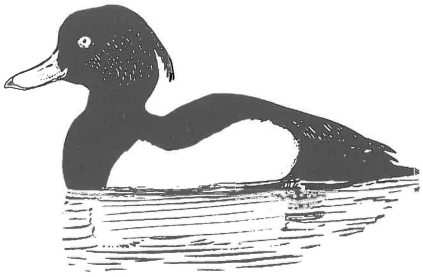
Wildfowl Counts in the UK, 1993-94



MARK POLLITT AND PETER CRANSWICK

Winter 1993-94 saw the first season of waterfowl counts under the Wetland Bird Survey (WeBS), an amalgamation of two previous schemes that monitor non-breeding wildfowl and waders, the National Waterfowl Counts, begun in 1947, and the Birds of Estuaries Enquiry, begun in 1969. The scheme aims to provide a scientific basis for the conservation of waterfowl in the UK, with the prime objectives of obtaining population estimates, monitoring trends in these populations and identifying and supporting the conservation of principal sites. The new administration provides an enhanced capacity for the coordination of data collection and analyses and, more important, its use to benefit the conservation of wetlands and their dependent waterfowl.

The WeBS scheme is funded by the British Trust for Ornithology (BTO), The Wildfowl & Wetlands Trust (WWT), Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservation Committee (JNCC) (the last on behalf of English Nature (EN), Scottish Natural Heritage (SNH), the Countryside Council for Wales (CCW) and the Department of the Environment for Northern Ireland (DoENI)). All WeBS partners play an active role in planning the rolling programme of analyses that use WeBS data. The two National Organisers, based at the BTO Headquarters, Thetford, and WWT Headquarters, Slimbridge, are responsible for the day-to-day running of the scheme. However, the scheme owes much of its success to the dedication and enthusiasm of several thousand volunteers who devote their time once per month to count waterfowl on their local wetlands.

September to March remains the priority period for WeBS counts, though counts during the spring and summer months are received from many participants and contribute substantially to our understanding of waterfowl populations and distribution. A wide range of wetland habitats are monitored by the scheme, including lakes, loughs/lochs, ponds, gravel pits, reservoirs, freshwater marshes, rivers, canals, estuaries and other coastal habitats. Additional information collected on the new WeBS recording forms regarding the accuracy of the counts and affecting factors such as disturbance should help the WeBS partners to improve the quality of reporting. It will also assist research into how these factors influence the numbers and distribution of waterfowl.

The information presented below summarises the results of WeBS wildfowl counts in 1993-94. The results are complemented by information from some additional WWT surveys of species, principally geese and swans, that are difficult to monitor by the once-monthly counts alone. In 1993-94, these included surveys of Pink-footed and Icelandic Greylag Geese in October and November (Mitchell 1994), with supplementary counts organised in January and late March to examine site usage outwith the normal census period (Stenhouse & Mitchell 1994); full censuses of Greenland White-fronted Geese, including Irish birds, in autumn and spring by the Greenland White-fronted Goose Study (Fox 1994); regular counts of the Svalbard Barnacle Goose population on the Solway Firth; an aerial survey of the Greenland Barnacle Goose population wintering on the Scottish

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Islands and in Ireland, coupled with extra land counts on Islay (Delany & Ogilvie 1994, Merne & Walsh 1994); a national census of Dark-bellied Brent Geese in January and February (Mitchell & King 1994); and fortnightly counts of Light-bellied Brent Geese at Lindisfarne throughout the 1993-94 winter. Sea-duck surveys continued in the Moray Firth, under the direction of the RSPB (Stenning 1994), and in north Cardigan Bay, and are used to complement WeBS counts in the following species accounts. This report represents the briefest of information and caution is urged regarding the limitation and interpretation of the counts. More detailed information is available in the scheme's annual report *The Wetland Bird Survey 1993-94: Wildfowl and Wader Counts* (Cranswick *et al.* 1995).

Winter weather can have a major influence on the numbers and distribution of wildfowl. Autumn 1993 began with prolonged periods of rain, which eventually gave way to a severe cold spell in November, making it the coldest autumn for more than 40 years. This unusually early period of severe weather affected Scotland badly and, as is normal in such situations, The British Association for Shooting & Conservation (BASC) called for voluntary restraint in shooting activity to be shown by Scottish wildfowlers to minimise the effects of disturbance. December and January were generally milder and wetter, with cold conditions returning, particularly to the North, during February. The winter finished with a very mild and wet March.

Data were received from a total of 1,885 different sites. As in previous years coverage was widespread and included all of the major UK estuaries. Gaps in coverage largely reflect an absence of waterbodies or, in sparsely populated areas such as northwest Scotland, a lack of counters. Table 1 shows the peak totals of wildfowl and related species recorded by WeBS in 1993-94 in Great Britain (including the Isle of Man but excluding the Channel Isles) and Northern Ireland. These figures are derived from the monthly WeBS counts and goose censuses only. Also given in Table 1 are the qualifying levels for national and international importance. Any site regularly holding 1% of a national or international population (usually taken as the five-year peak mean) is deemed nationally or internationally important, respectively, and potentially qualifies for designation under the appropriate legislation or convention. These 1% levels can be used in conjunction with the counts given in the following text to assess the relative importance of the sites. Distinct criteria are given for sites in Northern Ireland which are assessed in an all-Ireland context. Where the 1% threshold of a population is less than 50 birds, 50 is used as the minimum level for national or international importance.

The following text highlights the key information from the 1993-94 counts for each wildfowl species found in significant numbers in the UK. Where sufficient data are available, an indication of the population trend over the last five years is given for each species.

▲▲ increasing ▼▲ fluctuating
▶◀ stable ▼▼ decreasing

Note that, due to the relatively small numbers of several species counted in Northern Ireland, trends here should be viewed with caution.

For each species the key sites are listed in order of five-year peak mean (given in parentheses) with the 1993-94 peak count listed also. For certain species (e.g. sea-ducks), figures include data from special surveys made by other organisations that reflect more accurately each site's importance. These are highlighted in the accounts.

Red-throated Diver

Overall, higher numbers were recorded throughout 1993-94 in Great Britain compared with the two previous winters, though the peak count of 473 birds in November was lower and earlier than in recent seasons. Numbers in Northern Ireland were down on previous years probably due, at least in part, to poor counting conditions. Cardigan Bay is consistently the most important site in the UK. The ongoing RSPB/BP studies in the Moray Firth

Table 1. Maximum total numbers of divers, grebes, Cormorant, wildfowl and rails recorded by WeBS in Great Britain and Northern Ireland from July 1993 – March 1994 and 1% thresholds* for Great Britain (GB), all-Ireland (AI) and international populations (INT).

	GB	GB 1%	NI	AI 1%	INT 1%
Red-throated Diver *Gavia stellata*	473	*50*	27	*10*	*750*
Black-throated Diver *Gavia arctica*	25	*7*	0	*1*	*1,200*
Great Northern Diver *Gavia immer*	48	*30*	6	?	*50*
Pied-billed Grebe *Podilymbus podiceps*	1		0		
Little Grebe *Tachybaptus ruficollis*	2,817	*30*	712	?	?
Great Crested Grebe *Podiceps cristatus*	8,965	*100*	1,542	*30*	?
Red-necked Grebe *Podiceps grisegena*	48	*1*	0	?	*300*
Slavonian Grebe *Podiceps auritus*	115	*4*	4	?	*50*
Black-necked Grebe *Podiceps nigricollis*	42	*1*	0	?	*1,000*
Cormorant *Phalacrocorax carbo*	15,355	*130*	1,301	?	*1,200*
Mute Swan *Cygnus olor*	14,949	*260*	1,768	*55*	*1,800*
Black Swan *Cygnus atratus*	14		0		
Trumpeter Swan *Cygnus buccinator*	3		0		
Bewick's Swan *Cygnus columbianus*	6,494	*70*	343	*25*	*170*
Whooper Swan *Cygnus cygnus*	3,259	*55*	1,981	*100*	*170*
Swan Goose *Anser cygnoides*	19		0		
Bean Goose *Anser fabalis*	424	*4*	0		*800*
Pink-footed Goose *Anser brachyrhyncus*	+224,354	*1,900*	1		*1,900*
European White-fronted Goose *Anser albifrons albifrons*	5,289	*60*	0		*4,500*
Greenland White-fronted Goose *Anser albifrons flavirostris*	+17,711	*140*	143	*140*	*260*
Lesser White-fronted Goose *Anser erythropus*	3		0		
Greylag Goose *Anser anser* (Icelandic)	+99,253	*1,000*	805	*40*	*1,000*
Greylag Goose *Anser anser* (Feral)**	15,666		-		
Bar-headed Goose *Anser indicus*	15		0		
Snow Goose *Anser caerulescens*	78		0		
Ross's Goose *Anser rossii*	17		0		
Emperor Goose *Anser canagicus*	1		0		
Canada Goose *Anser canadensis*	35,028		583		
Barnacle Goose *Branta leucopsis* (Svalbard)	+13,700	*120*			*120*
Barnacle Goose *Branta leucopsis* (Greenland)	+30,255	*270*	94	*75*	*320*
Dark-bellied Brent Goose *Branta bernicla bernicla*	+125,069	*1,000*	0		*2,500*
Light-bellied Brent Goose *Branta bernicla hrota* (Canada/Greenland)	-		14,979	*200*	*200*
Light-bellied Brent Goose *Branta bernicla hrota* (Svalbard)	+2,160	*25*	-		*40*
Red-breasted Goose *Branta ruficollis*	1		0		
Egyptian Goose *Alopochen aegyptiacus*	179		0		
Ruddy Shelduck *Tadorna ferruginea*	7		0		
Australian Shelduck *Tadorna tadornoides*	1		0		
Shelduck *Tadorna tadorna*	75,063	*750*	3,299	*70*	*2,500*
Muscovy Duck *Cairina moschata*	81		0		
Wood Duck *Aix sponsa*	7		0		
Mandarin *Aix galericulata*	231		0		
Wigeon *Anas penelope*	327,149	*2,800*	7,066	*1,250*	*7,500*
American Wigeon *Anas americana*	3		0		
Chiloe Wigeon *Anas sibilatrix*	2		0		
Falcated Duck *Anas falcata*	1		0		
Gadwall *Anas strepera*	9,234	*80*	216		*250*
Teal *Anas crecca*	120,287	*1,400*	3,762	*650*	*4,000*
Mallard *Anas platyrhynchos*	142,972	*5,000*	6,901	*500*	*20,000*
Pintail *Anas acuta*	19,649	*280*	274	*60*	*700*
Bahama Pintail *Anas bahamensis*	1		0		
Garganey *Anas querquedula*	68		0		*20,000*
Blue-winged Teal *Anas discors*	1		0		
Shoveler *Anas clypeata*	7,583	*100*	424	*65*	*400*
Red-crested Pochard *Netta ruffina*	112		0		*200*
Pochard *Aythya ferina*	37,769	*440*	22,079	*400*	*3,500*
Ring-necked Duck *Aythya collaris*	4		0		
Ferruginous Duck *Aythya nyroca*	3		0		
Tufted Duck *Aythya fuligula*	49,451	*600*	22,637	*400*	*7,500*
Scaup *Aythya marila*	4,138	*110*	2,750	*30*	*3,100*
Eider *Somateria mollissima*	26,109	*750*	1,120	*20*	*20,000*
King Eider *Somateria spectabilis*	3		0		
Long-tailed Duck *Clangula hyemalis*	3,000	*230*	31		*20,000*
Common Scoter *Melanitta nigra*	11,743	*230*	40	*40*	*8,000*
Surf Scoter *Melanitta perspicillata*	5		0		
Velvet Scoter *Melanitta fusca*	586	*30*	4		*2,500*
Goldeneye *Bucephala clangula*	14,860	*170*	11,096	*110*	*3,000*
Hooded Merganser *Mergus cucullatus*	1		0		
Smew *Mergus albellus*	144	*2*	1		*150*
Red-breasted Merganser *Mergus serrator*	5,921	*100*	560	*20*	*1,000*
Goosander *Mergus merganser*	2,705	*90*	0		*1,500*
Ruddy Duck *Oxyura jamaicensis*	2,952		62		
Water Rail *Rallus aquaticus*	177	?	2	?	?
Moorhen *Gallinula chloropus*	8,180	?	830	?	?
Coot *Fulica atra*	99,550	*1,100*	4,163	*250*	*15,000*
TOTAL	1,590,491		111,602		

\+ Counts include data from the additional WWT surveys

? Population size inadequately known for 1% criterion to be determined

* 1% thresholds have not been determined for species where national populations are small and are not applicable to introduced species or rarities. Where 1% of the British or all-Ireland population is less than 50 birds, 50 is used as the minimum level for national or international importance

** The feral component of this species is approximated by totalling counts from English (excluding Northumberland) and Welsh sites only and adding 2,340 (after Delany 1992) for the feral birds in Scotland. All other birds in Great Britain (apart from the native population in the Outer Hebrides, Coll, Tiree, Colonsay and parts of Sutherland) are considered to be from the Icelandic population. It is not possible to separate the feral from the wild component of this population in Northern Ireland.

recorded a peak of 411 birds, slightly above average for recent years. Although the birds favour northern areas in winter, land-based counts have revealed flocks in excess of 1,000 birds off the Kent coastline (Davenport 1992) and more than 100 birds off the North Devon coast (Lock & Robins 1994).

Cardigan Bay	†740	(655)
Moray Firth	††411	(336)

† *Data from Friends of Cardigan Bay, e.g. Green & Elliott (1993)*
†† *RSPB/BP studies, e.g. Stenning (1994)*

Black-throated Diver

Only a very small proportion of the estimated British wintering population (thought to be around 700) has ever been recorded by WeBS. Counts for WeBS in 1993-94 remained on a par with previous seasons, although the Forth Estuary was the only site to hold seven or more birds. In contrast, RSPB/BP surveys of sea-duck in the Moray Firth recorded much higher than usual numbers, peaking at 53 in October. The UK population represents only a tiny fraction of the northwest European totals, with Red- and Black-throated Divers combined numbering around 110,000 (Durinck *et al.* 1994).

Great Northern Diver

Total numbers in Great Britain were similar to counts in previous seasons, although counts of more than ten birds were scarce. Great Northern Divers favour northern and western coasts in the UK, especially the northern and Hebridean islands (Parrack 1986), and in this respect, the count at Minsmere (15) on the Suffolk coast was particularly interesting. Poor count conditions resulted in few birds being noted in Northern Ireland.

Little Grebe **GB: ▲▼ NI: ▲▼**

Numbers in Great Britain have fluctuated over the last few winters, though population indices suggest that numbers were higher in 1993-94 than at any time since the species was first recorded by the scheme in 1985-86. A similar pattern seems to have occurred in Northern Ireland, though the total number recorded was slightly lower than in previous seasons. Little Grebes are particularly susceptible to harsh conditions in winter (Moss & Moss 1993) and undoubtedly the species will have benefitted from the recent run of mild winters.

Loughs Neagh & Beg	399	(394)
Thames Estuary	160	(128)
Strangford Lough	123	(117)

Great Crested Grebe **GB:▶◀ NI:▲▼**

Counts in 1993-94 were about average compared with recent seasons. Peak counts usually occur in autumn and generally decline as the winter progresses. Total counts in Northern Ireland are more variable between years, and are highly dependent on birds recorded at Belfast Lough and at Loughs Neagh & Beg, where numbers crashed following a record high in 1992-93. Ringing studies in Europe suggest that an increasing number of birds now winter locally rather than migrate to traditional wintering grounds in central Europe and the former Soviet Union (Adriaensen *et al.* 1993).

Belfast Lough	1,318	(1,256)
Loughs Neagh & Beg	316	(978)
Rutland Water	894	(815)
Forth Estuary	671	(728)

Red-necked Grebe

The 1993-94 peak count, the highest recorded by WeBS, was largely due to an exceptional count of 44 birds on the Forth Estuary in August. The timing of the count is puzzling, as the nearest significant breeding populations are in Germany and Denmark.

Slavonian Grebe

Numbers in Great Britain again topped

100 birds in midwinter, although rather fewer than the count of 163 in 1992-93. The Forth Estuary (28) and Loch Indaal (22) recorded the highest counts, though RSPB/BP studies on the Moray Firth recorded 53 in November. Few birds were recorded in Northern Ireland where, at Lough Foyle, following counts of over 50 in 1992-93, no birds were recorded during WeBS counts.

Black-necked Grebe

Numbers in 1993-94 were slightly higher than the previous two seasons in Great Britain. Langstone Harbour held by far the largest flock (26) whilst Studland Bay (11) was the only other site to support double figures.

Cormorant GB:▶◀ NI:▲▼

Peak counts of Cormorant in 1993-94 in Great Britain rose by 10% on 1992-93 figures, exceeding 15,000 for the first time. Numbers in Northern Ireland conversely were much lower than the previous winter. Fifty four UK sites regularly hold numbers of national importance. The Inner Moray Firth recorded the highest number for any individual site since the scheme first recorded Cormorants in 1986-87. This included a phenomenal 1,500 birds present in the Longman Bay area, presumably exploiting a large, temporary source of food (Stenning 1994). Recent research (Callaghan *et al.* submitted) suggests that some still water fisheries can support the feeding activities of Cormorants without experiencing significant economic damage. However large-scale culls continue to be demanded by some anglers and fishery managers as numbers continue to rise at many inland sites.

Morecambe Bay	895	(1,060)
Forth Estuary	622	(808)
Lochs Neagh & Beg	546	(773)
Solway Estuary	682	(627)

Mute Swan GB:▶◀ NI:▶◀

In Britain, winter 1993-94 saw an 8% increase in peak numbers of Mute Swan compared with the previous season. As most birds in Britain and Ireland are largely resident, this suggests a reasonably successful breeding season in 1993. Peak totals and indices in Northern Ireland have been stable in the last five seasons, but dropped slightly in 1993-94, perhaps as a result of the poor weather conditions in the spring and summer months which may have depressed breeding success. No site in the UK maintains internationally important numbers.

Loughs Neagh & Beg	1,115	(1,426)
The Fleet/Wey	1,196	(1,083)
Loch of Harray	275	(598)
Ouse Washes	923	(572)
Abberton Reservoir	572	(571)

Bewick's Swan GB: ▲▼ NI: ▲▼

The peak number of Bewick's Swans in Great Britain was considerably lower than recorded by WeBS in the previous five seasons, which have ranged from 7,016 to 8,444. There was a similar picture in Northern Ireland where, although counts were slightly higher than in 1992-93, numbers remain well below peak counts of the early 1990s. Examination of the monthly counts suggests that onward movement from the continent in midwinter did not occur. Age counts of birds using WWT centres indicated another poor breeding season in 1993, with around 7-10% young recorded at Welney and Martin Mere and 14.4% at Slimbridge (Bowler *et al.* 1994).

Ouse Washes	4,172	(5,193)
Nene Washes	1,922	(1,315)
Martin Mere/ Ribble Estuary	†582	(780)

† *from WWT annual swan reports (e.g. Bowler et al. 1994)*

Whooper Swan GB: ▼▼ NI: ▲▼

Indices for both Great Britain and Northern Ireland show a continued decline in numbers since 1990-91. Total

counts, however, do not reflect this trend so clearly. Breeding success was again higher than for Bewick's Swans, with 11-17% juveniles at WWT reserves (Bowler *et al.* 1994), representing a slight improvement on the 9-14% recorded in the previous season. At the key sites, the most notable trend is at the Ouse Washes, where the flock continues to grow inexorably, probably at the expense of other sites.

Loughs Neagh & Beg	1,083	(1,069)
Ouse Washes	†986	(777)
Upper Lough Erne	721	(769)
Lough Foyle	569	(768)
Loch Eye/ Cromarty Firth	72	(721)

† *from WWT annual swan reports (e.g. Bowler et al. 1994)*

Bean Goose

Just over 500 birds currently winter in the UK, and numbers remain similar to those recorded 50 years ago. The Yare Valley is the key site, though the peak count in 1993-94 was recorded at Heigham Holmes (365). It remains to be seen if such numbers will be recorded there regularly. The Carron Valley (135) was the only other site to support substantial numbers.

Pink-footed Goose GB: ▲▼ NI: —

The 1993 breeding season was relatively good with averages of 18.1% present in autumn flocks (Mitchell 1994). The number counted in the October census was 225,000, representing a 13% increase compared with 1992, although it is still slightly lower than the highest ever count of 232,962 in 1991-92. Over 50% of the October total was concentrated at just five northerly sites, though counts usually decline rapidly as birds progress to more southerly wintering grounds. Southwest Lancashire recorded fewer birds than normal, perhaps as a result of birds moving on swiftly to Norfolk where record counts, totalling 68,560 birds were made in January. Other sites, such as Cameron Reservoir (27,300), recorded their winter maxima as birds returned north during spring.

Dupplin Lochs	36,500	(38,500)
SW Lancashire	†25,185	(33,116)
Loch of Strathbeg	38,970	(32,444)
West Water Reservoir	40,000	(31,717)

† *from Lancashire Goose Report (e.g. Forshaw 1994)*

European White-fronted Goose

Aided by a good breeding season, with 28% young and an average brood size of 2.8, the national total showed a welcome return to form after a disappointing count in 1992-93. Accordingly, counts at the two key sites, Slimbridge WWT on the Severn Estuary and the Swale Estuary, returned to levels consistent with their respective five year averages. Other notable counts occurred at Dungeness (174) where sizeable numbers were recorded for the second time in three winters, and at North Warren, where the increase no doubt relates to the management regime in operation now that the area is an RSPB reserve.

Severn Estuary	3,000	(3,060)
Swale Estuary	1,652	(1,442)
North Norfolk Marshes	316	(305)

Greenland White-fronted Goose GB: ▲▲ NI: ▼▼

The Greenland White-fronted Goose Study (GWGS) undertook its twelfth annual census of this sub-species throughout Britain in 1993-94 recording a peak total of 17,711 in the autumn census (Fox 1994), a considerable increase on recent seasons. Combined with counts made throughout Ireland, coordinated by the Irish National Parks and Wildlife Service, the total population is estimated to number some 30,300 birds, around average for the last five seasons. Breeding success was above average, with 18.7% young. Islay's importance continues to increase steadily, although marking studies have shown that the island represents more than a single site for the geese, with

several largely distinct flocks (Fox *et al.* 1994). Despite the consistent growth of the population since the early 1980s, there is still cause for concern. The rise in numbers is attributable to large increases at major sites, notably Islay, whilst those in Northern Ireland have declined over the period. Given the extreme site loyalty shown by the birds, protection of the small sites is vital if the range and distribution of the geese are to be maintained.

Islay	11,679	(10,208)
Machrihanish	1,103	(1,096)
Rhuahaorine	1,050	(997)

Greylag Goose **GB: ▲▼ NI: —**

The November census of the migratory Icelandic population recorded around 100,000 birds, marginally higher than the previous season. Current indices show numbers to be roughly stable with slight fluctuations. The 1993 breeding season was relatively good for Greylags with averages of 18.9% young and 2.35 young per pair present in autumn flocks (Mitchell 1994). Special counts were organised in January and late March as part of a study undertaken by WWT to look at the distribution of Greylags outwith the normal autumn census period (Stenhouse & Mitchell 1994). Midwinter counts returned a total of 41,654 birds (42% of the autumn population estimate), despite poor counting conditions, whilst March counts found 34,031 (35%) (Stenhouse 1994). Flock sizes were notably smaller than those recorded in the autumn censuses. Separate counts in February of the indigenous Greylags breeding on the Uists produced a total of 2,500, slightly higher than 1993 counts (2,130).

Dinnet Lochs/ River Dee	27,173	(19,804)
Loch Eye/ Cromarty Firth	14,842	(13,226)
Loch of Skene	4,000	(13,171)

Canada Goose **GB: ▶◀ NI: —**

The peak in Great Britain of just over 35,000 birds was marginally lower than in previous seasons, when maxima of between 37,000 and 42,000 have been recorded. Index values also suggest that the population has remained relatively stable over the past four winters. It is worth noting that the numbers recorded by WeBS are significantly lower than those recorded by the survey of introduced geese in 1991, when in excess of 63,000 birds were recorded (Delany 1995). However, it does appear that the steady growth of the population between 1953 and 1991, at a rate of 6.8% to 8.0% per year (Delany 1992), has slowed considerably. Numbers in Northern Ireland, though small in comparison, have increased steadily in recent years, 1993-94 being the first time that the count has exceeded 500. Given the problems encountered at sites with large numbers of birds in Great Britain, this increase is worrying, although birds currently remain fairly localised.

Stratfield Saye	705	(1,439)
Abberton Reservoir	975	(896)
Kedleston Park Lake	1,100	(866)
Rutland Water	1,025	(851)

Barnacle Goose

The Greenland population, wintering predominantly on Islay, had a moderately good breeding season in 1993, with 11.5% being birds of the year. This follows two exceptionally poor breeding seasons but was apparently not sufficient to allow any substantial increase in the population. Despite this, the long-term trend for the population as a whole is still upwards. Aerial surveys in March 1994 of the west coast of Ireland and, in Scotland, the Outer and Inner Hebrides and Orkneys, found a total population of 38,388, representing an 11% increase since the previous survey 1988 (Delany & Ogilvie 1994, Merne & Walsh 1994). The survey also indicated that geese have become more concentrated on Islay at the expense of more outlying islands. The shift is related to both the decline in livestock rearing on outlying islands, leading to a decline in the suitability of pasture for geese, and the

increasing management of pasture specifically for geese on Islay. The Svalbard population, wintering exclusively on the Solway Firth, had 11.7% young in autumn flocks in 1993 (WWT unpubl. data), somewhat below the long-term average. Nevertheless, the number of geese present on the Solway showed a marked increase over 1992-93, reaching the highest ever total of 13,700, continuing the increase of the last 40 years that has resulted largely from successful conservation action.

Islay	25,452	(26,734)
Solway Estuary	†13,700	(12,480)

† WWT unpubl. data

Dark-bellied Brent Goose

GB: ▲▼ NI: —

The peak count of Dark-bellied Brents in the last five years has varied quite considerably, with up to 138,000 in 1991-92. Counts in 1993-94 were slightly better than average for recent winters, and were considerably higher than the low in 1992-93 that followed a breeding failure the previous summer. The proportion of juveniles observed in autumn 1993 was 18% (Mitchell & King 1994), indicating a reasonably successful breeding season. The importance of Great Britain for Dark-bellied Brents is illustrated by the fact that 16 sites are of international importance, even though a smaller percentage of the growing northwest European population now winter in the UK.

Wash	24,446	(22,157)
Thames Estuary	18,733	(19,460)
North Norfolk Marshes	15,061	(10,821)
Chichester Harbour	12,647	(10,749)
Blackwater Estuary	12,208	(10,503)

Light-bellied Brent Goose

GB: — NI: ▼▼

Mirroring the pattern seen in Dark-bellied Brents, the peak count of Canada/Greenland Light-bellied Brents, wintering mainly in Northern Ireland and the Republic of Ireland, showed a marked increase in 1993-94 on the low numbers in the previous season. However, although peak numbers appeared healthy, those in other months were depressed. As a result, the indices show a continued fall since the early 1990s. Most Irish sites continue to hold numbers considerably below those recorded three and four winters ago. Following two seasons of relatively low counts, numbers of Svalbard Light-bellied Brent Geese in Britain, which winter exclusively on Lindisfarne, were about average for the last five seasons. Numbers at this site currently represent around 50% of the world population. Although the number in Britain is largely dependent on the proportion that decide to vacate the other main wintering sites in Denmark, the increase in 1993-94 will have also been influenced by a good breeding season, with 31.4% juveniles (S. Percival in litt.).

Strangford Lough	12,795	(11,849)
Lough Foyle	1,934	(3,841)
Lindisfarne	2,160	(2,233)

Shelduck **GB: ▶◀ NI: ▲▼**

Numbers of Shelduck in 1993-94 in Great Britain were about average compared with recent years. Long-term trends show that the population has increased slowly since the early 1970s. Numbers in Northern Ireland have fluctuated more widely between years, although the overall trend remains generally stable; the 1993-94 peak count was slightly above average. Peak numbers occur in December or January, though birds leave quite rapidly in February so that March numbers fairly accurately match breeding numbers, currently around 44,000 (Patterson 1993). Thirteen sites in Great Britain are of international importance for Shelduck.

Wash	14,242	(17,653)
Dee Estuary (Eng/Wal)	6,229	(6,630)
Medway Estuary	6,046	(6,151)
Morecambe Bay	5,734	(5,847)

Wigeon **GB: ▶◀ NI: ▼▼**

The 1993-94 peak of Wigeon in Great Britain was the second largest total for any species of wildfowl recorded by WeBS, surpassed only by the count of 342,412 of the same species in 1991-92. Indices over the past three years have remained remarkably stable. In comparison, peak counts in Northern Ireland are very small, and the large decline noted in recent years is due in part to falling numbers at Lough Foyle. As the last major stronghold in Northern Ireland, this trend is worrying, especially given the demise of numbers at Strangford Lough in the 1980s. The numbers of Wigeon on the Ribble Estuary continue their meteoric rise, after returning to more "sensible" numbers in 1992-93, with a record 92,465 counted in December, undoubtedly the largest count of any single wildfowl species ever recorded at a site in the UK. Breeding success in 1993 was good, 23% young recorded in sample flocks and 45% amongst ringed birds (WWT unpubl. data).

Ribble Estuary	92,465	(66,449)
Ouse Washes	23,791	(33,613)
Dornoch Firth	14,501	(14,268)

Gadwall **GB: ▲▲ NI: ▼▼**

The rise in numbers of wintering Gadwall in Great Britain has been well monitored by WeBS. The peak count ten years ago numbered only 4,150 birds. This has since more than doubled, surpassing 9,000 for the first time in 1993-94. This also represents a sharp increase from 1992-93 counts and is supported by an increase in the population index of almost 20%. Geographically, wintering numbers are still centred in the southeast, East Anglia and the Midlands, although it seems likely that there is still potential for further expansion at suitable sites in northern and western Britain (Fox 1993). The current 1% threshold for national importance of 80 birds seems likely to rise as wintering numbers now clearly exceed the latest estimate of 8,000. Rutland Water remains by far the most important site in the UK, and six other sites also support internationally important numbers. Gadwall have yet to undergo a similar rapid expansion on the other side of the Irish Sea where numbers remain low.

Rutland Water	933	(1,146)
Avon Valley (Mid)	488	(623)
Abberton Reservoir	517	(468)

Teal **GB: ▼▼ NI: ▼▼**

The peak count of Teal in Great Britain in 1993-94 returned to the levels recorded at the turn of the decade. Whilst the indices also suggest a slight resurgence in 1993-94, monthly counts other than the peak remain well down. Numbers in Northern Ireland are much smaller, and have shown a similar pattern of decline over the last five years, with a continuing fall in the peak count that numbered over 6,000 in 1990-91. Numbers at the primary site for Teal, the Mersey Estuary, have shown remarkable consistency in recent winters, though counts once reached 35,000 in 1981-82. The Somerset Levels recorded the highest count in 1993-94, and must be a strong contender to displace the Mersey Estuary as the top UK site if numbers recorded in the last two winters are maintained.

Mersey Estuary	13,034	(12,236)
Ribble Estuary	8,876	(7,195)
Somerset Levels	15,251	(7,190)
Dee Estuary (Eng/Wal)	3,742	(7,060)

Mallard **GB: ▼▼ NI: ▶◀**

The species' widespread distribution and its occurrence on many small, unsurveyed wetlands means that the WeBS counts record only around one third of the British Mallard population. The 1993-94 peak count was almost 30,000 lower than that recorded the previous winter, a remarkably large drop for a species whose numbers, as monitored by WeBS, have remained relatively stable for so long. Indices show the population level has declined steadily since 1987-88 and is now at the lowest level yet recorded. This should, perhaps, be viewed with some caution, given the small fraction of the population counted and the unknown

influence of the large number of birds released annually as quarry for wildfowlers. Nevertheless, the decline of the national Mallard population is worthy of attention, particularly if this indicates wider environmental change. Northern Ireland also recorded very low numbers, as numbers at Loughs Neagh & Beg continue to fall.

Loughs Neagh & Beg	3,699	(5,272)
Ouse Washes	5,693	(4,325)
Humber Estuary	3,055	(3,920)

Pintail **GB: ▼▼ NI: ▲▼**

Totals of Pintail in Great Britain in 1993-94 were only fractionally less than those recorded the previous winter, but they remain significantly lower than counts made in the 1980s and early 1990s, when counts on the Mersey Estuary alone numbered over 18,000 birds. The northwest European population has also shown a shallow decline over the last 20 years, although not statistically significant (Rose 1995). Numbers in Northern Ireland are small in comparison with Great Britain, and were about average for recent seasons. Irish Sea estuaries in the northwest form an obvious geographical concentration for this species, though numbers fell at nine of the 13 internationally important sites.

Dee Estuary (Eng/Wal)	4,566	(8,565)
Mersey Estuary	1,636	(4,486)
Morecambe Bay	2,027	(2,655)
Ribble Estuary	1,795	(2,466)

Shoveler **GB: ▲▼ NI: ▲▼**

The peak count in Great Britain of just under 7,600 birds is almost 3,000 lower than the peak in 1991-92. Index values suggest a long-term increase, though with a slight fall in recent winters. In Northern Ireland, the count in 1993-94 was unprecedented, almost double the peak for the last five seasons. The dispersed nature of Shoveler is evidenced by the tremendous number of sites supporting nationally important numbers, currently totalling 50 in the UK. Relatively few (5) of these reach the level of international importance.

Ouse Washes	1,066	(736)
Abberton Reservoir	606	(730)
Rutland Water	701	(521)
Chew Valley Lake	475	(499)
Loch Leven	458	(461)

Pochard **GB: ▼▼ NI: ▲▼**

Counts in winter 1993-94 appear to show an end to the recent decline in Pochard numbers in Britain. The northwest European population as a whole has declined significantly over the last 20 years, although the last ten years have shown a slight increase (Rose 1995). The peak total for Great Britain excludes a count of over 2,700 in the Lower Derwent Valley, producing a revised total of approximately 40,500, considerably higher than the average peak over the last decade. Numbers in Northern Ireland were low for the second season in succession, with the UK's top site, Loughs Neagh & Beg, recording its lowest count since the mid 1980s.

Loughs Neagh & Beg	21,332	(32,201)
Abberton Reservoir	3,240	(2,611)
Ouse Washes	3,087	(2,412)

Tufted Duck **GB: ▶◀ NI: ▶◀**

Winter 1993-94 counts in Great Britain produced few surprises, with the peak count and monthly fluctuations being average for the 1990s. Index values suggested a modest increase. Total counts in Northern Ireland are less stable, and the peak count in recent years has occurred at almost any time during the winter. Numbers of Tufted Duck at Loughs Neagh & Beg fluctuate less widely than those of the cohabiting Pochard, and, unlike that species, counts rallied in 1993-94 following the large decline in both species the previous season. Most other key sites for Tufted Duck held roughly average numbers in 1993-94 compared with recent seasons.

Loughs Neagh & Beg	22,470	(23,500)
Loch Leven	3,481	(3,173)
Abberton Reservoir	2,126	(2,843)
Rutland Water	2,500	(2,485)

Scaup

Scaup, like many other sea-ducks, are difficult to monitor through the core WeBS counts. Low tide counts on the Solway Estuary, the UK's only internationally important site, highlight these difficulties, recording up to three times as many birds as the usual high tide counts in some winters (Quinn *et al.* 1993). To what extent this is true of other sites remains unclear. The 1993-94 counts in Great Britain were similar to recent seasons, though Northern Ireland figures fell slightly as counts at Loughs Neagh & Beg returned to more normal levels after exceptional counts in the two previous seasons.

Solway Estuary	2,084	(3,306)
Loughs Neagh & Beg	2,632	(2,457)
Lough Indaal	699	(870)

Eider

Peak counts in 1993-94 were on a par with recent seasons, given that it was not possible to count the large flock on the Tay Estuary adequately. Other known key areas include the waters around Shetland, Orkney and the Western Isles which together hold approximately 20,000 Eider, though these too are largely missed by WeBS counts. Aerial counts are the only practical way to monitor these, and other sea-duck, populations. In Northern Ireland, counts in previous seasons have fluctuated between 500 and 1,250 birds, and the 1993-94 peak fell at the upper end of this range.

Tay Estuary	† —	(25,120)
Forth Estuary	9,698	(8,785)
Morecambe Bay	6,886	(7,654)

† *no accurate count obtained*

Long-tailed Duck

The Great Britain peak of 3,000 is an impressive figure for WeBS, given that recent counts have seldom exceeded 2,000. This is still considerably below the true wintering population, as the RSPB/BP counts on the Moray Firth illustrate. However numbers in the UK pale into insignificance as recent estimates put the northwest European population at approximately 4.7 million (Durinck *et al.* 1994), with the majority of these at three key sites in the Baltic Sea. Belfast Lough (31) is the only site in Northern Ireland to support any numbers on a regular basis.

Moray Firth	†10,115	(8,994)
Forth Estuary	942	(598)
St Andrews Bay	††341	(456)

† *RSPB/BP studies, e.g. Stenning (1994)*
†† *L. Hatton (in litt.)*

Common Scoter

The peak total in Great Britain rose dramatically from the low counts in the previous season, helped by a count of over 5,000 birds in Carmarthen Bay. When data from other sources are added, such as the RSPB/BP studies on the Moray Firth and plane/boat counts of Cardigan Bay, the annual counts approach current estimates of the British population. However, inadequacy of monitoring scoter and other sea-ducks has been highlighted by recent studies in Denmark, where aerial counts found a single flock of 800,000 Common Scoter, equivalent to the whole of the current estimate for the international population. Poor count conditions probably contributed to the low counts in Northern Ireland.

North Cardigan Bay	†4,872	(5,622)
Moray Firth	††2,988	(4,234)
Carmarthen Bay	5,012	(3,531)
Eden Estuary/ St Andrews Bay	†††4,420	(2,555)

† *Data from Friends of Cardigan Bay, e.g. Green & Elliott (1993)*
†† *RSPB/BP studies, e.g. Stenning (1994)*
††† *L. Hatton (in litt.)*

Velvet Scoter

1993-94 counts were higher than

normal, largely thanks to the continued increase recorded by counts on the Forth Estuary which account for the majority of the total. Similar increases were recorded by the RSPB/BP studies on the Moray Firth, though the top site remains the Eden Estuary and adjacent St Andrews Bay. Northern Ireland sites recorded a peak of only four birds, though this itself is perhaps surprising given the very low numbers of Common Scoter. Aerial surveys of the Baltic Sea suggest the international population estimate should rise to one million, as two areas alone recorded a total in excess of 700,000 birds (Durinck *et al.* 1994).

Eden Estuary/		
St Andrews Bay	††1,568	(1,642)
Moray Firth	†1,063	(729)
Forth Estuary	456	(226)

† *RSPB/BP studies, e.g. Stenning (1994)*
†† *L. Hatton (in litt.)*

Goldeneye **GB: ▶◀ NI: ▲▼**

The peak count of Goldeneye in Great Britain was rather lower than the 16-17,000 achieved in recent winters. Index values, however, suggest that numbers have been relatively stable in the 1990s and are around 20% higher than the average values for the previous two decades. In contrast, peak numbers in Northern Ireland have fallen gradually in recent years, whilst monthly totals throughout the winter have dropped more sharply. Correspondingly, the Northern Ireland index was the lowest for the eight years in which it has been calculated. Of the key sites, only Loughs Neagh & Beg is of international importance; numbers at this site are well below those recorded in the previous three seasons, though they are still considerably higher than in the 1970s and early 1980s (Sheppard 1993).

Loughs Neagh & Beg	10,085	(12,479)
Forth Estuary	2,771	(2,042)
Inner Moray Firth	†552	(753)

† *RSPB/BP studies, e.g. Stenning (1994)*

Smew

The rarest of the regularly recorded mergansers, Smew are a welcome sight on most waterbodies. The species' main stronghold is in southeast England. 1993-94 was no exception, with Dungeness Gravel Pits (33) and Wraysbury Gravel Pits (29) holding the largest concentrations.

Red-breasted Merganser
GB: ▲▼ NI: ▶◀

The peak 1993-94 count in Great Britain was the highest ever recorded by the scheme. Indices show a marked increase following three relatively stable years at the beginning of the 1990s. Exceptional counts at the Inner Moray Firth are largely responsible for this, where around one third of the British population were thought to be taking advantage of unusually high numbers of sprats (Stenning 1994). Although the peak count in Northern Ireland was around average, indices suggest lower numbers as counts in other winter months fell.

Inner Moray Firth	†3,509	(1,862)
Forth Estuary	348	(497)

† *RSPB/BP studies, e.g. Stenning (1994)*

Goosander **GB: ▼▼ NI: —**

Numbers of Goosander in 1993-94 were lower than recent winters when peak counts have been around, or exceeded, 3,000. Indices suggest that the population undergoes regular fluctuations although, despite this, there appears to have been a decline since the late 1980s. Red-breasted Merganser indices also suggest a similar decline, and a common factor may be influencing both populations. Perhaps surprisingly, Goosander remain a rarity in Northern Ireland where no birds were recorded. Few WeBS sites record nationally important numbers of Goosander, partly reflecting the birds day time dispersal to feed on rivers, a habitat poorly monitored by WeBS.

Inner Moray Firth	†341	(343)
Hirsel Lake	—	(256)
Lochs Garten & Mallachie	226	(226)

† *RSPB/BP studies, e.g. Stenning (1994)*

Ruddy Duck **GB: ▶◀ NI: —**

Peak numbers in Britain dipped below 3,000 for the first time in four years. This may be due to poor weather conditions in the springs of 1993 and 1994, which were not conducive to good breeding success. It is also possible that current population estimates are being hampered by observers, who are opposed to the current research into control measures, withholding data, though this is not thought to be serious problem. Indices are also affected by missing data, making interpretation of trends difficult. Counts in Northern Ireland remain relatively low, Loughs Neagh & Beg being the species' favoured site.

Blithfield Reservoir	578	(556)
Chew Valley Lake	552	(554)
Rutland Water	304	(552)

Moorhen

Despite being one of the commonest waterfowl in Britain, WeBS counts record only fraction of the true numbers of Moorhen. The species' bankside habits and often secretive nature are undoubtedly contributory factors, though many birds also occur at small sites outside the WeBS network. Numbers in 1993-94 were on par with previous seasons, though a large count at Loughs Neagh & Beg bolstered the January count in Northern Ireland. Numbers at the top two British sites, Severn Estuary and Martin Mere, are a result of the birds benefitting from grain fed to wildfowl collections.

Severn Estuary	701	(726)
Loughs Neagh & Beg	614	(320)
Martin Mere	369	(285)

Coot **GB: ▶◀ NI: ▶◀**

The index value for Coot in 1993-94 was the highest yet, as the peak count hovered just below the 100,000 mark. The converse was true in Northern Ireland, where index values fell by almost 50% as peak and monthly counts were well below the usual 7,000 birds. Low counts at Loughs Neagh & Beg, the key site in the province, are primarily responsible for the decline. Nineteen sites in the UK are of national importance, with only Abberton Reservoir approaching internationally important numbers.

Abberton Reservoir	13,768	(11,820)
Loughs Neagh & Beg	3,134	(6,692)
Rutland Water	3,036	(3,741)

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Mark Pollitt and **Peter Cranswick**, The Wildfowl & Wetlands Trust, Slimbridge, Glos, GL2 7BT, UK.