020. *A simple, effective method to census Jack Snipe in winter using thermal imagery*. Oral presentation, International Wader Study Group Conference, 10–11 Oct 2020. Abstracts available at: **www.waderstudygroup.org/conferences/2020-virtual-conference/#1**



▲ **Monthly indices for Jack Snipe in the UK.** Green bars = 2019/20; blue line/hatched area = previous five-year mean/range.



▲ **Thermal image of a Jack Snipe, with the smaller head to the left and body to the right. Thermal image videos can be viewed in a BTO Conference talk at http://bit.ly/BTO2020_JS**

JACK SNIPE BY NEIL CALBRADE; THERMAL IMAGE BY COLIN MCSHANE

Ythan Estuary at low tide

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

The Ythan Estuary is a relatively small estuary in northeast Scotland, being the tidal component of the Ythan River about 10 miles north of Aberdeen. Despite its small size, it is the largest estuary on the Scottish coast between the Montrose Basin and the Moray Firth, and as such is important in a local context.

The estuary has a narrow shape and is shielded from the sea by the important dune system known as the Sands of Forvie. The inner estuary is muddy and the outer reaches more sandy, but there is relatively little in the way of saltmarsh. The main human influences on the estuary are recreation, including wildfowling, fishing and canoeing. The Ythan Estuary, combined with nearby Meikle Loch is on the Ramsar list of wetlands of international importance, and with the Sands of Forvie is designated as an SPA.

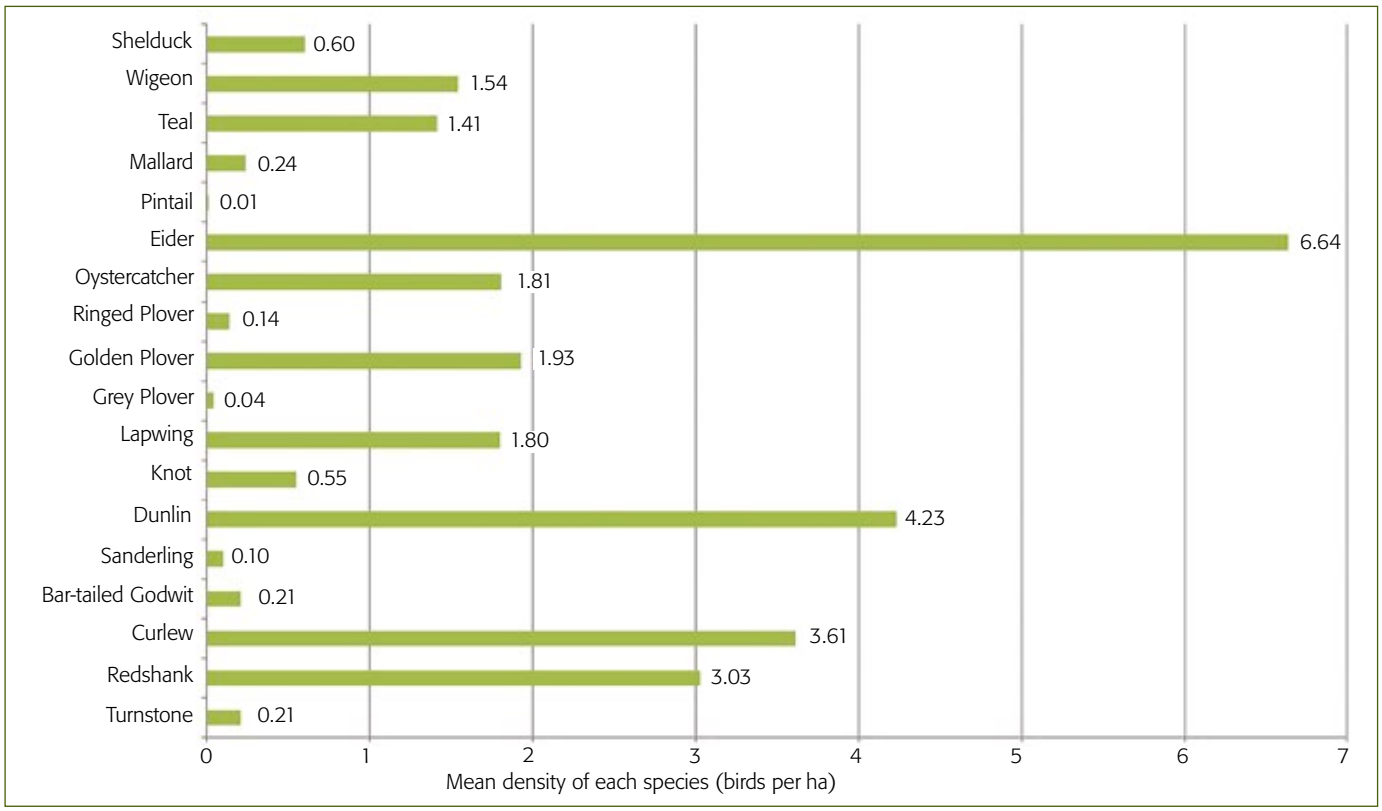
The distribution of two species are mapped on the opposite page: Eider and Redshank distributions based on WeBS Low Tide Counts undertaken in 2019/20 are displayed for comparison with the respective distributions from 2006/07.

Nationally important numbers of Eider occur on the Ythan Estuary, though numbers have declined by 57% on the SPA in the last 25 years according to the most recent WeBS Alerts report (Woodward *et al.* 2019). The mean winter counts have reflected this with 146 (6.64 birds per ha) in 2019/20, compared with 706 (18.58 birds per ha) in 2006/07. In 2019/20, the vast majority of Eider were found in the outer reaches of the estuary, south of Inches Point, whereas in 2006/07 the majority of birds were further up the estuary between Inches Point and Waterside Bridge.

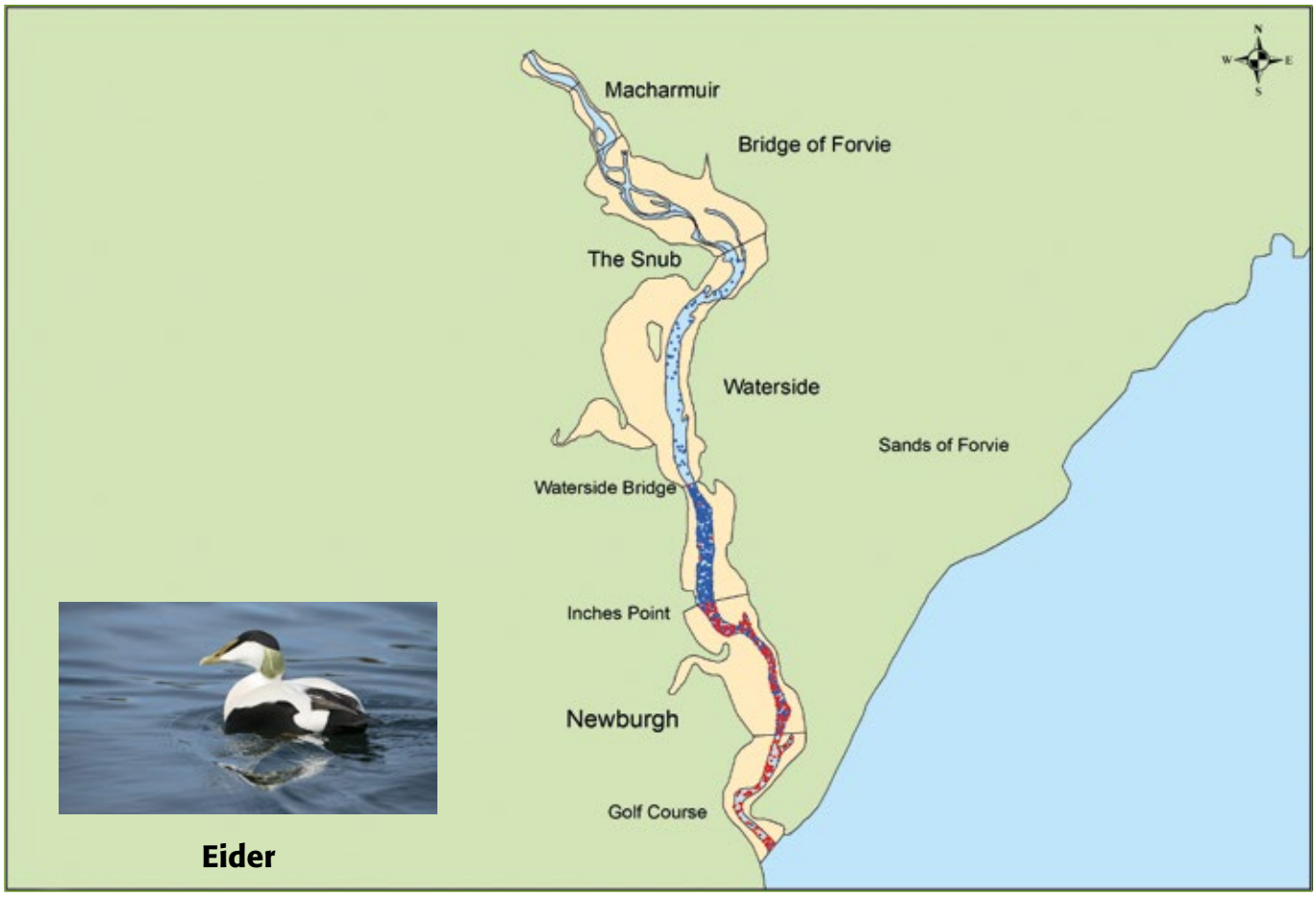
Redshank also occur in nationally important numbers on the Ythan Estuary, and numbers on the SPA have seen an increase of 49% in the short-term (Woodward *et al.* 2019). The mean winter counts at low tide have reflected this with 612 (3.03 birds per ha) in 2019/20, compared with 394 (1.95 birds per ha) in 2006/07. Redshank are widely distributed throughout the estuary, but typically the largest numbers are found on the inner reaches of the estuary north of Waterside Bridge.

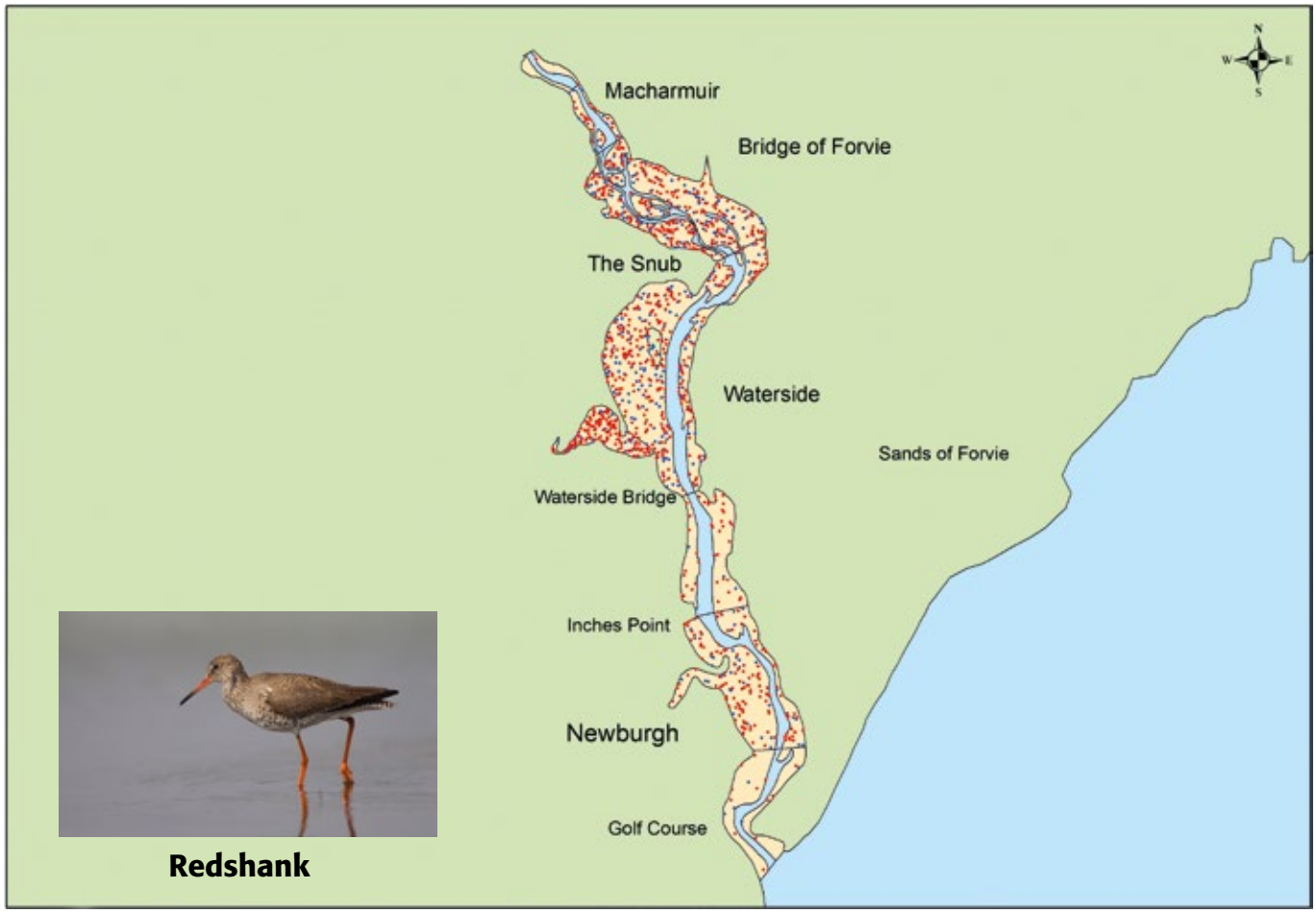
GENERAL STATISTICS FOR THE YTHAN ESTUARY 2019/20

Area covered: 253 ha
Mean total birds: 3,906
Mean bird density: 15.44 birds per ha



▲ **Mean densities of waterbirds at low tide on the Ythan Estuary in 2019/20.**





▲ **Low tide distribution of Eider and Redshank on the Ythan Estuary, for the winters of 2019/20 (red) and 2006/07 (blue).**

EIDER AND REDSHANK BY EDMUND FELLOWES/BTO

WeBS objectives, aims and methods

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

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

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

WeBS continues the traditions of two long-running count schemes which formed the mainstay of UK waterbird monitoring since 1947.

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

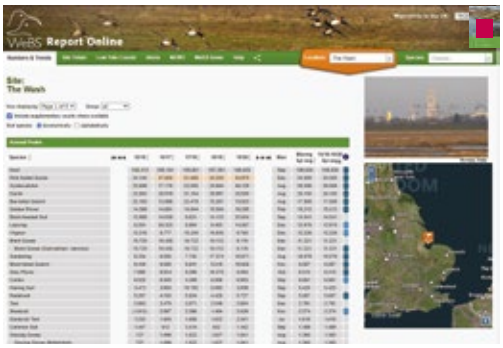
In addition, WeBS Low Tide Counts are undertaken on selected estuaries with the aim of identifying key areas used during the low tide period, principally by feeding birds. It also identifies areas not otherwise noted for their importance from data collected during Core Counts which are normally conducted at, or close to, high tide. The success and growth of these count schemes reflects the enthusiasm and dedication of the several thousands of participating volunteer ornithologists. It is largely due to their efforts that waterbird monitoring in the UK is held in such high regard internationally.

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

Waterbirds in the UK 2019/20 (comprising this summary report together with numbers and trends available from WeBS Report Online at **www.bto.org/webs-reporting**) presents the results of WeBS in 2019/20. Data from other national and local waterbird monitoring schemes, notably the WWT/JNCC/NatureScot 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.

DUNLIN BY SARAH KELMAN/BTO

WeBS Report Online



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

This annual report, *Waterbirds in the UK 2019/20*, combines an extensive online data resource, WeBS Report Online, with this summarised written report.

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

Improvements were made to the interface in October 2020 to speed up page loading, improve navigation and filtering and to enable downloading of data tables and plots in the 'Numbers and Trends' section.

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

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

The 'Site Totals' tab summarises waterbird aggregations at WeBS sites. The default view shows a table of sites with 1,000 or more birds and includes supplementary counts but excludes gulls and terns and non-native species, as is standard in the Principal Sites table (see page 14–15). Users can choose to view all sites, including those with fewer than 1,000 birds, for a county or country and optionally include gulls/terns, non-native species and supplementary counts. Selecting a site name brings up a list in the right-hand panel of species at the site where counts exceed national or international importance thresholds.

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

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

FIND OUT MUCH MORE

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

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

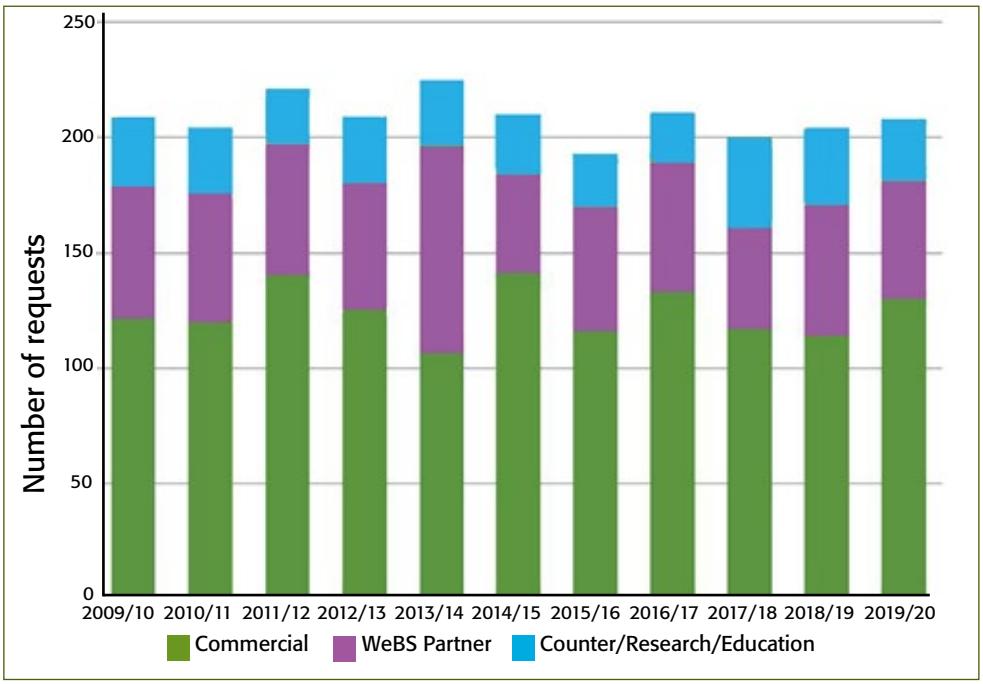
Uses of WeBS data 2019/20

208 WeBS Data Requests in 2019/20

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

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

The graph shows the number of Data Requests processed by the WeBS office each year since 2009/10. These are from a range of stakeholder groups, including country conservation agencies, environmental consultancies, academic researchers and bird clubs. Summarised WeBS data are also provided to several online environmental data portals.



▲ **WeBS Data Requests 2009/10 to 2019/20.**

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

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

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

WeBS DATA REQUESTS

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

WeBS Local Organisers in 2019/20

Continued from back page

WALES

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

NORTHERN IRELAND

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

CHANNEL ISLANDS

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

ISLE OF MAN

Isle of Man	David Kennett

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 2019/20, the WeBS Local Organiser Advisory Committee (WeBS LOAC) comprised Allan Brown, Eve Tigwell, Andrew King, Chris Gunn, Brian Moore, Colin Wells, Bob Swann and Kerry Mackie. Many thanks to them for representing the wider LO network. Further information about the WeBS LOAC can be found at: **www.bto.org/webs/loac**

WeBS ONLINE REPORT

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

Selected further reading

Recent studies that have used WeBS data

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WeBS

BTO
Looking out for birds

rspb giving nature a home

JNCC

in association with WWT

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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 2019/20

ENGLAND

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

SCOTLAND

Aberdeenshire	Moray Souter
Angus (excl Montrose Basin)	**VACANT** (now Jonathan Pattullo)
Angus (Montrose Basin)	Anna Cowie
Argyll Mainland	Nigel Scriven
Arran	Jim Cassels
Ayrshire	Dave Grant
Badenoch and Strathspey	Keith Duncan (now **VACANT**)
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)	Andy Riches
Dumfries and Galloway (Wigtown Bay)	Paul Collin
Fife (excl estuaries)	Allan Brown
Fife (Tay and Eden Estuaries)	Norman Elkins
Forth Estuary (inner)	Michael Bell
Forth Estuary (outer North)	Alastair Inglis (now **VACANT**)
Forth (outer South)	Duncan Priddle
Glasgow/Renfrewshire/Lanarkshire	John Clark
Harris and Lewis	Yvonne Benting
Islay, Jura and Colonsay	David Wood
Isle of Cumbrae	**VACANT**
Lochaber	Kirstie & Callum Ross
Lothian (excl estuaries)	Allan Brown
Lothian (Tyninghame Estuary)	Tara Sykes
Moray and Nairn (inland)	David Law
Moray and Nairn (Lossie Estuary)	Bob Proctor
Moray Basin Coast	Bob Swann
Mull	Nigel Scriven
Orkney	Sarah Money
Perth and Kinross (excl Loch Leven)	Michael Bell
Perth and Kinross (Loch Leven)	Jeremy Squire (now Simon Ritchie)
Shetland	Paul Harvey
Skye and Lochalsh	Jonathan Jones
Solway Estuary (North)	Andy Riches
Sutherland (excl Moray Basin)	**VACANT**
Tiree and Coll	John Bowler
Uists and Benbecula	Yvonne Benting
West Inverness/Wester Ross	Andy Douse

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