A history of wildfowl counts by The Wildfowl & Wetlands Trust

P.A. CRANSWICK, J.S. KIRBY, D.G. SALMON, G.L. ATKINSON-WILLES, M.S. POLLITT and M. OWEN.

A national scheme to monitor wildfowl was established in 1947 because of increasing conflicts between development and conservation needs and the lack of data with which to judge these issues objectively. Originally based at the Natural History Museum, responsibility for the scheme passed in 1954 to The Wildfowl Trust, now The Wildfowl & Wetlands Trust (WWT), which has played a central role in this and other waterfowl monitoring schemes ever since. This paper describes the growth and development of count schemes for wildfowl, and latterly waterfowl, principally in the UK but also internationally where WWT has played a pivotal role. The invaluable contribution made by the volunteer counter network is highlighted. The extent of the data gathered to date is summarised and examples are used to illustrate the general increase in wildfowl numbers in the UK over this period. The influence of the count scheme on the conservation of waterfowl and wetlands is also described.

"Before undertaking the conservation of animals and plants it is necessary scientifically to learn at least something of their numbers and distribution ...". So began E.M. Nicholson, Director-General of the Nature Conservancy, in his foreword to the first major examination of wildfowl count data in this country, Wildfowl in Great Britain (Atkinson-Willes 1963). The stimulus for this tome, and the survey that provided the counts summarised within, was the lack of accurate data on wildfowl numbers. In the 1940s, growing concern regarding a possible decline in wildfowl populations, and the inability to assess with confidence the likely impact of an increasing number of developments upon wetlands, made conservationists acutely aware of the need to collect and publish such data. Thus, in 1947, a national scheme to count wildfowl in Great Britain was born.

The initial objective of the scheme was to determine trends in numbers. Shortly after, with the passage of the 1954 Protection of Birds Act into law, the need to determine the size of wildfowl populations during the winter and to identify important sites for these species was recognised. Although the count scheme has undergone a number of developments during its 49 year history, these objectives remain the same today. The principal aim has always been the monitoring of non-breeding waterfowl in the UK, to provide the data on which to base the conservation of their populations and wetland habitats. More recently, this has been underpinned by research into waterfowl ecology, such as the effects of habitat change and human impacts.

The wildfowl count scheme in the UK

The wildfowl count scheme was pioneered in 1947 by the Wildfowl Inquiry Committee of the British Section, International Council for Bird Preservation, "for the purpose of determining the status of wildfowl in Great Britain and ascertaining whether any long-term trends in populations were occurring". Miss Phylis Barclay-Smith and Christopher Dalgety, working for the International Wildfowl Research Institute (IWRI) and based at the British Museum (Natural History), undertook the organisation of the scheme in its formative years.

In the first winter, a pilot survey was organised bv C.E. Douglas. The methodology for wildfowl, and latterly waterfowl, counting has remained largely unaltered since that time. Most wildfowl on wetlands are easily visible and counted on a 'look-see' basis; counters look at a site and count what they see. The relative ease of counting allowed for regular visits to sites. Synchronised monthly counts were made at a limited number of waterbodies in early 1948, especially in the London and Birmingham areas where counts had already been conducted in the late 1930s as part of local schemes. Coverage was extended during the following winter to a core of around 300 sites, counted from late July through to March. Inspired by its early success, the scheme was extended to provide truly national coverage in 1951-52. The number of census sites rose to over 500, and the number of regional organisers, who marshall the volunteer counter network, was increased. In 1954, jurisdiction of the National Wildfowl Counts (NWC) passed to the then Wildfowl Trust, now The Wildfowl & Wetlands Trust (WWT), along with the then Central Organiser, George Atkinson-Willes, appointed in the late 1940s. At this time, the period for counting was consolidated to the months September to March.

The UK Government was involved from the start, and has continued to support and fund the scheme through its conservation agencies in their various guises, from the Nature Conservancy to the present day Joint Nature Conservation Committee (JNCC). Indeed. the the count scheme's importance of objectives is recognised in the Government's recent publication of its Biodiversity Action Plan (its response to the Rio Convention on the Conservation of Biodiversity). The Action Plan (DoE 1994) specifically highlighted WeBS as an example of good practice. The scheme also fulfils a number of obligations accepted by the Government under various conservation statutes, including national legislation and international directives and conventions to which the UK is party (see e.g. Stroud *et al.* 1990). The Royal Society for the Protection of Birds (RSPB) became a co-funder of the NWC in the late 1970s and, with JNCC, remains one of the principal funders of the scheme today.

The wildfowling fraternity, particularly the then Wildfowlers Association of Great Britain and Ireland (WAGBI), was also involved during the early stages of the scheme and participated in regular meetings with representatives from WWT and the Nature Conservancy. Following the passing of the 1954 Act, these so called "tea-parties" were formalised as the Wildfowl Conservation Committee with an official term of reference "to consider all matters affecting wildfowl, in particular the establishment of a National System of Wildfowl Refuges" (Nicholson 1970). WWT was charged with surveying Britain's wildfowl so that refuges could be identified. In order that sites of obvious importance were not lost to development during the long time required for a full national survey and analysis, the survey results for individual regions were presented successively at regular meetings of the Committee, and were later published as chapters in Wildfowl in Great Britain.

In the 1960s, the UK's increasing energy demands and requirement for water saw a large number of proposals for barrages and reservoirs on estuaries. A review by RSPB at the time revealed large gaps in our knowledge of waders in particular and so, following a proposal by W.R.P. Bourne to the British Trust for Ornithology (BTO) survey estuarine birds, a joint to BTO/RSPB project was begun. A first year of counts in 1969-70 was organised by BTO and the International Wildfowl Research (IWRB). with advisorv Bureau an committee comprising staff from, among others, BTO, RSPB, WWT, the Nature Conservancy Council (NCC), IWRB and WAGBI. Following this success, NCC. agreed to fund the next five years of the Birds of Estuaries Enquiry (BoEE), administered by the BTO and, in 1970, A.J. Prater was appointed National Organiser. The BoEE extended coverage to the few remaining UK estuaries not already covered for the National Wildfowl Counts (NWC) and, later, areas of non-estuarine coast. With the improved co-ordination on the larger sites, the BoEE became the principal source of waterfowl count data for coastal sites, wildfowl data being passed to the WWT for inclusion in the NWC database. Consequently, in 1972, WWT became a co-sponsor of the scheme.

Although wildfowl counts in Northern Ireland and, indeed, the Republic of Ireland, had been made in the 1950s for the NWC, coverage had been somewhat fragmentary, generally only the larger sites being counted and then not necessarily in all years. In 1985, increased effort was directed at the NWC in Northern Ireland, coverage was improved and the counts were included in the computer database. In 1989. the complementary nature of the NWC and BoEE was recognised in the production of a joint BTO/WWT recording form for use at coastal sites. By then, several species had been added to the original list of strictly wildfowl species that were recorded by the NWC, including Little Grebe Tachybaptus ruficollis and Great Grebe Podiceps Crested cristatus, Cormorant Phalacrocorax carbo and Coot Fulica atra. The NWC changed in 1991 to the National Waterfowl Counts when waders at inland sites were recorded on a regular basis for the first time.

In 1993, full integration was achieved with the launch of the Wetland Bird Survey (WeBS), a joint BTO, WWT, RSPB and JNCC scheme. A merger of the NWC and BoEE, WeBS records all waterfowl species (divers, grebes, Cormorant, herons, swans, geese, ducks, rails, waders, gulls, terns and Kingfisher Alcedo atthis) at as many wetland sites of as many habitats during as many months (although still concentrating on the winter period) as counters are prepared to visit. WeBS has already borne fruit by providing a more efficient service and eliminating organisational idiosyncrasies, and is a more focused and effective monitoring scheme with priorities determined and agreed by all four organisations (see e.g. Waters *et al.* 1996).

Extending coverage

all migratory birds. As with an appreciation of numbers and distribution of wildfowl in Britain forms only part of what is an international picture. Thus, in the mid-1960s, IWRB established a number of working groups, including a Duck Working Group in 1966, chaired by George Atkinson-Willes. Following the Second Wildfowl Meeting on European Conservation at Noordwijk aan Zee, The Netherlands, a 'minimum programme' of work was suggested, including a proposal for an investigation of winter counts, the main purpose being to "detect any possible trends amongst the populations of wildfowl which breed in Iceland. Scandinavia and the USSR, and migrate southward and westward into Europe, North Africa and SW Asia." The programme was approved at the Twelfth Meeting of the IWRB Executive Board at Slimbridge in July 1966. Following an initial survey by participating countries to establish broad distributions, the International Waterfowl Census (IWC) was instigated in January 1967, the first full count collating results from points as distant as Ireland, Norway, Nigeria and Ceylon (IWRB 1967). In 1969, the headquarters of **IWRB** moved to Slimbridge, further cementing the strong links with WWT, especially with respect to the count schemes. The IWC, organised by Wetlands International, currently collates extensive counts throughout Europe and southwest Asia, including the UK data provided by WeBS. A summary of the results, including count totals and population trends, is published annually (e.g. Rose 1995).

More recently, WWT has also been instrumental in re-establishing a national monitoring scheme in Ireland. Although fragmentary counts had been made in the 1950s and widespread counts had been

made since 1967 for IWRB's midwinter census, the first comprehensive counts in the Republic were made in the early 1970s when the then Irish Wildbird Conservancy (IWC) launched the Wetlands Enquiry, documenting waterfowl on inland and coastal sites (Hutchinson 1979). These efforts were rekindled in the mid-1980s when IWC organised the Winter Wetlands Survey, but this lasted for just three years (Sheppard 1993). In 1994, IWC, the National Parks and Wildlife Service (NPWS) and WWT launched the Irish Wetland Bird Survey (I-WeBS). The format and methodology closely complement those of WeBS, with the aim of obtaining a comprehensive dataset for the whole of Britain and Ireland. As for WeBS, the intention is for a permanent, annual monitoring scheme.

The habits of different species of wildfowl, such as the use of agricultural areas by geese during the day, often only visiting wetlands to roost, means that WeBS is not able to monitor all species adequately. Thus, to achieve the objectives outlined at the start, it is necessary to complement the monthly counts' with 'core other survey techniques. To this end, WWT has instigated or been strongly involved in many other surveys in the UK.

One of the longest running schemes is the census of Pink-footed Anser brachyrhyncus and Greylag Geese Anser anser begun in the 1950s, involving synchronised dawn or dusk counts at key roosts, a technique pioneered by WWT. Monitoring of all wild goose species in the UK has been developed along similar lines to provide accurate population estimates, ascertain trends and identify important sites. WWT co-ordinates or is closely involved with the co-ordination of these schemes (Mitchell et al. 1996). WWT has also been involved in the periodic censuses of other species and, in the last ten years, has organised national censuses of breeding Mute Swans Cygnus olor (with BTO and the Scottish Ornithologists' Club), introduced geese, breeding Shelduck Tadorna tadorna, moulting wildfowl, breeding Ruddy Ducks Oxyura jamaicensis and breeding Common Scoter *Melanitta nigra* (with RSPB and with IWC in Ireland). With IWC, NPWS and contacts in Iceland, WWT has also coordinated the last three censuses of Icelandic Whooper Swans *Cygnus cygnus*, made throughout their winter range of Iceland, Ireland and Britain, as part of the Europe-wide international census of Whooper and Bewick's Swans *Cygnus columbianus* (e.g. Cranswick *et al.* 1996).

WWT also pioneered aerial counts of wildfowl in the UK in the late 1950s. This technique, using small two- or four-seater planes flying at a height of just a few hundred feet, had been used in the vast tracts of duck habitat in North America for some years, but the methodology required some modification for use in the British Isles (Eltringham 1959; 1960). Funded by the NCC, aerial counts were used to census Barnacle Geese Branta leucopsis in west Scotland, where, because flocks were widely dispersed on many small, often uninhabited, islands, synchronised counts of all birds had not been possible previously (Boyd & Radford 1958; Boyd 1968; Ogilvie & Boyd 1975). A programme of aerial censuses, particularly for geese, was soon established, and this technique has since been employed widely to count species with fragmented distributions, notably seaducks, especially in otherwise inaccessible areas.

WeBS counts on estuaries are generally made at high tide, when birds are congregated at known roost sites and are thus easier to count than when dispersed widely over large mudflats. However, whilst this provides an accurate total count, it fails to identify important feeding locations. Thus, low tide counts were instigated on major UK estuaries in 1992 by BTO and RSPB and were subsequently integrated into WeBS.

Through its environmental consultancy, the Wetlands Advisory Service Ltd., WWT has also designed and conducted many regional and site based monitoring projects, including such diverse methodologies as counting from boats and planes, most recently to assess the effects of the 1996 *Sea Empress* oil spill on numbers of Common Scoter wintering in Carmarthen Bay.

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This history of development and involvement in count schemes. summarised in Table 1, means that WWT is uniquely placed to advise others; its knowledge and expertise regarding numbers of wildfowl and allied species, at least in the UK, are second to none. Thus, it is not surprising that, through JNCC, WWT is a key advisor to Government and makes considerable contribution to many aspects of wildfowl conservation. including contributing to a number of relevant Government working groups and committees.

Volunteer involvement

A very large number of books about the distribution and numbers of birds in the UK include an acknowledgement of the substantial, voluntary contribution of birdwatchers. The UK seems singularly fortunate in this respect, and organisations such as WWT have benefited considerably from the endeavours of large numbers of knowledgeable and dedicated birdwatchers who are happy to provide information, either because they enjoy collecting it, or on the understanding that it will contribute to conservation, or both. Wildfowl counts are no exception and probably played a part in establishing the tradition of volunteer participation, whilst the counts themselves have attained almost institutional status in the birdwatching world.

The most important factor responsible for the success of the scheme has been the involvement of the volunteer counters. In particular, the efforts of the 200 Local Organisers, charged with ensuring that the most important waters are counted, collating count data and advising on methods, are highly valued. Their considerable experience and expertise have on occasion been

1947	National wildfowl counts instigated by ICBP.
1954	Disbandment of IWRI and transfer of counts to WWT, Slimbridge. Protection of Birds Act passed into law.
ate 1950s	Draft chapters for Wildfowl in Great Britain presented at meetings of the Wildfowl Conservation Committee.
ate 1950s	Priority count scheme initiated, with counts returned monthly on postcards allowing report to be produced and distributed before the following count date.
early 1960s	Wildfowl refuges established during special meetings of the Wildfowl Conservation Committee.
1963	Wildfowl in Great Britain published and presented to participants of the First European Meeting on Wildfowl Conservation at St Andrews, Scotland.
1966	Framework for international wildfowl counts agreed at the Second European Meeting on Wildfowl Conservation at Noordwijk aan Zee, The Netherlands.
1967	First count for the International Waterfowl Census made in January.
1969	BoEE launched.
1971	Convention on Wetlands of International Importance especially as Waterfowl Habitat signed at Ramsar.
1974	Numeric criteria for identifying internationally important sites agreed at Ramsar Conference in Heiligenhafen.
1980	First Wildfowl and Wader Counts published, presenting national summary of data from both NWC and BoEE.
981	Estuary Birds published, summarising first six years of BoEE counts.
986	Wildfowl in Great Britain Second Edition published.
993	WeBS launched.
994	I-WeBS launched.

responsible for shaping the schemes. For example, Newton et al. (1990) proposed that a more accurate assessment of the Pink-footed Goose population could be made in October, rather than in November when the annual census was traditionally undertaken; since 1990, counts have been made in both months, and consistently higher counts of Pinkfeet have been made in October. Many independent (but complementary) count groups have been established locally or nationally, e.g. the Greenland White-fronted Goose Study, the Irish Whooper Swan Study, the Central Scotland Goose Group and active networks around the Moray Firth, the Inner Solway Firth and Lancashire, to name but a few. Many contribute directly to WeBS and other monitoring schemes but also conduct counts and studies for their own purposes (e.g. McElwaine 1991; Brown & Brown 1992; Mawby 1992; Fox et al. 1994; Forshaw 1995; Bell & Newton 1995). The importance of the count scheme in local birdwatching is also reflected by the frequent inclusion of the WeBS Local Organiser in the committee of the county bird club.

Many counters have served for a considerable length of time, and a few who began in 1947 are still counting almost 50 years later. Moreover, it appears that the age profile of the counter network is increasing. Many feel that the lure of twitching rare birds is preventing gaps being filled by the young when the older counters eventually retire. It remains to be seen whether this will affect seriously the ability of WeBS to achieve its objectives.

Wildfowl data

As would be expected from a scheme almost five decades old, a vast amount of data has been gathered and is now stored at Slimbridge. Advances in technology over this period have seen a corresponding change in storage media, from ledgers, painstakingly transcribed by hand, through punch tape used in the 1960s for the international counts, to the current computer databases. Data from 1960-61 onwards have now been computerised, and comprise almost 300,000 visits to 8,000 count areas with over 155 million wildfowl having been counted.

Encouragingly and almost without exception, the numbers of wildfowl counted have increased over the last 50 years. This is due in small part to the increase in coverage, from around 500 waters counted in the early years (International Wildfowl Research Institute 1952), to the current total of around 2,000 (Waters *et al.* 1996). The distribution of count sites visited at some stage since 1960 show coverage of the majority of the UK (**Figure 1**), gaps generally representing either the absence of waterbodies, as in many upland areas, or the absence of a counter network in more remote regions.

Despite, by current standards, the small number of sites covered at the start, efforts were concentrated on the most important havens for wildfowl. It was clear that a complete count of all birds was impractical, yet consistent coverage of the major sites allowed meaningful comparison between years, and thus trends, to be ascertained. More rigorous analysis of the much larger dataset now amassed has shown this general increase in numbers to be genuine and not just an artefact of improved coverage (Kirby et al. 1995), with most species showing at least modest increases between the 1960s and late 1980s (Figure 2). Wildfowl in Great Britain, in 1963, states that "in British conditions it is seldom that a counter is called upon to deal with more than a few hundred birds. On some of the larger waters, however, several thousand birds may be present" (Atkinson-Willes 1963): monthly totals in the 1950s reached 200,000 ducks, including 40,000 Mallard Anas platyrhynchos, 30,000 Teal Anas crecca, 50,000 Wigeon Anas penelope, 6,000 Tufted Duck Aythya affinis and 5,000 Pochard Avthva ferina (Atkinson-Willes 1970). British monthly totals in the 1990s now often exceed 1,200,000 birds (Waters et al. 1996): Wigeon alone number around 400,000, the count on just one site, the Ribble, exceeding 110,000 in 1994-95; the totals of around 30,000 Pink-footed Geese recorded in the early 1950s have risen to



Figure 1. Sites covered by WeBS, 1960-61 to 1994-95, and I-WeBS, 1994-95. Small dots represent 1-2 count areas per 10 km square, medium dots represent 3-4 count areas and large dots five or more count areas.



Figure 2. Trends in wintering populations for Bewick's Swan, Pinkfooted Goose, Wigeon and Teal in Great Britain, 1966-67 to 1993-94.

over 250,000 in the early 1990s, with Dupplin Lochs having held 62,000 birds in 1994; and numbers of Dark-bellied Brent Geese *Branta b. bernicla* have risen from around 10,000 birds in the mid 1950s to between 100,000 and 125,000 in the 1990s, the Wash alone having held over 27,000 birds on a number of occasions.

These increases are due primarily to conservation measures, particularly the designation of refuges and statutory sites. and the effective management of reserves, and in part to the greater area of wetlands. Whilst natural wetlands have generally been reduced in number and area, the demand for water and minerals has seen the creation of numerous reservoirs and gravel pits, many in urban areas where previously few wetlands existed. In the early 1980s, these man-made wetlands supported over 50% of the national population of some duck species (Owen 1983), whilst the numbers of wildfowl on gravel pits have increased many-fold between the late 1960s and early 1990s (Figure 3).

The vast dataset allows detailed research of wildfowl population sizes and distributions. New analytical techniques have been developed specifically for use with the WeBS data, notably methods for generating population indices (Underhill 1989), and "alert limits", designed to raise the alarm when a species undergoes a change in numbers more dramatic than is usual (Kirby & Bell in press). These techniques have subsequently been used with IWC counts also. Our understanding of wildfowl biology has been further enhanced by integrated analyses, for example, with ringing recoveries, which allow seasonal and geographic patterns of distribution to be linked to the movements and origins of the birds (e.g. Kirby & Mitchell 1993).

Conservation

The principal objective of the wildfowl counts was, and continues to be, the conservation of wildfowl stocks and, by necessity, also the wetland habitats upon which they depend. The increases in wildfowl numbers are recorded accurately by the count scheme, but it should be recognised that many of the decisions and conservation measures which resulted in this increase were based on the evidence provided by the count data. The identification of important sites through the use of count data led to the establishment of many wildfowl refuges in the 1950s (Nicholson 1970; Pashby 1992). It is clear that shooting had previously suppressed the numbers of some species; witness both the large increase in Darkbellied Brent Geese subsequent to their removal from the quarry list, and the general increase in wildfowl numbers following the introduction of an extensive refuge network in western Europe; compare this with many populations in Europe, where eastern shooting restrictions are less readily enforced, and where numbers are stable or decreasing (see e.g. Rose 1995). Despite the lack of wildfowl count data for the period, it is clear that numbers of wildfowl at some sites rose during the wars, when hunting pressure was less intense, but fell again afterwards (Tubbs 1996), whilst there is good experimental evidence of the impact of shooting on wildfowl numbers from Denmark also (Madsen 1995).

Thus, designation and effective management of refuges have not only resulted in an increase in numbers of wildfowl to the delight of conservationists, but have allowed the continuation of hunting as a pastime.



Figure 3. Total numbers of wildfowl (excluding grebes, Cormorant and Coot and summed by 10 km squares) counted on gravel pits in January 1967 and January 1963. A total of 8,964 birds was counted in the former year, 52,585 in the latter.

Indeed, two species thriving especially well. Pinkfeet and Wigeon, perhaps typify the genuine wildfowling experience. The successful conservation of wildfowl may owe a considerable debt to wildfowling which served to focus conservation efforts in the 1950s. Granted, had wildfowling pressure been less, refuges would have been of less importance, but these have guarded subsequently against the more recent threats of development, land-claim, coastal squeeze, drainage, pollution, proposed barrages and a multitude of other pressures. Further, the network of sites designated primarily for waterfowl has successfully protected not only these species, but other birds, animals, plants and whole habitats. It is also a measure of the success of the wildfowl counts that many wetlands have been ably defended against potentially detrimental proposals on the basis of data provided by the count scheme.

The resounding success of waterfowl conservation is no doubt partly a consequence of the relative ease of monitoring and conserving these species and the wetland sites upon which they depend. Compared with other bird populations in the UK, wildfowl numbers are small and, with the exception of some goose species, they occur only on or near to a relatively small number of discrete wetland sites. Thus, wildfowl are easily monitored and the boundaries for sites easilv established. designated with, for example, the compared monitoring techniques and conservation measures that would be required for some farmland passerines.

Indeed, the extent of quantitative data on waterfowl led to the development of one of the few objective, numeric criteria for the identification of important sites. The question as to when a site attains 'national' or 'regional' importance was first posed by Atkinson-Willes (1961) in an examination of count data for reservoirs. The idea that a site was of 'international importance' if it held a certain percentage of the international population was proposed by Sziji (1972) at the first conference of the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat. This was developed and tested by Atkinson-Willes (1976) using international wildfowl count data, and has been adopted and revised



Figure 4. Ramsar sites and Special Protection Areas (SPAs) designated in the UK by 1 September 1996. Circles indicate Ramsar Sites, triangles indicate SPAs and squares indicate sites with dual designation. Filled symbols indicate sites designated due to their importance for waterfowl.

subsequently at various meetings of the Ramsar Contracting Parties. The criteria currently used to identify internationally important wetlands include two specific criteria based on waterfowl numbers: 3(a) if it regularly supports 20,000 waterfowl, and 3(c) if it regularly supports 1% of the individuals in a population of one species or sub-species of waterfowl (Anon 1991). These criteria are implicitly adopted by the EEC Directive on the Conservation of Special Wild Birds for identifying Protection Areas (SPAs), Consequently, over three quarters of the Ramsar sites designated in the UK and almost two thirds of the SPAs notified under the Birds Directive (see Waters et al. 1996) hold internationally important numbers of waterfowl and were designated wholly or primarily for this reason (Figure 4).

The count scheme has always sought to make the data widely available, through a data provision service to individuals and organisations, and through contributions to relevant conservation projects, e.g. identification of important bird areas (Pritchard et al. 1992: Skov et al. 1995) and UK avian population estimates (Stone et al. in press). A comprehensive summary of the results is also published annually. Cherished by the counters in particular, the annual report has grown considerably during the scheme's history, from a 40page A5 booklet costing a mere two shillings and sixpence for the years 1952-1954 (Atkinson-Willes 1954) to a 170-page A4 publication (e.g. Cranswick et al. 1995). Reports in the 1950s presented results on a regional basis. During the 1960s, priority count date reports, simply comprising species totals at key sites, were published monthly. A report concentrating on predominantly coastal waterfowl species and sites was published annually in the early 1970s by the BoEE. In 1979-80, this merged with the report on wildfowl data from inland sites to become the well known Wildfowl and Wader Counts (Salmon 1980). A significant addition to the later reports is the enlarged section on conservation, highlighting conservation mechanisms and listing international designations. The absence of this section in the early years reflects the lack of any such mechanisms; their existence in the later years is to a very large part due to the existence of the counts.

Conclusions and future plans

Despite the ever changing emphasis of conservation. most recently with considerations of biodiversity and the species action plans being prepared under the African Eurasian Waterbird Agreement of the Bonn Convention, the need first to monitor the species or habitat remains fundamental to every new piece of legislation or convention. Priority lists, the current vogue, focus on the risk of extinction (e.g. Avery et al. 1995) and are based primarily on two factors: population size and trends in numbers, i.e. two of the objectives of WeBS. The mainstay of much conservation action continues to be through protection of the most important sites, i.e. based on the third WeBS objective. It is notable that the need to monitor extends to all species, the common as well as the rare. Indeed, the only species seemingly in decline throughout the UK is Mallard. The maxim of being able to determine what is going wrong only if it is possible to make comparisons with a period when things were going right will always hold true. Thus, monitoring will always be the starting point of conservation planning and, since populations will always be subject to changes in numbers and distribution, this need will remain, not least to measure the success or failure of any conservation action.

Despite the existence of many conservation mechanisms, threats to waterfowl and wetland habitats can be expected to continue. Contemporary data on waterfowl numbers and distribution will always be required in assessments of potential impact and damage, whilst WeBS data will undoubtedly also be of key importance in monitoring the effects of predicted sea level rise.

WeBS is by far the biggest and longest running scheme of its kind. A Forward Strategy, outlining the future of the scheme and setting objectives and actions in place, such as the periodic revision of population estimates (e.g. Kirby 1995) and the annual publication of national trends and important sites (e.g. Cranswick *et al.* 1995), will be published shortly (Cranswick *et al.* in prep). There are also plans for a new publication to update the second edition of *Wildfowl in Great Britain* (Owen *et al.* 1986) and *Estuary Birds* (Prater 1981) and so disseminate the results of monitoring more widely. These should ensure that conservation arguments about waterfowl and wetlands are restricted to the issues at hand, rather than, as in the past, disputing the validity of the data.

The authors, as organisers of the count scheme and users of the data, would like to express their sincere thanks, above all others, to the many thousands of counters and local organisers who have made the scheme the success that it is. We hope this paper goes some way towards illustrating their significant influence on conservation and shows that their efforts have all been worthwhile!

The principal funders of the UK scheme over the years have been the Government's statutory conservation bodies, most recently JNCC (on behalf of the Countryside Council for Wales, the Department of the Environment Northern Ireland, English Nature and Scottish Natural Heritage), RSPB, and the two principal organising bodies, WWT and BTO. I-WeBS is funded by IWC, NPWS and WWT, with additional monies from The Heritage Council and the World Wide Fund for Nature UK. The statutory agencies in particular have also helped fund the goose censuses and surveys. Their continued support is gratefully acknowledged.

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Peter Cranswick, Jeff Kirby, David Salmon, Mark Pollitt and **Myrfyn Owen** The Wildfowl & Wetlands Trust, Slimbridge, Glos GL2 7BT, UK. **George Atkinson-Willes** Osborne House, Bath Road, Frocester, Glos, UK.