

Numbers and distribution of wintering waterbirds in the Western Palearctic and Southwest Asia in 1997, 1998 and 1999

Results from the International Waterbird Census

Niels Gilissen, Lieuwe Haanstra, Simon Delany, Gerard Boere and Ward Hagemeijer



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Results from the International Waterbird Census

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The International Waterbird Census (IWC) for the Western Palearctic and Southwest Asia (WP and SWA)

Coordinated by:

- Wetlands International
Droevendaalsesteeg 3A, PO Box 471, 6700 AL
Wageningen, The Netherlands

Undertaken by:

- National waterbird monitoring schemes organised in over 50 countries with the participation of more than 11,000 voluntary and professional coordinators and observers

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Guided by:

Wetlands International Waterbird Monitoring Programme
Steering Committee (Western Palearctic and
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landbouw, natuurbeheer
en visserij

The Joint Nature Conservation
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Alterra Green World Research,
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National Environmental Research
Institute (NERI), Denmark



The Wetland Trust, United Kingdom

Department of Hunting,
Ministry of Agriculture, Finland



Bundesamt für Umwelt, Wald und
Landschaft, Switzerland



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Belgium



Environmental Protection Agency,
Sweden



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Johan Verbanck



Flooded plains of the river IJzer, Belgium.

Foreword

Waterbirds tell many stories about the biological richness of our planet. They also provide our best tales of regional and global connectedness. By their individual movements and by the variable fates of their populations in response to increases or decreases in suitable habitat, our waterbirds and waders provide connections between countries, between different levels of administration and management, between investigators, between people.

This report, on the numbers and distribution of wintering waterbirds in Europe, North Africa and Western Asia during the final three winters of the last millennium, provides hard evidence for the widespread interest in, and the international concern for, the birds and the wetland habitats they make use of. No fewer than 11,000 people from 47 countries were involved in the counts. The organisation, the tabulation, the checking and the analysis of the raw data as well as the dissipation of the results of such a counting effort provide many practical and administrative nightmares. Wetlands International, her employees and all other waterbird enthusiasts involved are to be congratulated for pulling it off!

It is noteworthy that waterbirds are so rare. Although no fewer than 230 species were observed between 1997 and 1999, the total number counted in any winter was only about 24 million individuals. This is similar to the total number of people living in a mid-sized European country like Romania. A minimum figure of 24 million wintering waders and waterbirds implies that such birds are an order of magnitude less common than the people living in the same area. It also means that their biomass is two to three orders of magnitude smaller than the biomass of *Homo sapiens*.

For the first time ever we can here admire factual distribution maps of a wide range of waterbird species. These maps, and the data on which they are based, tell many stories about the life of birds, and the readers of this report are encouraged to contemplate some of them. For example, the maps enable us to compare the patchiness in winter distribution in different regions within Europe, North Africa and Western Asia. For several species the size of the dots on the maps is larger in the southern and southeastern parts of the map than further north and west. Does this reflect regional differences in the spatial scale of the counting units or effort, or does this represent real differences in habitat size and distribution? If the latter, how would it affect the birds' susceptibility to local habitat changes, for example as a consequence of (lack of) individual movements within winters in regions where wetlands are few and far between?

One can also compare species groups or species pairs. It is interesting to contrast a wide-ranging species like the Mallard (*Anas platyrhynchos*) with a much more restricted species like the Wigeon (*Anas penelope*). The smallest

grazing duck, Wigeon depends to a large extent on the grassy expanses of Ireland, the UK and The Netherlands. The contrast between the highly restricted distributions of seaducks (the genera *Melanitta* and *Somateria*) and another shellfish-eating diving duck (Scaup *Aythya marila*) on the one hand and the far wider ranging dabbling ducks (*Anas*) on the other, is ecologically interesting. Is the resource base for the seaducks or Scaups really so restricted? Do they have nowhere else to go? For now, sites where seaducks and Scaup occur in any numbers seem critical and in need of stringent protection.

The data collected by the International Waterbird Census programme are very comprehensive and wider usage of the data should be encouraged. Analyses of the effects of winter weather and changing (wet-) land use practices can be carried out for selected species groups. Wetlands International might want to liaise with the various international ecological research consortia that study the movements and numbers of geese, swans, ducks and waders. Involvement of international specialists could enhance the interpretation, the quality and the overall usefulness of the count data base.

In a world that is changing fast this is all very important. Ecological conditions may vary as a consequence of regional and global changes in climate. However, by and large the incredible power of humans to modify landscapes at large spatial scales may be of overriding importance. (Wet-) land use policies at national levels, (even small) land use policy changes at the level of the European Community, or 'new' countries joining an economic grouping such as the EC, can all have fast and widespread cascading effects. As a local example, the harvest of shellfish in Dutch coastal waters is now negatively affecting internationally outstanding wintering concentrations of seaducks and molluscivore waders in The Netherlands. Changes for the worse may be occurring faster than IWC reports can be put together.

It is the task of the wader and waterbird community represented by Wetlands International to try and keep tabs on our waterbird populations. Together with wetland and waterbird scientists from other organisations there is an urgent need to inform the public and the policymakers; to really 'feed' them with the best and the latest accounts of waterbird biology and its wider implications. The report series issued by Wetland International provides a very good contribution to this process.

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The financial support for the IWC Western Palearctic and Southwest Asia of the following organisations is greatly acknowledged: Directorate for Nature Management, Ministry of Agriculture, Nature Management and Fisheries, The Netherlands, The Joint Nature Conservation Committee (JNCC), United Kingdom, Alterra Green World Research, The Netherlands (formerly the Instituut voor Bos- en Natuuronderzoek, IBN), the National Environmental Research Institute, Denmark, The Wetland Trust, United Kingdom, Department of Hunting, Ministry of Agriculture, Finland, Bundesamt für Umwelt, Wald und Landschaft, Switzerland, Ministère de la Région Wallonie, Direction Nature et Espaces Vertes, Belgium, Environmental Protection Agency, Sweden and Duchas, The Heritage Service, Ireland.

Until 2001 the IWC was guided by the Waterbird Monitoring Steering Committee Western Palearctic and Southwest Asia, whose members played an important role in decision making on and guiding of the IWC. In line with the reorganisation of Wetlands International and the Waterbird Monitoring Programme, the Steering Committee was disbanded in 2001. Warm thanks to all members for their commitment and expertise.

All Wetlands International's staff are thanked for their support for the IWC through the years. Thanks to Cecilia Reyes, who did a great part of the development of the database program and the technical guidance in data management. Olga Anisimova, Alexander Solokha, Vasily Kostyushin and Tamara Kutunova were of great assistance in the inputting of hardcopy datasheets into electronic format. Scott Frazier and Ellen Amting were of great help in producing the maps and in technical support. Nico Burgerhart was responsible for the final upgrade of the IWC-database program.

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Summary

International Waterbird Census

The International Waterbird Census (IWC) is a long-term monitoring scheme for waterbirds in the non-breeding season. In the Western Palearctic and Southwest Asia this census has been organised by Wetlands International since 1967 and is conducted annually in mid-January.

Results of 1997, 1998 and 1999

This report summarises the results of the counts of January 1997, 1998 and 1999 in the Western Palearctic and Southwest Asia, comprising counts in 47 countries. Species totals per country, per geographical area and for the whole region are presented. Per country the status of the IWC is described together with coverage and highlights from the counts in 1997–1999. For several species with suitable data, distribution maps are presented, summarising the average distribution over the three census years.

Weather

Weather conditions can have a great influence on numbers and distribution of waterbirds in this region in winter. January 1997 showed a cold spell over a great part of Western Europe with freezing as far south as the middle of France and the southern half of the United Kingdom. The two consecutive winters showed a more average pattern, with 1998 being milder than 1999.

Coverage

The coverage in 1997–1999 was relatively good, but still data from some important countries or from some years were missing. Some countries do submit data annually, but achieve very limited coverage of sites or submit a limited range of species. The results have to be interpreted in the light of these gaps in coverage. Below, the coverage of the IWC per area is briefly summarised, together with the approximate range of the total number of waterbirds recorded in 1997–1999.

Baltic and Nordic (900,000–1,250,000)

The Baltic and Nordic area generally had good coverage for the IWC in 1997–1999, however, (partial) gaps exist in Finland, Kaliningrad, Russia and Poland. Norway only submitted data for Anatidae and Common Coot. The winter of 1997 was cold, causing birds to leave the area and migrate west and south to milder areas.

Central Europe (1,000,000–1,350,000)

Central Europe is among the areas with the longest running waterbird monitoring schemes and the best coverage. Some gaps in coverage exist in Hungary (no wader or gull data), Slovakia and the Czech Republic.

East Mediterranean and Black Sea (2,500,000–4,300,000)

This area shows major geographical gaps in coverage and consequently, a considerable proportion of wintering waterbirds will be missed. Missing countries for 1997–1999 were Libya, Egypt, Syria and Moldova. In Turkey a countrywide census was only conducted in 1999. However, big numbers of waterbirds are recorded in the

area, including threatened species such as Dalmatian Pelican, Pygmy Cormorant, Red-breasted Goose and White-headed Duck. Most countries in this area that submit data, include all waterbird species groups, such as gulls, waders and rails. Romania submitted only Anatidae and Common Coot 1997 and 1998, but included all groups except waders in 1999.

Northwest Europe (11,700,000–12,900,000)

Northwest Europe hosts the biggest concentrations of waterbirds recorded by the IWC, between 11 and 13 million in 1997–1999. Countries such as The Netherlands, United Kingdom and France have a long tradition of waterbird censuses with excellent coverage. However, from the United Kingdom data on divers, rails (apart from Common Coot). For gulls and terns from the United Kingdom and Ireland, only national totals are available. Germany did not submit data on herons, gulls or inland waders, as coverage is inconsistent for these groups.

Southwest Asia (300,000–3,600,000)

Coverage for the IWC is least complete in this area. Many countries have problems finding counters and funds to cover the most important sites, moreover a lot of sites are in inaccessible areas and, in some countries, political instability makes waterbird counting a low priority. Yet, it is known to hold enormous numbers of waterbirds and large concentrations of waterbirds may yet remain to be discovered in this area. In 1997–1999 no data were received from the following countries in this area: Bahrain, Jordan, Kazakhstan, Kuwait, Saudi Arabia and Tajikistan. In 1999 no data were submitted from Iran or Azerbaijan. Species coverage is generally good.

West Mediterranean (3,000,000–3,400,000)

Coverage in the West Mediterranean area remains rather incomplete and inconsistent. During 1995 and 1996 no data were included from Spain, however Spain submitted a full dataset for the years 1997–1999. This is also the case for France, Italy, Algeria and Portugal. No data were received from Morocco. From Tunisia only counts in the north were received. Most countries count all waterbird families.

Results

In 1997, 1998 and 1999, totals of 22 to 23.5 million waterbirds of more than 230 species were counted in the region. Species with totals over a million were (maximum total after each species):

European White-fronted Goose	1,341,107
Eurasian Wigeon	1,649,528
Mallard	2,282,015
Common Coot	2,948,832
Northern Lapwing	1,242,901
Dunlin	1,300,951
Black-headed Gull	1,432,781

Swans

This group is quite well monitored, except for Whooper Swan and Mute Swan in Southwest Asia. Counts fluctuated between 190,000 and 230,000 in 1997–1999.

Geese

The total number of geese counted (excluding non-native geese) fluctuated around 3 million in 1997–1999. The coverage of most species was good, except for Greylag Goose, Red-breasted Goose and Lesser White-fronted Goose.

Seaducks

Seaducks are not consistently monitored by the IWC, because of the offshore occurrence of most species. Some, but not all, countries important for seaducks conduct special (aerial) seaduck surveys on a regular basis. The numbers recorded are generally not representative of the actual number of birds present, however they can give an indication of distribution and trends. Numbers recorded in 1997–1999, around 1.2 million, were quite stable.

Ducks and Common Coot

Traditionally, these are the species with the longest history of coverage by the IWC. A total of 7.5 to 8 million ducks (excluding non-native ducks) and 2 to 3 million Common Coots were counted in each year.

Waders

An increasing number of waders are counted by the IWC, mainly as a result of increasing coverage. However, there are still considerable gaps in the coverage of this group. A total of 4.2 to 5.2 million waders were counted between 1997 and 1999.

Gulls and terns

A majority of countries include gulls in their counts during the IWC. The number recorded is increasing and totals varied between 2.3 and 2.8 million in 1997–1999.

Other waterbird species

More and more countries include other waterbird species groups (i.e. divers, grebes, pelicans, cormorants, herons, storks, ibises, spoonbills, flamingos, cranes and rails) in the IWC and coverage of most species is quite good. Over 4 to 5 million birds from these groups were counted in 1997–1999.

Noteworthy count totals

Particularly high local or regional totals of the following species were counted, equalling or exceeding the current population estimate (Wetlands International in prep.):

Pygmy Cormorant: Thanks to a special survey in Greece, the total count for East Mediterranean and Black Sea in 1998 was over 37,000 birds, which is higher than the current population estimate for this area (22,110–36,270);

Ruddy Shelduck: The records in Iran of more than 35,000 birds in 1997 and more than 82,000 birds in 1998 are spectacular, the latter more than doubles the current population estimate for the population in the Caspian region (35,000);

Red-crested Pochard: The rapidly increasing West Mediterranean and Central European population was estimated at 25,000 birds, however, the IWC total for 1999 was more than 37,000, and the new estimate was doubled to 50,000;

Red Knot: The region total for 1999 (over 420,000) represented a considerable increase compared to the previous years, which was mainly due to a record count of over 144,000 in The Netherlands in 1999. Although the total recorded in 1999 nearly equals the current population estimate, more recent count data indicate a sharp decrease in The Netherlands from 2000 to 2002;

Dunlin: The totals for the Northwest Europe and West Mediterranean areas (1.2 to 1.3 million) were just below or equal to the latest population estimate (app. 1.3 million).

Note from the authors

A great part of the background information on the IWC, described in the previous IWC-report (Delany *et al.* 1999), has not changed significantly. Because this information is needed to understand the context of the IWC and to interpret the results, it has been adopted from that publication and has only been changed where necessary. Hence, the introductory chapters here are similar to those in Delany *et al.* (1999).

With respect to the results of the counts and the analyses, a different approach has been followed from the previous report. In this publication, the emphasis in the analyses has been put on distribution rather than on population trends. New trend analyses for waterbird populations in the region based on IWC data are planned and will be presented in a separate publication. Additionally, analysis and publication of wintering waterbird distribution in relation to weather and climate conditions are a high priority for the near future.

Introduction

1. Why monitor waterbirds?

Migratory waterbirds are one of the most remarkable components of global biodiversity. Their long migrations and tendency to concentrate in large numbers on particular wetlands make them both visible and charismatic. They are important indicators of the ecological condition and productivity of wetland ecosystems, and their presence is widely valued by numerous stakeholders including local human populations, tourists, associated enterprises, hunters (both sport and subsistence) and research biologists throughout the world. They also offer many opportunities for sustainable use of wetlands, particularly through ecotourism. This is particularly important for developing countries, since protecting migratory waterbirds imposes an additional resource burden on them.

Waterbirds are readily counted because many species congregate conspicuously. No other group of birds has been so comprehensively and frequently surveyed. There is a strong tradition in Europe, and a growing tradition in other parts of the world, of using long-term waterbird census data as a basis for estimating the sizes and trends of waterbird populations. The International Waterbird Census (IWC) is one of the longest running and most extensive harmonised biodiversity monitoring programmes in the world. The information obtained from the IWC has considerable conservation value and a growing scientific impact.

2. The aims of the IWC

The goal of the IWC is to contribute significantly to international efforts to conserve waterbirds and their wetland habitats. To achieve this, it uses information collected over the long term:

- to estimate population sizes of waterbird species
- to describe changes in numbers and distribution of these populations
- to assess the importance of individual sites, as part of a network, for waterbirds during the non-breeding season.

The rationale behind the census was summarised eloquently by Matthews (1967) at the time when international coordination of waterbird counting was beginning: "...while man is recklessly unleashing new insults on his environment, background monitoring of populations is essential to detect the threats as they develop and before they become catastrophes apparent to all".

Standardised monitoring of Arctic breeding species, and of species dependent on inter-tidal habitats is even more important in the light of human induced climate change, the reality of which is now generally accepted (Houghton 2001). Global warming is expected to have especially pronounced effects on tundra and other Arctic environments, and, through sea level rise, on inter-tidal habitats (Ens *et al.* 1996, Boyd and Madsen 1997). IWC

Red Knot flock in sunset at The Wash, United Kingdom.



will play a significant future role in monitoring the effects of these changes on the millions of waterbirds which depend upon these environments.

3. Organisation of the IWC

3.1 Global Organisation of the IWC

The IWC is a site-based counting scheme for monitoring waterbird numbers, organised by Wetlands International. The Census operates as four separate surveys, but currently a new strategy for global coordination of the IWC is under development.

- The counts in the Western Palearctic and Southwest Asia (IWC-WP and SWA), which are the subject of this report, are coordinated and compiled by the Wetlands International office in Wageningen, The Netherlands (e.g. Delany *et al.*, 1999).
- The African Waterbird Census (AfWC) is co-ordinated from a sub-regional office in Dakar, Senegal (e.g. Dodman *et al.* 1998).
- The Asian Waterbird Census (AWC), which includes Australasia and Oceania, is coordinated from Wetlands International's Asia Pacific office in Kuala Lumpur, Malaysia (e.g. Lopez and Mundkur 1997, Li and Mundkur in press.).
- In South and Central America, the Neotropical Waterbird Census (NWC) is coordinated from the Americas office of Wetlands International in Buenos Aires, Argentina (e.g. Blanco and Carbonell, 2001).
- Recent initiatives have been taken to develop IWC in North America, in close cooperation with United States Geological Survey/Patuxent Wildlife Research Centre and the North American Waterbirds Conservation Plan. This will add the last missing continent to the census, making it a truly global scheme.

3.2 New global Programme Action Plan in preparation

www.wetlands.org/aboutWI/Strategy.htm

In 2001, Wetlands International produced its draft Programme Action Plan, titled "Global Waterbird Monitoring and Conservation in the new Millennium" (Wetlands International in prep.). In this document a strategic positioning of Wetlands International's waterbird related work is presented. The main recommendations for the future are to:

- continue expansion of the census towards a global survey;
- finalise the new database program, merging taxonomical databases and have it adopted in all regions, which will facilitate exchange of data between the regional databases;
- disseminate the results of the IWC more regularly, especially through the internet;
- include waterbird data from additional seasons and sources;
- increase capacity to deliver products that meet the needs of international conventions and agreements, mainly through an increase in species coverage and geographical coverage;

- increase cooperation with parties working towards the conservation of (migratory) waterbirds (e.g. BirdLife International: Important Bird Areas Programme, hunting organisations);
- link the database with a GIS, to standardise geographical definition of sites, and allow linking with other environmental datasources;
- extend the scope of application of the data, for example with research on climate change.

The major change in direction proposed for the IWC is development of a more global character and closer interaction of the regional schemes in terms of standardisation and data management. Following a decision of the Board of Members of Wetlands International, the strategic formulation of the work on waterbirds and other species was changed to "Wetland Species Conservation". A summary of the decisions can be found in the Wetlands International strategy 2002–2005 (Wetlands International 2002).

It has been the intention of several organisations working for the conservation of waterbirds, especially Wetlands International and BirdLife International, to work more closely together, most notably in data gathering and compatibility, data sharing and analysis. The coming years will see the implementation of this for the African Eurasian Migratory Waterbird Agreement region, in the framework of a to-be-approved Global Environment Facility (GEF) project, through activities ranging from capacity building to creating inter-activ common data access.

3.3 Organisation in the Western Palearctic and Southwest Asia

The geographical scope of the IWC in the Western Palearctic and Southwest Asia comprises Europe, North Africa, the Middle East and the Central Asian states. For an overview of countries included in the IWC Western Palearctic and Southwest Asia, see Figure 6.

In this region, the main emphasis is on counts of birds in the non-breeding season, and the IWC database is compiled mainly from January counts submitted voluntarily by a network of national co-ordinators. These coordinators organise their own surveys at national level, and many countries publish the results of their censuses in more detail than the periodic international overviews compiled by Wetlands International. A summary of a selection of publications resulting from national waterbird monitoring schemes and related issues, which have appeared recently in the region appears in Annex III.

4. The development of IWC in the Western Palearctic and Southwest Asia

4.1 General development

Following its inception in 1967, the IWC developed rapidly in Europe and parts of Southwest Asia, and this development was stimulated by the signing of the Ramsar Convention on Wetlands in 1971. Since then, a growing number of countries has participated in the census and results were published regularly (e.g. Rose 1992a, Rose and Taylor 1993, Rose 1995 and Delany *et al.* 1999). The

1990s in particular were a period of increase in waterbird monitoring activity in many western European countries. There are many reasons for this, among them increases in the numbers of birdwatchers in many countries, better organisation, great improvements in the capabilities and availability of computers, and increasing recognition by government agencies of their obligations under international laws and directives. In Eastern Europe, North Africa and Southwest Asia, these developments have occurred to a lesser extent. In these areas, the census has maintained momentum in many, but not all countries, and waterbird monitoring activity has not generally increased in the period.

The data held by Wetlands International on waterbirds in the Western Palearctic are more comprehensive than for other parts of the world, and take considerably longer to acquire, process, analyse and interpret. It was therefore decided after production of the first three annual reports and after consultation with census coordinators at national level, that it would be preferable to produce more comprehensive international overview reports covering the Western Palearctic and Southwest Asia at longer intervals. This is the second report covering more than one year. Due to a reorganisation within Wetlands International, the publication of this report was delayed for nearly two years. However, this gave us the opportunity to collect more data and allowed the presentation of a dataset with more comprehensive geographical and temporal coverage.

4.2 The IWC databases

In the 1980s, data for waders, geese and seaducks were separated from the main IWC database and decentralised to institutes in Europe with particular expertise and data holdings relating to the taxa involved. The wader database moved to the Institute of Forest and Nature Research (formerly called IBN-DLO, now Alterra Green World Research) in The Netherlands, where a high level of expertise on wader numbers and distribution culminated in publication of the status report which was until recently the standard source for population estimates for waders on the East Atlantic Flyway (Smit and Piersma 1989). The data for geese and for seaducks were transferred in 1989 to the National Environment Research Institute (NERI) at Kalø in Denmark, whose expertise was to prove invaluable in developments in counting these groups over the following decade. The move of Wetlands International's headquarters into offices shared with IBN-DLO (now Alterra Green World Research) in The Netherlands in 1998 brought the wader database back under the same roof as that for Anatidae. In the summer of 1998, the responsibility for the goose data was also transferred to IBN-DLO from NERI. Eventually the Seaduck database and the other databases will be merged, bringing all data together under one umbrella at Wetlands International's headquarters. A lot of additional counts or non-systematic counts, which are not a part of the IWC census are reported in the 'grey' literature. Most of the data from those counts are not included in the IWC database, but in the future these data will be incorporated into the database.

The software used to manage the databases was getting out of date and in the late 1990s it was decided that a new system had to be developed to host the databases. The new database is based on Microsoft Access, because

of its wide use and availability. The database is built into a shield with a set of routines, written in MS Visual Basic to import and check new data and to query the contents of the database. In contrast to the old dBaseIV based system, where the data were stored country by country, the new database is organised based on the taxonomic groups of the Wetlands International Specialist Groups. Separate tables with data for each taxonomic group are included in the database. The formerly decentralised Wader and Goose Databases are now integrated into the central IWC database. Only the Seaduck Database is not (yet) integrated due to the different way data are gathered and stored. Most of the existing data were entered into the Access database using the new routines thereby checking the old data thoroughly. A number of countries kindly provided a complete new set of data to improve the consistency between the national and IWC databases. A manual for using the IWC data management program will be written as a high priority.

Future goals are to build a Geographical Information System (GIS) into the program, in order to have geographical information digitally available and exchangeable, and to have an interactive database available on the internet.

4.3 The role of Wetlands International's Specialist Groups

www.wetlands.org/networks/SGroups.htm

An important element of Wetlands International's networks of experts are the Specialist Groups. Mostly initiated in the 1980s, when they were known as Research Groups, those with strong links to the IWC are the Swan, Goose, Duck, Seaduck, Wader and Threatened Waterfowl Specialist Groups. The Wader Study Group is the largest and longest established of the Specialist Groups, whose *Bulletin* appears three times per year. The decentralisation of the goose and seaduck data to NERI described above was an important element in the growth of these two Specialist Groups, and from 1990 onward, annual publication of the *Goose Specialist Group Bulletin* and *Seaduck Specialist Group Bulletin* have provided a clear focus for these groups' activities. The Swan, Duck and Threatened Waterfowl Specialist Groups also produce high quality bulletins at regular intervals. Most of these bulletins are also available on the internet.

During a workshop in early 2002 a Memorandum of Understanding (MoU) was agreed by representatives of each active Specialist Group and Wetlands International. These MoUs aim to strengthen the cooperation and enhance exchange of information between all parties. The Specialist Groups play an important role in providing information and advice on the IWC.

5. Applications of IWC

5.1 Conservation of waterbirds and wetlands

Waterbirds are one of the key attributes of the biodiversity of many wetlands, and waterbird counts form one of several elements which are used to identify important

wetlands. It is widely accepted that the number of waterbirds using a wetland site is a good indicator of that site's biological importance (e.g. Scott 1980) and waterbird counts have been especially influential in the identification of important wetlands. Bird counts can also provide vital evidence for the protection of wetlands should they become threatened. Kushlan (1993) assessed the value of waterbirds as bio-indicators of wetland change, and one of his conclusions was that "population level data show special promise as sentinel bio-indicators".

5.2 Bonn Convention: The African-Eurasian Migratory Waterbird Agreement

<http://www.unep-wcmc.org/aewa/>

A crucial international instrument which relies heavily on information provided by the IWC-WP and SWA is the African-Eurasian Migratory Waterbird Agreement (AEWA) (Secretariat for the African-Eurasian Migratory Waterbird Agreement, 1997; located in Bonn, Germany). This is an Agreement under the Convention on the Conservation of Migratory Species of Wild Animals, commonly referred to as the Bonn Convention. By July 2002 the final act of the AEWA, which came into force in 1999, had been agreed by 41 range states. The Agreement covers the whole of Africa and Europe, much of West Asia, and Arctic islands in extreme Northeast Canada. AEWA forms the basis for conservation and management policy in the 120 Range States for the 170 migratory waterbird species currently included in the Agreement.

The Agreement is implemented by means of an Action Plan, which specifies actions to be taken by Parties in relation to priority species and issues under five headings, i.e. species conservation, habitat conservation, management of human activities, research and monitoring, and education and information. Other crucial documents in support of AEWA are a review of the present conservation status of all waterbird species currently covered by the Agreement (Wetlands International 2000, Wetlands International in prep.) and nine sets of Conservation Guidelines to assist the Parties in the implementation of the Action Plan. These documents were presented to the first Meeting of the Parties to the agreement in 1999 and have been updated and revised for the second meeting of Parties in September 2002.

Within the framework of the AEWA, a major project funded by the Global Environment Facility (GEF) is being implemented. One future element of this project will be a programme with the title 'Enhancing conservation of the critical network of wetlands required by migratory waterbirds on the African-Eurasian flyways'. This programme has the goal of substantially improving the conservation status of African/Eurasian migratory waterbirds, by enhancing and coordinating the measures taken by GEF-eligible countries to conserve the critical network of wetland areas that these birds require to complete their annual cycle. The IWC is closely linked with the project, as it is aiming to enhance the coverage of waterbird counts in the region and to link the IWC databases with other information sources (BirdLife

International Important Bird Areas database, Ramsar database). (www.wetlands.org/projects/AEWA/GEF_summary.htm)

5.3 Convention on Wetlands of International Importance (The Ramsar Convention)

www.ramsar.org

The criteria used for identifying wetlands of international importance are defined in the Ramsar Convention (Convention on Wetlands of International Importance) (e.g. Ramsar Convention Bureau 1984).

Before May 1999, there were eleven criteria by which wetlands were identified as being of international importance, at least one of which must be met for a wetland to be admissible to the Ramsar list of wetlands of international importance. At the seventh Conference of the parties to the Ramsar Convention in May 1999 in Costa Rica, the criteria were revised and the waterbird criteria were retained as an element of new 'biodiversity' criteria. The two specific criteria based on waterbird numbers were redrafted as follows:

A wetland should be considered internationally important if:

- (5) it regularly supports 20,000 or more waterbirds (formerly criterion 3a);
- (6) it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird (formerly criterion 3c).

The previous criterion 3b is included in a newly drafted Criterion 2, worded as follows: "A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities."

The Ramsar Convention is growing, with new countries becoming contracting parties and new wetlands being added to the list each year. Contracting parties are required "to recognise and conserve any internationally important wetlands", by designating them as Ramsar sites. By June 2002, 131 countries were signatories to the Ramsar Convention, and the Ramsar list of wetlands of international importance comprised 1,171 sites worldwide covering more than 96 million hectares.

The Ramsar Convention encourages the regular monitoring of waterbirds by its Contracting Parties as the basis for the identification of many wetlands of international importance. Indeed, at its 1996 Conference, the Contracting Parties passed a specific resolution (Res. C.6.4.) urging Wetlands International to continue to develop the IWC and to enhance its global coverage as an important basis for the application of the relevant waterbird criteria (Ramsar Convention Bureau 1996). The Ramsar Contracting Parties further sought from Wetlands International regular updates of the best available population estimates at each of their triennial conferences, and every nine years, revision of the 1% thresholds for each waterbird population. A significant proportion of all designations of wetlands as sites of International Importance under the Ramsar Convention are based on waterbird data.

5.4 Publications using waterbird monitoring data in support of international conventions

The position of waterbird monitoring as a key element in support of The African-Eurasian Waterbird Agreement and the Ramsar Convention on Wetlands, was strengthened by three publications produced by Wetlands International (formerly IWRB) between 1994 and 1997. The first edition of *Waterfowl Population Estimates* (Rose and Scott 1994, www.wetlands.org/IWC/WPEnote.htm) summarised knowledge of waterbird numbers and distribution at a global level, and presented 1% thresholds for identifying wetlands of international importance under the Ramsar Convention. The second edition (Rose and Scott 1997) updated the first, and identified 1,924 distinct biogeographical populations of waterbirds from 840 species worldwide. It was intended that this publication would be updated in line with the triennial cycle of meetings of Contracting Parties to the Ramsar Convention (Rose and Stroud 1994), but the third edition was delayed and will now be published in October 2002. It provides information which will be fundamental to the conservation of migratory species throughout the world, including, for example, conservation efforts under the African-Eurasian Migratory Waterbird Agreement. One of the first projects within the framework of this agreement was the publication of the *Atlas of Anatidae Populations in Africa and Western Eurasia* (Scott and Rose 1996). This publication delineated units of population for each species of duck, goose and swan in the region on detailed maps, and also presented population estimates and tables of key sites for each population. The publication of *Goose populations of the Western Palearctic: a review of status and distribution* (Madsen *et al.* 1999) provided comprehensive information on geese, and similar atlases are planned for other waterbird taxa. A status review of wader populations in Africa and West Eurasia has been undertaken by the Wader Study Group of Wetlands International (Stroud *et al.* in prep.).

5.5 Globally threatened waterbirds

www.iucn.org/themes/ssc/

The detailed, long-term monitoring of waterbirds at wetlands, one of the world's most damaged and vulnerable groups of habitats, has already provided the basis for much important work by conservation practitioners at local, national and international levels. Important (and perhaps the most urgent) targets of conservation action are species in danger of extinction, listed in the publication *Threatened Birds of the World* (BirdLife International 2000), based on the criteria compiled by the World Conservation Union (IUCN). The globally threatened species in the Western Palearctic and Southwest Asia that are included in the IWC are listed below together with their IUCN threat status.

Threat Status: Critically Endangered

1. Northern Bald Ibis *Geronticus eremita*
2. Siberian Crane *Grus leucogeranus*
3. Slender-billed Curlew *Numenius tenuirostris*

Threat Status: Endangered

1. White-headed Duck *Oxyura leucocephala*

Threat Status: Vulnerable

1. Lesser White-fronted Goose *Anser erythropus*
2. Red-breasted Goose *Branta ruficollis*
3. Marbled Teal *Marmaronetta angustirostris*
4. Corncrake *Crex crex*
5. Sociable Lapwing *Vanellus gregarius*

Threat Status: Conservation Dependent

1. Dalmatian Pelican *Pelecanus crispus*

Threat Status: Near Threatened

1. Pygmy Cormorant *Phalacrocorax pygmeus*
2. Lesser Flamingo *Phoenicopterus minor*
3. Ferruginous Duck *Aythya nyroca*
4. Great Snipe *Gallinago media*
5. White-eyed Gull *Larus leucophthalmus*
6. Audouin's Gull *Larus audouinii*

Threat Status: Least Concern

1. Steller's Eider *Polysticta stelleri*

Status: Data Deficient

1. Black-winged Pratincole *Glareola nordmanni*

In 1996, a series of Action Plans for Europe's 26 most threatened bird species was published (Heredia *et al.* 1996). This publication was a joint project carried out by BirdLife International, in collaboration with Wetlands International, with the intention of forming the basis of conservation planning for these species at the international level, and providing a framework for detailed conservation planning at national level. Action Plans have been developed for another four species and are currently being finalised for a further 16 species and sub-species (Schaeffer and Gallo-Orsi, 2001).

Whilst IWC is able to provide information that is useful to the conservation of these threatened species, its main aim is to monitor the fortunes of more numerous and widespread species for which changes in status and distribution would otherwise go unnoticed.

5.6 Species of Conservation Concern (SPECs) and Important Bird Areas (IBAs)

Many waterbird species are readily counted, but this is not the case for most other groups of birds, and methods additional to counting are required to assess the conservation status of many bird species. Tucker and Heath (1994) identified species of regional conservation concern in Europe. They assessed population trends of species breeding in each European country using a questionnaire sent to species and national experts, whose responses were compiled into a five point scoring system representing increase, stability or decline. Information on wintering waterbird numbers was compiled for that publication from national waterbird count coordinators and from the IWC database. Criteria were developed to identify Species of European Conservation Concern (SPECs) according to their global and European status, and to the proportion of their total population that occurs in Europe. This methodology remains the best approach available for international analyses of populations of a majority of bird species, although national and international bird distribution atlases (e.g. Hagemeyer and

Blair 1997) are increasingly providing a more quantitative basis for population assessment.

Tucker and Heath (1994) examined the number of Species of European Conservation Concern with an Unfavourable Conservation Status that use seven types of habitat at some point in their life cycle. The habitat holding the highest number of these species was lowland farmland, but second on the list, with 75 species, was wetland. Tucker and Heath also examined threats to Species of European Conservation Concern which have substantially declining populations, and their analysis revealed that out of 29 types of threat identified, wetland drainage and land claim affected the third highest proportion of these declining species. Only agricultural intensification, hunting and persecution affected higher numbers of declining species. Birdlife International is currently working on an update of the population and threat status of European birds, which is due in 2003.

The cornerstone of site-based international bird conservation is the network of Important Bird Areas (IBAs) identified and inventoried by BirdLife International. Site-based conservation is very appropriate for waterbirds, and IWC count data have been used as a basis for the establishment of a great many wetland IBAs in Europe, Africa and the Middle East. Regional inventories of these IBAs are available (e.g. Evans 1994, Heath and Evans 2000, Fishpool and Evans, 2001) and an increasing number of national IBA inventories are also being published (e.g. Kalames 2000, Royal Society for the Conservation of Nature (Jordan) 2000). Kershaw *et al.* (1996) used IWC data to investigate site-specific changes in waterbird numbers at a selection of European IBAs in relation to the overall numbers of the species over their wider wintering ranges.

5.7 Relating waterbird count information to other ecological parameters

An increasing amount of work is being done on the causes of change in waterbird numbers. A number of conferences and workshops held in the 1990s included papers which sought to relate information obtained from

waterbird monitoring to ecological change and habitat loss.

Boere and Rubec (2002) present a list with research priorities that would serve bird conservation policy. Among these priorities are several aimed at research, closely linked with the IWC, on ecological parameters:

- Long-term influences of climate change (Sahel and Arctic) on bird populations; including an analysis of existing databases containing long-term monitoring data;
- Impacts of ecological changes in the wintering areas of migratory waterbirds;
- Impact of coastal and shallow-water fisheries (for flatfish) on wintering waterbirds;
- More work on the value of birds as bio-indicators.

Examples of research which has related waterbird numbers to causal factors include papers by Suter (1994) who explored the relationship between winter waterbird abundance and diversity and trophic status and morphology on the Swiss Lakes, and Fox *et al.* (1994) who examined the effects of food supply and recreational disturbance on the abundance and distribution of Common Pochard at one of the most important wintering sites in Britain, the Cotswold Water Park. The same site provided the basis for an analysis of wintering waterbird community structure and the characteristics of gravel pit lakes (Bell *et al.* 1997). Schekkerman *et al.* (1994) described how waterbird populations on the Oosterschelde (in the Southwest Netherlands) changed in response to large scale coastal engineering works. Goss-Custard *et al.* (1995) used a modelling approach to estimate population consequences of habitat loss and change on wintering waterbirds. Recently Svazas *et al.* (2001) published an overview of studies in Central and Eastern Europe, which revealed a northward shifting of distribution of certain wintering waterbird species. In the framework of the development of a core set of indicators for the EU by the European Environment Agency, waterbird trend data, generated from the IWC, are being used to create indicators that will assess the status of wetlands in Europe. Wetlands International is working on this with partners from the European Topic Centre on Nature Protection and Biodiversity (ETC NPB).

Methods

1. The species covered

IWC counts were confined for many years to Anatidae (swans, geese, ducks) and Common Coot *Fulica atra*. These are the taxa for which a long time-series of data exist and for which analyses of population trends are possible. Data on site importance are also most reliable for these species at present. Improvements in organisation, in the number and competence of observers, and possibly in the quality of optical equipment, caused widespread increases in the counting of waders from the 1970s onward. This was stimulated by the formation of the Wader Study Group in 1970 and by publications such as Prater (1981) and Hayman *et al.* (1986). Counts of waders have only been routinely included in the IWC database since 1989. Rapid development and restructuring of the decentralised wader database began in 1997, and waders are now almost fully included in the counts. As for waders, other waterbird taxa were gradually introduced into the IWC and from 1989 onwards counts included divers, grebes, pelicans, cormorants, egrets, herons, bitterns, storks, ibises, spoonbills, flamingos, cranes, rails, gulls and terns. In some countries wetland related passerines and raptors are now also recorded during IWC counts and are included in the IWC-database.

In this report, only the 'traditional' waterbird species groups, listed above, are presented. The sequence and nomenclature of species used in this report follows the *Handbook of the Birds of the World* (del Hoyo *et al.* 1992 and 1996) for the sequence of families. The scientific nomenclature and sequence of species within families mostly follow Sibley and Monroe (1990 and 1993)." However, there are some exceptions, where a different sequence or name has been adopted. A thorough upgrade and standardisation of the species list of the IWC towards a the common standard, set by *Handbook of the Birds of the World* (del Hoyo *et al.* 1992 and 1996) will be undertaken in the near future.

The taxonomy of 'large grey-backed gulls' in The western Palearctic, i.e. *Larus argentatus*, *Larus cachinnans* and *Larus fuscus*, is an ornithological problem which remains to be solved. In the IWC, counters and National Coordinators have different approaches to (sub)species identification of these gulls and data submitted to Wetlands International may contain different names for the same taxon. In this publication, the taxonomy presented in the *Handbook of the Birds of the World* (del Hoyo *et al.* 1996) is followed. In the IWC data, a taxon is assigned to either one of the three species if it is in a non-overlapping range of one of these species. In other cases, the identification remains unclear and the taxon is assigned to a 'complex' of two species.

2. The time period and geographical areas used in analysis

The waterbird data presented in this report cover the counts undertaken in January of the years 1997, 1998

and 1999. In the presentation of the results, the word 'region' is used to refer to the entire region covered by the counts, i.e., the Western Palearctic and Southwest Asia. The word 'area' is used to distinguish the six geographical units, into which the region was divided for the purpose of summarising numbers and distribution. Results are therefore presented for the following geographical units: 1) around 48 countries (1997–1999), representing the level of organisation of the counts, and 2) six areas, into which countries are grouped for the purposes of wider scale analysis. These areas, which are mapped in Figure 6, page 17, are similar to those used by Ruger *et al.* (1986) and followed by Monval and Pirot (1989) and Rose (1995) in previous analyses of waterbird count data from the region. These areas comprise: 1) Baltic/Nordic, 2) Northwest Europe, 3) Central Europe, 4) West Mediterranean, 5) East Mediterranean/Black Sea, and 6) Southwest Asia. The main advantage in using these areas is that it allows comparison to be made with results presented in previous reports. The areas used represent a sub-division of areas used in early analyses of IWC data in Europe (Atkinson-Willes 1976) but not in Southwest Asia.

3. Southwest Asia

Waterbird counts in Iran have been carried out since 1967, but in many other countries of 'Southwest Asia', regular waterbird counting only began in 1988 following the launch of the Asian Waterfowl Census a year earlier (van der Ven 1987, 1988). The numbers of waterbirds using this area are huge, and we still only have preliminary understanding of the importance of the Caspian shores of Russia, Kazakhstan, Turkmenistan and Azerbaijan (Gistsov and Auezov 1996, Paynter *et al.* 1996, Lebedeva and Butiev, 1998, Shubin, 1998). A special case is Iraq, where some of the most important wetlands of Southwest Asia are situated, but where monitoring has been very scarce, threats are high and huge wetlands have been destroyed (Scott and Carp 1982, Scott 1995, Evans 1995) (see Results, paragraph 4.5). There is considerable scope for increasing the frequency and consistency of waterbird counting in Southwest Asia, but a shortage of observers, the huge and inaccessible nature of many of the wetlands and widespread economic problems present considerable challenges to progress. More frequent and detailed feedback to counters will stimulate counting in the area, and at least two countries now produce annual reports on their midwinter counts (e.g. Grobler 2001; Emirates Bird Reports).

Development of analyses of count data from 'Southwest Asia' will be made as the quantity and quality of information from the area improve. The current geographical division is unsatisfactory in its separation of the east and west shores of the Red Sea, and there are good arguments for treating Southwest Asia together with East Africa for many species. Separation from the East Mediterranean and Black Sea area is also difficult to justify for some species. From a bio-geographical point of view, the IWC area Southwest Asia should include the part of

Russia bordering the Caspian Sea, but Russia is still considered to be part of the Baltic/Nordic area for technical reasons. The same applies to the part of Russia bordering the Black Sea, which should be part of the East Mediterranean and Black Sea area. Drawing lines on maps is often problematical, and the current treatment has at least as many positive as negative aspects. Because the avifauna of this part of western and central Asia has close affinities with the Western Palearctic, and because the area is included under AEW, counts from countries on the Arabian Peninsula, Iran, Turkmenistan, Uzbekistan, Kazakhstan, Tajikistan and Kyrgyzstan have been included in this report in the area called 'Southwest Asia'. Azerbaijan and Iraq were included in the Western Palearctic by Cramp *et al.* (1977), but in this report we have followed Perennou *et al.* (1994) in including these two countries in Southwest Asia. The area defined as 'Southwest Asia' is thus identical to that recognised by Perennou *et al.* (1994) except for the exclusion of Afghanistan, where no waterbirds have been counted since 1976. This represents a slight eastward extension of the areas covered by international overviews produced in earlier 'Western Palearctic and Southwest Asia' analyses (Rose and Taylor 1993, Rose 1995).

4. Field methods

The major contributors to waterbird monitoring in western Europe and parts of Southwest Asia are volunteer birdwatchers who participate because they find counting birds enjoyable and rewarding. In most countries the census is coordinated professionally, and in many countries, particularly in eastern Europe,

professionals also carry out much of the fieldwork (although often on a voluntary basis, in their own time). The methodology requires a single count at each site each winter in the month of January. IWC is a so-called 'look-see survey' (Bibby *et al.* 2000), whereby observers visit a site and make a count of every waterbird species present.

One of the most important principles in the IWC methodology is standardisation, so that the same sites are covered in the same way each winter, maximising the validity of comparisons of counts from site to site and from year to year. Standardisation is ensured by the use of rigorously designed recording forms, and by the use of a network of national organisers who liaise with counters and ensure that optimum coverage is maintained. At the national level, responsibility is often divided between a number of local organisers. At large sites which are divided into sub-sites, good organisation and teamwork play an important part in the success of counts.

5. Interpretation of waterbird counts

Waterbird counts are long established and internationally recognised as an objective and scientifically valid method of assessing the sizes of waterbird populations and the importance of wetlands, but the interpretation of waterbird count data nevertheless requires considerable caution.

5.1 Counting errors

Counting birds, as is the case with all scientific recording methods, is subject to error. Experienced counters are

Waterbird counters returning home after high tide count at Kneiss, Tunisia.



able to enumerate high numbers of birds under pressure of time with considerable accuracy. Prater (1979) conducted experiments with observers viewing photographs of flocks of flying birds and concluded that there may be a tendency for observers counting flocks of between 100 and 1,000 birds to under-estimate slightly (on average, 8%), and for counts of bigger flocks of a few thousand upward to be slightly over-estimated. Rappoldt *et al.* (1985) compared estimated numbers with real flock sizes and concluded that on average, counting errors cancel one another out and that estimates are usually correct. Counting errors can be considerable and Rappoldt *et al.* (1985) reported average counting errors of waders in flight of 17%, and of birds concentrated densely in roosts of up to 37%. Summaries of count data at national and international level often comprise estimates made at hundreds, even thousands of sites, where it is reasonable to assume that random counting errors to some extent cancel one another out. Research on counting errors has been minimal, and it would be valuable to conduct more detailed experiments with counters of varying experience.

The method of counting has a big influence on the accuracy of species identification and the recorded numbers. Aerial and boat surveys on big wetlands are generally limited by difficulties identifying big or mixed flocks of birds, due to disturbance and the distance from the flocks.

5.2 Factors which cause under-estimation

The behaviour of some species makes them difficult to count. Snipes and rails, for example, are inclined to skulk in dense vegetation and a high proportion may be missed by normal counting methods. Some species habitually feed at non-wetland sites; geese, swans, Northern Lapwing *Vanellus vanellus* and Eurasian Golden Plover *Pluvialis apricaria* are conspicuous examples in Europe. Other waterbird species, for example divers *Gaviidae* and seabirds e.g. *Melanitta* species, *Somateria* species, spend a lot of time far out at sea beyond the range of telescopes, or, if feeding, remain much of the time below the water surface. At large tidal sites, unless the areas used by roosting waterbirds, particularly waders, are known, birds are easily missed at high tide. If the roosts are known and accessible, however, high tide (or during the incoming tide) is often the best time to count such sites.

Migratory waterbirds pass through many wetlands *en route* to their breeding or wintering grounds and although, as a result of this turnover, the number of birds present at any one time may never exceed 20,000 birds or 1% of a population, the wetland may still be supporting internationally important numbers of birds. In the case of Barnacle Geese *Branta leucopsis* wintering in The Netherlands, Ebbsing (1985) showed that at one site, although no more than 10,000–20,000 birds were present at the same time, the total number of birds using the area was about 40,000, which was about 60% of the Dutch wintering population at that time. Davidson *et al.* (1991) reviewed the question of turnover at individual estuaries in Britain and concluded that “in general, a larger, and sometimes a very much larger, proportion of each

waterfowl population than is apparent at any one time depends on each estuary in the network used during the non-breeding season.” And that “Overall the implication is that many estuaries which fall below the 1% criterion on the basis of peak monthly counts alone, in reality support more than 1% of the relevant populations during the course of a year and so will qualify as nationally or internationally important.” One reason why IWC concentrates on counts made in the month of January is to minimise the effects on the counts of turnover, since this is the time of least between-site movement by most waterbird species in the Western Palearctic. Close international synchronisation of counts also ensures that the effects of turnover are minimised.

At national level, organisers and observers decide which sites to count on the basis of their perceived importance for waterbirds and on practical factors such as accessibility. Inaccessible sites and those which are perceived to be unimportant for waterbirds thus produce an unknown element in the national waterbird totals each season. Moser (1987) was able to calculate upward revisions of most species of shorebird wintering in the UK following a major survey which covered almost the entire coastline. Colhoun and Newton (2000) have recently conducted a similar exercise in Ireland.

These factors mean that counts may be under-estimates of the number of birds using a site, and this is why maximum counts are often used when assessing the importance of a site or the size of a waterbird population. Factors causing under-estimation can often be assumed to be constant over a range of sites and years, so that while under-estimates may occur, comparisons between sites and years usually remain valid.

5.3 Delimitation of site boundaries

Another factor which can cause problems when interpreting waterbird count data is the delimitation of site boundaries. Sites such as large lakes and estuaries are usually self-contained and have fairly obvious physical boundaries, but in some areas, the best boundaries to use are not clear-cut. Vinogradov (1996) described an immense network of wetlands in Siberia where the delimitation of ‘sites’ is not very meaningful. This is an extreme example, but rivers, stretches of open coast, and groups of small lakes are more frequently encountered examples of the type of area where site boundaries may be difficult to define. Coverage of these sites may not have been the same in different years, but it can be difficult to discern at what point in time changes in coverage occurred. Political boundaries often follow rivers and lakes, and this can complicate organisation and reporting of counts at the sites affected, resulting in partial or disjointed coverage, or double counting. The encouragement of mapping and careful keeping of records of count site boundaries have in recent years led to improvements in site definition which will continue in future. A need still exists to establish and maintain inventories (including detailed maps) of the geographical units which form the basis of every national waterbird monitoring scheme. During 2002, a project on this issue titled “The International Waterbird Census: Waterbird Count Site Delimitation and Guidelines for National

Coordinators", was being carried out and results will be published at the end of 2002 (Van Ledden, in prep.).

Inconsistent use of site names by counters results in the loss of valuable data every season. Changes in counters and organisers, and transliterations into English from other languages and scripts can result in the site appearing several times in the database under slightly different names. An extreme example from Iran is a site known in English as Arigan, Arjan, Dasht-e Arjan or Dasht-i Arjan.

The problems with obtaining consistent site coverage and consistent site definition are the most important threats to the scientific quality of the IWC data. Wetlands International is developing plans to further extend and standardise the geographical coverage and improve the data management, for instance through use of a GIS.

6. Methods used in the analyses

6.1 Species totals

For summarising the count totals, data collected in January were used in the vast majority of cases, but occasionally only data from December or February were available. Most countries do their censuses within the standard period around the middle of January. However, in some countries counts are done outside this standard period, for instance when light conditions are not favourable (Arctic Norway) or when capacity to count is too low to cover all the sites within the period. In these cases counts from December and February are included in the results. In rare cases results from counting expeditions are included in the IWC database when no other data are available. Not all countries count the same range of waterbird species groups. Waders, herons, rails, gulls, divers and grebes are less widely covered than the traditional IWC species groups: Anatidae and Common Coot. Some countries only provided certain data at the level of national totals and not at site level (mainly geese and gulls). This has to be taken into account when

interpreting the tables and the maps (see below). Species not belonging to the traditional IWC waterbird groups such as raptors and passerines are omitted from the tables.

6.2 Coverage and distribution maps

In this report waterbird site coverage and distribution recorded during the IWC are presented on maps. For most IWC sites, geographical (centre) coordinates are included in the IWC database and can be used for plotting count results on maps using a mapping program (Maptitude). However, for several countries, site data are not up to date and coordinates are not or are only partially available, so site totals could not be plotted on the map. In most cases, the general picture shown in a map is not significantly influenced by this, as the surrounding sites will compensate for the few missing dots.

The site coverage maps are produced to show which sites were counted in 1997, 1998 and 1999 and which not. For each of the six IWC areas and for each of the three years, a map is presented showing the total set of sites in the IWC database and the set of sites which were counted in one or more of the three years. This will help interpretation of the presented numbers and distribution, because the maps will reveal gaps in coverage.

The dots on the species distribution maps represent the maximum count at each site over a period of three years, so the distribution shown, is generally the result of records accumulated over three winters, except for those sites with fewer than three counts. Thus, the maps show an 'average' distribution, without specific information on distribution in a separate winter. Because some countries only submitted data for one or two years, separate maps would only show a reduced distribution. Moreover, accumulation of the available data shows as complete as possible a range of a species in one map. On the other hand, for some species cumulative maps can show an exaggerated distribution range, as a result of combining distribution in mild and cold winters.

Results

In this chapter the results of the International Waterbird Census in January 1997, 1998 and 1999 are presented and briefly discussed.

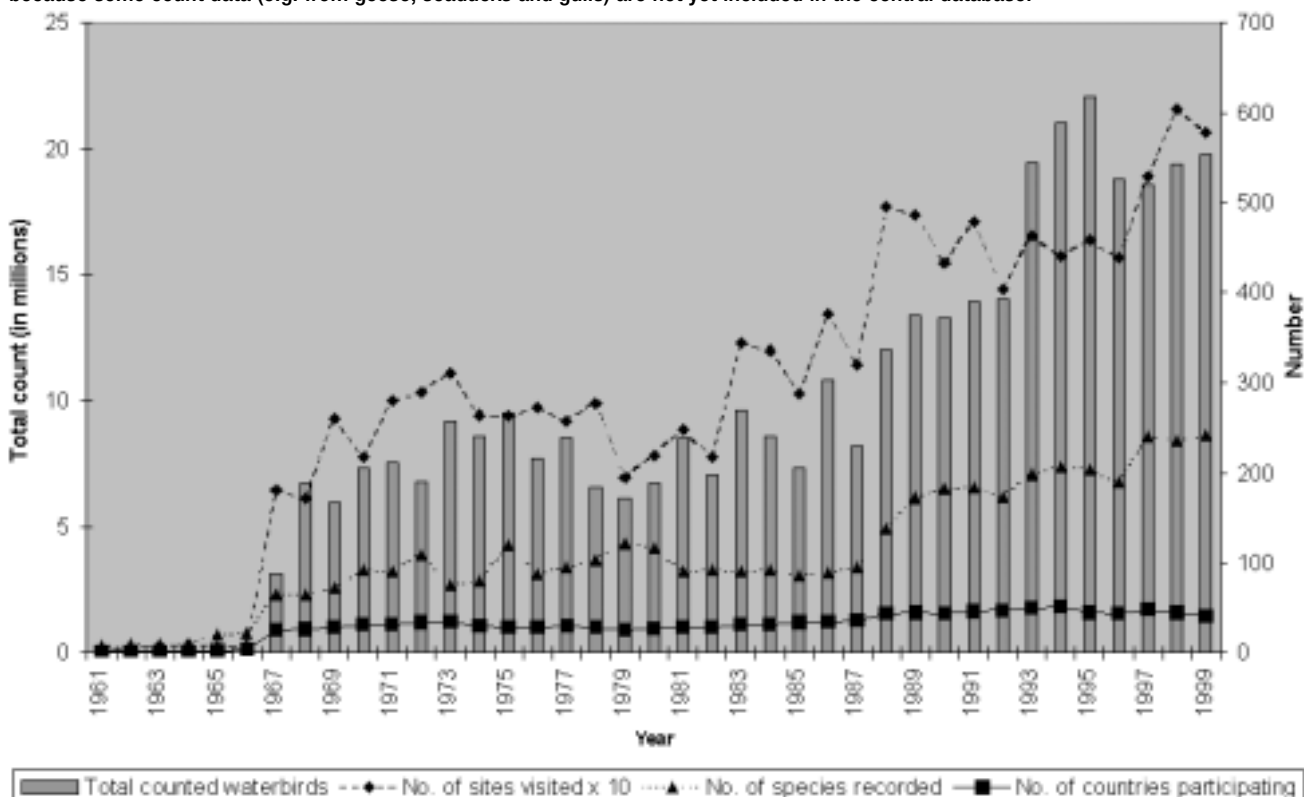
1. General coverage in 1997–1999

A summary of the data contained in the IWC database is presented in Figure 1. The increase in number of birds, sites and species counted from the 1980s onward is evident. During 1997, 1998 and 1999, more species, e.g. seabirds, passerines and raptors, have been submitted and subsequently included in the database but the very partial results for these groups are not presented. The relatively low total counts for 1997–1999 presented in the graph are due to the absence in the database of some data on geese, seaducks and waders. The actual totals for these years are higher, 22 to 23.5 million. A total of 47 countries submitted data for this period, which is the same as in the previous two years (Delany *et al.* 1999). The increase in number of countries stopped and has stabilised in the five years before 1999. There are still many countries that do not, or only occasionally, organise counts. This is reason for concern as a high priority is to get the cooperation of as many countries as possible to obtain a high level of coverage. To give an idea of how long each country has contributed to the IWC, the number of years per country for which data is included in the IWC database is presented in Annex IV.

2. Weather conditions in the winters of 1997–1999

The extent of freezing of wetlands greatly influences the distribution of waterbirds in the whole region (Delany *et al.* 1999). Cold weather movements, i.e. birds leaving an area with frozen wetlands to settle in milder areas, is a common behaviour for many waterbird species, Ridgill and Fox 1990. The effects of weather conditions on count totals are not always easy to interpret. For example, in some East European countries, hard weather concentrates birds at a few unfrozen sites where they are relatively easy to count. During milder weather, these birds disperse to more sites and a proportion may be missed by counters. Thus, hard weather may reduce the number of birds counted in a country, but may also result in higher counts because of the concentration of birds at a relatively small number of easily counted sites (Delany *et al.* 1999). Figures 2–5 present the positions of the zero degrees isotherm, in the first half of January, averaged over a long term period from 1979 to 1995, and averaged over a ten day period prior to the official census date, for 1997, 1998 and 1999 (Images provided by the NOAA-CIRES Climate Diagnostics Center, Boulder, Colorado, USA, from their Web site at <http://www.cdc.noaa.gov/>). This gives an indication of the areas where the majority of wetlands were frozen, i.e. unsuitable for waterbirds. In the cold winter of 1997 the isotherm was situated much more to the south and west than in the following two seasons, causing an extension of the area

Figure 1. Data held in the IWC database on waterbirds in the Western Palearctic and Southwest Asia, shown as number of countries, number of sites and number of species and total count of all the birds. Note that the actual count totals are higher than in the graph, because some count data (e.g. from geese, seaducks and gulls) are not yet included in the central database.



with frozen wetlands, compared to average years (Figure 2). In The Netherlands, even parts of the Wadden Sea and the Rhine-Maas Delta were frozen (SOVON Ganzen- en Zwanenwerkgroep 1998). The winter of 1998 was mild and many wetlands in the Baltic and Nordic area were not frozen in January (Figure 4). The winter of 1999 showed a more average position of the isotherm prior to the count date.

3. Count totals

Results from the counts in 1997–1999 are presented in Tables 1–7. All IWC species are presented in these tables, including subspecies, hybrids, birds not identified to the species level and non-native species. Table 7 gives an overview of the species totals per area and for the whole region.

In 1997, 1998 and 1999, totals of 22 to 23.5 million waterbirds of more than 230 species were counted in the region. Species with totals over a million were (maximum total after each species):

European White-fronted Goose	1,341,107
Eurasian Wigeon	1,649,528
Mallard	2,282,015
Common Coot	2,948,832
Northern Lapwing	1,242,901
Dunlin	1,300,951
Black-headed Gull	1,432,781

Swans

This group is quite well monitored, except for Whooper Swan and Mute Swan in Southwest Asia. Counts fluctuated between 190,000 and 230,000 in 1997–1999.

Geese

The total number of geese counted (excluding non-native geese) fluctuated around 3 million in 1997–1999. The coverage of most species was good, except for Greylag Goose, Red-breasted Goose and Lesser White-fronted Goose.

Seaducks

Seaducks are not consistently monitored by the IWC, because of the offshore occurrence of most species. Some, but not all, countries important for seaducks conduct special (aerial) seaduck surveys on a regular basis. The numbers recorded are generally not representative of the actual number of birds present, however they can give an indication of distribution and trends. Numbers recorded in 1997–1999, around 1.2 million, were quite stable.

Ducks and Common Coot

Traditionally, these are the species with the longest tradition of coverage by the IWC. A total of 7.5 to 8 million ducks (excluding non-native ducks) and 2 to 3 million Common Coots were counted in each year.

Waders

An increasing number of waders are counted by the IWC, mainly as a result of increasing coverage. However, there are still considerable gaps in the coverage of this group. A total of 4.2 to 5.2 million waders were counted between 1997 and 1999.

Gulls and terns

A majority of countries include gulls in their counts during the IWC. The number recorded is increasing and totals varied between 2.3 and 2.8 million in 1997–1999.

Other waterbird species

More and more countries include other waterbird species groups (i.e. divers, grebes, pelicans, cormorants, herons, storks, ibises, spoonbills, flamingos, cranes and rails) in the IWC and coverage of most species is quite good. Over 4 to 5 million birds from these groups were counted in 1997–1999.

Noteworthy count totals

Particularly high local or regional totals of the following species were counted, equalling or exceeding the current population estimate (Wetlands International in prep.):

Pygmy Cormorant: Thanks to a special survey in Greece, the total count for East Mediterranean and Black Sea in 1998 was over 37,000 birds, which is higher than the current population estimate for this area (22,110–36,270);

Ruddy Shelduck: The records in Iran of more than 35,000 birds in 1997 and more than 82,000 birds in 1998 are spectacular, the latter more than doubles the current population estimate for the population in the Caspian region (35,000);

Red-crested Pochard: The rapidly increasing West Mediterranean and Central European population was estimated at 25,000 birds, however, the IWC total for 1999 was more than 37,000, and the new estimate was doubled to 50,000;

Red Knot: The region total for 1999 (over 420,000) meant a significant increase compared to the previous years, which is mainly due to a record count of over 144,000 in The Netherlands in 1999. Although the total recorded in 1999 nearly equals the current population estimate, more recent count data indicate a sharp decrease in The Netherlands from 2000 to 2002;

Dunlin: The totals for the Northwest Europe and West Mediterranean areas (1.2 to 1.3 million) were just below or equal to the latest population estimate (app. 1.3 million).

4. IWC status, count coverage and highlights per area and country

In this section information is presented on the status, census coverage and some results of the IWC for all countries in the Western Palearctic and Southwest Asia region, with emphasis on the counts in 1997–1999. A map showing the region and the countries, from which data has been included in this report, is shown in Figure 6. For all the areas, a map is presented showing the coverage per year and the total set of IWC sites counted since 1967 (Figures 7–24). Only sites with correct coordinates are depicted on the map (see Results paragraph 5 for details of countries with missing sites).

4.1 Baltic/Nordic

The Baltic and Nordic area generally had good coverage for the IWC in 1997–1999, however, (partial) gaps exist in Finland, Kaliningrad, Russia and Poland. Results of counts in this area are presented in Table 1 and the coverage in the three years is presented in Figures 7–9. The extent of

freezing of wetlands in the southern and central parts can vary considerably, which is reflected in waterbird numbers. The winter of 1997 was cold, causing birds to migrate to milder areas (see Figure 2), whereas the winter of 1998 was particularly mild, resulting in generally more waterbirds being present.

Belarus

The IWC in Belarus is still under development. There is an active group of researchers working on wintering waterbirds (e.g. Svazas *et al.* 2001) and some data have been sent to Wetlands International, however these have not yet been included in the IWC-database because of lack of site information. In 1998 up to 25,000 Mallards were counted (Kozulin in litt).

Denmark

Since 1993 Denmark has had a consistent coverage of around 46 of the 48 sites included in the reduced count scheme. This also applies for the years 1997–1999. Special seaduck surveys are only conducted in years with countrywide surveys of which the latest was in 1992. It is an important country for ducks and Common Coot and has the highest total count of all species together for the Baltic countries, comprising 300,000 to 600,000 birds in years with reduced counts and several million in years with countrywide counts. The numbers recorded in 1997 (262,664) were considerably lower than in the following two years. This follows the general pattern in Denmark with low totals in severe winters and the following years (1996 and 1997 were severe winters).

Estonia

The coverage in Estonia showed considerable fluctuations during 1997–1999; respectively 20, 96 and 46 sites were included in the database (Figure 7–9). This was most likely due to the weather during the counting period: cold in 1997, relatively mild in 1998 and more or less normal in 1999 (Figures 2–5). Only the non-frozen coastal sites were counted in 1997, holding 23,017 birds, whereas in 1998 and 1999 respectively 84,737 and 69,197 birds were counted. Estonia is important for Steller's Eider with more than 4,000 birds in 1998.

Finland

The IWC-database contains data from Finland from 1987 till 1993, mainly from around 100 sites (comprising many islands) off the south-coast. Due to the winter conditions in Finland the numbers hosted by these sites were not high, and totalled up to 12,000–14,000 in normal winters. Winter waterbird monitoring is thus not a high priority in Finland, and since 1993 no IWC-data have been received by Wetlands International. Efforts are being made to re-establish the flow of data from Finland.

Kaliningrad

Submission of general waterbird data from Russia's Baltic enclave of Kaliningrad ceased after 1994. In 1993 up to 14,000 birds were counted. Seaducks are still being counted and relatively small numbers are recorded, with Long-tailed Duck being the most numerous with 1,892 birds in 1999.

Latvia

The coverage in Latvia over 1997–1999 was consistent with approximately 110 sites counted each year. The

number of waterbirds counted in these years fluctuated between 35,000 and 50,000. Surprisingly, there does not seem to be a strong relation between weather conditions and numbers of birds counted.

Lithuania

Since 1994 there has been a consistent coverage of seven large sites, producing up to 100,000 birds depending on the winter conditions. More than half of those birds are seaducks, including important numbers of Steller's Eider (2,059 in 1997) and 60–70% of the total counted numbers of Velvet Scoter (43,920 in 1999).

Norway

The Norwegian counts submitted to the IWC-database lack data on species other than Anatidae and Common Coot. Norwegian counters cover around 300 coastal sites every year. Sites that cannot be counted in January, due to the darkness of the polar winter, are counted in February and some even in March. In the results of 1997–1999 data are presented from January and February only. Totals were in the range of 50,000 to 60,000 birds. The highest total was recorded in the cold winter of 1997, probably caused by immigration of birds from frozen areas. Numbers of Steller's Eider are the highest in the region, the maximum of 4,483 was counted in 1998. Norway and, to a lesser extent, Russia, are the only countries where King Eider is recorded, with nearly 5,000 birds present in Norway in 1997.

Poland

The coverage of Poland showed a 30% decrease in 1999, with no counts from the northwestern part of the country. All species showed lower numbers in 1997 than in 1998–1999, probably because of the cold (the national totals are influenced by the record of more than 55,000 Bean Geese in 1997). The high numbers of Long-tailed Duck recorded in 1994–1996 were not recorded in 1997–1999, only 3,000 to 4,000 birds were counted in the latter period, contrasting with the 46,238 counted in 1995 (Delany *et al.* 1999). It is not yet clear whether this is a result of reduced coverage, for example less effort in conducting seaduck surveys, or whether it is a real decrease in numbers of birds present.

Russia (excluding Kaliningrad)

Coverage in Russia has been fluctuating ever since participation in the IWC started. In most winters, the majority of wetlands will be frozen, with the exception of some coastal sites in the White Sea, Black Sea, Caspian and Baltic areas. During the reporting period limited counts were done in 1997 in the White Sea area only, producing a total of nearly 3,000 birds. Noteworthy was the total of 304 King Eiders.

Sweden

Sweden has one of the most consistent and comprehensive schemes of the Baltic and Nordic area; data go back to 1967 and coverage has been very consistent. The totals were in the range of 240,000 to 315,000 in 1997–1999. Long-tailed Duck is counted in high numbers, reaching a maximum of 23,509 in 1997. The counts of 70,000 to 90,000 Tufted Ducks are comparable to the numbers recorded in Denmark.

Table 1. Species counts per country, and area totals, Baltic and Nordic area.

		Denmark			Estonia			Kaliningrad			Latvia			Lithuania		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Black-throated Diver	<i>Gavia arctica</i>		2	1		5	1				1	31	239	207	137	
Red-throated Diver	<i>Gavia stellata</i>			1	1	90	80			18	18	88	148	64	136	
unidentified divers	<i>Gavia</i> spp.		6			2	2			46	1,228	1,877	212	232	100	
Little Grebe	<i>Tachybaptus ruficollis</i>	154	193	291						1	1	1	15	16	35	
Red-necked Grebe	<i>Podiceps grisegena</i>		2	2		4	1					4			7	
Great Crested Grebe	<i>Podiceps cristatus</i>	2	445	261	2	13	8				38	91	899	739	2,261	
Slavonian Grebe	<i>Podiceps auritus</i>			1									30	41	58	
Black-necked Grebe	<i>Podiceps nigricollis</i>			1											1	
unidentified grebes	<i>Podicipedidae</i> spp.		3	1						3				29	7	
Great Cormorant	<i>Phalacrocorax carbo</i>	171	1,102	1,736	10	89	68			2	5	37	43	34	25	
European Shag	<i>Phalacrocorax aristotelis</i>															
Grey Heron	<i>Ardea cinerea</i>	114	800	510	1	5	1			5	7	2	42	103	62	
Great White Egret	<i>Casmerodius albus</i>															
Eurasian Bittern	<i>Botaurus stellaris</i>															
Whooper Swan	<i>Cygnus cygnus</i>	8,424	6,472	5,797	45	415	161			13	38	14	23	773	753	
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>	24	281	61	1	20	3						5	50	65	
Mute Swan	<i>Cygnus olor</i>	25,629	21,995	29,404	1,519	5,263	3,355						935	1,166	885	
Yellow-billed Swans	<i>Cygnus cygnus/bewickii</i>		26				350			338	2,338	536				
unidentified swans	<i>Cygnus</i> spp.					350					29					
Tundra Bean Goose	<i>Anser fabalis rossicus</i>	4	6	2												
unidentified Bean Goose	<i>Anser fabalis</i> ssp.	19,948	6,214	8,277		6	6						21	82	14	
Pink-footed Goose	<i>Anser brachyrhynchus</i>	37	25,961	28,516												
European White-fronted Goose	<i>Anser albifrons</i>	400	1,291	1,307								1				
Lesser White-fronted Goose	<i>Anser erythropus</i>															
Greylag Goose	<i>Anser anser</i>	922	7,246	7,865											71	
Snow Goose *	<i>Anser caerulescens</i>		4	6												
unidentified grey geese	<i>Anser</i> spp.			9												
Barnacle Goose	<i>Branta leucopsis</i>	9,626	27,347	22,739											3	
Dark-bellied Brent Goose	<i>Branta bernicla bernicla</i>	235	1,876	1,639												

* an unknown proportion of Snow Geese in the region are of captive origin.

Table 1 continued. Species counts per country, and area totals, Baltic and Nordic area.

		Denmark			Estonia			Kaliningrad			Latvia			Lithuania		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Light-bellied Brent Goose	<i>Branta bernicla hrota</i>	495	3,617	3,854												
Red-breasted Goose	<i>Branta ruficollis</i>		1													
Common Shelduck	<i>Tadorna tadorna</i>	8,200	17,459	14,047	2						1					
Eurasian Wigeon	<i>Anas penelope</i>	1,672	23,410	10,345		1										3
Gadwall	<i>Anas strepera</i>			7												5
Common Teal	<i>Anas crecca</i>	182	732	464		3				16	3	2				
Mallard	<i>Anas platyrhynchos</i>	29,571	39,033	51,485	2,068	2,499	1,458			5,389	7,322	5,344	3,092	5,954	5,954	
Northern Pintail	<i>Anas acuta</i>	33	228	249												
Northern Shoveler	<i>Anas clypeata</i>		4	3												
Common Pochard	<i>Aythya ferina</i>	4,355	7,705	6,878		3	3			4	2	6	8			3
Tufted Duck	<i>Aythya fuligula</i>	44,050	79,500	77,069	101	133	61			15	58	74	47	67	17	
Greater Scaup	<i>Aythya marila</i>	21,243	1,103	2,689	243	542	119			67		2		12	24	
unidentified pochards	<i>Aythya</i> spp.				12						224					
Steller's Eider	<i>Polysticta stellerii</i>				2,663	4,244	1,082			1		1	2,059	1,663	1,490	
Common Eider	<i>Somateria mollissima</i>	24,449	51,895	24,594	5	78	2				5	4	239	4	31	
King Eider	<i>Somateria spectabilis</i>					1										
Common Scoter	<i>Melanitta nigra</i>	99	5	169	52	551	22	26		6	9	141	150	305	40	96
Velvet Scoter	<i>Melanitta fusca</i>		8	17	113	770	182	132	87	130	149	55	257	35,268	43,920	39,080
unidentified Scoter	<i>Melanitta</i> spp.					80	80				18	8	160			
Long-tailed Duck	<i>Clangula hyemalis</i>		104	13	7,901	46,732	42,202	1,040	1,608	1,892	5,458	2,616	8,110	33,940	30,012	31,150
Common Goldeneye	<i>Bucephala clangula</i>	16,155	27,862	32,743	5,754	6,766	5,410	214	413	672	1,358	1,771	6,526	1,714	1,884	2,506
Smew	<i>Mergellus albellus</i>	115	297	315	131	215	170	12	6	2	31	6	12	442	712	107
Red-breasted Merganser	<i>Mergus serrator</i>	883	4,828	2,044	247	753	575				66	74	481	132	30	29
Goosander	<i>Mergus merganser</i>	5,139	4,222	7,189	1,296	3,058	2,385	740	386	232	11,824	1,423	7,236	10,249	15,051	16,312
R-b Merganser/Goosander	<i>Mergus serrator/merganser</i>										43	26	1,055			
unidentified ducks	<i>Anatinae</i> spp.				6						7,280	1,576	987			
Common Crane	<i>Grus grus</i>															
Water Rail	<i>Rallus aquaticus</i>	2	2													1

Table 1 continued. Species counts per country, and area totals, Baltic and Nordic area.

		Denmark			Estonia			Kaliningrad			Latvia			Lithuania		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Moorhen	<i>Gallinula chloropus</i>	5	7	7							1					
Common Coot	<i>Fulica atra</i>	29,901	41,359	53,883		12	1				5	4	8	1,404	1,388	755
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	18,388	29,139	27,280												
Northern Lapwing	<i>Vanellus vanellus</i>	17	520	74												
Eurasian Golden Plover	<i>Pluvialis apricaria</i>		2,081													
Grey Plover	<i>Pluvialis squatarola</i>	1	114													
Bar-tailed Godwit	<i>Limosa lapponica</i>		1,093	2,040												
Eurasian Curlew	<i>Numenius arquata</i>	3,570	2,845	2,081												
Redshank	<i>Tringa totanus</i>	1,529	559	535												
Green Sandpiper	<i>Tringa ochropus</i>															
Ruddy Turnstone	<i>Arenaria interpres</i>	1														
Eurasian Woodcock	<i>Scolopax rusticola</i>									1						
Common Snipe	<i>Gallinago gallinago</i>	6	65	20												
Red Knot	<i>Calidris canutus</i>	4,000		3,250												
Sanderling	<i>Calidris alba</i>	40	1,110	704												
Purple Sandpiper	<i>Calidris maritima</i>					103	103									
Dunlin	<i>Calidris alpina</i>	1,436	34,555	20,382												
Common Gull	<i>Larus canus</i>	1,392	5,444	716	109	3,201	3,100				758	2,310	6,429			
Herring Gull	<i>Larus argentatus</i>	1,952	6,745	3,052	658	7,736	7,221				1,544	5,627	5,636			
Lesser Black-backed Gull	<i>Larus fuscus</i>				4	5	4				3	6	49			
Great Black-backed Gull	<i>Larus marinus</i>	441	705	189	73	598	593				613	282	450			
Glaucous Gull	<i>Larus hyperboreus</i>					1	1									
Black-headed Gull	<i>Larus ridibundus</i>	844	5,527	1,492		377	377				144	42	357			
Little Gull	<i>Larus minutus</i>					2						3	11			
Black-legged Kittiwake	<i>Rissa tridactyla</i>					1										
unidentified gulls	<i>Larus spp.</i>	450									2,601	8,145	3,580			
Non-native species	Total	286,306	495,155	458,306	23,017	84,727	69,187	2,164	2,500	2,934	37,823	35,434	49,610	91,511	104,273	102,182
Canada Goose	<i>Branta canadensis</i>	27,787	12,599	21,090		10	10					2		4		81
Total non-native species		27,787	12,599	21,090	0	10	10	0	0	0	0	2	0	4	0	81

Table 1 continued. Species counts per country, and area totals, Baltic and Nordic area.

		Norway			Poland			Russia 1997	Sweden			Overall area totals		
		1997	1998	1999	1997	1998	1999		1997	1998	1999	1997	1998	1999
Black-throated Diver	<i>Gavia arctica</i>				2	12	1		7	37	13	248	264	184
Red-throated Diver	<i>Gavia stellata</i>								12	72	51	179	244	356
unidentified divers	<i>Gavia</i> spp.					1						258	1,469	1,979
Little Grebe	<i>Tachybaptus ruficollis</i>				132	150	135		20	9	16	322	369	478
Red-necked Grebe	<i>Podiceps grisegena</i>					1	1		6	22	9	6	29	24
Great Crested Grebe	<i>Podiceps cristatus</i>				112	1,177	1,438		527	692	946	1,542	3,104	5,005
Slavonian Grebe	<i>Podiceps auritus</i>				5		1		12	8	8	47	49	68
Black-necked Grebe	<i>Podiceps nigricollis</i>						2							4
unidentified grebes	<i>Podicipedidae</i> spp.											3	32	8
Great Cormorant	<i>Phalacrocorax carbo</i>				145	981	1,565	4	4,478	5,057	3,803	4,853	7,268	7,234
European Shag	<i>Phalacrocorax aristotelis</i>							2				2		
Grey Heron	<i>Ardea cinerea</i>				242	811	657		130	605	441	534	2,331	1,673
Great White Egret	<i>Casmerodius albus</i>					1	1						1	1
Eurasian Bittern	<i>Botaurus stellaris</i>				2				3			5		
Whooper Swan	<i>Cygnus cygnus</i>	409	318	473	487	1,535	293		1,596	2,133	1,108	10,997	11,684	8,599
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>			1	409		4			7		439	358	134
Mute Swan	<i>Cygnus olor</i>	365	476	343	3,467	5,308	4,383		7,599	13,539	10,367	39,514	47,747	48,737
Yellow-billed Swans	<i>Cygnus cygnus/bewickii</i>											338	2,364	886
unidentified swans	<i>Cygnus</i> spp.												379	
Tundra Bean Goose	<i>Anser fabalis rossicus</i>				55,237							55,241	6	2
unidentified Bean Goose	<i>Anser fabalis</i> ssp.				2,869	9,077	26,412		8,925	22,648	15,189	31,763	38,027	49,898
Pink-footed Goose	<i>Anser brachyrhynchus</i>								30	40	28	67	26,001	28,544
European White-fronted Goose	<i>Anser albifrons</i>				9,903	174	550					10,303	1,465	1,858
Lesser White-fronted Goose	<i>Anser erythropus</i>					1				1			2	
Greylag Goose	<i>Anser anser</i>				1	91	22			2		923	7,339	7,958
Snow Goose *	<i>Anser caerulescens</i>												4	6
unidentified grey geese	<i>Anser</i> spp.					7,259	330						7,259	339
Barnacle Goose	<i>Branta leucopsis</i>								16	61	1	9,642	27,408	22,743
Dark-bellied Brent Goose	<i>Branta bernicla bernicla</i>											235	1,876	1,639

* an unknown proportion of Snow Geese in the region are of captive origin.

Table 1 continued. Species counts per country, and area totals, Baltic and Nordic area.

		Norway			Poland			Russia	Sweden			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1997	1998	1999	1997	1998	1999
Light-bellied Brent Goose	<i>Branta bernicla hrota</i>											495	3,617	3,854
Red-breasted Goose	<i>Branta ruficollis</i>												1	
Common Shelduck	<i>Tadorna tadorna</i>	2	1	17		10			2	286	72	8,206	17,757	14,136
Eurasian Wigeon	<i>Anas penelope</i>	1,334	1,534	1,126		244	9		1,392	4,784	4,339	4,398	29,973	15,822
Gadwall	<i>Anas strepera</i>				1	5	5			13	3	1	18	20
Common Teal	<i>Anas crecca</i>	135	182	327	242	401	375		69	22	159	644	1,343	1,327
Mallard	<i>Anas platyrhynchos</i>	11,063	10,937	12,855	30,845	64,792	57,096		45,551	64,435	70,254	127,579	194,972	204,446
Northern Pintail	<i>Anas acuta</i>	2	1	6	1	2	4		5	1	5	41	232	264
Northern Shoveler	<i>Anas clypeata</i>					13							17	3
Common Pochard	<i>Aythya ferina</i>				256	598	232		1,267	1,692	2,342	5,890	10,000	9,464
Tufted Duck	<i>Aythya fuligula</i>	9	2	9	16,416	8,455	6,310		84,457	87,745	74,025	145,095	175,960	157,565
Greater Scaup	<i>Aythya marila</i>	2,011	1,378	2,075	480	306	2		2,711	3,467	2,777	26,755	6,808	7,688
unidentified pochards	<i>Aythya</i> spp.		91			40						12	355	
Steller's Eider	<i>Polysticta stellerii</i>	3,886	4,483	801				640	7	1	5	9,256	10,391	3,379
Common Eider	<i>Somateria mollissima</i>	28,718	23,733	24,094	21	73	44	1,461	6,485	10,367	16,744	61,378	86,155	65,513
King Eider	<i>Somateria spectabilis</i>	4,987	1,870	2,336				304				5,291	1,871	2,336
Common Scoter	<i>Melanitta nigra</i>	338	320	691	235	127	144		22	1,894	1,141	1,086	3,078	2,419
Velvet Scoter	<i>Melanitta fusca</i>	4,889	3,859	4,354	195	609	682		66	1,325	741	40,812	50,633	45,443
unidentified Scoter	<i>Melanitta</i> spp.											18	88	240
Long-tailed Duck	<i>Clangula hyemalis</i>	255	122	16	3,661	3,295	3,074	196	23,509	12,388	18,171	75,960	96,877	104,628
Common Goldeneye	<i>Bucephala clangula</i>	546	347	181	10,707	3,558	5,948		23,484	25,345	23,518	59,932	67,946	77,504
Smew	<i>Mergellus albellus</i>	9	5	6	376	461	426		1,680	1,719	1,969	2,796	3,421	3,007
Red-breasted Merganser	<i>Mergus serrator</i>	1,607	1,950	1,984	549	319	412		2,348	3,496	2,914	5,832	11,450	8,439
Goosander	<i>Mergus merganser</i>	208	341	237	9,324	3,828	3,221	1	7,901	12,526	9,008	46,682	40,835	45,820
R-b Merganser/Goosander	<i>Mergus serrator/merganser</i>											43	26	1,055
unidentified ducks	<i>Anatinae</i> spp.			254		1,660	18					7,286	3,236	1,259
Common Crane	<i>Grus grus</i>						1							1
Water Rail	<i>Rallus aquaticus</i>				5	36	24					7	38	25

Table 1 continued. Species counts per country, and area totals, Baltic and Nordic area.

		Norway			Poland			Russia	Sweden			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1997	1998	1999	1997	1998	1999
Moorhen	<i>Gallinula chloropus</i>				137	111	112					142	119	119
Common Coot	<i>Fulica atra</i>	79	12	9	1,033	1,360	1,368		5,791	12,169	8,528	38,213	56,304	64,552
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>									2		18,388	29,141	27,280
Northern Lapwing	<i>Vanellus vanellus</i>											17	520	74
Eurasian Golden Plover	<i>Pluvialis apricaria</i>									16			2,097	
Grey Plover	<i>Pluvialis squatarola</i>									1		1	115	
Bar-tailed Godwit	<i>Limosa lapponica</i>												1,093	2,040
Eurasian Curlew	<i>Numenius arquata</i>					2				1		3,570	2,848	2,081
Redshank	<i>Tringa totanus</i>									4		1,529	563	535
Green Sandpiper	<i>Tringa ochropus</i>					1	1						1	1
Ruddy Turnstone	<i>Arenaria interpres</i>											1		
Eurasian Woodcock	<i>Scolopax rusticola</i>											1		
Common Snipe	<i>Gallinago gallinago</i>											6	65	20
Red Knot	<i>Calidris canutus</i>											4,000		3,250
Sanderling	<i>Calidris alba</i>				2	2						42	1,112	704
Purple Sandpiper	<i>Calidris maritima</i>							62		5		62	108	103
Dunlin	<i>Calidris alpina</i>									6		1,436	34,561	20,382
Common Gull	<i>Larus canus</i>				1,884	2,157	6,844					4,143	13,112	17,089
Herring Gull	<i>Larus argentatus</i>				2,147	4,037	1,611	43				6,344	24,145	17,520
Lesser Black-backed Gull	<i>Larus fuscus</i>				1		1					8	11	54
Great Black-backed Gull	<i>Larus marinus</i>				124	106	34	22				1,273	1,691	1,266
Glaucous Gull	<i>Larus hyperboreus</i>				1			26				27	1	1
Black-headed Gull	<i>Larus ridibundus</i>				2,631	3,454	3,524					3,619	9,400	5,750
Little Gull	<i>Larus minutus</i>												5	11
Black-legged Kittiwake	<i>Rissa tridactyla</i>												1	
unidentified gulls	<i>Larus spp.</i>					253	23	150				3,201	8,398	3,603
Total		60,852	51,962	52,195	154,287	126,894	127,340	2,911	230,108	288,643	268,695	888,979	1,189,588	1,130,449
Non-native species														
Canada Goose	<i>Branta canadensis</i>				3				10,960	27,274	25,792	38,754	39,885	46,973
Total non-native species		0	0	0	3	0	0	0	10,960	27,274	25,792	38,754	39,885	46,973

4.2 Central Europe

Central Europe has some of the longest running waterbird monitoring schemes and the most consistent coverage. Some gaps in coverage were evident in 1997, 1998 and 1999 in Hungary, Slovakia and the Czech Republic. Note that the southern part of Germany is a part of this area. The results are presented in Table 2 and coverage in Figures 10–12 .

Austria

The census in Austria is well developed and consists of a set of 150 sites counted annually. All waterbird species are recorded, including waders and gulls, totalling up to 150,000 in the reporting period. The totals were quite stable in 1997, 1998 and 1999 and Mallard and Common Coot were the most numerous waterbirds counted.

Czech Republic

The census in the Czech Republic includes the main sites for waterbirds, with 34 to 40 sites counted in 1997–1999. Most Czech wetlands must have been frozen according to the zero degrees isotherm in January 1997 (Figure 2), resulting in lower total numbers (34,000) compared with the other two years (76,000 and 65,000).

Germany (Central European part)

The geographical coverage in the Central European part of Germany was thorough. However, only data on divers, grebes, cormorants, Anatidae and rails are included in the results, as coverage of other taxa is incomplete (J. Wahl in litt). There are a few lakes with high numbers of ducks and Common Coot, including the German part of the Bodensee. Totals were in the range of 266,000 to

454,000, with Mallard, Tufted Duck and Common Coot recorded with numbers between 50,000 and 100,000 each. The German part of the Bodensee held high numbers of Red-crested Pochard (12,184 in 1999).

Hungary

IWC coverage of wetlands in Hungary is normally 60–70%, except for geese, for which coverage is nearly complete. The most important sites, such as Ramsar sites and IBAs, are counted (S. Farago in litt.). An increase in the number of sites in 1999 yielded a significantly higher number of Mallards. The total waterbird numbers counted increased from 100,000 in 1997 to 226,000 in 1999. Hungary did not submit any data on waders and gulls.

Slovakia

Since 1995 the coverage of the IWC in Slovakia has been at a stable level. Totals ranged between 40,000 and 70,000 birds, with Mallard, Tufted Duck and Common Pochard the most numerous species.

Switzerland

One of the most complete IWC schemes is managed in Switzerland, with consistent coverage and good coordination of cross-boundary sites. Numbers were in the range of 330,000 to 440,000 in the reporting period, and consisted mainly of Great Crested Grebe (maximum 22,347), Red-crested Pochard, Common Pochard, Tufted Duck and Common Goldeneye (together maximum 250,000), Mallard (maximum 41,121) and Common Coot (maximum 71,151). The upward trend of Red-crested Pochard seems to be ongoing: in Switzerland and its transboundary sites Bodensee and Lac Léman, a total of more than 21,000 was counted in 1997, by far the highest count in Western and Central Europe.

Mallard.



Table 2. Species counts per country, and area totals, Central European area.

		Austria			Czech Republic			Germany (CE-part)			Hungary		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Great Northern Diver	<i>Gavia immer</i>									3			
White-billed Diver	<i>Gavia adamsii</i>												
Black-throated Diver	<i>Gavia arctica</i>	8	9	6			1	5	6	29		1	
Red-throated Diver	<i>Gavia stellata</i>	2	6						8	7			
unidentified divers	<i>Gavia</i> spp.												
Little Grebe	<i>Tachybaptus ruficollis</i>	888	1,273	1,137	102	97	149	944	903	1,399	20	33	61
Red-necked Grebe	<i>Podiceps grisegena</i>	21	17	13				43	44	24			
Great Crested Grebe	<i>Podiceps cristatus</i>	1,867	1,756	2,534	11	120	27	2,773	3,662	4,537	24	9	20
Slavonian Grebe	<i>Podiceps auritus</i>	1		6			3	1	6	4			
Black-necked Grebe	<i>Podiceps nigricollis</i>	30	21	23				232	360	411			
unidentified grebes	<i>Podicipedidae</i> spp.			1									
Great Cormorant	<i>Phalacrocorax carbo</i>	3,097	3,696	3,024	1,006	2,777	1,639	4,223	8,084	6,910	1,702	3,183	1,361
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>											1	
Grey Heron	<i>Ardea cinerea</i>	299	715	467	219	554	346				400	621	396
Great White Egret	<i>Casmerodius albus</i>	17	123	116		4	4						
Eurasian Bittern	<i>Botaurus stellaris</i>	2		2									
White Stork	<i>Ciconia ciconia</i>												
Whooper Swan	<i>Cygnus cygnus</i>	90	146	92				292	102	217			
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>									1			
Mute Swan	<i>Cygnus olor</i>	2,314	2,357	2,786	1,674	951	1,007	2,207	2,877	3,880	200	228	310
unidentified swans	<i>Cygnus</i> spp.						7						
unidentified Bean Goose	<i>Anser fabalis</i> ssp.	308	1,103	893	473	4,352	4,394	2,040	5	68,638	36,681	54,944	74,490
Tundra Bean Goose	<i>Anser fabalis rossicus</i>	89	4	9									
Pink-footed Goose	<i>Anser brachyrhynchus</i>								1				
European White-fronted Goose	<i>Anser albifrons</i>	7	7	10	20	535	6,125	40		37,107	11,222	34,023	36,139
Lesser White-fronted Goose	<i>Anser erythropus</i>												1
Greylag Goose	<i>Anser anser</i>	88	365	246		1,044	116	148	31	562	14,972	23,020	17,059
unidentified grey geese	<i>Anser</i> spp.				1								
Barnacle Goose	<i>Branta leucopsis</i>	2				1							
Red-breasted Goose	<i>Branta ruficollis</i>										2		1
Common Shelduck	<i>Tadorna tadorna</i>	11	15	10		1		5	12	15			
Eurasian Wigeon	<i>Anas penelope</i>	119	628	607		51	5	1,261	1,514	1,253	33	242	476
Gadwall	<i>Anas strepera</i>	624	1,347	1,200	1	5	7	7,218	8,960	7,806	5	16	
Common Teal	<i>Anas crecca</i>	1,595	2,165	1,750	126	317	175	2,846	9,893	7,789	127	4,005	3,347
Mallard	<i>Anas platyrhynchos</i>	42,409	38,017	46,629	16,253	47,923	38,447	44,895	51,426	64,642	23,614	45,647	81,779

Table 2 continued. Species counts per country, and area totals, Central European area.

		Austria			Czech Republic			Germany (CE-part)			Hungary		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Northern Pintail	<i>Anas acuta</i>	16	49	35	2	1	3	346	530	387	6	157	42
Garganey	<i>Anas querquedula</i>					18			1				
Northern Shoveler	<i>Anas clypeata</i>	57	174	64		2	4	809	425	568		23	31
Hybrid duck	<i>Anas hybridus</i>												
unidentified dabbling ducks	<i>Anas</i> spp.												
Red-crested Pochard	<i>Netta rufina</i>	18	43	134		1	1	4,006	10,884	12,184		8	
Common Pochard	<i>Aythya ferina</i>	6,788	7,224	7,680	2,577	1,994	2,036	36,766	39,878	40,770	2,009	1,247	2,479
Ring-necked Duck	<i>Aythya collaris</i>			1									
Ferruginous Duck	<i>Aythya nyroca</i>		5	3	1	1	1	1	3	1		1	
Tufted Duck	<i>Aythya fuligula</i>	19,134	22,962	21,859	4,830	2,963	4,470	78,081	71,069	94,414	3,952	448	1,046
Greater Scaup	<i>Aythya marila</i>	96	72	131		2	5	32	23	75	29		1
Lesser Scaup	<i>Aythya affinis</i>												
unidentified pochards	<i>Aythya</i> spp.												
Common Eider	<i>Somateria mollissima</i>	67	7	6				4	43	19		1	1
Common Scoter	<i>Melanitta nigra</i>		1					1	1				
Velvet Scoter	<i>Melanitta fusca</i>	3	15	3				50	34	38			
Long-tailed Duck	<i>Clangula hyemalis</i>		1	2				1	2	9		1	1
Common Goldeneye	<i>Bucephala clangula</i>	3,940	3,481	3,296	398	227	273	9,703	9,420	11,214	5,182	2,014	3,236
Smew	<i>Mergellus albellus</i>	117	41	158	45	35	31	155	110	188	243	370	836
Red-breasted Merganser	<i>Mergus serrator</i>	3	4	9	3			27	8	9			1
Goosander	<i>Mergus merganser</i>	1,363	1,026	1,141	1,476	386	472	1,344	1,322	1,657	247	153	199
unidentified ducks	<i>Anatinae</i> spp.	18	82	7	2		16						
Water Rail	<i>Rallus aquaticus</i>	9	4	9			1						
Moorhen	<i>Gallinula chloropus</i>	120	174	188	44	22	58	2	1	220			
Common Coot	<i>Fulica atra</i>	22,652	26,516	28,065	2,112	2,491	3,042	65,663	85,956	87,745	760	1,225	2,951
Northern Lapwing	<i>Vanellus vanellus</i>					2	1						
Eurasian Curlew	<i>Numenius arquata</i>	1	67	266		16		77	156	204			
Spotted Redshank	<i>Tringa erythropus</i>					1							
Greenshank	<i>Tringa nebularia</i>			1									
Green Sandpiper	<i>Tringa ochropus</i>	19	14	13		1	3						
Common Sandpiper	<i>Tringa hypoleucos</i>		1										
Common Snipe	<i>Gallinago gallinago</i>		8	2			6	14					
Jack Snipe	<i>Lymnocyptes minimus</i>		1										
Dunlin	<i>Calidris alpina</i>		7	2			1						
Common Gull	<i>Larus canus</i>	6,006	1,905	3,576	133	1,375	266						
Herring Gull	<i>Larus argentatus</i>	41	24	18	8	129	35						

Table 2 continued. Species counts per country, and area totals, Central European area.

		Austria			Czech Republic			Germany (CE-part)			Hungary		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Yellow-legged Gull	<i>Larus cachinnans</i>	326	491	879									
Lesser Black-backed Gull	<i>Larus fuscus</i>	2	10	3									
Great Black-backed Gull	<i>Larus marinus</i>												
Mediterranean Gull	<i>Larus melanocephalus</i>												
Black-headed Gull	<i>Larus ridibundus</i>	26,788	27,453	22,021	2,445	7,616	2,394						
Little Gull	<i>Larus minutus</i>	1					1						
Herring/Yellow-legged Gull	<i>Larus argentatus/cachinnans</i>												
unidentified gulls	<i>Larus spp.</i>	12	3	106									
	Total	141,485	145,635	151,239	33,962	76,015	65,572	266,255	307,760	454,936	101,428	171,623	226,264
Non-native species													
Chilean Flamingo	<i>Phoenicopterus chilensis</i>			1									
Black Swan	<i>Cygnus atratus</i>	14	10	4									
Black-necked Swan	<i>Cygnus melanocorypha</i>												
Swan Goose	<i>Anser cygnoides</i>	1											
Feral Goose	<i>Anser domesticus spp.</i>												
Bar-headed Goose	<i>Anser indicus</i>	2	6	6									
Canada Goose	<i>Branta canadensis</i>	19	19	27				63					
Ruddy Shelduck	<i>Tadorna ferruginea</i>	1	1	2					4				
Cape Shelduck	<i>Tadorna cana</i>												
Egyptian Goose	<i>Alopochen aegyptiacus</i>	1											
Muscovy Duck	<i>Cairina moschata</i>	63	122	120									
Wood Duck	<i>Aix sponsa</i>	1	4	9				8					
Mandarin Duck	<i>Aix galericulata</i>	154	15	10				65	2	9			
Chiloe Wigeon	<i>Anas sibilatrix</i>												
Chestnut Teal	<i>Anas castanea</i>												
Spot-billed Duck	<i>Anas poecilorhyncha</i>												
White-cheeked Pintail	<i>Anas bahamensis</i>												
Cinnamon Teal	<i>Anas cyanoptera</i>												
Feral Duck	<i>Anas domesticus spp.</i>												
Ringed Teal	<i>Callonetta leucophrys</i>												
Rosy-billed Pochard	<i>Netta peposaca</i>	1											
Hooded Merganser	<i>Lophodytes cucullatus</i>												
Ruddy Duck	<i>Oxyura jamaicensis</i>												
	Total non-native species	257	177	179	0	0	0	136	6	9	0	0	0

Table 2 continued. Species counts per country, and area totals, Central European area.

		Slovakia			Switzerland			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1998	1999
Great Northern Diver	<i>Gavia immer</i>				1		3	1		6
White-billed Diver	<i>Gavia adamsii</i>	1						1		
Black-throated Diver	<i>Gavia arctica</i>	1	1		22	66	51	36	83	87
Red-throated Diver	<i>Gavia stellata</i>	3			4		4	9	14	11
unidentified divers	<i>Gavia</i> spp.					1			1	
Little Grebe	<i>Tachybaptus ruficollis</i>	373	513	726	2,895	2,980	3,588	5,222	5,799	7,060
Red-necked Grebe	<i>Podiceps grisegena</i>		1		29	42	17	93	104	54
Great Crested Grebe	<i>Podiceps cristatus</i>	36	62	34	22,347	20,771	21,512	27,058	26,380	28,664
Slavonian Grebe	<i>Podiceps auritus</i>	4		3	4	5		10	11	16
Black-necked Grebe	<i>Podiceps nigricollis</i>		1		904	817	969	1,166	1,199	1,403
unidentified grebes	<i>Podicipedidae</i> spp.									1
Great Cormorant	<i>Phalacrocorax carbo</i>	1,255	1,234	966	3,773	2,965	2,950	15,056	21,939	16,850
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>	2	16	35				2	17	35
Grey Heron	<i>Ardea cinerea</i>	245	236	141	1,159	1,108	1,226	2,322	3,234	2,576
Great White Egret	<i>Casmerodius albus</i>	19	245	35	8	20	57	44	392	212
Eurasian Bittern	<i>Botaurus stellaris</i>				16	12	9	18	12	11
White Stork	<i>Ciconia ciconia</i>			3						3
Whooper Swan	<i>Cygnus cygnus</i>				87	54	11	469	302	320
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>				2	3	9	2	3	10
Mute Swan	<i>Cygnus olor</i>	502	269	439	3,975	4,177	4,942	10,872	10,859	13,364
unidentified swans	<i>Cygnus</i> spp.									7
unidentified Bean Goose	<i>Anser fabalis</i> ssp.	496	4,396	1,603	143	36	52	40,141	64,836	150,070
Tundra Bean Goose	<i>Anser fabalis rossicus</i>							89	4	9
Pink-footed Goose	<i>Anser brachyrhynchus</i>								1	
European White-fronted Goose	<i>Anser albifrons</i>		23	63	19		16	11,308	34,588	79,460
Lesser White-fronted Goose	<i>Anser erythropus</i>									1
Greylag Goose	<i>Anser anser</i>	196	67	232	245	226	309	15,649	24,753	18,524
unidentified grey geese	<i>Anser</i> spp.	725		2,891	110			836		2,891
Barnacle Goose	<i>Branta leucopsis</i>				11	5	14	13	6	14
Red-breasted Goose	<i>Branta ruficollis</i>								2	1
Common Shelduck	<i>Tadorna tadorna</i>		16	1	17	15	21	33	59	47
Eurasian Wigeon	<i>Anas penelope</i>	14	45	9	865	943	1,314	2,292	3,423	3,664
Gadwall	<i>Anas strepera</i>	2	43	3	5,327	5,233	6,743	13,177	15,604	15,759
Common Teal	<i>Anas crecca</i>	337	150	271	4,278	3,626	4,101	9,309	20,156	17,433
Mallard	<i>Anas platyrhynchos</i>	19,698	11,636	21,637	38,002	34,352	41,121	184,871	229,001	294,255

Table 2 continued. Species counts per country, and area totals, Central European area.

		Slovakia			Switzerland			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1998	1999
Northern Pintail	<i>Anas acuta</i>	7	7	8	111	110	101	488	854	576
Garganey	<i>Anas querquedula</i>					1	1		20	1
Northern Shoveler	<i>Anas clypeata</i>				473	355	438	1,339	979	1,105
Hybrid duck	<i>Anas hybridus</i>				8	12	4	8	12	4
unidentified dabbling ducks	<i>Anas</i> spp.				16	23	47	16	23	47
Red-crested Pochard	<i>Netta rufina</i>				9,211	3,766	8,733	13,235	14,702	21,052
Common Pochard	<i>Aythya ferina</i>	2,768	6,508	13,735	85,506	39,944	47,838	136,414	96,795	114,538
Ring-necked Duck	<i>Aythya collaris</i>									1
Ferruginous Duck	<i>Aythya nyroca</i>	2	68		18	19	21	22	97	26
Tufted Duck	<i>Aythya fuligula</i>	3,588	8,483	15,110	133,196	106,829	109,728	242,781	212,754	246,627
Greater Scaup	<i>Aythya marila</i>	66	10	8	45	44	43	268	151	263
Lesser Scaup	<i>Aythya affinis</i>					1			1	
unidentified pochards	<i>Aythya</i> spp.	1	1		52	3	836	53	4	836
Common Eider	<i>Somateria mollissima</i>			2	99	80	108	170	131	136
Common Scoter	<i>Melanitta nigra</i>				4			5	2	0
Velvet Scoter	<i>Melanitta fusca</i>		35		22	32	11	75	116	52
Long-tailed Duck	<i>Clangula hyemalis</i>				3	2	2	4	6	14
Common Goldeneye	<i>Bucephala clangula</i>	3,066	2,305	1,799	8,379	7,003	7,236	30,668	24,450	27,054
Smew	<i>Mergellus albellus</i>	202	328	279	118	27	36	880	911	1,528
Red-breasted Merganser	<i>Mergus serrator</i>			4	64	61	45	97	73	68
Goosander	<i>Mergus merganser</i>	291	158	99	4,544	3,252	3,811	9,265	6,297	7,379
unidentified ducks	<i>Anatinae</i> spp.	1,882	351	1,561	2			1,904	433	1,584
Water Rail	<i>Rallus aquaticus</i>	2	6	2				11	10	12
Moorhen	<i>Gallinula chloropus</i>	26		1	603	575	622	795	772	1,089
Common Coot	<i>Fulica atra</i>	2,103	1,880	4,095	66,867	60,350	71,151	160,157	178,418	197,049
Northern Lapwing	<i>Vanellus vanellus</i>								2	1
Eurasian Curlew	<i>Numenius arquata</i>		5		254	237	425	332	481	895
Spotted Redshank	<i>Tringa erythropus</i>								1	0
Greenshank	<i>Tringa nebularia</i>									1
Green Sandpiper	<i>Tringa ochropus</i>	8		5				27	15	21
Common Sandpiper	<i>Tringa hypoleucos</i>			2	26	27	38	26	28	40
Common Snipe	<i>Gallinago gallinago</i>	4	2	1	63	92	51	81	102	60
Jack Snipe	<i>Lymnocyptes minimus</i>								1	
Dunlin	<i>Calidris alpina</i>								7	3
Common Gull	<i>Larus canus</i>	853	108	147	6,694	2,918	4,256	13,686	6,306	8,245
Herring Gull	<i>Larus argentatus</i>	109	6	1	24	18	17	182	177	71

Table 2 continued. Species counts per country, and area totals, Central European area.

		Slovakia			Switzerland			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1998	1999
Yellow-legged Gull	<i>Larus cachinnans</i>	2			1,634	1,536	2,055	1,962	2,027	2,934
Lesser Black-backed Gull	<i>Larus fuscus</i>	1			24	12	15	27	22	18
Great Black-backed Gull	<i>Larus marinus</i>				1	1		1	1	
Mediterranean Gull	<i>Larus melanocephalus</i>						1			1
Black-headed Gull	<i>Larus ridibundus</i>	1,038	564	1,389	32,027	32,297	34,468	62,298	67,930	60,272
Little Gull	<i>Larus minutus</i>			2		1	7	1	1	10
Herring/Yellow-legged Gull	<i>Larus argentatus/cachinnans</i>		101	114	20	30	3	20	131	117
unidentified gulls	<i>Larus spp.</i>		62	200	75	54	33	87	119	339
	Total	39,928	39,942	67,656	434,426	337,170	381,221	1,017,484	1,078,144	1,346,887
Non-native species										
Chilean Flamingo	<i>Phoenicopterus chilensis</i>									1
Black Swan	<i>Cygnus atratus</i>							14	10	4
Black-necked Swan	<i>Cygnus melanocorypha</i>						1			1
Swan Goose	<i>Anser cygnoides</i>							1		
Feral Goose	<i>Anser domesticus spp.</i>				14	13	15	14	13	15
Bar-headed Goose	<i>Anser indicus</i>					4	2	2	10	8
Canada Goose	<i>Branta canadensis</i>				1	4	3	83	23	30
Ruddy Shelduck	<i>Tadorna ferruginea</i>				31	80	60	32	85	62
Cape Shelduck	<i>Tadorna cana</i>				1	2		1	2	
Egyptian Goose	<i>Alopochen aegyptiacus</i>				3	2	2	4	2	2
Muscovy Duck	<i>Cairina moschata</i>					5	2	63	127	122
Wood Duck	<i>Aix sponsa</i>				31	24	16	40	28	25
Mandarin Duck	<i>Aix galericulata</i>				37	51	52	256	68	71
Chiloe Wigeon	<i>Anas sibilatrix</i>				1	1	2	1	1	2
Chestnut Teal	<i>Anas castanea</i>				1	1	1	1	1	1
Spot-billed Duck	<i>Anas poecilorhyncha</i>				2	1	2	2	1	2
White-cheeked Pintail	<i>Anas bahamensis</i>				5	1	2	5	1	2
Cinnamon Teal	<i>Anas cyanoptera</i>						1			1
Feral Duck	<i>Anas domesticus spp.</i>				199	315	293	199	315	293
Ringed Teal	<i>Callonetta leucophrys</i>					9	2		9	2
Rosy-billed Pochard	<i>Netta peposaca</i>					1	1	1	1	1
Hooded Merganser	<i>Lophodytes cucullatus</i>				1			1		
Ruddy Duck	<i>Oxyura jamaicensis</i>					1	1	0	1	1
	Total non-native species	0	0	0	327	514	457	720	698	646

4.3 East Mediterranean/Black Sea

This area shows major gaps in coverage and consequently a considerable proportion of wintering waterbirds is missed. Missing countries for 1997–1999 were Libya, Egypt, Syria and Moldova and in Turkey a countrywide census was only done in 1999. High numbers of waterbirds are recorded in the area, including threatened species such as Dalmatian Pelican, Pygmy Cormorant, Red-breasted Goose and White-headed Duck. Most countries that submit data in this area, include all waterbird species groups, such as gulls, waders and rails. Results are presented in Table 3 and coverage in Figures 13–15.

Albania

Since the mid-1990s the IWC has been well established in Albania. Around 11 sites were counted in 1997–1998 and four in 1999. The Albanian parts of the transboundary sites Lake Prespa and Lake Ohrid are counted consistently. Important numbers of Pygmy Cormorant (maximum 1,659 in 1999) and Dalmatian Pelican (maximum 352 in 1997) were recorded.

Armenia

No contacts have been established in Armenia and no data have yet been submitted from this country.

Bosnia and Herzegovina

Before the conflicts in the Balkans in the 1990s, data on waterbirds from Bosnia and Herzegovina were scarce and also recently data from only one site, Visoko, holding small numbers of waterbirds, have been submitted.

Bulgaria

The coverage is rather complete and consistent in Bulgaria. The totals in the years 1997–1999 fluctuated considerably, with 805,000 in 1997, 260,000 in 1998 and 456,000 in 1999. The 1997 total was mainly due to high numbers of Mallard and White-fronted Goose, probably immigrants from areas situated to the east and north that were frozen. Of the threatened species, 606 Dalmatian Pelicans, 11,627 Pygmy Cormorants, and 67,795 Red-breasted Goose and 459 White-headed Duck were counted.

Croatia

Croatia has a well established mid-winter census and in 1997–1999, 27 to 45 sites were covered per year. Between 43,000 and 84,000 waterbirds were counted in 1997–1999, including small numbers of Pygmy Cormorant and Ferruginous Duck.

Cyprus

The four major wetlands of the southern half of the island are counted annually (including the only Ramsar site) and in some years the coverage is extended (17 sites in 1999). Relatively low numbers, totalling up to 7,000 to 8,800 were recorded in the reporting years, including more than 2,000 Greater Flamingo and 43 Armenian Gulls.

Egypt

Only miscellaneous data on Egypt are available in the IWC-database, mainly results from expeditions before

1997. Recently, contacts have been intensified and the prospects for developing the IWC in Egypt look promising.

Georgia

The only data (with no coordinates available) yet received by an expedition from Georgia were from 1998, when 21 sites were visited that produced 73,000 birds, including nearly 9,000 Great Crested Grebes. No formal IWC contacts yet exist in this country.

Greece

Greece is one of the most important countries in this area with respect to both numbers of waterbirds and threatened species. The data submitted up to and including 1997 were confined to the reduced sitelist (43 sites), but for 1998 and 1999 the total dataset was submitted (94 and 87 sites). This was reflected in the totals, being 640,000 for 1997 and 870,000 and 850,000 for 1998 and 1999 respectively, including all waterbird species groups. Several threatened species were recorded, for example 1,163 Dalmatian Pelicans in 1999 and the record count of 23,284 Pygmy Cormorants in 1998, the latter was a result of special efforts to count this species in the Evros Delta. High counts were also made for Common Coot (163,268) and Great Crested Grebe (33,239).

Israel

Israel has submitted data to the IWC (approximately 15 sites) since the very start in 1967 and the coverage has been stable since the mid-eighties. Totals recorded were in the range 160,000 to 180,000 in 1997–1999. Israel hosts relatively high numbers of cormorants, herons and ibises, for example 13,700 Great Cormorants in 1999, 5,616 Great White Egrets in 1999, 1,749 Black-crowned Night Herons in 1999 and 3,654 Glossy Ibises in 1999. Small numbers of threatened species are recorded, such as Dalmatian Pelican, Pygmy Cormorant, Marbled Teal, Ferruginous Duck (maximum 405) and White-headed Duck.

Libya

Libya has never contributed to the IWC and the only data available are from a small number of expeditions.

Macedonia

After a period of inactivity, data were submitted from Macedonia for 1997–1999 for two sites holding up to 75,000 waterbirds. Most numerous bird was Common Coot with 42,099 birds in 1999.

Moldova

IWC has not yet been established in Moldova.

Romania

Since the late eighties coverage in Romania has been rather complete and consistent and between 30 and 40 sites are counted annually. Romania is one of the few countries in this area that did not submit counts of waterbird species other than Anatidae and Common Coot for 1997 and 1998, however 1999 has a nearly complete dataset. Totals were in the range of 172,000 (1997) to 196,000 (1998 and 1999) among which were 63,831 Common Pochard (1998), 60,235 White-fronted Goose (1999) and 284 White-headed Duck (1998). The country

can hold high numbers of Red-breasted Goose (12,380 in 1999).

Slovenia

In 1997–1999 all large and medium-sized Slovenian rivers and the coastline with a length of 1,302 km, were divided into 376 sites. The standing waters have been covered with a new national IWC scheme, including approximately 150 sites. On average 90% of these sites were covered in each year. Slovenia is a small country (20,256 km²) and the 15 sites, which are reported to Wetlands International, represent the most important sites, on which the local populations of waterbirds depend (e.g. salinas, lakes and parts of large lowland rivers). These sites held 34,000, 41,000 and 49,000 waterbirds in 1997–1999 respectively.

Syria

There are few data in the IWC database from Syria and none for 1997–1999. No information is available about the current status of IWC in Syria, but there seem to have been no counts in recent years.

Turkey

Until recently, Turkey organised a full census only every three years, of which one was undertaken in 1999. In this year a record of 81 sites was visited, producing the impressive total of 1,655,000 waterbirds. The coverage is still not complete, so even this high number has to be regarded as a minimum. In 1997 an expedition was

organised to count waterbirds along the Black Sea coast and these data are included in the IWC-database (Welch and Welch unpubl.). Totals from Turkey include remarkable numbers of Great Cormorant (19,823), Greater Flamingo (51,755), Mute Swan (9,088), Ruddy Shelduck (7,189), Common Teal (99,742), Common Pochard (136,510), White-headed Duck (2,575) and Common Coot (1,012,910). These numbers indicate the enormous importance of Turkey for wintering waterbirds.

Ukraine

In Ukraine counts are conducted mainly on the Black Sea coast, though from some years, data from inland sites are available. The coverage in Ukraine varied during the nineties between 15 and 30 sites, but from 1997 data were only submitted from one site. In the other two years, 1998 and 1999, total waterbird numbers were respectively 355,000 and 168,000. The difference between these years was mainly caused by higher numbers of White-fronted Goose, Mute Swan and Mallard. In 1998, 3,572 Great Black-headed Gulls were counted.

Yugoslavia

The coverage of IWC in Yugoslavia has been influenced by the conflicts in the Balkan region. Main sites are the Danube and Lake Skadar, which are counted consistently, but no wader data are submitted. Totals ranged from 343,000 to 453,000 in 1997–1999, with high numbers of Black-necked Grebe (14,000 in 1999), Common Pochard (121,490 in 1999) and Common Coot (187,320 in 1998).

Waterbird counters at Kizilirmak Delta, Turkey.



Table 3. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Albania			Bosnia	Bulgaria			Croatia			Cyprus		
		1997	1998	1999	1997	1997	1998	1999	1997	1998	1999	1997	1998	1999
Black-throated Diver	<i>Gavia arctica</i>	44	5	11		30	142	135	12	2	3			
Red-throated Diver	<i>Gavia stellata</i>	10					3		1	1				
unidentified divers	<i>Gavia</i> spp.						2	14	13	4	3			
Little Grebe	<i>Tachybaptus ruficollis</i>	1,618	584	449		314	677	714	277	375	135	40	74	58
Red-necked Grebe	<i>Podiceps grisegena</i>	4				17	19	10		3	11			
Great Crested Grebe	<i>Podiceps cristatus</i>	1,766	1,770	220	12	5,356	2,194	1,701	82	174	29	9	12	7
Slavonian Grebe	<i>Podiceps auritus</i>	14	12	1		1		1	1					
Black-necked Grebe	<i>Podiceps nigricollis</i>	4,110	1,059	2,038	34	3,015	2,410	1,852	4	21				4
unidentified grebes	<i>Podicipedidae</i> spp.						3	60			5			
Great White Pelican	<i>Pelecanus onocrotalus</i>					8	2	6						
Dalmatian Pelican	<i>Pelecanus crispus</i>	352	2	145		587	423	606						
Great Cormorant	<i>Phalacrocorax carbo</i>	1,130	131	457	128	13,083	10,973	18,840	2,897	4,346	3,312	122	27	151
European Shag	<i>Phalacrocorax aristotelis</i>					148	350	468						
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>	1,146	636	1,659		6,892	5,780	11,627	87	38	91			
unidentified cormorants	<i>Phalacrocorax</i> spp.													
Grey Heron	<i>Ardea cinerea</i>	256	2	89	6	471	467	1,067	757	1,802	1,276	6	1	4
Purple Heron	<i>Ardea purpurea</i>													
Great White Egret	<i>Casmerodius albus</i>	204		140		1,216	554	1,178	485	1,096	538			
Western Reef Egret	<i>Egretta gularis</i>													
Little Egret	<i>Egretta garzetta</i>	182		133		8			17	5				
Cattle Egret	<i>Bubulcus ibis</i>											4	11	2
Squacco Heron	<i>Ardeola ralloides</i>													
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>						17							
Little Bittern	<i>Ixobrychus minutus</i>													
Eurasian Bittern	<i>Botaurus stellaris</i>	2				27	4	4	3	1	3			
Black Stork	<i>Ciconia nigra</i>													
White Stork	<i>Ciconia ciconia</i>					22	1	2						
Glossy Ibis	<i>Plegadis falcinellus</i>													
Eurasian Spoonbill	<i>Platalea leucorodia</i>	12		24						120	40			
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>	4										1,202	2,230	1,253
Whooper Swan	<i>Cygnus cygnus</i>					1,107	113	897	2	6				
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>					21		4						
Mute Swan	<i>Cygnus olor</i>	18		6		4,334	1,266	2,577	383	506	1,069			
unidentified swans	<i>Cygnus</i> spp.						52				11			
unidentified Bean Goose	<i>Anser fabalis</i> ssp.	2				3		1	2,601	389	4,132			
European White-fronted Goose	<i>Anser albifrons albifrons</i>	56				380,780	34,900	144,095	796	84	9,654	14	20	26
Lesser White-fronted Goose	<i>Anser erythropus</i>										17			

Table 3 continued. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Albania			Bosnia			Bulgaria			Croatia			Cyprus		
		1997	1998	1999	1997	1997	1998	1999	1997	1998	1999	1997	1998	1999		
Greylag Goose	<i>Anser anser</i>	102			34	1,557	59	220	832	18	2,268					
Snow Goose *	<i>Anser caerulescens</i>															
unidentified grey geese	<i>Anser</i> spp.					400		710	80	307	1,573					
Barnacle Goose	<i>Branta leucopsis</i>															
Red-breasted Goose	<i>Branta ruficollis</i>					67,795	2,454	137								
Ruddy Shelduck	<i>Tadorna ferruginea</i>					8		16								
Common Shelduck	<i>Tadorna tadorna</i>	902	1	674		3,060	2,691	1,972	1	5	5	1	15	73		
Eurasian Wigeon	<i>Anas penelope</i>	103,968	63	26,099		4,341	1,378	5,371	67	212	617	123	121	125		
Gadwall	<i>Anas strepera</i>	2,836	85	321		99	94	55	2	21	154	14	18	10		
Common Teal	<i>Anas crecca</i>	47,902	752	5,251		11,116	10,374	8,465	203	3,284	621	60	61	667		
Mallard	<i>Anas platyrhynchos</i>	6,866	1,942	967	265	151,300	49,075	111,499	10,475	54,632	44,138	175	169	205		
Northern Pintail	<i>Anas acuta</i>	3,940	12	5,895		659	251	401		1	20		44	18		
Garganey	<i>Anas querquedula</i>				26							2	2			
Northern Shoveler	<i>Anas clypeata</i>	13,344		6,145		2,090	306	2,030	32		22	194	294	160		
Marbled Teal	<i>Marmaronetta angustirostris</i>															
Red-crested Pochard	<i>Netta rufina</i>	2,226	172	527		360	8	25		1	2	2		1		
Common Pochard	<i>Aythya ferina</i>	13,978	1,554	6,285		36,284	19,709	24,563	1,235	748	1,106	88	92	84		
Ferruginous Duck	<i>Aythya nyroca</i>	2				8		20	11	3	11	1		1		
Tufted Duck	<i>Aythya fuligula</i>	5,616	2,599	4,847		17,695	16,232	14,676	305	208	307	11	5	2		
Greater Scaup	<i>Aythya marila</i>					160	7	5	1							
unidentified pochards	<i>Aythya</i> spp.										3					
Common Eider	<i>Somateria mollissima</i>	4				1		3								
Common Scoter	<i>Melanitta nigra</i>					1										
Velvet Scoter	<i>Melanitta fusca</i>	36				1	1	4	2							
Long-tailed Duck	<i>Clangula hyemalis</i>					3		4								
Common Goldeneye	<i>Bucephala clangula</i>	1,432	16	35		258	41	108	98	36	154					
Smew	<i>Mergellus albellus</i>	4		4		1,104	59	146	1	120	85					
Red-breasted Merganser	<i>Mergus serrator</i>	362		125		866	940	774	3	7						
Goosander	<i>Mergus merganser</i>	30		1		40	10	72	42		3					
White-headed Duck	<i>Oxyura leucocephala</i>						175	459				1				
unidentified ducks	<i>Anatinae</i> spp.	11,300	2,000			412	120	96	4,236	710	274	800	1,150			
Common Crane	<i>Grus grus</i>					10			34		683					
Water Rail	<i>Rallus aquaticus</i>	90		4		18	16	2	19	1	3			1		
Little Crane	<i>Porzana parva</i>															
Baillon's Crane	<i>Porzana pusilla</i>															
Spotted Crane	<i>Porzana porzana</i>															
Moorhen	<i>Gallinula chloropus</i>	24	1	31		115	70	29	8	5	15	23	12	33		

* an unknown proportion of Snow Geese in the region are of captive origin.

Table 3 continued. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Albania			Bosnia	Bulgaria			Croatia			Cyprus		
		1997	1998	1999	1997	1997	1998	1999	1997	1998	1999	1997	1998	1999
Purple Swamphen	<i>Porphyrio porphyrio</i>													
Common Coot	<i>Fulica atra</i>	185,940	31,265	53,170	12	58,928	81,423	81,896	11,377	9,139	4,197	374	228	349
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	20												
Black-winged Stilt	<i>Himantopus himantopus</i>													
Pied Avocet	<i>Recurvirostra avosetta</i>	966		281			18	2					5	
Stone Curlew	<i>Burhinus oediconemus</i>													83
Cream-coloured Courser	<i>Cursorius cursor</i>													
Northern Lapwing	<i>Vanellus vanellus</i>	37,348		3,651		144	131	1,253	15	63		141	63	
Spur-winged Lapwing	<i>Vanellus spinosus</i>													
White-tailed Lapwing	<i>Vanellus leucurus</i>													
Eurasian Golden Plover	<i>Pluvialis apricaria</i>	1,500		701								28		
Grey Plover	<i>Pluvialis squatarola</i>	1,066		308		7	39	171						1
unidentified <i>Pluvialis</i> plovers	<i>Pluvialis</i> spp.													
Ringed Plover	<i>Charadrius hiaticula</i>	18												
Little Ringed Plover	<i>Charadrius dubius</i>					6		3						3
Kentish Plover	<i>Charadrius alexandrinus</i>	512		93				3				3	2	229
Greater Sandplover	<i>Charadrius leschenaultii</i>													
unidentified <i>Charadrius</i> plovers	<i>Charadrius</i> spp.													
Black-tailed Godwit	<i>Limosa limosa</i>	314					4	8						
Bar-tailed Godwit	<i>Limosa lapponica</i>													
Whimbrel	<i>Numenius phaeopus</i>											3		
Eurasian Curlew	<i>Numenius arquata</i>	1,452		100		37	52	85	6	6	2	12	1	23
Spotted Redshank	<i>Tringa erythropus</i>	88				2								
Redshank	<i>Tringa totanus</i>	1,264		657		40	36	14					5	100
Marsh Sandpiper	<i>Tringa stagnatilis</i>													1
Greenshank	<i>Tringa nebularia</i>	12						3						
Green Sandpiper	<i>Tringa ochropus</i>	10		2		59	120	99		4	13			1
Wood Sandpiper	<i>Tringa glareola</i>									7				
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.			50						11	1			
Terek Sandpiper	<i>Tringa cinereus</i>													
Common Sandpiper	<i>Tringa hypoleucos</i>	2		1		11	2	3					1	11
Ruddy Turnstone	<i>Arenaria interpres</i>													
Eurasian Woodcock	<i>Scolopax rusticola</i>	2								21				
Great Snipe	<i>Gallinago media</i>					8								
Common Snipe	<i>Gallinago gallinago</i>	430		52		35	57	124	2					
unidentified snipes	<i>Gallinago</i> spp.													
Jack Snipe	<i>Lymnocyptes minimus</i>	6				2				1				

Table 3 continued. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Albania			Bosnia 1997	Bulgaria			Croatia			Cyprus		
		1997	1998	1999		1997	1998	1999	1997	1998	1999	1997	1998	1999
Red Knot	<i>Calidris canutus</i>					1								
Sanderling	<i>Calidris alba</i>					23		3						
Little Stint	<i>Calidris minuta</i>	3,596		294								5	23	
Temminck's Stint	<i>Calidris temminckii</i>													2
Dunlin	<i>Calidris alpina</i>	3,414		1,026		114	169	313				150		21
unidentified <i>Calidris</i> sandpipers	<i>Calidris</i> spp.													
Ruff	<i>Philomachus pugnax</i>					4		1					40	
unidentified waders	<i>Charadrii</i> spp.					2			14		2			
White-eyed Gull	<i>Larus leucophthalmus</i>													
Audouin's Gull	<i>Larus audouinii</i>													
Common Gull	<i>Larus canus</i>	46		1		15,705	398	2,266	43		6			
Herring Gull	<i>Larus argentatus</i>											66		
Yellow-legged Gull	<i>Larus cachinnans</i>	358				7,245	9,065	6,890	549	277	96	522	2,980	1,576
Armenian Gull	<i>Larus armenicus</i>											15	6	46
Lesser Black-backed Gull	<i>Larus fuscus</i>											40	40	5
Great Black-backed Gull	<i>Larus marinus</i>	2				2	1							
Great Black-headed Gull	<i>Larus ichthyaetus</i>													
Mediterranean Gull	<i>Larus melanocephalus</i>	50				1	20	13						8
Black-headed Gull	<i>Larus ridibundus</i>	24,156	664	3,213		5,967	4,712	5,181	5,699	702	7,090	2,861	1,056	3,224
Slender-billed Gull	<i>Larus genei</i>	758		532		27	17	34						1
Little Gull	<i>Larus minutus</i>	100				147		2						3
Herring/Yellow-legged Gull	<i>Larus argentatus/cachinnans</i>	358	9	227										
Black-legged Kittiwake	<i>Rissa tridactyla</i>													
Whiskered Tern	<i>Chlidonias hybridus</i>	2												
Caspian Tern	<i>Sterna caspia</i>	48		9										
Common Tern	<i>Sterna hirundo</i>													
Arctic Tern	<i>Sterna paradisaea</i>	3												
Sandwich Tern	<i>Sterna sandvicensis</i>	540		20					6					
Gull-billed Tern	<i>Gelochelidon nilotica</i>					2								
unidentified <i>Sterna</i> terns	<i>Sterna</i> spp.													
unidentified gulls	<i>Larus</i> spp.							334	40	80	18			
Non-native species	Total	490,275	45,336	126,971	517	805,720	260,686	456,422	43,856	79,603	83,884	7,041	8,790	8,595
Wood Duck	<i>Aix sponsa</i>													
Mandarin Duck	<i>Aix galericulata</i>								1					
Total non-native species		0	0	0	0	0	0	0	1	0	0	0	0	0

Table 3 continued. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Georgia 1998	1997	Greece 1998	1999	1997	Israel 1998	1999	1997	Macedonia 1998	1999	1997	Romania 1998	1999	
Black-throated Diver	<i>Gavia arctica</i>	1	129	122	5				35		2			3	
Red-throated Diver	<i>Gavia stellata</i>		2												
unidentified divers	<i>Gavia</i> spp.		3											2	
Little Grebe	<i>Tachybaptus ruficollis</i>	117	2,099	4,739	3,080	2,215	2,268	2,967	911	848	817			131	
Red-necked Grebe	<i>Podiceps grisegena</i>	3	1	9	1									10	
Great Crested Grebe	<i>Podiceps cristatus</i>	8,964	17,819	22,545	33,239	393	899	617	810	7,026	10,480			70	
Slavonian Grebe	<i>Podiceps auritus</i>		4						1						
Black-necked Grebe	<i>Podiceps nigricollis</i>	77	9,056	7,897	4,871	267	489	311	3,699	2,359	3,722			666	
unidentified grebes	<i>Podicipedidae</i> spp.					66	37	47							
Great White Pelican	<i>Pelecanus onocrotalus</i>		1	16	22	384	340	361							
Dalmatian Pelican	<i>Pelecanus crispus</i>	3	937	1,147	1,163		8			7	36			2	
Great Cormorant	<i>Phalacrocorax carbo</i>	286	13,839	22,826	17,982	10,832	10,552	13,700	70	55	239			619	
European Shag	<i>Phalacrocorax aristotelis</i>		1	17	10										
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>		1,330	23,284	5,375	63	157	361	472	129	505			889	
unidentified cormorants	<i>Phalacrocorax</i> spp.					5,557	173	43							
Grey Heron	<i>Ardea cinerea</i>	8	1,544	1,803	1,786	5,165	4,960	5,114	5	7	2			130	
Purple Heron	<i>Ardea purpurea</i>			1		3	18	7							
Great White Egret	<i>Casmerodius albus</i>	24	1,262	1,898	1,963	3,793	4,729	5,616	1	11	15			87	
Western Reef Egret	<i>Egretta gularis</i>					1		2							
Little Egret	<i>Egretta garzetta</i>	6	1,441	2,094	1,847	2,135	2,741	2,278							
Cattle Egret	<i>Bubulcus ibis</i>			5		266	240	1,822							
Squacco Heron	<i>Ardeola ralloides</i>					1	1	1							
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>		26			1,189	1,660	1,749							
Little Bittern	<i>Ixobrychus minutus</i>					4	1								
Eurasian Bittern	<i>Botaurus stellaris</i>		9	4	9	3								5	
Black Stork	<i>Ciconia nigra</i>			1		1,018	688	1,221							
White Stork	<i>Ciconia ciconia</i>		1	4		1,211	1,042	866							
Glossy Ibis	<i>Plegadis falcinellus</i>				2	1,604	2,767	3,654							
Eurasian Spoonbill	<i>Platalea leucorodia</i>		142	244	338	492	608	520							
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>		11,202	8,663	7,465	70	5	139							
Whooper Swan	<i>Cygnus cygnus</i>		264	246	56							734	468	2,386	
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>				1										
Mute Swan	<i>Cygnus olor</i>		3,520	3,800	5,705				1	13	22	8	2,774	1,162	1,085
unidentified swans	<i>Cygnus</i> spp.			9											
unidentified Bean Goose	<i>Anser fabalis</i> ssp.														
European White-fronted Goose	<i>Anser albifrons albifrons</i>	118	11,509	5,465	8,147	11	3	1				35,400	37,700	60,235	
Lesser White-fronted Goose	<i>Anser erythropus</i>				47										

Table 3 continued. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Georgia 1998	1997	Greece 1998	1999	1997	Israel 1998	1999	1997	Macedonia 1998	1999	1997	Romania 1998	1999
Greylag Goose	<i>Anser anser</i>		816	30	51	6		7		14	108	16,000	14,250	9,300
Snow Goose *	<i>Anser caerulescens</i>													
unidentified grey geese	<i>Anser</i> spp.	15		480		3	3							
Barnacle Goose	<i>Branta leucopsis</i>													
Red-breasted Goose	<i>Branta ruficollis</i>		769									1,450	6,070	12,380
Ruddy Shelduck	<i>Tadorna ferruginea</i>		78	17	23	23	117	1						
Common Shelduck	<i>Tadorna tadorna</i>	21	10,085	7,293	5,515	64	59	46	4			34	12	10
Eurasian Wigeon	<i>Anas penelope</i>	6	49,957	69,620	79,298	1,031	706	946	6	139	983	361	1,924	144
Gadwall	<i>Anas strepera</i>	376	2,203	6,281	2,250	214	700	422	43	20	26	52	50	165
Common Teal	<i>Anas crecca</i>	13,064	95,063	136,433	189,734	7,619	7,902	11,068	3,822	1,495	270	1,280	5,766	1,666
Mallard	<i>Anas platyrhynchos</i>	43,879	41,607	76,167	61,688	20,217	18,468	19,875	1,637	1,121	1,026	15,223	23,801	23,112
Northern Pintail	<i>Anas acuta</i>	140	24,567	40,547	44,157	224	425	354				33	111	174
Garganey	<i>Anas querquedula</i>			1	1	351	173	97						
Northern Shoveler	<i>Anas clypeata</i>	14	37,408	25,780	15,930	19,733	18,141	24,372	19	16	1	147	103	137
Marbled Teal	<i>Marmaronetta angustirostris</i>					39	85	31					13	
Red-crested Pochard	<i>Netta rufina</i>	4	29	3	33	5			564	2,845	3,196	66	1,150	266
Common Pochard	<i>Aythya ferina</i>	1,528	43,996	61,134	39,197	1,238	4,098	2,065	1,678	6,457	4,734	50,364	63,831	44,195
Ferruginous Duck	<i>Aythya nyroca</i>		87	76	106	139	131	405				200	6	46
Tufted Duck	<i>Aythya fuligula</i>	3,245	5,280	3,413	2,003	4,024	3,103	5,229	1,263	3,789	4,381	36,617	11,598	8,629
Greater Scaup	<i>Aythya marila</i>	35		2	4								144	218
unidentified pochards	<i>Aythya</i> spp.					32	222	215						
Common Eider	<i>Somateria mollissima</i>													
Common Scoter	<i>Melanitta nigra</i>		2									1		5
Velvet Scoter	<i>Melanitta fusca</i>		1	8									42	2
Long-tailed Duck	<i>Clangula hyemalis</i>													
Common Goldeneye	<i>Bucephala clangula</i>	86	359	581	303				75	84	123	2,542	8,702	1,236
Smew	<i>Mergellus albellus</i>	34	77	179	86				4			1,925	847	835
Red-breasted Merganser	<i>Mergus serrator</i>	28	690	698	282							24	49	21
Goosander	<i>Mergus merganser</i>	7	20	31	12		4		16	10	29	115	33	100
White-headed Duck	<i>Oxyura leucocephala</i>	2	2,213	689	261	127	72	62				12	284	130
unidentified ducks	<i>Anatinae</i> spp.		34,102	29,292	31,098	696	3,287	1,090			23	2,550	904	3,630
Common Crane	<i>Grus grus</i>		1	4		3,259	3,439	5,836						
Water Rail	<i>Rallus aquaticus</i>		26	62	28	13	113	6						
Little Crane	<i>Porzana parva</i>													
Baillon's Crane	<i>Porzana pusilla</i>					4								
Spotted Crane	<i>Porzana porzana</i>				2									
Moorhen	<i>Gallinula chloropus</i>	2	244	619	534	1,353	1,644	1,864	1					1

* an unknown proportion of Snow Geese in the region are of captive origin.

Table 3 continued. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Georgia 1998	1997	Greece 1998	1999	1997	Israel 1998	1999	1997	Macedonia 1998	1999	1997	Romania 1998	1999
Purple Swamphen	<i>Porphyrio porphyrio</i>					2								
Common Coot	<i>Fulica atra</i>	1,006	114,090	159,538	163,268	15,250	18,429	17,976	25,920	40,212	42,099	4,577	17,309	10,892
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>		65	165	201		42							
Black-winged Stilt	<i>Himantopus himantopus</i>			3		974	460	1,063						
Pied Avocet	<i>Recurvirostra avosetta</i>	6	3,528	4,853	4,129	428	410	288						
Stone Curlew	<i>Burhinus oediconemus</i>			39	49									
Cream-coloured Courser	<i>Cursorius cursor</i>													
Northern Lapwing	<i>Vanellus vanellus</i>		6,377	14,933	6,354	1,949	3,053	2,526	3	10				
Spur-winged Lapwing	<i>Vanellus spinosus</i>					4,603	4,124	4,792						
White-tailed Lapwing	<i>Vanellus leucurus</i>					1								
Eurasian Golden Plover	<i>Pluvialis apricaria</i>		865	2,487	2,073									
Grey Plover	<i>Pluvialis squatarola</i>		864	642	928	180	88	86						1
unidentified <i>Pluvialis</i> plovers	<i>Pluvialis</i> spp.					10	150	10						
Ringed Plover	<i>Charadrius hiaticula</i>		9	15	1	206	320	490						
Little Ringed Plover	<i>Charadrius dubius</i>			1	1	104	612	40						
Kentish Plover	<i>Charadrius alexandrinus</i>		2,595	4,031	5,042	155	26	114						
Greater Sandplover	<i>Charadrius leschenaultii</i>					18	41	21						
unidentified <i>Charadrius</i> plovers	<i>Charadrius</i> spp.			1	7,405	79	176	68						
Black-tailed Godwit	<i>Limosa limosa</i>		8	54	173	167	346	319						
Bar-tailed Godwit	<i>Limosa lapponica</i>				10									
Whimbrel	<i>Numenius phaeopus</i>				1									
Eurasian Curlew	<i>Numenius arquata</i>		1,484	2,080	2,289	3		6						7
Spotted Redshank	<i>Tringa erythropus</i>	1	31	12	608	80	284	257						
Redshank	<i>Tringa totanus</i>		4,131	5,827	3,924	869	557	1,257						
Marsh Sandpiper	<i>Tringa stagnatilis</i>				1	29	32	28						
Greenshank	<i>Tringa nebularia</i>		16	64	86	62	31	49						
Green Sandpiper	<i>Tringa ochropus</i>	1	20	30	30	81	21	68						
Wood Sandpiper	<i>Tringa glareola</i>					12	1	11						
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.			1	31	303	94	194						
Terek Sandpiper	<i>Tringa cinereus</i>					57	2							
Common Sandpiper	<i>Tringa hypoleucos</i>		8	32	92	320	216	321						
Ruddy Turnstone	<i>Arenaria interpres</i>		3	2	1	97	125	148						
Eurasian Woodcock	<i>Scolopax rusticola</i>			2	1									
Great Snipe	<i>Gallinago media</i>			3		13								
Common Snipe	<i>Gallinago gallinago</i>	4	535	1,135	1,016	163	133	241		10	2			1
unidentified snipes	<i>Gallinago</i> spp.					13	18	6						
Jack Snipe	<i>Lymnocyptes minimus</i>			9		5	2	2						

Table 3 continued. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Slovenia			Turkey		Ukraine			Yugoslavia			Overall area totals		
		1997	1998	1999	1997	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Black-throated Diver	<i>Gavia arctica</i>	26	73	48	2,478	12	4	12	17	1		2,771	350	231	
Red-throated Diver	<i>Gavia stellata</i>	5	1	1	16	1			1			35	5	2	
unidentified divers	<i>Gavia</i> spp.											16	6	19	
Little Grebe	<i>Tachybaptus ruficollis</i>	918	1,143	1,175	108	4,412	59	592	1,229	4,271	1,795	9,729	15,155	16,325	
Red-necked Grebe	<i>Podiceps grisegena</i>	10	6	1	9		21	42	5			46	61	75	
Great Crested Grebe	<i>Podiceps cristatus</i>	322	308	256	8,108	4,934	321	312	5,003	6,613	2,215	39,680	50,826	54,080	
Slavonian Grebe	<i>Podiceps auritus</i>	3								2		24	14	2	
Black-necked Grebe	<i>Podiceps nigricollis</i>	99	79	90	1,297	4,045	46	176	8,508	10,501	14,000	30,089	24,938	31,775	
unidentified grebes	<i>Podicipedidae</i> spp.											66	40	112	
Great White Pelican	<i>Pelecanus onocrotalus</i>					10						393	358	399	
Dalmatian Pelican	<i>Pelecanus crispus</i>				2	1,003	1	1		20		1,878	1,611	2,956	
Great Cormorant	<i>Phalacrocorax carbo</i>	3,391	2,839	3,942	4,117	19,823	206	313	6,939	6,208	12,900	56,548	58,449	92,278	
European Shag	<i>Phalacrocorax aristotelis</i>		1	6	242	28			310			701	368	534	
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>	2	1		2	1,378	393	429	4,265	6,837	2,875	14,259	37,255	25,189	
unidentified cormorants	<i>Phalacrocorax</i> spp.											5,557	173	43	
Grey Heron	<i>Ardea cinerea</i>	689	803	904	21	796	70	30	311	148	121	9,231	10,071	11,319	
Purple Heron	<i>Ardea purpurea</i>											3	19	7	
Great White Egret	<i>Casmerodius albus</i>	88	78	106	20	1,113	123	35	298	98	110	7,367	8,611	10,901	
Western Reef Egret	<i>Egretta gularis</i>											1		2	
Little Egret	<i>Egretta garzetta</i>	69	122	105	24	734				1		3,876	4,969	5,097	
Cattle Egret	<i>Bubulcus ibis</i>					13						270	256	1,837	
Squacco Heron	<i>Ardeola ralloides</i>											1	1	1	
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>				41	114	2	3				1,256	1,679	1,866	
Little Bittern	<i>Ixobrychus minutus</i>											4	1		
Eurasian Bittern	<i>Botaurus stellaris</i>	1	2	2	2	9	4	20				47	15	52	
Black Stork	<i>Ciconia nigra</i>					30						1,018	689	1,251	
White Stork	<i>Ciconia ciconia</i>		2			14		1				1,234	1,049	883	
Glossy Ibis	<i>Plegadis falcinellus</i>					5						1,604	2,767	3,661	
Eurasian Spoonbill	<i>Platalea leucorodia</i>					166						646	972	1,088	
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>					51,755						12,478	10,898	60,612	
Whooper Swan	<i>Cygnus cygnus</i>				28	69	1	2,156	1,442	18	6	2,154	2,995	4,850	
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>					34						21		39	
Mute Swan	<i>Cygnus olor</i>	397	389	725	3	9,088	3	13,124	4,608	103	180	110	11,548	20,449	24,982
unidentified swans	<i>Cygnus</i> spp.								4			4	61	11	
unidentified Bean Goose	<i>Anser fabalis</i> ssp.	1,374	2,037	2,978					6	4,227	1,400	8,207	2,426	8,517	
European White-fronted Goose	<i>Anser albifrons albifrons</i>	127	250	1	23	3,956			172,881	40,684	3,960	6,350	432,676	251,421	273,149
Lesser White-fronted Goose	<i>Anser erythropus</i>								320	7			320	71	

Table 3 continued. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Slovenia			Turkey		Ukraine			Yugoslavia			Overall area totals		
		1997	1998	1999	1997	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Greylag Goose	<i>Anser anser</i>	247	34		6	372	5,807	6,471		765	10	2,400	20,365	20,222	21,197
Snow Goose	<i>Anser caerulescens</i>							5							5
unidentified grey geese	<i>Anser</i> spp.								60	2,001			543	2,806	2,283
Barnacle Goose	<i>Branta leucopsis</i>						4	4						4	4
Red-breasted Goose	<i>Branta ruficollis</i>				6		11,478	916					70,020	20,002	13,433
Ruddy Shelduck	<i>Tadorna ferruginea</i>					7,189		19					109	153	7,229
Common Shelduck	<i>Tadorna tadorna</i>	18	9	11	8	2,705	373	897		1			14,177	10,480	11,908
Eurasian Wigeon	<i>Anas penelope</i>	700	866	748	97	53,581	127	96	1,686	2,790	1,205		162,337	77,952	169,213
Gadwall	<i>Anas strepera</i>	29	49	39	71	533			218	42	705		5,781	7,736	4,680
Common Teal	<i>Anas crecca</i>	1,920	1,796	2,937	3,065	99,742	6	62	4,659	2,631	2,100		176,709	183,564	322,583
Mallard	<i>Anas platyrhynchos</i>	10,376	15,796	19,796	16,663	25,661	281	77,953	24,759	49,594	18,205	42,200	324,679	381,208	374,926
Northern Pintail	<i>Anas acuta</i>	4	8	12	7	13,570		81	29	622	500	156	30,056	42,120	64,786
Garganey	<i>Anas querquedula</i>			1		155		300	15				379	476	269
Northern Shoveler	<i>Anas clypeata</i>	70	53	90	312	13,114				72	27	20	73,421	44,734	62,021
Marbled Teal	<i>Marmaronetta angustirostris</i>												39	98	31
Red-crested Pochard	<i>Netta rufina</i>			1	61	6,228	5	9		20	4		3,313	4,208	10,292
Common Pochard	<i>Aythya ferina</i>	1,145	2,634	624	817	136,510	18,971	29,355	61,113	48,559	121,490		211,936	229,315	410,208
Ferruginous Duck	<i>Aythya nyroca</i>		1		4	29		21	5		1		457	217	640
Tufted Duck	<i>Aythya fuligula</i>	838	1,141	797	19,231	18,512	23,279	26,491	25,532	13,584	21,800		116,412	82,196	107,674
Greater Scaup	<i>Aythya marila</i>	1		3	8	1	694	6					170	882	237
unidentified pochards	<i>Aythya</i> spp.								600				632	222	218
Common Eider	<i>Somateria mollissima</i>				3						1		8		4
Common Scoter	<i>Melanitta nigra</i>	1			5								10		5
Velvet Scoter	<i>Melanitta fusca</i>	28	7		438	43			25				531	58	49
Long-tailed Duck	<i>Clangula hyemalis</i>							6					3		10
Common Goldeneye	<i>Bucephala clangula</i>	778	692	667	306	88	6	2,472	1,360	14,260	5,464	29,900	20,114	18,174	33,974
Smew	<i>Mergellus albellus</i>	122	89	116	7	375	550	616	4,480	2,460	4,760		7,724	4,338	7,023
Red-breasted Merganser	<i>Mergus serrator</i>	77	93	94	151	138	69	71			5		2,173	1,884	1,510
Goosander	<i>Mergus merganser</i>	160	127	199		1	71	204	18	6	83		441	299	704
White-headed Duck	<i>Oxyura leucocephala</i>					2,575							2,353	1,222	3,487
unidentified ducks	<i>Anatinae</i> spp.					17,326			2,500	15,000			56,596	52,463	53,537
Common Crane	<i>Grus grus</i>					202							3,304	3,443	6,721
Water Rail	<i>Rallus aquaticus</i>	4	8	70					20		10		190	200	179
Little Crake	<i>Porzana parva</i>														1
Baillon's Crake	<i>Porzana pusilla</i>												4		
Spotted Crake	<i>Porzana porzana</i>														2
Moorhen	<i>Gallinula chloropus</i>	52	87	157	7	215	1	54	100	104	100		1,927	2,545	3,033

Table 3 continued. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Slovenia			Turkey		Ukraine			Yugoslavia			Overall area totals		
		1997	1998	1999	1997	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Purple Swamphen	<i>Porphyrio porphyrio</i>					8						2		8	
Common Coot	<i>Fulica atra</i>	3,990	5,324	5,697	14,852	1,012,910		4,415	14,126	137,882	187,320	175,250	573,192	555,608	1,581,830
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>				8	73							93	207	274
Black-winged Stilt	<i>Himantopus himantopus</i>												974	463	1,063
Pied Avocet	<i>Recurvirostra avosetta</i>					2,062		3					4,922	5,295	6,762
Stone Curlew	<i>Burhinus oediconemus</i>													39	132
Cream-coloured Courser	<i>Cursorius cursor</i>							6						6	
Northern Lapwing	<i>Vanellus vanellus</i>	49	194	116	363	4,405				1,035	100	200	47,424	18,547	18,507
Spur-winged Lapwing	<i>Vanellus spinosus</i>												4,603	4,124	4,792
White-tailed Lapwing	<i>Vanellus leucurus</i>												1		
Eurasian Golden Plover	<i>Pluvialis apricaria</i>		1	2		262							2,393	2,488	3,038
Grey Plover	<i>Pluvialis squatarola</i>				3	353		2	2				2,120	771	1,850
unidentified <i>Pluvialis</i> plovers	<i>Pluvialis</i> spp.												10	150	10
Ringed Plover	<i>Charadrius hiaticula</i>				11	21							244	335	513
Little Ringed Plover	<i>Charadrius dubius</i>												110	613	47
Kentish Plover	<i>Charadrius alexandrinus</i>	3	12		2	1,216							3,270	4,071	6,697
Greater Sandplover	<i>Charadrius leschenaultii</i>												18	41	21
unidentified <i>Charadrius</i> plovers	<i>Charadrius</i> spp.												79	177	7,473
Black-tailed Godwit	<i>Limosa limosa</i>					800							489	404	1,300
Bar-tailed Godwit	<i>Limosa lapponica</i>														10
Whimbrel	<i>Numenius phaeopus</i>												3		1
Eurasian Curlew	<i>Numenius arquata</i>	4	1	4	54	1,362		15	128	30			3,082	2,155	4,006
Spotted Redshank	<i>Tringa erythropus</i>		1	1		53							201	298	919
Redshank	<i>Tringa totanus</i>	81	110	159	2	3,003							6,387	6,535	9,114
Marsh Sandpiper	<i>Tringa stagnatilis</i>					2							29	32	32
Greenshank	<i>Tringa nebularia</i>	2				53							92	95	191
Green Sandpiper	<i>Tringa ochropus</i>	29	32	31		28			3				199	208	275
Wood Sandpiper	<i>Tringa glareola</i>			1									12	8	12
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.												303	106	276
Terek Sandpiper	<i>Tringa cinereus</i>												57	2	
Common Sandpiper	<i>Tringa hypoleucos</i>	8	7	7		10							349	258	445
Ruddy Turnstone	<i>Arenaria interpres</i>					1							100	127	150
Eurasian Woodcock	<i>Scolopax rusticola</i>			1	1								3	23	3
Great Snipe	<i>Gallinago media</i>												21	3	
Common Snipe	<i>Gallinago gallinago</i>	38	6	58	34	240			2	200	100	100	1,437	1,445	1,836
unidentified snipes	<i>Gallinago</i> spp.												13	18	6
Jack Snipe	<i>Lymnocyptes minimus</i>												13	12	2

Table 3 continued. Species counts per country, and area totals, East Mediterranean and Black Sea area.

		Slovenia			Turkey		Ukraine			Yugoslavia			Overall area totals		
		1997	1998	1999	1997	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Red Knot	<i>Calidris canutus</i>					42						8	48	49	
Sanderling	<i>Calidris alba</i>				13	1		100	36			54	432	95	
Little Stint	<i>Calidris minuta</i>			2		3,732						7,860	2,785	10,144	
Temminck's Stint	<i>Calidris temminckii</i>											17	30	7	
Dunlin	<i>Calidris alpina</i>	23	18	86	75	1,833		120	35			16,272	12,257	18,635	
unidentified <i>Calidris</i> sandpipers	<i>Calidris</i> spp.											151	1,707	351	
Ruff	<i>Philomachus pugnax</i>					32						134	78	359	
unidentified waders	<i>Charadrii</i> spp.					8,372						2,866	8,550	8,399	
White-eyed Gull	<i>Larus leucophthalmus</i>											40		3	
Audouin's Gull	<i>Larus audouinii</i>												6		
Common Gull	<i>Larus canus</i>	713	130	846	5,279	417	24	6,872	713	13	2	160	21,953	7,938	9,594
Herring Gull	<i>Larus argentatus</i>		2										2	66	
Yellow-legged Gull	<i>Larus cachinnans</i>	1,856	991	1,187			461	7,297	7,053	3,136	3,803	2,145	35,550	69,247	52,269
Armenian Gull	<i>Larus armenicus</i>				53	1,058							68	6	1,104
Lesser Black-backed Gull	<i>Larus fuscus</i>				8	1			3				190	673	672
Great Black-backed Gull	<i>Larus marinus</i>	2											6	1	
Great Black-headed Gull	<i>Larus ichthyaetus</i>	1			19	324		3,572	2				265	3,984	438
Mediterranean Gull	<i>Larus melanocephalus</i>	2	2	4	357	993			1				869	1,743	2,567
Black-headed Gull	<i>Larus ridibundus</i>	3,507	2,834	4,659	10,992	61,696		895	5,647	5,929	5,353	6,360	131,333	80,504	159,868
Slender-billed Gull	<i>Larus genei</i>				3	828							2,786	3,540	5,543
Little Gull	<i>Larus minutus</i>	2		17	1,138	310			8		1		1,466	379	390
Herring/Yellow-legged Gull	<i>Larus argentatus/cachinnans</i>				33,895	46,209							34,279	66	46,452
Black-legged Kittiwake	<i>Rissa tridactyla</i>				20								20		1
Whiskered Tern	<i>Chlidonias hybridus</i>					38				3	1		10	66	38
Caspian Tern	<i>Sterna caspia</i>					6							58	18	31
Common Tern	<i>Sterna hirundo</i>												1		20
Arctic Tern	<i>Sterna paradisaea</i>												3		
Sandwich Tern	<i>Sterna sandvicensis</i>	15	21	21	71	99							894	808	540
Gull-billed Tern	<i>Gelochelidon nilotica</i>												2		
unidentified <i>Sterna</i> terns	<i>Sterna</i> spp.												10	286	
unidentified gulls	<i>Larus</i> spp.					9							976	2,646	6,539
Non-native species	Total	34,416	41,310	49,601	125,067	1,655,307	776	355,288	167,963	349,755	342,970	453,031	2,872,737	2,504,963	4,304,061
Wood Duck	<i>Aix sponsa</i>	2											2		
Mandarin Duck	<i>Aix galericulata</i>	1	1	2									2	1	2
Total non-native species		3	1	2	0	0	0	0	0	0	0	0	4	1	2

4.4 Northwest Europe

Countries such as The Netherlands, United Kingdom and France have a long tradition of waterbird censuses. This results in the availability of many counters and resources to conduct waterbirds counts, which in turn is one of the causes of high numbers being recorded. Northwest Europe hosts the biggest concentrations of waterbirds recorded by the IWC. The results and coverage for Northwest Europe are presented in Table 4 and Figures 16–18. The most southern part of Germany and the Mediterranean part France are not included in this area, but assigned to respectively the Central European and West Mediterranean areas.

Belgium

Data were included from both Flanders and Wallonia, resulting from consistent coverage of 59 sites during 1997–1999. The totals fluctuated between roughly 210,000 and 310,000 in the this period, with Eurasian Wigeon and Mallard being the most numerous species. The year 1998 showed a dip in numbers of most species, but the cause of this remains unclear.

France (Northwest European part)

This part of France (excluding the Mediterranean part) holds big numbers of waterbirds, totalling over two million in some years. Regionally important totals were recorded for Great Cormorant (37,127 in 1999), Dark-bellied Brent Goose (98,510 in 1997) and Common Shelduck (67,110 in 1997). Noteworthy is the total of 495 Sacred Ibis from the introduced population in Brittany and the significantly lower numbers of Northern Lapwing and Eurasian Golden Plover during the cold winter of 1997 (see Spain).

Germany (Northwest European part)

The coverage in Northern Germany is good. Data on herons, gulls and inland waders were not submitted. The cold 1997 winter is reflected in the area's totals, with around 1.3 million birds in 1997 and around 2.1 and 1.6 million birds in both following years. Noteworthy totals included Mute Swan (35,454 in 1999), Common Shelduck (61,794 in 1998), Greater Scaup (57,350 in 1999) and Long-tailed Duck (19,956 in 1997).

Iceland

Iceland contributed consistently to the IWC from the late sixties until 1979, since when no data have been

submitted. The Christmas Bird Counts continue, but reporting of results remains a low priority and resources are not available. Wetlands International looks forward to receiving a backlog of data from Iceland when this situation is rectified.

Ireland

From 1995 onwards the IWC has been consistent in Ireland, covering roughly 300 sites. The cold winter of 1997 seems to have driven a considerable number of waterbirds, mainly waders, to Ireland, and the total count was 40% higher in 1997 (850,000) than in the other years (610,000–640,000). Ireland hosts almost the entire European wintering population of Light-bellied Brent Goose that breeds in arctic Canada (9,725 counted in 1997), 60% of the Icelandic population of Whooper Swan (6,130 in 1997) and 30% of the population of Greenland White-fronted Goose (maximum 11,547 in 1999).

Luxembourg

For Luxembourg some goose data (national totals) were received from 1997, 1998 and 1999, with relatively low numbers of Bean Goose, European White-fronted Goose and Barnacle Goose.

The Netherlands

The Netherlands has good coverage and hosts the biggest concentrations of waterbirds recorded by the IWC. Several internationally important and large areas, such as the Dutch part of the Wadden Sea, IJsselmeer and the Rhine-Maas-Schelde Delta are counted annually. In total, over 4.7 million waterbirds were counted in 1999, including more than one million geese. High numbers (100,000 or more) of White-fronted Goose, Eurasian Wigeon, Mallard, Common Coot, Eurasian Curlew, Red Knot, Dunlin and several gull species are recorded annually in The Netherlands.

United Kingdom

The IWC in the UK has always been very complete and consistent and over 1,600 sites are counted including 130 estuaries. In 1997–1999 the waterbird numbers added up to more than 3.5 million, including geese, waders, seaducks and gulls (for the latter only national totals were available), but excluding grebes and divers, for which data were not submitted for the reporting period. Large numbers of Common Teal, Eurasian Wigeon and waders characterise the spectrum of waterbirds in the UK.

Dark-bellied Brent Geese flock in Norfolk, United Kingdom.



Nick Davidson

Table 4. Species counts per country, and area totals, Northwest European area.

		Belgium			France (NWE-part)			Germany (NWE-part)			Ireland		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Great Northern Diver	<i>Gavia immer</i>		2		76	117	95			1	359	255	420
White-billed Diver	<i>Gavia adamsii</i>						1						
Black-throated Diver	<i>Gavia arctica</i>		1	1	126	210	223	9	69	68	13	8	64
Red-throated Diver	<i>Gavia stellata</i>		1		109	39	268	1	49	10	313	201	124
unidentified divers	<i>Gavia</i> spp.				88	70	40			36			
Little Grebe	<i>Tachybaptus ruficollis</i>	432	308	405	4,858	5,100	5,096	528	558	557	616	573	604
Red-necked Grebe	<i>Podiceps grisegena</i>	3	10	5	149	44	22	9	24	77	2	1	1
Great Crested Grebe	<i>Podiceps cristatus</i>	2,719	2,250	2,207	19,706	19,631	19,293	844	8,735	10,925	1,282	1,077	1,518
Slavonian Grebe	<i>Podiceps auritus</i>	1	7		227	349	661		13	11	19	13	23
Black-necked Grebe	<i>Podiceps nigricollis</i>	8	7	4	4,055	2,290	4,651	1	7	3	4	2	5
unidentified grebes	<i>Podicipedidae</i> spp.				26	79	25			4			
Great Cormorant	<i>Phalacrocorax carbo</i>	7,480	4,189	4,925	30,302	38,480	37,127	8,470	6,499	7,287	4,627	3,333	2,763
European Shag	<i>Phalacrocorax aristotelis</i>				145	1,537	869						
unidentified cormorants	<i>Phalacrocorax</i> spp.				21	16							
Grey Heron	<i>Ardea cinerea</i>	600	987	782	3,098	6,760	6,264				799	665	657
Purple Heron	<i>Ardea purpurea</i>						1						
Great White Egret	<i>Casmerodius albus</i>		2	3	80	289	501						
Little Egret	<i>Egretta garzetta</i>				3,035	4,163	5,931				41	30	34
Cattle Egret	<i>Bubulcus ibis</i>				134	491	628						
unidentified egrets	<i>Egretta/Bubulcus</i> spp.						16						
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>						24						
Eurasian Bittern	<i>Botaurus stellaris</i>	11			39	16	18				1		1
Black Stork	<i>Ciconia nigra</i>						1						
White Stork	<i>Ciconia ciconia</i>				69	102	117						
Eurasian Spoonbill	<i>Platalea leucorodia</i>				63	93	161						
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>												
Whooper Swan	<i>Cygnus cygnus</i>	73	20	16	66	28	16	9,262	12,977	8,587	6,130	4,247	4,277
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>	28	58	39	105	36	25	89	744		1,037	520	54
Mute Swan	<i>Cygnus olor</i>	464	401	414	6,113	7,321	7,028	21,154	31,137	35,454	5,496	3,134	4,122
unidentified swans	<i>Cygnus</i> spp.				3			227	3,557	3,116			
Taiga Bean Goose	<i>Anser fabalis fabalis</i>	44											
Tundra Bean Goose	<i>Anser fabalis rossicus</i>	192	185	200									
unidentified Bean Goose	<i>Anser fabalis</i> ssp.	4	6		3,220	2,701	2,819	161,749	165,987	220,824			

Table 4 continued. Species counts per country, and area totals, Northwest European area.

		Belgium			France (NWE-part)			Germany (NWE-part)			Ireland		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Pink-footed Goose	<i>Anser brachyrhynchus</i>	16,393	8,614	1,249		1	2	25	5	26	22	36	22
European White-fronted Goose	<i>Anser albifrons albifrons</i>	18,605	23,662	23,379	287	157	238	242,788	451,720	187,091			
Greenland White-fronted Goose	<i>Anser albifrons flavirostris</i>										9,584	10,945	11,547
Lesser White-fronted Goose	<i>Anser erythropus</i>		1						1				
Greylag Goose	<i>Anser anser</i>	7,155	3,336	9,836	6,258	5,344	6,184	14,262	26,302	20,243	4,840	3,512	4,256
unidentified grey geese	<i>Anser</i> spp.				115	32	4						
Barnacle Goose	<i>Branta leucopsis</i>	273	91	477	59	6	12	28,437	55,490	57,392	3,387	1,920	8,664
Brent Goose	<i>Branta bernicla</i> ssp.							22	768	2			
Dark-bellied Brent Goose	<i>Branta bernicla bernicla</i>	50		1	98,510	97,870	87,019	785	2,779	2,854		1	
Light-bellied Brent Goose	<i>Branta bernicla hrota</i>	28									9,725	8,545	9,281
Red-breasted Goose	<i>Branta ruficollis</i>			1	1				9	2		1	
unidentified Goose	<i>Anser / Branta</i> spp.									70			
Common Shelduck	<i>Tadorna tadorna</i>	4,796	3,754	3,096	67,110	44,993	42,578	36,852	51,642	61,794	14,311	8,711	8,178
Eurasian Wigeon	<i>Anas penelope</i>	71,785	42,185	55,815	46,546	19,210	22,032	33,053	140,770	59,225	60,892	42,033	46,806
American Wigeon	<i>Anas americana</i>		1										
Gadwall	<i>Anas strepera</i>	2,585	3,034	3,340	6,979	7,791	9,784	3	97	286	529	326	193
Common Teal	<i>Anas crecca</i>	9,916	13,630	23,235	45,772	56,129	64,656	1,917	4,627	1,351	26,436	25,765	28,397
Mallard	<i>Anas platyrhynchos</i>	62,431	37,032	44,622	164,697	159,621	171,098	147,835	223,231	193,423	17,335	12,096	12,661
Northern Pintail	<i>Anas acuta</i>	1,814	1,033	949	21,701	10,667	15,297	2,789	1,468	1,165	1,663	632	637
Garganey	<i>Anas querquedula</i>					2	1		19				1
Northern Shoveler	<i>Anas clypeata</i>	697	944	1,505	5,331	8,127	11,535	33	26	45	2,458	1,711	1,640
Red-crested Pochard	<i>Netta rufina</i>	7	4	2	121	508	293		6	2			
Common Pochard	<i>Aythya ferina</i>	30,713	10,091	14,532	49,469	63,626	60,514	6,261	15,299	13,056	14,389	7,938	8,005
Ring-necked Duck	<i>Aythya collaris</i>		1	1			1						
Ferruginous Duck	<i>Aythya nyroca</i>	1	1	90	5	15	15	1	4	1	1	1	
Tufted Duck	<i>Aythya fuligula</i>	21,552	8,646	10,613	40,558	42,136	35,935	79,279	97,557	99,552	13,702	7,637	7,137
Greater Scaup	<i>Aythya marila</i>	37	3	54	3,715	1,478	2,022	27,609	14,311	57,350	3,037	705	328
unidentified pochards	<i>Aythya</i> spp.				2	1	1			1,631			
Hybrid Aythya duck	<i>Aythya X hybridus</i>									12			
Steller's Eider	<i>Polysticta stellerii</i>												
Common Eider	<i>Somateria mollissima</i>	14	6	25	2,163	2,419	2,328	170,423	236,060	100,843	11	32	16
unidentified Eider	<i>Somateria</i> spp.									788			

Table 4 continued. Species counts per country, and area totals, Northwest European area.

		Belgium			France (NWE-part)			Germany (NWE-part)			Ireland		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Common Scoter	<i>Melanitta nigra</i>	3	3		35,342	32,200	37,537	49,559	9,366	13,537	7,908	4,077	5,891
Surf Scoter	<i>Melanitta perspicillata</i>						1						
Velvet Scoter	<i>Melanitta fusca</i>	1	1	3	494	2,212	1,548	401	105	114	4	2	4
Long-tailed Duck	<i>Clangula hyemalis</i>			1	9	6	13	19,956	9,746	18,805	81	11	51
Common Goldeneye	<i>Bucephala clangula</i>	382	251	490	3,057	2,296	2,565	37,129	33,297	32,565	2,475	2,056	2,313
Smew	<i>Mergellus albellus</i>	588	158	156	2,269	268	193	1,167	4,699	4,543	2	10	5
Red-breasted Merganser	<i>Mergus serrator</i>	89	54	39	4,144	3,500	4,504	2,017	6,779	4,536	1,336	1,197	1,082
Goosander	<i>Mergus merganser</i>	4,177	446	487	5,282	1,103	908	13,563	18,269	21,484	7	15	5
White-headed Duck	<i>Oxyura leucocephala</i>												
unidentified ducks	<i>Anatinae spp.</i>		21,519	26,483	1,685	15	1,438	410	5,518	1,291			
Common Crane	<i>Grus grus</i>				24,092	20,497	19,061						
Water Rail	<i>Rallus aquaticus</i>	8	7	16	211	209	237			1	38	37	25
Spotted Crane	<i>Porzana porzana</i>					1							
Moorhen	<i>Gallinula chloropus</i>	1,788	1,227	1,870	9,725	6,230	7,409			324	597	573	653
Purple Swampphen	<i>Porphyrio porphyrio</i>				10								
Common Coot	<i>Fulica atra</i>	26,983	17,396	18,023	123,260	145,414	156,116	43,768	79,460	70,905	15,022	4,207	7,010
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>				121,128	65,457	52,486	72,019	207,333	166,573	28,091	26,122	26,081
Black-winged Stilt	<i>Himantopus himantopus</i>					13	2						
Pied Avocet	<i>Recurvirostra avosetta</i>				12,298	13,072	16,538		2				
Northern Lapwing	<i>Vanellus vanellus</i>	64	2,596	1,291	44,863	382,229	311,943	4	4,094	1,765	220,729	130,948	101,899
Eurasian Golden Plover	<i>Pluvialis apricaria</i>		141		3,420	22,991	22,684		2,465	129	84,198	83,756	76,202
Grey Plover	<i>Pluvialis squatarola</i>				35,142	25,863	23,911	1,612	5,436	4,898	5,066	5,697	2,628
Ringed Plover	<i>Charadrius hiaticula</i>				11,127	12,400	10,863		4	13	3,213	3,348	3,853
Kentish Plover	<i>Charadrius alexandrinus</i>				45	43	43						
unidentified <i>Charadrius</i> plovers	<i>Charadrius spp.</i>						1						
Eurasian Dotterel	<i>Eudromias morinellus</i>					12							
Black-tailed Godwit	<i>Limosa limosa</i>				7,563	6,727	9,532				7,705	6,142	7,725
Bar-tailed Godwit	<i>Limosa lapponica</i>				8,567	7,265	7,434	354	2,719	2,642	17,633	11,193	8,413
Whimbrel	<i>Numenius phaeopus</i>				195	15	19		1		3	1	10
Eurasian Curlew	<i>Numenius arquata</i>	1		1	41,402	19,522	17,857	26,740	86,710	52,967	26,172	32,403	32,923
Spotted Redshank	<i>Tringa erythropus</i>				171	301	281	300	24	12	23	10	21
Redshank	<i>Tringa totanus</i>		6	2	3,985	4,946	5,868	811	2,420	929	12,717	14,607	13,711
Greenshank	<i>Tringa nebularia</i>				77	178	166		29		352	488	424

Table 4 continued. Species counts per country, and area totals, Northwest European area.

		Belgium			France (NWE-part)			Germany (NWE-part)			Ireland		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Lesser Yellowlegs	<i>Tringa flavipes</i>												
Green Sandpiper	<i>Tringa ochropus</i>	5	2	9	55	119	163	1	5	6	6	9	16
Wood Sandpiper	<i>Tringa glareola</i>				17		1						
Common Sandpiper	<i>Tringa hypoleucos</i>		2	2	105	140	145		1		3	5	3
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.				4	68	2						
Ruddy Turnstone	<i>Arenaria interpres</i>				7,203	7,714	7,538	258	394	472	2,554	2,520	2,971
Red-necked Phalarope	<i>Phalaropus lobatus</i>					11	1						
Grey Phalarope	<i>Phalaropus fulicaria</i>												
Eurasian Woodcock	<i>Scolopax rusticola</i>				69	6	8				22	1	9
Common Snipe	<i>Gallinago gallinago</i>	33	54	28	1,220	3,759	3,298		689	1	1,458	1,421	1,322
Jack Snipe	<i>Lymnocyptes minimus</i>	1	6	6	8	4	7				18	20	24
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>												
Red Knot	<i>Calidris canutus</i>				23,751	30,931	26,966	1,089	8,501	6,691	27,241	22,350	17,470
Sanderling	<i>Calidris alba</i>				10,288	10,985	8,423	717	446	344	1,481	1,565	1,619
Little Stint	<i>Calidris minuta</i>				109	163	139				1		1
Temminck's Stint	<i>Calidris temminckii</i>						2						
Purple Sandpiper	<i>Calidris maritima</i>				484	509	643	56	16	60	464	157	225
Dunlin	<i>Calidris alpina</i>				345,739	297,356	306,417	12,751	42,386	45,933	110,047	79,710	62,405
Curlew Sandpiper	<i>Calidris ferruginea</i>								5		4		
unidentified <i>Calidris</i> sandpipers	<i>Calidris</i> spp.				301	40	158						
Ruff	<i>Philomachus pugnax</i>				178	317	176		152		7	2	4
unidentified waders	<i>Charadrii</i> spp.						7,050						
Audouin's Gull	<i>Larus audouinii</i>				10								
Ring-billed Gull	<i>Larus delawarensis</i>						3				4	4	7
Common Gull	<i>Larus canus</i>	872	105	542	8,876	16,036	3,886				8,259	10,336	15,011
Herring Gull	<i>Larus argentatus</i>	254	70	272	51,733	54,775	50,689				9,361	5,882	4,505
Yellow-legged Gull	<i>Larus cachinnans</i>	2	1	3	1,650	3,012	3,762						
Lesser Black-backed Gull	<i>Larus fuscus</i>	2	2	90	6,210	7,993	7,743				9,981	2,458	4,736
Great Black-backed Gull	<i>Larus marinus</i>			1	781	2,949	2,266				2,152	2,277	1,610
Iceland Gull	<i>Larus glaucoides</i>										4		3
Glaucous Gull	<i>Larus hyperboreus</i>					2	2				8	4	10
Franklin's Gull	<i>Larus pipixcan</i>						1						

Table 4 continued. Species counts per country, and area totals, Northwest European area.

		Belgium			France (NWE-part)			Germany (NWE-part)			Ireland		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Mediterranean Gull	<i>Larus melanocephalus</i>				84	2,965	1,205				9	6	10
Black-headed Gull	<i>Larus ridibundus</i>	8,827	6,807	18,081	147,666	251,336	177,096				38,527	38,192	39,715
Little Gull	<i>Larus minutus</i>				40	356	34				32	25	1
Sabine's Gull	<i>Larus sabini</i>					5							
Black-legged Kittiwake	<i>Rissa tridactyla</i>					24	15				115	127	8,031
Whiskered Tern	<i>Chlidonias hybridus</i>					1	2						
Common/Arctic Tern	<i>Sterna hirundo/paradisea</i>					2	1						
Sandwich Tern	<i>Sterna sandvicensis</i>				164	235	173						
unidentified gulls	<i>Larus</i> spp.				2,962	11,412	2,977						670
	Total	304,991	215,357	269,719	1,744,582	2,088,305	1,945,620	1,279,399	2,083,618	1,596,704	848,191	640,577	613,743
Non-native species													
Sacred Ibis	<i>Threskiornis aethiopicus</i>					269	495						
Chilean Flamingo	<i>Phoenicopterus chilensis</i>												
Lesser Flamingo	<i>Phoenicopterus minor</i>												
unidentified flamingos	<i>Phoenicopteridae</i> spp.												
Black Swan	<i>Cygnus atratus</i>						4			2			
Greylag Goose (Introduced pop.)	<i>Anser anser</i>												
Bar-headed Goose	<i>Anser indicus</i>						1						
Canada Goose	<i>Branta canadensis</i>	995	2,317	1,801	290	332	343	17,644	20,857	22,799	151	181	213
Ruddy Shelduck	<i>Tadorna ferruginea</i>	3	3	3	3	16	10	1	1	2			
Egyptian Goose	<i>Alopochen aegyptiacus</i>	310	393	378		1	6			132			
Upland Goose	<i>Chloephaga picta</i>			15									
Muscovy Duck	<i>Cairina moschata</i>		5										
Wood Duck	<i>Aix sponsa</i>	1	5	2				1	2	12			
Mandarin Duck	<i>Aix galericulata</i>	24	16	11	94	39	49	174	23	107			
Mandarin/Wood Duck	<i>Aix</i> spp.									123			
Chiloe Wigeon	<i>Anas sibilatrix</i>												
Speckled Teal	<i>Anas flavirostris</i>												
Maned Duck	<i>Chenonetta jubata</i>												
Marbled Teal	<i>Marmaronetta angustirostris</i>				2								
Ruddy Duck	<i>Oxyura jamaicensis</i>	3	2	1	12	25	48				11	7	1
Spur-winged Lapwing	<i>Vanellus spinosus</i>												
	Total non-native species	1,336	2,741	2,211	401	682	956	17,820	20,883	23,177	162	188	214

Table 4 continued. Species counts per country, and area totals, Northwest European area.

		Luxembourg			The Netherlands			United Kingdom			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Great Northern Diver	<i>Gavia immer</i>				1	1	5				436	375	521
White-billed Diver	<i>Gavia adamsii</i>												1
Black-throated Diver	<i>Gavia arctica</i>					6	5				148	294	361
Red-throated Diver	<i>Gavia stellata</i>				10	126	228				433	416	630
unidentified divers	<i>Gavia</i> spp.										88	70	76
Little Grebe	<i>Tachybaptus ruficollis</i>				623	914	1,150	2,766	2,817	3,498	9,823	10,270	11,310
Red-necked Grebe	<i>Podiceps grisegena</i>				7	26	16				170	105	121
Great Crested Grebe	<i>Podiceps cristatus</i>				12,786	25,733	22,403	6,411	8,521	7,518	43,748	65,947	63,864
Slavonian Grebe	<i>Podiceps auritus</i>				16	24	30				263	406	725
Black-necked Grebe	<i>Podiceps nigricollis</i>				89	91	179				4,157	2,397	4,842
unidentified grebes	<i>Podicipedidae</i> spp.										26	79	29
Great Cormorant	<i>Phalacrocorax carbo</i>				6,046	11,228	12,512	11,681	13,442	13,656	68,606	77,171	78,270
European Shag	<i>Phalacrocorax aristotelis</i>				1		2				146	1,537	871
unidentified cormorants	<i>Phalacrocorax</i> spp.										21	16	
Grey Heron	<i>Ardea cinerea</i>				3,333	4,765	5,911	2,518	3,568	3,123	10,348	16,745	16,737
Purple Heron	<i>Ardea purpurea</i>												1
Great White Egret	<i>Casmerodius albus</i>					5	21		2		80	298	525
Little Egret	<i>Egretta garzetta</i>					10	29	248	522	480	3,324	4,725	6,474
Cattle Egret	<i>Bubulcus ibis</i>										134	491	628
unidentified egrets	<i>Egretta/Bubulcus</i> spp.												16
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>						1						25
Eurasian Bittern	<i>Botaurus stellaris</i>				48	22	48	33	13	25	132	51	92
Black Stork	<i>Ciconia nigra</i>												1
White Stork	<i>Ciconia ciconia</i>				148	199	149		3	4	217	304	270
Eurasian Spoonbill	<i>Platalea leucorodia</i>						2	3	8	7	66	101	170
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>				5		8		1		5	1	8
Whooper Swan	<i>Cygnus cygnus</i>				2,954	1,141	2,045	5,080	4,020	4,665	23,565	22,433	19,606
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>				12,275	11,225	15,540	4,194	4,243	1,518	17,728	16,826	17,176
Mute Swan	<i>Cygnus olor</i>				15,009	15,790	19,154	17,779	18,582	18,595	66,015	76,365	84,767
unidentified swans	<i>Cygnus</i> spp.										230	3,557	3,116
Taiga Bean Goose	<i>Anser fabalis fabalis</i>				2,228	1,000	1,559				2,272	1,000	1,559
Tundra Bean Goose	<i>Anser fabalis rossicus</i>	80	148	100	41,512	45,652	77,067				41,784	45,985	77,367
unidentified Bean Goose	<i>Anser fabalis</i> ssp.				53,595	22,696	67,378	42	45	334	218,610	191,435	291,355

Table 4 continued. Species counts per country, and area totals, Northwest European area.

		Luxembourg			The Netherlands			United Kingdom			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Pink-footed Goose	<i>Anser brachyrhynchus</i>				4,190	1,659	2,364	234,379	235,559	123,144	255,009	245,874	126,807
European White-fronted Goose	<i>Anser albifrons albifrons</i>	14	2		620,373	490,037	620,192	3,831	4,095	4,139	885,898	969,673	835,039
Greenland White-fronted Goose	<i>Anser albifrons flavirostris</i>							13,881	592	1,038	23,465	11,537	12,585
Lesser White-fronted Goose	<i>Anser erythropus</i>				1	23	40			1	1	25	41
Greylag Goose	<i>Anser anser</i>				81,085	81,949	110,505	79,576	79,477	23,657	193,176	199,920	174,681
unidentified grey geese	<i>Anser</i> spp.										115	32	4
Barnacle Goose	<i>Branta leucopsis</i>	3			245,399	210,425	214,722	23,856	26,109	71,109	301,414	294,041	352,376
Brent Goose	<i>Branta bernicla</i> ssp.										22	768	2
Dark-bellied Brent Goose	<i>Branta bernicla bernicla</i>				22,218	44,390	33,459	92,368	96,482	74,510	213,931	241,522	197,843
Light-bellied Brent Goose	<i>Branta bernicla hrota</i>				103	4	4	7,862	4,103	4,748	17,718	12,652	14,033
Red-breasted Goose	<i>Branta ruficollis</i>				11	5	5				12	15	8
unidentified Goose	<i>Anser / Branta</i> spp.												70
Common Shelduck	<i>Tadorna tadorna</i>				11,723	31,287	44,814	86,838	71,605	66,915	221,630	211,992	227,375
Eurasian Wigeon	<i>Anas penelope</i>				555,118	567,517	677,820	415,352	333,581	352,173	1,182,746	1,145,296	1,213,871
American Wigeon	<i>Anas americana</i>											1	
Gadwall	<i>Anas strepera</i>				3,034	9,534	9,628	8,592	11,092	12,485	21,722	31,874	35,716
Common Teal	<i>Anas crecca</i>				2,494	12,975	22,329	116,630	121,516	141,779	203,165	234,642	281,747
Mallard	<i>Anas platyrhynchos</i>				327,603	319,661	465,735	154,181	128,385	133,871	874,082	880,026	1,021,410
Northern Pintail	<i>Anas acuta</i>				2,162	7,168	8,295	25,439	14,959	27,021	55,568	35,927	53,364
Garganey	<i>Anas querquedula</i>									1		21	3
Northern Shoveler	<i>Anas clypeata</i>				175	1,515	2,538	5,310	7,691	8,312	14,004	20,014	25,575
Red-crested Pochard	<i>Netta rufina</i>				19	11	15				147	529	312
Common Pochard	<i>Aythya ferina</i>				27,328	59,317	63,700	49,145	61,318	67,775	177,305	217,589	227,582
Ring-necked Duck	<i>Aythya collaris</i>											1	2
Ferruginous Duck	<i>Aythya nyroca</i>				1	1	1				9	22	107
Tufted Duck	<i>Aythya fuligula</i>				64,076	141,209	131,684	60,509	67,306	70,604	279,676	364,491	355,525
Greater Scaup	<i>Aythya marila</i>				73,243	29,302	62,708	8,004	8,214	6,757	115,645	54,013	129,219
unidentified pochards	<i>Aythya</i> spp.										2	1	1,632
Hybrid Aythya duck	<i>Aythya X hybridus</i>												12
Steller's Eider	<i>Polysticta stellerii</i>				1						1		
Common Eider	<i>Somateria mollissima</i>				147,949	102,442	129,628	25,680	15,903	17,032	346,240	356,862	249,872
unidentified Eider	<i>Somateria</i> spp.												788

Table 4 continued. Species counts per country, and area totals, Northwest European area.

		Luxembourg			The Netherlands			United Kingdom			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Common Scoter	<i>Melanitta nigra</i>				46,598	78,321	104,284	5,547	5,489	3,856	144,957	129,456	165,105
Surf Scoter	<i>Melanitta perspicillata</i>												1
Velvet Scoter	<i>Melanitta fusca</i>				117	1,045	399	568	390	398	1,585	3,755	2,466
Long-tailed Duck	<i>Clangula hyemalis</i>				129	8	14	1,326	1,524	930	21,501	11,295	19,814
Common Goldeneye	<i>Bucephala clangula</i>				11,567	20,081	18,287	21,561	19,545	21,255	76,171	77,526	77,475
Smew	<i>Mergellus albellus</i>				2,618	2,195	3,227	419	306	352	7,063	7,636	8,476
Red-breasted Merganser	<i>Mergus serrator</i>				6,362	7,065	5,545	3,954	4,520	3,630	17,902	23,115	19,336
Goosander	<i>Mergus merganser</i>				9,598	4,819	5,008	6,564	3,551	3,244	39,191	28,203	31,136
White-headed Duck	<i>Oxyura leucocephala</i>					1							1
unidentified ducks	<i>Anatinae</i> spp.										2,095	27,052	29,212
Common Crane	<i>Grus grus</i>								6		24,092	20,503	19,061
Water Rail	<i>Rallus aquaticus</i>				39	35	69				296	288	348
Spotted Crane	<i>Porzana porzana</i>												1
Moorhen	<i>Gallinula chloropus</i>				7,015	9,339	11,075				19,125	17,369	21,331
Purple Swamphen	<i>Porphyrio porphyrio</i>										10		
Common Coot	<i>Fulica atra</i>				232,805	195,271	244,768	94,080	82,602	98,622	535,918	524,350	595,444
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>				165,230	258,744	268,421	269,678	237,338	244,087	656,146	794,994	757,648
Black-winged Stilt	<i>Himantopus himantopus</i>								1	1		14	3
Pied Avocet	<i>Recurvirostra avosetta</i>				72	438	711	1,504	3,464	3,183	13,874	16,976	20,432
Northern Lapwing	<i>Vanellus vanellus</i>				198	54,568	48,998	96,553	482,786	442,143	362,411	1,057,221	908,039
Eurasian Golden Plover	<i>Pluvialis apricaria</i>				158	34,765	32,109	42,917	158,774	165,498	130,693	302,892	296,622
Grey Plover	<i>Pluvialis squatarola</i>				2,284	14,858	17,165	47,973	48,089	47,338	92,077	99,943	95,940
Ringed Plover	<i>Charadrius hiaticula</i>				31	146	184	7,939	8,467	8,748	22,310	24,365	23,661
Kentish Plover	<i>Charadrius alexandrinus</i>							1			46	43	43
unidentified <i>Charadrius</i> plovers	<i>Charadrius</i> spp.												1
Eurasian Dotterel	<i>Eudromias morinellus</i>											12	
Black-tailed Godwit	<i>Limosa limosa</i>				24	87	138	11,661	14,462	11,890	26,953	27,418	29,285
Bar-tailed Godwit	<i>Limosa lapponica</i>				3,824	21,832	27,323	76,416	51,902	48,005	106,794	94,911	93,817
Whimbrel	<i>Numenius phaeopus</i>				1			3	3	5	202	20	34
Eurasian Curlew	<i>Numenius arquata</i>				33,603	133,149	123,808	56,390	97,698	81,645	184,308	369,482	309,201
Spotted Redshank	<i>Tringa erythropus</i>				1	80	66	67	57	55	562	472	435
Redshank	<i>Tringa totanus</i>				1,072	4,245	8,752	72,274	82,884	81,704	90,859	109,108	110,966
Greenshank	<i>Tringa nebularia</i>					10	10	172	231	261	601	936	861

Table 4 continued. Species counts per country, and area totals, Northwest European area.

		Luxembourg			The Netherlands			United Kingdom			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Lesser Yellowlegs	<i>Tringa flavipes</i>									1			1
Green Sandpiper	<i>Tringa ochropus</i>				16	37	69	54	81	97	137	253	360
Wood Sandpiper	<i>Tringa glareola</i>							1			18		1
Common Sandpiper	<i>Tringa hypoleucos</i>					4	2	8	22	22	116	174	174
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.										4	68	2
Ruddy Turnstone	<i>Arenaria interpres</i>				3,679	3,162	3,718	14,497	13,450	13,899	28,191	27,240	28,598
Red-necked Phalarope	<i>Phalaropus lobatus</i>											11	1
Grey Phalarope	<i>Phalaropus fulicaria</i>								2			2	
Eurasian Woodcock	<i>Scolopax rusticola</i>				11	11	23	129	51	63	231	69	103
Common Snipe	<i>Gallinago gallinago</i>				51	177	346	2,809	5,212	6,903	5,571	11,312	11,898
Jack Snipe	<i>Lymnocyrtus minimus</i>				9	8	12	59	62	89	95	100	138
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>									2			2
Red Knot	<i>Calidris canutus</i>				22,165	86,377	144,427	250,902	189,862	221,404	325,148	338,021	416,958
Sanderling	<i>Calidris alba</i>				4,979	4,554	4,829	8,316	6,399	7,969	25,781	23,949	23,184
Little Stint	<i>Calidris minuta</i>							2	1	14	112	164	154
Temminck's Stint	<i>Calidris temminckii</i>												2
Purple Sandpiper	<i>Calidris maritima</i>				354	205	321	936	1,208	1,382	2,294	2,095	2,631
Dunlin	<i>Calidris alpina</i>				26,536	133,076	119,454	564,903	489,025	470,703	1,059,976	1,041,553	1,004,912
Curlew Sandpiper	<i>Calidris ferruginea</i>										4	5	
unidentified <i>Calidris</i> sandpipers	<i>Calidris</i> spp.										301	40	158
Ruff	<i>Philomachus pugnax</i>				1,420	40	303	211	384	361	1,816	895	844
unidentified waders	<i>Charadrii</i> spp.								60			60	7,050
Audouin's Gull	<i>Larus audouinii</i>										10		0
Ring-billed Gull	<i>Larus delawarensis</i>							2	3	2	6	7	12
Common Gull	<i>Larus canus</i>				89,260	189,964	276,801	72,062	72,310	66,226	179,329	288,751	362,466
Herring Gull	<i>Larus argentatus</i>				69,357	141,969	168,439	61,966	66,995	55,215	192,671	269,691	279,120
Yellow-legged Gull	<i>Larus cachinnans</i>				4	6	11			7	1,656	3,019	3,783
Lesser Black-backed Gull	<i>Larus fuscus</i>				128	455	574	6,797	6,406	7,891	23,118	17,314	21,034
Great Black-backed Gull	<i>Larus marinus</i>				3,624	14,200	15,133	10,316	10,043	9,981	16,873	29,469	28,991
Iceland Gull	<i>Larus glaucooides</i>							8	7	2	12	7	5
Glaucous Gull	<i>Larus hyperboreus</i>				1	2	2	16	14	6	25	22	20
Franklin's Gull	<i>Larus pipixcan</i>												1

Table 4 continued. Species counts per country, and area totals, Northwest European area.

		Luxembourg			The Netherlands			United Kingdom			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Mediterranean Gull	<i>Larus melanocephalus</i>				1	6	3	26	73	25	120	3,050	1,243
Black-headed Gull	<i>Larus ridibundus</i>				103,519	168,433	235,664	218,275	244,304	237,585	516,814	709,072	708,141
Little Gull	<i>Larus minutus</i>					486	429	3	10	10	75	877	474
Sabine's Gull	<i>Larus sabini</i>											5	
Black-legged Kittiwake	<i>Rissa tridactyla</i>					30	11	20	186	54	135	367	8,111
Whiskered Tern	<i>Chlidonias hybridus</i>											1	2
Common/Arctic Tern	<i>Sterna hirundo/paradisea</i>											2	1
Sandwich Tern	<i>Sterna sandvicensis</i>					1			1		164	237	173
unidentified gulls	<i>Larus</i> spp.								3,242	3,522	2,962	14,654	7,169
	Total	97	150	100	3,187,452	3,835,390	4,716,560	3,492,073	3,757,276	3,630,779	10,856,785	12,620,673	12,773,225
	Non-native species												
Sacred Ibis	<i>Threskiornis aethiopicus</i>									1		269	496
Chilean Flamingo	<i>Phoenicopterus chilensis</i>				12	33	27				12	33	27
Lesser Flamingo	<i>Phoenicopterus minor</i>							1	1	1	1	1	1
unidentified flamingos	<i>Phoenicopteridae</i> spp.						1						1
Black Swan	<i>Cygnus atratus</i>				30	46	44				30	46	50
Greylag Goose (Introduced pop.)	<i>Anser anser</i>							14,170	12,950	16,221	14,170	12,950	16,221
Bar-headed Goose	<i>Anser indicus</i>												1
Canada Goose	<i>Branta canadensis</i>				986	1,524	2,400	39,789	37,594	41,010	59,855	62,805	68,566
Ruddy Shelduck	<i>Tadorna ferruginea</i>				19	21	53				26	41	68
Egyptian Goose	<i>Alopochen aegyptiacus</i>				1,706	4,482	4,804				2,016	4,876	5,320
Upland Goose	<i>Chloephaga picta</i>												15
Muscovy Duck	<i>Cairina moschata</i>				4	11	33				4	16	33
Wood Duck	<i>Aix sponsa</i>				10	9	2				12	16	16
Mandarin Duck	<i>Aix galericulata</i>				124	61	93	162	235	175	578	374	435
Mandarin/Wood Duck	<i>Aix</i> spp.												123
Chiloe Wigeon	<i>Anas sibilatrix</i>				1						1		
Speckled Teal	<i>Anas flavirostris</i>						1						1
Maned Duck	<i>Chenonetta jubata</i>				2		3				2		3
Marbled Teal	<i>Marmaronetta angustirostris</i>										2		
Ruddy Duck	<i>Oxyura jamaicensis</i>				1	3	11	3,682	3,329	3,060	3,709	3,366	3,121
Spur-winged Lapwing	<i>Vanellus spinosus</i>					1						1	
	Total non-native species	0	0	0	2,895	6,191	7,472	57,804	54,109	60,468	80,418	84,794	94,498

4.5 Southwest Asia

Coverage for the IWC is less well developed in Southwest Asia than in most of the Western Palearctic. Many countries have problems finding counters and in organising and executing counts, moreover a lot of sites are in inaccessible areas and, in some countries, political instability makes waterbird counting a low priority. Yet, the area is known to hold enormous numbers of waterbirds and large concentrations of waterbirds may yet remain to be discovered in this area. Results are in Table 5 and coverage in Figures 19–21.

Azerbaijan

The IWC has not been fully established in this country. For the reporting period there are only data from 1997 and 1998, which represent an incomplete set of sites and the totals are variable. The high total for 1997 (800,000) was mainly due to numbers in one of the most important sites in the IWC-WP and SWA, Kyzyl-Agach Bay State Reserve, which was counted by aerial survey.

Bahrain

In 1988, 1989, 1990, 1992 and 1994 comprehensive counts were conducted in Bahrain, in the latter two years producing respectively 47,000 and 81,000 waterbirds. No data were available from 1997–1999.

Iran

The coverage in Iran has been increasing since the start of the IWC in 1967 and reached 194 sites in 1998. It is the best covered country in the area, though no data were received for 1999. The country is important for a large diversity of waterbird species and counts exceeded

2,000,000 waterbirds in 1997. Records of Slender-billed Curlews, one of the rarest birds in the world (BirdLife International 2000), during IWC-counts are not presented because these records remain unconfirmed. Of the critically endangered Siberian White Crane *Grus leucogeranus*, 10 individuals were counted in 1997 in their regular wintering site on the coast of the Caspian Sea. Large numbers were recorded of Greater Flamingo (179,580 in 1998), Greylag Goose (86,528 in 1997), Ruddy Shelduck (82,744 in 1998), several species of dabbling (e.g. Mallard and Common Teal), and diving ducks and Common Coot (444,257 in 1997).

Iraq

Iraq was a hugely important country for waterbirds (Scott 1995, Evans 1995). However, a recent publication of UNEP (2001) brings into view the catastrophic collapse of the Iraqi Mesopotamian marshes, once the most important wetland complex in the whole Middle East and Southwest Asia. The IWC was never well established in Iraq and unfortunately it has not been possible to systematically record the former and current status of waterbirds in this important area (Al Robaae 1996). Wetlands International did receive some data on waterbirds from the region of the Mesopotamian marshes in the nineties, including 1997–1999. These data contain waterbird census results of several marshes and lakes in the south and counts from hunters and merchants in Amara. Data from November 1998 and March 1999, total more than 1.5 million birds of 28 species. Interpretation of these figures is difficult. Wetlands International will continue its efforts to develop and support IWC in Iraq if and when the opportunity arises.

Greylag Geese.



Jordan

Data from Jordan are scarce and confined to incomplete records from Azraq in the 1980s and early 1990s. No data were submitted for the reporting period and capacity for participation in the IWC by this country is in need of development.

Kazakhstan

Data from Kazakhstan are very scarce and were mainly confined to one site. No data has been submitted for 1997–1999. Most of Kazakhstan's wetlands are frozen in normal winters, but wetlands in the south often remain open and are known to hold large numbers of waterbirds in some winters.

Kuwait

In the mid-1990s data were received from Kuwait, but no data are available for 1997–1999.

Kyrgyzstan

There is no official coordination of IWC in Kyrgyzstan, but the main wetland, Issyk-Kul, is counted regularly during expeditions. Data from Issyk-Kul were received for 1997, 1998 and 1999, when totals ranged between 50,000 and 90,000. The lake is extremely important for Red-crested Pochard, with a maximum of 30,677 in 1999.

Oman

Coverage in Oman is consistent and relatively complete, although in recent years the number of sites counted has dropped slightly to 5–7. As the most important sites are included, the totals give a satisfactory representation of the numbers and species of waterbirds that winter in Oman. The species diversity is influenced by the vicinity of Tropical Africa and South-Asia, and consists mostly of waders and gulls and only few Anatidae. The total numbers of birds recorded in 1997–1999 varied between 200,000 and 360,000. Remarkable records were 2,087 Western Reef Egrets (1997), 1,726 Crab Plovers (1998), 50,166 Redshanks (1997), 19,154 Slender-billed Gulls (1997) and 14,091 Greater Crested Terns (1997). The intertidal area of Bar Al Hickman is the most important site, hosting two thirds of the national total.

Greater Crested Tern.

Qatar

Coverage was stable from 1991 to 1997, since when no data have been received. Totals from this small Gulf state are not high and in 1997 just over 5,000 birds were counted.

Saudi Arabia

A similar situation as existing in Qatar applies to Saudi Arabia. After seven years with restricted but consistent coverage, submission of data ceased in 1997. Consequently, no data are available for the reporting period.

Tajikistan

There is no IWC-coordination in Tajikistan and very little, pre-1997, data are held on the database.

Turkmenistan

The IWC in Turkmenistan started in the early 1970s and is one of the longest running in the area. The coverage can vary considerably between years, in 1997–1999 the number of sites counted was nine to 21. Total numbers varied between 34,000 and 320,000. In 1998 high numbers of Common Teal (80,953), Red-crested Pochard (24,443), Ferruginous Duck (1,663) and Greater Scaup (26,509) were counted.

United Arab Emirates

The UAE joined the IWC in 1990 and provided data every year thereafter. In 1997–1999 16 to 27 sites were counted, producing approximately 40,000 to 120,000 birds, mainly waders and gulls. Remarkable counts include 435 Crab Plovers in 1998, 6,160 Lesser Sand Plovers in 1998 and 311 Broad-billed Sandpipers in 1999.

Uzbekistan

Several counts were done in Uzbekistan in the 1980s and 1990s. In 1998 three sites were visited but all were frozen and held no birds.

Yemen

Data from Yemen are very scarce and were received for 1998 only through an expedition. The coverage was limited and total number of waterbirds was relatively low (23,796).



Table 5 continued. Species counts per country, and area totals, Southwest Asian area.

		Azerbaijan		Iran		Kyrgyzstan			Oman			Qatar
		1997	1998	1997	1998	1997	1998	1999	1997	1998	1999	1997
Glossy Ibis	<i>Plegadis falcinellus</i>			80	265				41	100	13	
Eurasian Spoonbill	<i>Platalea leucorodia</i>			1,854	39				233	58	28	
African Spoonbill	<i>Platalea alba</i>											
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>	4,150		146,646	179,580			2	1,777	12,994	4,071	
Lesser Flamingo	<i>Phoenicopterus minor</i>								58			
Whooper Swan	<i>Cygnus cygnus</i>	67	13	724	760		211	561				
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>			7	10							
Mute Swan	<i>Cygnus olor</i>		9	355	4,488		298	1,213				
unidentified swans	<i>Cygnus</i> spp.	143		414	28	1,739	2,106					
unidentified Bean Goose	<i>Anser fabalis</i> ssp.						587	116				
European White-fronted Goose	<i>Anser albifrons albifrons</i>		730	76	200							
Lesser White-fronted Goose	<i>Anser erythropus</i>				25							
Greylag Goose	<i>Anser anser</i>	383	240	86,528	62,916	600		3				
unidentified grey geese	<i>Anser</i> spp.	74,401	345		520							
Red-breasted Goose	<i>Branta ruficollis</i>			312								
unidentified Goose	<i>Anser / Branta</i> spp.			635								
Ruddy Shelduck	<i>Tadorna ferruginea</i>	15	327	35,273	82,744	4,754	690	627				
Common Shelduck	<i>Tadorna tadorna</i>	2,221	83	31,244	17,399			4				2
Eurasian Wigeon	<i>Anas penelope</i>		141	67,278	71,286		15	9	62	62	14	
Gadwall	<i>Anas strepera</i>	3,160	238	70,542	28,142		107	15	21	12	7	
Common Teal	<i>Anas crecca</i>	69	1,728	204,721	126,524		3	198	194	142	132	12
Mallard	<i>Anas platyrhynchos</i>	27,895	9,743	338,125	220,905	2,112	2,403	4,524	34	5	28	
Northern Pintail	<i>Anas acuta</i>		84	64,438	41,841	1		12	236	52	92	
Garganey	<i>Anas querquedula</i>								97	203	48	
Northern Shoveler	<i>Anas clypeata</i>	10,790	4,932	75,383	14,273		14	1	146	155	181	18
Marbled Teal	<i>Marmaronetta angustirostris</i>			1,604	1,326							
Red-crested Pochard	<i>Netta rufina</i>	431	236	3,821	4,658	11,035	10,557	30,677				
Common Pochard	<i>Aythya ferina</i>	7,750	1,871	57,706	45,287	1,880	1,672	944	28	8	4,338	2
Ferruginous Duck	<i>Aythya nyroca</i>		18	695	1,137				8	1	10	5
Tufted Duck	<i>Aythya fuligula</i>	10,219	1,044	28,974	8,406	1,720	2,770	2,138	6	20		
Greater Scaup	<i>Aythya marila</i>			1,749	280		35	2				
unidentified pochards	<i>Aythya</i> spp.	7,150			3,329							
Long-tailed Duck	<i>Clangula hyemalis</i>				4		2	21				
Common Goldeneye	<i>Bucephala clangula</i>		66	31	6	2,500	672	3,507				

Table 5 continued. Species counts per country, and area totals, Southwest Asian area.

		Azerbaijan		Iran		Kyrgyzstan			1997	Oman		Qatar 1997
		1997	1998	1997	1998	1997	1998	1999		1998	1999	
Smew	<i>Mergellus albellus</i>	10	516	14	20	30		37				
Red-breasted Merganser	<i>Mergus serrator</i>	2	4	36	37		76	62				
Goosander	<i>Mergus merganser</i>		42	2	30	82	3	8				
White-headed Duck	<i>Oxyura leucocephala</i>		680	356								
unidentified ducks	<i>Anatinae</i> spp.	403,552	2,290	149,005	360,953	15,090	5,475					68
Common Crane	<i>Grus grus</i>			9,181	7,135			1				
Siberian Crane	<i>Grus leucogeranus</i>			10								
Water Rail	<i>Rallus aquaticus</i>			134	52							
Little Crake	<i>Porzana parva</i>			13	20							
Baillon's Crake	<i>Porzana pusilla</i>								1		23	
Moorhen	<i>Gallinula chloropus</i>	128	12	909	647				108	247	128	6
Purple Swampphen	<i>Porphyrio porphyrio</i>	12	5	202	353				1			
Common Coot	<i>Fulica atra</i>	165,764	5,472	444,257	264,267	37,480	15,923	35,285	215	76	79	45
Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>								2			
Crab Plover	<i>Dromas ardeola</i>			1,626	590				1,005	1,726	400	
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>			1,915	319				3,029	1,488	1,206	4
Black-winged Stilt	<i>Himantopus himantopus</i>			3,643	906				47	108	20	1
Pied Avocet	<i>Recurvirostra avosetta</i>	22,980	17	8,590	5,534				1,400			
Stone Curlew	<i>Burhinus oedicnemus</i>			1	4						1	
Great Thick-knee	<i>Burhinus recurvirostris</i>			50								
Cream-coloured Courser	<i>Cursorius cursor</i>								9			
Collared Pratincole	<i>Glareola pratincola</i>											
Northern Lapwing	<i>Vanellus vanellus</i>	150	17	19,929	30,426			3				
Spur-winged Lapwing	<i>Vanellus spinosus</i>			28								
Sociable Lapwing	<i>Vanellus gregarius</i>			14								
White-tailed Lapwing	<i>Vanellus leucurus</i>		3	384	23				1		1	
Red-wattled Lapwing	<i>Vanellus indicus</i>			133	20					4	8,645	
Eurasian Golden Plover	<i>Pluvialis apricaria</i>				6							
Pacific Golden Plover	<i>Pluvialis fulva</i>								1	13	44	
Grey Plover	<i>Pluvialis squatarola</i>			245	70				4,026	774	869	24
Ringed Plover	<i>Charadrius hiaticula</i>			8,526	1,507				15	147	37	14
Little Ringed Plover	<i>Charadrius dubius</i>								40	19	28	2
Kentish Plover	<i>Charadrius alexandrinus</i>	100	12	1,596	679				574	356	1,050	430
Lesser Sandplover	<i>Charadrius mongolus</i>								17,973	5,501	5,308	74

Table 5 continued. Species counts per country, and area totals, Southwest Asian area.

		Azerbaijan		Iran		Kyrgyzstan			Oman			Qatar
		1997	1998	1997	1998	1997	1998	1999	1997	1998	1999	1997
Greater Sandplover	<i>Charadrius leschenaultii</i>			14	30				3,250	561	528	16
unidentified <i>Charadrius</i> plovers	<i>Charadrius</i> spp.			4,793	2,288							
Eurasian Dotterel	<i>Eudromias morinellus</i>				996							
Black-tailed Godwit	<i>Limosa limosa</i>		52	17,170	9,207				247	18	12	
Bar-tailed Godwit	<i>Limosa lapponica</i>	2			620				36,489	32,056	20,056	25
Whimbrel	<i>Numenius phaeopus</i>			89	2				828	73	106	13
Eurasian Curlew	<i>Numenius arquata</i>	4		1,767	4,332				3,879	1,393	536	57
unidentified curlews	<i>Numenius</i> spp.				3							
Spotted Redshank	<i>Tringa erythropus</i>		3	8					1	1		
Redshank	<i>Tringa totanus</i>	54	13	8,627	8,040		10	10	50,166	40,803	50,033	71
Marsh Sandpiper	<i>Tringa stagnatilis</i>			87	893				3	9	3	
Greenshank	<i>Tringa nebularia</i>		4	1,510	1,448		2		798	671	127	6
Green Sandpiper	<i>Tringa ochropus</i>		1	603	79				7	8	1	1
Wood Sandpiper	<i>Tringa glareola</i>			6	42				1	33	2	2
Common Sandpiper	<i>Tringa hypoleucos</i>	30	1	3,240	1,211				71	58	38	3
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.				1,890							
Terek Sandpiper	<i>Tringa cinereus</i>			34	76				82	293	37	36
Ruddy Turnstone	<i>Arenaria interpres</i>				9				4,753	1,916	562	10
Red-necked Phalarope	<i>Phalaropus lobatus</i>											
Eurasian Woodcock	<i>Scolopax rusticola</i>			809	33							
Pintail Snipe	<i>Gallinago stenura</i>								5			
Common Snipe	<i>Gallinago gallinago</i>		8	5,015	66			3	16	12	10	13
Jack Snipe	<i>Lymnocyptes minimus</i>			390	32							
Great Knot	<i>Calidris tenuirostris</i>											
Sanderling	<i>Calidris alba</i>	6	2	662	49				2,328	896	511	17
Little Stint	<i>Calidris minuta</i>			696	487			4	15,541	3,307	51	257
Temminck's Stint	<i>Calidris temminckii</i>								52	57	86	
Dunlin	<i>Calidris alpina</i>		65	27	1,592			4	70,148	35,830	30,099	184
Curlew Sandpiper	<i>Calidris ferruginea</i>								2,884	5		
unidentified <i>Calidris</i> sandpipers	<i>Calidris</i> spp.				200							
Broad-billed Sandpiper	<i>Limicola falcinellus</i>								3	1	22	
Ruff	<i>Philomachus pugnax</i>			133	172				6	80	5	
unidentified waders	<i>Charadrii</i> spp.	30,606		16,150	16,448		6					313
White-eyed Gull	<i>Larus leucophthalmus</i>			23								
Sooty Gull	<i>Larus hemprichii</i>			2	44				24,377	19,800	16,620	

Table 5 continued. Species counts per country, and area totals, Southwest Asian area.

		Turkmenistan			United Arab Emirates			Yemen	Overall area total		
		1997	1998	1999	1997	1998	1999	1997	1997	1998	1999
Black-throated Diver	<i>Gavia arctica</i>			4					7	5	21
Little Grebe	<i>Tachybaptus ruficollis</i>	113	32	42	43	39	50	194	17,627	3,048	251
Red-necked Grebe	<i>Podiceps grisegena</i>	73	46	34					567	160	57
Great Crested Grebe	<i>Podiceps cristatus</i>	25	18	63					2,766	1,811	404
Slavonian Grebe	<i>Podiceps auritus</i>		4						142	372	371
Black-necked Grebe	<i>Podiceps nigricollis</i>		1	292	143	286	9	13	16,324	1,418	7,472
unidentified grebes	<i>Podicipedidae</i> spp.								211	6,561	2,441
Great White Pelican	<i>Pelecanus onocrotalus</i>	89	9	1				7	1,565	547	1
Pink-backed Pelican	<i>Pelecanus rufescens</i>							33	33		
Dalmatian Pelican	<i>Pelecanus crispus</i>	29	3						781	741	
unidentified pelicans	<i>Pelecanus</i> spp.								303	524	
Great Cormorant	<i>Phalacrocorax carbo</i>	2,029	4,727	1,955	318	478	354		41,736	52,867	2,479
Socotra Cormorant	<i>Phalacrocorax nigrogularis</i>				3	6,649	1		16,586	7,862	4,461
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>		2						2,363	856	
unidentified cormorants	<i>Phalacrocorax</i> spp.								12,847		
Grey Heron	<i>Ardea cinerea</i>	415	292	175	128	260	181	116	7,264	6,829	611
Black-headed Heron	<i>Ardea melanocephala</i>							2	2		
Purple Heron	<i>Ardea purpurea</i>				1	1	1	7	80	15	8
Great White Egret	<i>Casmerodius albus</i>	184	321	155	49	60	46		6,525	2,849	325
Intermediate Egret	<i>Mesophyx intermedia</i>									1	1
Western Reef Egret	<i>Egretta gularis</i>				316	610	211	114	3,499	2,728	1,090
Little Egret	<i>Egretta garzetta</i>				56	126	46	13	5,799	4,567	93
Cattle Egret	<i>Bubulcus ibis</i>				196	163	94	550	1,132	410	125
unidentified egrets	<i>Egretta/Bubulcus</i> spp.								5,485		
Squacco Heron	<i>Ardeola ralloides</i>							1	23	12	8
Indian Pond Heron	<i>Ardeola grayii</i>				20	4	13		22	4	18
Green-backed Heron	<i>Butorides striatus</i>					2	5	6	10	2	11
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>				17	9	24	1	93	46	24
Eurasian Bittern	<i>Botaurus stellaris</i>								408	36	
unidentified Ardeidae	<i>Ardeidae</i> spp.								8	442	
Black Stork	<i>Ciconia nigra</i>								48	38	
Abdim's Stork	<i>Ciconia abdimii</i>							14	14		
White Stork	<i>Ciconia ciconia</i>							15	1,546	1,579	5
Sacred Ibis	<i>Threskiomys aethiopicus</i>							12	15		

Table 5 continued. Species counts per country, and area totals, Southwest Asian area.

		Turkmenistan			United Arab Emirates			Yemen	Overall area total		
		1997	1998	1999	1997	1998	1999	1997	1997	1998	1999
Glossy Ibis	<i>Plegadis falcinellus</i>				1			488	610	365	13
Eurasian Spoonbill	<i>Platalea leucorodia</i>				91	140	95	114	2,292	237	123
African Spoonbill	<i>Platalea alba</i>							2	2		
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>		120	12	2,235	3,092	1,552	742	155,550	195,786	5,637
Lesser Flamingo	<i>Phoenicopterus minor</i>							7,275	7,333		
Whooper Swan	<i>Cygnus cygnus</i>		148	11					791	1,132	572
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>								7	10	
Mute Swan	<i>Cygnus olor</i>	153	596	100					508	5,391	1,313
unidentified swans	<i>Cygnus</i> spp.		49						2,296	2,183	
unidentified Bean Goose	<i>Anser fabalis</i> ssp.									587	116
European White-fronted Goose	<i>Anser albifrons albifrons</i>				1			1	78	930	
Lesser White-fronted Goose	<i>Anser erythropus</i>				1				1	25	
Greylag Goose	<i>Anser anser</i>	269	78	88	13		1		87,793	63,234	92
unidentified grey geese	<i>Anser</i> spp.								74,401	865	
Red-breasted Goose	<i>Branta ruficollis</i>								312		
unidentified Goose	<i>Anser / Branta</i> spp.								635		
Ruddy Shelduck	<i>Tadorna ferruginea</i>		1	3	3		1		40,045	83,762	631
Common Shelduck	<i>Tadorna tadorna</i>	10	2	4		6	11		33,477	17,490	19
Eurasian Wigeon	<i>Anas penelope</i>	20	9	432	47	23	47	27	67,434	71,536	502
Gadwall	<i>Anas strepera</i>	100	58	27	26	3	12	3	73,852	28,560	61
Common Teal	<i>Anas crecca</i>	21,594	80,953	5,337	203	592	644	212	227,005	209,942	6,311
Mallard	<i>Anas platyrhynchos</i>	26,818	71,055	4,573	1,989	2,983	1,192		396,973	307,094	10,317
Northern Pintail	<i>Anas acuta</i>		8	48	90	95	105	215	64,980	42,080	257
Garganey	<i>Anas querquedula</i>		56		1	2	1	20	118	261	49
Northern Shoveler	<i>Anas clypeata</i>				346	332	20	738	87,421	19,706	202
Marbled Teal	<i>Marmaronetta angustirostris</i>								1,604	1,326	
Red-crested Pochard	<i>Netta rufina</i>	3,171	24,443	700					18,458	39,894	31,377
Common Pochard	<i>Aythya ferina</i>	37,603	28,550	5,394	17	171	22	15	105,001	77,559	10,698
Ferruginous Duck	<i>Aythya nyroca</i>		1,663	9	3		1	27	738	2,819	20
Tufted Duck	<i>Aythya fuligula</i>		40,380	1,593	15	11	1	96	41,030	52,631	3,732
Greater Scaup	<i>Aythya marila</i>	880	26,509	116					2,629	26,824	118
unidentified pochards	<i>Aythya</i> spp.								7,150	3,329	
Long-tailed Duck	<i>Clangula hyemalis</i>									6	21
Common Goldeneye	<i>Bucephala clangula</i>		532						2,531	1,276	3,507

Table 5 continued. Species counts per country, and area totals, Southwest Asian area.

		Turkmenistan			United Arab Emirates			Yemen	Overall area total		
		1997	1998	1999	1997	1998	1999	1997	1997	1998	1999
Smew	<i>Mergellus albellus</i>	246	3,277	101					300	3,813	138
Red-breasted Merganser	<i>Mergus serrator</i>	14	88						52	205	62
Goosander	<i>Mergus merganser</i>		118	8					84	193	16
White-headed Duck	<i>Oxyura leucocephala</i>								356	680	
unidentified ducks	<i>Anatinae</i> spp.	1,043	10,329	125					568,758	379,047	125
Common Crane	<i>Grus grus</i>						56		9,237	7,135	1
Siberian Crane	<i>Grus leucogeranus</i>								10		
Water Rail	<i>Rallus aquaticus</i>		3	6					134	55	6
Little Crane	<i>Porzana parva</i>								13	20	
Baillon's Crane	<i>Porzana pusilla</i>								1		23
Moorhen	<i>Gallinula chloropus</i>	101		16	11	15	24	103	1,366	921	168
Purple Swampphen	<i>Porphyrio porphyrio</i>			2				1	216	358	2
Common Coot	<i>Fulica atra</i>	34,529	25,902	11,576	16	8	4	39	682,345	311,648	46,944
Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>								2		
Crab Plover	<i>Dromas ardeola</i>				352	435	136	2	2,985	2,751	536
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>				306	481	283	434	5,688	2,288	1,489
Black-winged Stilt	<i>Himantopus himantopus</i>	179			349	500	184	380	4,599	1,514	204
Pied Avocet	<i>Recurvirostra avosetta</i>				10	20	3	68	33,048	5,571	3
Stone Curlew	<i>Burhinus oedicnemus</i>								1	4	1
Great Thick-knee	<i>Burhinus recurvirostris</i>								50		
Cream-coloured Courser	<i>Cursorius cursor</i>				12		13		21		13
Collared Pratincole	<i>Glareola pratincola</i>						1				1
Northern Lapwing	<i>Vanellus vanellus</i>	15	76	52	2				20,096	30,519	55
Spur-winged Lapwing	<i>Vanellus spinosus</i>							173	201		
Sociable Lapwing	<i>Vanellus gregarius</i>				1				15		
White-tailed Lapwing	<i>Vanellus leucurus</i>	2			6	3	2	12	405	29	3
Red-wattled Lapwing	<i>Vanellus indicus</i>				37	41	82		170	65	8,727
Eurasian Golden Plover	<i>Pluvialis apricaria</i>									6	
Pacific Golden Plover	<i>Pluvialis fulva</i>				161	51		10	172	64	44
Grey Plover	<i>Pluvialis squatarola</i>	3	10	9	469	1,082	1,163	510	5,277	1,936	2,041
Ringed Plover	<i>Charadrius hiaticula</i>				124	338	147	254	8,933	1,992	184
Little Ringed Plover	<i>Charadrius dubius</i>	7	31	9	2		6	15	66	50	43
Kentish Plover	<i>Charadrius alexandrinus</i>	1	8	76	1,796	4,388	1,637	914	5,411	5,443	2,763
Lesser Sandplover	<i>Charadrius mongolus</i>				1,821	6,160	2,707	421	20,289	11,661	8,015

Table 5 continued. Species counts per country, and area totals, Southwest Asian area.

		Turkmenistan			United Arab Emirates			Yemen	Overall area total		
		1997	1998	1999	1997	1998	1999	1997	1997	1998	1999
Greater Sandplover	<i>Charadrius leschenaultii</i>				467	190	399	119	3,866	781	927
unidentified <i>Charadrius</i> plovers	<i>Charadrius</i> spp.				1,200				5,993	2,288	
Eurasian Dotterel	<i>Eudromias morinellus</i>									996	
Black-tailed Godwit	<i>Limosa limosa</i>				115	38	36	160	17,692	9,315	48
Bar-tailed Godwit	<i>Limosa lapponica</i>				1,535	3,309	1,278	306	38,357	35,985	21,334
Whimbrel	<i>Numenius phaeopus</i>				33	93	52	123	1,086	168	158
Eurasian Curlew	<i>Numenius arquata</i>				289	553	285	267	6,263	6,278	821
unidentified curlews	<i>Numenius</i> spp.									3	
Spotted Redshank	<i>Tringa erythropus</i>	7	7		23		2	2	41	11	2
Redshank	<i>Tringa totanus</i>		1		464	6,485	1,709	576	59,958	55,352	51,752
Marsh Sandpiper	<i>Tringa stagnatilis</i>				21	9	6	58	169	911	9
Greenshank	<i>Tringa nebularia</i>				71	228	132	87	2,472	2,353	259
Green Sandpiper	<i>Tringa ochropus</i>	11	15		2	3	3	7	631	106	4
Wood Sandpiper	<i>Tringa glareola</i>	3			2	5	9	136	150	80	11
Common Sandpiper	<i>Tringa hypoleucos</i>			71	21	41	69	45	3,410	1,311	178
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.									1,890	
Terek Sandpiper	<i>Tringa cinereus</i>				55	265	221	90	297	634	258
Ruddy Turnstone	<i>Arenaria interpres</i>				62	226	157	25	4,850	2,151	719
Red-necked Phalarope	<i>Phalaropus lobatus</i>				336	10	1		336	10	1
Eurasian Woodcock	<i>Scolopax rusticola</i>								809	33	
Pintail Snipe	<i>Gallinago stenura</i>				4	1	4		9	1	4
Common Snipe	<i>Gallinago gallinago</i>			9	20	11	16	25	5,089	97	38
Jack Snipe	<i>Lymnocyptes minimus</i>								390	32	
Great Knot	<i>Calidris tenuirostris</i>					48	56			48	56
Sanderling	<i>Calidris alba</i>				8	19	28	130	3,151	966	539
Little Stint	<i>Calidris minuta</i>				1,023	1,016	432	181	17,698	4,810	487
Temminck's Stint	<i>Calidris temminckii</i>				54	3	19	13	119	60	105
Dunlin	<i>Calidris alpina</i>	2		123	9,244	8,330	3,159	342	79,947	45,817	33,385
Curlew Sandpiper	<i>Calidris ferruginea</i>	54			448	141	170	191	3,577	146	170
unidentified <i>Calidris</i> sandpipers	<i>Calidris</i> spp.				3,630	1,250		420	4,050	1,450	
Broad-billed Sandpiper	<i>Limicola falcinellus</i>				230	186	311		233	187	333
Ruff	<i>Philomachus pugnax</i>			15	123	72	45	147	409	324	65
unidentified waders	<i>Charadrii</i> spp.	113	131		500	14,634			47,682	31,219	
White-eyed Gull	<i>Larus leucophthalmus</i>							10	33		
Sooty Gull	<i>Larus hemprichii</i>				253	695	200	845	25,477	20,539	16,820

Table 5 continued. Species counts per country, and area totals, Southwest Asian area.

		Turkmenistan			United Arab Emirates			Yemen	Overall area total		
		1997	1998	1999	1997	1998	1999	1997	1997	1998	1999
Common Gull	<i>Larus canus</i>			9			1		1,342	2,262	717
Yellow-legged Gull	<i>Larus cachinnans</i>	595	5	133	22,925	27,727	7,921		107,737	83,105	41,080
Lesser Black-backed Gull	<i>Larus fuscus</i>					35	8		4,147	1,987	8
Great Black-headed Gull	<i>Larus ichthyaetus</i>		12	2	264	227	43	78	3,847	5,659	1,298
Mediterranean Gull	<i>Larus melanocephalus</i>									8	
Black-headed Gull	<i>Larus ridibundus</i>		57	627	29,837	19,200	8,605	270	60,969	38,957	11,906
Slender-billed Gull	<i>Larus genei</i>	8		324	2,380	1,936	2,063	354	24,491	23,323	6,648
Little Gull	<i>Larus minutus</i>								3,207	2,712	19
Herring/Yellow-legged Gull	<i>Larus argentatus/cachinnans</i>								1		
Herring/Lesser Black-backed Gull	<i>Larus argentatus/fuscus</i>								668		
Yellow-legged/ Lesser Black-backed Gull	<i>Larus cachinnans/fuscus</i>								9,000		
Whiskered Tern	<i>Chlidonias hybridus</i>				40		1	5	263	199	11
White-winged Black Tern	<i>Chlidonias leucopterus</i>	2			1			60	309	15	
Black Tern	<i>Chlidonias niger</i>								46		
unidentified marsh terns	<i>Chlidonias</i> spp.									85	
Gull-billed Tern	<i>Gelochelidon nilotica</i>				150	127	102	99	334	180	121
Caspian Tern	<i>Sterna caspia</i>				47	18	45	143	1,582	988	149
Common Tern	<i>Sterna hirundo</i>	20			10	1	3		5,081	1,207	9
White-cheeked Tern	<i>Sterna repressa</i>						1		1,100	81	8
Bridled Tern	<i>Sterna anaethetus</i>									22	
Saunders's Tern	<i>Sterna saundersii</i>				10	209	21	113	149	236	85
Little Tern	<i>Sterna albifrons</i>								532	6	
Greater Crested Tern	<i>Sterna bergii</i>				5	19	23	504	14,753	4,915	2,701
Lesser Crested Tern	<i>Sterna bengalensis</i>				10	469	44	191	1,460	866	1,708
Sandwich Tern	<i>Sterna sandvicensis</i>				130	1,114	149	603	9,386	4,303	1,518
unidentified terns	<i>Sterninae</i> spp.	14	22		200	1	3		4,128	623	3
unidentified gulls/terns	<i>Laridae</i> spp.								75		
unidentified gulls	<i>Larus</i> spp.	473	156	20	390	1,000	500	2,606	15,675	18,812	520
Total		131,017	320,913	34,481	88,479	119,603	39,464	23,796	3,623,713	2,538,041	364,564
Non-native species											
Egyptian Goose	<i>Alopochen aegyptiacus</i>				5	3	2		5	3	2
Total non-native species		0	0	0	5	3	2	0	5	3	2

4.6 West Mediterranean

Coverage of the West Mediterranean has varied over the years, but is gaining consistency. Data from Spain arrived too late for inclusion in the IWC report on 1995–1996, however for 1997–1999 a full dataset was received and continuing improvements in coordination are expected. No data for 1997–1999 were received from Morocco, but this country achieves a consistent coverage in most seasons and data will be submitted in due course. From Tunisia only counts in the north were received. Results and coverage are shown in Table 6 and Figures 22–24. The countries count all waterbird families and relatively complete and consistent coverage was achieved in Italy, Mediterranean France, Spain and Algeria.

Algeria

The IWC continues at a high level in Algeria and has had an ever increasing coverage since its start in 1972. In 1997–1999 respectively 47, 68 and 78 sites were covered, hosting 149,000, 206,000 and 187,000 waterbirds. Noteworthy were 24,542 Greater Flamingo in 1999, 47 Marbled Teal in 1997 and 911 Ferruginous Duck in 1997.

France (Mediterranean part)

As with the Northwest European part of France, coverage is thorough. Totals of waterbirds in this part are between 300,000 and 400,000. It hosts good numbers of gulls and Greater Flamingo, the latter with a maximum of 27,733 birds in 1999.

Italy

Italy has a comprehensive waterbird monitoring scheme and coverage is consistent (300–400 sites). Totals fluctuated around 1 million in 1997–1999. High numbers were recorded of Great Crested and Black-necked Grebes (maximum 19,685 and 17,036 respectively), Great Cormorant (55,126 in 1999), Greater Flamingo (17,537 in 1999) and Mediterranean Gull (11,333 in 1999).

Morocco

Coverage in Morocco was stable in the 1980s up to and including 1995, but delays in submitting data to the IWC mean that the country rarely features in IWC reports.

Morocco is very important for waterbirds, particularly waders, and including some threatened species such as Marbled Teal and Northern Bald Ibis. It was the last country where Slender-billed Curlew could reliably be seen until 1995.

Portugal

The IWC in Portugal goes back to 1969 and counts have been carried out almost every year since. In 1997–1999 around 14 sites were counted, producing totals of respectively 163,000, 143,000 and 159,000 birds. Dabbling ducks, Common Coot and some waders are the most numerous, with totals of 10,000 or more.

Spain

The coordination of the IWC in Spain is complicated by the country's federal political structure. However, in 2002 the Ministry of Environment and the Spanish BirdLife partner SEO organised the central coordination of the IWC and the compilation of IWC data. Only, so called, "official counts" were included in the dataset. It is not clear how many "non-official" counts are therefore missed in the IWC-database.

High numbers of waterbirds were recorded in Spain, around 1.4 million in each of the years 1997–1999. The number of sites exceeds 800 in some years and the coverage is good. Species with high totals or species of conservation concern are Cattle Egret (23,406 in 1998), Greater Flamingo (27,529 in 1999), Greylag Goose (93,703 in 1999), Northern Shoveler (75,327 in 1997), Red-crested Pochard (14,403 in 1999) and White-headed Duck (883 in 1997). Remarkable were the 1,340 Purple Swamphens recorded in 1999 and the relatively high numbers of Lapwings and Eurasian Golden Plovers in 1997 (respectively 148,201 and 16,206), when the northern half of Europe was frozen.

Tunisia

The coverage in Tunisia has not been sufficient to record the high numbers the country can hold in winter, as was learned from research expeditions to the country in the eighties and nineties. Lake Ichkeul, which is the only Ramsar site in Tunisia, was counted in 1997 and 1998. Most numerous birds were Eurasian Wigeon (55,285), Common Coot (66,400) and Common Pochard (35,000).

Greater Flamingos at Oued El Rmal water reservoir, Tunisia.



Ali El Hilli

Table 6. Species counts per country, and area totals, West Mediterranean area.

		Algeria			France (WM-part)			Italy			Portugal		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Great Northern Diver	<i>Gavia immer</i>				2	2	1		1	2			1
Black-throated Diver	<i>Gavia arctica</i>				17	23	6	143	177	160			
Red-throated Diver	<i>Gavia stellata</i>							16	38	8			
unidentified divers	<i>Gavia</i> spp.							1	1				
Little Grebe	<i>Tachybaptus ruficollis</i>	525	1,109	986	437	808	818	6,582	7,712	10,218	285	205	273
Red-necked Grebe	<i>Podiceps grisegena</i>				3			130	53	44			
Great Crested Grebe	<i>Podiceps cristatus</i>	356	230	336	5,664	2,331	4,060	17,002	16,313	19,685	29	25	9
Slavonian Grebe	<i>Podiceps auritus</i>				1			9	5	6			
Black-necked Grebe	<i>Podiceps nigricollis</i>	204	16	98	9,644	8,016	5,235	14,228	17,036	14,893	45	43	59
unidentified grebes	<i>Podicipedidae</i> spp.							1	17	24			
Great White Pelican	<i>Pelecanus onocrotalus</i>												
Great Cormorant	<i>Phalacrocorax carbo</i>	781	373	329	11,753	9,180	11,623	42,922	46,672	55,126	5,260	3,222	1,619
European Shag	<i>Phalacrocorax aristotelis</i>	1						248	59	235		2	17
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>							10	36	38			
unidentified cormorants	<i>Phalacrocorax</i> spp.												9
Grey Heron	<i>Ardea cinerea</i>	435	1,086	406	1,266	1,556	1,281	8,918	8,590	11,264	738	1,097	603
Purple Heron	<i>Ardea purpurea</i>	36						1					
Great White Egret	<i>Casmerodius albus</i>	4	28	26	97	145	160	1,987	1,891	3,143			
Western Reef Egret	<i>Egretta gularis</i>							1					
Little Egret	<i>Egretta garzetta</i>	560	1,604	856	1,857	2,068	2,546	5,163	7,338	7,556	791	649	917
Cattle Egret	<i>Bubulcus ibis</i>	1,115	1,569	2,140	1,682	1,898	1,584	641	441	672	1,156	1,552	1,362
unidentified egrets	<i>Egretta/Bubulcus</i> spp.											50	
Squacco Heron	<i>Ardeola ralloides</i>							3	2				
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>							299	293	280			
Little Bittern	<i>Ixobrychus minutus</i>								1				
Eurasian Bittern	<i>Botaurus stellaris</i>							95	65	127			
unidentified Ardeidae	<i>Ardeidae</i> spp.								7			1	
Black Stork	<i>Ciconia nigra</i>									7	1		
White Stork	<i>Ciconia ciconia</i>	89	80	148		1	15	9	10	71	152	190	164
Glossy Ibis	<i>Plegadis falcinellus</i>	35	22	26				3	3	11			
Eurasian Spoonbill	<i>Platalea leucorodia</i>	23	50	17				264	192	339	271	196	395
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>	17,011	21,060	24,542	23,656	23,070	27,733	13,781	10,564	17,537	668	1,695	6,273
Whooper Swan	<i>Cygnus cygnus</i>									1			
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>				120	1	3						
Mute Swan	<i>Cygnus olor</i>				398	361	512	1,429	1,660	2,110			

Table 6 continued. Species counts per country, and area totals, West Mediterranean area.

		Algeria			France (WM-part)			Italy			Portugal		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
unidentified swans	<i>Cygnus</i> spp.					1							
unidentified Bean Goose	<i>Anser fabalis</i> ssp.				8			327	91	321			
Pink-footed Goose	<i>Anser brachyrhynchus</i>							23					
European White-fronted Goose	<i>Anser albifrons albifrons</i>				4			832	46	107			
Lesser White-fronted Goose	<i>Anser erythropus</i>												
Greylag Goose *	<i>Anser anser</i>	3,842	5,645	2,077	204	470	281	1,569	1,639	1,839	2,621	3,037	4,451
Snow Goose	<i>Anser caerulescens</i>												
unidentified grey geese	<i>Anser</i> spp.							23	11	10			
Barnacle Goose	<i>Branta leucopsis</i>							2			2		
Brent Goose	<i>Branta bernicla</i> ssp.												
Red-breasted Goose	<i>Branta ruficollis</i>							4					
Ruddy Shelduck	<i>Tadorna ferruginea</i>		198	692				1	1	1			
Common Shelduck	<i>Tadorna tadorna</i>	4,620	3,863	6,856	4,417	4,121	4,129	6,421	6,662	7,194	34	31	146
Eurasian Wigeon	<i>Anas penelope</i>	14,797	35,527	36,772	13,519	11,395	15,530	62,285	85,020	88,652	6,605	3,097	19,031
American Wigeon	<i>Anas americana</i>										2		
Gadwall	<i>Anas strepera</i>	4,887	20,836	3,800	12,970	6,578	8,322	4,361	4,841	7,822	606	401	1,270
Common Teal	<i>Anas crecca</i>	6,513	9,628	4,116	27,977	26,275	24,960	56,102	51,891	68,969	17,639	10,998	37,000
Mallard	<i>Anas platyrhynchos</i>	5,736	9,970	7,738	36,260	26,074	39,140	78,874	94,819	101,842	6,910	7,375	11,465
Hybrid Mallard	<i>Anas platyrhynchos</i> X												
American Black Duck	<i>Anas rubripes</i>												
Northern Pintail	<i>Anas acuta</i>	3,740	3,646	4,639	4,510	1,491	3,304	4,918	5,579	5,866	2,123	4,472	13,919
Garganey	<i>Anas querquedula</i>		99	51				1					
Northern Shoveler	<i>Anas clypeata</i>	20,450	30,142	22,015	11,023	8,059	7,935	20,076	18,592	14,967	10,597	4,479	15,413
Marbled Teal	<i>Marmaronetta angustirostris</i>	47	25	11									
Red-crested Pochard	<i>Netta rufina</i>				1,265	1,507	964	51	102	148	261	15	600
Common Pochard	<i>Aythya ferina</i>	4,566	2,527	3,699	17,806	12,300	16,566	33,175	27,231	39,627	761	840	583
Ring-necked Duck	<i>Aythya collaris</i>												
Ferruginous Duck	<i>Aythya nyroca</i>	911	69	445		1	1	58	133	123			1
Tufted Duck	<i>Aythya fuligula</i>	214	474	252	7,756	10,136	8,322	6,581	5,538	5,835	894	229	124
Greater Scaup	<i>Aythya marila</i>				1	2	2	226	115	225	2	1	
unidentified pochards	<i>Aythya</i> spp.							6		6			
Common Eider	<i>Somateria mollissima</i>				1		5	74	64	101			
Common Scoter	<i>Melanitta nigra</i>				10			76	102	33	2	1	
Surf Scoter	<i>Melanitta perspicillata</i>												
Velvet Scoter	<i>Melanitta fusca</i>				3	2	2	125	155	87			

* an unknown proportion of Snow Geese in the region are of captive origin.

Table 6 continued. Species counts per country, and area totals, West Mediterranean area.

		Algeria			France (WM-part)			Italy			Portugal		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Spotted Redshank	<i>Tringa erythropus</i>	3			15	36	31	970	469	894	29	46	66
Redshank	<i>Tringa totanus</i>	31			474	312	207	2,978	2,886	3,301	3,559	3,392	744
Marsh Sandpiper	<i>Tringa stagnatilis</i>							2		1	1		
Greenshank	<i>Tringa nebularia</i>	36			1			101	144	169	144	225	128
Green Sandpiper	<i>Tringa ochropus</i>				6	11	14	16	41	86	6	4	1
Wood Sandpiper	<i>Tringa glareola</i>									1			
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.				1	39							
Terek Sandpiper	<i>Tringa cinereus</i>												
Common Sandpiper	<i>Tringa hypoleucos</i>	206			27	34	43	166	228	266	42	41	26
Ruddy Turnstone	<i>Arenaria interpres</i>						2	39	27	50	777	262	283
Eurasian Woodcock	<i>Scolopax rusticola</i>						1	10	11	14			
Common Snipe	<i>Gallinago gallinago</i>	36	240	30	120	67	294	2,025	1,580	2,356	600	214	487
Jack Snipe	<i>Lymnocyptes minimus</i>					1	2	12	3	21			1
Red Knot	<i>Calidris canutus</i>					10		6	17	13	16,430	133	352
Sanderling	<i>Calidris alba</i>				7		17	133	144	255	522	567	560
Little Stint	<i>Calidris minuta</i>				940	652	943	1,237	1,692	2,877	2,180	2,314	1,479
Temminck's Stint	<i>Calidris temminckii</i>							1		5			
Purple Sandpiper	<i>Calidris maritima</i>											7	28
Dunlin	<i>Calidris alpina</i>	207			7,522	6,563	4,883	76,499	51,532	55,147	26,126	35,662	13,582
Curllew Sandpiper	<i>Calidris ferruginea</i>										60	136	70
unidentified <i>Calidris</i> sandpipers	<i>Calidris</i> spp.				1,200	1,425	1,050	60	8				
Ruff	<i>Philomachus pugnax</i>	90				33		56	98	171	100	40	21
unidentified waders	<i>Charadrii</i> spp.	8,014					60	55		26			
Audouin's Gull	<i>Larus audouinii</i>	100						85	155	57			
Ring-billed Gull	<i>Larus delawarensis</i>												
Common Gull	<i>Larus canus</i>				81	3	2	4,895	2,852	3,483			
Herring Gull	<i>Larus argentatus</i>							710	74	90		1,231	1,198
Yellow-legged Gull	<i>Larus cachinnans</i>	1,371	961	2,800	24,339	17,070	18,159	99,094	69,758	89,858			
Lesser Black-backed Gull	<i>Larus fuscus</i>	820	167	12	63	133	125	414	335	584	7	228	171
Great Black-backed Gull	<i>Larus marinus</i>										1	6	9
Glaucous Gull	<i>Larus hyperboreus</i>												
Thayer's Gull	<i>Larus glaucoides</i>												
Laughing Gull	<i>Larus atricilla</i>												
Great Black-headed Gull	<i>Larus ichthyaetus</i>							1	2				
Mediterranean Gull	<i>Larus melanocephalus</i>				946	907	5,345	2,344	7,357	11,333	30	17	

Table 6 continued. Species counts per country, and area totals, West Mediterranean area.

		Algeria			France (WM-part)			Italy			Portugal		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Black-headed Gull	<i>Larus ridibundus</i>	811	3,136	1,741	85,941	74,558	95,164	168,938	162,651	194,243	53	419	176
Slender-billed Gull	<i>Larus genei</i>					11	18	1,031	1,212	1,464			
Little Gull	<i>Larus minutus</i>				8	1	3	37	8	45	1	3	
Sabine's Gull	<i>Larus sabini</i>												
Herring/Yellow-legged Gull	<i>Larus argentatus/cachinnans</i>												
Yellow-legged Herring/ L.Black-backed	<i>Larus cachinnans/fuscus</i>												
Black-legged Kittiwake	<i>Rissa tridactyla</i>								3			2	
Whiskered Tern	<i>Chlidonias hybridus</i>				192	99	178		1	1			
White-winged Black Tern	<i>Chlidonias leucopterus</i>												
Black Tern	<i>Chlidonias niger</i>					1			1				
unidentified marsh terns	<i>Chlidonias</i> spp.							1					
Gull-billed Tern	<i>Gelochelidon nilotica</i>												
Caspian Tern	<i>Sterna caspia</i>							2		1	9	9	6
Common Tern	<i>Sterna hirundo</i>									1			
Common/Arctic Tern	<i>Sterna hirundo/paradisea</i>						2						
Little Tern	<i>Sterna albifrons</i>										8	1	
Sandwich Tern	<i>Sterna sandvicensis</i>		17		81	102	219	633	743	784	33	12	91
unidentified gulls	<i>Larus</i> spp.							320	152	3	3,000	14,096	
	Total	148,727	206,024	187,404	379,110	308,995	382,659	997,742	1,027,502	1,196,722	163,419	143,365	158,947
Non-native species													
Sacred Ibis	<i>Threskiornis aethiopicus</i>							1	1				
African Spoonbill	<i>Platalea alba</i>								1	1			
Lesser Flamingo	<i>Phoenicopterus minor</i>												
Canada Goose	<i>Branta canadensis</i>									27			
White-faced Whistling Duck	<i>Dendrocygna viduata</i>												
Black Swan	<i>Cygnus atratus</i>							7	12	2		1	
Bar-headed Goose	<i>Anser indicus</i>									1			
Egyptian Goose	<i>Alopochen aegyptiacus</i>									3			
Wood Duck	<i>Aix sponsa</i>							1		1			
Mandarin Duck	<i>Aix galericulata</i>							3	1	3			
Ruddy Duck	<i>Oxyura jamaicensis</i>				1				1				
Grey Crowned Crane	<i>Balearica regulorum</i>							1					
	Totals non-native species	0	0	0	1	0	0	13	16	38	0	1	0

Table 6 continued. Species counts per country, and area totals, West Mediterranean area.

		Spain			Tunisia			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1998	1999
Great Northern Diver	<i>Gavia immer</i>	82	116	230				84	119	234
Black-throated Diver	<i>Gavia arctica</i>	37	53	86				197	253	252
Red-throated Diver	<i>Gavia stellata</i>	27	14	18				43	52	26
unidentified divers	<i>Gavia</i> spp.	1		2				2	1	2
Little Grebe	<i>Tachybaptus ruficollis</i>	3,541	5,048	5,481	353		7	11,723	14,882	17,783
Red-necked Grebe	<i>Podiceps grisegena</i>	10	10	6				143	63	50
Great Crested Grebe	<i>Podiceps cristatus</i>	3,067	4,707	5,669	283	5	128	26,401	23,611	29,887
Slavonian Grebe	<i>Podiceps auritus</i>	17	49	3				27	54	9
Black-necked Grebe	<i>Podiceps nigricollis</i>	2,330	3,319	3,807	20		67	26,471	28,430	24,159
unidentified grebes	<i>Podicipedidae</i> spp.	5	1	412				6	18	436
Great White Pelican	<i>Pelecanus onocrotalus</i>			2						2
Great Cormorant	<i>Phalacrocorax carbo</i>	24,436	25,766	26,541	144	50	4044	85,296	85,263	99,282
European Shag	<i>Phalacrocorax aristotelis</i>	2,796	2,616	1,978				3,045	2,677	2,230
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>							10	36	38
unidentified cormorants	<i>Phalacrocorax</i> spp.		1	4					1	13
Grey Heron	<i>Ardea cinerea</i>	8,009	8,592	10,034	182	25	195	19,548	20,946	23,783
Purple Heron	<i>Ardea purpurea</i>	2	118	106				39	118	106
Great White Egret	<i>Casmerodius albus</i>	22	31	38	11	3	40	2,121	2,098	3,407
Western Reef Egret	<i>Egretta gularis</i>	1						2		
Little Egret	<i>Egretta garzetta</i>	4,910	8,385	4,470	28	10	22	13,309	20,054	16,367
Cattle Egret	<i>Bubulcus ibis</i>	13,608	23,406	20,235	23	10		18,225	28,876	25,993
unidentified egrets	<i>Egretta/Bubulcus</i> spp.	552						552	50	
Squacco Heron	<i>Ardeola ralloides</i>		201	103				3	203	103
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	110	341	510				409	634	790
Little Bittern	<i>Ixobrychus minutus</i>	11	132	160				11	133	160
Eurasian Bittern	<i>Botaurus stellaris</i>	6	4	12				101	69	139
unidentified Ardeidae	<i>Ardeidae</i> spp.								8	
Black Stork	<i>Ciconia nigra</i>	4	2	21				5	2	28
White Stork	<i>Ciconia ciconia</i>	626	1,599	3,232	1			877	1,880	3,630
Glossy Ibis	<i>Plegadis falcinellus</i>	34	108	133	9			81	133	170
Eurasian Spoonbill	<i>Platalea leucorodia</i>	201	1,140	1,174	935	7	33	1,694	1,585	1,958
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>	16,895	24,003	27,529	5,438		6993	77,449	80,392	110,607
Whooper Swan	<i>Cygnus cygnus</i>	1						1		1
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>		1					120	2	3
Mute Swan	<i>Cygnus olor</i>	15	33	42				1,842	2,054	2,664

Table 6 continued. Species counts per country, and area totals, West Mediterranean area.

		1997	Spain 1998	1999	1997	Tunisia 1998	1999	Overall area totals		
								1997	1998	1999
unidentified swans	<i>Cygnus</i> spp.								1	
unidentified Bean Goose	<i>Anser fabalis</i> ssp.	20	12	17				355	103	338
Pink-footed Goose	<i>Anser brachyrhynchus</i>							23		
European White-fronted Goose	<i>Anser albifrons albifrons</i>	8	7	14				844	53	121
Lesser White-fronted Goose	<i>Anser erythropus</i>	1						1		
Greylag Goose	<i>Anser anser</i>	61,443	60,036	93,703	2,445	750		72,124	71,577	102,351
Snow Goose *	<i>Anser caerulescens</i>		1						1	
unidentified grey geese	<i>Anser</i> spp.		3	94	22			45	14	104
Barnacle Goose	<i>Branta leucopsis</i>	24	20	18				28	20	18
Brent Goose	<i>Branta bernicla</i> ssp.	23	11	2				23	11	2
Red-breasted Goose	<i>Branta ruficollis</i>							4		
Ruddy Shelduck	<i>Tadorna ferruginea</i>		10	1				1	209	694
Common Shelduck	<i>Tadorna tadorna</i>	2,412	1,207	3,292	1,500		42	19,404	15,884	21,659
Eurasian Wigeon	<i>Anas penelope</i>	77,830	20,141	21,954	55,285	10,000		230,321	165,180	181,939
American Wigeon	<i>Anas americana</i>	1	4					3	4	
Gadwall	<i>Anas strepera</i>	1,022	8,587	15,427	14	8		23,860	41,251	36,641
Common Teal	<i>Anas crecca</i>	45,790	39,923	75,108	10,450	2,500		164,471	141,215	210,153
Mallard	<i>Anas platyrhynchos</i>	141,748	143,206	216,476	1,135	10		270,663	281,454	376,661
Hybrid Mallard	<i>Anas platyrhynchos</i> X			1						1
American Black Duck	<i>Anas rubripes</i>		1						1	
Northern Pintail	<i>Anas acuta</i>	48,053	9,416	18,749	2,420	200	92	65,764	24,804	46,569
Garganey	<i>Anas querquedula</i>	73	14	62				74	113	113
Northern Shoveler	<i>Anas clypeata</i>	75,327	55,194	58,130	4,335	500		141,808	116,966	118,460
Marbled Teal	<i>Marmaronetta angustirostris</i>	81	143	133	50			178	168	144
Red-crested Pochard	<i>Netta rufina</i>	12,655	11,904	14,403				14,232	13,528	16,115
Common Pochard	<i>Aythya ferina</i>	25,979	30,131	33,620	5,310	35,000		87,597	108,029	94,095
Ring-necked Duck	<i>Aythya collaris</i>	3	3	2				3	3	2
Ferruginous Duck	<i>Aythya nyroca</i>	8	26	16	10			987	229	586
Tufted Duck	<i>Aythya fuligula</i>	3,117	2,605	2,733	395	30		18,957	19,012	17,266
Greater Scaup	<i>Aythya marila</i>	9	15	27				238	133	254
unidentified pochards	<i>Aythya</i> spp.		2	15,923				6	2	15,929
Common Eider	<i>Somateria mollissima</i>	14	5	5				89	69	111
Common Scoter	<i>Melanitta nigra</i>	396	621	710				484	724	743
Surf Scoter	<i>Melanitta perspicillata</i>	1		1				1		1
Velvet Scoter	<i>Melanitta fusca</i>	23	13	24				151	170	113

* an unknown proportion of Snow Geese in the region are of captive origin.

Table 6 continued. Species counts per country, and area totals, West Mediterranean area.

		Spain			Tunisia			Overall area totals		
		1997	1998	1999	1997	1998	1999	1997	1998	1999
Long-tailed Duck	<i>Clangula hyemalis</i>		1	3				3		8
Common Goldeneye	<i>Bucephala clangula</i>	17	4	5				2,921	1,889	1,744
Smew	<i>Mergellus albellus</i>	5						24	6	22
Red-breasted Merganser	<i>Mergus serrator</i>	307	635	553				2,377	2,421	1,932
Goosander	<i>Mergus merganser</i>	6		1				43	8	34
White-headed Duck	<i>Oxyura leucocephala</i>	490	883	857	8			501	1,069	1,205
White-headed Duck X Ruddy Duck	<i>Oxyura leucocephala X jamaicensis</i>		2						2	
unidentified ducks	<i>Anatinae spp.</i>	83,215	933	1,803				102,625	18,144	31,341
Common Crane	<i>Grus grus</i>	14,441	19,288	23,242			131	14,741	20,773	25,041
Water Rail	<i>Rallus aquaticus</i>	643	721	717				962	984	1,244
Little Crake	<i>Porzana parva</i>		1						1	
Spotted Crake	<i>Porzana porzana</i>	1		12				1		16
Moorhen	<i>Gallinula chloropus</i>	16,151	12,590	6,332				23,702	20,104	18,739
Purple Swamphen	<i>Porphyrio porphyrio</i>	294	720	1,340				471	889	1,520
Common Coot	<i>Fulica atra</i>	66,320	103,035	101,219	66,400	1,000	54	392,226	388,494	463,013
Crested Coot	<i>Fulica cristata</i>		8	8					8	8
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	1,897	2,282	2,052			111	3,266	2,942	2,951
Black-winged Stilt	<i>Himantopus himantopus</i>	1,450	6,450	4,089	10			3,438	9,423	5,514
Pied Avocet	<i>Recurvirostra avosetta</i>	6,209	8,049	11,321	20		38	23,481	23,130	17,509
Stone Curlew	<i>Burhinus oedicephalus</i>	481	661	222				704	779	295
Collared Pratincole	<i>Glareola pratincola</i>		71	121					71	121
Northern Lapwing	<i>Vanellus vanellus</i>	148,201	66,562	47,674	247	80		194,646	136,092	105,653
Eurasian Golden Plover	<i>Pluvialis apricaria</i>	16,206	5,109	7,233	25			21,063	8,897	10,343
Grey Plover	<i>Pluvialis squatarola</i>	5,434	7,024	5,136	75		681	13,320	15,048	8,713
Ringed Plover	<i>Charadrius hiaticula</i>	943	2,921	1,679			356	4,294	7,319	3,968
Little Ringed Plover	<i>Charadrius dubius</i>	84	2,444	887		1		91	2,546	906
Kentish Plover	<i>Charadrius alexandrinus</i>	881	1,783	3,428	25	150	1469	7,099	9,415	9,373
unidentified <i>Charadrius</i> plovers	<i>Charadrius spp.</i>	64		458				302	1	461
Eurasian Dotterel	<i>Eudromias morinellus</i>	33						33		
Black-tailed Godwit	<i>Limosa limosa</i>	10,514	25,801	29,854	120			24,537	34,527	32,251
Bar-tailed Godwit	<i>Limosa lapponica</i>	1,297	1,358	802				3,871	2,360	2,123
unidentified godwits	<i>Limosa spp.</i>	1						1		
Whimbrel	<i>Numenius phaeopus</i>	193	179	116				410	189	350
Eurasian Curlew	<i>Numenius arquata</i>	8,652	3,870	3,602	11	30	443	14,580	9,698	7,810
unidentified curlews	<i>Numenius spp.</i>	1						1		

Table 6 continued. Species counts per country, and area totals, West Mediterranean area.

		1997	Spain 1998	1999	1997	Tunisia 1998	1999	Overall area totals		
								1997	1998	1999
Spotted Redshank	<i>Tringa erythropus</i>	401	533	284				1,418	1,084	1,275
Redshank	<i>Tringa totanus</i>	2,120	3,212	2,762	280	50	226	9,442	9,852	7,240
Marsh Sandpiper	<i>Tringa stagnatilis</i>	1	2	1				4	2	2
Greenshank	<i>Tringa nebularia</i>	475	678	713	10	2	22	767	1,049	1,032
Green Sandpiper	<i>Tringa ochropus</i>	263	359	384				291	415	485
Wood Sandpiper	<i>Tringa glareola</i>	55	28	17				55	28	18
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.	3	2	75				4	41	75
Terek Sandpiper	<i>Tringa cinereus</i>	1						1		
Common Sandpiper	<i>Tringa hypoleucos</i>	597	764	879	1		26	1,039	1,067	1,240
Ruddy Turnstone	<i>Arenaria interpres</i>	821	949	1,695			22	1,637	1,238	2,052
Eurasian Woodcock	<i>Scolopax rusticola</i>	3	1	1				13	12	16
Common Snipe	<i>Gallinago gallinago</i>	5,631	3,726	4,580	15			8,427	5,827	7,747
Jack Snipe	<i>Lymnocyptes minimus</i>	52	100	231				64	104	255
Red Knot	<i>Calidris canutus</i>	85	99	60				16,521	259	425
Sanderling	<i>Calidris alba</i>	910	2,012	1,947	2			1,574	2,723	2,779
Little Stint	<i>Calidris minuta</i>	2,476	4,264	9,261	305		991	7,138	8,922	15,551
Temminck's Stint	<i>Calidris temminckii</i>	2	2	2	5	2		8	4	7
Purple Sandpiper	<i>Calidris maritima</i>	254	199	289				254	206	317
Dunlin	<i>Calidris alpina</i>	32,746	45,356	39,340	220	150	5041	143,320	139,263	117,993
Curlew Sandpiper	<i>Calidris ferruginea</i>		49	318				60	185	388
unidentified <i>Calidris</i> sandpipers	<i>Calidris</i> spp.	590	36,303	9,085				1,850	37,736	10,135
Ruff	<i>Philomachus pugnax</i>	998	670	1,290	25			1,269	841	1,482
unidentified waders	<i>Charadrii</i> spp.							8,069		86
Audouin's Gull	<i>Larus audouinii</i>	772	511	394				957	666	451
Ring-billed Gull	<i>Larus delawarensis</i>	26	15	9				26	15	9
Common Gull	<i>Larus canus</i>	1,132	289	116				6,108	3,144	3,601
Herring Gull	<i>Larus argentatus</i>	110	120	127				820	1,425	1,415
Yellow-legged Gull	<i>Larus cachinnans</i>	25,018	24,072	22,644	10	20	1182	149,832	111,881	134,643
Lesser Black-backed Gull	<i>Larus fuscus</i>	29,999	55,180	33,980			2	31,303	56,043	34,874
Great Black-backed Gull	<i>Larus marinus</i>	329	344	325				330	350	334
Glaucous Gull	<i>Larus hyperboreus</i>	3	9	5				3	9	5
Thayer's Gull	<i>Larus glaucoides</i>		2						2	
Laughing Gull	<i>Larus atricilla</i>			1						1
Great Black-headed Gull	<i>Larus ichthyaetus</i>							1	2	
Mediterranean Gull	<i>Larus melanocephalus</i>	2,994	5,319	2,928				6,314	13,600	19,606

Table 6 continued. Species counts per country, and area totals, West Mediterranean area.

		1997	Spain 1998	1999	1997	Tunisia 1998	1999	1997	Overall area totals 1998	1999
Black-headed Gull	<i>Larus ridibundus</i>	173,743	166,162	195,420	20	20	100	429,506	406,946	486,844
Slender-billed Gull	<i>Larus genei</i>	102	498	182		2	477	1,133	1,723	2,141
Little Gull	<i>Larus minutus</i>	20	601	19				66	613	67
Sabine's Gull	<i>Larus sabini</i>	36						36		
Herring/Yellow-legged Gull	<i>Larus argentatus/cachinnans</i>	118,706	125,875	115,437				118,706	125,875	115,437
Yellow-legged/ Lesser Black-backed Gull	<i>Larus cachinnans/fuscus</i>	7,635	7,907	4,628				7,635	7,907	4,628
Black-legged Kittiwake	<i>Rissa tridactyla</i>	26	86	36				26	91	36
Whiskered Tern	<i>Chlidonias hybridus</i>	5	1,101	723				197	1,201	902
White-winged Black Tern	<i>Chlidonias leucopterus</i>	1		1				1		1
Black Tern	<i>Chlidonias niger</i>		19	1					21	1
unidentified marsh terns	<i>Chlidonias</i> spp.		115	72				1	115	72
Gull-billed Tern	<i>Gelochelidon nilotica</i>		218	281					218	281
Caspian Tern	<i>Sterna caspia</i>	3	56	66		2	78	14	67	151
Common Tern	<i>Sterna hirundo</i>	2	2,279	2,106				2	2,279	2,107
Common/Arctic Tern	<i>Sterna hirundo/paradisea</i>									2
Little Tern	<i>Sterna albifrons</i>		362	180				8	363	180
Sandwich Tern	<i>Sterna sandvicensis</i>	503	1,479	1,744	2		30	1,252	2,353	2,868
unidentified gulls	<i>Larus</i> spp.	26,082	31,585	43,592				29,402	45,833	43,595
	Total	1,397,579	1,289,954	1,435,680	158,634	50,617	23,143	3,245,211	3,026,457	3,384,555
Non-native species										
Sacred Ibis	<i>Threskiomnis aethiopicus</i>							1	1	
African Spoonbill	<i>Platalea alba</i>								1	1
Lesser Flamingo	<i>Phoenicopterus minor</i>		1	1					1	1
Canada Goose	<i>Branta canadensis</i>		5	1					5	28
White-faced Whistling Duck	<i>Dendrocygna viduata</i>			1						1
Black Swan	<i>Cygnus atratus</i>		1	1				7	14	3
Bar-headed Goose	<i>Anser indicus</i>			1						2
Egyptian Goose	<i>Alopochen aegyptiacus</i>			1						4
Wood Duck	<i>Aix sponsa</i>							1		1
Mandarin Duck	<i>Aix galericulata</i>	1	1	4				4	2	7
Ruddy Duck	<i>Oxyura jamaicensis</i>	9	8	6				10	9	6
Grey Crowned Crane	<i>Balearica regulorum</i>							1		
	Totals non-native species	10	16	16	0	0	0	24	33	54

Table 7. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species	Baltic/Nordic			Central Europe			East Mediterranean/Black Sea			Northwest Europe			
	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999	
Great Northern Diver	<i>Gavia immer</i>			1		6				436	375	521	
White-billed Diver	<i>Gavia adamsii</i>			1								1	
Black-throated Diver	<i>Gavia arctica</i>	248	264	184	36	83	87	2,771	350	231	148	294	361
Red-throated Diver	<i>Gavia stellata</i>	179	244	356	9	14	11	35	5	2	433	416	630
unidentified divers	<i>Gavia</i> spp.	258	1,469	1,979		1		16	6	19	88	70	76
Little Grebe	<i>Tachybaptus ruficollis</i>	322	369	478	5,222	5,799	7,060	9,729	15,155	16,325	9,823	10,270	11,310
Red-necked Grebe	<i>Podiceps grisegena</i>	6	29	24	93	104	54	46	61	75	170	105	121
Great Crested Grebe	<i>Podiceps cristatus</i>	1,542	3,104	5,005	27,058	26,380	28,664	39,680	50,826	54,080	43,748	65,947	63,864
Slavonian Grebe	<i>Podiceps auritus</i>	47	49	68	10	11	16	24	14	2	263	406	725
Black-necked Grebe	<i>Podiceps nigricollis</i>			4	1,166	1,199	1,403	30,089	24,938	31,775	4,157	2,397	4,842
unidentified grebes	<i>Podicipedidae</i> spp.	3	32	8			1	66	40	112	26	79	29
Great White Pelican	<i>Pelecanus onocrotalus</i>							393	358	399			
Pink-backed Pelican	<i>Pelecanus rufescens</i>												
Dalmatian Pelican	<i>Pelecanus crispus</i>							1,878	1,611	2,956			
unidentified pelicans	<i>Pelecanus</i> spp.												
Great Cormorant	<i>Phalacrocorax carbo</i>	4,853	7,268	7,234	15,056	21,939	16,850	56,548	58,449	92,278	68,606	77,171	78,270
Socotra Cormorant	<i>Phalacrocorax nigrogularis</i>												
European Shag	<i>Phalacrocorax aristotelis</i>	2						701	368	534	146	1,537	871
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>				2	17	35	14,259	37,255	25,189			
unidentified cormorants	<i>Phalacrocorax</i> spp.							5,557	173	43	21	16	
Grey Heron	<i>Ardea cinerea</i>	534	2,331	1,673	2,322	3,234	2,576	9,231	10,071	11,319	10,348	16,745	16,737
Black-headed Heron	<i>Ardea melanocephala</i>												
Purple Heron	<i>Ardea purpurea</i>							3	19	7			1
Great White Egret	<i>Casmerodius albus</i>		1	1	44	392	212	7,367	8,611	10,901	80	298	525
Intermediate Egret	<i>Mesophyx intermedia</i>												
Western Reef Egret	<i>Egretta gularis</i>							1		2			
Little Egret	<i>Egretta garzetta</i>							3,876	4,969	5,097	3,324	4,725	6,474
Cattle Egret	<i>Bubulcus ibis</i>							270	256	1,837	134	491	628
Squacco Heron	<i>Ardeola ralloides</i>							1	1	1			
Indian Pond Heron	<i>Ardeola grayii</i>												
Green-backed Heron	<i>Butorides striatus</i>												
unidentified egrets	<i>Egretta/Bubulcus</i> spp.												16
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>							1,256	1,679	1,866			25
Little Bittern	<i>Ixobrychus minutus</i>							4	1				

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species		Baltic/Nordic			Central Europe			East Mediterranean/Black Sea			Northwest Europe		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Eurasian Bittern	<i>Botaurus stellaris</i>	5			18	12	11	47	15	52	132	51	92
unidentified Ardeidae	<i>Ardeidae</i> spp.												
Black Stork	<i>Ciconia nigra</i>							1,018	689	1,251			1
Abdim's Stork	<i>Ciconia abdimii</i>												
White Stork	<i>Ciconia ciconia</i>						3	1,234	1,049	883	217	304	270
Glossy Ibis	<i>Plegadis falcinellus</i>							1,604	2,767	3,661			
Sacred Ibis	<i>Threskiornis aethiopicus</i>												
African Spoonbill	<i>Platalea alba</i>												
Eurasian Spoonbill	<i>Platalea leucorodia</i>							646	972	1,088	66	101	170
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>							12,478	10,898	60,612	5	1	8
Lesser Flamingo	<i>Phoenicopterus minor</i>												
Whooper Swan	<i>Cygnus cygnus</i>	10,997	11,684	8,599	469	302	320	2,154	2,995	4,850	23,565	22,433	19,606
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>	439	358	134	2	3	10	21		39	17,728	16,826	17,176
Mute Swan	<i>Cygnus olor</i>	39,514	47,747	48,737	10,872	10,859	13,364	11,548	20,449	24,982	66,015	76,365	84,767
Yellow-billed Swans	<i>Cygnus cygnus/bewickii</i>	338	2,364	886									
unidentified swans	<i>Cygnus</i> spp.		379				7	4	61	11	230	3,557	3,116
Taiga Bean Goose	<i>Anser fabalis fabalis</i>										2,272	1,000	1,559
Tundra Bean Goose	<i>Anser fabalis rossicus</i>	55,241	6	2	89	4	9				41,784	45,985	77,367
unidentified Bean Goose	<i>Anser fabalis</i> ssp.	31,763	38,027	49,898	40,141	64,836	150,070	8,207	2,426	8,517	218,610	191,435	291,355
Pink-footed Goose	<i>Anser brachyrhynchus</i>	67	26,001	28,544		1					255,009	245,874	126,807
European White-fronted Goose	<i>Anser albifrons albifrons</i>	10,303	1,465	1,858	11,308	34,588	79,460	432,676	251,421	273,149	885,898	969,673	835,039
Greenland White-fronted Goose	<i>Anser albifrons flavirostris</i>										23,465	11,537	12,585
Lesser White-fronted Goose	<i>Anser erythropus</i>		2				1		320	71	1	25	41
Greylag Goose	<i>Anser anser</i>	923	7,339	7,958	15,649	24,753	18,524	20,365	20,222	21,197	193,176	199,920	174,681
Snow Goose *	<i>Anser caerulescens</i>		4	6						5			
unidentified grey geese	<i>Anser</i> spp.		7,259	339	836		2,891	543	2,806	2,283	115	32	4
Barnacle Goose	<i>Branta leucopsis</i>	9,642	27,408	22,743	13	6	14		4	4	301,414	294,041	352,376
Dark-bellied Brent Goose	<i>Branta bernicla bernicla</i>	235	1,876	1,639							213,931	241,522	197,843
Light-bellied Brent Goose	<i>Branta bernicla hrota</i>	495	3,617	3,854							17,718	12,652	14,033
Brent Goose	<i>Branta bernicla</i> ssp.										22	768	2
Red-breasted Goose	<i>Branta ruficollis</i>		1			2	1	70,020	20,002	13,433	12	15	8
unidentified Goose	<i>Anser / Branta</i> spp.												70
Ruddy Shelduck	<i>Tadorna ferruginea</i>							109	153	7,229			
Common Shelduck	<i>Tadorna tadorna</i>	8,206	17,757	14,136	33	59	47	14,177	10,480	11,908	221,630	211,992	227,375
Eurasian Wigeon	<i>Anas penelope</i>	4,398	29,973	15,822	2,292	3,423	3,664	162,337	77,952	169,213	1,182,746	1,145,296	1,213,871

* an unknown proportion of Snow Geese in the region are of captive origin.

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species		Baltic/Nordic			Central Europe			East Mediterranean/Black Sea			Northwest Europe		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
American Wigeon	<i>Anas americana</i>											1	
Gadwall	<i>Anas strepera</i>	1	18	20	13,177	15,604	15,759	5,781	7,736	4,680	21,722	31,874	35,716
Common Teal	<i>Anas crecca</i>	644	1,343	1,327	9,309	20,156	17,433	176,709	183,564	322,583	203,165	234,642	281,747
Mallard	<i>Anas platyrhynchos</i>	127,579	194,972	204,446	184,871	229,001	294,255	324,679	381,208	374,926	874,082	880,026	1,021,410
Hybrid Mallard	<i>Anas platyrhynchos X</i>												
American Black Duck	<i>Anas rubripes</i>												
Northern Pintail	<i>Anas acuta</i>	41	232	264	488	854	576	30,056	42,120	64,786	55,568	35,927	53,364
Garganey	<i>Anas querquedula</i>					20	1	379	476	269		21	3
Northern Shoveler	<i>Anas clypeata</i>		17	3	1,339	979	1,105	73,421	44,734	62,021	14,004	20,014	25,575
Hybrid duck	<i>Anas hybridus</i>				8	12	4						
unidentified dabbling ducks	<i>Anas spp.</i>				16	23	47						
Marbled Teal	<i>Marmaronetta angustirostris</i>							39	98	31			
Red-crested Pochard	<i>Netta rufina</i>				13,235	14,702	21,052	3,313	4,208	10,292	147	529	312
Common Pochard	<i>Aythya ferina</i>	5,890	10,000	9,464	136,414	96,795	114,538	211,936	229,315	410,208	177,305	217,589	227,582
Ring-necked Duck	<i>Aythya collaris</i>						1					1	2
Ferruginous Duck	<i>Aythya nyroca</i>				22	97	26	457	217	640	9	22	107
Tufted Duck	<i>Aythya fuligula</i>	145,095	175,960	157,565	242,781	212,754	246,627	116,412	82,196	107,674	279,676	364,491	355,525
Greater Scaup	<i>Aythya marila</i>	26,755	6,808	7,688	268	151	263	170	882	237	115,645	54,013	129,219
Lesser Scaup	<i>Aythya affinis</i>					1							
Hybrid <i>Aythya</i> duck	<i>Aythya X hybridus</i>												12
unidentified pochards	<i>Aythya spp.</i>	12	355		53	4	836	632	222	218	2	1	1,632
Steller's Eider	<i>Polysticta stellerii</i>	9,256	10,391	3,379							1		
Common Eider	<i>Somateria mollissima</i>	61,378	86,155	65,513	170	131	136	8		4	346,240	356,862	249,872
King Eider	<i>Somateria spectabilis</i>	5,291	1,871	2,336									
unidentified Eider	<i>Somateria spp.</i>												788
Common Scoter	<i>Melanitta nigra</i>	1,086	3,078	2,419	5	2		10		5	144,957	129,456	165,105
Surf Scoter	<i>Melanitta perspicillata</i>												1
Velvet Scoter	<i>Melanitta fusca</i>	40,812	50,633	45,443	75	116	52	531	58	49	1,585	3,755	2,466
unidentified Scoter	<i>Melanitta spp.</i>	18	88	240									
Long-tailed Duck	<i>Clangula hyemalis</i>	75,960	96,877	104,628	4	6	14	3		10	21,501	11,295	19,814
Common Goldeneye	<i>Bucephala clangula</i>	59,932	67,946	77,504	30,668	24,450	27,054	20,114	18,174	33,974	76,171	77,526	77,475
Smew	<i>Mergellus albellus</i>	2,796	3,421	3,007	880	911	1,528	7,724	4,338	7,023	7,063	7,636	8,476
Red-breasted Merganser	<i>Mergus serrator</i>	5,832	11,450	8,439	97	73	68	2,173	1,884	1,510	17,902	23,115	19,336
Goosander	<i>Mergus merganser</i>	46,682	40,835	45,820	9,265	6,297	7,379	441	299	704	39,191	28,203	31,136

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species		Baltic/Nordic			Central Europe			East Mediterranean/Black Sea			Northwest Europe		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
R-b Merganser/Goosander	<i>Mergus serrator/merganser</i>	43	26	1,055									
White-headed Duck	<i>Oxyura leucocephala</i>							2,353	1,222	3,487		1	
White-headed Duck X Ruddy Duck	<i>Oxyura leucocephala X jamaicensis</i>												
unidentified ducks	<i>Anatinae spp.</i>	7,286	3,236	1,259	1,904	433	1,584	56,596	52,463	53,537	2,095	27,052	29,212
Common Crane	<i>Grus grus</i>			1				3,304	3,443	6,721	24,092	20,503	19,061
Siberian Crane	<i>Grus leucogeranus</i>												
Water Rail	<i>Rallus aquaticus</i>	7	38	25	11	10	12	190	200	179	296	288	348
Little Crake	<i>Porzana parva</i>									1			
Baillon's Crake	<i>Porzana pusilla</i>							4					
Spotted Crake	<i>Porzana porzana</i>									2		1	
Moorhen	<i>Gallinula chloropus</i>	142	119	119	795	772	1,089	1,927	2,545	3,033	19,125	17,369	21,331
Purple Swamphen	<i>Porphyrio porphyrio</i>							2		8	10		
Common Coot	<i>Fulica atra</i>	38,213	56,304	64,552	160,157	178,418	197,049	573,192	555,608	1,581,830	535,918	524,350	595,444
Crested Coot	<i>Fulica cristata</i>												
Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>												
Crab Plover	<i>Dromas ardeola</i>												
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	18,388	29,141	27,280				93	207	274	656,146	794,994	757,648
Black-winged Stilt	<i>Himantopus himantopus</i>							974	463	1,063		14	3
Pied Avocet	<i>Recurvirostra avosetta</i>							4,922	5,295	6,762	13,874	16,976	20,432
Stone Curlew	<i>Burhinus oedicephalus</i>								39	132			
Great Thick-knee	<i>Burhinus recurvirostris</i>												
Cream-coloured Courser	<i>Cursorius cursor</i>								6				
Collared Pratincole	<i>Glareola pratincola</i>												
Northern Lapwing	<i>Vanellus vanellus</i>	17	520	74		2	1	47,424	18,547	18,507	362,411	1,057,221	908,039
Spur-winged Lapwing	<i>Vanellus spinosus</i>							4,603	4,124	4,792			
White-tailed Lapwing	<i>Vanellus leucurus</i>							1					
Sociable Lapwing	<i>Vanellus gregarius</i>												
Red-wattled Lapwing	<i>Vanellus indicus</i>												
Eurasian Golden Plover	<i>Pluvialis apricaria</i>		2,097					2,393	2,488	3,038	130,693	302,892	296,622
Pacific Golden Plover	<i>Pluvialis fulva</i>												
Grey Plover	<i>Pluvialis squatarola</i>	1	115					2,120	771	1,850	92,077	99,943	95,940
unidentified <i>Pluvialis</i> plovers	<i>Pluvialis spp.</i>							10	150	10			
Ringed Plover	<i>Charadrius hiaticula</i>							244	335	513	22,310	24,365	23,661

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species		Baltic/Nordic			Central Europe			East Mediterranean/Black Sea			Northwest Europe		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Little Ringed Plover	<i>Charadrius dubius</i>							110	613	47			
Kentish Plover	<i>Charadrius alexandrinus</i>							3,270	4,071	6,697	46	43	43
Greater Sandplover	<i>Charadrius leschenaultii</i>							18	41	21			
Lesser Sandplover	<i>Charadrius mongolus</i>												
unidentified <i>Charadrius</i> plovers	<i>Charadrius</i> spp.							79	177	7,473			1
Eurasian Dotterel	<i>Eudromias morinellus</i>											12	
Black-tailed Godwit	<i>Limosa limosa</i>							489	404	1,300	26,953	27,418	29,285
Bar-tailed Godwit	<i>Limosa lapponica</i>		1,093	2,040						10	106,794	94,911	93,817
unidentified godwits	<i>Limosa</i> spp.												
Whimbrel	<i>Numenius phaeopus</i>							3		1	202	20	34
Eurasian Curlew	<i>Numenius arquata</i>	3,570	2,848	2,081	332	481	895	3,082	2,155	4,006	184,308	369,482	309,201
unidentified curlews	<i>Numenius</i> spp.												
Spotted Redshank	<i>Tringa erythropus</i>					1		201	298	919	562	472	435
Redshank	<i>Tringa totanus</i>	1,529	563	535				6,387	6,535	9,114	90,859	109,108	110,966
Marsh Sandpiper	<i>Tringa stagnatilis</i>							29	32	32			
Greenshank	<i>Tringa nebularia</i>						1	92	95	191	601	936	861
Lesser Yellowlegs	<i>Tringa flavipes</i>												1
Green Sandpiper	<i>Tringa ochropus</i>		1	1	27	15	21	199	208	275	137	253	360
Wood Sandpiper	<i>Tringa glareola</i>							12	8	12	18		1
Terek Sandpiper	<i>Tringa cinereus</i>							57	2				
Common Sandpiper	<i>Tringa hypoleucos</i>				26	28	40	349	258	445	116	174	174
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.							303	106	276	4	68	2
Ruddy Turnstone	<i>Arenaria interpres</i>	1						100	127	150	28,191	27,240	28,598
Red-necked Phalarope	<i>Phalaropus lobatus</i>											11	1
Grey Phalarope	<i>Phalaropus fulicaria</i>											2	
Eurasian Woodcock	<i>Scolopax rusticola</i>	1						3	23	3	231	69	103
Pintail Snipe	<i>Gallinago stenura</i>												
Great Snipe	<i>Gallinago media</i>							21	3				
Common Snipe	<i>Gallinago gallinago</i>	6	65	20	81	102	60	1,437	1,445	1,836	5,571	11,312	11,898
Jack Snipe	<i>Lymnocyptes minimus</i>					1		13	12	2	95	100	138
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>												2
unidentified snipes	<i>Gallinago</i> spp.							13	18	6			
Red Knot	<i>Calidris canutus</i>	4,000		3,250				8	48	49	325,148	338,021	416,958

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species		Baltic/Nordic			Central Europe			East Mediterranean/Black Sea			Northwest Europe		
		1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
Great Knot	<i>Calidris tenuirostris</i>												
Sanderling	<i>Calidris alba</i>	42	1,112	704				54	432	95	25,781	23,949	23,184
Little Stint	<i>Calidris minuta</i>							7,860	2,785	10,144	112	164	154
Temminck's Stint	<i>Calidris temminckii</i>							17	30	7			2
Purple Sandpiper	<i>Calidris maritima</i>	62	108	103							2,294	2,095	2,631
Dunlin	<i>Calidris alpina</i>	1,436	34,561	20,382		7	3	16,272	12,257	18,635	1,059,976	1,041,553	1,004,912
Curlew Sandpiper	<i>Calidris ferruginea</i>										4	5	
unidentified <i>Calidris</i> sandpipers	<i>Calidris</i> spp.							151	1,707	351	301	40	158
Broad-billed Sandpiper	<i>Limicola falcinellus</i>												
Ruff	<i>Philomachus pugnax</i>							134	78	359	1,816	895	844
unidentified waders	<i>Charadrii</i> spp.							2,866	8,550	8,399		60	7,050
White-eyed Gull	<i>Larus leucophthalmus</i>							40		3			
Sooty Gull	<i>Larus hemprichii</i>												
Audouin's Gull	<i>Larus audouinii</i>								6		10		
Ring-billed Gull	<i>Larus delawarensis</i>										6	7	12
Common Gull	<i>Larus canus</i>	4,143	13,112	17,089	13,686	6,306	8,245	21,953	7,938	9,594	179,329	288,751	362,466
Herring Gull	<i>Larus argentatus</i>	6,344	24,145	17,520	182	177	71		2	66	192,671	269,691	279,120
Yellow-legged Gull	<i>Larus cachinnans</i>				1,962	2,027	2,934	35,550	69,247	52,269	1,656	3,019	3,783
Herring/Yellow-legged Gull	<i>Larus argentatus/cachinnans</i>				20	131	117	34,279	66	46,452			
Herring/Lesser Black-backed Gull	<i>Larus argentatus/fuscus</i>												
Armenian Gull	<i>Larus armenicus</i>							68	6	1,104			
Lesser Black-backed Gull	<i>Larus fuscus</i>	8	11	54	27	22	18	190	673	672	23,118	17,314	21,034
Yellow-legged/ Lesser Black-backed Gull	<i>Larus cachinnans/fuscus</i>												
Great Black-backed Gull	<i>Larus marinus</i>	1,273	1,691	1,266	1	1		6	1		16,873	29,469	28,991
Great Black-headed Gull	<i>Larus ichthyaetus</i>							265	3,984	438			
Little Gull	<i>Larus minutus</i>		5	11	1	1	10	1,466	379	390	75	877	474
Iceland Gull	<i>Larus glaucoides</i>										12	7	5
Glaucous Gull	<i>Larus hyperboreus</i>	27	1	1							25	22	20
Thayer's Gull	<i>Larus glaucoides</i>												
Laughing Gull	<i>Larus atricilla</i>												
Franklin's Gull	<i>Larus pipixcan</i>												1

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Non-native species	Baltic/Nordic			Central Europe			East Mediterranean/Black Sea			Northwest Europe		
	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
White-faced Whistling Duck	<i>Dendrocygna viduata</i>											
Black Swan	<i>Cygnus atratus</i>			14	10	4				30	46	50
Black-necked Swan	<i>Cygnus melanocorypha</i>					1						
Swan Goose	<i>Anser cygnoides</i>			1								
Greylag Goose (Introduced pop.)	<i>Anser anser</i>									14,170	12,950	16,221
Bar-headed Goose	<i>Anser indicus</i>			2	10	8						1
Feral Goose	<i>Anser domesticus</i> spp.			14	13	15						
Canada Goose	<i>Branta canadensis</i>			38,754	39,885	46,973	83	23	30	59,855	62,805	68,566
Ruddy Shelduck	<i>Tadorna ferruginea</i>			32	85	62				26	41	68
Cape Shelduck	<i>Tadorna cana</i>			1	2							
Egyptian Goose	<i>Alopochen aegyptiacus</i>			4	2	2				2,016	4,876	5,320
Upland Goose	<i>Chloephaga picta</i>											15
Muscovy Duck	<i>Cairina moschata</i>			63	127	122				4	16	33
Wood Duck	<i>Aix sponsa</i>			40	28	25	2			12	16	16
Mandarin Duck	<i>Aix galericulata</i>			256	68	71	2	1	2	578	374	435
Mandarin/Wood Duck	<i>Aix</i> spp.											123
Chiloe Wigeon	<i>Anas sibilatrix</i>			1	1	2				1		
Cinnamon Teal	<i>Anas cyanoptera</i>					1						
Speckled Teal	<i>Anas flavirostris</i>											1
Chestnut Teal	<i>Anas castanea</i>			1	1	1						
Spot-billed Duck	<i>Anas poecilorhyncha</i>			2	1	2						
White-cheeked Pintail	<i>Anas bahamensis</i>			5	1	2						
Maned Duck	<i>Chenonetta jubata</i>									2		3
Ringed Teal	<i>Callonetta leucophrys</i>				9	2						
Rosy-billed Pochard	<i>Netta peposaca</i>			1	1	1						
Hooded Merganser	<i>Lophodytes cucullatus</i>			1								
Marbled Teal	<i>Marmaronetta angustirostris</i>									2		
Ruddy Duck	<i>Oxyura jamaicensis</i>				1	1				3,709	3,366	3,121
Feral Duck	<i>Anas domesticus</i> spp.			199	315	293						
Grey Crowned Crane	<i>Balearica regulorum</i>											
Spur-winged Lapwing	<i>Vanellus spinosus</i>										1	
Total non-native species	38,754	39,885	46,973	720	698	646	4	1	2	80,418	84,794	94,498
Grand total	927,733	1,229,473	1,177,422	1,018,204	1,078,842	1,347,533	2,872,741	2,504,964	4,304,063	10,937,203	12,705,467	12,867,723

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species	Southwest Asia			West Mediterranean			1997	Total 1998	1999	
	1997	1998	1999	1997	1998	1999				
Great Northern Diver	<i>Gavia immer</i>			84	119	234	521	494	761	
White-billed Diver	<i>Gavia adamsii</i>						1		1	
Black-throated Diver	<i>Gavia arctica</i>	7	5	21	197	253	252	3,407	1,249	1,136
Red-throated Diver	<i>Gavia stellata</i>				43	52	26	699	731	1,025
unidentified divers	<i>Gavia</i> spp.				2	1	2	364	1,547	2,076
Little Grebe	<i>Tachybaptus ruficollis</i>	17,627	3,048	251	11,723	14,882	17,783	54,446	49,523	53,207
Red-necked Grebe	<i>Podiceps grisegena</i>	567	160	57	143	63	50	1,025	522	381
Great Crested Grebe	<i>Podiceps cristatus</i>	2,766	1,811	404	26,401	23,611	29,887	141,195	171,679	181,904
Slavonian Grebe	<i>Podiceps auritus</i>	142	372	371	27	54	9	513	906	1,191
Black-necked Grebe	<i>Podiceps nigricollis</i>	16,324	1,418	7,472	26,471	28,430	24,159	78,207	58,382	69,655
unidentified grebes	<i>Podicipedidae</i> spp.	211	6,561	2,441	6	18	436	312	6,730	3,027
Great White Pelican	<i>Pelecanus onocrotalus</i>	1,565	547	1			2	1,958	905	402
Pink-backed Pelican	<i>Pelecanus rufescens</i>	33						33		
Dalmatian Pelican	<i>Pelecanus crispus</i>	781	741					2,659	2,352	2,956
unidentified pelicans	<i>Pelecanus</i> spp.	303	524					303	524	
Great Cormorant	<i>Phalacrocorax carbo</i>	41,736	52,867	2,479	85,296	85,263	99,282	272,095	302,957	296,393
Socotra Cormorant	<i>Phalacrocorax nigrogularis</i>	16,586	7,862	4,461				16,586	7,862	4,461
European Shag	<i>Phalacrocorax aristotelis</i>				3,045	2,677	2,230	3,894	4,582	3,635
Pygmy Cormorant	<i>Phalacrocorax pygmeus</i>	2,363	856		10	36	38	16,634	38,164	25,262
unidentified cormorants	<i>Phalacrocorax</i> spp.	12,847				1	13	18,425	190	56
Grey Heron	<i>Ardea cinerea</i>	7,264	6,829	611	19,548	20,946	23,783	49,247	60,156	56,699
Black-headed Heron	<i>Ardea melanocephala</i>	2						2		
Purple Heron	<i>Ardea purpurea</i>	80	15	8	39	118	106	122	152	122
Great White Egret	<i>Casmerodius albus</i>	6,525	2,849	325	2,121	2,098	3,407	16,137	14,249	15,371
Intermediate Egret	<i>Mesophyx intermedia</i>		1	1				1	1	
Western Reef Egret	<i>Egretta gularis</i>	3,499	2,728	1,090	2			3,502	2,728	1,092
Little Egret	<i>Egretta garzetta</i>	5,799	4,567	93	13,309	20,054	16,367	26,308	34,315	28,031
Cattle Egret	<i>Bubulcus ibis</i>	1,132	410	125	18,225	28,876	25,993	19,761	30,033	28,583
Squacco Heron	<i>Ardeola ralloides</i>	23	12	8	3	203	103	27	216	112
Indian Pond Heron	<i>Ardeola grayii</i>	22	4	18				22	4	18
Green-backed Heron	<i>Butorides striatus</i>	10	2	11				10	2	11
unidentified egrets	<i>Egretta/Bubulcus</i> spp.	5,485			552	50		6,037	50	16
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	93	46	24	409	634	790	1,758	2,359	2,705
Little Bittern	<i>Ixobrychus minutus</i>				11	133	160	15	134	160

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species	Southwest Asia			West Mediterranean			Total			
	1997	1998	1999	1997	1998	1999	1997	1998	1999	
Eurasian Bittern	<i>Botaurus stellaris</i>	408	36		101	69	139	711	183	294
unidentified Ardeidae	<i>Ardeidae</i> spp.	8	442			8		8	450	
Black Stork	<i>Ciconia nigra</i>	48	38		5	2	28	1,071	729	1,280
Abdim's Stork	<i>Ciconia abdimii</i>	14						14		
White Stork	<i>Ciconia ciconia</i>	1,546	1,579	5	877	1,880	3,630	3,874	4,812	4,791
Glossy Ibis	<i>Plegadis falcinellus</i>	610	365	13	81	133	170	2,295	3,265	3,844
Sacred Ibis	<i>Threskiornis aethiopicus</i>	15						15		
African Spoonbill	<i>Platalea alba</i>	2						2		
Eurasian Spoonbill	<i>Platalea leucorodia</i>	2,292	237	123	1,694	1,585	1,958	4,698	2,895	3,339
Greater Flamingo	<i>Phoenicopterus ruber roseus</i>	155,550	195,786	5,637	77,449	80,392	110,607	245,482	287,077	176,864
Lesser Flamingo	<i>Phoenicopterus minor</i>	7,333						7,333		
Whooper Swan	<i>Cygnus cygnus</i>	791	1,132	572	1		1	37,977	38,546	33,948
Bewick's Swan	<i>Cygnus (columbianus) bewickii</i>	7	10		120	2	3	18,317	17,199	17,362
Mute Swan	<i>Cygnus olor</i>	508	5,391	1,313	1,842	2,054	2,664	130,299	162,865	175,827
Yellow-billed Swans	<i>Cygnus cygnus/bewickii</i>							338	2,364	886
unidentified swans	<i>Cygnus</i> spp.	2,296	2,183			1		2,530	6,181	3,134
Taiga Bean Goose	<i>Anser fabalis fabalis</i>							2,272	1,000	1,559
Tundra Bean Goose	<i>Anser fabalis rossicus</i>							97,114	45,995	77,378
unidentified Bean Goose	<i>Anser fabalis</i> ssp.		587	116	355	103	338	299,076	297,414	500,294
Pink-footed Goose	<i>Anser brachyrhynchus</i>				23			255,099	271,876	155,351
European White-fronted Goose	<i>Anser albifrons albifrons</i>	78	930		844	53	121	1,341,107	1,258,130	1,189,627
Greenland White-fronted Goose	<i>Anser albifrons flavirostris</i>							23,465	11,537	12,585
Lesser White-fronted Goose	<i>Anser erythropus</i>	1	25		1			3	372	113
Greylag Goose	<i>Anser anser</i>	87,793	63,234	92	72,124	71,577	102,351	390,030	387,045	324,803
Snow Goose *	<i>Anser caerulescens</i>					1			5	11
unidentified grey geese	<i>Anser</i> spp.	74,401	865		45	14	104	75,940	10,976	5,621
Barnacle Goose	<i>Branta leucopsis</i>				28	20	18	311,097	321,479	375,155
Dark-bellied Brent Goose	<i>Branta bernicla bernicla</i>							214,166	243,398	199,482
Light-bellied Brent Goose	<i>Branta bernicla hrota</i>							18,213	16,269	17,887
Brent Goose	<i>Branta bernicla</i> ssp.				23	11	2	45	779	4
Red-breasted Goose	<i>Branta ruficollis</i>	312			4			70,348	20,020	13,442
unidentified Goose	<i>Anser / Branta</i> spp.	635						635		70
Ruddy Shelduck	<i>Tadorna ferruginea</i>	40,045	83,762	631	1	209	694	40,155	84,124	8,554
Common Shelduck	<i>Tadorna tadorna</i>	33,477	17,490	19	19,404	15,884	21,659	296,927	273,662	275,144
Eurasian Wigeon	<i>Anas penelope</i>	67,434	71,536	502	230,321	165,180	181,939	1,649,528	1,493,360	1,585,011

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species	Southwest Asia			West Mediterranean			1997	Total 1998	1999	
	1997	1998	1999	1997	1998	1999				
American Wigeon	<i>Anas americana</i>			3	4		3	5		
Gadwall	<i>Anas strepera</i>	73,852	28,560	61	23,860	41,251	36,641	138,393	125,043	92,877
Common Teal	<i>Anas crecca</i>	227,005	209,942	6,311	164,471	141,215	210,153	781,303	790,862	839,554
Mallard	<i>Anas platyrhynchos</i>	396,973	307,094	10,317	270,663	281,454	376,661	2,178,847	2,273,755	2,282,015
Hybrid Mallard	<i>Anas platyrhynchos X</i>						1			1
American Black Duck	<i>Anas rubripes</i>				1			1		0
Northern Pintail	<i>Anas acuta</i>	64,980	42,080	257	65,764	24,804	46,569	216,897	146,017	165,816
Garganey	<i>Anas querquedula</i>	118	261	49	74	113	113	571	891	435
Northern Shoveler	<i>Anas clypeata</i>	87,421	19,706	202	141,808	116,966	118,460	317,993	202,416	207,366
Hybrid duck	<i>Anas hybridus</i>							8	12	4
unidentified dabbling ducks	<i>Anas spp.</i>							16	23	47
Marbled Teal	<i>Marmaronetta angustirostris</i>	1,604	1,326		178	168	144	1,823	1,592	175
Red-crested Pochard	<i>Netta rufina</i>	18,458	39,894	31,377	14,232	13,528	16,115	49,385	72,861	79,148
Common Pochard	<i>Aythya ferina</i>	105,001	77,559	10,698	87,597	108,029	94,095	724,143	739,287	866,585
Ring-necked Duck	<i>Aythya collaris</i>				3	3	2	3	4	5
Ferruginous Duck	<i>Aythya nyroca</i>	738	2,819	20	987	229	586	2,213	3,384	1,379
Tufted Duck	<i>Aythya fuligula</i>	41,030	52,631	3,732	18,957	19,012	17,266	843,951	907,044	888,389
Greater Scaup	<i>Aythya marila</i>	2,629	26,824	118	238	133	254	145,705	88,811	137,779
Lesser Scaup	<i>Aythya affinis</i>								1	
Hybrid <i>Aythya</i> duck	<i>Aythya X hybridus</i>									12
unidentified pochards	<i>Aythya spp.</i>	7,150	3,329		6	2	15,929	7,855	3,913	18,615
Steller's Eider	<i>Polysticta stelleri</i>							9,257	10,391	3,379
Common Eider	<i>Somateria mollissima</i>				89	69	111	407,885	443,217	315,636
King Eider	<i>Somateria spectabilis</i>							5,291	1,871	2,336
unidentified Eider	<i>Somateria spp.</i>									788
Common Scoter	<i>Melanitta nigra</i>				484	724	743	146,542	133,260	168,272
Surf Scoter	<i>Melanitta perspicillata</i>				1		1	1		2
Velvet Scoter	<i>Melanitta fusca</i>				151	170	113	43,154	54,732	48,123
unidentified Scoter	<i>Melanitta spp.</i>							18	88	240
Long-tailed Duck	<i>Clangula hyemalis</i>		6	21		3	8	97,468	108,187	124,495
Common Goldeneye	<i>Bucephala clangula</i>	2,531	1,276	3,507	2,921	1,889	1,744	192,337	191,261	221,258
Smew	<i>Mergellus albellus</i>	300	3,813	138	24	6	22	18,787	20,125	20,194
Red-breasted Merganser	<i>Mergus serrator</i>	52	205	62	2,377	2,421	1,932	28,433	39,148	31,347
Goosander	<i>Mergus merganser</i>	84	193	16	43	8	34	95,706	75,835	85,089

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species	Southwest Asia			West Mediterranean			Total			
	1997	1998	1999	1997	1998	1999	1997	1998	1999	
R-b Merganser/Goosander	<i>Mergus serrator/merganser</i>						43	26	1,055	
White-headed Duck	<i>Oxyura leucocephala</i>	356	680	501	1,069	1,205	3,210	2,972	4,692	
White-headed Duck X Ruddy Duck	<i>Oxyura leucocephala X jamaicensis</i>				2			2		
unidentified ducks	<i>Anatinae spp.</i>	568,758	379,047	125	102,625	18,144	31,341	739,264	480,375	117,058
Common Crane	<i>Grus grus</i>	9,237	7,135	1	14,741	20,773	25,041	51,374	51,854	50,825
Siberian Crane	<i>Grus leucogeranus</i>	10						10		
Water Rail	<i>Rallus aquaticus</i>	134	55	6	962	984	1,244	1,600	1,575	1,814
Little Crake	<i>Porzana parva</i>	13	20			1		13	21	1
Baillon's Crake	<i>Porzana pusilla</i>	1		23				5		23
Spotted Crake	<i>Porzana porzana</i>				1		16	1	1	18
Moorhen	<i>Gallinula chloropus</i>	1,366	921	168	23,702	20,104	18,739	47,057	41,830	44,479
Purple Swampphen	<i>Porphyrio porphyrio</i>	216	358	2	471	889	1,520	699	1,247	1,530
Common Coot	<i>Fulica atra</i>	682,345	311,648	46,944	392,226	388,494	463,013	2,382,051	2,014,822	2,948,832
Crested Coot	<i>Fulica cristata</i>					8	8		8	8
Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	2						2		
Crab Plover	<i>Dromas ardeola</i>	2,985	2,751	536				2,985	2,751	536
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	5,688	2,288	1,489	3,266	2,942	2,951	683,581	829,572	789,642
Black-winged Stilt	<i>Himantopus himantopus</i>	4,599	1,514	204	3,438	9,423	5,514	9,011	11,414	6,784
Pied Avocet	<i>Recurvirostra avosetta</i>	33,048	5,571	3	23,481	23,130	17,509	75,325	50,972	44,706
Stone Curlew	<i>Burhinus oediconemus</i>	1	4	1	704	779	295	705	822	428
Great Thick-knee	<i>Burhinus recurvirostris</i>	50						50		
Cream-coloured Courser	<i>Cursorius cursor</i>	21		13				21	6	13
Collared Pratincole	<i>Glareola pratincola</i>			1		71	121		71	122
Northern Lapwing	<i>Vanellus vanellus</i>	20,096	30,519	55	194,646	136,092	105,653	624,594	1,242,901	1,032,329
Spur-winged Lapwing	<i>Vanellus spinosus</i>	201						4,804	4,124	4,792
White-tailed Lapwing	<i>Vanellus leucurus</i>	405	29	3				406	29	3
Sociable Lapwing	<i>Vanellus gregarius</i>	15						15		
Red-wattled Lapwing	<i>Vanellus indicus</i>	170	65	8,727				170	65	8,727
Eurasian Golden Plover	<i>Pluvialis apricaria</i>		6		21,063	8,897	10,343	154,149	316,380	310,003
Pacific Golden Plover	<i>Pluvialis fulva</i>	172	64	44				172	64	44
Grey Plover	<i>Pluvialis squatarola</i>	5,277	1,936	2,041	13,320	15,048	8,713	112,795	117,813	108,544
unidentified <i>Pluvialis</i> plovers	<i>Pluvialis spp.</i>							10	150	10
Ringed Plover	<i>Charadrius hiaticula</i>	8,933	1,992	184	4,294	7,319	3,968	35,781	34,011	28,326

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species		Southwest Asia			West Mediterranean			1997	Total 1998	1999
		1997	1998	1999	1997	1998	1999			
Little Ringed Plover	<i>Charadrius dubius</i>	66	50	43	91	2,546	906	267	3,209	996
Kentish Plover	<i>Charadrius alexandrinus</i>	5,411	5,443	2,763	7,099	9,415	9,373	15,826	18,972	18,876
Greater Sandplover	<i>Charadrius leschenaultii</i>	3,866	781	927				3,884	822	948
Lesser Sandplover	<i>Charadrius mongolus</i>	20,289	11,661	8,015				20,289	11,661	8,015
unidentified <i>Charadrius</i> plovers	<i>Charadrius</i> spp.	5,993	2,288		302	1	461	6,374	2,466	7,935
Eurasian Dotterel	<i>Eudromias morinellus</i>		996		33			33	1,008	
Black-tailed Godwit	<i>Limosa limosa</i>	17,692	9,315	48	24,537	34,527	32,251	69,671	71,664	62,884
Bar-tailed Godwit	<i>Limosa lapponica</i>	38,357	35,985	21,334	3,871	2,360	2,123	149,022	134,349	119,324
unidentified godwits	<i>Limosa</i> spp.				1			1		
Whimbrel	<i>Numenius phaeopus</i>	1,086	168	158	410	189	350	1,701	377	543
Eurasian Curlew	<i>Numenius arquata</i>	6,263	6,278	821	14,580	9,698	7,810	212,135	390,942	324,814
unidentified curlews	<i>Numenius</i> spp.		3		1			1	3	
Spotted Redshank	<i>Tringa erythropus</i>	41	11	2	1,418	1,084	1,275	2,222	1,866	2,631
Redshank	<i>Tringa totanus</i>	59,958	55,352	51,752	9,442	9,852	7,240	168,175	181,410	179,607
Marsh Sandpiper	<i>Tringa stagnatilis</i>	169	911	9	4	2	2	202	945	43
Greenshank	<i>Tringa nebularia</i>	2,472	2,353	259	767	1,049	1,032	3,932	4,433	2,344
Lesser Yellowlegs	<i>Tringa flavipes</i>									1
Green Sandpiper	<i>Tringa ochropus</i>	631	106	4	291	415	485	1,285	998	1,146
Wood Sandpiper	<i>Tringa glareola</i>	150	80	11	55	28	18	235	116	42
Terek Sandpiper	<i>Tringa cinereus</i>	297	634	258	1			355	636	258
Common Sandpiper	<i>Tringa hypoleucos</i>	3,410	1,311	178	1,039	1,067	1,240	4,940	2,838	2,077
unidentified <i>Tringa</i> sandpipers	<i>Tringa</i> spp.		1,890		4	41	75	311	2,105	353
Ruddy Turnstone	<i>Arenaria interpres</i>	4,850	2,151	719	1,637	1,238	2,052	34,779	30,756	31,519
Red-necked Phalarope	<i>Phalaropus lobatus</i>	336	10	1				336	21	2
Grey Phalarope	<i>Phalaropus fulicaria</i>								2	
Eurasian Woodcock	<i>Scolopax rusticola</i>	809	33		13	12	16	1,057	137	122
Pintail Snipe	<i>Gallinago stenura</i>	9	1	4				9	1	4
Great Snipe	<i>Gallinago media</i>							21	3	
Common Snipe	<i>Gallinago gallinago</i>	5,089	97	38	8,427	5,827	7,747	20,611	18,848	21,599
Jack Snipe	<i>Lymnocyptes minimus</i>	390	32		64	104	255	562	249	395
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>									2
unidentified snipes	<i>Gallinago</i> spp.							13	18	6
Red Knot	<i>Calidris canutus</i>				16,521	259	425	345,677	338,328	420,682

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Native species	Southwest Asia			West Mediterranean			Total			
	1997	1998	1999	1997	1998	1999	1997	1998	1999	
Great Knot	<i>Calidris tenuirostris</i>	48	56				48	56		
Sanderling	<i>Calidris alba</i>	3,151	966	539	1,574	2,723	2,779	30,602	29,182	27,301
Little Stint	<i>Calidris minuta</i>	17,698	4,810	487	7,138	8,922	15,551	32,808	16,681	26,336
Temminck's Stint	<i>Calidris temminckii</i>	119	60	105	8	4	7	144	94	121
Purple Sandpiper	<i>Calidris maritima</i>				254	206	317	2,610	2,409	3,051
Dunlin	<i>Calidris alpina</i>	79,947	45,817	33,385	143,320	139,263	117,993	1,300,951	1,273,458	1,195,310
Curlew Sandpiper	<i>Calidris ferruginea</i>	3,577	146	170	60	185	388	3,641	336	558
unidentified <i>Calidris</i> sandpipers	<i>Calidris</i> spp.	4,050	1,450		1,850	37,736	10,135	6,352	40,933	10,644
Broad-billed Sandpiper	<i>Limicola falcinellus</i>	233	187	333				233	187	333
Ruff	<i>Philomachus pugnax</i>	409	324	65	1,269	841	1,482	3,628	2,138	2,750
unidentified waders	<i>Charadrii</i> spp.	47,682	31,219		8,069		86	58,617	39,829	15,535
White-eyed Gull	<i>Larus leucophthalmus</i>	33						73		3
Sooty Gull	<i>Larus hemprichii</i>	25,477	20,539	16,820				25,477	20,539	16,820
Audouin's Gull	<i>Larus audouinii</i>				957	666	451	967	672	451
Ring-billed Gull	<i>Larus delawarensis</i>				26	15	9	32	22	21
Common Gull	<i>Larus canus</i>	1,342	2,262	717	6,108	3,144	3,601	226,561	321,513	401,712
Herring Gull	<i>Larus argentatus</i>				820	1,425	1,415	200,017	295,440	298,192
Yellow-legged Gull	<i>Larus cachinnans</i>	107,737	83,105	41,080	149,832	111,881	134,643	296,737	269,279	234,709
Herring/Yellow-legged Gull	<i>Larus argentatus/cachinnans</i>	1			118,706	125,875	115,437	153,006	126,072	162,006
Herring/Lesser Black-backed Gull	<i>Larus argentatus/fuscus</i>	668						668		
Armenian Gull	<i>Larus armenicus</i>							68	6	1,104
Lesser Black-backed Gull	<i>Larus fuscus</i>	4,147	1,987	8	31,303	56,043	34,874	58,793	76,050	56,660
Yellow-legged Herring/ L.Black-backed	<i>Larus cachinnans/fuscus</i>	9,000			7,635	7,907	4,628	16,635	7,907	4,628
Great Black-backed Gull	<i>Larus marinus</i>				330	350	334	18,483	31,512	30,591
Great Black-headed Gull	<i>Larus ichthyaetus</i>	3,847	5,659	1,298	1	2		4,113	9,645	1,736
Little Gull	<i>Larus minutus</i>	3,207	2,712	19	66	613	67	4,815	4,587	971
Iceland Gull	<i>Larus glaucoides</i>							12	7	5
Glauous Gull	<i>Larus hyperboreus</i>				3	9	5	55	32	26
Thayer's Gull	<i>Larus glaucoides</i>					2		2		
Laughing Gull	<i>Larus atricilla</i>						1			1
Franklin's Gull	<i>Larus pipixcan</i>									1

Table 7 continued. Species counts per area, and regional total for the Western Palearctic and Southwest Asia.

Non-native species	Southwest Asia			West Mediterranean			Total		
	1997	1998	1999	1997	1998	1999	1997	1998	1999
White-faced Whistling Duck <i>Dendrocygna viduata</i>						1			1
Black Swan <i>Cygnus atratus</i>				7	14	3	51	70	57
Black-necked Swan <i>Cygnus melanocorypha</i>									1
Swan Goose <i>Anser cygnoides</i>							1		
Greylag Goose (Introduced pop.) <i>Anser anser</i>							14,170	12,950	16,221
Bar-headed Goose <i>Anser indicus</i>						2	2	10	11
Feral Goose <i>Anser domesticus</i> spp.							14	13	15
Canada Goose <i>Branta canadensis</i>					5	28	98,692	102,718	115,597
Ruddy Shelduck <i>Tadorna ferruginea</i>							58	126	130
Cape Shelduck <i>Tadorna cana</i>							1	2	
Egyptian Goose <i>Alopochen aegyptiacus</i>	5	3	2			4	2,025	4,881	5,328
Upland Goose <i>Chloephaga picta</i>									15
Muscovy Duck <i>Cairina moschata</i>							67	143	155
Wood Duck <i>Aix sponsa</i>				1		1	55	44	42
Mandarin Duck <i>Aix galericulata</i>				4	2	7	840	445	515
Mandarin/Wood Duck <i>Aix</i> spp.									123
Chiloe Wigeon <i>Anas sibilatrix</i>							2	1	2
Cinnamon Teal <i>Anas cyanoptera</i>									1
Speckled Teal <i>Anas flavirostris</i>									1
Chestnut Teal <i>Anas castanea</i>							1	1	1
Spot-billed Duck <i>Anas poecilorhyncha</i>							2	1	2
White-cheeked Pintail <i>Anas bahamensis</i>							5	1	2
Maned Duck <i>Chenonetta jubata</i>							2		3
Ringed Teal <i>Callonetta leucophrys</i>								9	2
Rosy-billed Pochard <i>Netta peposaca</i>							1	1	1
Hooded Merganser <i>Lophodytes cucullatus</i>							1		
Marbled Teal <i>Marmaronetta angustirostris</i>									2
Ruddy Duck <i>Oxyura jamaicensis</i>				10	9	6	3,719	3,376	3,128
Feral Duck <i>Anas domesticus</i> spp.							199	315	293
Grey Crowned Crane <i>Balearica regulorum</i>				1			1		
Spur-winged Lapwing <i>Vanellus spinosus</i>								1	
Total non-native species	5	3	2	24	32	53	119,926	125,414	142,174
Grand total	3,623,718	2,538,044	364,566	3,245,235	3,026,490	3,384,609	22,624,834	23,083,274	23,445,931

5. Distribution of selected species

In this section distribution maps are presented for a selection of species. A few considerations, which are important when interpreting the maps will be given here. Only a selection of species with sufficiently reliable and complete data, have been mapped. A few sites in the IWC database still lack geographical coordinates and this may have a small effect on apparent distribution in the following countries: UK, Ireland, Croatia, Slovak Republic, Spain, Algeria and Yugoslavia. Generally, 1–10% of the sites could not be plotted. In the UK, Ireland, coastal Sweden and The Netherlands the density of sites is very high, causing a high density of dots for most species. This can create the impression of the presence of relatively big concentrations of birds, whereas these could be small numbers in reality. The Netherlands have provided site-based data only for a reduced sitelist, so numerical distribution presented on the maps is generally less complete than the actual totals. IWC coverage in Southwest Asia and the southern part of the Mediterranean area is less complete than in Europe. This increases the likelihood of important sites for a species being missed and results in lower densities of dots on the maps in these areas.

Below, information on numerical distribution of selected species, as revealed by the IWC counts in 1997, 1998 and 1999 is given for each species to assist with interpretation of the maps. Some countries did not submit data on certain species or species groups and this is mentioned in the text.

5.1 Grebes

No data from Norway on grebes were available during the period.

Little Grebe *Tachibaptus ruficollis* (Figure 25)

Little Grebe is a very widespread species in relatively low numbers and has a secretive behaviour. The map shows a distribution of high numbers of sites holding relatively low numbers (see also Delany *et al.* 1999). Big concentrations occur in Northeast Iran and Lake Skadar in Yugoslavia.

Great Crested Grebe *Podiceps cristatus* (Figure 26)

Great-crested Grebe has a wide and even distribution in Europe but is more scattered in Southwest Asia. Sites with large numbers are found in The Netherlands, the Swiss-German lakes and lakes in the Balkans. A fairly large proportion of the species' wintering range is covered by the IWC, with gaps in the West Mediterranean and Southwest Asia.

Black-necked Grebe *Podiceps nigricollis* (Figure 27)

In comparison with the other mapped grebe species, Black-necked Grebe shows a less dense and more southern distribution. Big concentrations are found mainly in the Mediterranean, where the lack of coverage in the southern part may have caused considerable numbers to have been missed. No data from the UK were available for this species, which would mean some 30–50 individuals are not included in the map for this country (Pollitt *et al.* 2000).

5.2 Pelicans

Dalmatian Pelican *Pelecanus crispus* (Figure 28)

Dalmatian Pelican is a Conservation Dependant species according to the IUCN Red List (BirdLife International 2000). It is a species that congregates in a few flocks of several hundred birds, occurring mainly in the Balkans

Little Grebe.



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and Turkey. In Southwest Asia the distribution is more widespread with lower numbers, but less complete coverage in this area makes interpretation difficult.

5.3 Cormorants

No data for cormorants are available from Norway.

Great Cormorant *Phalacrocorax carbo* (Figure 29)

Great Cormorant is one of the most widespread species recorded by the IWC. The biggest concentrations occur in the East Mediterranean/Black Sea and Southwest Asia with three sites in Iran, one in Turkey and one in Yugoslavia holding 8,000 birds or more.

Pygmy Cormorant *Phalacrocorax pygmeus* (Figure 30)

The Pygmy Cormorant has a clear Eastern Mediterranean distribution (which is well covered by the IWC), with a second range in the Caspian area (where coverage is less complete). During a special survey in 1998, a big concentration was recorded in the Evros Delta in Greece comprising 19,800 birds. Numbers recorded in 1996 in Azerbaijan (10,468) were not recorded in this period due to reduced coverage. The total count for East Mediterranean and Black Sea in 1998 was over 37,000 birds, which is higher than the current population estimate (Rose and Scott 1997). This species is listed as Near Threatened (BirdLife International 2000).

5.4 Flamingos

Greater Flamingo *Phoenicopterus ruber roseus* (Figure 31)

The distribution is mainly along the Mediterranean, Caspian and Gulf coasts, with a few huge concentrations

inland in Iran (over 79,000 birds at Bakhtegan Lake). The species is highly irruptive, but very conspicuous and occurs in big flocks, therefore the coverage is excellent in countries that participated in the census.

5.5 Swans

Whooper Swan *Cygnus cygnus* (Figure 32)

The Whooper Swan has a very distinct distribution with large gaps between wintering populations. High numbers are found in Ireland and the UK (Icelandic breeding population), Germany and Denmark (Scandinavian and Russian breeding population) and smaller numbers along the Black Sea coast (Russian population) (Scott and Rose 1996). IWC coverage for this species is very representative of the range, but misses birds in agricultural land.

Bewick's Swan *Cygnus (columbianus) bewickii* (Figure 33)

The strongholds for wintering Bewick's Swan are The Netherlands and the UK, as is clearly shown on the map (the actual numbers in The Netherlands are higher than shown on the map, see introduction to chapter 5). The coverage in this area is good.

Mute Swan *Cygnus olor* (Figure 34)

The Mute Swan in Europe is partly sedentary (Scott and Rose 1996). The winter distribution shows a broad band across Europe, which is quite similar to the breeding distribution (Hagemeijer and Blair 1997). The Scandinavian and Eastern European populations migrate south and west, driven by frost and winter on the coasts of the Baltic Sea. Denmark hosts the biggest concentrations, up to 11,000 in Lolland. The Black Sea region also holds considerable numbers, probably including long-distance migrants. Coverage for this species is good.

Bewick's Swan.



5.6 Ducks

All countries traditionally submit data on ducks.

Common Shelduck *Tadorna tadorna* (Figure 35)

Common Shelduck shows a mainly coastal distribution with a clear emphasis on Northwest Europe, but small numbers occur inland in winter throughout the range. The only exceptions are the records of big numbers in inland northwest Iran (e.g. 18,800 at Lake Uromieh). Due to low coverage in North Africa, mapped distribution in this region is probably not representative.

Ruddy Shelduck *Tadorna ferruginea* (Figure 36)

Ruddy Shelduck has a split distribution, formed by small introduced, or non-native, populations in Northwest and Central Europe and by natural populations in Northwest Africa and Eastern Mediterranean and Southwest Asia. This is reflected in the map, although most data from Northwest Africa are missing because of gaps in coverage, particularly in Morocco. The records of more than 35,000 in 1997 and 82,000 birds in 1998 in Iran are spectacular, as the latter more than doubles the current population estimate for the population in the Caspian region. The species is known to have large population fluctuations and is highly dispersive. The Caspian population is believed to be increasing (Wetlands International in prep.).

Eurasian Wigeon *Anas penelope* (Figure 37)

Eurasian Wigeon is a very numerous and widespread species with large concentrations in countries bordering the North Sea and to a lesser extent in the Mediterranean and Iran. In The Netherlands and the UK together, over 1 million birds are counted annually.

Gadwall *Anas strepera* (Figure 38)

Populations of Gadwall in Scandinavia and Eastern Europe migrate southwest in winter, mixing with sedentary populations. Some Russian breeding birds also migrate, to Iran (Scott and Rose 1996). The biggest concentrations are found in West Mediterranean, Iran and Azerbaijan, with up to 17,750 birds in Iran in 1998. The European population is increasing steadily, and the population estimate for Northwest Europe has increased from 12,000 in 1989 (Monval and Pirot 1989) to 25,000 in 1994 (Rose and Scott 1994), to 30,000 in 1997 (Rose and Scott 1997), to 50,000 in 2002 (Wetlands International in prep.). In 1999, over 135,000 birds were counted. IWC coverage is good for this species.

Common Teal *Anas crecca* (Figure 39)

Common Teal has a wide distribution with the main large concentrations in the Mediterranean and Southwest Asia. The coverage of the IWC is favourable for this species. The occurrence can be very different in different parts of the region. The United Kingdom shows an even and widespread occurrence with no really big congregations, but national totals can reach up to 140,000 individuals. Iran shows a completely different picture, with a total of over 200,000 birds, but concentrated in fewer sites holding big flocks (120,000 birds in the four most important sites in 1997). The biggest single concentration was over 100,000 birds in the Evros Delta in Greece in 1999.

Mallard *Anas platyrhynchos* (Figure 40)

Mallard is the most numerous duck species in the Western Palearctic, although, because of its widespread and dispersed occurrence, even in small wetlands, a high proportion of the population is missed during the IWC. Around 2.2 million were counted, whereas the estimate for the Western Palearctic is approximately 7.8 million (Wetlands International in prep.). The map shows the wide distribution, with bigger concentrations in the Mediterranean and the Caspian region, more dispersed in the rest of the region. The site with the biggest number was, as in 1995, Bakhtegan Lake in Iran with 142,490 birds in 1997 (see also Delany *et al.* 1999).

Northern Pintail *Anas acuta* (Figure 41)

A relatively small proportion of the European and West-Asian breeding populations of Northern Pintail is counted in the IWC, because most birds winter in sub-Saharan Africa (Scott and Rose 1996). Many countries with big wetlands hold numbers in the tens of thousands. Big congregations, of 5,000 to 35,000 birds per site, are mainly found in Greece, Spain and Iran.

Northern Shoveler *Anas clypeatea* (Figure 42)

The distribution of Northern Shoveler shows a clear bias to the Mediterranean and Iran. As with Northern Pintail, Iran, Greece and Spain host the biggest concentrations (more than 10,000) per site. Development of IWC in North Africa will benefit coverage of the IWC for this species.

Marbled Teal *Marmaronetta angustirostris* (Figure 43)

This Globally Threatened Species shows a patchy distribution and the highest regional total was 1,823 in 1997. The recorded numbers of Marbled Teal are not representative, as data from Morocco and Egypt are missing and coverage in Tunisia is low. A few Marbled Teals were counted in Algeria (up to 47 in 1997), but these counts could not be plotted. The biggest numbers occur in Iran. The species' status is Vulnerable (BirdLife International 2000).

Red-crested Pochard *Netta rufina* (Figure 44)

Red-crested Pochard has a very distinctive distribution recorded during the IWC, representing the different populations occurring in the whole IWC-region: The Central European/West Mediterranean, the East Mediterranean and Black Sea and the Southwest Asian populations. The coverage for Red-crested Pochard in the IWC is generally representative, but some very big concentrations in Southwest Asia are missed in most years. The West Mediterranean and Central European population was formerly estimated at 25,000 birds (Rose and Scott 1997). The rapid increase in this population is demonstrated by the fact that the IWC total for 1999 was more than 37,000 and the number presented in the next publication of *Waterbird Population Estimates* will be revised (Wetlands International in prep.). As in previous years, the biggest concentrations occurred in Southwest Asia, with more than 30,000 birds at Lake Issyk Kul in Kyrgyzstan in 1999.

Common Pochard *Aythya ferina* (Figure 45)

The distribution of Common Pochard shows a band of big congregations running parallel to the 0-degree isotherm

from Northwest to Southeast Europe into Turkey and northern Iran. Sites (mainly freshwater lakes), with over 30,000 birds are found in Romania, Germany/Switzerland/Austria, Turkey, Yugoslavia and Tunisia. The overall distribution is fairly widespread and coverage shows gaps mainly in Southwest Asia.

Ferruginous Duck *Aythya nyroca* (Figure 46)

This scarce bird is categorised as Near Threatened by IUCN (BirdLife International 2000) and is easily overlooked in large flocks of diving ducks (Delany *et al.* 1999). Up to 15,000 wintering birds were counted in West Africa in the late 1990s (Trolliet and Girard 2001), though some birds remain in the breeding areas year-round (Scott and Rose 1996). Numbers recorded are low, the biggest concentrations were recorded in Algeria, Turkmenistan and Iran (500 to 1,000 birds per site).

Tufted Duck *Aythya fuligula* (Figure 47)

Tufted Duck is a common and widespread wintering species in the region, recorded in similar numbers to Common Pochard. However, Tufted Duck shows fewer big concentrations in the East Mediterranean and Southwest Asia areas than Common Pochard. The coverage is fairly good in Europe, but shows gaps in Southwest Asia.

Greater Scaup *Aythya marila* (Figure 48)

Greater Scaup shows two centres of distribution, in Northwest Europe and Southwest Asia. According to Scott and Rose (1996) these belong to two populations. The biggest concentrations occur in Germany, Denmark, The Netherlands (only national total presented, i.e. 73,243) and Turkmenistan, with sites holding 10,000 to 40,000 birds. As with other seaducks, offshore occurrence will have caused undercounting.

Common Eider *Somateria mollissima* (Figure 49)

The taxonomic and biogeographical characters of Common Eider are complex (e.g. Scott and Rose 1996). The increasing breeding Black Sea population in the Ukraine has not been recorded by the IWC, although individuals were seen at the coast of Bulgaria (Delany *et al.* 1996). The main concentrations occur in The Netherlands (depicted national total is nearly 150,000), Germany and Denmark. The occurrence along the whole Norwegian coast and inland in some fjords is striking.

Common Scoter *Melanitta nigra* (Figure 50)

Coverage of Common Scoter is far from sufficient to give reliable totals due to its offshore distribution. In the regional stronghold, the Baltic, only several tens of thousands of birds were counted in 1998, which is a fraction of the 1,200,000 birds estimated in January 1993 from special surveys (Pihl and Laursen 1996). The North West European area, which probably has the same rate of undercounting as in the Baltic, produced 130,000–165,000 birds. Despite the low accuracy in numbers, the overall distribution is quite well detected by the IWC (only national total depicted for The Netherlands).

Velvet Scoter *Melanitta fusca* (Figure 51)

The same problems with coverage that are apparent for Common Scoter, occur with monitoring of Velvet Scoter. The total for the Baltic was maximum 50,000, but compared to the totals estimated in January 1993 (950,000), this is again a small fraction (Pihl and Laursen 1996). The biggest concentration of 43,000 birds was found in one of the regular wintering sites in Lithuania. Compared to Common Scoter, there are more inland records of Velvet Scoter.

Common Eider.



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Long-tailed Duck *Clangula hyemalis* (Figure 52)

As with the other seaducks, coverage for Long-tailed Duck is quite low in the IWC. Another similarity is the importance of the Baltic as a wintering area (Pihl and Laursen 1996). It is one of the most numerous Anatidae in the world and the West Siberian and Western European population is estimated at 4,500,000 birds (Wetlands International in prep.), of which around 125,000 were counted by the IWC in 1999. The centre of distribution, the Eastern Baltic, is clearly shown on the map.

Common Goldeneye *Bucephala clangula* (Figure 53)

The distribution of Common Goldeneye has an emphasis on the northwestern part of the region with additional noteworthy concentrations in the valleys of the Danube and Rhine, and at Lake Issyk Kul in Kyrgyzstan. It occurs relatively far north along the coasts of the Baltic states and Sweden. It frequents a large variety of sites, but particularly favours coastal lagoons, freshwater lakes and rivers, the latter are visible in Central Europe on the map as lines. The coverage is good for this species.

Smew *Mergellus albellus* (Figure 54)

This species shows a wintering range across Europe with many inland records, but hardly reaching the Mediterranean. Main concentrations are found in The Netherlands, Germany, France, the Baltic, Yugoslavia (not shown on the map), Romania and Turkmenistan. The totals recorded in 1997–1999 are remarkably stable, around 20,000 birds, which is approximately 15% of the total of the three regional populations combined (Wetlands International in prep.). Until coordinated coverage of the South Baltic lagoons can be achieved, this species will remain under-recorded.

Red-breasted Merganser *Mergus serrator* (Figure 55)

Compared to Smew and Goosander, Red-breasted Merganser has a distribution that is more confined to

coastal sites and that also extends well into the Mediterranean. A maximum of 40,000 was recorded in 1998, with a fairly even distribution along the coasts of the Baltic Sea, North Sea and the North Atlantic.

Goosander *Mergus merganser* (Figure 56)

The distribution of Goosander shows big concentrations in the Baltic and smaller, but well defined concentrations on inland rivers and lakes. In January 1997 numbers in Northwest Europe were two times higher and in the Baltic and Nordic area considerably lower, than in the following years, suggesting migration caused by the harsh weather (see Scott and Rose 1996).

White-headed Duck *Oxyura leucocephala* (Figure 57)

The White-headed Duck is listed as Endangered in the IUCN Red List (BirdLife International 2000). The coverage in Spain is near-complete, but there are gaps in Tunisia and Southwest Asia. Note that some counts in Algeria are missing from the map due to absence of geographical coordinates. The occurrence is quite patchy, representing the two restricted and small populations in the West Mediterranean and the bigger population in the East Mediterranean and Black Sea and Southwest Asia. The highest count at one site of 2,213 was recorded in Greece at Vistonis Bourou in 1997.

Ruddy Duck *Oxyura jamaicensis* (Figure 58)

The introduced North American Ruddy Duck has the interest of conservationists because it is a threat to the globally endangered White-headed Duck. The coverage is not consistent, because not all countries or observers record non-native species. The species' stronghold in the UK is clearly shown. The records in France, Spain and Sardinia are reason for concern, as they are close to the range of White-headed Duck. An eradication policy has been adopted in France and Spain (Hughes *et al.* 1999) and trials in the UK have eradicated Ruddy Ducks from some areas of the country.

White-headed Duck at Lebna Water Reservoir, Tunisia.



Ali El Hiji

5.7 Rails

Apart from Common Coot, Rallidae are not consistently recorded by the IWC. Only the data on Common Coot were sufficiently detailed to produce a map.

Common Coot *Fulica atra* (Figure 59)

Common Coot is the most numerous species recorded by the IWC in the region and one of the most widespread. They can occur in big concentrations in the eastern part of the region (maximum 273,000 in Ulubat Golu in Turkey in 1999), but are very thinly dispersed over much of their wintering range. Nearly 3 million Common Coots were counted in 1999, which comprise roughly 60% of the overall estimated wintering population in the region, giving an indication of the coverage for this species.

5.8 Waders

Wader data have been submitted increasingly since the group was included in the IWC in 1989. For 1997–1999 data on waders were lacking from Belgium (partly), Norway, Hungary, Estonia, Latvia, Sweden (partly), Lithuania, Romania, Yugoslavia and Germany (partly, only data from Schleswig-Holstein and Niedersachsen) were available. Apart from Germany, these countries host relatively low numbers of waders in January and the absence of their data is not expected to have a significant impact on the maps. The absence of data from Morocco in 1997, 1998 and 1999 has to be taken into account as it can host considerable numbers of some species discussed below.

Eurasian Oystercatcher *Haematopus ostralegus* (Figure 60)

The biggest concentrations of Eurasian Oystercatcher are found in countries around the North Sea and in Ireland, where the species is largely sedentary. Count sites in intertidal areas such as the Wadden Sea and estuaries in the United Kingdom can host concentrations of 40,000 to 60,000 birds. Oystercatchers are known to be vulnerable to severe winter conditions, when a significant proportion of the population that does not migrate to milder areas can die. This was the case in The Netherlands and Germany in the winters of 1996 and 1997 (Camphyusen *et al.* 1996, Voslamber *et al.* 1998). Apparently, in 1997, birds migrated from the Dutch and German Wadden Sea to France and the United Kingdom, where totals were considerably higher than average. Despite the loss of birds in 1996, the totals for 1997 in Northwest Europe were similar to the previous years (Delany *et al.* 1999).

Pied Avocet *Recurvirostra avosetta* (Figure 61)

The Pied Avocet occurs in the whole region, except the Baltic/Nordic and the Central European areas. Big concentrations of 5,000–10,000 birds are found in January in France, Spain, Portugal, Azerbaijan and Iran. The totals (60,000–90,000) were higher than in previous years, although gaps in coverage make interpretation problematic for this species.

Northern Lapwing *Vanellus vanellus* (Figure 62)

A large proportion of wintering Northern Lapwings in the region is missed, because they can occur in high numbers in non-wetland habitats. Thus, the distribution shown

reflects the cold weather movements to France and Spain in 1997 and points out the importance of Northwest Europe for the species.

Grey Plover *Pluvialis squatarola* (Figure 63)

The Grey Plover has its centre of distribution along the coasts of the North Sea, Ireland and the Atlantic coast of France, Spain and Portugal, where coverage is favourable. Scattered wintering populations occur along coasts of the Mediterranean and Southwest Asia. The total recorded during the IWC in 1997–1999 fluctuated between 120,000 and 150,000.

Kentish Plover *Charadrius alexandrinus* (Figure 64)

Kentish Plover is migratory in the northern half of the region and sedentary in the southern half (Cramp and Simmons 1983). There is still no clear view on the origin of wintering populations in the Mediterranean and Africa (del Hoyo *et al.* 1996, Bos *et al.* 2001). The relatively low coverage in Tunisia, where numbers up to several thousand can occur (Van Dijk *et al.* 1986), means that the importance of this country for the species is underestimated on the map. Morocco is probably the most important country in the region for this species (Dakki *et al.* 2001), but no data were received for 1997–1999.

Black-tailed Godwit *Limosa limosa* (Figure 65)

The numbers of Black-tailed Godwit (70,000–80,000) counted in 1997–1999 were remarkably stable and are comparable to the total recorded in 1995, but higher than in 1996 (Delany *et al.* 1999). Spain was the most important country with up to 30,000 birds counted in 1999.

Bar-tailed Godwit *Limosa lapponica* (Figure 66)

The strictly separated distribution of Bar-tailed Godwit recorded in the IWC reflects the occurrence of the two known wintering populations in the region. These populations comprise one breeding in high arctic Scandinavia, Northern Russia and Western Siberia, wintering in coastal Western Europe, and another breeding on the eastern Taymyr Peninsula and wintering on the coasts of the Arabian Peninsula, S Iran, India and Africa (Wetlands International in prep.). Totals recorded in

Northern Lapwing.



Johan Verbanck

1997–1999 were 10–50% higher than in the previous two years (Delany *et al.* 1999).

Eurasian Curlew *Numenius arquata* (Figure 67)

The importance of the Dutch and German Waddensea for Eurasian Curlew is immediately apparent, and high numbers are also found in the United Kingdom, Ireland, France and northern Spain. The latter countries partly serve as refuges in cold winters, illustrated by higher totals in 1997 when birds migrated from the North Sea area to the south and west as a result of the cold weather.

Redshank *Tringa totanus* (Figure 68)

Redshank shows a scattered distribution in relatively low numbers, apart from counts at Bar Al Hickman in Oman, where over 50,000 birds are regularly counted. Relatively low numbers are normally recorded in the “main wader site” the Waddensea, but the many estuaries in the United Kingdom and Ireland can host over 95,000 birds. The coverage for this species shows some significant gaps in the Mediterranean, for instance in Tunisia where normally several tens of thousand Redshanks can be recorded in winter (Van Dijk *et al.* 1986, Van der Have *et al.* 1997).

Common Snipe *Gallinago gallinago* (Figure 69)

One of the most difficult species to count adequately in the IWC is the Common Snipe. Its secretive and dispersed occurrence is the cause of many birds being missed. However, a good number of countries include this species in the census and the map shows the overall distribution quite well. The relatively high numbers recorded at inland sites is typical for Common Snipe. The highest count at one site was nearly 3,000 in Iran and the maximum regional total was 22,000 birds in 1999. The total estimate for the region, based on ringing recovery rates and hunting bags runs into several millions, illustrating the tiny proportion of birds counted in the IWC (Wetlands International in prep.).

Red Knot *Calidris canutus* (Figure 70)

The main wintering area for the *islandica* subspecies of Red Knot are the Waddensea and the big estuaries in the United Kingdom and Ireland, with less numerous occurrence in France and Iberia. The region total for 1999 (over 420,000) was a significant increase compared to the previous years, which was mainly due to a record count of over 144,000 in The Netherlands (Voslamber *et al.* 2000). This total is just below the current population estimate (Wetlands International in prep.). However, more recent count data indicate a sharp decrease in the Netherlands since 2000 (T. Piersma in litt.).

Dunlin *Calidris alpina* (Figure 71)

The population structure of Dunlin is complex and several populations occur in the region during the migration and winter periods, but it is not possible to separate these during the latter season (Delany *et al.* 1999). The coverage shows some significant gaps through lack of data from Morocco and lack of coverage in Tunisia. However, the species is one of the best counted in Northwest Europe and the northern half of the West Mediterranean and the distribution is accurately illustrated in the map. It depicts large concentrations of Dunlins showing a preference for estuaries and intertidal areas.

The totals for the Northwest Europe and West Mediterranean areas (1.2 to 1.3 million) are equal or higher than the 1997 population estimate, which is under review on the basis of these new figures (Wetlands International in prep). Outside the above mentioned area numbers were low, with the exception of Bar Al Hickman in Oman where a total of 70,000 Dunlins (subspecies *alpina*) were recorded in 1997.

5.9 Gulls

In a number of countries gulls and terns are counted consistently, however, site based gull data were lacking from some important countries in north and west Europe such as Norway, the UK, Germany, and Ireland and elsewhere from Hungary and Romania (1997, 1998). Consequently, the coverage is incomplete in these areas and only species in the southern half of the region are presented, although one has to take into account the gaps in coverage in this part.

Yellow-legged Gull *Larus cachinnans* (Figure 72)

The map for Yellow-legged Gull was compiled from different species data sets, i.e. Yellow-legged Gull, Herring Gull and Herring/Yellow-legged Gull. Yellow-legged Gull is still treated as a subspecies of Herring Gull *Larus argentatus* in some countries, whereas others submit it as unidentified (*argentatus/cachinnans*). The different data sets were compared against the current knowledge on distribution of both species, given in Snow and Perrins (1998). Where no overlap of species could occur, *argentatus* and *argentatus/cachinnans* were ascribed to *cachinnans*, if it was within the range of this species. Big concentrations occur in Italy, Turkey, Iran and Oman, which all have sites with over 15,000 birds.

Great Black-headed Gull *Larus ichthyaetus* (Figure 73)

Great Black-headed Gull was only recorded in Southwest Asia and East Mediterranean and Black Sea areas, in numbers totalling over 9,500 in 1998. Coverage is low in North Africa and Arabia and birds may have been missed. Highest numbers were recorded in Ukraine, Oman and Iran.

Mediterranean Gull *Larus melanocephalus* (Figure 74)

Mediterranean Gull has undergone a huge increase and a western expansion of its range since the mid 20th century (Snow and Perrins 1998). It winters mainly on the coasts of the Mediterranean and West Africa and in smaller numbers in the Black Sea and Northwest Europe (del Hoyo *et al.* 1996). Concentrations of several thousands of birds were recorded in Italy, France and Spain, although these numbers are low considering the huge population size of 500,000–1,100,000 birds at the end of the breeding season, when the highest concentrations are found in Ukraine (Hagemeyer and Blair 1997, Wetlands International in prep.).

Slender-billed Gull *Larus genei* (Figure 75)

Many Slender-billed Gulls were missed in the IWC 1997–1999 by lack of coverage in Southwest Asia and the Mediterranean. Some concentrations of up to 14,000 birds were recorded in Oman.

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Annex I

IWC National Coordinators and contact persons in the Western Palearctic and Southwest Asia 1997–2001

The table below shows the names of people involved in coordination of the IWC from 1997 until 2002.

Country	All waterbird groups	Geese	Seaducks	Waders	Ducks, Swans other groups
Albania	Taulant Bino				
Algeria	Djahida Boukhalfa				
Andorra	No national coordinator				
Armenia	No national coordinator				
Austria		Gerald Dick			Gerhard Aubrecht
Azerbaijan	Elchin Sultanov				
Bahrain	Saeed Mohamed				
Belarus	Alexander Kozulin				
Belgium		Patrick Meire	H. Offringa	Koen Devos	Koen Devos Jean Paul Jacob
Bosnia Herzegovina	Ilhan Dervovic				
Bulgaria	Ljubomir Profirov Tanyo Michev				
Croatia	Josef and Tibor Mikuska				
Cyprus	Jeff Gordon				
Czech Republic	Jitka Pellantova	Lukas Simek			
Denmark		Stefan Pihl Jesper Madsen	Stefan Pihl	Lars Malthe Rasmussen	Stefan Pihl
Egypt	Sherif Baha El Din				
Estonia	Andres Kuresoo Leho Luigujoe	Aivar Leito			
Finland		M. Hario	M. Hario		
France	Bernard Deceuninck	Roger Maheo Christian Riols	Olivier Girard	Roger Maheo Alan Johnson (Flamingos)	Carol Fouque
Georgia	No national coordinator				
Germany	Christoph Sudfeldt Nils Anthes Johannes Wahl	Johan Mooij	Hans Wolfgang Nehls W. Knief		
Greece	George Handrinos				
Hungary	Gabor Magyar Sandor Farago				
Iceland	Arnor Sigfusson Aevar Petersen				
Iran	Behrouz Behrouzi Rad Jamshid Mansoori Hamid Amini-Tareh				
Iraq	Khalaf Al Robaae				
Ireland	Kendrew Colhoun				
Israel	Eyal Shy Yehoshua Shkedy				
Italy	Nicola Baccetti				
Jordan	Mohammed Yousef				
Kazakhstan	Sergey Erochov				
Kuwait	Charles Pilcher				
Kyrgyzstan	Alexander Yakovlev				
Latvia	Antra Stipniece G. Vaverins	Janis Viksne			
Lebanon	Colin Beale Andy Sprenger				
Libya	No national coordinator				
Liechtenstien	No national coordinator				
Lithuania	Saulius Svazas				
Luxembourg	No national coordinator	J.C. Heidt			
Macedonia	Emilian Stojnov Branko Micevski				
Malta	Joe Sultana				
Moldova	No national coordinator				
Morocco	Mohamed Dakki				
Netherlands	Marc van Roomen Erik van Winden	Kees Koffijberg			
Norway	Svein- Haakon Lorentsen	Arne Follestad		John Atle Kalas	
Oman	Manie Grobler Matt Cummins				
Poland	Jakub Pawel Cygan	A. Staszewski	Wlodek Meissner	Wlodek Meissner	
Portugal	Vitor Encarnaçao	Raul Serra Guedes	Rui Rufino	Rui Rufino	Luis Costa

Country	All waterbird groups	Geese	Seaducks	Waders	Ducks, Swans other groups
Qatar	Robert and Helen Nation Andrew Hooper				
Romania	Dan Munteanu		M. Marinov		
Russia	Gennady Grishanov	A. Andreev			
Russia (Murmansk)	A.S. Koryakin				
Saudi Arabia	Yousef al Wataid				
Slovakia	Alzbeta Darolova Jozef Ridzon				
Slovenia	Borut Stumberger Andrej Bibic	Milan Vogrin			
Spain	Ramon Marti José Ramón Picatoste Antoni Muñoz Serafin Gonzales Jordi Sargatal Vicens "regional coordinators"	J.J. Chans			
Sweden	Leif Nilsson				
Switzerland	Verena Keller				
Syria	Ibrahim Hanna				
Tajikistan	No national coordinator				
Tunisia	Abdelhamid Karem Hichem Azafaf				
Turkey	Bahtiyar Kurt Murat Yazar Gernant Magnin Güven Eken				
Turkmenistan	Eldar Rustamov				
UAE	Colin Richardson				
Ukraine	Ivan Rusev Valintin Serebryakov A. Korsjukov V. Popenko	Michael Zhmud	T.B. Ardamatskaya		
United Kingdom	Peter Cranswick Mark Pollitt				
Uzbekistan	Elena Kreuzberg-Mukhina Yevgeniya Lanovenko				
Yemen	David Stanton				
Yugoslavia	Vojislav Vasic				

The addresses of these national coordinators, who form the basis of the IWC network, are available to interested parties; please contact Wetlands International in Wageningen (address inside front cover of this report) or visit our website www.wetlands.org. Note that changes in persons or addresses sometimes go unnoticed, so any comments or information on national coordination presented in the above list or on the website is greatly appreciated.

Annex II

Supporting organisations in the Western Palearctic and Southwest Asia 1997–2001

The following organisations support waterbird monitoring in the Western Palearctic and Southwest Asia. The list is as complete as possible, but please notify Wetlands International of any additions.

Albania

Museum of Natural Sciences-Tirana

Algeria

National Agency for Nature Conservation, Ministry of Agriculture and Fisheries

Austria

BirdLife Austria
Biology Centre, Linz
WWF Austria

Azerbaijan

Azerbaijan Ornithological Society
Azerbaijan Academy of Sciences
State Ecology Committee

Bahrain

National Committee for Wildlife Protection

Belgium

Ministère de la Région Wallonie, Direction Nature et Espaces Vertes
Institute of Nature Conservation
Centrale Ornithologique Aves

Bosnia Herzegovina

VIDRA

Bulgaria

Institute of Ecology
Ministry of Environment and Waters
Central Laboratory for General Ecology
Bulgarian Society for the Protection of Birds
Green Balkan Federation
Bulgarian-Swiss Biodiversity Conservation Program
Bulgarian Ornithological Society

Croatia

Osijek University

Cyprus

Cyprus Ornithological Society '57

Czech Republic

Czech Ornithological Society
Agency for Nature and Landscape Conservation

Denmark

National Environmental Research Institute (NERI)

Estonia

Estonian Ornithological Society
Institute of Zoology and Botany
National Monitoring Programme

State Nature Reserves
Estonian Fund for Nature

Finland

Department of Hunting, Ministry of Agriculture

France

LPO – Birdlife France
Université de Rennes
Ministère de l'Aménagement du Territoire et de l'Environnement

Germany

Institut für Landschaftsökologie - WWU Münster
Forschungsstelle für Ökologie der Wasservögel und Feuchtgebiete
Institut für Ökologie und Naturschutz Universität Potsdam
NABU Naturschutzbund Deutschland
Ministry of Environment of Schleswig Holstein
Wesel Biological Station
WWF Germany
Zoological Gardens Rostock

Greece

Ministry of Agriculture
Hellenic Bird Ringing Center
Hellenic Ornithological Society
Hellenic Society for the Protection of Nature

Hungary

BirdLife Hungary
University of West-Hungary

Iran

Department of the Environment

Iraq

University of Basrah Natural History Museum

Ireland

BirdWatch Ireland
Duchas – The Heritage Service
The Wildfowl and Wetlands Trust

Israel

Nature and National Parks Protection Authority

Italy

Istituto Nazionale per la Fauna Selvatica

Jordan

Royal Society for the Conservation of Nature

Latvia

Institute of Biology
Latvian Ornithological Society

Lithuania

Institute of Ecology
Museum of Zoology
Vilnius University

Malta

BirdLife Malta Research Group

Morocco

Centre d'Etudes des Migrations d'Oiseaux

The Netherlands

Directorate for Nature Management, Ministry of
Agriculture, Nature Management and Fisheries
Alterra Green World Research
SOVON Dutch Centre for Field Ornithology
National Institute for Coastal and Marine Management/
RIKZ
National Institute for Freshwater Management and
Wastewater Treatment/RIZA
Rijkswaterstaat

Norway

NINA – Norwegian Institute for Nature Research

Oman

Oman Bird Group
Ministry of Environment

Poland

Department of Vertebrate Ecology and Zoology, Institute
of Ecology PAN Dziekanow Lesny
National Council for Nature Conservation
University of Gdansk
Waterbird Research Group KULING

Portugal

ICN – Instituto da Conservação da Natureza
Ministerio do Ambiente e dos Recursos Naturais

Romania

ROS – Romanian Ornithological Society

Russia

Kandalaksha State Nature Reserve
Kaliningrad University

Slovakia

Slovak Academy of Sciences
Comenius University
Institute of Zoology
Protected Landscape Areas
SOVS

Slovenia

DOPPS – BirdLife Slovenia

Spain

BirdLife Spain/Sociedad Española de Ornitología
Ministerio de Medio Ambiente / Subdirección General de
Conservación de la Biodiversidad
GOB – Grup Balear d'Ornitologia i Defensa de la
Naturalesa
Sociedade Galega de Historia Natural

Sweden

Swedish Environmental Protection Agency
Ecological Institute
Lund University

Switzerland

Bundesamt für Umwelt, Wald und Landschaft
Swiss Ornithological Institute

Tunisia

Ministère de l'Agriculture – Direction Générale des Forêts
Les Amis des Oiseaux / Groupe Tunisien d'Ornithologie

Turkey

DHKD –, The Society for the Protection of Nature

Turkmenistan

Turkmenistan State University

Ukraine

National Heritage Fund
Ornithological Station Black/Azov Sea
Shevchenko University
Wetlands International sub-regional office, Kiev

United Arab Emirates

Emirates Bird Group

UK

The Wetland Trust
The Wildfowl and Wetlands Trust
British Trust for Ornithology
Royal Society for the Protection of Birds
Joint Nature Conservation Committee on behalf of the
Country Agencies

Yemen

Yemen Ornithological Society

Yugoslavia

Natural History Museum, Belgrade

Annex III

National publications on the IWC in the Western Palearctic and Southwest Asia 1997–2001

This list of publications, provided by National Coordinators, is a selection of national publications on IWC and other waterbird related issues. It does not present a complete overview.

Austria

- BirdLife Österreich (Landesgruppe Kärnten) (1998): Vogelkundliche Beobachtungen aus Kärnten 1997. – *Carinthia* 188/108: 273–283.
- Brader M. and Parz-Gollner R. (1999): Durchzug und Winterverbreitung des Kormorans (*Phalacrocorax carbo sinensis*) in Oberösterreich 1996/97 und 1997/98. – *Vogelkd. Nachr. Oberösterreich, Naturschutz aktuell* 7,1: 11–24.
- Brader M. (1997): Internationale Wasservogelzählung in Oberösterreich, Jänner 1997 (einschließlich der Zählungen November 1996 und März 1997). – *Vogelkd. Nachr. Oberösterreich, Naturschutz aktuell* 5,2: 25–30.
- Brader M. (1998): Internationale Wasservogelzählungen in Oberösterreich, Jänner 1998 (einschließlich der Zählungen im November 1997 und März 1998). – *Vogelkd. Nachr. Oberösterreich, Naturschutz aktuell* 6,2: 39–44.
- Brunner H. and Stani W. (1998): Der Kormoran in der Steiermark im Winterhalbjahr 1997/98. – *Vogelkd. Nachr. Ostösterreich* 9,4: 87–92.
- Parz-Gollner R. and Trauttmansdorff J. (1999): *Kormoran-Monitoring 1998/99 in Niederösterreich*. – Inst. Wildbiologie und Jagdwirtschaft, Univ. Bodenkultur, Wien, 69 pp.
- Parz-Gollner R. and Brader M. (2000): Durchzug und Winterverbreitung des Kormorans (*Phalacrocorax carbo sinensis*) in Oberösterreich 1998/99. – *Vogelkd. Nachr. Oberösterreich, Naturschutz aktuell* 8,1: 1–14.
- Parz-Gollner R. (1997): *Kormoran-Monitoring 1996/97*. – Pilotprojekt NÖ. IWJ, 32 pp..
- Parz-Gollner R., Knolleisen M. and Trauttmansdorff J. (1998): *Kormoran-Monitoring 1997/98 Niederösterreich*. – Wien, 73 pp.
- Petutschnig W. and Wagner S. (1999): 30 Jahre Wasservogelzählung in Kärnten. Auswertung der Mittwintererfassung der Jahre 1970 bis 1999. – *Kärntner Naturschutzber.* 4: 75–95.
- Rass P. (2000): Vogelkundliche Beobachtungen aus Kärnten 1999. – *Carinthia II* 190/110: 269–284.
- Wichmann G. (1997): Ergebnisse der Wasservogelzählungen im Winter 1996/97 in Wien und Niederösterreich. – *Vogelkd. Nachr. Ostösterreich* 8,4: 112–114.
- Wichmann G. (1998): Ergebnisse der Wasservogelzählungen im Winter 1997/98 in Wien und Niederösterreich. – *Vogelkd. Nachr. Ostösterreich* 9,4: 93–94.
- Wichmann G. (1999): Ergebnisse der Wasservogelzählungen im Winter 1998/99 in Niederösterreich und Wien. – *Vogelkd. Nachr. Ostösterreich* 10,4: 87–88.

Belgium

- Devos, K., Meire, P., Ysebaert, T. and Kuijken, E. 1997. *Watervogels in Vlaanderen tijdens het winterhalfjaar 1996/1997*. Rapport Instituut voor Natuurbehoud IN 98/27. Instituut voor Natuurbehoud, Brussel.
- Devos, K. Ysebaert, T. and Kuijken, E. 2001. *Watervogels in Vlaanderen tijdens het winterhalfjaar 1997/1998*. Rapport Instituut voor Natuurbehoud 2001.10. Brussel.
- Jacob, J.-P. and Loly, P. 1997. Recensements hivernaux des oiseaux d'eau en Wallonie et à Bruxelles: 1996–97. *AVES* 34 (2): 97–108.
- Jacob, J.-P. and Loly, P. 1997. Recensements hivernaux des oiseaux d'eau en Wallonie et à Bruxelles: 1997–98. *AVES* 34 (4): 225–234.

Estonia

- Pehlak, H., Luigujoe, L. and Kuresoo, A.: Midwinter waterfowl census in the coastal waters of Estonia, 1994–1999. *Hirundo* 2001(1): 11–26. (In Estonian with English summary)

France

- Deceuninck, B. and Maillet, N. 1998. Dénombrements des canards et foulques hivernant en France en Janvier 1997. *Ornithos* 5 : 2–11.
- Deceuninck, B. 1998. Plus de 2 400 000 "oiseaux d'eau" hivernants dénombrés en France à la mi-janvier 1996! *Ornithos* 5 : 12–17.
- Deceuninck, B., Maillet, N. and WI France 1999. Oiseaux d'eau hivernant en France en janvier 1998. Synthèse des dénombrements de la mi-janvier 1998. *Ornithos* 6: 173–177.
- Deceuninck, B. 2001. Limicoles hivernant en France 1978 – 1999. *Ornithos* 8 (5): 200.
- Gillier, J.M., Mahéo, R. and Gabillard, F. 2000. Les comptages d'oiseaux d'eau hivernant en France : actualisation des connaissances, effectifs moyens, critères numériques d'importance internationale et nationale. *Alauda* 68 (1):45–54.
- Mahéo, R., Deceuninck, B. and Gabillard, F. 1998. *Limicoles séjournant en France - Janvier 1998*. Rapport Université de Rennes I / ONC. 40 pp.
- Rufay, X. 1999. Statut des grèbes hivernant en France. Période 1993–1997. *Ornithos* 6 (1) : 32–39.

Hungary

- Dick, G., Baccetti, N., Boukhalfa, D., Darolova, A., Faragó, S., Hudec, K., Leito, A., Markkola, J. és Witkowski, J. (1999): Greylag Goose – *Anser anser*: Central Europe/ North Africa. In: Madsen, J., Cracknell, G. and Fox, A.D. (Eds.): Goose populations of the Western Palearctic. A review of status and distribution. Wetlands International Publ. No. 48., Wetlands International Wageningen, The Netherlands. National Environmental Research Institute, Rønde, Denmark: 202–213.

- Faragó, S. (1997): The methodology used for the long-term monitoring of waterbirds in a large river. The Danube River between Gönyu and Szob (river kms 1791–1708) in Hungary, a case study. *In: Faragó, S. and Kerekes, J.J. (Eds.): Limnology and Waterfowl. Monitoring, Modelling and Management. Proceedings of a Symposium on Limnology and Waterfowl, Sopron/Sarród, Hungary, November 21–23, 1994. Hungarian Waterfowl Publications 3., Wetlands International Publication 43.: 31–41.*
- Faragó, S. (1998): The Hungarian Waterfowl Information System. *Hungarian Waterfowl Publications 4: 3–16.*
- Faragó, S. (1998): Results of Geese Monitoring in Hungary in the season 1996/1997. *Hungarian Waterfowl Publications 4: 17–60.*
- Faragó, S. (1998): Results of Hungarian Waterfowl Monitoring in the season 1996/1997. *Hungarian Waterfowl Publications 4: 61–263.*
- Faragó, S. and Ritter D. (1998): The waterfowl hunting bags in Hungary in 1996. *Hungarian Waterfowl Publications 4: 265–365.*
- Faragó, S. (1999): Results of Geese Monitoring in Hungary in the season 1997/1998. *Hungarian Waterfowl Publications 5: 3–62.*
- Faragó, S. (1999): Results of Hungarian Waterfowl Monitoring in the season 1997/1998. *Hungarian Waterfowl Publications 5: 63–328.*
- Faragó, S. and Ritter, D. (1999): The waterfowl hunting bags in Hungary in 1997. *Hungarian Waterfowl Publications 5: 329–418.*
- Faragó, S. (1999): Hungarian waterfowl monitoring. *In: Program and abstracts of the 2nd International Wildlife Management Congress. 28 June – 2 July, 1999. Gödöllo, Hungary. The Wildlife Society and University of Agricultural Sciences: 50–51.*
- Faragó, S. (2000): The migration of shot waterfowl in Hungary, based on ringed bird recovery. *Hungarian Waterfowl Publications 6: 337–375.*
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Annex IV

Data history

Number of years for which data are stored on the IWC database for each country in the Western Palearctic and Southwest Asia.

	39 years 1961–99	10 years 1989–99		39 years 1961–99	10 years 1989–99
Baltic/Nordic			Slovak Republic	11	9
Sweden	33	10	Northwest Europe		
Denmark	30	10	United Kingdom	39	10
Norway	28	10	France	33	10
Latvia	16	10	Germany	33	10
Lithuania	13	10	Netherlands	33	10
Estonia	23	8	Ireland	30	9
Poland	7*	7*	Belgium	5*	5*
Finland	22	4	Luxembourg	3	3
Kaliningrad (Russia)	6	4	Iceland	12	0
Russian Federation	5	1	Southwest Asia		
Belarus	1	1	United Arab Emirates	11	10
Black Sea/East Mediterranean			Turkmenistan	29	9
Israel	32	10	Oman	11	9
Croatia (Hrvatska)	28	10	Iran, Islamic Republic of	29	8
Ukraine	28	10	Azerbaijan	8	7
Romania	26	10	Qatar	7	7
Cyprus	19	10	Saudi Arabia	7	7
Yugoslavia	18	10	Uzbekistan	8	4
Slovenia	12	10	Yemen	4	4
Greece	25	9	Kazakhstan	20	3
Bulgaria	25	8	Jordan	10	3
Turkey	19	8	Bahrain	5	3
Albania	7	7	Kuwait	4	3
Macedonia	10	4	Kyrgyzstan	3	3
Bosnia and Herzegovina	7	4	Russian Federation	20	1
Syria	5	3	Iraq	6	0
Egypt	5	2	Tajikistan	3	0
Georgia	1	1	West Mediterranean		
Lebanon	2	0	France	35	10
Central Europe			Algeria	27	10
Austria	33	10	Portugal	27	10
France	33	10	Italy	9	9
Germany	33	10	Tunisia	28	8
Hungary	33	10	Morocco	22	6
Switzerland	33	10	Spain	3*	3*
Czech Republic	28	9			

* These countries submitted data for many more years, but for technical reasons these data cannot yet be included in the IWC database.

To sustain and restore wetlands, their resources and biodiversity for future generations through research, information exchange and conservation activities, worldwide.

the International Census of Waterbirds (ICW) program, organized by Wetlands International, on a global scale. In the Western Palearctic and Southwest Asia this census has been running since 1967 and is conducted annually in mid-January.

- This report summarises the results of the waterbird counts of January 1997, 1998 and 1999 in the Western Palearctic and Southwest Asia, comprising counts in 47 countries.
- In 1997, 1998 and 1999, totals of 22 to 23.5 million waterbirds of more than 230 species were counted in the region.
- For 51 species, distribution maps are presented, summarising the average January distribution over the three census years.

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