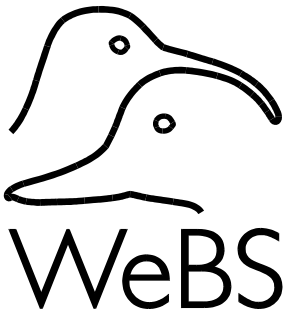
The Wetland Bird Survey 2001-03 Wildfowl & Wader Counts

Peter Cranswick, Jenny Worden, Robin Ward, Helen Rowell, Colette Hall, Andy Musgrove, Richard Hearn, Steve Holloway, Alex Banks, Graham Austin, Larry Griffin, Baz Hughes, Melanie Kershaw, Mark O'Connell, Mark Pollitt, Eileen Rees & Lucy Smith



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This report is provided free to all WeBS counters and those who participate in the other national waterbird surveys, none of whom receive financial reward for their invaluable work. Further feedback is provided to counters through the annual WeBS Newsletter. For further information please contact the BTO.

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This book represents the twenty-second report of the Wetland Bird Survey and comprises information from WeBS and complementary national and local surveys, *eg* goose censuses. It is entirely dependent on the many thousands of dedicated volunteer ornithologists who supply the data and to whom we are extremely grateful. The Local Organisers who co-ordinate these counts deserve special thanks for their contribution.

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Dedicated to the memory of

RAY WATERS, 1952-2004

WETLAND BIRD SURVEY

Organised and funded by

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OTHER NATIONAL WATERBIRD SURVEYS

Details of and contacts for many of the other waterbird surveys used in this report, and of forthcoming surveys, can be obtained via the web sites of the four WeBS partner organisations.

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Summary

Waterbird monitoring in the UK

- The Wetland Bird Survey (WeBS) aims to monitor non-breeding waterbirds in the UK: to identify population sizes, determine trends in numbers and distribution, and to identify important sites for waterbirds.
- WeBS Core Counts are undertaken at around 2,000 wetland sites of all habitats; estuaries and large still waters predominate. Monthly co-ordinated counts are made principally from September to March, mostly by volunteers. Survey data are available from the late 1960s.
- A series of other waterbird surveys complement WeBS, notably annual censuses of major goose populations, mostly counted at roost sites.
- Additional surveys are made on a less frequent basis, usually on a 5- to 10-year cycle, to address remaining gaps in information for particular species or habitats.
- This report presents total numbers counted by WeBS for all waterbirds in Great Britain and Northern Ireland. Results of other relevant surveys are summarised.
- Annual indices of changes in abundance are provided for the more numerous species. For certain wildfowl species, monthly indices, showing relative abundance during the winter, are also provided.
- WeBS Alerts are used to identify species or populations whose trends have shown declines of concern at a national level.
- All sites supporting internationally and nationally important numbers of each species or population are listed in individual *Species accounts*.
- All sites of international importance by virtue of the total numbers of all waterbirds that they support are listed in *Principal sites.*
- WeBS Low Tide Counts are made on selected estuaries to determine the distribution of birds at low tide. Results for these estuaries are presented, including distribution maps for selected species.
- This edition of *Wildfowl & Wader Counts* summarises survey results from two winters – 2001/02 and 2002/03.
- Note that international and national waterbird population sizes – and their respective 1% thresholds – have been revised since the last *Wildfowl & Wader Counts.*

Waterbird numbers in 2001/02 and 2002/03

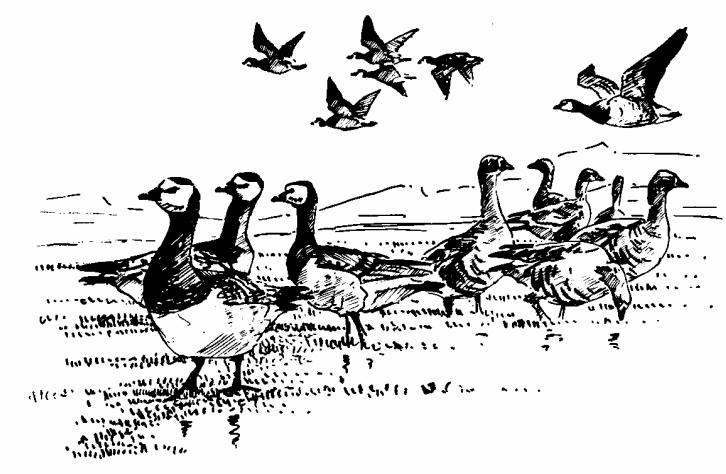
- In Great Britain, 43 species or populations of waterbird were found in internationally important numbers at one or more sites (meeting Criterion 6 for the selection of sites of international importance under the Ramsar Convention), and a further 21 species occurred in nationally important numbers at one or more sites.
- In Northern Ireland, 13 species or populations of waterbird were found in internationally important numbers at one or more sites, and a further 24 were present in numbers meeting the threshold for All-Ireland importance.
- A total of 175 sites in Great Britain and ten in Northern Ireland are of international importance for one or more species or populations of waterbirds (meeting Ramsar Criterion 6). Of these, 49 in Great Britain and three in Northern Ireland also qualify by virtue of regularly supporting more than 20,000 waterbirds (Ramsar Criterion 5).
- WeBS Alerts for 33 species or populations in Great Britain (to the end of winter 2000/01) indicated declines in seven species in at least one of the three time periods considered and increases in 15 species. Bewick's Swan and Red-breasted Merganser both exhibited an increase in one period but a decline over another.
- The index of Mute Swan *Cygnus olor* abundance in Britain continued to increase and reached a record high in 2002/03. Bewick's Swan *Cygnus columbianus* numbers remained low after a recent sharp fall. The Whooper Swan *Cygnus cygnus* index in Northern Ireland rose steeply to record levels, as did counts on the Ouse Washes (Norfolk).
- Icelandic-breeding geese continued to show mixture fortunes. The census total for Pink-footed Goose *Anser brachyrhynchus* in 2001/02 was the highest to date; numbers wintering in Norfolk continued to rise, and 62,500 at Scolt Head was the largest site count in Britain to date. Although the census total of Iceland Greylag Goose *Anser anser* in 2001/02 was the highest since the early 1990s, the long-term decline appeared to continue in 2002/03.
- European White-fronted Geese *Anser albifrons albifrons* numbers continued to decline in Britain, probably a result of global

climate change enabling birds to winter further east in Europe. The Greenland White-fronted Goose *Anser albifrons flavirostris* population has also declined in recent winters, as a result of poor breeding success, though numbers remained stable in Britain.

- An international census of Greenland Barnacle Geese *Branta leucopsis* in March 2003 recorded the highest total yet (56,400), although numbers on Islay have stabilised. Svalbard Barnacle Goose numbers also increased to record levels, with no evidence that the carrying capacity has been reached on the wintering or breeding grounds.
- Dark-bellied Brent Goose *Branta bernicla bernicla* numbers fell to the low levels of the early 1980s, as result of continued poor reproductive success. The All-Ireland census of East Canadian Light-bellied Brent Geese *Branta bernicla hrota* recorded a record high in autumn 2001. An influx in 2001/02 saw some 80% of the world population of Svalbard Light-bellied Brent Geese at Lindisfarne (Northumberland), the largest count since the reduction in population size in the early 20th century.
- Following sustained growth over 30 years, the re-established population of Greylag Geese in Britain appears to have stabilised. Annual indices showed continuing increases in introduced Greater Canada Goose *Branta canadensis* populations in both Britain and Northern Ireland. A total of 3,029 on the Dyfi Estuary (Cardiganshire/ Merioneth) was the largest site count in Britain to date.
- The national total and annual index value for Gadwall *Anas strepera* reached record highs.
- The index for Teal *Anas crecca* in Britain was the lowest for 15 years, though numbers have remained broadly stable over that period. The decline in Mallard *Anas platyrhynchos* in Britain continued, the index value being the lowest on record.
- Counts of Wigeon *Anas penelope* at Lindisfarne returned to former levels (c 20,000) after reduced numbers for two decades. The count of Pintail *Anas acuta* on the Solway Estuary was the highest in the UK since 1991/92, and high numbers of this and several other duck species were recorded on the River Avon (Hampshire). A count of 2,190 Shoveler *Anas clypeata* on the Somerset Levels was by far the highest at any UK site to date.
- Numbers of diving ducks, particularly Pochard *Aythya ferina*, Tufted Duck *Aythya fuligula*, Scaup *Aythya marila* and Goldeneye *Clangula bucephala*, declined dramatically on Loughs Neagh & Beg, in many cases halving in the last 5-10 winters. The Northern Ireland indices for these species showed corresponding crashes.
- Aerial surveys in Liverpool Bay revealed the regular presence of large numbers of Common Scoters *Melanitta nigra*, some up to 20 km from shore. A count of 79,000 in 2002/03 is 60% higher the current British estimate. Numbers in the Moray Firth were the largest since the 1970s, and counts of Velvet Scoters *Melanitta fusca* there were also high.
- Both Red-breasted Mergansers *Mergus serrator* and Goosanders *Mergus merganser* have declined nationally over the last five years, following long-term increases.
- Numbers of introduced Ruddy Ducks *Oxyura jamaicensis* appear to have stabilised nationally, though increases at individual sites continue, particularly in southeast England.
- Aerial surveys revealed some 11,000 Red-throated Divers *Gavia stellata* up to 30 km offshore from the Essex, Kent and Suffolk coasts. This figure is more than double the current estimate for the whole of Britain.
- The British index for Little Grebes *Tachybaptus ruficollis* continued to increase. That for Great Crested Grebe *Podiceps cristatus* declined, but a count of 1,600 at Lade Sands (Kent) was by far the highest to date at a UK site.
- A survey of Comorant *Phalacrocorax carbo* winter roosts located 74 new sites compared with the mid 1990s. Little Egrets *Egretta garzetta* continued to increase, numbers having tripled over the last five years.
- The annual index for Coot *Fulica atra* crashed in Northern Ireland: autumn numbers in 2002 were around normal, but declined rapidly as the winter progressed.
- Avocet *Avosetta recurvirostra* numbers and index value in 2001/02 were the highest on record.
- Following sustained growth, Grey Plover *Pluvialis squatarola* abundance has declined steadily since the mid 1990s.
- UK index values for Ringed Plover *Charadrius hiaticula* and Turnstone *Arenaria interpres* have fallen steadily for 15 years, and those in 2001/02 were the lowest

to date. Climate change is thought to be affecting distribution of these largely non-estuarine waders.

- Numbers of Sanderling *Calidris alba* rose sharply and the UK index matched the levels of the 1970s.
- Although numbers of Dunlin *Calidris alpina* have fluctuated over the last two decades, UK indices show a sustained decline over the last five years.
- The UK annual index for Black-tailed Godwit *Limosa limosa* has increased strongly, and the 2002/03 count total for Britain was the highest to date. A record count on the Ouse Washes in autumn 2002 represented 33% of the flyway population. Counted totals of Bar-tailed Godwits *Limosa lapponica* were also high, though the UK index shows stability.
- Numbers and the UK index for Curlew *Numenius arquata* dipped sharply in 2001/02 and 2002/03. Declines were also noted for Redshank *Tringa tetanus* though numbers have remained generally stable since the late 1980s.
- The counted total of Mediterranean Gulls *Larus melanocephalus* in 2002/03 was twice the previous high. A record roost count of 63,000 Common Gulls *Larus canus* was made at Bewl Water (Sussex) in March 2002.
- The number of species of escaped waterbirds recorded in 2001/02 and 2002/03 were around average for recent years. The number of sites holding these species and the total numbers of individuals were, however, slightly smaller than normal.
- Low Tide Counts were made at 23 sites in 2001/02 and at 19 in 2002/03. *Estuary accounts* are presented for survey at 11 sites in 2001/02, at nine sites in 2002/03, and for six sites where survey was undertaken in both winters.



Introduction

The UK is of outstanding international importance for waterbirds. Lying on some of the major flyways for arctic-nesting species, large numbers of waterbirds are attracted, especially during winter, by the relatively mild climate and extensive areas of wetland, notably estuaries. The UK thus has both moral and legal obligations to conserve both these waterbirds and the wetlands upon which they depend.

As a signatory to a number of international conservation conventions, and as a member of the EU, the UK is bound by international law. In particular, the 'Ramsar' Convention on Wetlands of International Importance especially as Waterfowl Habitat, the EC Birds Directive and the EU Habitats and Species Directive, between them, require the UK to identify important examples of wetland and other habitats and sites important for birds and designate them for protection. Implicit in these obligations is the need for regular survey to identify and monitor such sites. These instruments also lay particular significance on the need to conserve migratory populations, and consequently most of the waterbird populations in the UK.

The UK has ratified the Agreement on the Conservation of African-Eurasian Waterbirds (AEWA) of the 'Bonn' Convention on the Conservation of Migratory Species of Wild Animals. AEWA entered into force in 1999. It is a specific Agreement requiring nations to take co-ordinated measures to conserve migratory waterbirds given their particular vulnerability due to their migration over long distances and their dependence on networks that are decreasing in extent and becoming degraded through non-sustainable human activities. Article three of the Agreement requires, among other things, that sites and habitats for migratory waterbirds are identified, protected and managed appropriately, that parties initiate or support research into the ecology of these species, and exchange information and results. Explicit in this Agreement is that adequate monitoring programmes are set in place to fulfil these objectives and the Action Plan to the Agreement specifically requires that nations endeavour to monitor waterbird populations, individually and collectively.

AIMS AND OBJECTIVES OF WEBS

The Wetland Bird Survey (WeBS) aims to monitor all non-breeding waterbirds in the UK to provide the principal data on which the conservation of their populations and wetland habitats 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 and wise use and management of wetlands and their dependent waterbirds. The data and the WeBS report also fulfil some of the objectives of the Conventions and Directives listed above. WeBS also provides UK data to Wetlands International to assist their function to co-ordinate and report upon waterbird monitoring at an international scale through the International Waterbird Census.

Structure and organization of WeBS

WeBS is partnership scheme of the British Trust for Ornithology (BTO), Wildfowl & Wetlands Trust (WWT), Royal Society for the Protection of Birds (RSPB) and Joint Nature Conservation Committee (JNCC), the last on behalf of English Nature (EN), Scottish Natural Heritage (SNH) and the Countryside Council for Wales (CCW), and the Environment and Heritage Service in Northern Ireland (EHS).

WeBS continues the traditions of two, long-running count schemes which formed the mainstay of UK waterbird monitoring since 1947 (Cranswick *et al* 1997). WeBS Core Counts are made at a wide variety of wetlands throughout the UK. Synchronised counts are conducted once per month, primarily from September to March, to fulfil all three main objectives. In addition, WeBS Low Tide Counts are undertaken on selected estuaries with the aim of identifying key areas used during the low tide period, principally by feeding birds; areas not otherwise noted for their importance by Core Counts which are normally conducted at high tide.

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

AIM OF THIS REPORT

This report presents syntheses of data collected in 2001/02 and 2002/03, and in previous years, in line with the WeBS objectives. Data from other national and local waterbird monitoring schemes, notably annual goose censuses, are included where WeBS data alone are insufficient to fulfil this aim, so that the report provides a single, comprehensive source of information on waterbird status and distribution in the UK. All nationally and internationally important sites for which data exist are listed (see Appendices 1 & 2).

Changes since the 2000/01 report

The reader's attention is drawn to a number of significant developments and changes since the previous *Wildfowl & Wader Counts*. Full details are provided in the relevant section of the report, as indicated, and the reader is urged to consult these for a full explanation of the changes and for other, minor, revisions.

- To help bring reporting back in line with the intended schedule, this *Wildfowl & Wader Counts* reports on both the 2001/02 and 2002/03 count years. Certain data are presented from both winters, *eg* counted WeBS maxima for Great Britain and Northern Ireland are given in the *Species accounts*, as are significant counts from sites not meeting table qualifying criteria on the basis of their five-year peak means.
- The means of assessing count completeness has been standardised and the same technique is now applied to all species (see *Analysis*).
- A new analytical technique has been used for calculation of annual indices, and a smoothed line – indicating the underlying trend – has been included in graphs of indices based on WeBS data (see *Analysis*).
- 'Alerts' – an objective method of identifying changes of concern in trends – are included in the *Species accounts* (see *Analysis*).
- International waterbird population estimates, and estimates of waterbird numbers wintering in Great Britain, have been revised (see Appendix 2). Numbers of sites meeting and no longer meeting the relevant qualifying criteria have changed markedly for some species (see *Presentation and notation* and relevant *Species accounts*).
- Wetlands International has revised the population definitions for some waterbird species occurring in the UK – some (Mute Swan, Eider and Goosander) are now regarded as distinct populations, and others (Redshank, Bar-tailed Godwit and Ringed Plover) as comprising different sub-species – with consequent changes to the 1% thresholds used (see *Species Accounts*).
- Rarities and escaped species accounts have been moved to a discrete section at the end of the *Species accounts* (see *Presentation and notation*).
- The order of species presented in the *Species accounts* has been modified, in line with BOURC recommendations, placing wildfowl at the start of the systematic list (see *Presentation and notation*).
- Note, also, that access restrictions to the UK countryside imposed after the outbreak of Foot and Mouth Disease in February 2001 reduced the number of sites – and therefore birds – surveyed during summer months in 2001 (see *Coverage*).

WEATHER IN 2001/02 AND 2002/03

This summary of UK and European weather is drawn from the journal *Weather* and from the Meteorological Office web site at www.metoffice.gov.uk. Figures in brackets following the month refer to the Core Count priority date for the month in question. Arctic breeding conditions for birds that winter in the UK are summarised from information collated by Soloviev & Tomkovich at the web site www.arcticbirds.ru.

United Kingdom

April 2001 (8) brought changeable and generally wet weather to central and western Britain with rainfall approaching double the norm. Scotland was relatively dry and sunny. The month started warm and dry with a high of 21.5 ºC in the south east on the 2nd. A wet, unsettled period with thundery showers and strong winds followed, affecting most of the UK. North Wales and counties adjacent to the North Sea were most affected by hail, sleet and snow showers on the 18-20th. There were widespread overnight frosts, with -5.7 ºC in Highland on the 20th. The month had a drier finish as rain gave way to more prolonged sunny spells.

High pressure saw less than 50% of the average rainfall in Scotland at the beginning of **May** (27) but other areas of Britain experienced more unsettled weather. Thundery rain, hail and lightning broke out on the 9/10th mainly over Wales and southern England, but by the 11th it had become much warmer in many areas with prolonged sunshine. A peak of 27.3 ºC was recorded at Hampshire on the 12th and temperatures exceeded 25 ºC in some locations in Scotland. Low pressure then brought frequent outbreaks of heavy rain at the end of the month, especially to northern and eastern England.

Although cool and dull over Scotland and Northern Ireland, it was the driest **June** (24) in England and Wales since 1996. The month started unsettled with cool westerly winds and some heavy downpours in the south west and continued with cold nights in many regions (-1.8 ºC was recorded in Surrey on the 9th). By the 20th, warmer weather in many southern areas saw a high of 32 ºC in the West Midlands on the 26th. The month finished with cooler, fresher, more changeable weather with sunny spells interspersed with occasional outbreaks of rain and showers.

July (22) was generally warm across the UK with temperatures in the Northern Isles around 3 ºC higher than the average. A short spell of hot weather, with temperatures reaching over 30 ºC in the Midlands and London, was followed by thunderstorms and heavy rain in the west of Britain. The second and third week turned cooler and showery and night temperatures reached 0 ºC in mid Wales on the 15th. A deep depression on the 17th brought heavy rain (96 mm in Nottinghamshire) and flooding to the Midlands and East Anglia. Temperatures rose again at the end of the month to more than 30 ºC in the south east. Thundery showers occurred on the 30th in north west England and eastern England with tornadoes reported in Norfolk

For much of the UK, **August** (19) was very warm and sunny, and rainfall was below average. The month started unsettled in England and Wales, with warm spells broken by thunderstorms and windy weather. A record-breaking heat wave in the second week saw 32.9 ºC in Borders on the 9th and 38.5 ºC in Kent on the 10th. This was followed by another period of unsettled weather with thunderstorms in north, west and central regions, and mini-tornadoes and waterspouts in England. High pressure between 20-29th brought more warm weather but cooler conditions arrived at the end of the month.

September (16) was the coolest for five years. It was generally dry, particularly in Northern Ireland which experienced only 50% of its average rainfall; Norfolk, however, had more than double the norm. Despite unsettled weather during the 1-5th, temperatures in the south were relatively high, reaching 23 ºC in Hampshire and Devon. Eastern Britain experienced heavy rain and strong winds around the 17th with gusts of over 40 knots near the Wash. A period of high pressure followed, bringing calmer, sunnier weather, particularly in the south, and some frost to Scotland. The end of the month saw more unsettled but warm weather, with temperatures reaching 24 ºC in London on the 28th.

Although temperatures in **October** (7) were generally 2-3 ºC warmer than average, it was also a very wet month with more than 50% above average rainfall; only Northern Ireland had less than usual. The month started unsettled, with wet, windy and sometimes stormy conditions: Sutherland received 41 mm of rain on the 2nd and many other areas exceeded their monthly average by the 8th. A tornado caused local destruction on the Norfolk Broads and on the 7th, and 67 knot gusts were recorded in South Wales. A period of high pressure and southerly winds followed bringing high temperatures, with 25 ºC in London on the 13th. Heavy rain moved in again from the 20th,

with over 90 mm in the Cambridge on the 21st causing severe flooding, while Highland received 177 mm in two days.

High pressure dominated throughout **November** (4) and many areas saw settled weather. Parts of southern England received less than 50% of their normal rainfall. High temperatures during the first week included 17 °C in Devon on the 1st. The second week saw cold weather over central and eastern Britain and there were extensive snowfalls on the 9th, with 18 cm in Aviemore. The middle of the month was dominated by an anticyclone, with mostly dry, cool weather, although conditions became more unsettled towards the end. The 30th saw some extremely mild weather, reaching 16.9 °C in Flintshire.

It was the sunniest **December** (16) since records began in 1909. It was a dry month, with parts of England and Wales receiving only a third of their normal rainfall, while temperatures were close to average across Scotland and Northern Ireland but 1 °C below average in England and Wales. The month started unsettled and showery but by the second week, high pressure dominated bringing mostly dry, sunny weather, mild at first (16.1 °C in North Wales on the 11th) but turning colder with widespread frosts at night. Cold northerly winds brought snow to many areas after the 20th and Northern Ireland received 10 cm on the 26th. Scotland was hit by severe weather at the end of the month with cold northerly winds blizzards and sharp frosts. Temperatures dropped to -11.6 °C in Highland on the 31st and 20 cm of snow lay over much of northern Scotland.

Generally warm throughout the UK at the start of 2002, it was the mildest **January** (13) in England and Wales since 1993. Rainfall was higher than average over Scotland, but levels elsewhere were close to normal. The cold start to the month saw temperatures fall to –11.9 °C on the 1st in Powys and –15 °C in Grampian on the 2nd, but reach as high as 15 °C in parts of England and Wales by the end of the month. The last ten days saw severe gales and heavy rain, particularly in the west and north of Britain, with gusts of 74 knots recorded in the Hebrides and in Lanarkshire.

With the exception of a brief spell of quiet, dry and sunny weather in the middle of the month, **February** (10) was very unsettled, wet and windy. Western areas were the most affected, experiencing twice their normal rainfall average. Snow in the north of Britain and Northern Ireland saw 16 cm in Dumfries & Galloway on the 23rd. In the latter part of the month, there were strong winds and heavy rain, with hail and thunder in many places: gusts of over 70 knots were recorded in north Wales and 121 mm of rain in 24 hours caused local flooding in Caernarfonshire.

For much of the UK, **March** (3) was mild, sunny and generally dry, with only central parts of Scotland and the Northern Isles receiving above average rainfall. Northerly winds and frosts quickly gave way to milder and wetter weather. The south coast experienced temperatures of 17 °C on the 7th, but torrential rain saw over 80 mm in the west Highlands. An intense low produced strong winds with gusts of over 60 knots in South Wales and Norfolk on the 9th. Some areas of Northern England and Scotland saw snowfall, with 10 cm in Co Durham on the 10th. High pressure brought mild temperatures to the UK towards the end of the month and temperatures above 18 °C were recorded at London and Aberdeenshire on the 28th and 29th.

April (14) was warm (temperatures 1-2 °C above average), dry and sunny for the most part with little rain in southern or eastern areas until the 17th. All areas of Northern Ireland experienced above average rainfall and Gwynedd received 60 mm in 24 hours on the 18th. High temperatures were seen in many areas with 23.7 °C recorded in Greater London on the 22nd. Areas bordering the North Sea were cooler and some northern areas experienced sharp frosts. Heavy rain and thunder arrived at the end of the month in many areas with snow on some Scottish mountains.

Temperatures in **May** (12) were above average across the UK, with above or near normal sunshine. Much of the UK was, however, wetter than normal with some areas of Northern Ireland receiving up to two and a half times the average rainfall. The beginning of the month was mostly dry but nights were cold with -5 °C recorded in exposed areas in Scotland. A short spell of warm weather on the 15th saw temperatures reach 26 °C in Surrey and 29 °C in the Channel Islands. Thereafter, conditions were often unsettled, with some heavy hail and thunder storms: some southern areas experienced downpours of 50 mm and up to half an inch of hail accumulated in Belfast on 27th.

Much of **June** (9) was unsettled and very wet over Northern Ireland, northern England and southern Scotland. Mean temperatures across the UK were close to normal, but 2 °C above average across the Shetland Isles. The first week saw high temperatures and sunshine but heavy rain and thunderstorms soon affected southeast England and East Anglia, with 42 mm of rain in

Surrey and Greater London on the 4th/5th. Wet weather was also seen over Northern Ireland, northern England and southern Scotland, with 150-200% of average rainfall. The second half of the month saw more settled weather, particularly across England and Wales, and temperatures reached 29 °C over the southeast and East Anglia on the 17th.

July (14) began cool and unsettled. Temperatures rarely climbed above 15 °C with some areas receiving more than three times their average rainfall. A ridge of high pressure mid month brought warmer, drier weather before low pressure returned bringing more showers. The 30th saw 83 mm rainfall in 18 hours in Norfolk, and parts of Fife had their wettest July day on record. Although mean temperatures were close to the average, they had risen to 33 °C in London on the 29th, the highest July temperature for 13 years.

August (11) was generally a warm but unsettled month across the UK. Although parts of Northern Ireland and western Scotland had dry weather, the rest of the UK suffered heavy downpours. Torrential downpours brought 115 mm rain to North Yorkshire on the 1st, resulting in flash floods and the wettest recorded day since 1984. The south too suffered heavy rainfall with localised flooding in the London area on the 7th and tornadoes were recorded in the south west of Britain. Hot, humid weather came to many areas by the middle of the month with temperatures of over 30 °C in the south and east. A period of cooler wetter weather followed although high pressure brought mostly dry conditions to much of the country at the end of the month.

For the most part, **September** (8) was settled, warm and dry. It was the driest September in Scotland since 1972 and the sunniest in England and Wales since 1991. Temperature and sunshine were above average with the exception of the north of Scotland. An unsettled spell on the 4-10th resulted in squally winds, heavy downpours and localised flooding, with 121 mm in Dorset in 24 hours on the 9th. High pressure then dominated with temperatures of 21.8 °C in the Amargh area on the 11th, 25.6 °C in Highland on the 12th, and 26.5 °C in Devon on the 13th. At the end of the month, the nights became cooler with frosts in some areas.

Wet, cool and windy weather prevailed across most of the UK throughout **October** (6), with the exception of south east England and northwest Scotland. Aberdeen had its wettest October on record with 230.4 mm rainfall. The month began warm with temperatures exceeding 21 °C in Scotland and 23 °C in North Wales but Atlantic fronts brought wet weather in the second week, especially in the south west. Northerly winds brought cold weather on the 16th with the temperature in Stirlingshire dropping to -7.5 °C on the 20th. Snow fell on the 20/21st in the Peak District, Cumbria and the Highlands. More wet and windy weather was seen from the 27th across England and Wales, particularly severe in East Anglia and South Wales.

November (17) was one of the mildest on record, though generally very wet across the UK with the exception of northwest Scotland. It was the wettest November in Northern Ireland since 1963 and in central London since 1940. A series of Atlantic fronts brought warm air across the country for most of the month, temperatures regularly exceeding 17 °C in the first week, but also wind and rain, with some western and southern areas receiving three times their average rainfall: 84.5 mm of rain in Cornwall was accompanied by 70 mph winds, and there was severe flooding in northeast Scotland. A short spell of calmer weather occurred on the 17/18th with fog and frost on the 25th. More fronts brought unsettled and mostly mild and wet conditions at the end of the month.

Although **December** (8) was wet over England, Wales and southeast Scotland, it was drier then average across northwestern Scotland. Eastern Britain was generally dull while western regions were sunnier than average. It was a changeable month with some cold and dry periods followed by unsettled, wet and mild conditions. Mid month, cold winds from the east brought lower temperatures with -8 °C recorded at Dumfries. A very wet period across the country on the 20-22nd caused localised flooding. The Christmas period was one of the mildest for at least a decade with temperatures in North Wales reaching 15 °C on the 23rd. The end of the month saw very unsettled and wet weather, particularly in the south.

January 2003 (5) was generally sunny across the UK with temperatures slightly above average particularly in the south and west. The north and east experienced above average rainfall and significant snowfall in the second week and towards the end of the month. The first week saw a period of cold weather bring severe frosts to northern areas. On the 8th, London experienced its heaviest snow for 12 years (up to 8 mm in places). Wet and windy weather became established across most of the country by the middle of the month but an area of high pressure then brought warmer

temperatures to many areas with 18.3 ºC near Aberdeen on the 26th being a UK January record. Blizzard conditions hit southeast England on 30th.

Predominantly warm, dry and very sunny weather was seen throughout **February** (16). The weather started changeable with severe snow storms across the Scottish highlands and moderate to heavy snowfall across Northern Ireland on 1-2nd. Milder, wetter weather followed in the second week accompanied by strong southwesterly winds. High pressure in the third week brought dry, cold weather with widespread frosts but prolonged sunny periods in many areas and continued for the remainder of the month. Scotland experienced a long period of south and southeasterly winds bringing low humidity and sunny weather; temperatures reached -11 ºC in the Glens overnight but rose to 12 ºC in mild afternoons.

March (23) temperatures were above average and conditions were generally very dry and exceptionally sunny. The month began with unsettled conditions with a deep depression bringing heavy rain to western areas on 7/8th. By mid month, rising pressure gave clear sunny weather over much of the country. Calm and clear skies brought cold nights with frost and patchy fog, and a low of -6.6ºC in Northumberland on the 19th. Sea fogs over the North Sea coasts kept temperatures in some regions relatively low but many places had the sunniest March since 1929. The rainfall totals for most regions were about 50% below the long-term average for the month.

Northwest Europe 2001/02

The 2001/02 winter was generally mild across much of northwest Europe. September saw near to average temperatures in many areas, although they were 1-2 ºC higher in Russia and Scandinavia. The month was generally wet, especially over much of northern and central Europe. Mild conditions continued into October with average temperatures up to 4 ºC higher than normal in the Netherlands. Russia and Scandinavia again experienced above average rainfall, although regions elsewhere were relatively dry. Although mean monthly temperatures were close to average in November in many areas, the coldest temperatures occurred mid month in western and central Europe and towards the end of the month in eastern Europe. Temperatures fell in December with a cold spell towards the end of the month, particularly in Russia, Poland and Scandinavia, when temperatures were up to

Table 1. The percentage of stillwater count units (lakes, reservoirs and gravel pits) with any ice and with 75% or more of their surface covered by ice during WeBS counts in 2001/02 and 2002/03 (England divided by a line drawn roughly between the Humber and Mersey Estuaries).

2001/02 Region	**Ice**	**S**	**O**	**N**	**D**	**J**	**F**	**M**
Northern Ireland	>0%	0	0	0	0	0	0	0
	>74%	0	0	0	0	0	0	0
Scotland	>0%	<1	<1	<1	20	21	4	2
	>74%	0	0	0	6	9	2	<1
N England	>0%	0	0	0	8	25	<1	0
	>74%	0	0	0	2	9	0	0
S England	>0%	0	0	0	9	17	<1	<1
	>74%	0	0	0	2	4	0	0
Wales	>0%	0	0	0	9	5	0	2
	>74%	0	0	0	<1	<1	0	0

2002/03 Region	**Ice**	**S**	**O**	**N**	**D**	**J**	**F**	**M**
Northern Ireland	>0%	0	0	0	0	<1	0	0
	>74%	0	0	0	0	<1	0	0
Scotland	>0%	0	1	4	3	46	38	<1
	>74%	0	<1	<1	1	21	17	0
N England	>0%	0	<1	0	3	42	29	<1
	>74%	0	0	0	<1	12	11	0
S England	>0%	0	0	0	<1	19	12	<1
	>74%	0	0	0	<1	5	3	0
Wales	>0%	0	0	0	<1	21	8	0
	>74%	0	0	0	0	5	2	0

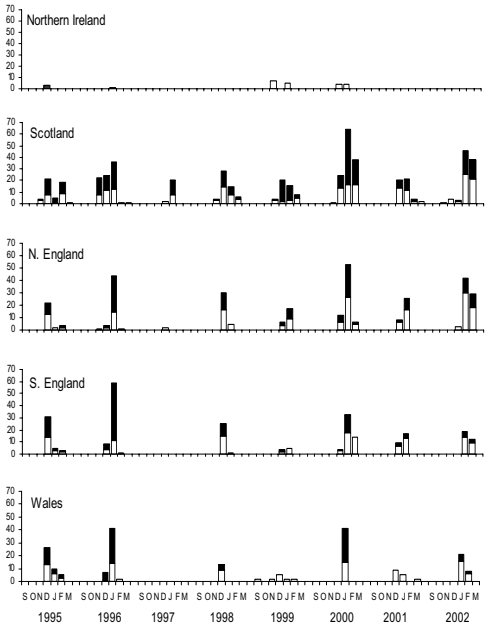


Figure 1. Percentage of still water count units in the UK with ice cover during WeBS counts 1995-2002 (white bars 1-75% ice cover, black bars >75% ice cover)

6 ºC lower than the mean minimum in some areas. A severe frost in the Netherlands resulted in extensive ice coverage of many waterbodies including the Wadden Sea.

Low temperatures continued into January 2002 over most of northwest Europe, but it became warmer in the latter half of the month, and temperatures were then generally 1-3 ºC higher than average in many areas. Rainfall was above average in Scandinavia and Poland. Mild conditions continued in the first half of February and it was generally wet over much of north and west Europe. The latter part of the month saw lower temperatures in Russia, Poland, Scandinavia and parts of western Europe. Following a cold spell in the first week, March saw above average temperatures across all of northwest Europe, accompanied by low rainfall in many areas except northern France, Poland and northern Russia.

Northwest Europe 2002/03

Mild conditions in September 2002 saw slightly higher than average temperatures in Russia, Scandinavia and western Europe. Rainfall was high in Russia and the Baltic but well below the norm elsewhere. October was generally wet in western Europe and Russia, and temperatures were 1-5 ºC below the mean minimum in Scandinavia, Russia and the Netherlands, with the lowest temperatures recorded at the end of the month. November was warmer than average, except in northern Europe where it was 1- 3 ºC lower than normal. Most areas had low rainfall, although northern France experienced wet conditions. Colder weather intruded in December, particularly in the last week, when temperatures were 6-7 ºC below average in Russia, Poland and Ukraine. Lower than average temperatures were also recorded in Scandinavia and western Europe, and northern France in particular was again wet.

Although the first ten days of January were generally cold, monthly mean temperatures were generally 2 ºC above average in Russia and Ukraine. Many areas saw below average rainfall, but the wet conditions continued in northern France, and also eastern Germany and Poland. Low temperatures occurred in the first half of February; falling 4-7 ºC below the mean minimum in eastern European countries. Temperatures remained generally below average over much of Europe for the rest of the month and low rainfall occurred in many areas. Winter closed with a dry, mild March when temperatures were close to or above average in many areas.

Arctic breeding conditions 2001

Overall breeding success was variable across the Arctic, with low productivity recorded in Canada and northeast Greenland but higher success in many parts of Russia and particularly Siberia. Early summer temperatures were average to just below average in Greenland and Iceland, with many parts of Russia, Siberia and Canada recording below average temperatures, although only Alaska and Canada had correspondingly late springs. The Taimyr Peninsula and areas further south and west had above average temperatures with spring phenology early in many areas. Northeast Greenland experienced a return of cold weather in mid June and Turnstone and Knot reproduction was thought to be particularly affected as a result. Cold rains in late June in northeast Europe coincided with the main hatching period for some species and stormy weather at the end of July impacted on chick survival in western Taimyr. Mid summer conditions were warm over much of Russia including the Kola Peninsula; a cold July in western Siberia and northeast America, however, caused a decrease in numbers and possibly nest abandonment by plovers, Bar-tailed Godwits and divers, and delayed reproduction in other species.

Rodent abundance was highest in Norway and Sweden but low over northern Russia including the Taimyr Peninsula, with few areas reporting average or high populations. Although lemming numbers were relatively low in some areas of eastern Eurasia, predation by Arctic foxes did not appear to have a major impact on breeding birds, with good reproductive success reported, particularly for some wader species. Those areas where impacts were seen included northeast Greenland, where nest predation was high, although numbers of juveniles in autumn flocks of waders indicated better reproductive success in other parts of Greenland. Western Alaska suffered a crash in rodent populations with a corresponding rise in predation, while unfavourable weather and high predation pressure affected breeding success, particularly of geese, in north and northwest Canada.

Arctic breeding conditions 2002

Contrasting patterns of reproductive success were seen in 2002, possibly reflecting a moderate but widespread prevalence of predators with locally varying rodent numbers. Rodent abundance was reported as low at several localities in Canada and Alaska, but average throughout much of Russia; there were

several areas of high lemming abundance but none was particularly widespread. Good to average breeding success was reported in northeast Greenland, the Taimyr Peninsula and parts of northern Russia, but lower in a number of areas in north Alaska, the Kola Peninsula and west of the Urals.

Early summer temperatures were higher than average in Eastern Greenland, Iceland, northwest Europe, Siberia and western Alaska. In contrast, a number of localities in northwest Canada, eastern Alaska, northern European Russia and west Siberia saw below average temperatures for June. Spring phenology was early in western Alaska, North Siberia and northeast Greenland. In mid summer, warm conditions prevailed in Sweden, Finland and the Kola Peninsula, with average temperatures occurring throughout most of Greenland in July. Lower than average July temperatures were experienced in parts of the Canadian Arctic, Alaska and the Taimyr Peninsula. Cold, wet weather in the Canadian Arctic, northeast Europe and western Siberia in mid summer reduced chick survival, particularly on Yamal and Taimyr Peninsula. Summer snowfall occurred in northern Alaska, Canada and northwest Taimyr but was not thought to have major consequences for breeding birds. Flooding, however, destroyed nests of coastal waders, especially plovers and Temminck's Stint, as well as gull and tern species, in a number of localities.

Waterbird surveys in the UK

SURVEY METHODS

The main source of data for this report is the WeBS scheme, providing regular monthly counts for most waterbird species at the majority of the UK's important wetlands. In order to fulfil the WeBS objectives, however, data from a number of additional schemes are included in this report. In particular, a number of species groups necessitate different counting methodologies in order to monitor numbers adequately, notably grey geese and seaducks, and the results of other national and local schemes for these species are routinely included.

The methods for these survey types are outlined below and more detail can be found in Gilbert *et al* (1998).

It should be noted that site definition is likely to vary between these surveys (see *Interpretation of waterbird counts*).

WeBS Core Counts

WeBS Core Counts are made using so-called 'look-see' methodology (Bibby *et al* 2000), whereby the observer, familiar with the species involved, surveys the whole of a predefined area.

Counts are made at all wetland habitats, including lakes, lochs/loughs, ponds, reservoirs, gravel pits, rivers, freshwater marshes, canals, sections of open coast and estuaries.

Numbers of all waterbird species, as defined by Wetlands International (Rose & Scott 1997), are recorded. In the UK, this includes divers, grebes, Cormorant, herons, Spoonbill, swans, geese, ducks, rail, cranes, waders and Kingfisher. Counts of gulls and terns are optional. Vagrants, introductions and escapes are included.

Most waterbirds are readily visible. Secretive species, such as snipes, are generally under-recorded. No allowance is made for these habits by the observer and only birds seen or heard are recorded. The species affected by such biases are well known and the problems of interpretation are highlighted individually in the *Species accounts*.

Most species and many sub-species are readily identifiable during the counts. Categories may be used, *eg* unidentified scoter species, where it is not possible to be confident of identification, *eg* under poor light conditions.

Species present in relatively small numbers or dispersed widely may be counted singly. The number of birds in large flocks is generally estimated by mentally dividing the birds into groups, which may vary from five to 1,000 depending on the size of the flock, and counting the number of groups. Notebooks and tally counters may be used to aid counts.

Counts are made once per month, ideally on predetermined 'priority dates'. This enables counts across the whole country to be synchronised, thus reducing the likelihood of birds being double-counted or missed. Such synchronisation is imperative at large sites which are divided into sectors, each of which can be practicably counted by a single person in a reasonable amount of time. Local Organisers ensure co-ordination in these cases due to the high possibility of local movements affecting count totals.

The priority dates are pre-selected with a view to optimising tidal conditions for counters covering coastal sites at high tide on a Sunday (see *Coverage*). The dates used for individual sites may vary due to differences in the tidal regime around the country. Co-ordination within a site takes priority over national synchronisation.

The accuracy of each count is recorded. Counts suspected to be gross underestimates of the true number of non-secretive species present are specifically noted, *eg* a large flock of roosting waders only partially counted before being flushed by a predator, or a distant flock of seaduck in heavy swell. These counts may then be treated differently when calculating site totals (see *Analysis*).

Data are input by a professional data input company. Data are keyed twice by different people and discrepancies identified by computer for correction. Any particularly unusual counts are checked by the National Organisers and are confirmed with the counters if necessary.

WeBS Low Tide Counts

This survey aims to assess numbers of waterbirds present during low tide on estuaries, primarily to assess the distribution of feeding birds at that time (see the section *Low Tide Counts* for a full explanation of methods).

This survey occasionally provides higher counts for individual sites than Core Counts, for example, where birds feed on one estuary but

roost on another. These data are then used for site assessment against 1% thresholds.

Supplementary daytime and roost counts

Supplementary counts are made at some sites where WeBS counts are known to under-represent the true value of the site. In particular, some species occur in much larger sites when using the site as a night-time roost, *eg* geese, Goosander and gulls, that are not present during WeBS daytime counts. Some sites are also surveyed more frequently than once-monthly by some observers.

Supplementary counts are collected by counters familiar with the site for WeBS survey, thus employing the same site definition and, for daytime counts, the same counting methods, and are submitted on standardised recording forms adapted from those used for WeBS Core Counts.

Goose roost censuses

Many 'grey' geese (*Anser* spp) spend daylight hours in agricultural landscapes, and are therefore missed during counts at wetlands by WeBS. These species are usually best counted as they fly to or from their roost sites at dawn or dusk since these are generally discrete wetlands and birds often follow traditional flight-lines approaching or leaving the site. Even in half-light, birds can generally be counted with relative ease against the sky, although they may not be specifically identifiable at mixed species roosts.

In order to produce population estimates, counts are synchronised nationally for particular species (see Appendix 3), though normally only one or two such counts are made each year. The priority count dates are determined according to the state of the moon, ideally conducted during a new moon since large numbers of geese may remain on fields during moonlit nights. Additional counts are made by some observers, particularly during times of high turnover when large numbers may occur for just a few days.

In some areas, where roost sites are poorly known or difficult to access, counts of birds in fields are made during the daytime.

As with WeBS Core Counts, the accuracy of the count is noted.

Additional counts

Additional, *ad hoc*, data are also sought for important sites not otherwise covered by regular monitoring, particularly open coast sections in Scotland, whilst the results of periodic, co-ordinated surveys – such as the Non-Estuarine coastal Waterbird Survey (NEWS), International Greenland Barnacle Goose Census, International Whooper & Bewick's Swan Census – are included where the data collected are compatible with the presentation formats used in this report.

The accuracy of counts of waterbirds on the sea is particularly dependent on prevailing weather conditions at the time of or directly preceding the count. Birds are often distant from land, and wind or rain can cause considerable difficulty with identifying and counting birds. Wind not only causes telescope shake, but even a moderate swell at sites without high vantage points can hamper counts considerably. The need to count other waterbirds in 'terrestrial' habitats at the site often precludes the time required for an accurate assessment of seaducks. Many sites may be best covered using aerial surveys, though this technique has been little used in the UK historically. Consequently, the best counts of most divers, grebes and seaduck at open coast and many estuarine sites are made simply when conditions allow; only rarely will such conditions occur by chance during WeBS counts. Synchronisation between different sites may be difficult or impossible to achieve, and thus co-ordination of most counts to date has occurred at a regional or site level, *eg* within the Moray Firth and within North Cardigan Bay.

The extensive use of aerial survey methods in nearshore marine waters in recent years means that data are available for a number of sites. These surveys employ a 'distance sampling' methodology (see Buckland *et al* 2001), whereby only a proportion of birds is counted, and the missed proportion calculated. Most reports published to date from these surveys provide only the counted number, not the estimated true total. Although known undercounts, these counts are used in this report, since most are nevertheless the largest to date for many sites.

Some data are provided directly by individuals (for example, reserve wardens), often undertaking counts for site survey purposes, but whose data are not formally published in a report.

A significant point is that these additional data are taken from published sources, from surveys with the specific aim of monitoring waterbirds, and where methods have been published – or where data have been collected by known individuals, usually undertaking site-based surveys, and are provided directly for use

in *Wildfowl & Wader Counts*. Casual records and data from, *eg* county bird reports, where the methods and/or site boundaries used are not documented, are not included. Reports and data for important sites from surveys that the authors know to have taken place in recent years are actively sought for inclusion in this report, but it is likely that other sources of suitable data are overlooked. The inclusion of additional data for some species and sites does not, thus, indicate that the tables in the *Species accounts* include all such suitable data.-

Irish Wetland Bird Survey

The Irish Wetland Bird Survey (I-WeBS) monitors non-breeding waterbirds in the Republic of Ireland (Colhoun 2001, Crowe 2005). I-WeBS was launched in 1994 as a joint partnership between BirdWatch Ireland, National Parks and Wildlife Service of Dúchas — The Heritage Service of the Department of Environment and Local Government (Ireland) — and WWT, with additional funding and support from the Heritage Council and WWF UK (World Wide Fund for Nature). I-WeBS is complementary to and compatible with the UK scheme. The main methodological difference from UK-WeBS is that counts are made only between September and March, inclusive.

Productivity monitoring

Changes in numbers of waterbirds counted in the UK between years are likely to result from a number of factors, including coverage and weather, particularly for European and Russian-breeding species which may winter further east or west within Europe according to the severity of the winter. Genuine changes in population size will, however, result from differences in recruitment and mortality between years.

For several species of swans and geese, young of the year can be readily identified in the field and a measure of productivity can be obtained by recording the number of young birds in sampled flocks, expressed as a percentage of the total number of birds aged. Experienced fieldworkers, by observing the behaviour of and relationship between individuals in a flock, can record brood sizes as the number of young birds associating with, usually, two adults.

ANALYSIS

In fulfilment of the WeBS objectives, results are presented in a number of different sections. An outline of the analyses undertaken for each is given here; further detail is provided in Appendix 3. A number of limitations of the data or these analytical techniques necessitate caution when interpreting the results presented in this report (see *Interpretation of waterbird counts*).

Count accuracy and completeness

Counts at individual sites may be hampered by poor conditions, or parts of the site may not be covered. This may result in counts missing a significant proportion of one or more species. It is important to flag such counts since using them at face value would under-represent the importance of the site and give misleading results, *eg* when used for trend calculations and assessment of site importance.

Counts at sites – and at individual sectors of large sites that are counted using a series of sub-divisions (known as 'complex sites') – are flagged as 'OK' or 'Low' by the counter, where 'Low' indicates that the counter feels a significant proportion of the birds present at the time of the count may have been missed, *eg* because all of the site or sector was not visited, or because a large flock of birds flew before counts were complete. Such assessments may be provided for individual species, or for all species present.

Similarly, at complex sites, one or more sectors may be missed in a particular month, again rendering the total count for the site incomplete to a greater or lesser degree for one or more species.

For single sector sites, counts are assessed as incomplete based on the information provided by the counter. For complex sites, an algorithm is used to assess whether missed sectors or 'Low' counts in some sectors constitute an incomplete count at the site level. The mean count of each sector is calculated based on 'OK' counts from a window of counts comprising the month in question, one month either side of the count, and the same three-month window in the preceding four years (*ie* a possible maximum of 15 counts). The total count for the site in any one month is considered incomplete if the sectors for which the count is missing or 'Low' in that month hold, on the basis of their mean values, more than 25% of the sum of all sector means. The assessment is made on a species-by-species basis, recognising the fact that species distribution is not uniform across a site and that a missed sector may be particularly important for some species but not for others.

Completeness assessments are made for all WeBS Core Counts, and for most goose roost counts (which, as single-sector sites, are made on the basis of the OK/Low assessment provided by the counter).

Because the completeness calculation for complex sites is based on a moving window of counts, and the use of different parts of the site by species may change, the addition of new data each year may result in counts flagged in previous *Wildfowl & Wader Counts* as complete now being considered incomplete, and *vice versa*.

Actual counts of birds obtained during aerial survey employing 'distance sampling' methods (see *Additional counts*) are also flagged as incomplete.

Counts are not flagged as 'Low' if a large number of the birds present is routinely missed, *eg* because they are cryptic, secretive, or hide in reeds – such as Snipe, Teal and Water Rail. 'Low' indicates that a significant proportion of the birds that could reasonably be expected to be counted under normal conditions was considered to have been missed. Similarly, many counts of waterbirds on the sea may be undercounts. Indeed, if the distribution of a flock stretches beyond the limits of visibility, the counter – as with birds hidden in reeds – can never know with confidence whether the count included all birds present.

Counts flagged as incomplete are treated differently in trend analysis and site importance assessments (see below).

It should be noted that this approach was applied to wildfowl for the first time in this report (although applied to data from all years, not just in 2001/02 and 2002/03). Thus, a much larger proportion of site counts in the wildfowl *Species accounts* are now identified as incomplete that in previous *Wildfowl & Wader Counts*.

Annual maxima

Different waterbird species occur in the UK at different times of year. Most occur in largest numbers during winter, some are residents with numbers boosted during winter, while others occur primarily as passage migrants or even just as summer visitors.

Although WeBS counts concentrate primarily on winter months, survey is made year-round. Accordingly, different 12-month periods are used to define a year to report upon

different species, in particular, to define the 'annual' maximum and to identify the peak 'annual' count for assessing site importance.

For most species, the year is defined as July to June, inclusive. Thus, for species present in largest numbers during winter, counts during autumn passage and spring passage the following calendar year are logically associated with the intervening winter. For species present as summer visitors – notably terns, Garganey and Little Ringed Plover – the calendar year is used to derive national and site maxima.

The different format used for column headings (*eg* 01/02 or 2001) in the 'header' and tables in each species account identify whether a 'winter' or calendar year has been used.

Note that national totals (reported in Tables 4-9) present data for the period April to March, since this corresponds to the months for which counters have traditionally been asked to submit data *en masse*. This means that data for the most recent 'winter' year are incomplete, and may lead to apparent anomalies. For example, if the peak count at a site occurred in May, this will not be apparent until the following *Wildfowl & Wader Counts*, when data for April to June 2003 have been received, and the site maxima – and site importance – will then change. In reality, this will affect very few sites or species. Deadlines for the provision of data by counters in future have been revised to correct this apparent anomaly, although the requirement to use two different 12-month periods will always mean that published data for some species will be revised in subsequent reports or a six-month lag in reporting.

National totals

Total numbers of waterbirds recorded by WeBS and other schemes are presented separately for Great Britain (including the Isle of Man but excluding the Channel Islands) and Northern Ireland in recognition of the different legislation that applies to each. Note, these are counted totals, and not population estimates, as survey covers only a proportion of the total numbers in the UK.

The count nearest the monthly priority date or, alternatively, the count co-ordinated with nearby sites if there is considered to be significant interchange, is chosen for use in this report if several accurate counts are available for the same month. A count from any date is used if it is the only one available.

Totals from different censuses are not combined to produce national totals because the lack of synchronisation may result in errors, *eg* birds counted at roost by one method may be effectively double-counted during the WeBS count at a different site in that month. Total counts from several national goose surveys are, however, used instead of WeBS Core Counts where the census total provides a better estimate of the total numbers, *eg* the national census of Pink-footed and Greylag Geese in October and November, and for periodic censuses, *eg* the international census of Greenland Barnacle Geese. Counts from site or regional-based surveys, for example of seaducks, are not included in national totals.

Data from counts at all sites are used to calculate national totals, irrespective of whether they are considered complete or not.

Numbers presented in this report are not rounded. National and site totals calculated as the sum of counts from several sectors or sites may imply a false sense of accuracy if different methods for recording numbers have been used, *eg* 1,000 birds estimated on one sector and a count of seven individuals on another is presented as 1,007. It is safe to assume that any large count includes a proportion of estimated birds. Reproducing the submitted counts in this way is, however, deemed the most appropriate means of presentation and avoids the summation of 'rounding error'.

In *Species accounts* of some scarcer species, including many escaped or introduced species, summed site maxima – calculated by summing the highest count at each site, irrespective of the month in which it occurred – have also been used. For some species, particularly more numerous ones, this is likely to result in double-counting where birds have moved between sites.

Annual indices

Because the same WeBS sites are not necessarily covered each year, changes in waterbird population sizes cannot be determined simply by comparing the total number of birds counted in each year. Consequently, indexing techniques have been developed which allow between-year comparisons of numbers, even if the true population size is unknown.

In summary, where sites have not been visited, a count for each species is calculated (imputed) based on counts in other months and years and at other sites. This effectively means that data are available for the same set of sites in each year and counts are thus directly comparable from one year to the next. Changes

in the population can be calculated and the relative difference expressed as an index.

The 'Underhill index' was specifically developed for waterbird populations and was used in previous *Wildfowl &* Wader Counts (see Underhill 1989, Prŷs-Jones *et al* 1994, Underhill & Prŷs-Jones 1994 and Kirby *et al* 1995 for a full explanation of this indexing process and its application for WeBS data). A Generalised Additive Model (GAM) is now used to generate index values (see Atkinson *et al* in prep), to match the approach used for WeBS Alerts (see below). To all intents and purposes, this produces identical values to those obtained using the Underhill technique.

The index values may show marked jumps between years, reflecting both genuine changes in numbers of birds, but also some of the limitations of the data. The underlying trend, giving a more parsimonious reflection of changes, has thus also been calculated (presented as a smoothed line in the index graphs), particularly for use in Alerts (see below). This trend is based on the same GAM used for the index values but with fewer degrees of freedom (see Atkinson *et al* in prep). This underlying trend has only been fitted for populations whose index is based on WeBS data, *ie* they are not available for many goose populations (see below).

Not all species are included in the indexing process. Notably, many of the goose populations are excluded, partly because their reliance on non-wetland sites requires different count methodologies, but also because regular census of substantially the whole of the British populations negates the need for an index to be calculated. Thus, change indices for Pink-footed, Icelandic Greylag, Greenland White-fronted and Svalbard Barnacle Geese have been derived from the highest total count obtained during censuses of the population in each year (see Appendix 3). Many seaduck are also excluded from the indexing process because of the extreme counting difficulties involved. Waders excluded from the index include those for which large numbers occur away from wetlands, *eg* Lapwing and Golden Plover, and those that are difficult to count accurately using WeBS methods, *eg* Snipe and Jack Snipe. Waterbird species which only occur in small numbers in Britain and Ireland have also been excluded.

Index values for wildfowl species have been provided separately for Britain and Northern Ireland. Values calculated for waders in Northern Ireland were, however, found to be statistically unreliable due to the small number of estuaries contributing to each index value, and consequently indices have been calculated for the UK as a whole for these species.

For all species, the index value has been constrained to equal 100 in the most recent year. In particular, this enables direct comparison of values for wildfowl in Great Britain with Northern Ireland despite the different availability of data as a consequence of the later start of the scheme in the Province (see Appendix 3 for availability of data for different species groups and countries).

The period of years for which indices are calculated has been revised slightly in the light of recent analyses. Data for wildfowl continue to be presented for the period 1966/67 to the present. Data from 1974/75 onwards have been used for waders as a high proportion of counts before this winter were imputed. For species added later to the scheme, *eg* Great Crested Grebe, Coot (see Table A3 in Appendix 3), data from the first two years following their inclusion have been omitted from indices, as take-up by counters appears not to have been complete, resulting in apparent sharp increases in numbers during this time.

Monthly indices

The abundance of different wildfowl species varies during the winter due to a number of factors, most notably the timing of their movements along the flyway, whilst severe weather, particularly on the continent, may also affect numbers in the UK. Due to differences in site coverage between months, however, such patterns cannot be reliably detected using count totals. Consequently, an index is calculated for each month to reflect changes in relative abundance during the season.

The index uses only complete WeBS Core Counts from sites covered in all seven months (September to March). Totals calculated for each month from these sites only can then be compared directly (expressed as a percentage of the maximum numbers), thus revealing patterns of seasonality for the species considered. These are presented as graphs in the *Species accounts*, giving both the value for the 2002/03 winter, and the average value from the five preceding winters, 1997/98 to 2001/02. (Note that the highest average value has been constrained to equal 100 in this report; previously, five-year average values were simply the mean of the individual index values, and thus very rarely reached 100). Monthly indices are not calculated for non-migratory, scarce or irregularly counted species.

Broad differences in the monthly values between species reflect their status in the UK. Resident species, or those with large UK breeding populations, *eg* some grebes and Mallard, are present in large numbers early in the winter. Declines through the winter result in part from mortality of first year birds, but also birds returning to remote or small breeding sites that are not covered by WeBS. The majority of UK wildfowl either occur solely as winter visitors, or have small breeding populations that are swelled by winter immigrants, with peak abundance generally occurring in mid winter.

The vast majority of the wintering populations of many wader species are found on estuaries, and, since coverage of this habitat is relatively complete and more or less constant throughout winter, meaningful comparisons of total monthly counts can be made for many species. Consequently, monthly indices are not calculated for waders. As counting of gulls and terns is optional, indices are not calculated for these species either.

Site importance

Criteria for assessing the international importance of wetlands have been agreed by the Contracting Parties to the Ramsar Convention on Wetlands of International Importance (Ramsar Convention Secretariat 2004). Under Criterion 6, a wetland is considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird, whilst any site regularly supporting 20,000 or more waterbirds qualifies under Criterion 5. Similar criteria have been adopted in the UK for identification of SPAs under the EC Birds Directive (see Stroud *et al* 2001). A wetland in Britain is considered nationally important if it regularly holds 1% or more of the estimated British numbers of one species or subspecies of waterbird, and in Northern Ireland, important in an all-Ireland context if it holds 1% or more of the all-Ireland estimate. Note, however, that for those species that are listed on Annex 1 of the Birds Directive, 1% of the national population is used as the threshold for the selection of SPAs (see Stroud *et al* 2001 for further details).

Population estimates are revised once every three years, in keeping with internationally agreed timetables (Rose & Stroud 1994). International estimates used in this report follow recent revisions of international populations (Wetlands International 2002) and of estimates for Great Britain (Kershaw & Cranswick 2003, Rehfisch *et al* 2003a). The relevant 1% thresholds are given in Appendix 2. (It should be noted that the estimates and thresholds for some species or populations which should be the same at an international and national level because all birds are found in Britain, *eg* for Pink-footed Goose, differ slightly because of the rounding conventions applied. In most *Species accounts*, these differences have been rationalised and only one or other of the estimates used.)

Tables in the *Species accounts* rank the principal sites for each species according to the mean of annual maxima for the last five years (the five-year peak mean), in line with recommendations of the Ramsar Convention, and identify those meeting national and international qualifying levels (see also *Interpretation of waterbird counts*).

In accounts for most wildfowl, divers, grebes, Cormorant, herons, gulls, terns and Kingfisher, annual maxima are derived from any month in the appropriate 12-month period (see *Annual maxima*). Average maxima for sites listed in the wader accounts that are based on a 'winter' year are calculated using data from only the winter period, November to March.

Data from other sources, often involving different methods, *eg* goose roost censuses, are used where these provide better, *ie* larger, counts for individual sites.

Five-year peak means were initially calculated using only complete counts; incomplete counts were used if they increased the mean count. Where all annual maxima were incomplete, the five-year peak mean is given as the highest of these individual counts. Averages enclosed by brackets are based solely on incomplete counts.

Principal sites

In addition to the assessment of sites against 1% thresholds in *Species accounts*, sites are identified for their importance in terms of overall waterbird numbers in the section *Principal sites*. The peak count at each site is calculated by summing the individual species maxima during the season, irrespective of the month in which they occurred, or whether counts were complete or not. Only WeBS Core Counts and national goose censuses (see Appendix 3) are included in totals. Note that non-native introduced or escaped species (*ie* those not in BOURC category A) are not included in these totals. Additional counts made using different methodologies, such as those of seaducks on the Moray Firth, are not incorporated.

WeBS Alerts

WeBS Alerts have been developed to provide a standardised method of measuring and reporting on changes in wintering waterbird numbers at different temporal and spatial scales using WeBS data (see Atkinson *et al* in prep). General Additive Models (GAMs) are used to fit smoothed trends to annual population indices (changes in population size calculated using these smoothed values are less susceptible to the effects of short-term fluctuations in population size or to errors when sampling than are results produced using raw data plots). Alerts are triggered for populations that have undergone major declines, and are intended to help identify on a consistent and objective basis where research into causes of decline may be needed and inform conservation management.

Proportional changes in the smoothed index value of a population over short- (5-year), medium- (10-year) and long- (25-year) term time-frames are categorised according to their magnitude and direction. Population declines of between 25% and 50% trigger Medium Alerts and declines of greater than 50% trigger High Alerts. Increases of 33% and 100% (values chosen to be those necessary to return a population to its former size following declines of 25% and 50% respectively) are also identified, albeit that these are rarely of conservation concern.

National Alerts are generated for species (or specific populations of a species) using data from across the WeBS site network, at UK, British and individual country levels (Austin *et al* 2004). These Alerts provide some context for understanding finer scale changes in numbers. Site Alerts are generated for selected species at individual designated sites, including SPAs, Sites of Special Scientific Interest (SSSIs) and Areas of Special Scientific Interest (ASSIs), whose boundaries overlap those of WeBS count sites. Regional trends are also given to facilitate the interpretation of site-level changes for any given species.

Alerts are calculated only for native species for which WeBS annual indices are calculated. Alerts are not available for some species because there were only relatively recently included in WeBS Core Counts. Full results from the latest Alerts report are available for download from the web (www.bto.org/webs/webs-alerts-index.htm). Alerts at the UK and Great Britain level are given in Appendix 4.

Introduced and escaped waterbirds

Many species of waterbird occur in the UK as a result of introductions, particularly through escapes from collections. Several have become established, such as Canada Goose and Ruddy Duck. The British Ornithologists' Union Records Committee have established a category 'E' for 'species that have been recorded as introductions, transportees or escapes from captivity, and whose breeding populations (if any) are not thought to be self-sustaining' (BOURC 1999).

WeBS records of these species are included in this report both for the sake of completeness and in order to assess their status and monitor any changes in numbers, a key requirement given the need, under the African-Eurasian Waterbird Agreement of the Bonn Convention 'to prevent the unintentional release of such species' and once introduced, the need 'to prevent these species from becoming a threat to indigenous species' (Holmes *et al* 1998).

INTERPRETATION OF WATERBIRD COUNTS

Caution is always necessary in the interpretation and application of waterbird counts given the limitations of these data. This is especially true of the summary form which, by necessity, is used in this report. A primary aim here remains the rapid feedback of key results to the many participants in the WeBS scheme. More detailed information on how to make use of the data for research or site assessment purposes can be obtained from the British Trust for Ornithology (see *Contacts*).

Information collated by WeBS and other surveys can be held or used in a variety of ways. Data may also be summarised and analysed differently depending on the requirements of the user. Consequently, calculations used to interpret data and their presentation may vary between this and other publications, and indeed between organisations or individual users. The terminology used by different organisations may not always highlight these differences. This particularly applies to summary data. Such variations do not detract from the value of each different method, but offer greater choice to users according to the different questions being addressed. This should always be borne in mind when using data presented here.

For ease of reference, the caveats provided below are broadly categorised according to the presentation of results for each of the key objectives of WeBS. Several points, however, are general in nature and apply to a broad range of uses of the data.

National totals

The majority of count data are collected between September and March, when most species of waterbird are present in the UK in highest numbers. Data are collected during other months and have been presented where relevant. Caution is urged, however, regarding their interpretation both due to the relative sparsity of counts from this period and the different count effort for different sites. Data are presented for the months April to March inclusive, matching the period for which data are provided *en masse* by counters.

A number of systematic biases of WeBS or other count methodology must be borne in mind when considering the data. Coverage of estuarine habitats and large, standing waters by WeBS is good or excellent. Consequently, counted totals of those species which occur wholly or primarily on this habitat during winter will approximate the true number. Those species dispersed widely over rivers, non-estuarine coast or small inland waters are, however, likely to be considerably under-represented, as will secretive or cryptic species, such as snipes, or those which occur on non-wetlands, *eg* grassland plovers. Species which occur in large numbers during passage are also likely to be under-represented, not only because of poorer coverage at this time, but due to the high turnover of birds in a short period. Further, since counts of gulls and terns are optional, national totals are likely to be considerable underestimates of the number using the WeBS network of sites. Only for a handful of species, primarily geese, do count totals approach the true number in the UK.

One instance of possible over-estimation may occur when using summed site maxima as a guide to the total number of scarcer species. For species with mobile flocks in an area well covered by WeBS, *eg* Snow Goose in southeast England, it is likely that a degree of double-counting will occur, particularly if birds move between sites at different times of the year.

The publication of records of vagrants in this report does not imply acceptance by the British Birds Rarities Committee (*eg* Rogers and the Rarities Committee 2003).

Annual indices and Alerts

For all species, the long-term trends in index values can be used with confidence to assess changes in overall wintering numbers. Because short-term fluctuations provide a less rigorous indication of population changes, care should be taken in their interpretation (although such fluctuations do occur for some species, *eg* those high Arctic species with large annual differences in breeding success). The underlying trend, denoted by the smoothed line in the annual index graphs, will give a better overall impression of trends for species with marked inter-annual variation, although it should be noted that unusually high or low index values in the most recent year will have a disproportionate effect on the trend at that point.

Caution should be used in interpreting figures for species which only occur in small numbers. Thus, numbers tend to fluctuate more widely for many species in Northern Ireland, largely as a result of the smaller numbers of birds involved but also, being at the westernmost limit of their range, due to variable use being made of Ireland by wintering wildfowl.

Caution is also urged regarding the trends for wildfowl inferred from the first few years of data for Northern Ireland. Low values in 1986/87 and 1987/88 for some species then rise sharply to periods of more normal fluctuation thereafter, suggesting that these species were initially not routinely included in counts. The sharply increasing trends shown by some species in the Province in the mid 1980s may therefore be erroneous.

It should be borne in mind that the imputed values, used in place of missing and incomplete counts, are calculated anew each year, as is the completeness calculation for 'complex sites'. Consequently, the same count may change from complete to incomplete or *vice versa* with the addition of a new year's data. Because the index formula uses data from all years, each new year's counts will slightly alter the site, month and year factors calculated by the index process. In turn, the missing counts may differ slightly and, as a result, the index values produced each year are likely to differ slightly from those published in previous editions of *Wildfowl & Wader Counts*. (Small changes may also occur as a result of the late submission of data). The indices published here represent an improvement on previous figures as the additional year's data allow calculation of the site, month and year factors with greater confidence. Index values are given in Appendix 3.

It should also be borne in mind that the Alerts results given in this report cover the period up to 2000/01. Because of the longer-term view taken by the WeBS Alerts, these generally match the trends for annual indices in this report (covering an additional two years up to 2002/03), although trends for the five most recent winters may differ for the short-term Alerts.

Monthly indices

As for annual indices, the reduced numbers of both sites and birds in Northern Ireland result in a greater degree of fluctuation in numbers used in the analyses of data from the Province to produce monthly indices.

Site definition

To compare count data from year to year requires that the individual sites – in terms of the area surveyed – remain the same. The boundary of many wetlands are readily defined by the extent of habitat (*eg* for reservoirs and gravel pits), but are less obvious for other sites (*eg* some large estuaries) and here count boundaries have often been defined over time by a number of factors to a greater or lesser degree, including the distribution of birds at the time of the count, known movements of birds from roost to feeding areas, the extent of habitat, and even ease of access.

Sites are defined for a variety of purposes, and the precise boundary of sites describing ostensibly the same wetland may differ accordingly. For example, the boundaries used to define a large lake may differ for its definition as a wetland (based on habitat), as a waterbird count area (some birds may use adjacent non-wetland habitat), and as a statutorily designated site for nature conservation (which may be constrained by the need to follow boundaries easily demarcated in planning and legal terms, or may be defined for other, non-avian, features of conservation importance). It should be recognised that the boundary of a site for counting may even differ between different waterbird surveys, particularly where different methodologies are employed, *eg* the Forth Estuary comprises one large site for WeBS Core Counts, a slightly different area for Low Tide Counts, and two roost sites for Pink-footed Geese.

Data from different waterbird surveys have been used for assessment of site importance in this report if collected for ostensibly the same site, and are unlikely to cause significant discrepancies in the vast majority of cases (though see *Site importance*).

Particular caution is urged, however, in noting that, owing to possible boundary differences, totals given for WeBS or other sites in this report are not necessarily the same as totals for designated statutory sites (ASSIs/SSSIs, SPAs or Ramsar Sites) having the same or similar names.

It should also be borne in mind that whilst discrete wetlands may represent obvious sites for waterbirds, there is no strict definition of a site as an ecological unit for birds. Thus, some wetlands may provide all needs – feeding, loafing and roosting areas – for some species, but a 'site' for other species may comprise a variety of disparate areas, not all of which are counted for WeBS. Similarly, for some habitats, particularly linear areas such as rivers and rocky coasts, and marine areas, the definition of a site as used by waterbirds is not readily discerned without extensive survey or research that is usually beyond the scope of WeBS or other similar surveys. The definitions of such sites may thus evolve, and therefore change between different editions of *Wildfowl & Wader Counts*. Further, the number of birds recorded by WeBS

at particular sites should not be taken to indicate the total number of birds in that local area.

In some cases, for example where feeding geese are recorded by daytime WeBS Core Counts over large sites, and again at discrete roosts within or adjacent to that same site, data are presented for both sites in the table of key sites given the very different nature or extent of the sites and often number of birds, even though the same birds will be counted at both. A similar approach is adopted for some seaducks and divers, *eg* Common Scoter counts are provided for Liverpool Bay as a whole from aerial survey, and also from Core Counts for discrete WeBS sites that overlap part of the larger aerial site.

Site importance

Sites are selected for presentation in this report using a strict interpretation of the 1% threshold. It should be noted, however that where 1% of the national population is less than 50 birds, 50 is normally used as a minimum qualifying threshold for the designation of sites of national importance. It should also be noted that the 'qualifying levels' used for introduced species are used purely as a guide for presentation of sites in this report and do not infer any conservation importance for the species or the sites concerned since protected sites would not be identified for these non-native birds.

It is necessary to bear in mind the distinction between sites that regularly hold nationally or internationally important numbers and those which may happen to exceed the appropriate qualifying levels only in occasional winters. This follows the Ramsar Convention, which states that key sites must be identified on the basis of demonstrated regular use (calculated as the mean winter maxima from the last five seasons for most species in this report), otherwise a large number of sites might qualify as a consequence of irregular visitation by 'one-off' large numbers of waterbirds. However, the Convention also indicates that provisional assessments may be made on the basis of a minimum of three years' data. These rules of thumb are applied to SPAs (Stroud *et al* 2001) and national assessments also. Sites with just one or two years' data are also included in the tables if the mean exceeds the relevant threshold for completeness but this does not, as such, imply qualification. (This caveat applies also to sites that are counted in more than two years but, because one or more of the peak counts are incomplete, whose means surpass the 1% threshold based on counts from only one or two years.)

Nevertheless, sites which irregularly support nationally or internationally important numbers may be extremely important at certain times, *eg* when the UK population is high, during the main migratory periods, or during cold weather, when they may act as refuges for birds away from traditionally used sites. For this reason also, the ranking of sites according to the total numbers of birds they support (particularly in Principal Sites) should not be taken as a rank order of the conservation importance of these sites, since certain sites, perhaps low down in terms of their total 'average' numbers, may nevertheless be of critical importance to certain species or populations at particular times.

Peak counts derived from a number of visits to a particular site in a given season will reflect more accurately the relative importance of the site for the species than do single visits. It is important to bear this in mind since, despite considerable improvements in coverage, data for a few sites presented in this report derive from single counts in some years. Similarly, in assessing the importance of a site, peak counts from several winters should ideally be used, as the peak count made in any one year may be unreliable due to gaps in coverage and disturbance- or weather-induced effects. The short-term movement of birds between closely adjacent sites may lead to altered assessments of a site's apparent importance for a particular species.

More frequent counts than the once-monthly WeBS visits are necessary to assess more accurately the rapid turnover of waterbird populations that occurs during migration or cold weather movements.

It should also be borne in mind that because a count is considered complete for WeBS, it does not imply that it fully represents the importance of the site. A site of importance for a wintering species may have been counted only in autumn or spring, and thus while a valid complete WeBS count is available for that year, it under-represents the importance of the site for that species. This problem is overcome to some extent by the selection of counts from a limited winter window for wader species, although this will also tend to underestimate the mean if it excludes large counts at other times of year. A similar issue arises for counts derived from different survey methods. For example, many sites important as gull roosts are identified on the basis of evening roost counts. Valid and complete counts may have been made by WeBS Core Counts during daytime over the course of a particular winter but, if no roost counts were made, the mean will be depressed

by the much lower Core Count in that year. Thus, when counts appear to fluctuate greatly between years at individual sites on the basis of data from different sources – particularly for geese and gulls in the absence of roost counts, and for seaducks in the absence of dedicated survey – the five-year means and apparent trends over time should be viewed with caution.

Caution is also urged regarding the use of Low Tide Count data in site assessment. Whilst this survey serves to highlight the importance of some estuaries for feeding birds that, because they roost on other sites, is missed by Core Counts, the objectives of Low Tide Counts do not require strict synchronisation across the site and this may result in double-counting of birds on some occasions. It should also be noted that count completeness assessments are not made for Low Tide Count totals at complex sites, and any undercounts from this scheme are not flagged in the tables, leading to under-estimation of the site's importance.

This list of potential sources of error in counting wetland birds, though not exhaustive, suggests that the net effect tends towards under- rather than over-estimation of numbers and provides justification for the use of maximum counts for the assessment of site importance or the size of a population. Factors causing under-estimation are normally constant at a given site in a given month, so that while under-estimates may occur, comparisons between sites and years remain valid.

It should be noted that a change in a site's status (as internationally or nationally important) reflect the change from the last report. In many cases, particularly in this *Wildfowl & Wader Counts*, large numbers of sites have changed status because the thresholds have been revised since the last report. The arrows denoting changed status thus do not necessarily imply changes in the actual numbers of birds at a site (indeed, the peak mean may have increased yet the site no longer meet the threshold and *vice versa*). In most years, however, the changed status of a site following the publication of the new report will have resulted from a change in the mean number of birds.

It should be recognised that, in presenting sites of national importance, this report provides just one means of identifying important sites and does not provide a definitive statement on the conservation value of individual sites for waterbirds, let alone other conservation interests. The national thresholds have been used to provide a reasonable amount of information in the context of this report only. Thus, for example, many sites of regional importance or those of importance because of the assemblage of species present are not included here. European Directives and international conservation Conventions stress the need for a holistic approach to effect successful conservation, and lay great importance on maintaining the distribution and range of species, through wider countryside and other policies, in addition to the conservation of ecologically coherent national networks sites.

For the above reasons of poor coverage, geographically or temporally, outlined above, it should be recognised that lists of internationally and nationally important sites are limited by the availability of WeBS and other survey data. Whilst the counter network is likely to cover the vast majority of important sites, others may be missed and therefore will not be listed in the tables due to lack of appropriate data.

Some counts in this report differ from those presented previously. This results from the submission of late data and corrections, and in some cases, the use of different count seasons or changes to the number/combination of WeBS count sectors used to define a WeBS site. Additionally, some sites may have been omitted from tables previously due to oversight. It is likely that small changes will continue as definitions of sites are revised, in the light of new information from counters. Most changes are minor, but comment is made in the text where they are significant.

Note that sites listed under 'Sites no longer meeting table qualifying levels' represent those that were listed in the 2000/01 report as of national importance but which, following the 2002/03 counts, no longer meet the relevant threshold. It is not an exhaustive list of sites which, at any time in the past, have been of national or all-Ireland importance.

SURVEY COVERAGE

WeBS Core Counts

Co-ordinated, synchronous counts are advocated to prevent double-counting or birds being missed. Consequently, priority dates are recommended nationally. Due to differences in tidal regimes around the country, counts at a few estuaries were made on other dates to match the most suitable conditions. Weather and counter availability also result in some counts being made on alternative dates.

Table 2. WeBS Core Count priority dates in 2001/02.

8 April	7 October
27 May	4 November
24 June	16 December
22 July	13 January
19 August	10 February
16 September	3 March

Table 3. WeBS Core Count priority dates in 2002/03.

14 April	6 October
12 May	17 November
9 June	8 December
14 July	5 January
11 August	16 February
8 September	23 March

Counts were received from 1,961 sites for the period April 2001 to March 2002, comprising 3,480 count units (the sub-divisions of large sites for which separate counts are provided), and for 2,062 sites, comprising 3,537 count units, for the period April 2002 to March 2003.

WeBS and I-WeBS coverage in 2001/02 and 2002/03 is shown by 10-km squares in Figs 3 & 4. The location of each count unit is shown using only its central grid reference. Thus, for example, the 19 count sectors of the North Norfolk Coast fall in four 10-km squares, broadly indicating the extent of the whole site. As ever, areas with few wetlands or small human populations are apparent on the map as areas with little coverage. The location of many of the key sites mentioned in the report and all estuaries is shown in Fig A1 in Appendix 4. The county and grid reference of all sites mentioned by name in this report are given in Appendix 4.

The extent of survey was similar to that for recent winters. Coverage of northwest Scottish mainland was again sparse, following additional survey there in previous winters by the RAF Ornithological Society, and on the Outer Ards, Co Down, although there was extensive survey in Co Fermanagh, the first for many years.

A major Foot and Mouth Disease epidemic spread across many parts of the UK in 2001. The first case was confirmed on 20 February and by March, 32 separate outbreaks had been confirmed. As a result of subsequent restrictions on access in the countryside, the WeBS partners suspended the national survey. Counting continued at low levels throughout the summer where access was possible, although it was not until September that coverage returned to more normal levels and, even then, some areas remained out of bounds.

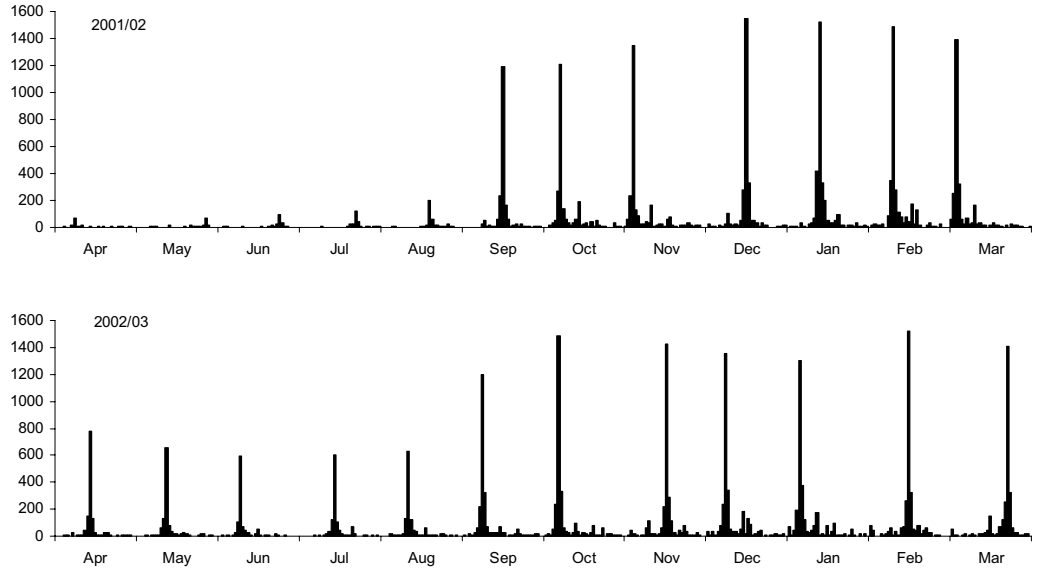


Figure 2. Number of visits to WeBS counts units by date in 2001/02 and 2002/03. Note the high degree of synchronisation nationally around the priority count dates.

Figure 3. Coverage by 10-km grid squares for WeBS Core Counts in the UK, Isle of Man and the Channel Islands and for I-WeBS in the Republic of Ireland in 2001/02. Small dots represent 1–2 count units per 10-km square, medium dots represent 3–4 units, large dots 5-10 units, and squares more than 10 units.

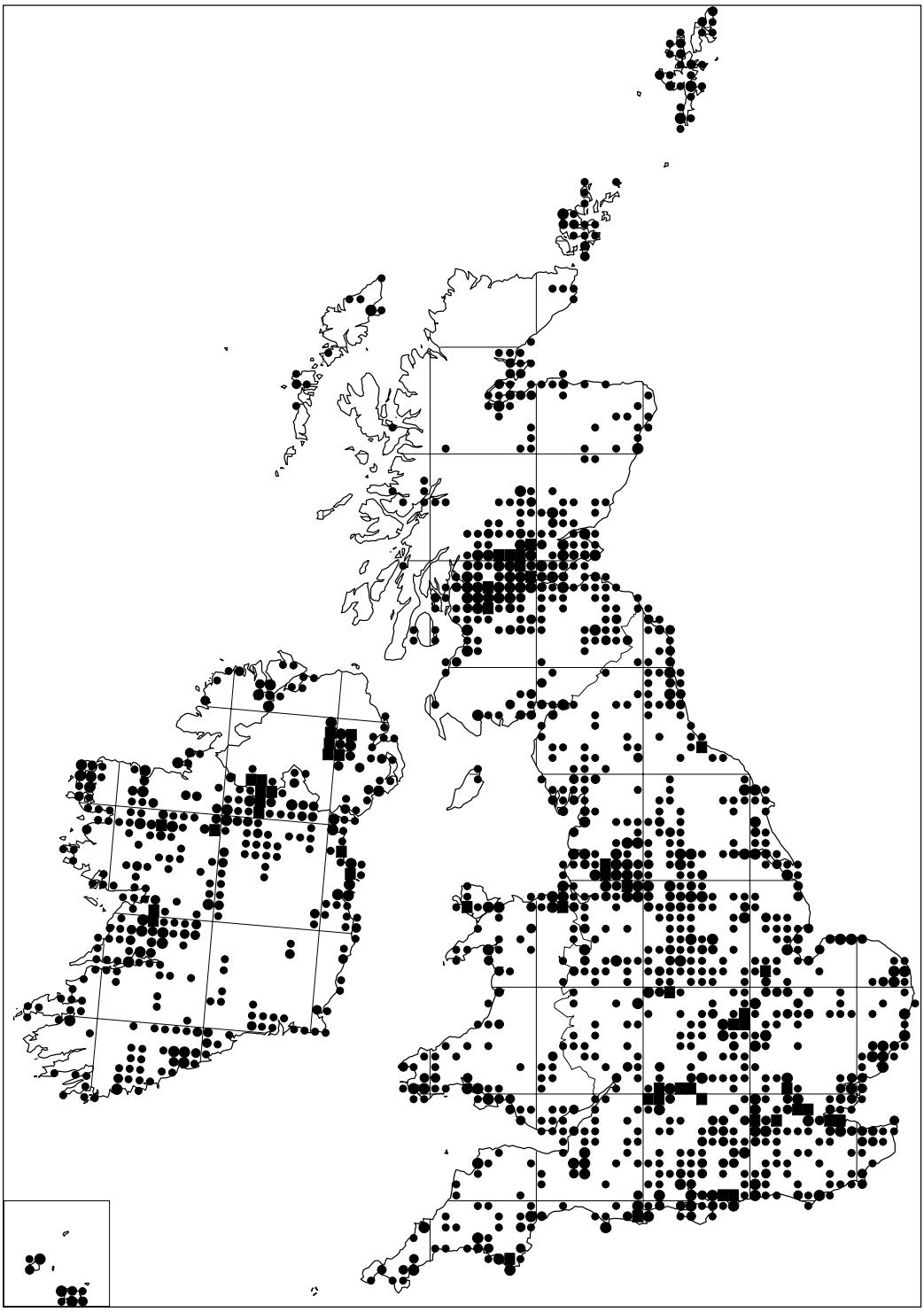
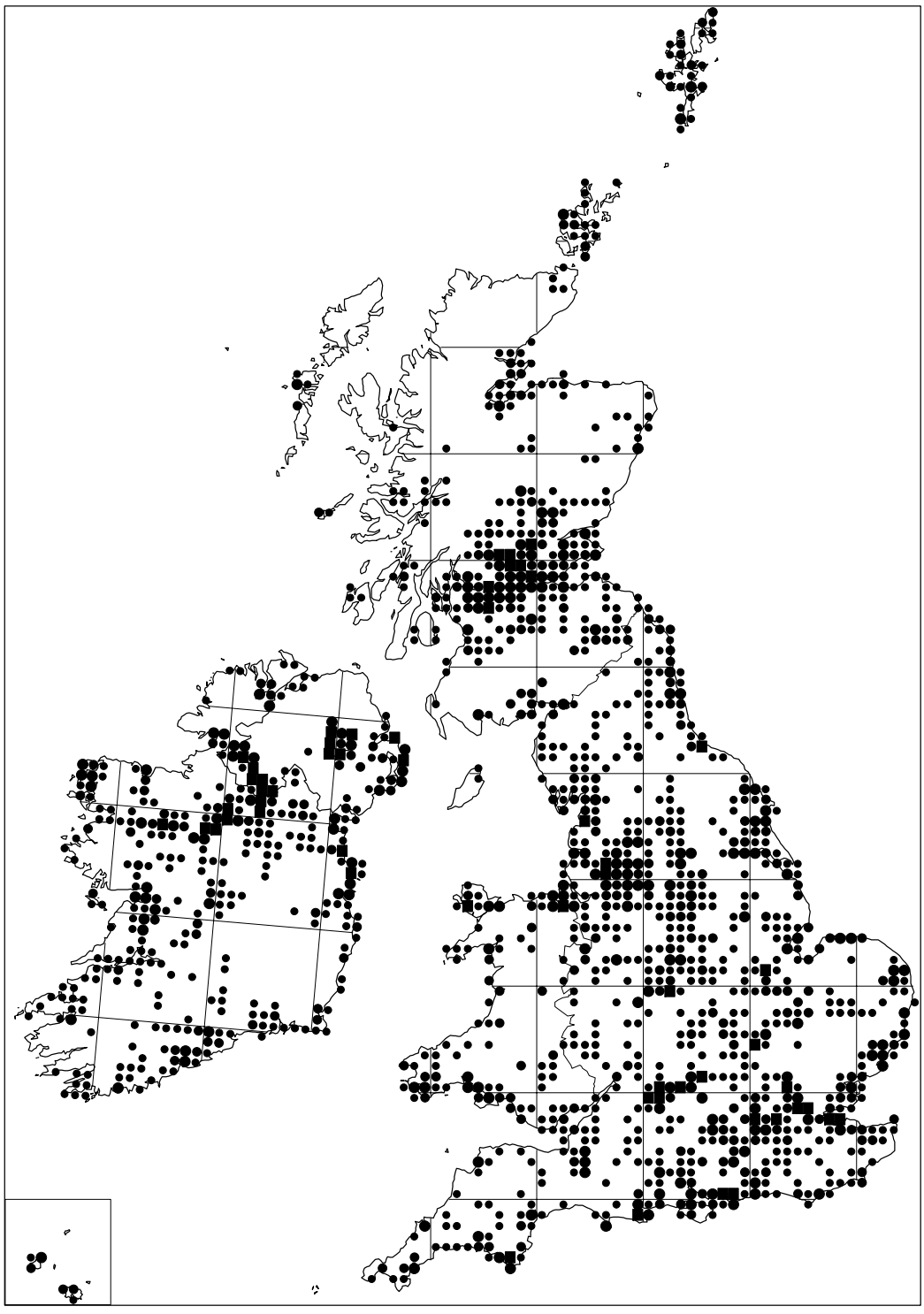


Figure 4. Coverage by 10-km grid squares for WeBS Core Counts in the UK, Isle of Man and the Channel Islands and for I-WeBS in the Republic of Ireland in 2002/03. Small dots represent 1–2 count units per 10-km square, medium dots represent 3–4 units, large dots 5-10 units and squares more than 10 units.



Goose censuses

In 2001/02 and 2002/03, as in previous years, Bean Geese were censused regularly on the Slamannan Plateau (Simpson & Maciver 2003). National surveys of Pink-footed and Icelandic Greylag Geese were undertaken in October and November (Hearn 2003, 2004), involving counts of birds arriving at or leaving roosts. Censuses of the native Scottish Greylag population on the Uists were made in August and February (Uist Greylag Goose Management Group). Censuses of Greenland White-fronted Geese, including birds in Ireland, were undertaken in autumn 2000 by the Greenland White-fronted Goose Study and Irish National Parks and Wildlife Service (Fox & Francis 2003, 2004) though the spring 2001 census failed to take place due to the outbreak of Foot and Mouth Disease. Greenland Barnacle Geese were counted regularly by SNH and others on Islay and main islands in Argyll (M McKay). The Svalbard Barnacle Goose population was counted frequently on the Solway Firth by WWT staff and volunteers (Griffin 2003). Dark-bellied Brent Geese were censused in January and February by the WeBS network, with counters at key sites making special effort to locate birds using adjacent areas, particularly fields, which would ordinarily be missed during WeBS Core Counts. East Canadian Light-belled Geese are surveyed throughout Ireland by the Irish Brent Goose Research Group.

Seaduck surveys

Data were received from the following regional or site-based surveys for counts of seaduck, divers and grebes at coastal sites, many continuing studies from previous years: counts in the Moray Firth between November and January (D Butterfield); at least once monthly aerial and/or land-based counts of Common Scoter in Carmarthen Bay between April and March (Banks *et al* 2004); and counts of key sites around the Isles of Shetland by SOTEAG (M Heubeck).

Extensive aerial surveys were undertaken in many areas, including Liverpool Bay (from Anglesey to Morecambe Bay), Cardigan Bay, Camarthen Bay, and parts of the North Sea off the Lincolnshire and Norfolk coasts, and in the 'Greater Thames' (*eg* Cranswick *et al* 2003, Dean *et al* 2003, 2004, Hall *et al* 2003, WWT Wetlands Advisory Service 2003).

Total numbers

The total numbers of waterbirds recorded in 2001/02 are given in Tables 4 & 5 for Great Britain (including the Isle of Man, but excluding the Channel Islands) and Northern Ireland, respectively. Counts of waterbirds in the Republic of Ireland are provided in Table 6.

Totals recorded in 2002/03 are given in Tables 7, 8 & 9 for Great Britain, Northern Ireland and the Republic of Ireland, respectively.

Totals are based on WeBS and I-WeBS Core Counts only, with the exception of certain geese, where totals are derived from dedicated national censuses for those species, sub-species or populations (see *Analysis* and Appendix 3).

Note, counting of gulls and terns was optional, and therefore totals are incomplete at a national level.

Table 4. Total number of waterbirds recorded by WeBS Core Counts in Great Britain, 2001/02[†].

		Apr	May	Jun	Jul	Aug
Number of sites visited		137	165	186	222	298
Number of sectors visited		172	207	231	285	436
YV	Fulvous Whistling Duck	0	0	0	0	0
YU	Lesser Whistling Duck	0	0	0	0	0
MS	Mute Swan	1,238	1,518	2,717	3,003	4,136
AS	Black Swan	0	1	4	6	8
BS	Bewick's Swan	0	0	0	0	0
WS	Whooper Swan	46	14	9	11	15
ZS	hybrid *cygnus*	0	0	0	0	0
HN	Swan Goose	6	11	3	2	4
BE	Bean Goose	0	0	0	0	0
XR	Tundra Bean Goose	0	0	0	0	0
PG	Pink-footed Goose	3,083	18	21	3	6
WG	White-fronted Goose[1]	1	0	0	0	0
EW	European White-fronted Goose	0	1	1	1	2
NW	Greenland White-fronted Goose	80	0	0	0	0
LC	Lesser White-fronted Goose	0	0	1	0	0
JI	Greylag Goose (Iceland)	1,032	0	0	0	0
JH	Greylag Goose (NW Scotland)	0	0	0	0	4,651
JE	Greylag Goose (naturalised)	977	1,130	2,213	2,948	6,378
HD	Bar-headed Goose	0	0	0	2	2
SJ	Snow Goose	2	2	2	4	11
RJ	Ross's Goose	0	0	0	0	0
EM	Emperor Goose	0	0	0	0	1
CG	Greater Canada Goose	2,029	2,500	7,043	7,016	10,675
YN	Barnacle Goose (Greenland)	20	17	0	0	0
YS	Barnacle Goose (Svalbard)	1,954	17	0	0	0
YE	Barnacle Goose (naturalised)	55	11	38	127	121
BG	Brent Goose[1]	0	0	0	0	0
DB	Dark-bellied Brent Goose	2,750	1,100	0	14	20
BB	Black Brant	0	0	0	0	0
QS	Light-bellied Brent Goose (Svalbard)	0	0	0	0	0
QN	Light-bellied Brent Goose (Canada)	1	0	0	0	0
EB	Red-breasted Goose	0	0	0	0	0
QF	Magellan Goose	0	0	0	0	0
EG	Egyptian Goose	8	28	60	107	134
ZL	hybrid goose	16	33	21	35	66
ZM	feral/domestic goose	0	0	0	0	0
UO	unidentified goose	0	0	0	0	0
UD	Ruddy Shelduck	0	0	1	2	7
SU	Shelduck	1,774	1,898	1,732	2,719	4,943
ZT	hybrid shelduck	0	0	0	0	0
MY	Muscovy Duck	11	2	7	15	18
DC	Wood Duck	0	0	0	0	2
MN	Mandarin	3	8	22	16	37
WN	Wigeon	1,625	89	54	58	600
AW	American Wigeon	4	1	1	1	0
HL	Chiloe Wigeon	0	1	0	0	1
FT	Falcated Duck	0	0	0	0	0
GA	Gadwall	443	472	1,125	1,568	2,538
IK	Baikal Teal	0	0	0	0	0
T.	Teal	2,797	146	397	801	6,145
TA	Green-winged Teal	0	0	0	0	0
MA	Mallard	4,121	4,271	7,807	12,470	26,556
BD	Black Duck	0	0	0	0	1
QB	Chestnut Teal	0	0	0	0	0
PT	Pintail	58	10	8	7	36
YL	Yellow-billed Pintail	0	0	0	0	0
PN	Bahama Pintail	0	0	0	0	0

Table 4. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Sites	1,264	1,546	1,629	1,652	1,761	1,770	1,722
Sectors	1,988	2,454	2,587	2,646	2,871	2,910	2,643
YV	0	0	0	0	0	0	1
YU	1	0	0	0	0	0	1
MS	15,258	18,534	19,528	19,344	19,310	16,982	14,973
AS	27	42	39	33	31	29	24
BS	4	37	1,725	5,329	6,954	3,736	500
WS	45	833	5,072	6,122	6,003	5,936	5,203
ZS	4	3	3	3	2	3	4
HN	35	31	42	42	37	40	30
BE	0	1	9	201	32	8	0
XR	0	0	0	32	23	25	1
PG	2,801	265,794	234,150	60,656	123,681	86,309	52,193
WG	1	0	0	8	2	5	0
EW	3	138	210	1,788	2,694	2,901	1,171
NW	0	13	18,600	283	252	657	16,163
LC	0	2	0	0	0	0	0
JI	0	18,775	86,414	27,989	19,440	22,900	16,593
JH	844	207	423	277	188	3,332	357
JE	22,982	20,152	21,891	21,496	20,718	17,278	14,842
HD	20	12	18	13	11	24	6
SJ	28	16	17	16	12	34	26
RJ	4	0	0	0	2	2	1
EM	2	2	16	16	17	14	2
CG	44,937	49,085	50,293	51,840	51,209	47,684	33,902
YN	29	463	34,091	36,880	30,964	205	188
YS	166	22,361	19,262	22,071	21,981	22,127	23,547
YE	397	494	729	885	925	880	855
BG	0	0	0	0	0	0	0
DB	395	27,262	53,916	71,265	72,349	71,048	60,998
BB	0	0	1	1	2	6	2
QS	2,525	4,883	2,243	1,557	2,016	1,323	674
QN	14	7	52	123	83	97	31
EB	0	0	0	1	2	4	3
QF	1	1	1	1	0	1	1
EG	224	225	188	135	144	150	149
ZL	378	776	848	809	653	787	756
ZM	0	0	0	0	0	0	0
UO	0	0	0	0	0	0	0
UD	2	12	3	3	2	5	3
SU	29,247	32,707	56,614	49,984	52,504	55,326	45,340
ZT	0	0	0	0	0	0	0
MY	32	55	87	76	93	75	90
DC	4	6	4	4	2	3	8
MN	302	351	329	490	476	433	277
WN	53,768	197,755	209,486	362,537	343,199	292,048	187,052
AW	0	4	0	4	1	1	3
HL	1	3	0	1	5	5	1
FT	0	0	0	0	0	0	0
GA	7,776	10,625	13,505	16,148	15,831	12,259	8,875
IK	0	0	0	1	0	0	0
T.	45,299	95,366	105,571	158,516	151,178	147,218	86,365
TA	0	0	4	3	4	4	4
MA	96,396	122,516	123,427	136,620	131,622	97,971	70,124
BD	0	1	2	2	0	0	1
QB	0	0	0	0	0	0	0
PT	2,863	10,862	16,346	27,969	24,266	16,836	9,759
YL	0	0	0	0	0	0	0
PN	0	0	0	0	0	0	0

Table 4. Great Britain totals 2001/02 (continued).

		Apr	May	Jun	Jul	Aug
AG	Silver Teal	0	0	0	0	0
GY	Garganey	4	11	11	10	69
TB	Blue-winged Teal	0	0	0	0	0
VE	Red Shoveler	0	0	0	0	0
SV	Shoveler	492	192	212	241	1,576
IE	Ringed Teal	0	0	0	0	0
RQ	Red-crested Pochard	0	1	1	4	4
VB	Canvasback	0	0	0	1	0
PO	Pochard	266	179	521	1,790	5,343
AZ	Redhead					
NG	Ring-necked Duck	0	1	0	1	1
FD	Ferruginous Duck	0	0	0	0	0
NZ	New Zealand Scaup	0	0	0	0	0
TU	Tufted Duck	2,599	1,874	2,774	9,605	15,871
SP	Scaup	5	1	1	1	4
AY	Lesser Scaup	0	0	0	0	0
E.	Eider	1,688	1,283	560	1,120	1,247
KE	King Eider	0	0	0	0	0
LN	Long-tailed Duck	6	12	0	0	0
CX	Common Scoter	35	4	36	18	134
FS	Surf Scoter	0	0	0	0	0
VS	Velvet Scoter	0	0	0	0	0
UX	unidentified scoter sp.	0	0	0	0	0
GN	Goldeneye	542	40	7	47	63
HO	Hooded Merganser	0	0	0	0	0
SY	Smew	0	0	0	0	0
RM	Red-breasted Merganser	156	122	121	39	76
GD	Goosander	36	16	233	261	550
RY	Ruddy Duck	130	121	122	213	479
OI	Argentine Blue-bill	0	0	0	0	0
ZF	feral/hybrid Mallard type	91	104	45	228	201
ZR	hybrid *Anas*	1	1	0	0	0
ZD	hybrid *Aythya*	0	0	0	0	0
UM	unidentified duck	0	0	0	0	0
RH	Red-throated Diver	7	3	6	20	18
BV	Black-throated Diver	0	0	0	0	0
ND	Great Northern Diver	0	0	0	0	1
WV	White-billed Diver	0	0	0	0	0
UL	unidentifed diver	0	0	0	0	0
LG	Little Grebe	212	190	230	532	979
GG	Great Crested Grebe	354	717	792	1,889	3,067
RX	Red-necked Grebe	1	0	0	0	1
SZ	Slavonian Grebe	3	1	0	0	1
BN	Black-necked Grebe	4	13	13	14	20
UV	unidentified grebe	0	0	0	0	0
CA	Cormorant	1,065	1,335	1,664	2,106	3,742
SA	Shag	1	2	4	0	5
BI	Bittern	6	5	0	0	2
EC	Cattle Egret	0	0	0	0	1
ET	Little Egret	37	11	62	282	761
NY	Snowy Egret	0	0	0	0	0
HW	Great White Egret	0	0	1	1	0
H.	Grey Heron	272	324	390	562	805
OR	White Stork	0	0	0	0	0
NB	Spoonbill	0	3	8	2	6
FK	Lesser Flamingo	0	0	0	0	0

Table 4. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
AG	0	1	0	0	0	0	0
GY	18	23	3	0	0	0	1
TB	0	0	0	0	0	0	0
VE	0	1	0	0	0	0	0
SV	6,657	10,338	11,053	11,641	10,657	12,121	10,792
IE	0	2	0	1	0	0	1
RQ	88	69	58	83	134	101	71
VB	0	0	0	0	0	0	0
PO	6,377	12,334	25,513	26,015	27,583	24,831	14,331
AZ	0	0	0	1	1	0	0
NG	1	2	5	2	3	4	4
FD	0	3	2	1	3	1	2
NZ	0	0	0	0	1	1	1
TU	34,944	41,620	51,887	53,625	52,912	47,859	41,383
SP	23	2,367	1,010	1,893	1,261	2,372	1,091
AY	0	0	2	0	1	0	0
E.	18,100	15,011	13,117	18,089	16,507	17,691	13,598
KE	1	0	0	0	0	0	1
LN	12	184	377	2,184	2,022	1,995	830
CX	1,127	3,148	9,597	12,326	13,906	9,576	5,884
FS		1	1	6	5	4	5
VS	34	684	723	1,365	949	1,410	1,236
UX	0	0	80	0	65	1,160	0
GN	272	746	5,414	12,869	11,441	12,773	11,289
HO	0	0	0	0	2	2	2
SY	0	1	7	204	289	207	171
RM	1,384	1,602	3,149	3,636	3,106	3,053	3,089
GD	774	818	1,225	2,857	3,438	2,373	1,877
RY	1,891	2,601	3,363	4,035	4,302	3,385	2,850
OI	0	1	1	0	0	1	0
ZF	479	768	756	848	688	712	528
ZR	2	8	31	27	28	32	33
ZD	0	0	1	0	4	2	2
UM	0	0	6	17	0	9	3
RH	134	232	572	1,313	1,080	313	231
BV	4	6	21	29	40	19	50
ND	3	12	41	62	56	65	66
WV	0	0	1	0	0	0	0
UL	0	0	0	2	1	1	2
LG	4,148	4,594	4,323	4,050	3,226	2,705	2,644
GG	7,776	8,614	9,737	8,297	7,690	6,265	7,132
RX	29	29	29	50	19	31	26
SZ	42	79	82	287	148	138	148
BN	16	24	58	58	46	26	48
UV	0	0	0	1	0	0	0
CA	13,129	15,332	15,801	15,307	12,819	12,990	11,732
SA	588	658	1,185	829	376	326	357
BI	3	3	8	19	36	22	22
EC	0	0	0	0	0	0	0
ET	1,691	1,658	1,765	925	626	1,024	969
NY	0	0	0	0	1	0	0
HW	2	1	1	0	0	0	0
H.	3,218	3,591	3,737	3,584	3,142	3,461	3,018
OR	0	3	3	3	3	3	2
NB	8	5	8	3	8	12	5
FK	0	0	0	1	0	0	0

Table 4. Great Britain totals 2001/02 (continued).

		Apr	May	Jun	Jul	Aug
WA	Water Rail	26	10	14	3	29
AK	Spotted Crake	0	0	0	0	2
MH	Moorhen	648	722	865	1,318	2,368
CO	Coot	2,269	2,721	6,983	15,700	28,466
AN	Crane	0	0	0	0	0
	TOTAL WILDFOWL[2]	35,090	23,318	38,963	66,944	133,006
OC	Oystercatcher	3,565	3,107	2,085	11,393	40,686
IT	Black-winged Stilt	0	1	1	1	1
AV	Avocet	361	570	488	868	1,217
TN	Stone-curlew	0	0	0	0	0
LP	Little Ringed Plover	12	20	33	24	32
RP	Ringed Plover	287	1,068	199	700	8,941
KP	Kentish Plover	0	0	0	1	0
DO	Dotterel	0	0	0	0	1
ID	American Golden Plover	0	0	0	0	0
GP	Golden Plover	4,250	9	2	517	18,744
GV	Grey Plover	1,077	519	29	167	11,793
L.	Lapwing	1,051	610	1,741	5,978	15,921
KN	Knot	355	122	84	161	61,760
SS	Sanderling	118	1,016	83	386	5,755
LX	Little Stint	0	15	1	0	45
TK	Temminck's Stint	0	0	0	0	1
WU	White-rumped Sandpiper	0	0	0	0	0
BP	Baird's Sandpiper	0	0	0	0	0
PP	Pectoral Sandpiper	0	0	0	0	1
CV	Curlew Sandpiper	0	5	5	39	133
PS	Purple Sandpiper	204	4	0	200	129
DN	Dunlin	3,722	1,163	63	1,687	33,136
BQ	Buff-breasted Sandpiper	0	0	0	0	0
RU	Ruff	262	29	40	269	343
JS	Jack Snipe	1	0	0	0	0
SN	Snipe	200	49	14	47	608
LD	Long-billed Dowitcher	0	0	0	0	0
WK	Woodcock	0	0	0	0	0
BW	Black-tailed Godwit	700	138	243	2,421	9,516
BA	Bar-tailed Godwit	712	48	72	591	14,154
WM	Whimbrel	153	169	8	354	602
CU	Curlew	1,658	402	1,463	10,188	26,748
DR	Spotted Redshank	1	5	15	107	88
RK	Redshank	2,276	607	674	6,728	21,777
GK	Greenshank	4	42	6	327	1,424
LY	Lesser Yellowlegs	0	0	0	0	0
GE	Green Sandpiper	7	0	30	112	312
OD	Wood Sandpiper	0	7	0	7	30
CS	Common Sandpiper	19	37	35	194	606
PQ	Spotted Sandpiper	0	0	0	0	0
TT	Turnstone	817	500	78	876	3,397
WF	Wilson's Phalarope	0	0	0	0	0
NK	Red-necked Phalarope	0	0	0	0	0
PL	Grey Phalarope	0	0	0	0	0
U.	unidentified wader	0	0	0	0	0
	TOTAL WADERS	21,812	10,262	7,492	44,343	277,901
	TOTAL WATERBIRDS[3]	56,902	33,580	46,455	111,287	410,907

Table 4. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
WA	91	209	408	536	495	257	317
AK	3	0	0	0	0	0	0
MH	10,079	11,682	12,950	13,568	12,839	11,402	11,611
CO	88,110	100,232	103,496	112,876	106,129	77,038	57,582
AN	2	0	0	0	0	0	0
WILDFOWL	528,075	1,140,418	1,358,362	1,395,099	1,397,008	1,184,484	856,135
OC	179,056	181,109	208,049	220,580	217,520	201,961	173,326
IT	1	1	1	1		1	1
AV	1,254	1,992	5,132	4,841	4,793	6,157	3,346
TN	0	0	0	0	0	0	0
LP	36	5	0	0	0	0	3
RP	12,591	13,265	8,118	7,723	6,836	6,163	4,175
KP	1	0	0	0	0	0	0
DO	0	0	0	0	0	0	0
ID	0	0	0	1	1	1	0
GP	29,426	99,068	124,593	79,488	129,129	135,492	66,020
GV	18,306	29,162	39,674	33,996	31,605	35,838	42,316
L.	55,556	129,645	232,873	212,127	261,755	323,706	65,089
KN	75,985	138,977	226,193	237,611	193,366	284,513	119,775
SS	7,686	7,236	8,594	9,245	7,063	6,282	7,316
LX	124	355	50	51	26	13	39
TK	0	1	0	0	0	0	0
WU	0	0	0	0	0	0	0
BP	2	0	0	0	0	0	0
PP	3	0	1	1	0	0	0
CV	283	143	10	1	0	1	0
PS	92	256	811	904	1,153	1,090	744
DN	73,268	149,235	317,112	382,693	327,698	329,462	228,392
BQ	0	0	0	0	0	0	0
RU	603	781	591	596	724	678	736
JS	6	72	187	214	184	89	158
SN	1,758	5,390	7,020	8,078	6,114	5,006	4,751
LD	0	0	0	0	0	0	0
WK	2	12	12	40	42	18	33
BW	19,466	16,296	24,947	15,889	15,296	17,951	18,401
BA	22,121	21,054	30,732	35,768	39,949	65,303	60,876
WM	193	32	2	6	1	5	5
CU	53,122	66,248	60,905	60,944	58,797	81,403	70,761
DR	144	190	68	87	64	88	148
RK	65,329	85,393	82,139	72,757	64,611	73,255	67,341
GK	1,577	1,124	351	238	215	217	236
LY	1	1	1				
GE	233	224	179	132	101	115	144
OD	1	1	0	0	0	0	1
CS	214	107	63	53	27	41	52
PQ	0	0	0	1	0	0	0
TT	7,243	9,369	11,413	9,848	9,947	9,949	9,205
WF	0	0	0	0	0	0	0
NK	1	0	0	0	0	0	0
PL	0	23	0	0	0	0	0
U.	0	0	0	0	1	0	67
WADERS	625,684	956,767	1,389,821	1,393,914	1,377,018	1,584,798	943,457
WATERBIRDS	1,153,759	2,097,185	2,748,183	2,789,013	2,774,026	2,769,282	1,799,593

Table 4. Great Britain totals 2001/02 (continued).

		Apr	May	Jun	Jul	Aug
MU	Mediterranean Gull	4	2	3	19	29
LF	Laughing Gull	0	0	0	0	0
LU	Little Gull	1	6	17	7	1
AB	Sabine's Gull	0	0	0	0	3
ON	Bonaparte's Gull	0	0	0	0	0
BH	Black-headed Gull	14,361	16,380	8,944	15,550	37,515
IN	Ring-billed Gull	1	0	0	0	0
CM	Common Gull	688	521	69	1,113	3,630
LB	Lesser Black-backed Gull	1,321	1,030	777	1,395	4,096
HG	Herring Gull	2,320	3,201	3,816	4,340	9,164
YG	Yellow-legged Gull	0	0	0	30	59
YC	Caspian Gull	0	0	0	0	0
YM	Western Yellow-legged Gull	0	0	0	0	2
IG	Iceland Gull	1	0	0	0	0
GZ	Glaucous Gull	0	0	0	0	0
GB	Great Black-backed Gull	295	336	310	557	1,923
QG	Ross's Gull	0	0	0	0	0
KI	Kittiwake	0	6	10	1	1,204
UU	unidentified gull	0	0	0	0	0
ZU	hybrid gull	0	0	0	0	0
	TOTAL GULLS[4]	18,992	21,482	13,946	23,012	57,626
AF	Little Tern	0	71	54	392	289
TG	Gull-billed Tern	0	0	0	0	0
BJ	Black Tern	0	1	0	2	97
WJ	White-winged Black Tern	0	0	0	0	0
TE	Sandwich Tern	1,088	2,673	210	4,379	1,719
CN	Common Tern	7	520	526	898	1,722
RS	Roseate Tern	0	0	0	1	27
AE	Arctic Tern	0	1,047	80	193	45
UT	unidentified tern	0	0	0	0	0
UI	'Commic' Tern	0	6	0	1	2
	TOTAL TERNS[4]	1,095	4,318	870	5,866	3,901
KF	Kingfisher	14	9	20	26	69

† *See Appendix 3 for calculation of totals for goose populations*
1 *Indicates White-fronted and Brent Geese not identified to race*
2 *Total wildfowl represents numbers of all swans, geese, divers, grebes, cormorants and rails*
3 *Total waterbirds represents numbers of all species except gulls, terns and Kingfisher*
4 *Counting gulls and terns was optional, thus totals are not complete at a national level*

Table 4. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
MU	36	53	45	29	51	63	115
LF	0	0	0	0	1	0	0
LU	906	85	10	2	9	44	24
AB	2	1	0	0	0	0	0
ON	0	0	0	0	1	1	1
BH	113,652	123,724	175,178	175,079	195,583	201,466	208,460
IN	1	2	1	4	9	3	6
CM	15,622	54,519	53,965	43,218	54,218	73,589	56,938
LB	12,130	15,464	17,015	9,298	7,747	7,289	12,930
HG	47,399	38,181	44,747	45,735	57,060	42,518	48,616
YG	108	168	42	19	24	10	6
YC	0	0	2	1	1	0	0
YM	2	24	8	4	0	0	0
IG	0	1	0	3	7	3	7
GZ		1	2		9	5	2
GB	8,326	13,294	7,791	7,152	5,688	4,048	3,116
QG	0	0	0	0	0	1	1
KI	807	1,739	189	75	222	196	658
UU	3,080	730	1,903	1,820	279	1,521	801
ZU	0	0	0	0	2	0	0
GULLS	202,071	247,986	300,898	282,439	320,911	330,757	331,681
AF	23	0	0	0	0	0	0
TG	0	0	1	0	0	0	0
BJ	13	65	6	0	0	0	0
WJ	0	0	0	0	0	0	0
TE	2,944	283	2	2	0	4	27
CN	572	74	2	1	0	0	1
RS	10	0	0	0	0	0	0
AE	19	6	0	0	0	0	0
UT	0	0	0	0	0	0	0
UI	5	0	0	0	0	0	0
TERNS	3,586	428	10	3	0	4	28
KF	312	322	375	278	187	184	255

Table 5. Total number of waterbirds recorded by WeBS Core Counts in Northern Ireland, 2001/02[†].

		Apr	May	Jun	Jul	Aug
Number of sites visited		2	2	2	2	2
Number of sectors visited		10	7	7	7	7
MS	Mute Swan	37	71	22	21	14
BS	Bewick's Swan	0	0	0	0	0
WS	Whooper Swan	0	0	0	0	0
BE	Bean Goose	0	0	0	0	0
PG	Pink-footed Goose	0	0	0	0	0
NW	Greenland White-fronted Goose	0	0	0	0	0
GJ	Greylag Goose	0	0	0	0	0
HD	Bar-headed Goose	0	0	0	0	0
SJ	Snow Goose	0	0	0	0	0
CG	Greater Canada Goose	0	0	0	0	0
BY	Barnacle Goose	0	0	0	0	0
DB	Dark-bellied Brent Goose	0	0	0	0	0
QN	Light-bellied Brent Goose (Canada)	205	0	0	0	0
ZL	hybrid goose	0	0	0	0	0
SU	Shelduck	58	75	72	12	5
MN	Mandarin	1	0	0	0	0
WN	Wigeon	12	0	0	0	0
GA	Gadwall	0	0		0	0
T.	Teal	2	0	0	0	0
MA	Mallard	43	33	92	127	149
PT	Pintail	0	0	0	0	0
SV	Shoveler	0	0	0	0	0
PO	Pochard	0	0	0	0	0
TU	Tufted Duck	0	0	0	0	0
SP	Scaup	0	0	0	0	0
E.	Eider	10	14	6	4	8
KE	King Eider	0	0	0	0	0
LN	Long-tailed Duck	0	0	0	0	0
CX	Common Scoter	0	0	0	0	0
VS	Velvet Scoter	0	0	0	0	0
GN	Goldeneye	3	0	0	0	0
SY	Smew	0	0	0	0	0
RM	Red-breasted Merganser	5	0	0	1	1
GD	Goosander	0	0	0	0	0
RY	Ruddy Duck	0	0	0	0	0
RH	Red-throated Diver	0	0	0	0	0
BV	Black-throated Diver	0	0	0	0	0
ND	Great Northern Diver	0	0	0	0	0
LG	Little Grebe	0	1	0	0	1
GG	Great Crested Grebe	0	0	0	0	0
SZ	Slavonian Grebe	0	0	0	0	0
CA	Cormorant	18	19	16	19	53
SA	Shag	0	4	0	2	0
XU	unidentified cormorant	0	0	0	0	0
ET	Little Egret	0	0	2	0	0
H.	Grey Heron	2	2	5	6	5
WA	Water Rail	0	0	0	0	0
MH	Moorhen	0	1	2	4	1
CO	Coot	0	0	0	0	0
	TOTAL WILDFOWL[1]	396	220	217	196	237

Table 5. continued

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Sites	16	18	19	21	22	21	20
Sectors	35	38	40	153	267	267	151
MS	357	478	393	1,831	1,815	1,746	1,386
BS	0	0	0	12	15	19	0
WS	4	134	783	1,457	2,260	2,252	1,758
BE	0	0	0	0	0	0	0
PG	0	3	1	0	0	2	0
NW	0	0	21	1	0	26	5
GJ	262	281	422	1,175	1,028	2,354	1,557
HD	1	0	0	0	0	0	0
SJ	5	0	1	0	1	3	3
CG	101	193	239	30	444	437	24
BY	135	214	202	126	107	1	1
DB	0	0	0	0	0	0	0
QN	5,309	21,570	13,573	4,417	4,203	3,252	1,891
ZL	0	0	0	0	0	0	1
SU	48	587	2,524	4,233	5,364	3,121	2,556
MN	0	0	0	0	0	0	0
WN	3,004	8,307	8,716	5,079	4,667	2,834	1,931
GA	65	42	57	157	237	150	128
T.	1,107	1,576	2,369	4,450	4,567	3,372	1,323
MA	3,737	4,347	3,591	7,449	6,253	3,104	1,828
PT	0	113	232	356	232	11	10
SV	65	133	225	151	171	51	83
PO	54	30	60	12,567	17,047	7,027	3,167
TU	239	151	194	13,073	14,636	12,691	9,589
SP	2	17	97	2,900	2,556	3,652	3,516
E.	1,167	957	1,036	785	599	999	496
KE	0	1	0	0	0	0	0
LN	0	0	15	22	12	37	15
CX	0	0	22	0	0	0	6
VS	0	0	0	0	0	1	0
GN	5	30	408	6,926	5,991	5,086	6,040
SY	0	0	0	0	0	0	0
RM	310	377	699	422	296	253	315
GD	0	1	1	1	1	1	0
RY	0	0	0	28	59	15	33
RH	2	3	19	42	17	30	16
BV	0	0	0	1	2	0	0
ND	0	1	4	3	1	4	1
LG	119	159	238	578	399	337	149
GG	1,850	2,308	2,812	1,583	1,614	2,033	1,195
SZ	0	0	7	0	0	0	0
CA	971	644	919	1,058	1,750	1,265	1,016
SA	101	28	159	189	387	113	26
XU	0	130	170	70	0	0	0
ET	0	0	0	0	0	0	0
H.	238	159	210	233	172	179	119
WA	0	0	2	1	4	2	2
MH	54	70	79	248	453	259	177
CO	562	844	751	3,084	4,994	3,717	1,957
WILDFOWL	19,874	43,888	41,251	74,738	82,354	60,436	42,320

Table 5. Northern Ireland totals 2001/02 (continued).

		Apr	May	Jun	Jul	Aug
OC	Oystercatcher	512	472	280	578	1,096
LP	Little Ringed Plover	0	0	0	1	0
RP	Ringed Plover	80	10	2	8	10
GP	Golden Plover	576	0	0	0	0
GV	Grey Plover	0	0	0	0	0
L.	Lapwing	0	0	75	96	140
KN	Knot	18	0	0	0	0
SS	Sanderling	216	1	0	0	0
LX	Little Stint	0	0	0	0	0
CV	Curlew Sandpiper	0	0	0	2	0
PS	Purple Sandpiper	0	0	0	0	0
DN	Dunlin	18	72	10	14	40
RU	Ruff	0	0	0	0	0
JS	Jack Snipe	0	0	0	0	0
SN	Snipe	17	0	0	0	0
LD	Long-billed Dowitcher	0	0	0	0	0
BW	Black-tailed Godwit	2	0	0	0	40
BA	Bar-tailed Godwit	0	7	1	0	0
WM	Whimbrel	7	2	0	0	3
CU	Curlew	110	13	62	304	368
RK	Redshank	775	4	28	84	885
GK	Greenshank	11	1	0	7	15
LY	Lesser Yellowlegs	0	0	0	0	0
CS	Common Sandpiper	0	0	0	4	0
TT	Turnstone	47	0	0	0	3
WF	Wilson's Phalarope	0	0	0	0	0
	TOTAL WADERS	2,389	582	458	1,098	2,600
	TOTAL WATERBIRDS[2]	2,785	802	675	1,294	2,837
MU	Mediterranean Gull	0	0	0	0	0
LU	Little Gull	0	0	0	0	0
BH	Black-headed Gull	82	26	212	316	307
IN	Ring-billed Gull	0	0	0	0	0
CM	Common Gull	32	19	75	26	38
LB	Lesser Black-backed Gull	4	0	51	1	2
HG	Herring Gull	51	32	83	20	27
IG	Iceland Gull	1	0	0	0	0
GZ	Glaucous Gull	0	0	0	0	0
GB	Great Black-backed Gull	14	23	40	12	11
KI	Kittiwake	0	0	2	0	0
	TOTAL GULLS[3]	184	100	463	375	385
BJ	Black Tern	0	0	0	0	0
TE	Sandwich Tern	46	86	38	314	296
CN	Common Tern	0	37	11	0	0
AE	Arctic Tern	0	0	2	0	0
	TOTAL TERNS[3]	46	123	51	314	296
KF	Kingfisher	0	0	0	0	0

† *See Appendix 3 for calculation of totals for goose populations*
1 *Total wildfowl represents numbers of all swans, geese, divers, grebes, cormorants and rails*
2 *Total waterbirds represents numbers of all species except gulls, terns and Kingfisher*
3 *Counting gulls and terns was optional, thus totals are not complete at a national level*

Table 5. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
OC	13,833	16,215	15,383	14,779	13,675	10,208	10,418
LP	0	0	0	0	0	0	0
RP	437	547	542	235	286	165	34
GP	870	7,944	8,856	8,916	6,659	15,285	7,347
GV	7	43	157	296	342	153	54
L.	961	2,514	9,608	16,840	22,419	15,056	1,131
KN	24	51	571	769	4,061	1,114	95
SS	0	0	25	12	10	2	18
LX	0	1	2	1	1	0	0
CV	1	7	1	0	0	0	0
PS	3	0	4	1	2	16	9
DN	230	887	6,853	9,475	9,617	6,676	2,061
RU	1	1	0	4	2	2	2
JS	0	4	0	2	2	1	2
SN	27	59	115	171	234	220	150
LD					1	1	
BW	1,004	579	374	477	323	186	519
BA	103	478	242	424	1,095	2,008	373
WM	0	0	0	1	0	0	0
CU	3,912	3,811	3,087	3,590	3,530	4,244	3,310
RK	6,669	6,952	8,582	6,514	7,149	6,692	4,716
GK	91	146	113	86	64	71	51
LY	0	0	0	1	0	0	0
CS	1	0	1	0	0	0	0
TT	538	644	760	635	638	611	466
WF	0	1	0	0	0	0	0
WADERS	28,712	40,884	55,276	63,229	70,110	62,711	30,756
WATERBIRDS	48,586	84,772	96,527	137,967	152,464	123,147	73,076
MU	0	0	0	0	1	0	0
LU	0	0	0	0	1	0	0
BH	8,777	5,915	5,632	7,420	7,260	9,746	13,437
IN	0	0	0	0	0	2	2
CM	2,880	2,304	3,141	2,589	1,137	4,480	4,238
LB	123	72	13	201	51	180	259
HG	1,422	1,212	1,291	9,737	5,610	4,047	4,446
IG	0	0	0	1	5	2	2
GZ	0	0	0	0	2	6	3
GB	412	198	152	192	918	440	463
KI	7	0	6	0	2	9	0
GULLS	13,621	9,701	10,235	20,140	14,987	18,912	22,850
BJ	0	1	0	0	0	0	0
TE	617	100	0	0	0	0	0
CN	1	8	0	0	0	0	0
AE	0	0	0	0	0	0	0
TERNS	618	109	0	0	0	0	0
KF	0	0	3	1	0	1	0

Table 6. Total number of waterbirds recorded by I-WeBS in the Republic of Ireland, 2001/02.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Number of sites visited	120	139	176	180	253	176	157
Number of sectors visited	258	319	445	405	640	437	347
Mute Swan	1,100	2,084	2,817	2,336	3,266	2,477	1,640
Black Swan	0	1	2	1	2	1	0
Bewick's Swan	0	0	14	32	205	133	66
Whooper Swan	0	396	3,247	3,517	3,857	2,330	1,981
Pink-footed Goose	0	1	12	1	36	14	0
G'land White-fronted Goose	0	144	7,391	1,740	8,388	7,725	925
Greylag Goose	197	706	5,717	4,821	3,672	1,901	3,490
Greater Canada Goose	68	33	103	185	252	210	28
Barnacle Goose	1	1	7	16	680	916	451
Dark-Bellied Brent Goose	0	0	0	1	0	0	1
Black Brant	0	0	0	0	1	0	1
Light-bellied Brent Goose	7	936	6,460	14,240	14,713	11,327	9,526
feral/hybrid Goose	22	49	67	81	64	74	75
Shelduck	67	264	2,223	4,451	6,635	5,695	2,243
unidentified duck	1	0	0	1	0	0	0
Wigeon	1,455	8,795	28,658	32,823	31,406	28,207	9,831
American Wigeon	0	1	0	0	0	3	2
Gadwall	23	35	245	373	242	161	126
Teal	2,563	4,950	11,318	15,846	17,634	13,128	5,325
Green-winged Teal	0	0	1	1	1	0	0
Mallard	5,850	8,447	10,013	9,577	11,165	5,867	2,539
Pintail	23	89	279	313	237	273	177
Garganey	0	0	0	0	2	0	0
Shoveler	43	305	456	737	1,158	850	753
Pochard	32	100	17,678	1,415	7,272	2,539	947
Ring-necked Duck	0	0	1	1	1	0	1
Tufted Duck	641	1,285	11,480	4,220	9,244	5,432	3,018
Scaup	0	81	208	160	259	137	53
Eider	0	1	1	1	127	0	0
Long-tailed Duck	0	0	2	4	7	8	8
Common Scoter	66	560	5,457	984	4,910	831	523
Goldeneye	1	37	602	747	1,623	1,372	477
Smew	0	0	0	1	2	1	0
Red-breasted Merganser	177	315	721	636	688	482	581
Ruddy Duck	0	1	0	0	0	0	0
feral/hybrid Mallard type	3	0	5	3	1	1	0
hybrid *Aythya*	0	0	0	0	0	3	0
Red-throated Diver	11	23	165	62	111	70	65
Black-throated Diver	0	0	4	0	21	1	63
Great Northern Diver	7	14	244	99	152	160	319
Little Grebe	347	322	547	392	483	240	276
Great Crested Grebe	121	292	680	570	1,023	598	552
Slavonian Grebe	0	0	10	6	7	17	2
Black-necked Grebe	0	0	0	2	2	1	0
Cormorant	1,832	2,047	2,460	1,643	2,704	1,283	1,168
Grey Heron	490	451	842	619	551	287	330
Little Egret	160	100	107	77	53	70	44
Spoonbill	0	0	1	1	1	0	0
Coot	826	2,193	14,189	4,863	5,883	14,653	1,360
Moorhen	383	337	585	397	466	377	369
Water Rail	2	6	19	10	21	16	16
TOTAL WILDFOWL[1]	16,519	35,402	135,038	108,006	139,228	109,871	49,352

1 *Total wildfowl represents numbers of all swans, geese, divers, grebes, cormorants and rails*
2 *Total waterbirds represents numbers of all species except gulls, terns and Kingfisher*
3 *Counting gulls and terns was optional, thus totals are not complete at a national level*

Table 6. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Oystercatcher	18,762	18,745	22,555	20,966	20,021	18,474	11,579
Ringed Plover	2,451	3,439	4,477	2,880	3,587	1,897	591
Golden Plover	1,281	35,140	66,073	60,134	84,493	76,656	17,611
Grey Plover	472	698	2,512	1,937	2,226	3,324	649
Lapwing	1,336	14,467	39,692	37,654	80,077	58,503	915
Knot	544	750	6,167	8,621	7,935	8,583	7,996
Sanderling	561	1,298	1,218	1,328	1,021	800	681
Semi-palmated Sandpiper	1	1	0	0	0	0	0
Little Stint	5	5	3	0	1	0	0
Pectoral Sandpiper	2	0	0	0	0	0	0
Curlew Sandpiper	25	7	0	0	0	0	0
Purple Sandpiper	9	7	48	60	95	75	51
Dunlin	3,062	10,791	29,262	33,817	40,227	39,602	11,124
Ruff	33	7	12	0	7	9	8
Jack Snipe	0	2	10	18	24	20	15
Snipe	47	217	491	561	561	413	297
Long-billed Dowitcher	0	0	1	0	0	0	0
Woodcock	0	2	0	3	1	3	1
Black-tailed Godwit	6,199	8,693	6,888	9,233	7,423	7,536	3,993
Bar-tailed Godwit	2,268	3,659	5,547	6,009	7,237	6,533	2,522
Whimbrel	25	5	2	0	0	3	2
Curlew	7,739	10,615	12,119	12,151	14,895	18,329	6,105
Spotted Redshank	3	8	8	6	4	2	8
Redshank	8,685	8,476	8,814	7,934	10,032	9,312	7,194
Greenshank	368	319	270	272	278	284	169
Green Sandpiper	2	14	5	5	8	1	0
Common Sandpiper	9	3	2	6	5	0	1
Turnstone	864	1,353	1,534	1,323	1,499	1,265	1,017
Grey Phalarope	0	4	0	0	0	0	0
TOTAL WADERS	54,753	118,725	207,710	204,918	281,657	251,624	72,529
TOTAL WATERFOWL[2]	71,272	154,127	342,748	312,924	420,885	361,495	121,881
Mediterranean Gull	11	8	1	0	4	3	1
Little Gull	0	0	1	18	0	43	9
Black-headed Gull	12,367	11,653	22,935	19,347	18,011	16,863	9,776
Ring-billed Gull	1	0	1	1	1	3	0
Common Gull	1,580	1,618	6,548	3,260	12,173	14,407	2,154
Lesser Black-backed Gull	2,284	2,010	8,350	838	3,423	1,221	1,656
Herring Gull	1,081	931	1,152	877	2,202	1,610	879
Yellow-legged Gull	0	1	0	0	0	0	0
Iceland Gull	0	0	0	0	4	4	0
Glaucous Gull	0	0	1	0	3	7	6
Great Black-backed Gull	1,077	963	1,467	521	1,323	959	976
unidentified gull	0	0	246	0	2,123	83	0
	0	0	0	0	0	0	0
TOTAL GULLS[3]	18,401	17,184	40,702	24,862	39,267	35,203	15,457
Black Tern	3	1	0	0	0	0	0
Sandwich Tern	403	18	0	0	0	0	5
Forster's Tern	1	0	0	0	0	0	0
Common Tern	46	0	0	0	0	0	0
Arctic Tern	10	0	0	0	0	0	0
TOTAL TERNS[3]	463	19	0	0	0	0	5
Kingfisher	11	17	17	18	13	5	8

Table 7. Total number of waterbirds recorded by WeBS Core Counts in Great Britain, 2002/03[†].

		Apr	May	Jun	Jul	Aug
Number of sites visited		904	827	769	808	812
Number of sectors visited		1,396	1,230	1,116	1,182	1,256
YV	Fulvous Whistling Duck	0	0	0	0	0
MS	Mute Swan	8,661	7,662	8,513	10,845	11,781
AS	Black Swan	19	23	12	17	18
BS	Bewick's Swan	0	0	0	0	0
WS	Whooper Swan	98	23	22	17	26
ZS	hybrid *cygnus*	0	0	0	0	0
QI	Blue-winged Goose	1	0	0	0	0
HN	Swan Goose	5	19	12	8	9
BE	Bean Goose	1	0	0	0	0
XR	Tundra Bean Goose	1	0	0	0	0
PG	Pink-footed Goose	23,088	28	20	9	13
WG	White-fronted Goose[1]	0	0	0	0	0
EW	European White-fronted Goose	3	1	2	1	0
NW	Greenland White-fronted Goose	44	0	0	0	0
LC	Lesser White-fronted Goose	0	0	0	0	0
JI	Greylag Goose (Iceland)	3,158	0	0	0	0
JH	Greylag Goose (NW Scotland)	60	48	22	16	4,844
JE	Greylag Goose (naturalised)	6,567	6,475	12,492	14,290	16,811
HD	Bar-headed Goose	4	8	5	7	6
SJ	Snow Goose	7	4	4	5	4
RJ	Ross's Goose	0	0	0	0	0
EM	Emperor Goose	0	1	1	1	8
NE	Hawaiian Goose	0	0	0	0	0
CG	Greater Canada Goose	14,925	12,239	23,347	33,368	34,083
YN	Barnacle Goose (Greenland)	274	19	0	0	0
YS	Barnacle Goose (Svalbard)	6,214	2,200	0	0	0
YE	Barnacle Goose (naturalised)	339	137	235	223	305
BG	Brent Goose[3]	1	0	0	0	0
DB	Dark-bellied Brent Goose	13,903	486	19	26	545
BB	Black Brant	0	0	0	0	0
QS	Light-bellied Brent Goose (Svalbard)	29	2	0	0	0
QN	Light-bellied Brent Goose (Canada)	0	1	0	0	0
EB	Red-breasted Goose	2	3	0	5	4
QF	Magellan Goose	1	0	1	1	1
EG	Egyptian Goose	107	211	478	350	405
ZL	hybrid goose	259	234	262	257	312
ZM	feral/domestic goose	0	0	0	0	0
UO	unidentified goose	0	0	0	0	0
UD	Ruddy Shelduck	1	2	5	3	5
UE	Cape Shelduck	0	0	1	0	2
UA	Australian Shelduck	0	0	0	0	0
UB	Paradise Shelduck	0	0	0	0	0
SU	Shelduck	24,045	15,059	18,898	26,064	32,301
ZT	hybrid shelduck	0	0	0	0	0
MY	Muscovy Duck	9	20	17	18	21
DC	Wood Duck	4	2	2	1	1
MN	Mandarin	128	109	78	195	163
WN	Wigeon	7,211	212	244	202	1,182
AW	American Wigeon	1	0	0	2	1
HL	Chiloe Wigeon	0	1	0	1	0
FT	Falcated Duck	0	0	1	0	0
GA	Gadwall	2,908	1,845	2,581	2,323	3,985
IK	Baikal Teal	0	0	0	0	0
T.	Teal	13,292	516	815	1,881	12,371
TA	Green-winged Teal	0	0	0	0	0
KQ	Speckled Teal	0	0	0	0	0

Table 7. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Sites	1,532	1,699	1,742	1,725	1,754	1,784	1,739
Sectors	2,268	2,646	2,647	2,667	2,700	2,751	2,650
YV	0	0	0	0	0	1	0
MS	17,569	19,173	19,283	18,925	17,204	15,368	14,252
AS	38	31	34	25	25	21	23
BS	2	209	1,923	2,916	2,378	4,938	64
WS	33	925	5,169	3,785	1,750	6,018	2,478
ZS	0	0	0	0	0	0	0
QI	0	0	0	0	0	0	0
HN	28	19	12	15	10	10	3
BE	0	0	163	138	142	15	8
XR	0	0	0	0	7	4	0
PG	598	189,704	210,921	68,319	55,986	59,297	53,420
WG	0	0	0	2	1	11	1
EW	1	12	252	693	2,260	2,001	195
NW	2	18	19,577	421	372	530	18,272
LC	0	0	0	2	1	1	0
JI	0	7,019	61,144	22,600	22,783	25,102	19,947
JH	900	745	702	645	306	3,570	339
JE	24,378	22,708	22,730	17,499	21,240	14,611	10,580
HD	33	33	15	10	18	46	6
SJ	30	15	10	36	18	28	10
RJ	0	2	3	1	0	1	2
EM	16	21	1	14	5	11	11
NE	0	0	0	0	0	1	0
CG	54,678	49,911	47,561	44,795	45,029	33,803	23,491
YN	10	36	183	13,523	91	51	47,352
YS	5	25,174	27,121	28,512	24,606	25,606	26,523
YE	308	504	799	880	842	908	317
BG	6	17	24	18	0	3	13
DB	1,316	29,153	51,321	61,824	70,471	65,485	28,586
BB	0	1	1	1	3	5	1
QS	1,356	2,973	2,070	1,896	2,876	3,303	217
QN	0	7	48	115	67	78	77
EB	4	4	1	1	0	4	5
QF	0	1	1	1	1	1	1
EG	422	428	310	226	217	165	164
ZL	560	507	501	484	474	430	395
ZM	0	0	0	0	0	0	0
UO	0	0	0	0	0	0	0
UD	7	5	2	0	5	8	2
UE	0	0	2	1	1	1	1
UA	1	0	0	0	0	0	0
UB	1	1	0	0	0	0	0
SU	27,996	44,681	42,265	46,657	53,799	46,179	39,710
ZT	0	0	0	0	0	0	0
MY	22	34	39	49	42	42	32
DC	6	4	6	1	2	4	5
MN	340	348	418	512	267	359	172
WN	31,798	253,511	323,538	340,175	371,777	312,671	117,891
AW	1	0	1	5	0	3	2
HL	2	0	2	0	1	1	0
FT	0	0	0	0	0	0	0
GA	10,302	12,385	13,056	14,347	13,607	14,278	6,277
IK	0	0	0	0	0	0	0
T.	51,855	100,962	134,601	140,216	180,710	113,770	46,172
TA	0	0	2	8	3	2	1
KQ	1	0	2	2	0	0	0

Table 7. Great Britain totals 2002/03 (continued).

		Apr	May	Jun	Jul	Aug
MA	Mallard	27,365	24,195	30,870	40,599	62,487
BD	Black Duck	0	1	0	1	0
QB	Chestnut Teal	0	0	0	0	0
PT	Pintail	421	40	15	11	84
YL	Yellow-billed Pintail	0	0	0	0	1
PN	Bahama Pintail	1	2	0	0	0
YR	Red-billed Teal	9	0	0	1	0
AG	Silver Teal	0	0	0	0	1
GY	Garganey	33	43	23	11	36
TB	Blue-winged Teal	0	0	0	0	0
QA	Cinnamon Teal	0	0	0	0	0
SV	Shoveler	3,534	609	566	430	2,266
IE	Ringed Teal	0	0	0	0	1
MQ	Maned duck	0	0	0	0	0
RQ	Red-crested Pochard	11	4	2	5	20
QR	Rosybill	1	0	0	0	0
PO	Pochard	1,575	838	852	2,029	7,973
AZ	Redhead	0	0	0	0	0
NG	Ring-necked Duck	1	1	0	0	1
FD	Ferruginous Duck	0	0	0	0	0
NZ	New Zealand Scaup	0	0	0	0	0
TU	Tufted Duck	19,781	8,454	7,179	17,357	33,696
SP	Scaup	653	66	7	6	55
AY	Lesser Scaup	0	0	0	0	0
E.	Eider	16,001	12,625	13,017	14,112	15,145
KE	King Eider	0	1	0	0	0
LN	Long-tailed Duck	274	135	1	0	0
CX	Common Scoter	5,153	1,491	362	414	604
FS	Surf Scoter	3	0	1	0	0
VS	Velvet Scoter	1,928	160	32	18	18
UX	unidentified scoter sp.	0	0	0	0	0
VH	Bufflehead	0	0	1	0	0
GN	Goldeneye	2,598	98	56	66	77
HO	Hooded Merganser	0	2	0	0	0
SY	Smew	4	1	1	1	1
RM	Red-breasted Merganser	1,562	657	528	708	636
GD	Goosander	461	292	242	442	730
RY	Ruddy Duck	942	581	512	697	1,056
OI	Argentine Blue-bill	0	0	0	0	0
ZF	feral/hybrid Mallard type	303	238	286	352	370
ZR	hybrid *Anas*	54	21	18	31	24
ZD	hybrid *Aythya*	10	0	1	0	0
UM	unidentified duck	13	50	11	25	15
RH	Red-throated Diver	212	150	58	39	45
BV	Black-throated Diver	33	12	3	10	1
ND	Great Northern Diver	45	15	0	2	1
LG	Little Grebe	1,144	831	737	1,149	1,860
GG	Great Crested Grebe	3,894	3,086	2,732	4,115	5,830
RX	Red-necked Grebe	2	2	0	0	0
SZ	Slavonian Grebe	49	1	2	0	1
BN	Black-necked Grebe	73	27	16	25	30
UV	unidentified grebe	0	0	0	0	0
CA	Cormorant	6,780	5,419	4,446	6,575	8,383
SA	Shag	82	94	77	114	693
BI	Bittern	2	1	2	7	5
NT	Night Heron	0	0	0	0	0

Table 7. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
MA	108,402	128,583	130,305	133,386	135,313	98,223	52,207
BD	0	1	0	0	0	0	0
QB	0	0	0	0	0	0	0
PT	2,268	10,207	27,470	20,128	21,290	20,968	5,545
YL	0	0	0	0	0	0	0
PN	0	1	0	0	0	0	0
YR	0	0	0	0	0	0	0
AG	0	0	2	0	0	0	0
GY	48	7	1	0	0	1	35
TB	0	0	1	0	0	0	0
QA	1	1	0	0	0	0	0
SV	5,985	8,999	10,649	11,097	11,868	9,848	9,017
IE	2	1	0	0	0	2	0
MQ	0	0	0	0	0	0	1
RQ	34	43	52	101	111	87	39
QR	0	0	0	0	0	0	0
PO	7,417	10,435	24,653	27,314	31,169	28,347	4,789
AZ	0	1	1	1	1	1	0
NG	1	0	0	1	4	2	1
FD	1	1	2	0	0	1	0
NZ	0	0	1	0	0	0	0
TU	44,197	47,758	48,185	48,429	44,805	46,353	33,687
SP	161	730	1,181	2,896	2,842	2,958	1,000
AY	0	0	1	1	1	2	1
E.	18,765	25,614	19,248	17,427	15,886	17,010	22,887
KE	0	0	0	1	0	0	0
LN	2	264	760	2,379	3,170	2,376	878
CX	1,588	4,959	6,099	12,777	19,755	10,334	5,062
FS	0	1	3	4	4	8	5
VS	155	431	815	1,392	3,460	5,429	1,283
UX	0	0	0	0	0	0	0
VH	0	0	0	0	0	0	0
GN	118	637	8,137	11,320	13,060	12,871	8,534
HO	0	2		2	0	0	0
SY	1	1	30	176	284	276	46
RM	1,405	2,213	3,121	2,864	2,506	2,391	2,770
GD	896	927	1,683	2,368	2,313	2,359	1,073
RY	1,917	2,432	2,973	3,033	3,021	3,514	1,877
OI	0	0	0	0	0	0	0
ZF	577	652	869	819	532	579	453
ZR	28	48	34	45	34	36	25
ZD	0	0	0	0	1	1	0
UM	28	30	40	24	67	11	7
RH	121	540	392	417	649	559	382
BV	1	26	31	33	32	64	63
ND	3	13	51	83	88	87	96
LG	4,194	4,941	4,188	3,642	3,561	3,098	2,559
GG	8,518	8,354	7,546	6,611	7,674	8,362	6,140
RX	1	35	22	16	40	33	49
SZ	3	80	148	130	169	157	176
BN	27	30	34	28	50	62	49
UV	0	0	0	3	1	0	0
CA	14,125	17,605	13,735	13,583	12,479	11,783	9,331
SA	1,140	1,302	2,893	867	2,939	767	566
BI	2	6	15	21	40	38	3
NT	1	0	0	0	0	0	0

Table 7. Great Britain totals 2002/03 (continued).

		Apr	May	Jun	Jul	Aug
QH	Squacco Heron	0	0	1	0	0
EC	Cattle Egret	1	1	0	0	0
ET	Little Egret	621	345	304	668	1,171
NY	Snowy Egret	0	0	0	0	0
HW	Great White Egret	0	0	0	0	0
H.	Grey Heron	1,899	1,692	1,513	2,085	2,487
UR	Purple Heron	1	1	0	0	0
OR	White Stork	2	1	0	1	0
NB	Spoonbill	12	20	19	21	23
FL	Greater Flamingo	0	0	0	0	0
WA	Water Rail	117	41	39	35	49
AK	Spotted Crake	0	0	1	0	0
MH	Moorhen	5,073	3,315	3,346	4,447	5,566
CO	Coot	19,755	16,033	18,827	36,753	52,208
AN	Crane	0	2	0	0	1
	TOTAL WILDFOWL[2]	247,617	129,230	154,795	223,498	322,817
OC	Oystercatcher	58,816	37,937	28,885	45,254	137,510
IT	Black-winged Stilt	1	1	1	1	1
AV	Avocet	1,860	998	1,186	1,990	2,079
TN	Stone-curlew	2	1	0	0	0
LP	Little Ringed Plover	206	191	193	233	104
RP	Ringed Plover	3,974	7,179	1,224	1,626	14,367
KP	Kentish Plover	0	1	1	0	0
ID	American Golden Plover	0	0	0	0	0
GP	Golden Plover	6,764	238	6	5,307	48,494
GV	Grey Plover	24,966	8,523	1,010	1,326	18,628
L.	Lapwing	8,479	4,653	5,859	26,984	62,447
KN	Knot	53,363	15,666	4,666	15,486	87,818
SS	Sanderling	7,775	14,101	996	3,075	11,569
LX	Little Stint	12	7	5	3	42
TK	Temminck's Stint	0	0	0	0	1
WU	White-rumped Sandpiper	0	0	0	1	2
BP	Baird's Sandpiper	0	0	0	0	0
PP	Pectoral Sandpiper	0	0	0	0	1
CV	Curlew Sandpiper	0	19	3	15	90
PS	Purple Sandpiper	751	167	1	288	246
DN	Dunlin	80,390	41,815	1,071	35,677	121,661
OA	Broad-billed Sandpiper	0	0	1	0	1
RU	Ruff	847	57	14	313	598
JS	Jack Snipe	35	1	0	0	12
SN	Snipe	1,055	82	94	158	958
LD	Long-billed Dowitcher	0	0	0	0	0
WK	Woodcock	4	5	1	0	1
BW	Black-tailed Godwit	10,719	1,702	697	6,796	12,808
BA	Bar-tailed Godwit	6,816	4,485	1,594	4,496	16,821
WM	Whimbrel	394	1,108	128	387	715
CU	Curlew	21,686	4,604	3,709	43,733	66,377
DR	Spotted Redshank	69	11	21	100	114
RK	Redshank	34,822	3,470	2,658	19,320	52,360
MD	Marsh Sandpiper	0	0	1	1	0
GK	Greenshank	155	110	27	729	1,600
LY	Lesser Yellowlegs	0	0	0	0	0

Table 7. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
QH	0	0	0	0	0	0	0
EC	0	0	0	0	0	0	0
ET	1,866	1,842	1,447	1,135	989	887	1,016
NY	0	0	0	0	0	0	0
HW	0	0	1	0	0	0	0
H.	3,708	4,285	3,109	2,756	2,978	2,881	2,798
UR	0	0	0	0	0	0	0
OR	0	2	2	2	2	2	2
NB	28	3	13	15	15	13	14
FL	0	0	0	0	0	0	0
WA	145	298	634	468	482	374	323
AK	2	0	0	0	0	0	0
MH	11,491	13,812	11,698	11,233	9,358	11,424	10,116
CO	89,423	101,212	98,067	95,482	81,989	63,253	38,242
AN	0	1	0	0	0	0	0
WILDFOWL	553,278	1,164,201	1,416,433	1,264,088	1,323,664	1,110,713	679,242
OC	224,797	281,118	221,283	220,066	239,750	218,409	116,280
IT	0	0	1	0	1	0	1
AV	2,613	3,249	4,156	4,423	3,938	3,134	2,936
TN	0	0	0	0	0	0	0
LP	39	0	0	0	0	0	72
RP	18,409	10,452	8,697	7,413	7,216	7,417	3,573
KP	0	0	0	0	0	0	0
ID	0	0	0	0	0	0	0
GP	32,656	50,908	119,711	131,998	104,548	70,341	20,192
GV	32,651	34,430	32,538	32,657	34,550	26,210	25,445
L.	72,954	79,605	276,246	291,643	240,555	201,158	23,886
KN	158,846	168,356	215,085	194,596	235,343	176,055	121,283
SS	11,281	6,682	6,875	7,857	9,804	8,132	6,551
LX	38	53	8	17	8	10	3
TK	1	0	0	0	0	0	0
WU	2	0	0	0	0	0	0
BP	0	0	0	0	0	0	0
PP	3	4	0	0	0	0	0
CV	237	43	2	2	0	1	2
PS	158	509	1,056	845	980	1,118	942
DN	105,994	127,674	301,835	379,742	413,770	343,164	98,028
OA	0	0	0	0	0	0	0
RU	810	721	696	529	491	612	1,020
JS	6	116	116	195	165	137	128
SN	1,859	4,549	6,879	6,646	5,684	5,386	4,148
LD	0	0	1	2	1	1	1
WK	0	4	34	30	32	27	5
BW	23,804	31,175	16,095	15,272	18,469	15,452	19,033
BA	47,352	35,157	24,251	38,766	53,910	43,728	18,948
WM	272	55	11	5	7	3	158
CU	71,457	85,619	61,407	57,442	69,715	76,036	54,014
DR	249	225	54	46	57	75	91
RK	73,111	93,209	75,240	67,061	69,486	61,505	57,573
MD	0	0	0	0	0	0	0
GK	2,124	1,194	336	239	228	212	219
LY	0	0	1	0	0	0	0

Table 7. Great Britain totals 2002/03 (continued).

		Apr	May	Jun	Jul	Aug
GE	Green Sandpiper	98	5	27	274	533
OD	Wood Sandpiper	1	7	1	4	59
CS	Common Sandpiper	59	342	148	768	1,246
TT	Turnstone	5,908	1,244	198	747	6,968
NK	Red-necked Phalarope	0	0	1	0	1
U.	unidentified wader	0	0	18	0	0
	TOTAL WADERS	330,027	148,730	54,445	215,092	666,232
	TOTAL WATERBIRDS[3]	577,644	277,960	209,240	438,590	989,049
MU	Mediterranean Gull	92	9	25	117	149
LU	Little Gull	96	79	32	15	63
AB	Sabine's Gull	0	0	0	0	1
BH	Black-headed Gull	44,139	27,124	25,587	56,404	109,773
IN	Ring-billed Gull	0	0	0	0	0
CM	Common Gull	2,047	2,238	1,527	4,341	17,647
LB	Lesser Black-backed Gull	35,035	26,263	37,634	39,894	51,682
HG	Herring Gull	29,686	28,381	20,449	26,784	40,683
YG	Yellow-legged Gull	0	6	10	37	36
YC	Caspian Gull	2	0	0	0	0
YM	Western Yellow-legged Gull	0	0	0	0	0
IG	Iceland Gull	0	0	0	0	0
GZ	Glaucous Gull	2	1	1	0	0
GB	Great Black-backed Gull	1,391	1,692	1,446	2,410	4,132
KI	Kittiwake	629	397	594	257	1,646
UU	unidentified gull	0	0	0	0	700
	TOTAL GULLS[4]	113,119	86,190	87,305	130,259	226,512
AF	Little Tern	164	375	357	836	433
TG	Gull-billed Tern	0	0	0	0	0
BJ	Black Tern	0	4	1	1	22
TE	Sandwich Tern	4,224	3,972	1,259	10,607	6,084
CN	Common Tern	229	2,218	1,935	4,083	4,414
RS	Roseate Tern	0	0	0	7	27
AE	Arctic Tern	3	231	220	967	2,235
UT	unidentified tern	0	0	0	0	44
UI	'Commic' Tern	0	0	1	2	0
	TOTAL TERNS[4]	4,620	6,800	3,773	16,503	13,259
KF	Kingfisher	76	70	74	147	188

† *See Appendix 3 for calculation of totals for goose populations*
1 *Indicates White-fronted and Brent Geese not identified to race*
2 *Total wildfowl represents numbers of all swans, geese, divers, grebes, cormorants and rails*
3 *Total waterbirds represents numbers of all species except gulls, terns and Kingfisher*
4 *Counting gulls and terns was optional, thus totals are not complete at a national level*

Table 7. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
GE	359	202	121	95	100	103	107
OD	11	1	2	1	0	0	0
CS	450	77	40	29	28	26	22
TT	8,723	12,211	10,990	10,764	10,906	10,571	8,639
NK	0	0	0	0	0	0	0
U.	60	0	0	0	0	0	0
WADERS	891,326	1,027,596	1,383,897	1,468,381	1,519,765	1,269,090	583,306
WATERBIRDS	1,444,604	2,191,797	2,800,330	2,732,469	2,843,429	2,379,803	1,262,548
MU	235	134	72	48	49	57	168
LU	161	2	50	8	10	14	75
AB	0	0	0	0	0	0	0
BH	153,222	155,352	187,020	189,149	215,295	171,157	88,649
IN	1	1	2	2	5	4	2
CM	29,058	46,136	53,644	57,227	51,284	56,993	26,123
LB	17,255	16,095	10,816	11,267	10,485	9,364	38,897
HG	53,465	55,209	40,967	48,623	48,539	49,433	39,205
YG	47	96	44	32	4	7	5
YC	0	0	0	1	1	1	1
YM	5	0	7	1	9	7	0
IG	0	0	0	0	1	5	2
GZ	0	0	1	2	3	9	2
GB	8,090	8,694	7,369	10,458	6,069	4,558	2,415
KI	3,103	294	186	81	188	131	474
UU	680	940	500	1,107	0	970	150
GULLS	265,322	282,953	300,678	318,006	331,942	292,710	196,168
AF	83	8	0	0	0	0	0
TG	1	0	0	0	0	0	0
BJ	11	1	0	0	0	0	0
TE	4,814	227	11	3	3	2	99
CN	1,777	141	1	0	0	0	0
RS	0	0	0	0	0	0	0
AE	468	10	0	0	0	0	0
UT	0	0	0	0	0	0	0
UI	85	0	0	0	0	0	0
TERNS	7,239	387	12	3	3	2	99
KF	459	434	404	295	249	178	189

Table 8. Total number of waterbirds recorded by WeBS Core Counts in Northern Ireland, 2002/03[†].

		Apr	May	Jun	Jul	Aug
Number of sites visited		3	3	3	3	4
Number of sectors visited		12	12	12	12	16
MS	Mute Swan	112	99	71	25	19
AS	Black Swan					
BS	Bewick's Swan	0	0	0	0	0
WS	Whooper Swan	15	2	0	1	1
HN	Swan Goose	0	0	0	0	0
PG	Pink-footed Goose	0	0	0	0	0
NW	Greenland White-fronted Goose	0	0	0	0	0
GJ	Greylag Goose	2	2	0	0	0
CG	Greater Canada Goose	0	0	0	0	0
BY	Barnacle Goose	0	0	0	0	0
BG	Brent Goose	0	0	0	0	0
DB	Dark-bellied Brent Goose	0	0	0	0	0
QN	Light-bellied Brent Goose (Canada)	280	0	0	0	1
SU	Shelduck	232	293	162	55	28
WN	Wigeon	7	0	0	0	3
GA	Gadwall	0	0	0	0	0
T.	Teal	2	0	0	0	53
MA	Mallard	81	83	240	407	984
PT	Pintail	0	0	0	0	0
SV	Shoveler	0	0	0	0	0
PO	Pochard	0	0	0	0	0
TU	Tufted Duck	0	0	12	0	0
SP	Scaup	0	2	0	2	0
E.	Eider	6	90	26	291	558
LN	Long-tailed Duck	0	0	0	0	0
CX	Common Scoter	0	0	0	0	0
VS	Velvet Scoter	0	0	0	0	0
GN	Goldeneye	4	0	0	0	0
SY	Smew	0	0	0	0	0
RM	Red-breasted Merganser	30	13	11	6	114
GD	Goosander	0	0	0	0	0
RY	Ruddy Duck	0	0	0	0	0
RH	Red-throated Diver	1	0	0	0	0
BV	Black-throated Diver	0	0	0	0	0
ND	Great Northern Diver	1	0	0	0	0
LG	Little Grebe	2	11	11	15	17
GG	Great Crested Grebe	2	4	1	10	108
RX	Red-necked Grebe	0	0	0	0	0
SZ	Slavonian Grebe	0	0	0	0	0
BN	Black-necked Grebe	0	0	0	0	0
CA	Cormorant	37	133	77	140	364
SA	Shag	0	0	0	0	23
XU	unidentified cormorant	0	0	0	0	0
ET	Little Egret	0	0	0	0	0
H.	Grey Heron	12	12	50	36	67
WA	Water Rail	0	0	0	0	0
MH	Moorhen	3	2	0	7	11
CO	Coot	0	0	2	0	0
	TOTAL WILDFOWL[1]	829	746	663	995	2,351

Table 8. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Sites	19	27	22	24	26	24	25
Sectors	152	198	149	331	261	227	188
MS	1,827	1,715	1,114	1,369	1,177	1,069	872
AS	0	0	0	0	0	2	2
BS	0	0	0	6	0	13	1
WS	10	3,301	1,357	1,311	782	2,019	1,177
HN	0	0	2	0	2	0	0
PG	0	7	4	0	0	3	1
NW	0	88	5	0	9	0	54
GJ	187	276	1,075	818	1,108	2,427	2,888
CG	323	316	227	409	292	126	49
BY	223	217	118	205	210	207	179
BG	0	0	0	0	2	0	1,185
DB	0	0	0	0	0	0	0
QN	7,910	19,210	15,442	3,015	1,825	2,531	2,363
SU	188	1,612	3,200	4,535	4,415	3,635	1,807
WN	3,458	6,698	5,447	5,245	4,452	3,454	3,252
GA	164	179	130	94	83	159	148
T.	2,794	5,846	3,612	4,470	3,414	4,913	2,356
MA	8,433	7,379	4,273	4,696	5,000	3,838	1,791
PT	87	190	396	355	154	280	52
SV	76	113	211	213	235	70	35
PO	497	2,067	5,930	6,751	9,339	4,251	709
TU	2,422	4,437	7,303	9,772	10,457	8,788	6,063
SP	79	25	175	671	2,537	3,298	426
E.	863	1,377	1,031	1,077	1,288	355	602
LN	0	0	23	17	20	7	7
CX	1	1	23	7	0	0	0
VS	0	5	0	5	4	10	0
GN	86	171	3,911	2,620	3,842	2,779	4,074
SY	0	0	0	1	0	0	0
RM	388	366	421	476	513	297	286
GD	0	2	1	1	1	0	1
RY	23	67	3	10 1	1	0	5
RH	4	17	29	13	38	34	31
BV	1	0	0	0	0	0	0
ND	0	27	16	1	4	5	7
LG	350	631	421	440	478	237	154
GG	1,844	3,009	948	1,316	1,156	1,653	746
RX	0	0	0	0	0	0	0
SZ	0	10	0	0	0	1	13
BN	0	0	0	0	0	0	0
CA	2,193	3,124	948	1,498	1,225	1,080	942
SA	132	320	237	288	465	140	120
XU	00	131	67	78	160	0	0
ET	0	0	0	0	0	0	0
H.	413	442	209	198	175	187	160
WA	0	2	0	3	2	2	0
MH	207	291	190	229	210	177	186
CO	4,399	5,032	2,860	3,819	2,729	1,914	1,180
WILDFOWL	39,582	68,701	61,359	56,042	57,804	49,961	33,924

Table 8. Northern Ireland totals 2002/03 (continued).

		Apr	May	Jun	Jul	Aug
OC	Oystercatcher	1,775	1,139	1,420	1,520	4,105
RP	Ringed Plover	402	32	0	24	158
GP	Golden Plover	4,981	0	0	2	30
GV	Grey Plover	0	0	0	0	5
L.	Lapwing	38	46	35	330	232
KN	Knot	1	1	0	0	13
SS	Sanderling	2	33	0	0	8
LX	Little Stint	0	0	0	0	0
CV	Curlew Sandpiper	0	0	0	0	0
PS	Purple Sandpiper	0	0	0	0	0
DN	Dunlin	126	387	0	23	868
RU	Ruff	0	0	0	0	0
JS	Jack Snipe	0	0	0	0	0
SN	Snipe	7	0	0	0	10
BW	Black-tailed Godwit	27	2	0	0	16
BA	Bar-tailed Godwit	107	154	119	3	166
WM	Whimbrel	0	12	3	10	30
CU	Curlew	395	57	311	2,116	2,318
DR	Spotted Redshank	0	0	0	0	0
RK	Redshank	827	6	0	524	1,141
GK	Greenshank	3	0	0	35	33
LY	Lesser Yellowlegs	0	0	0	0	0
CS	Common Sandpiper	1	0	0	3	8
TT	Turnstone	12	0	0	4	112
WF	Wilson's Phalarope	0	0	0	0	0
	TOTAL WADERS	8,704	1,869	1,888	4,594	9,253
	TOTAL WATERBIRDS[2]	9,533	2,615	2,551	5,589	11,604
LU	Little Gull	0	0	0	0	0
BH	Black-headed Gull	65	25	108	1,300	1,896
IN	Ring-billed Gull	0	0	0	0	0
CM	Common Gull	97	7	69	1,289	1,516
LB	Lesser Black-backed Gull	3	37	78	69	92
HG	Herring Gull	29	453	153	49	402
IG	Iceland Gull	0	0	0	0	0
GZ	Glaucous Gull	0	0	0	0	0
GB	Great Black-backed Gull	55	50	31	15	48
KI	Kittiwake	0	0	0	0	0
	TOTAL GULLS[3]	249	572	439	2,722	3,954
TE	Sandwich Tern	48	165	107	565	994
CN	Common Tern	0	2	2	13	21
RS	Roseate Tern	0	1	0	0	0
AE	Arctic Tern	0	0	0	3	0
UI	'Commic' Tern	0	0	0	58	140
	TOTAL TERNS[3]	48	168	109	639	1,155
KF	Kingfisher	0	0	0	1	1

† *See Appendix 3 for calculation of totals for goose populations*

1 *Total wildfowl represents numbers of all swans, geese, divers, grebes, cormorants and rails*

2 *Total waterbirds represents numbers of all species except gulls, terns and Kingfisher*

3 *Counting gulls and terns was optional, thus totals are not complete at a national level*

Table 8. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
OC	16,973	20,270	12,471	13,722	14,933	13,221	7,884
RP	267	1,212	590	351	741	248	169
GP	392	8,340	10,280	11,203	11,976	9,367	12,446
GV	0	60	284	76	338	174	216
L.	1,707	5,233	11,498	12,611	11,733	10,834	562
KN	179	309	2,190	3,642	3,341	2,641	1,601
SS	0	2	0	0	0	30	30
LX	0	5	1	1	1	1	0
CV	9	4	0	0	0	0	0
PS	0	23	5	1	129	15	85
DN	685	1,104	9,737	7,061	7,913	11,305	3,104
RU	2	4	3	4	3	2	0
JS	0	1	1	1	0	3	0
SN	31	122	329	249	351	368	119
BW	805	612	533	283	315	605	217
BA	310	620	1,308	560	1,223	3,719	4,556
WM	4	0	0	0	0	0	2
CU	4,740	5,489	3,877	2,938	3,496	5,120	3,354
DR	0	0	1	0	0	1	1
RK	6,609	10,527	6,151	6,020	7,216	5,715	7,031
GK	85	140	87	80	92	71	86
LY	1	0	0	0	0	0	0
CS	5	1	0	0	1	1	0
TT	650	1,869	698	559	1,836	666	1,297
WF	0	1	0	0	0	0	0
WADERS	33,454	55,948	60,044	59,362	65,638	64,107	42,760
WATERBIRDS	73,036	124,649	121,403	115,404	123,442	114,068	76,684
LU	1	0	0	0	0	0	0
BH	6,248	8,153	10,590	5,952	13,774	9,408	9,016
IN	0	1	0	1	1	1	0
CM	5,935	5,962	4,126	1,576	3,217	7,937	2,770
LB	1,429	934	47	17	93	405	240
HG	1,115	1,671	4,672	4,351	9,200	5,268	1,749
IG	0	0	0	0	0	1	0
GZ	0	0	1	0	0	0	0
GB	231	445	232	451	689	361	253
KI	52	29	2	1	0	1	1
GULLS	15,011	17,195	19,670	12,349	26,974	23,382	14,029
TE	554	198	0	0	0	0	2
CN	13	3	0	0	3	0	0
RS	0	0	0	0	0	0	0
AE	0	0	0	0	0	0	0
UI	136	0	0	0	0	0	0
TERNS	703	201	0	0	3	0	2
KF	2	1	0	1	0	3	0

Table 9. Total number of waterbirds recorded by I-WeBS in the Republic of Ireland, 2002/03.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Number of sites visited	105	125	161	156	229	162	134
Number of sectors visited	256	338	422	378	655	414	328
Mute Swan	1,161	2,769	2,219	1,927	2,837	2,426	1,160
Black Swan	1	0	0	1	1	1	1
Bewick's Swan	0	63	62	111	172	12	0
Whooper Swan	2	1,218	3,570	2,658	4,390	2,272	980
Bean Goose	0	0	0	1	0	0	0
Pink-footed Goose	0	6	4	7	7	7	10
European White-fronted Goose	0	0	0	1	1	1	0
Greenland White-fronted Goose	2	3,630	7,114	6,552	9,290	8,801	8,749
Greylag Goose	28	542	1,622	1,872	4,669	1,455	3,373
Snow Goose	0	1	2	2	2	2	2
Greater Canada Goose	32	5	43	261	178	11	43
Barnacle Goose	0	110	510	1,410	2,753	2,213	635
Dark-Bellied Brent Goose	0	0	0	0	2	1	1
Black Brant	0	0	0	0	1	0	0
Light-bellied Brent Goose	17	1,126	5,684	12,753	10,528	8,293	7,703
feral/hybrid Goose	0	19	43	22	23	7	27
Shelduck	169	649	3,675	6,723	6,882	6,511	2,989
Wigeon	3,474	10,311	32,553	29,201	37,197	28,106	3,111
American Wigeon	1	1	1	1	2	1	2
Gadwall	116	55	222	293	411	250	133
Teal	2,937	8,205	12,343	14,453	20,998	12,893	3,956
Green-winged Teal	0	0	2	0	0	1	0
Mallard	7,717	6,769	9,087	7,995	10,739	5,804	2,386
Black Duck	0	0	0	1	1	1	0
Pintail	37	114	554	245	634	428	62
Garganey	0	0	0	0	0	1	0
Blue-winged Teal	1	0	0	0	0	0	0
Shoveler	73	228	852	1,324	1,380	691	268
Red Crested Pochard	1	1	0	0	1	0	0
Pochard	38	3,865	3,262	1,403	4,975	2,696	155
Ring-necked Duck	0	0	2	1	0	3	2
Tufted Duck	1,143	1,283	10,686	3,382	8,956	5,652	2,601
Scaup	1	48	243	91	593	88	15
Eider	0	0	12	7	3	0	6
Long-tailed Duck	0	0	10	13	23	9	10
Common Scoter	2,827	2,638	3,408	1,592	3,103	602	1,899
Velvet Scoter	0	0	0	0	0	0	3
Goldeneye	2	76	737	720	1,250	1,032	246
Smew	0	0	0	1	4	1	0
Red-breasted Merganser	300	388	681	762	985	452	558
Goosander	0	0	4	0	6	0	0
Ruddy Duck	0	0	1	0	1	0	0
feral/hybrid Mallard type	0	0	0	0	0	92	25
hybrid *Aythya*	0	0	1	3	1	0	0
Red-throated Diver	13	35	76	28	138	52	93
Black-throated Diver	1	0	7	16	10	0	0
Great Northern Diver	16	35	141	208	371	134	200
Little Grebe	438	351	464	511	767	396	784
Great Crested Grebe	484	391	676	654	1,081	637	390
Slavonian Grebe	0	10	0	0	5	7	3
Black-necked Grebe	0	0	0	0	0	2	0
Cormorant	2,309	2,183	2,181	1,696	2,959	1,623	1,820
Grey Heron	550	567	581	577	602	275	306
Little Egret	146	161	111	85	136	318	81
Coot	1,673	6,967	5,541	7,889	4,553	1,849	600
Moorhen	437	459	399	382	432	351	369
Water Rail	20	11	30	19	12	37	15
TOTAL WILDFOWL[1]	26,167	55,290	109,416	107,854	144,065	96,497	45,772

Table 9. continued.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Oystercatcher	19,732	22,839	23,666	12,591	27,072	24,231	14,404
Avocet	0	0	0	1	0	0	0
Ringed Plover	2,270	2,534	2,826	2,609	3,545	2,150	624
Golden Plover	472	19,704	65,947	56,987	58,875	72,285	21,582
Grey Plover	271	503	986	2,468	2,334	2,018	307
Lapwing	1,171	7,509	45,112	49,329	66,183	40,263	1,117
Knot	2,998	1,844	14,302	6,014	12,108	10,590	3,842
Sanderling	1,042	1,180	1,414	1,603	1,863	1,452	973
Curlew Sandpiper	36	5	0	0	1	1	0
Purple Sandpiper	10	2	13	66	54	32	34
Dunlin	1,729	5,053	24,133	28,696	44,667	36,037	4,335
Ruff	11	19	26	10	19	3	1
Jack Snipe	0	0	13	24	22	22	16
Snipe	42	299	462	594	1,075	548	291
Long-billed Dowitcher	0	0	0	0	0	0	1
Woodcock	0	0	2	1	0	2	1
Black-tailed Godwit	5,710	6,892	10,975	6,415	7,728	10,791	7,095
Bar-tailed Godwit	3,317	3,925	7,308	7,816	12,501	12,020	2,337
Whimbrel	76	5	3	1	0	0	7
Curlew	10,236	11,631	12,510	9,374	14,771	17,104	3,729
Spotted Redshank	4	5	8	4	12	1	1
Redshank	9,044	13,369	10,900	7,393	9,095	8,656	8,356
Greenshank	291	363	313	312	390	301	222
Green Sandpiper	5	8	4	4	12	2	1
Common Sandpiper	16	1	2	0	6	48	1
Turnstone	597	1,223	1,794	1,491	1,784	1,574	935
TOTAL WADERS	59,080	98,913	222,719	193,803	264,117	240,131	70,212
TOTAL WATERFOWL[2]	85,247	154,203	332,135	301,657	408,182	336,628	115,984
Mediterranean Gull	14	9	7	7	5	6	5
Little Gull	0	0	0	0	2	0	2
Black-headed Gull	12,432	14,790	14,985	12,820	26,147	16,719	5,124
Ring-billed Gull	0	0	1	3	2	4	3
Common Gull	1,135	3,696	3,705	4,738	16,922	10,692	3,446
Lesser Black-backed Gull	1,267	4,131	1,300	1,233	2,449	2,874	664
Herring Gull	649	1,361	1,604	839	2,244	1,971	2,203
Yellow-legged Gull	0	0	0	1	0	2	0
Iceland Gull	0	0	0	0	0	0	2
Glaucous Gull	0	0	0	0	0	2	0
Great Black-backed Gull	451	662	1,199	873	981	778	772
unidentified gull	110	0	52	10	0	0	0
TOTAL GULLS[3]	16,058	24,649	22,853	20,524	48,752	33,048	12,221
Sandwich Tern	304	23	0	0	0	0	38
Forster's Tern	0	0	0	1	2	0	0
Common Tern	28	46	1	0	0	2	0
Roseate Tern	0	62	0	0	0	0	0
Arctic Tern	20	0	0	0	0	0	0
TOTAL TERNS[3]	352	131	1	1	2	2	38
Kingfisher	16	16	16	10	9	5	4

1 *Total wildfowl represents numbers of all swans, geese, divers, grebes, cormorants and rails*
2 *Total waterbirds represents numbers of all species except gulls, terns and Kingfisher*
3 *Counting gulls and terns was optional, thus totals are not complete at a national level*