

AEWA Conservation Guidelines No. 4

Guidelines on the management of
key sites for migratory waterbirds



Introduction

In Article II of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds, Parties agree, as a fundamental principle, to take co-ordinated measures to maintain migratory waterbird species in a favourable conservation status or to restore them to such a status. To this end, the Parties agree to apply within the limits of their national jurisdiction a number of general conservation measures prescribed in Article III of the Agreement, as well as a number of more specific actions determined in the Action Plan appended to the Agreement. In paragraph 7.3 of the Action Plan, the Agreement Secretariat is required to co-ordinate the development of a series of Conservation Guidelines to assist the Parties in the implementation of their obligations under the Agreement. These Conservation Guidelines, which should be prepared in co-ordination with the Technical Committee and with the assistance of experts from Range States, were submitted to the First and Second Meetings of the Parties, which recommended publication after minor amendment, and further recommended regular review (Article IV, paragraph 4 of the Agreement). The Technical Committee keeps the guidelines under review, and formulates draft recommendations and resolutions relating to their development, content and implementation for consideration at sessions of the Meeting of the Parties (paragraph 7.6 of the Action Plan).

Paragraph 7.3 of the Action Plan gives a list of some of the topics that should be covered by the Conservation Guidelines. These are as follows:

- (a) single species action plans;
- (b) emergency measures;
- (c) preparation of site inventories and habitat management methods;
- (d) hunting practices;
- (e) trade in waterbirds;
- (f) tourism;
- (g) reducing crop damage;
- (h) a waterbird monitoring protocol.

Preparation of the Conservation Guidelines was identified as a major activity in the *International Implementation Plan for the Agreement of the Conservation of African-Eurasian Migratory Waterbirds 1997-1999*, prepared by Wetlands International in April 1997 with financial support from the Ministry of Agriculture, Nature Management and Fisheries in The Netherlands. Activity 3 of the *Implementation Plan* involved the preparation of nine sets of conservation guidelines, following the list in paragraph 7.3 of the Action Plan, but treating site inventories and habitat management methods as two separate topics. These Guidelines were accepted by the first Meeting of the Parties in Cape Town, South Africa, in November 1999, subject to minor amendment. The necessary amendments were made after discussion by the Technical Committee, and the amended version of the Conservation Guidelines was accepted by the second Meeting of the Parties to the Agreement in Bonn, Germany, in September 2002.

The nine sets of guidelines, as set out in the *Implementation Plan* and presented here, are as follows:

1. Guidelines on the preparation of Single Species Action Plans for migratory waterbirds

In paragraph 2.2.1 of the Action Plan, Parties are required to co-operate with a view to developing and implementing international single species action plans for populations listed in Category 1 in Column A of Table 1 as a priority and also for those populations listed with an asterisk in Column A of Table 1. Furthermore, in paragraph 2.2.2, Parties are required to prepare and implement national single species action plans for all those populations listed in Column A of Table 1 with a view to improving their overall conservation status. The Agreement Secretariat is required to co-ordinate the development, harmonisation and implementation of these plans. The present guidelines focus on national single species action plans. They outline a standard procedure for the preparation of such action plans, and identify the priority species

and populations occurring in the Agreement Area.

2. Guidelines on identifying and tackling emergency situations for migratory waterbirds

In some situations, populations of waterbirds can suddenly be subjected to much higher levels of mortality than normal. These emergency situations can arise as a result of natural phenomena, such as periods of exceptionally cold weather or prolonged droughts, or as a result of man-made disasters, such as major pollution incidents. International co-operation is required to address these situations without delay. In Article III, paragraph 2 (f) of the Agreement, Parties agree to co-operate in emergency situations requiring international concerted action and in identifying the species of migratory waterbirds, which are the most vulnerable to these situations. Furthermore, Parties agree to co-operate in developing appropriate emergency procedures to provide increased protection to these species in such situations. In paragraph 2.3 of the Action Plan, Parties are required, in close co-operation with each other whenever possible and relevant, to develop and implement emergency measures for populations listed in Table 1, when exceptionally unfavourable or endangering conditions occur anywhere in the Agreement Area. At its third session, the AEWA Technical Committee adopted criteria to define emergency situations, which require urgent conservation measures, and determined the modalities for assigning responsibility for action to be taken (Article VI, paragraph 7 (e) of the Agreement). The present guidelines identify many of the possible emergency situations that may arise, and outline procedures for establishing early warning systems and tackling these situations at national level.

3. Guidelines on the preparation of site inventories for migratory waterbirds

In Article III, paragraph 2 (c) of the Agreement, Parties are required to identify sites and habitats for migratory waterbirds occurring within their territory. More specifically, in Paragraph 3.1.1 of the Action Plan, Parties are required, in liaison where appropriate with competent international organisations, to undertake and publish national inventories of the habitats within their territory, which are important to populations listed in Table 1. Parties should endeavour, as a matter of priority, to identify all sites of international or national importance for populations listed in Table 1 (Paragraph 3.1.2). These guidelines develop a step-wise approach to the inventory process, which takes full advantage of existing regional and national wetland inventories and lists of sites important for migratory waterbirds.

4. Guidelines on the management of key sites for migratory waterbirds

In Article III, paragraph 2 (c) of the Agreement, Parties are required to encourage the protection, management, rehabilitation and restoration of sites and habitats for migratory waterbirds occurring within their territory. More specifically, in Paragraph 3.2.1 of the Action Plan, Parties are required to endeavour to continue establishing protected areas to conserve habitats important for the populations listed in Table 1 of the Action Plan, and to develop and implement management plans for these areas. These guidelines set forth the basic procedures for the design and implementation of management plans, with special reference to sites of importance for migratory waterbirds.

5. Guidelines on sustainable harvest of migratory waterbirds

If populations of migratory waterbirds are to be maintained in a favourable conservation status, it is essential that any exploitation of these populations be carried out on a sustainable basis. Article III, paragraph 2 (b) of the Agreement requires that Parties ensure that any use of migratory waterbirds is based on an assessment of the best available knowledge of their ecology, and is sustainable for the species as well as for the ecological systems that support them. In paragraph 4.1.1 of the Action Plan, Parties are required to co-operate to ensure that their hunting legislation implements the principle of sustainable use as envisaged in the Action Plan, taking into account the full geographical range of the waterbird populations concerned and their life history characteristics. The present guidelines promote the establishment of 'harvest frameworks' at both international and national levels, and identify a series of steps to assist Range States in adopting a sustainable approach to the harvesting of waterbirds.

6. Guidelines on regulating trade in migratory waterbirds

Paragraph 7.3 of the Action Plan requires that guidelines be provided on the regulation of trade in

waterbirds. Although it seems that there is relatively little international trade in migratory waterbirds in the Agreement Area, national (or domestic) trade can be very high, involving annual harvests of many thousands of birds for sale as food in local markets. In some areas, such trade may be of considerable importance to the local economies. These guidelines concern both international and domestic trade, and offer practical advice on how trade in waterbirds can be regulated within the framework of sustainable harvests.

7. Guidelines on the development of ecotourism at wetlands

The development of ecotourism based on spectacular concentrations of migratory waterbirds can not only increase support amongst the general public for waterbird conservation, but can also, if properly managed, provide a valuable source of income for local people with negligible harm to the environment. In Paragraph 4.2.1 of the Action Plan, Parties are required to encourage, where appropriate, the elaboration of co-operative programmes to develop sensitive and appropriate ecotourism at wetlands. Furthermore, in Paragraph 4.2.2, Parties are required, in co-operation with competent international organisations, to endeavour to evaluate the costs, benefits and other consequences that can result from ecotourism at wetlands with concentrations of waterbirds. The present guidelines examine a wide range of issues relating to nature-oriented tourism in general, and offer practical advice for the sensitive development of ecotourism at wetlands important for migratory birds.

8. Guidelines on reducing crop damage, damage to fisheries and other forms of conflict between waterbirds and human activities

Changes in population levels and distribution of waterbirds, combined with an intensification of agriculture and aquaculture, have led to increased conflicts between some waterbird species and human activities, notably agriculture, aquaculture, and commercial and recreational fisheries. With the great increase in air traffic in recent decades, many large waterbirds now pose a serious hazard to aircraft. In Paragraph 4.3.2 of the Action Plan, Parties are required to endeavour to gather information on the damage, in particular to crops, caused by populations listed in Table 1, and report the results to the Agreement Secretariat. In paragraph 4.3.3, Parties are required to co-operate with a view to identifying appropriate techniques to minimise the damage, or to mitigate the effects of damage, in particular to crops, caused by populations of waterbirds listed in Table 1. The present guidelines examine the major causes of conflict between migratory waterbirds and agriculture, fisheries and aviation, outline procedures for investigating the problems, and suggest a number of measures that can be taken to reduce the damage.

9. Guidelines for a waterbird monitoring protocol

Populations of all migratory waterbirds in the Agreement Area should be monitored on a continuous basis to determine population trends and to provide an early-warning system for species in difficulty. This will enable appropriate measures to be implemented before the populations fall to dangerously low levels. Paragraph 5.2 of the Action Plan requires that Parties endeavour to monitor the populations of waterbirds listed in Table 1, and make the results of such monitoring available to appropriate international organisations, to enable reviews of population status and trends. Paragraph 5.3 requires that they co-operate to improve the measurement of bird population trends as a criterion for describing the status of such populations. In Paragraph 5.8, Parties agree to co-operate with relevant international organisations to support research and monitoring projects. The present guidelines examine the value of monitoring in the conservation of migratory waterbirds, review existing monitoring practices, and provide guidance on the development of national waterbird monitoring schemes that are most appropriate for international conservation efforts.

Acknowledgements

These conservation guidelines were produced with financial support from the Ministry of Agriculture, Nature Management and Fisheries/ Department of Nature Conservation, the Swiss Agency for the Environment, Forests and Landscape/Division of Nature, and the DLO-Institute for Forestry and Nature Research (IBN-DLO, now Alterra, Wageningen) of the Netherlands.

Guidelines 1 to 9 were drafted by Albert Beintema, the late Dineke Beintema, Allix Brenninkmeijer, Simon Delany and Jeff Kirby and edited by Simon Delany and Derek Scott.

Drafts of five guidelines were discussed in Workshop 2 during the 2nd International Conference on Wetlands and Development in Dakar, November 1998. Many workshop participants gave useful comments.

The following people, in alphabetical order, provided information used for these guidelines, or commented on various drafts: Rachel Adams, Mindy Baha El Din, Sherif Baha El Din, Carlos Bento, Olivier Biber, Gerard Boere, Joost Brouwer, Luit Buurma, John Caldwell, John Clorley, Luis Costa, Earle Cummings, Elijah Danso, Nick Davidson, Bernard Deceuninck, Tim Dodman, Bob Douthwaite, Paul Eagles, Bart Ebbinge, Augustine Ezealor, Lincoln Fishpool, Vincent Fleming, Scott Frazier, Umberto Gallo-Orsi, Mariano Gimenez-Dixon, Andy Green, Patrick Green, Ward Hagemeyer, Elizabeth Halpenny, Jens Haugaard, René Henkens, John Harradine, David Hill, Baz Hughes, Alan Johnson, Tim Jones, Heribert Kalchreuter, Elena Kreuzberg-Mukhina, Namory Keita, Alexander Kozulin, Tony Laws, Yves Lecocq, Vicky Lee, Aivar Leito, Bert Lenten, Peter Leonard, Alison Littlewood, Heidi Luquer, Sonja Macys, Jesper Madsen, Gernant Magnin, Jamshid Mansoori, David Melville, Charles Mlingwa, Jérôme Mokoko Ikonga, Jean-Yves Mondain-Monval, Johan Mooij, Mike Moser, Wim Mullié, Dan Munteanu, Paul Murphy, Stephen Nash, Kike Olsder, John O'Sullivan, Michael Oneka, Dwight Peck, Stephan Pihl, Jim Porter, Crawford Prentice, David Pritchard, Rivo Rabarisoa, Marc van Roomen, Paul Rose, Rui Rufino, Luc Schifferli, Valentin Serebryakov, Marcel Silvius, Jan Willem Sneep, David Stroud, Barry Taylor, Wolf Teunissen, Graham Tucker, Janine van Vessem, Zoltan Waliczky, George Wallace, Rob van Westrienen, Johanna Winkelman, Marja Wren, Henk Zingstra.

AEWA Conservation Guidelines No.4

Guidelines on the management of key sites for migratory waterbirds

Prepared by Wetlands International

and

Adopted by the Meeting of the Parties to AEWA at its second session
(September 2002, Germany)

Last update 19-4-2005

Step chart

In the management of key sites for migratory waterbirds, each country should take the following steps:

Step 1: Prioritise sites in need of urgent management.

Step 2: List threats and possible conflicts in land use.

Step 3: Identify all parties involved in the management of the site.

Step 4: Where appropriate, install a site management committee.

Step 5: Assess the type of management required.

Step 6: Draft a management plan.

Step 7: Implement the management plan.

Step 8: Revise the management plan as required.

Introduction

Why do we need guidelines on site management, when excellent publications on the subject already exist? The reason that the AEWA Action Plan calls for the preparation of site management plans is that management aimed specifically at the conservation of migratory waterbirds may at times differ from general site management.

There is a tendency in nature conservation to abandon the sectoral approach (*e.g.* birds versus flowers), and to direct management towards the maintenance of healthy ecosystems, with a high degree of biodiversity. In truly natural systems, this is undoubtedly the best approach. However, migratory waterbirds often rely on areas that are intensively used by man for other purposes (*e.g.* geese in agricultural land). In these cases, an ecosystem approach would not work, and for the purposes of the AEWA, it is often necessary to revert to the sectoral approach. It is always important to recognise that the best way to approach the management of a particular site (sectoral versus ecosystem oriented) will differ from case to case, depending on the nature of the site.

Although, there are many excellent publications on site management and the development of management plans, these are not readily available to everyone in the AEWA area. The present guidelines therefore include a rather detailed summary of procedures for the development of site management plans.

The development of site management plans is time-consuming, and may draw heavily on financial and human resources. When resources are limited, priority should be given to those sites which can be expected to lose their value for migratory waterbirds if no management measures are implemented (see Step 1).

Step 1: Prioritise sites in need of urgent management

Prioritising is essential to optimise the benefits for waterbird populations and to minimise the input of limited resources (financial and manpower).

All of the information needed to establish priorities should be available in the national site inventory (see Guideline No.3: *Guidelines on the preparation of site inventories for migratory waterbirds*). When no inventory is available, priority sites should be identified on the basis of expert and local knowledge.

Initially, sites should be ranked according to their importance for migratory waterbirds. This can only be established on the basis of census data. The creation of a waterbird monitoring programme is therefore of the utmost importance (see Guidelines No.9: *Guidelines for a waterbird monitoring protocol*).

Prioritising on the basis of the occurrence of migratory waterbirds should focus on those species and populations listed in Table 1 of the AEWA Action Plan, in the following order of priority:

1. Species and populations qualifying for international Single Species Action Plans (SSAPs), *i.e.* species listed in Category 1 in Column A of Table 1, or in Categories 2 or 3 in Column A and marked with an asterisk. (For details, see Guidelines No.1: *Guidelines on the preparation of Single Species Action Plans for migratory waterbirds* and Appendix I).
2. Other species and populations listed in Column A of Table 1, *i.e.* in Categories 2 or 3 but not marked with an asterisk.
3. Species listed in Column B of Table 1.
4. Species listed in Column C of Table 1.

Information on the occurrence of waterbirds in their breeding areas may be available through national or international atlas projects. The European Bird Census Council (EBCC) can provide data for Europe, while BirdLife International can provide information for many other regions. Information on the occurrence of waterbirds in mid-winter (January in Europe, North Africa and the Middle East, and January and July in sub-Saharan Africa) is available from Wetlands International through the International Waterbird Census. Information on the occurrence of waterbirds at staging areas during the migration seasons is less readily available. In the case of waders, information may be obtained through the International Wader Study Group or Wetlands International's International Waterbird Census (IWC) database. For other taxa, some information may be available from national coordinators of waterbird monitoring schemes and the coordinators of Wetlands International's various Specialist Groups.

Once sites have been ranked according to their importance for migratory waterbirds, those sites in most urgent need of management should be identified on the basis of their current conservation status:

- Is there any form of protection?
- Is protection effective?
- Is the site undergoing detrimental changes?

It might be easier and more practical to prioritise sites by starting at the bottom of the list and working up. Obviously, sites which are considered to be 'safe', either because they are well functioning reserves or simply because there are no threats, and sites which already have functioning management plans go to the bottom of the list.

In the establishment of priorities, consideration should be given to the position of critical staging areas in the total flyway. As an example, small coastal sites in Morocco may seem unimpressive as compared to the Banc d'Arguin in Mauritania or the Wadden Sea in Northwest Europe, but they are vital stepping stones in the migration of waders between these two key areas.

Step 2: List threats and possible conflicts in land use

A distinction should be made between permanent or gradually developing threats, which should be addressed in a management plan, and sudden threats, which should be treated as emergency situations (see Guidelines No.2: *Guidelines on identifying and tackling emergency situations for migratory waterbirds*).

Common threats causing negative trends in numbers of waterbirds include:

- Drainage;
- Conversion to agricultural land;
- Urban and industrial development, including the development of infrastructure;
- Habitat degradation through over-use (*e.g.* over-grazing and over-fishing);
- Undesirable natural succession in the vegetation through under-use (*e.g.* following the abandonment of traditional agriculture, as described in Box 1);
- Agricultural pollution (eutrophication);
- Industrial pollution (chemicals);
- Disturbance (*e.g.* from tourism and hunting);
- Man-induced changes in the water regime;
- Introduced predators.

Box 1: The dangers of under-use

In Western Europe, Africa and the Middle East, wetlands are often threatened by over-use: too much development, too much harvesting of fish and wildlife, and especially too much intensification of agriculture. The opposite can also be true, and is often seen in countries with economies in transition, *e.g.* in parts of Eastern Europe and the former USSR. These countries have large, relatively undisturbed river systems that have traditionally been used for low-intensity agriculture (mowing and grazing of seasonally flooded grasslands).

The Biebrza and Narew river systems in northeastern Poland are excellent examples. In developing economies, the continued existence of such systems is no longer guaranteed. They are either lost due to drainage, fertilisation and intensification, or abandoned as low-intensity use is no longer economically viable. Abandoned wetlands of this type rapidly become overgrown with bushes and trees, and lose their value as habitat for migratory waterbirds. Large National Parks have been established in the Biebrza and Narew systems, but future management poses a problem, as artificial continuation of labour-intensive, low-intensity agriculture in a growing economy becomes increasingly expensive.

Threats should be ranked according to their importance, which will vary between habitats and between regions and/or countries. Box 2 gives some examples of threat assessment in Europe. Detailed threat assessment at the species level is very time-consuming. It is therefore recommended that in the development of management plans for AEWA sites, only simple systems be adopted for ranking threats.

Alterations to the water regime require special attention, as these are often not very visible. A distant dam may affect the timing or amplitude of floods in a downstream wetland. It may seem that not much has changed, but over the years, adaptation of the vegetation may alter the appearance of the wetland, thus affecting its value for waterbirds. Between-year dynamics should not be neglected. For example, the ecology of Sahelian floodplains, which are of extreme importance for millions of migratory waterbirds from the Palearctic, is strongly influenced by the irregular occurrence of 'disastrous' droughts or extreme floods.

Box 2: Threat assessment in Europe

Example 1: The most important threats in different habitats

- Marine habitats: introduced predators
- Coastal habitats: tourism and recreation
- Inland wetlands: drainage/land reclamation
- Tundra, mires and moorland: oil/gas exploitation
- Agricultural and grassland habitats: crop improvement

Example 2: Ranked threats for inland wetlands

1. Drainage/land reclamation
2. Loss of riparian habitat
3. Tourism/recreation
4. Management of vegetation
5. Pollution from nutrients
6. Water abstraction
7. Pollution from toxic chemicals
8. Water-level regulation
9. Hunting disturbance
10. Wetland impoundment
11. Canalisation
12. Increased predators
13. Angling/fisheries
14. Acidification
15. Excessive sedimentation
16. Aquaculture
17. Introduced species

Example 3: Threat assessment for a particular habitat or site

Each species is given a priority score ranging from 1 (low priority) to 4 (high priority).
For each threat, each species is given an impact score: 0 (none), 1 (medium), or 2 (serious).
For each threat, all species impact scores are multiplied by their priority scores and summed.

(Source: Tucker *et al.*, 1997)

It is unlikely that there is an important site for waterbirds anywhere in the world without some land-use conflicts, even in the case of established nature reserves. The 'classic' reserve with nature and people on either side of the fence may survive in a few industrialised countries, but is no longer considered acceptable in developing countries, where the use of natural resources is vital for local people.

In many countries, responsible agencies now enter into open dialogue with local people to improve relationships and to identify sustainable forms of land use that are acceptable to all parties. This can be a lengthy and tedious process, but is vital for long-term success in the management of natural resources, especially in Africa.

Land use conflicts not only exist between those who wish to conserve and those who wish to exploit, but also between people practising different forms of exploitation. An example of this can be seen in the Sahelian floodplains (see Box 3). Field studies, including interviews with local people and their representatives, are essential so that the opinions of all stakeholders can be taken into account.

Box 3: Community based wetland management in Africa

Africa's vast expanses of seasonal floodplains, notably in Sahelian countries in the north and in Zambia in the south, provide some of the most important habitats for migratory waterbirds in the world. In most cases, traditional, sustainable, community-based management systems were in place in pre-colonial times. These have usually been corrupted by colonial regimes and subsequent independent governments through the imposition of centralised legal systems on local populations. In spite of conservation efforts, these new systems have often proved to be counterproductive with respect to wetland management, as local people no longer feel responsible for their natural resources.

Wetland projects in the Barotse Floodplain and Kafue Flats in Zambia seek to restore the traditional land-use systems, and return part of the responsibility for the management of wetlands and wildlife to local populations. In the Senegalese part of the Senegal River Delta, development of community-based wetland management is hampered by the fact that the Djoudj National Park was imposed on the people in 1971, without consultation, and consequently without wide acceptance. In contrast, the newly established Diawling National Park in the Mauritanian part of the Delta has been based on community participation since the earliest planning phases, and now shows promising results.

These examples have demonstrated that development of community-based sustainable management is an extremely slow process, once the original, traditional systems have been lost.

Step 3: Identify all parties involved in the management of the site

The inventory of land-use conflicts yields a list of stakeholders.

Government bodies or private companies involved in the development of wetlands for agricultural use are usually powerful bodies, by tradition often unsympathetic to nature conservation. When large structural works are planned (*e.g.* drainage and irrigation projects, road-building schemes, and programmes of land reform), there is a great deal of money and power involved. With the right approach, these powerful institutions can be converted into powerful allies. This applies in exactly the same way in both developed and developing countries.

In developing countries, various donor organisations may be involved in the management of a site. Because of differences in the scope and objectives of these organisations, it is possible that they may come into conflict with one another.

If the site has potential for tourism (including ecotourism), tour operators and hotel owners in the region may also be involved.

To summarise, possible stakeholders include:

- the owners;
- local villagers;
- fishermen's organisations;
- farmers' organisations;
- hunters' organisations;
- local politicians;
- the Ministry of Environment or equivalent;
- ministries dealing with agriculture, fisheries, water, public works and education;
- governmental conservation agencies;
- land development bodies;
- national non-governmental conservation agencies;
- international non-governmental conservation agencies;
- donor agencies;
- local and national tourist boards.

The list of stakeholders should, if possible, be maintained in a database linked to the site inventory, and should be updated at regular intervals.

Step 4: Where appropriate, install a site management committee

It is important to establish a management committee for the site, especially in developing countries where the involvement of local communities is vital. In some cases, a single management committee could be responsible for two or more sites in the same region.

The management committee should include representatives of as many as possible of the stakeholders. The choice of which of the groups of stakeholders are represented will depend on ownership of the site, present use, possible future developments and threats. In addition, a management committee should always include scientific advisors.

There is no need for the management committee to receive formal power. Most importantly, it provides a platform where views and opinions can be shared and discussed.

The management committee should meet at least once a year, although sub-committees (involving individuals who may not be present at the main committee meetings) could meet more often, if necessary. This may be especially true at the village level and for the scientific advisors. The latter may even consider establishing a separate scientific committee that reports back to the management committee.

Step 5: Assess the type of management required

The type of management required will depend on the ecological function of the site for waterbirds. Functionally, a site can be a:

- breeding site for dispersed breeding species;
- breeding site for colonial breeding species;
- moulting area;
- staging area;
- wintering area.

Most sites have more than one function, and can be divided into sub-sites, according to function.

Dispersed breeding species occur in many different habitats throughout the AEWA area. Two of the most important habitats for waterbirds are the Arctic tundra and temperate grasslands. There is usually little if any need for management in the tundra, where the main issues are conservation of the fragile ecosystems and protection against permanent damage, especially from oil exploitation.

Temperate grasslands may be natural (*e.g.* in the Russian Federation) or man-made. The main threat to natural grasslands is conversion to agricultural land, and here the emphasis should be on the creation of protected areas. Breeding populations of waders and ducks on agricultural grasslands in Europe are threatened by intensification in farming practices by private farmers. Two conservation strategies that have been used to combat this threat are buying land to establish grassland reserves, and concluding management agreements with the farmers (see Box 4).

Colonial breeding species are found in temperate and tropical wetlands. In Europe, many wetlands supporting large colonies of waterbirds have been given protected status. Elsewhere, this is often not the case. Where colonies host species in need of Single Species Action Plans, management must be linked to developing SSAPs (see Guidelines No.1: *Guidelines on the preparation of Single Species Action Plans for migratory waterbirds*).

Breeding colonies of waterbirds can be situated at a considerable distance from water. They are often on private land, or may even be in trees in cities. One option worth investigating is the possibility of offering tax incentives to landowners who do not make any changes to their property that might affect colonies of waterbirds on their land. This works successfully in the USA (*e.g.* in lowland swamps in South Carolina), and could be of interest in countries in the AEWA area where there are still large private estates with much undeveloped ground (*e.g.* in the Mediterranean).

Some colonial waterbirds nest on the ground in agricultural land, salt pans and other man-made habitats (*e.g.* Collared Pratincole *Glareola pratincola* and Black-winged Stilt *Himantopus himantopus* in the Mediterranean). These birds can benefit from management agreements with private landowners.

Moulting areas for waterbirds are often isolated or inaccessible, and out of reach of most predators. This is because many species of waterbirds have impaired flight during the moult. Some species, such as many dabbling ducks *Anas* spp., disperse and hide individually, while others, such as the Common Shelduck *Tadorna tadorna*, concentrate in large groups. Little is known about the moulting areas of many species, and the location of key moulting sites is therefore a high priority.

Staging and wintering areas can be in reserves, on unprotected government land or common land (*e.g.* the Sahelian floodplains), or on private land. In some parts of Europe, the Government pays farmers compensation for the damage caused by wintering geese and swans to their

harvest (see Box 4). The potential for using financial compensation as a tool in waterbird conservation outside Europe, with financial aid coming from the international community, has yet to be properly investigated. (See also Guidelines No.8: *Guidelines on reducing crop damage, damage to fisheries, bird strikes and other forms of conflict between waterbirds and human activities*).

Other activities related to migratory waterbirds that require management include:

- Hunting (see Guidelines No.5: *Guidelines on sustainable harvest of migratory waterbirds*);
- Trade (see Guidelines No.6: *Guidelines on regulating trade in migratory waterbirds*);
- Ecotourism (see Guidelines No.7: *Guidelines on the development of ecotourism at wetlands*).

Box 4: Paying farmers for tolerating migratory waterbirds

The intensification of agriculture has caused great losses in natural values all over the world. In the AEWA area, this is especially so in Europe. Various financial mechanisms have been developed to reduce ecological losses, either by offering farmers payment for refraining from certain activities, or by paying them compensation for damage caused by animals. Some of these measures relate to migratory waterbirds, notably nesting waders and ducks, and wintering geese and swans.

Paying farmers for tolerating migratory waterbirds is particularly well developed in the United Kingdom, The Netherlands, Germany and France.

In grassland areas important for nesting waders and ducks, farmers can conclude management agreements with their local or national government (usually financed with government funds, but in Europe also with EU funding), whereby they receive various kinds of payments, *e.g.* for

- not changing the physical characteristics of their land;
- maintaining high ground water tables;
- reducing the use of fertilisers;
- reducing the intensity of grazing;
- postponing mowing until later in the season.

Payments are calculated on the basis of the estimated average reduction in income associated with each of these measures (for each type of agreement, a fixed price per ha per annum). Management agreements of this kind affect the habitat. An alternative approach is to pay farmers a small premium for each successfully hatched nest of certain valuable species. This may be more economical, but is much more complicated to implement, and is ecologically less sound.

In the case of wintering geese and swans, farmers are not paid for producing less intensively, but for the damage caused to their crops by the birds. Farmers can be paid after the harvest, the level of payment depending on an assessment of the damage to the crop, or can be paid a fixed amount per ha per year to tolerate the birds, regardless of their numbers and length of stay. Hunting opportunity and income from hunters can encourage farmers to tolerate crop damage. (See also Guidelines No.8: *Guidelines on reducing crop damage, damage to fisheries, bird strikes and other forms of conflict between waterbirds and humans*).

Step 6: Draft a management plan

Two major sources of information on management planning are:

- *New Guidelines on Management Planning for Ramsar Sites and Other Wetlands*, available from the Ramsar Convention Bureau or from the Ramsar web site: http://www.ramsar.org/key_guide_mgt_new_e.htm
- *European Guide for the Preparation of Management Plans for protected and managed natural and semi-natural areas*, prepared by the EUROSITE Working Group on 'Management Plans: Methods and Techniques' in 1996 and updated in 1999. See: <http://www.seit.ee/projects/toolkit.pdf>

There are many other useful publications, especially in North America and various parts of Europe, but the two mentioned above give good coverage and are widely accepted in the AEWA area. They are, moreover, reasonably compatible.

A management plan should consist of a preamble, explaining the need for the plan, followed by three major parts:

1. Description
2. Evaluation and objectives (what to do)
3. Action plan/prescriptions (how to do it)

Part 1: Description

The description of the site can be straightforward, and includes all that is known about the site, including the threats to it. The presentation of information should follow the format used in the site inventory, but there should be more detail. (See Guidelines No.3: *Guidelines on the preparation of site inventories for migratory waterbirds*).

The EUROSITE guide suggests many more subheadings than are given on the Ramsar Information Sheet. These are grouped under the headings:

- General information
- Physical/abiotic features
- Biological/biotic features
- Socio-economic features
- Additional information

In a European context, this order of headings is logical, with nature first and people last, but in developing countries, where involvement of the local people is a very sensitive issue, there is a tendency to change the sequence, and treat socio-economic features before biological features.

Relevant research reports should be referred to as accompanying background documents, but as little detailed research information as possible should be included in the main document, to limit its size. A management plan of 100 pages is acceptable, but one of under 50 pages is better.

Part 2: Evaluation and objectives

The evaluation lists what the site has to offer, and may deal with the following topics (in no particular order, as treatment may vary from site to site):

- Size and position in ecological unit (*e.g.* catchment area);
- Biological diversity;
- Naturalness;
- Rarity (sensitive information on rare species should be kept confidential);
- Fragility (with respect to both natural and man-induced causes);
- 'Typicalness';

- Recorded history;
- Potential for improvement;
- Aesthetic, cultural and religious values;
- Social and economic values;
- Education and public awareness;
- Recreation;
- Research.

The objectives can be divided into:

- Long-term management objectives
- Operational objectives

The long-term objectives should always be the ideal situation, irrespective of constraints, and should match the preamble. They should be followed by a list of constraints, such as:

- Internal natural factors (succession, water level dynamics);
- Internal human-induced factors;
- External natural factors (*e.g.* climate);
- External human-induced factors (*e.g.* dams located upstream);
- Factors arising from legislation or tradition;
- Physical considerations (*e.g.* inaccessibility);
- Available resources (including finance).

Thus, there are three ingredients that lead towards the operational objectives:

- Evaluation
- Long-term objectives
- Constraints

Operational objectives can be many-fold, and should:

- describe achievable and measurable targets;
- be realistic in relation to the constraints;
- point in the direction of the long-term objectives.

Part 3: Action plan/prescriptions

Different sources propose different structures for Part 3, but there are always four major elements:

- Zoning
- Management strategies
- Projects and work programmes
- Monitoring and review

Zoning may be useful for large sites, where some parts, for example, may be suitable for recreational use, while other parts hosting vulnerable species may require total protection. Zoning can be a powerful tool to concentrate and/or limit access to certain parts of the site. Zoning may require separate sets of action plans/prescriptions. Criteria for zoning should be derived from an assessment of threats.

Management strategies (or options, such as non-intervention versus intervention, re-introduction versus control of pest species, restrictions on access versus open access) should be categorised under:

- Habitat/species management;
- Human usage (taking account of 'wise use');
- Access, public use, education/demonstration;
- Research (facilities, opportunities);

- Training of personnel;
- 'Estate' management (maintenance of buildings, roads, dams *etc.*).

'Wise use' includes management agreements, *e.g.* for farmland, fish farms and salt pans.

Projects (if there are many, grouped into **programmes**) define what should actually be done in practice. Each project should describe who is involved (personnel), what exactly should be carried out and when, and how much it will cost. This part of the management plan typically becomes more detailed in each successive version of the plan. In early versions of the plan, the section can be kept very brief.

Monitoring and **review** are sometimes presented as projects or programmes, but they are of sufficient importance to merit separate treatment. Monitoring of wetland values (such as the numbers of waterbirds using the site) is the only way to keep track of developments and to judge whether or not the objectives are being met. The results of monitoring will form the basis for decisions on whether or not to change or adapt the plan. Review of the management plan should be a continuous process leading to periodic reports on how the various projects are proceeding. Review reports should be prepared every three to five years, but it is recommended that a brief internal evaluation be made every year. Review may lead to a revision of the management plan (Step 8).

Additional information

In addition to the three basic parts of the plan, there can be varying amounts of additional information, much of which can be presented in appendices. Examples include:

- References;
- List of resource persons;
- Species lists;
- List of material needs;
- Timetable for implementation.

Finally, there should be a:

- Budget

The budget should be structured in such a way that sizeable parts can easily be taken out to be tailored to the specific tastes of potential donors. Some donors prefer to give money for equipment, such as vehicles, boats, bicycles, binoculars, bird books, computers and pencils. Some donors have a taste for digging canals or building sluices, while others might prefer to finance a craft shop for local women, a health care centre in a village located near the wetland, or a demonstration project to promote sustainable forms of land use.

Step 7: Implement the management plan

Preparation of the management plan is relatively straightforward. Implementation of the plan is much more difficult, and will depend totally on the goodwill of all those involved. If the plan does not have wide support, implementation may prove impossible. It is for this reason that considerable emphasis has been placed on identifying all the stakeholders and their respective roles. It is important to ensure their continuing involvement through the management committee (Step 4).

One mechanism for stimulating support for a management plan is to link the management of the site to that of another site in another country in the same flyway (*i.e.* a site which harbours the same birds at a different time of the year). The significance of this linkage can be a useful tool in raising public awareness (see Box 5). If a site in a poor country is linked to one in a rich country, this 'twinning' of sites may also facilitate fund raising. The potential for twinning in the AEWA area has not as yet been adequately investigated.

Box 5: Site twinning - linking two worlds through sites for migratory waterbird

Where political pressure is useful to promote the protection of a site, 'site twinning' may be a powerful tool. This has been very successful with many sites in North and South America. In South America, the system focuses mainly on stimulating private landowners to protect their wetlands, but governments may also be stimulated to protect wetlands if a clear link with sites in other parts of the world can be demonstrated. However, there are still rather few examples of site twinning in the AEWA area. Site twinning is one of the items in the EUROSITE Toolkit. See:

http://www.eurosite-nature.org/article.php3?id_article=82

Site twinning can also be effective in developing ecotourism. If an ecotourism strategy has already been designed and implemented in one of the areas, the experience gained may be of considerable assistance in the development of ecotourism in the other. The development of joint projects and exchange programmes may be appropriate, and in some cases, one of the partners may be prepared to provide the bulk of the funding.

Site twinning appeals most if ringing records actually show that the same individual birds use both sites. An example is the Djoudj National Park in Senegal, which is twinned with the Camargue in France. Several species of herons and egrets that breed in the Camargue migrate to spend the winter in Djoudj National Park.

Ideally, responsibility for implementation and follow-up should be assigned to someone who can carry out his or her duties as part of a regular job (*e.g.* a representative of the owners or someone from a National Park Service or equivalent). If this is not possible, responsibility should be with the project staff. The question of long-term responsibility should be taken into account in the management plan, and also in the budget.

If responsibility for implementation is initially in the hands of temporary project staff, a major goal should be to institutionalise the management of the site, so that someone can take over on a permanent (or semi-permanent) basis.

The key to successful implementation of a management plan is a flexible and dynamic approach.

Step 8: Revise the management plan as required

Step 6 outlines the drafting of a document known as a management plan. In fact, a management plan should not be seen as a static document, but as a dynamic process. Steps 1 to 5 are as essential to this process as is any document that may be produced during the process. Furthermore, a management plan is never a final product. It must constantly be revised and updated, and typically completely re-written every three to five years. Management plans that have been written primarily to generate funds are especially likely to become outdated very quickly.

If funding remains insecure and frequent redrafting is anticipated, it is advisable to keep the document rather general and as concise as possible. In such cases, it may be better to refer to the document as a Master Plan, which can serve as an umbrella document for a variety of partial plans with partial budgets, aimed at different donors. These partial plans can be quickly modified to take advantage of funding opportunities, without affecting the overall Master Plan.

References and useful web sites

1. ACTION PLANS

References and further reading

- Circumpolar Seabird Working Group 1997. *Circumpolar Eider Conservation Strategy and Action Plan*. CAFF Conservation of Arctic Flora and Fauna.
- Collar, N.J., M.J. Crosby & A.J. Stattersfield 1994. *Birds to Watch 2: The World Checklist of Threatened Birds*. BirdLife Conservation Series No.4. BirdLife International, Cambridge, U.K.
- Council of Europe 1997. *Drafting and implementing action plans for threatened species. Workshop, Bértiz, Navarre (Spain), 5-7 June 1997*. Environmental Encounters 39. Council of Europe Publishing, Strasbourg, France.
- Gimenez Dixon, M. 1996. The IUCN/SSC action plans for species conservation, concepts and basic guidelines. *Gibier Faune Sauvage, Game and Wildlife* 13: 1143-1152.
- Heredia, B., L. Rose, & M. Painter (eds.) 1996. *Globally threatened birds in Europe: Action Plans*. BirdLife International, Cambridge and Council of Europe, Strasbourg, France.
- Hilton-Taylor, C. (Compiler) 2000. *2000 IUCN Red List of Threatened Species*. IUCN, Gland, Switzerland and Cambridge, U.K.
- Meine, C.D. & G.W. Archibald 1996. *The Cranes: Status Survey and Conservation Action Plan*. IUCN, Gland, Switzerland and Cambridge, U.K.
- O'Donnell, C. & J. Fjeldsa 1997. *Grebes: Status Survey and Conservation Action Plan*. IUCN, Gland, Switzerland and Cambridge, U.K.
- Pihl, S. 1997. *European Species Action Plan: Steller's Eider Polysticta stelleri*. In: Final Technical Report and Claim, 1 March 1996 – 30 November 1997. Species Action Plans for 8 European Threatened Bird Species. RSPB, Sandy, U.K.
- RSPB 1997. *Species Action Plans for 8 European threatened species*. Royal Society for the Protection of Birds, Sandy, U.K.
- Stroud, D.A. 1992. *Greenland White-fronted Goose Anser albifrons flavirostris: International Conservation Plan*. National Parks and Wildlife Service of the Office of Public Works, Ireland, and the International Waterfowl and Wetlands Research Bureau, Slimbridge, U.K.
- Threatened Waterfowl Specialist Group. In prep. Global Action Plan for the Conservation of Anseriformes (Ducks, Geese, Swans and Screamers). IUCN, Gland, Switzerland.

Useful web sites

AEWA Action Plans can be found at:

http://www.unep-aewa.org/publications/technical_series.htm

Action Plans for EC Birds Directive Annex 1 species can be found at:

<http://europa.eu.int/comm/environment/nature/directive/birdspriority.htm>

IUCN Species Survival Commission Specialist Groups

<http://www.iucn.org/themes/ssc/sqs/sqs.htm>

IUCN Species Survival Commission Specialist Groups Action Plans

<http://www.iucn.org/themes/ssc/pubs/sscaps.htm>

2. EMERGENCY SITUATIONS

References and further reading

- Beintema, N 2001. *Lead poisoning in waterfowl, International Update Report 2001*. Wetlands International – AEME, Wageningen, The Netherlands.

- Gibbons, D.W., Smith, K.W., Atkinson, P., Pain, D., Arendt, W.J. gray, G., Hartley, J., Owen, A. & Clubbe, C. 1998. After the Volcano: a future for the Montserrat Oriole? *RSPB Conservation Review* 12: 97-101.
- Stanners, D. & P. Bourdeau (eds.) 1991. *The Dobris Assessment*. European Environment Agency, Copenhagen, Denmark. See also web site.
- Stroud, J.M. 1992. *Statutory suspension of wildfowling in severe weather: Review of past winter weather and actions*. JNCC Report 75. Joint Nature Conservation Committee, Peterborough, U.K.

Useful web sites

Botulism

<http://www.pnr-rpn.ec.gc.ca/nature/migratorybirds/avianb/ce00s02.en.html>

Diseases

<http://www.avianbiotech.com/diseases/newcastle.htm>

Algal blooms

<http://www.epa.gov/OWOW/estuaries/piesteria/>

<http://www.whoi.edu/redtide/>

Lead poisoning

http://www.unep-aewa.org/publications/other_publications.htm

<http://www.britishcolumbia.com/Wildlife/wildlife/information/Lead%20Poisoning%20of%20Water%20Birds.htm>

Oil spill in Wales

<http://www.swan.ac.uk/biosci/empress/news.htm>

Oil spill in the Russian Federation

<http://www.american.edu/projects/mandala/TED/KOMI.HTM>

Oils spill in South Africa

<http://web.uct.ac.za/depts/stats/adu/oilspill/>

Cyanide pollution of river Tisza

<http://nfp-hu.eionet.eu.int/cyanide.html>

Heavy metal pollution of Coto Doñana

<http://www.yale.edu/ynhti/curriculum/units/1999/6/99.06.01.x.html>

National Response Center

<http://www.nrc.uscg.mil/nrchp.html>

Emergency Response Notification System

<http://www.nrc.uscg.mil/nrchp.html>

National Response Team

<http://www.nrt.org>

3. SITE INVENTORIES

References and further reading

- Burgis, M.J. & J.J. Symoens 1987. *African Wetlands and Shallow Water Bodies*. ORSTOM, Paris, France.
- Carp, E. 1980. *A Directory of Western Palearctic Wetlands*. UNEP, Nairobi, Kenya and IUCN, Gland, Switzerland.
- Costa, L.T., J.C. Farinha, N. Hecker & P. Tomàs Vives 1996. *Mediterranean Wetland Inventory: A Reference Manual*. MedWet/Instituto da Conservação da Natureza/Wetlands International Publication, Volume I.
- Cowardin, L.M., V. Carter, F.C. Golet & E.T. Laroe 1979. *Classification of wetlands and deep water habitats of the United States*. US Fish and Wildlife Service, Washington DC, USA.
- De Beaufort, F. & A.-M. Czajkowski 1986. *Zones Humides d'Afrique septentrionale, centrale et occidentale. II: Inventaire préliminaire et méthodologie*. Secretariat de la Faune et de la Flore, Museum National d'Histoire Naturelle, Paris, France.
- Ethiopian Wildlife and Natural History Society & BirdLife International 1996. *Important Bird Areas of Ethiopia. A First Inventory*. Ethiopian Wildlife and Natural History Society, Addis Ababa, Ethiopia.

- European Commission 1994. *Natura 2000. Special Protection Areas*. European Commission, Brussels, Belgium.
- European Communities 1991. *CORINE Biotopes: the design, compilation and use of an inventory of sites of major importance for nature conservation in the European Community. Report and Manual (3 volumes)*. Office for Official Publications of the European Communities, Luxembourg.
- Evans, M. I. (ed.) 1994. *Important Bird Areas in the Middle East*. BirdLife Conservation Series No.2. BirdLife International, Cambridge, U.K.
- Farinha, J.C., L. Costa, E. Fitoka, A. Mantzavelas, G. Zalidis, N. Hecker & P. Tomàs Vives 1996. *Mediterranean Wetland Inventory. Habitat Description System*. MedWet/Instituto da Conservação da Natureza/Wetlands International/EKBY Publication, Volume III.
- Frazier, S. 1999. *Ramsar Sites Overview: A Synopsis of the World's Wetlands of International Importance*. Wetlands International, Wageningen, The Netherlands.
- Frazier, S. 2002. *A Directory of Wetlands of International Importance*. CD-RoM. Wetlands International, Wageningen, The Netherlands.
- Heath, M.F. & Evans, M.I. (eds.) 2000. *Important Bird Areas in Europe: Priority sites for conservation*. 2 vols., Cambridge, U.K.: BirdLife International (BirdLife Conservation Series No. 8).
- Hecker, N. & P. Tomàs Vives (eds.) 1995. *The Status of Wetland Inventories in the Mediterranean Region*. MedWet Publication/IWRB Publication No.38. IWRB, Slimbridge, U.K.
- Hughes, R.H. & J.S. Hughes 1992. *A Directory of African Wetlands*. IUCN, Gland, Switzerland/UNEP, Nairobi, Kenya/ WCMC, Cambridge, U.K.
- Luther, H. & J. Rzóska, 1971. *Project Aqua: a source book of inland waters proposed for conservation*. IBP Handbook No.21. Blackwell Scientific Publications, Oxford.
- Magnin, G. & M. Yazar 1997. *Important Bird Areas in Turkey*. Dogal Hayati Koruma Dernegi, Istanbul, Turkey.
- Olney, P. 1965. *Project MAR. List of European and North African Wetlands of International Importance*. IUCN New Series No.5. IUCN, Morges, Switzerland.
- Scott, D.A. 1980. *A Preliminary Inventory of Wetlands of International Importance for Waterfowl in West Europe and Northwest Africa*. IWRB Special Publication No.2. IWRB, Slimbridge, U.K.
- Scott, D.A. (ed.) 1995. *A Directory of Wetlands in the Middle East*. IUCN, Gland, Switzerland and IWRB, Slimbridge, U.K.
- Scott, D.A. & P.M. Rose 1996. *Atlas of Anatidae Populations in Africa and Western Eurasia*. Wetlands International Publication No.41. Wetlands International, Wageningen, The Netherlands.

Useful web sites

- Ramsar sites directory
<http://www.wetlands.org/RDB/Directory.html>
- Ramsar Information Sheet
http://www.ramsar.org/key_ris_index.htm
- Ramsar Information Sheet explanatory notes and guidelines
http://ramsar.org/key_ris.htm#note
- Ramsar criteria
http://ramsar.org/key_criteria.htm
- UNESCO World Heritage List
<http://fp.thesalmons.org/lynn/world.heritage.html>

4. SITE MANAGEMENT

References and further reading

- Alexander, M. & J.M. Perrins 1993. *Countryside Management System*. Countryside Council for Wales, Barmouth, U.K.

- Eurosite Working Group on "Management Plans: Methods and Techniques" 1996. *European Guide for the Preparation of Management Plans for protected and managed natural and semi-natural areas*. Eurosite, Tilburg, The Netherlands.
- NCC 1983. *A handbook for the preparation of management plans*. Nature Conservancy Council, Peterborough, U.K.
- NCC 1987. *Site management plans for nature conservation, a working guide*. BP edition. Nature Conservancy Council, Peterborough, U.K.
- Scott, D.A. (ed.) 1982. *Managing Wetlands and their Birds: A Manual of Wetland and Waterfowl Management*. IWRB, Slimbridge, U.K.

Useful web sites

New guidelines for management planning for Ramsar sites and other wetlands

http://ramsar.org/key_guide_mgt_new_e.htm

Ramsar wise use guidelines

http://ramsar.org/key_wiseuse.htm

Additional guidance for the implementation of the Wise Use concept

http://ramsar.org/key_add_guide.htm

Eurosite Management Planning Toolkit

<http://www.seit.ee/projects/toolkit.pdf>

5. SUSTAINABLE HARVEST

References and further reading

- BASC 1994. *Shooting: Countryside Sport and Conservation. A Teacher's Resource Pack*. British Association for Shooting and Conservation, Rossett, U.K.
- Begbie, E. (ed.) 1989. *The New Wildfowler*. Third Edition. Stanley Paul, London.
- Beintema, N. 2001. *Lead poisoning in waterfowl, International Update Report 2001*. Wetlands International – AEME, Wageningen, The Netherlands
- Freese, C.H. (ed.) 1997. *Harvesting Wild Species: Implications for Biodiversity Conservation*. Johns Hopkins Press, Baltimore and London.
- Harradine, J. (ed.) 1992. *Wings in Waterfowl Research and Management*. Proc. 2nd Meeting IWRB Hunting Research (Wing Studies) Group. Saarbrücken, Germany, 9-10 April 1992. Wetlands International, Slimbridge, U.K.
- Laws, T. & Y. Lecocq 1996. The contribution of European hunting organisations in Anatidae conservation. In: M. Birkan, J. van Vesseem, P. Havet, J. Madsen, B. Trolliet & M. Moser (eds.), Proceedings of the Anatidae 2000 Conference, Strasbourg, France, 5-9 December 1994. *Gibier Faune Sauvage, Game Wildl.* 13: 1257-1260.
- Madsen, J. 1998. Experimental refuges for migratory waterfowl in Danish wetlands. II: Tests of hunting disturbance effects. *J. Appl. Ecol.* 35: 398-417.
- Madsen, J. & A.D. Fox 1995. Impacts of hunting disturbance on waterbirds - a review. *Wildlife Biology* 1: 193-203.
- Matthews, G.V.T. (ed.) 1990. *Managing Waterfowl Populations*. Proc. IWRB Symposium, Astrakhan, 1989. IWRB Special Publication No.12. IWRB, Slimbridge, U.K.
- Nichols, J.D. & F.A. Johnson 1996. The management of hunting of Anatidae. In: M. Birkan, J. van Vesseem, P. Havet, J. Madsen, B. Trolliet & M. Moser (eds.), Proceedings of the Anatidae 2000 Conference, Strasbourg, France, 5-9 December 1994. *Gibier Faune Sauvage, Game Wildl.* 13: 977-990.
- Pain, D.J. (ed.) 1992. *Lead poisoning in waterfowl*. IWRB Special Publication No.16. IWRB, Slimbridge, U.K.

Useful web sites

Federation of Field Sports Associations of the EU (FACE)

<http://www.face-europe.org/>

The Game Conservancy Trust (UK)

<http://www.gct.org.uk/>

International Council for Game and Wildlife Conservation (C. I. C)

<http://www.cic-wildlife.org/>

Lead poisoning

<http://www.npwrc.usgs.gov/resource/othrdata/pbpoison/pbpoison.htm>

International Wildlife Rehabilitation Council

<http://www.iwrc-online.org/>

6. REGULATING TRADE

References and further reading

Bradley Taylor, M. 1996. *Wildlife Crime: A Guide to Law Enforcement in the United Kingdom*. Stationery Office, London.

Crawford, A. (compiler) 1997. *Making CITES Work: Examples of Effective Implementation and Enforcement*. TRAFFIC International, Cambridge, U.K.

De Klemm, C. 1993. *Guidelines for legislation to implement CITES*. IUCN, Gland, Switzerland and Cambridge, U.K.

Thomsen, J.B., S.R. Edwards & T.A. Mulliken (eds.) 1992. *Perceptions, Conservation & Management of Wild Birds in Trade*. TRAFFIC International, Cambridge, U.K.

Wijnstekers, W. 1995. *The Evolution of CITES. A reference to the Convention on International Trade in Endangered Species of Wild Fauna and Flora*. Fourth Edition. CITES Secretariat, Switzerland.

World Conservation Monitoring Centre 1995. *Checklist of birds listed in the CITES Appendices*. Joint Nature Conservation Committee Report No.236. JNCC, Peterborough, U.K.

Useful web sites

IUCN Species Survival Commission Specialist Groups

<http://www.iucn.org/themes/ssc/pubs/sscaps.htm>

CITES

<http://www.cites.org>

<http://international.fws.gov/cites/cites.html>

EU wildlife trade regulations

http://europa.eu.int/comm/environment/cites/legislation_en.htm

<http://www.wcmc.org.uk/species/trade/eu/>

7. DEVELOPMENT OF ECOTOURISM

References and further reading

Claridge, G. & B. O'Callaghan (eds.) 1997. *Community involvement in wetlands management: lessons from the field*. Incorporating the Proceedings of Workshop 3, Wetlands, Local People and Development, of the International Conference on Wetlands and Development, October 1995. Wetlands International, Kuala Lumpur, Malaysia.

Davidson, N. & P. Rothwell (eds.) 1993. Disturbance to waterfowl on estuaries. *Wader Study Group Bulletin 68, Special Issue*.

Eagles, P.F.J. 1997. *International Ecotourism Management: Using Australia and Africa as Case Studies*. IUCN World Commission on Protected Areas, Albany, Australia.

Henkens, R.J.H.G. 1998. *Ecologische capaciteit natuurdoeltypen I: methode voor bepaling effect recreatie op broedvogels*. IBN-rapport 363. Wageningen, The Netherlands.

Holt-Biddle, D. 1996. Vision of wildlife, ecotourism and the environment in southern Africa. In: *The Endangered Wildlife Trust, 1996 Annual*. Johannesburg, South Africa

IUCN 1992. *Proceedings of the IV World Congress of National Parks and Protected Areas*. Caracas, Venezuela.

- Kusler, J.A. (ed.) 1991. *Ecotourism and Resource Conservation*. 2 vols. Association of Wetland Managers, Berne, New York, USA.
- Lindberg, K., M. Epler Wood & D. Engeldrum (eds.) 1998. *Ecotourism: a guide for planners and managers*. 2 vols. The Ecotourism Society, North Bennington, Vermont, USA.
- Lindberg, K. & D.E. Hawkins (eds.) 1993. *Ecotourism: A Guide for Planners and Managers*. The Ecotourist Society, North Bennington, Vermont, USA.
- The Ecotourist Society (TES) 1993. *Ecotourism guidelines for nature tour operators*. North Bennington, Vermont, USA.
- Tourism Research and Education Centre 1990. *Towards Serving Visitors and Managing Our Resources*. Proceedings of a North American Workshop on Visitor Management in Parks and Protected Areas. University of Waterloo, Ontario, Canada
- UNEP IE Tourism Programme. Focus numbers and technical reports, e.g.
- Focus No.1, 1995: National Ecotourism Strategy, Australia.
 - Focus No.8, 1997: (Recreational) Carrying Capacity.
 - Technical Report No.29, 1995: Environmental Codes of Conduct for Tourism.
- U.S. Agency for International Development 1994. *An assessment of ecotourism associated with Bao Bolon and Kiang West National Park in the Gambia*. Office of Operations and New Initiatives, Africa Bureau, US-AID. Labat-Anderson Incorporated.
- WTO/UNEP 1992. *Guidelines: Development of National Parks and Protected Areas for Tourism*. WTO/UNEP Joint Publication, UNEP-IE/PAC Technical Report Series No.13, second printing 1994. Madrid, Spain.

Useful web sites

- The International Ecotourism Society TES
<http://www.ecotourism.org>
- The World Travel & Tourism Council WTTC
<http://www.wttc.org>
- The World Tourism Organisation WTO
<http://www.world-tourism.org>
- United Nations Environment Programme, Industry and Environment, UNEP-IE: Tourism
<http://www.unepie.org/tourism>

8. REDUCING CROP DAMAGE, DAMAGE TO FISHERIES, BIRD STRIKES AND OTHER FORMS OF CONFLICT

References and further reading

- Allan, R. 1996. *The grain-eating birds of sub-Saharan Africa. Identification, biology and management*. University of Greenwich, Natural Resources Institute.
- Birkan, M., J. van Vesse, P. Havet, J. Madsen, B. Trolliet & M. Moser (eds.) 1996. *Proceedings of the Anatidae 2000 Conference, Strasbourg, France, 5-9 December 1994*. Gibier Faune Sauvage, Game and Wildlife 13.
- Blokpoel, H. In prep. *Review on bird strikes*. Canada.
- Ezealor, A.U. & R.H. Giles Jr. 1997. *Wintering Ruffs *Philomachus pugnax* are not pests of rice *Oryza spp.* in Nigeria's Sahelian wetlands*. Wildfowl 48: 202-209.
- Fox, T., J. Madsen & J. van Rhijn (eds.) 1991. *Western Palearctic Geese*. Proc. IWRB Symp. Kleve, Germany, February 1989. Ardea 79 (2).
- Linell, M.A., M.R. Conover & T.J. Ohashi 1996. *Analysis of bird strikes at a tropical airport*. Journal of Wildlife Management 60: 935-945.
- Meinzingen, W.F. 1993. *A guide to migrant pest management in Africa*. FAO, Rome.
- Monaghan, P., C.B. Shedden, K. Ensor, C.R. Fricker & R.W.A. Girdwood 1985. *Salmonella carriage by Herring Gulls in the Clyde area of Scotland in relation to their feeding ecology*. Journal of Applied Ecology 22: 669-680.
- Murton, R.K. & E.N. Wright (eds.) 1968. *The problems of birds as pests*. Academic Press, London.
- Piersma, T. & A. Koolhaas 1997. *Shorebirds, shellfish(eries) and sediments around Griend, Western Wadden Sea, 1988-1996: single large-scale exploitative events lead to long-*

- term changes of the intertidal birds – benthos community*. NIOZ-Report 1997-7. Netherlands Institute for Sea Research, Den Burg, The Netherlands.
- Pimentel, D. 1991. *CRC Handbook of pest management in agriculture II*. CRC Press, Boca Raton, Ann Harbour, London, Tokyo.
- Tréca, B. 1990. *Régimes et préférences alimentaires d' Anatidés et de Scolopacidés dans le delta du Sénégal*. Thesis, Paris, France.
- Tréca, B. & S. Manikowski 1998. *Bird pests*. CTA, Wageningen, The Netherlands. (In French).
- Van Dam, C., A.D. Buijse, W. Dekker, M.R. van Eerden, J.G.P. Klein Breteler & R. Veldkamp 1995. *Cormorants and commercial fisheries*. Report IKC Nature Management, Wageningen, The Netherlands.
- Van Eerden, M.R. 1997. *Patchwork. Patch use, habitat exploitation and carrying capacity for water birds in Dutch freshwater wetlands*. Report RIZA, Lelystad and thesis State University Groningen, Groningen, The Netherlands.
- Van Roomen, M. & J. Madsen 1992. *Waterfowl and agriculture: review and future perspective of the crop damage conflict in Europe*. IWRB Special Publication No.21. IWRB, Slimbridge, U.K.

Useful web sites

Bird strikes

<http://www.birdstrike.org/birds.htm>

www.airsafe.com

Conflict between fisheries and waterbirds

<http://www.cormorants.info/pdfs/WM14.pdf>

http://banchory.ceh.ac.uk/conflict/case_studies/case%20studies.htm

Costs and benefits of managing wild geese in Scotland

<http://www.scotland.gov.uk/cru/kd01/purple/cbmwgs-05.asp>

9. WATERBIRD MONITORING PROTOCOL

References and further reading

- Aubrecht, G. & H. Winkler 1997. *Analyse der internationalen Wasservogelzählungen (IWC) in Österreich 1970-1995 - trends und Bestände*. (Analysis of the international waterbird census (IWC) in Austria 1970-1995 - trends and numbers). Österreichische Akademie der Wissenschaften.
- Bibby, C.J., D.A. Hill, N.D. Burgess & S. Mustoe 2000. *Bird Census Techniques*. 2nd edition Academic Press, U.K.
- Colhoun, K. 2001. *The Irish Wetland Bird Survey 1998-99: Results from the fifth winter of the Irish Wetland Bird Survey.*, BWI/NPW/WWT Dublin, Ireland.
- Boer, P. de, B.J. Koks, M.W.J. van Roomen, & E.A.J. van Winden. 2001. *Watervogels in de Nederlandse Waddenzee in 1997/98 en 1998/99*. SOVON Monitoringrapport 2001/04. SOVON Vogelonderzoek Nederland, Beek-Ubbergen.
- Delany, S.N., C. Reyes, E. Hubert, S. Pihl, L. Haanstra, E. Rees & A. van Strien 1999. *Results from the International Waterbird Census in the Western Palearctic and Southwest Asia, 1995 and 1996*. Wetlands International, Wageningen, The Netherlands.
- Dodman, T., H.Y. Beibro., E. Hubert & E. Williams 1999. *African Waterbird Census, 1998*. Wetlands International, Dakar, Senegal.
- Dodman, T. & Diagona, C.H. *African Waterbird Census / Les Dénombrements d'Oiseaux d'Eau en Afrique 1999, 2000 & 2001*. Wetlands International Global Series No. 16, Wageningen, The Netherlands.
- Ecoscope Applied Ecologists. In press. *A species and habitats monitoring handbook*.
- Gilbert, G., D.W. Gibbons & J. Evans 1998. *Bird Monitoring Methods: a manual of techniques for key UK species*. RSPB, Sandy, U.K.
- Gillissen, N., Haanstra, L., Delany, S., Boere, G., & Hagemeijer, W. 2002. Numbers and distribution of wintering waterbirds in the Western Palearctic and Southwest Asia in

- 1997, 1998 and 1999. Results from the International Waterbird Census. Wetlands International Global Series No. 11, Wageningen, The Netherlands.
- Komdeur, J., J. Bertelsen & G. Cracknell (eds.) 1992. *Manual for aeroplane and ship surveys of waterfowl and seabirds*. IWRB Special Publication No.19. IWRB, Slimbridge, U.K.
- Madsen, J., G. Cracknell & A. Fox 1999. *Goose Populations of the Western Palearctic: A Review of Status and Distribution*. Wetlands International Publication No.48. National Environment Research Institute, Denmark and Wetlands International, Wageningen, The Netherlands.
- Meltofte, H., J. Blew, J. Frikke, H.-U. Rösner & C.J. Smit 1994. *Numbers and distribution of waterbirds in the Wadden Sea. Results and evaluation of 36 simultaneous counts in the Dutch-German-Danish Wadden Sea 1980-1991*. IWRB Special Publication No.34; Wader Study Group Bulletin No.74, Special Issue. IWRB, Slimbridge, U.K.
- Perennou, C., T. Mundkur, D.A. Scott, A. Follestad & L. Kvenild 1994. *The Asian Waterfowl Census 1987-91: Distribution and Status of Asian Waterfowl*. AWB Publication No.86, Kuala Lumpur, Malaysia. IWRB Publication No.24, Slimbridge, UK.
- Pettifor, R.A. 1997. Population behaviour in response to anthropogenic change in wetland habitats: the use of long-term datasets as tools in conservation. Pp 103-115 in: J.D. Goss-Custard, R. Rufino & A. Luis, *Effect of habitat loss and change on waterbirds. Proc. 10th International Waterfowl Ecology Symposium, Aveiro, Portugal, 18-21 September 1995*. ITE Symposium No.30; Wetlands International Publication No.42. London.
- Pollitt, M.S., Cranswick, P.A., Musgrove, A.J., Hall, C., Hearn, R.D., Robinson, J.A. & Holloway, S.J. 2000. *The Wetland Bird Survey 1998-99: Wildfowl & Wader Counts*. BTO/WWT/RSPB/JNCC, Slimbridge, UK.
- Poot, M., L.M. Rasmussen, M. van Roomen, H.-U. Rösner & P. Sudbeck 1996. *Migratory Waterbirds in the Wadden Sea 1993/94*. Wadden Sea Ecosystem No.5. Common Wadden Sea Secretariat, Trilateral Monitoring and Assessment Group & Joint Monitoring Group of Migratory Birds in the Wadden Sea, Wilhelmshaven, Germany.
- Scott, D.A. & P.M. Rose 1996. *Atlas of Anatidae Populations in Africa and Western Eurasia*. Wetlands International Publication No.41. Wetlands International, Wageningen, The Netherlands.
- Serra, L., Magnani, A., Dall'Antonia P. & Baccetti, N., 1997. Risultati dei censimenti degli uccelli acquatici svernanti in Italia, 1991-1995. *Biol. Cons. Fauna*, 101: 1-312.
- SOVON Ganzen-en Zwanenwerkgroep 2000. *Ganzen- en zwanentellingen in Nederland in 1998/99*. SOVON monitoringrapport 2000/03, RIZA-rapport BM99.15, Expertisecentrum LNV coproductie 336. SOVON Vogelonderzoek Nederland, Beek-Ubbergen
- Ter Braak, C.J.F., A.J. van Strien, R. Meijer & T.J. Verstrael 1994. Analysis of monitoring data with many missing values: which method? Pp 663-673 in: E.J.M. Hagemeyer & T.J. Verstrael (eds), *Bird Numbers 1992. Distribution, monitoring and ecological aspects*. Proc. 12th International Conf. of IBCC and EOAC, Noordwijkerhout, The Netherlands.
- Underhill, L.G. & R.P. Prys-Jones 1994. Index numbers for waterbird populations. I: Review and methodology. *J. Appl. Ecology* 31: 463-480.
- Voslamber, B., E van Winden & M. van Roomen 2000. *Midwintertelling van Watervogels in Nederland, januari 1999*. SOVON monitoringrapport 2000/02. RIZA-rapport BM99.14. Expertisecentrum LNV coproductie C31. SOVON Vogelonderzoek Nederland, Beek-Ubbergen.
- Voslamber, B., E. A.J. van Winden 1999. *Watervogels in de Zoete Rijkswateren in 1997/98*. SOVON monitoringrapport 99/07, RIZA-rapport BM98.10. SOVON Vogelonderzoek Nederland, Beek-Ubbergen.
- Wetlands International. 2002.. *Waterbird Population Estimates, Third Edition*. Wetlands International Global Series No 12. Wetlands International, Wageningen, The Netherlands

Useful web sites

Wetlands International - International Waterbird Census
IWC brochure (global): <http://www.wetlands.org/IWC/about.htm>

Manuals for IWC coordinators and counters:
<http://www.wetlands.org/IWC/Manuals.htm>

African Waterbird Census, reports, news, recording forms:

<http://www.wetlands.org/IWC/africa/africa.html>

Western Palearctic and Southwest Asia Waterbird Census, Background information and reports: <http://www.wetlands.org/IWC/wpal&swa/wpal.htm>

IWC publications: <http://www.wetlands.org/IWC/wpal&swa/output/about.htm>

Census procedures and recording forms for Africa, Western Palearctic and Southwest Asia:

http://www.wetlands.org/IWC/docs/census_proc.htm

Western Palearctic and Southwest Asia, national site lists (clickable map):

<http://www.wetlands.org/IWC/wpal&swa/output/sites.htm>

Western Palearctic and Southwest Asia, national coverage history, 1967-1996 (clickable map):

<http://www.wetlands.org/IWC/wpal&swa/output/coverage.html>

Western Palearctic and Southwest Asia: National Coordinators of waterbird monitoring:

<http://www.wetlands.org/IWC/wpal&swa/partner/WPaINC.htm>

Asian waterbird Census, information, Coordinators, reports, news:

<http://www.wetlands.org/IWC/awc/awcmain.html>

Avian Demography Unit, University of Cape Town

<http://www.uct.ac.za/depts/stats/adu/>

Patuxent Wildlife Research Center: Colonial Waterbird Inventory and Monitoring

<http://www.pwrc.usgs.gov/>

US Fish & Wildlife Service, Division of Migratory Bird Management, Bird Monitoring

<http://migratorybirds.fws.gov/statsurv/mntrtbl.html>

Useful contacts

General

African-Eurasian Waterbird Agreement
UNEP/AEWA Secretariat
UN-Premises, Martin-Luther-King-Str. 8
53175 Bonn, Germany
Tel: (+49) 228 815 2413
Fax: (+49) 228 815 2450
E-mail: aewa@unep.de
WWW: <http://www.unep-aewa.org>

Bern Convention Secretariat (Secretariat of the Convention on the Conservation of European
Wildlife and Natural habitats)
Environment Conservation and Management Division
67075 Strasbourg Cedex
France
Tel.: +33-3-88413559/2256
Fax: +33-3-88413751
E-mail: gill.steimer@coe.int
WWW: <http://www.nature.coe.int/english/cadres/bern.htm>

BirdLife International
Wellbrook Court
Girton
Cambridge CB4 3QX
United Kingdom
Tel.: +44-1223-277318
Fax: +44-1223-277200
E-mail: birdlife@birdlife.org
WWW: <http://www.birdlife.org/>

CBD Secretariat - Secretariat for the Convention on Biological Diversity
World Trade Centre
393 St. Jacques Street
Office 300
Montréal, Québec H2Y 1N9
Canada
Tel.: +1-514-2882220
Fax: +1-514-2886588
E-mail addresses: <http://www.biodiv.org/secretariat/contact.asp>
WWW: www.biodiv.org

Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
UNEP/CMS Secretariat
United Nations Premises in Bonn
Martin-Luther-King Straße 8
53175 Bonn
Germany
Tel.: +49-228-815-2401 and +49-228-815-2402
Fax: +49-228-815-2449
E-mail: secretariat@cms.int
WWW: <http://www.cms.int>

AEWA Conservation Guidelines

Council of Europe
Environment Conservation and Management Division
Palais de l'Europe
Avenue de l'Europe
67075 Strasbourg Cedex
France
Tel.: +33-3-88412253
Fax: +33-3-88413751
E-mail: infopoint@coe.int
WWW: <http://www.coe.int>

EC - European Commission
Wetstraat 200
1049 Brussels
Belgium
Tel.: +32-2-2351111
E-mail: europawebmaster@cec.eu.int
WWW: www.europa.eu.int/comm/index.htm

ECNC - European Centre for Nature Conservation
PO Box 1352
5004 BJ Tilburg
The Netherlands
Tel.: +31-13-4663240
Fax: +31-13-4663250
E-mail: ecnc@ecnc.org
WWW: www.ecnc.nl

International Council for Game and Wildlife Conservation (C. I. C)
PO Box 74
H - 2092 Budakeszi
Hungary
Tel: 0036 60 444 647
Fax: 0036 60 444 648
E-mail: budapestoffice@cic-wildlife.org
WWW: <http://www.cic-wildlife.org/>

IUCN - the World Conservation Union
28, rue Mauverney
1196 Gland
Switzerland
Tel.: +41-22-9990001
Fax: +41-22-9990002
WWW: www.iucn.org
E-mail addresses at: <http://www.iucn.org/wl/db/sitefeedback.cfm>

IUCN/ELC - Environmental Law Centre
Adenauerallee 214
53113 Bonn
Germany
Tel.: +49-228-2692231
Fax: +49-228-2692250
E-mail: <http://www.iucn.org/themes/law/elc01.html>

Ramsar Convention Bureau
28, rue Mauverney
1196 Gland
Switzerland
Tel.: +41-22-999-0170
Fax: +41-22-999-0169

E-mail: ramsar@ramsar.org
WWW: www.ramsar.org

UNEP - United Nations Environment Programme
PO Box 30552
Nairobi
Kenya
Tel.: +254-2-621234
Fax: +254-2-226890 and +254-2-215787
E-mail addresses: <http://www.unep.org/Contacts/>
WWW: www.unep.org

UNESCO/MAB - Man and Biosphere Programme
Ecological Sciences Division
1, rue Miollis
75732 Paris Cedex 15
France
Tel.: +33-1-45684151
Fax: +33-1-40659897
E-mail: mab@unesco.org
WWW: <http://www.unesco.org/mab/>

UNESCO/WHC - World Heritage Centre
Place de Fontenoy 7
75352 Paris Cedex 07
France
Tel.: +33-1-45681443
Fax: +33-1-40569570
E-mail: wh-info@unesco.org
WWW: www.unesco.org/whc

UNEP - WCMC - World Conservation Monitoring Centre
219, Huntingdon Road
Cambridge CB3 0DL
United Kingdom
Tel.: +44-1223-277314
Fax: +44-1223-277136
E-mail: info@unep-wcmc.org
WWW: <http://www.unep-wcmc.org/>

Wetlands International
PO Box 471
6700 AL Wageningen
The Netherlands
Tel.: +31-317-478854
Fax: +31-317-478850
E-mail: post@wetlands.org
WWW: www.wetlands.org

WWF-International - World Wide Fund for Nature
Avenue du Mont-Blanc
1196 Gland
Switzerland
Tel.: +41-22-3649111
Fax: +41-22-3642926
E-mail addresses: http://www.panda.org/about_wwf/who_we_are/offices/offices.cfm
WWW: www.panda.org

Species Action Plans

IUCN Species Survival Commission
c/o IUCN (see under **General**)

Wetlands International Specialist Group Co-ordinators
c/o Wetlands International (see under **General**)
<http://www.wetlands.org/networks/SGroups.htm>

BirdLife International (see under **General**)

Emergency situations

No specific addresses. See under **General**, according to circumstances.

Site inventories

MedWet Coordination Unit
Villa Kazouli, Kifissias & Gr. Lambraki 1
14561 Kifissia
Greece
Tel.: +30-210-8089270
Fax: +30-210-8089274
E-mail: info@medwet.org
WWW: www.medwet.org

Ramsar Convention Bureau (see under **General**)

Site management

EUROSITE - European Network of Site Management Organizations
PO Box 1366
5004 BJ Tilburg
The Netherlands
Tel.: +31-13-4678638
Fax: +31-13-4634129
E-mail: eurosite@kub.nl
WWW: www.eurosite-nature.org

Ramsar Convention Bureau (see under **General**)

Sustainable harvest

International Council for Game and Wildlife Conservation (C. I. C) (see under **General**)

FACE - Fédération des Associations de chasseurs de l'EU
82 Rue F. Pelletier
B-1030 Brussels
Belgium
Tel: +32-2-732.69.00
Fax: +32-2-7327072
E-mail: face.europe@infoboard.be
WWW: <http://www.face-europe.org/>

Trade

TRAFFIC International
219c Huntingdon Road
Cambridge CB3 0DL
UK
Tel: (44) 1223 277427
Fax: (44) 1223 277237
E-mail: traffic@WCMC.org.uk

TRAFFIC Europe
Waterloosteenweg 608
1060 Brussels
Belgium
Tel.: +32-2-3470111
Fax: +32-2-3440511
WWW: www.traffic.org

UNEP/CITES Secretariat (Convention on International Trade of Endangered Species,
Washington Convention)
PO Box 456
Geneva Executive Centre
1219 Châtelaine (Geneva)
Switzerland
Tel.: +41-22-9799139 and 9799140
Fax: +41-22-7973417
E-mail addresses: <http://www.cites.org/eng/disc/sec/index.shtml>
WWW: <http://www.cites.org/>

Ecotourism

The Ecotourism Society TES
PO Box 755
North Bennington
VT 05257
USA
Tel: +1-802-447-2121
Fax: +1-802-447-2122
E-mail: ecomail@ecotourism.org
WWW: <http://www.ecotourism.org>

Bird damage

FAO - Food and Agriculture Organization
Forest Resources Division
Viale delle Terme di Caracalla
00100 Rome
Italy
Tel.: +39-06-57053589
Fax: +39-06-57055137
WWW: www.fao.org/fo

IBSC - International Bird Strike Committee
C/o National Bird Strike Committee
Royal Netherlands Airforce Airstaff
P.O.Box 20703
2500 EB The Hague
The Netherlands

Tel: +31-70-3396911

Waterbird Monitoring

International Waterbird Census (IWC) & African Waterbird Census (AfWC)
Waterbird Conservation Officer
c/o Wetlands International (see under **General**)

SOVON
Rijksstraatweg 178
6573 Beek-Ubbergen
The Netherlands
Tel: 024 684 81 11
Fax: 024 684 81 88
WWW: <http://www.sovon.nl/>

The Wildfowl & Wetlands Trust
Slimbridge
Gloucester
GL2 7BT
UK
Tel: +44 1453 890333
Fax: +44 1453 890827
E-mail addresses: <http://www.wwt.org.uk/contact/>
WWW: <http://www.wwt.org.uk/>

British Trust for Ornithology
The Nunnery
Nunnery Place
Thetford
Norfolk
IP24 2PU
UK
Tel: +44-1842-750050
Fax: +44-1842-750030
E-mail: info@bto.org
WWW: <http://www.bto.org/>

The Avian Demography Unit
Department of Statistical Sciences
University of Cape Town
Rondebosch 7701
South Africa
Tel: +27 (021) 650 3219
Fax: +27 (021) 650 7578
E-mail addresses: http://web.uct.ac.za/depts/stats/adu/staff/p_staff.htm
WWW: <http://www.uct.ac.za/depts/stats/adu/>

The European Bird Census Council
WWW: <http://zeus.nyf.hu/~szept/ebcc.htm>

Training facilities

Within the AEWA region, there are many facilities for training at different levels, ranging from three-day courses on various environmental topics for people with no prior knowledge, to Ph.D. level at universities. Many universities and institutes offer courses of varying lengths on wildlife management, site management, wetland ecology, sustainable development, ecotourism development, and many other related topics. UNEP maintains a database listing hundreds of courses. The Ramsar Convention Bureau maintains a list of environmental courses specifically aimed at wetland management. For information contact:

UNEP Directory on Environmental Education and Training Opportunities worldwide:

<http://www.unep.org/unep/products/publicat/education/index.htm>

The Ramsar Convention Bureau
Rue Mauverney 28, CH-1196 Gland, Switzerland
Tel: +41-22-999-0170; fax: +41-22-999-0169
E-mail: ramsar@ramsar.org
WWW: <http://www.ramsar.org>

There are several schools in Africa that specifically offer education in wildlife management and site management. These are attended by wardens and reserve managers from all over the continent. The most important are:

Ecole de Faune de Garoua
B.P. 271, Garoua, Cameroun
Tel/fax: +237-273135

College of African Wildlife Management
Mweka, P.O. Box 3031, Moshi, Tanzania
Tel/fax: +255-55-51113
E-mail: ulgtan@eoltz.com
WWW: <http://www.mwekawildlife.org/>

Kenya Wildlife Training Institute
P.O. Box 842, Naivasha, Kenya
Tel: +254-0311-20267/21329
Fax: +254-0311-20577
E-mail: kwsti@users.africaonline.co.ke

Southern African Wildlife College
Private Bag X3015, Hoedspruit, 1380, South Africa
Tel/fax: +27-15-7932621
E-mail: sawc@iafrica.com
WWW: <http://www.wildlifecollege.org.za/>

Special wetland courses for managers from developing countries and countries with economies in transition are given by the Wetland Advisory and Training Centre (WATC) of the Institute for Inland Water Management and Waste Water Treatment (RIZA) of the Netherlands Ministry of Transport, Public Works and Water Management. For information contact:

WATC
P.O. Box 17, 8200 AA Lelystad, The Netherlands
Tel: +31-320-298346; fax: +31-320-298339
E-mail: watc@riza.rws.minvenw.nl

IUCN also regularly organises short courses on wetland management at different levels, both for managers with little prior education and for decision makers at higher levels. These courses are given in the region (*e.g.* in West Africa). For information contact:

IUCN
Rue Mauverney 28, CH-1196 Gland, Switzerland
Tel: +41-22-999-0001; fax: +41-22-999-0002

Appendix I

POPULATIONS OF WATERBIRDS REQUIRING NATIONAL SINGLE SPECIES ACTION PLANS

National Single Species Action Plans are required for all populations listed in Column A of Table 1 in the AEWA Action Plan (Paragraph 2.2.2 of the Action Plan). Populations are listed in Column A in one of three Categories:

- Category 1:**
- (a) Species that are included in Appendix I to the Bonn Convention.
 - (b) Species that are listed as threatened in the IUCN Red List of Threatened Animals.
 - (c) Populations that number less than around 10,000 individuals.
- Category 2:** Populations numbering between around 10,000 and around 25,000 individuals.
- Category 3:** Populations numbering between around 25,000 and around 100,000 individuals and considered to be at risk as a result of:
- (a) concentration onto a small number of sites at any stage of their annual cycle;
 - (b) dependence on a habitat type which is under severe threat;
 - (c) showing significant long-term decline; or
 - (d) showing extreme fluctuations in population size or trend.

Species listed include those included in the Action Plan by MoP 1 in Cape Town (November 1999) and MoP 2 in Bonn (September 2002). Categories are assigned on the basis of recent information on population sizes and trends, as summarised in the *AEWA Report on the Conservation Status of Migratory Waterbirds in the Agreement Area (2002)*.

Species/subspecies	Population	Category
SPHENISCIDAE		
<i>Spheniscus demersus</i>	- Southern Africa	1b
GAVIIDAE		
<i>Gavia immer</i>	- Europe (win)	1c
<i>Gavia adamsii</i>	- Northern Europe (win)	1c
PODICIPEDIDAE		
<i>Podiceps cristatus cristatus</i>	- Caspian & South-west Asia (win)	2
<i>Podiceps grisegena grisegena</i>	- Caspian (win)	2
<i>Podiceps cristatus infuscatus</i>	- Eastern Africa (Ethiopia to N Zambia)	1c
	- Southern Africa	1c
<i>Podiceps auritus auritus</i>	- North-west Europe (large-billed)	1c
	- Caspian & South Asia (win)	2
<i>Podiceps nigricollis gurneyi</i>	- Southern Africa	2

AEWA Conservation Guidelines

PELECANIDAE		
<i>Pelecanus onocrotalus</i>	- Southern Africa	2
	- Europe & Western Asia (bre)	1a, 3c
<i>Pelecanus crispus</i>	- Black Sea & Mediterranean (win)	1a, 1c
	- South-west Asia & South Asia (win)	1a, 2
SULIDAE		
<i>Sula (Morus) capensis</i>	- Southern Africa	1b
PHALACROCORACIDAE		
<i>Phalacrocorax coronatus</i>	- Coastal South-west Africa	1c
<i>Phalacrocorax neglectus</i>	- Coastal South-west Africa	1b, 1c
<i>Phalacrocorax carbo lucidus</i>	- Coastal Southern Africa	2
<i>Phalacrocorax nigrogularis</i>	- Gulf & Arabian Sea	1b
ARDEIDAE		
<i>Egretta ardesiaca</i>	- Sub-Saharan Africa	3c
<i>Egretta vinaceigula</i>	- South-central Africa	1b, 1c
<i>Egretta gularis schistacea</i>	- South-west Asia & South Asia	2
<i>Egretta dimorpha</i>	- Coastal Eastern Africa	2
<i>Ardea purpurea purpurea</i>	- West Europe & West Mediterranean/West Africa	2
<i>Casmerodius albus albus</i>	- W, C & SE Europe/Black Sea & Mediterranean	2
<i>Bubulcus ibis ibis</i>	- East Mediterranean & South-west Asia	2
<i>Ardeola ralloides ralloides</i>	- Medit., Black Sea & N Africa/Sub-Saharan Africa	3c
<i>Ardeola idae</i>	- Madagascar & Aldabra/Central & Eastern Africa	1b, 1c
<i>Botaurus stellaris stellaris</i>	- Europe (bre)	3c
	- South-west Asia (win)	2
<i>Botaurus stellaris capensis</i>	- Southern Africa	1c
CICONIIDAE		
<i>Ciconia nigra</i>	- Southern Africa	1c
	- South-west Europe/West Africa	1c
	- Central & Eastern Europe/Sub-Saharan Africa	2
<i>Ciconia ciconia ciconia</i>	- Southern Africa	1c
	- Iberia & North-west Africa/Sub-Saharan Africa	3b
	- Western Asia/South-west Asia	2
BALAENICIPITIDAE		
<i>Balaeniceps rex</i>	- Central Tropical Africa	1c
THRESKIORNITHIDAE		
<i>Plegadis falcinellus falcinellus</i>	- Black Sea & Mediterranean/West Africa	3c
<i>Geronticus eremita</i>	- Morocco	1a, 1b, 1c
	- South-west Asia	1a, 1b, 1c
<i>Threskiornis aethiopicus aethiopicus</i>	- Iraq & Iran	1c
<i>Platalea leucorodia leucorodia</i>	- West Europe/West Mediterranean & West Africa	1c
	- Cent. & SE Europe/Mediterranean & Tropical Africa	2
<i>Platalea leucorodia archeri</i>	- Red Sea & Somalia	1c
<i>Platalea leucorodia balsaci</i>	- Coastal West Africa (Mauritania)	1c
<i>Platalea leucorodia major</i>	- Western Asia/South-west & South Asia	2
<i>Platalea alba</i>	- Sub-Saharan Africa	2*

AEWA Conservation Guidelines

PHOENICOPTERIDAE		
<i>Phoenicopterus ruber roseus</i>	- West Africa	3a
	- Eastern Africa	3a
	- Southern Africa (to Madagascar)	3a
<i>Phoenicopterus minor</i>	- West Africa	2
	- Southern Africa (to Madagascar)	3a
ANATIDAE		
<i>Thalassornis leuconotus leuconotus</i>	- West Africa	1c
	- Eastern & Southern Africa	2*
<i>Oxyura leucocephala</i>	- West Mediterranean (Spain & Morocco)	1a, 1b, 1c
	- Algeria & Tunisia	1a, 1b, 1c
	- East Mediterranean, Turkey & South-west Asia	1a, 1b, 1c
<i>Oxyura maccoa</i>	- Eastern Africa	1c
	- Southern Africa	1c
<i>Cygnus cygnus</i>	- Iceland/UK & Ireland	2
	- N Europe & W Siberia/Black Sea & E Mediterranean	2
	- West & Central Siberia/Caspian	2
<i>Cygnus columbianus bewickii</i>	- Western Siberia & NE Europe/North-west Europe	3c
	- Northern Siberia/Caspian	1c
<i>Anser albifrons albifrons</i>	- Western Siberia/Central Europe	3c*
	- Northern Siberia/Caspian & Iraq	2
<i>Anser albifrons flavirostris</i>	- Greenland/Ireland & UK	3a
<i>Anser erythropus</i>	- N Europe & W Siberia/Black Sea & Caspian	1a, 1b, 2
<i>Branta leucopsis</i>	- Svalbard/South-west Scotland	2
<i>Branta bernicla hrota</i>	- Svalbard/Denmark & UK	1c
	- Canada & Greenland/Ireland	2
<i>Branta ruficollis</i>	- Northern Siberia/Black Sea & Caspian	1a, 1b, 3a
<i>Alopochen aegyptiacus</i>	- West Africa	2
<i>Tadorna ferruginea</i>	- North-west Africa	1c
	- East Mediterranean & Black Sea/North-east Africa	2
<i>Tadorna tadorna</i>	- Black Sea & Mediterranean	3c
<i>Nettapus auritus</i>	- West Africa	1c
<i>Anas capensis</i>	- Eastern Africa (Rift Valley)	1c
	- Lake Chad basin	1c
<i>Anas erythrorhyncha</i>	- Madagascar	2
<i>Anas hottentota</i>	- Lake Chad Basin	1c
<i>Marmaronetta angustirostris</i>	- West Mediterranean/West Medit. & West Africa	1a, 1b, 1c
	- East Mediterranean	1a, 1b, 1c
	- South-west Asia	1a, 1b, 2
<i>Netta rufina</i>	- Black Sea & East Mediterranean	3c
<i>Aythya nyroca</i>	- West Mediterranean/North & West Africa	1a, 1c
	- Eastern Europe/E Mediterranean & Sahelian Africa	1a, 3c
	- Western Asia/SW Asia & NE Africa	1a, 3c
<i>Polysticta stelleri</i>	- Western Siberia/North-east Europe	1a
<i>Melanitta fusca fusca</i>	- Black Sea & Caspian	1c
<i>Bucephala clangula clangula</i>	- Western Siberia & North-east Europe/Black Sea	2
	- Western Siberia/Caspian	2
<i>Mergellus albellus</i>	- North-west & Central Europe (win)	3a
	- Western Siberia/South-west Asia	3c
<i>Mergus serrator serrator</i>	- Western Siberia/South-west & Central Asia	1c

AEWA Conservation Guidelines

<i>Mergus merganser merganser</i>	- North-east Europe/Black Sea	1c
	- Western Siberia/Caspian	2
GRUIDAE		
<i>Balearica pavonina pavonina</i>	- West Africa (Senegal to Chad)	2
<i>Balearica pavonina ceciliae</i>	- Eastern Africa (Sudan to Uganda)	3c
<i>Balearica regulorum regulorum</i>	- Southern Africa (N to Angola & S Zimbabwe)	1c
<i>Balearica regulorum gibbericeps</i>	- Eastern Africa (Kenya to Mozambique)	3c
<i>Grus leucogeranus</i>	- Iran (win)	1a, 1b, 1c
<i>Grus virgo</i>	- Black Sea (Ukraine)/North-east Africa	1c
	- Turkey (bre)	1c
<i>Grus paradisea</i>	- Extreme Southern Africa	1b, 2
<i>Grus carunculatus</i>	- Central & Southern Africa	1b, 1c
<i>Grus grus</i>	- Eastern Europe/Turkey, Middle East & NE Africa	3c
	- Turkey & Georgia (bre)	1c
RALLIDAE		
<i>Sarothrura boehmi</i>	- Central Africa	1c
<i>Sarothrura ayresi</i>	- Ethiopia and Southern Africa	1a, 1b, 1c
<i>Crex crex</i>	- Europe & Western Asia/Sub-Saharan Africa	1b
<i>Porzana pusilla intermedia</i>	- Europe (bre)	2
<i>Aenigmatolimnas marginalis</i>	- Sub-Saharan Africa	(2)
<i>Fulica cristata</i>	- Spain & Morocco	1c
DROMADIDAE		
<i>Dromas ardeola</i>	- North-west Indian Ocean, Red Sea & Gulf	3a
HAEMATOPODIDAE		
<i>Haematopus moquini</i>	- Coastal Southern Africa	1c
RECURVIROSTRIDAE		
<i>Himantopus himantopus himantopus</i>	- Southern Africa (' <i>meridionalis</i> ')	2
<i>Recurvirostra avosetta</i>	- Southern Africa	2
	- South-east Europe, Black Sea & Turkey (bre)	(3c)
	- West & South-west Asia/Eastern Africa	2
BURHINIDAE		
<i>Burhinus senegalensis senegalensis</i>	- West Africa	(2)
<i>Burhinus senegalensis inornatus</i>	- North-east & Eastern Africa	(2)
GLAREOLIDAE		
<i>Pluvianus aegyptius aegyptius</i>	- Eastern Africa	(2)
<i>Glareola pratincola pratincola</i>	- Western Europe & NW Africa/West Africa	2
	- Black Sea & E Mediterranean/Eastern Sahel zone	2
<i>Glareola nordmanni</i>	- SE Europe & Western Asia/Southern Africa	3b, 3c
<i>Glareola ocularis</i>	- Madagascar/East Africa	(2)
<i>Glareola nuchalis liberiae</i>	- West Africa	(2)
<i>Glareola cinerea cinerea</i>	- SE West Africa & Central Africa	(2)
CHARADRIIDAE		
<i>Pluvialis apricaria apricaria</i>	- Britain, Ireland, Denmark, Germany & Baltic (bre)	3c*
<i>Charadrius pallidus pallidus</i>	- Southern Africa	2

AEWA Conservation Guidelines

<i>Charadrius pallidus venustus</i>	- Eastern Africa	1c
<i>Charadrius alexandrinus alexandrinus</i>	- West Europe & West Mediterranean/West Africa	3c
	- Black Sea & East Mediterranean/Eastern Sahel	3c
<i>Charadrius marginatus mechowii</i>	- Southern & Eastern Africa	2
	- West to West-central Africa	2
<i>Charadrius leschenaultii columbinus</i>	- Turkey & SW Asia/E. Mediterranean & Red Sea	1c
<i>Charadrius asiaticus</i>	- SE Europe & West Asia/E & South-central Africa	3c
<i>Eudromias morinellus</i>	- Europe/North-west Africa	(3c)
<i>Vanellus lugubris</i>	- Southern West Africa	2
	- Central & Eastern Africa	3c
<i>Vanellus melanopterus minor</i>	- Southern Africa	1c
<i>Vanellus coronatus coronatus</i>	- Central Africa	(2)
<i>Vanellus superciliosus</i>	- West & Central Africa	(2)
<i>Vanellus gregarius</i>	- SE Europe & Western Asia/North-east Africa	1a, 1b, 1c
	- Central Asian Republics/NW India	1a, 1b, 1c
<i>Vanellus leucurus</i>	- SW Asia/SW Asia & North-east Africa	2
SCOLOPACIDAE		
<i>Limosa limosa islandica</i>	- Iceland/Western Europe	3a*
<i>Numenius phaeopus alboaxillaris</i>	- South-west Asia/Eastern Africa	1c
<i>Numenius tenuirostris</i>	- Central Siberia/Mediterranean & SW Asia	1a, 1b, 1c
<i>Numenius arquata orientalis</i>	- Western Siberia/SW Asia, E & S Africa	3c
<i>Numenius arquata suschkini</i>	- South-east Europe & South-west Asia (br e)	2
<i>Calidris tenuirostris</i>	- Eastern Siberia/SW Asia & W Southern Asia	1c
<i>Calidris alpina schinzii</i>	- Britain & Ireland/SW Europe & NW Africa	2
	- Baltic/SW Europe & NW Africa	1c
<i>Calidris alpina arctica</i>	- NE Greenland/West Africa	3a
<i>Limicola falcinellus falcinellus</i>	- Northern Europe/SW Asia & Africa	3c
LARIDAE		
<i>Larus leucophthalmus</i>	- Red Sea & nearby coasts	1a, 2
<i>Larus audouinii</i>	- Mediterranean/N & W coasts of Africa	1a, 3a
<i>Larus armenicus</i>	- Armenia, Eastern Turkey & NW Iran	3a
<i>Larus ichthyaetus</i>	- Black Sea & Caspian/South-west Asia	3a
<i>Larus genei</i>	- West Africa (bre)	2
<i>Sterna nilotica nilotica</i>	- Western Europe/West Africa	2
	- Black Sea & East Mediterranean/Eastern Africa	3c
	- West & Central Asia/South-west Asia	2
<i>Sterna caspia caspia</i>	- Southern Africa (bre)	1c
	- Europe (bre)	1c
	- Caspian (bre)	2
<i>Sterna bengalensis par</i>	- Red Sea/Eastern Africa	3a
<i>Sterna bengalensis emigrata</i>	- S Mediterranean/NW & West Africa coasts	1c
<i>Sterna bergii bergii</i>	- Southern Africa (Angola – Mozambique)	2
<i>Sterna bergii enigma</i>	- Madagascar & Mozambique/Southern Africa	1c
<i>Sterna bergii thalassina</i>	- Eastern Africa & Seychelles	1c
<i>Sterna bergii velox</i>	- Red Sea & North-east Africa	3a
<i>Sterna sandvicensis sandvicensis</i>	- Black Sea & Mediterranean (bre)	3a, 3c
<i>Sterna dougallii dougallii</i>	- Southern Africa	1c
	- East Africa	3a
	- Europe (bre)	1c
<i>Sterna dougallii arideensis</i>	- Madagascar, Seychelles & Mascarenes	2

AEWA Conservation Guidelines

<i>Sterna dougallii bangsi</i>	- North Arabian Sea (Oman)	1c
<i>Sterna vittata vittata</i>	- P.Edward, Marion, Crozet & Kerguelen/South Africa	1c
<i>Sterna vittata tristanensis</i>	- Tristan da Cunha & Gough/South Africa	1c
<i>Sterna albifrons albifrons</i>	- Eastern Atlantic (bre)	3b
	- Black Sea & East Mediterranean (bre)	3c
	- Caspian (bre)	2
<i>Sterna albifrons guineae</i>	- West Africa (bre)	1c
<i>Sterna balaenarum</i>	- Namibia & South Africa/Atlantic coast to Ghana	2
<i>Chlidonias hybridus hybridus</i>	- Western Europe & North-west Africa (bre)	3c
<i>Chlidonias hybridus sclateri</i>	- Eastern Africa (Kenya & Tanzania)	1c
	- Southern Africa (Malawi & Zambia to South Africa)	(2)
RYNCHOPIDAE		
<i>Rynchops flavirostris</i>	- Coastal West Africa & Central Africa	2
	- Eastern & Southern Africa	2

Footnotes:

1. Suffixes (breeding) or (wintering) in population listings are solely aides to population identification. They do not indicate seasonal restrictions to actions in respect of these populations under the Agreement and Action Plan.
2. *Vanellus gregarius* is listed under the name *Chettusia gregaria* in Appendix I to the Bonn Convention.

UNEP/AEWA Secretariat
UN Campus
Hermann-Ehlers-Str. 10
53113 Bonn
Germany
Tel.: +49 (0)228 815 2413
Fax: +49 (0)228 815 2450
aewa@unep.de
www.unep-aewa.org