

## AEWA Conservation Guidelines No. 5

Guidelines on sustainable harvest of migratory waterbirds



## AEWA Conservation Guidelines

## 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.

## AEWA Conservation Guidelines

**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

## AEWA Conservation Guidelines

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 2<sup>nd</sup> 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 Hagemeijer, 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.5**

### **Guidelines on sustainable harvest of migratory waterbirds**

Superseded by the fully revised version (Technical Series No. 62)

November 2015

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

AEWA Conservation Guidelines

## Step chart

To ensure that any harvest of migratory waterbirds is sustainable, each country should take the following steps:

**Step 1: Conduct baseline assessment of the scale of hunting of waterbirds.**

**Step 2: Commit to and support international harvest management.**

**Step 3: Introduce or revise systems to manage harvests at the national level.**

**Step 4: Adjust harvest frameworks to address national objectives.**

**Step 5: Set the nation's hunting regulations.**

**Step 6: Introduce procedures to maintain high standards amongst hunters.**

**Step 7: Minimise the negative impacts of hunting.**

**Step 8: Introduce, where possible, the monitoring of hunting harvests.**

**Step 9: Raise awareness of the value of hunting and of sustainable practices amongst hunters and non-hunters.**

## AEWA Conservation Guidelines

## Introduction

Migratory waterbirds provide an excellent resource for millions of people worldwide. Whilst many simply watch and study, others hunt them, either for sport, subsistence<sup>1</sup> or to raise income in the market place (*i.e.* to trade). Exactly how many are taken for each purpose in the AEWA area is not known, but may in some places be very large and of considerable socio-economic importance.

Hunting is a legitimate and traditional use of the rural environment, and hunters make important contributions to the conservation of waterbirds and other wildlife and habitats. Problems to avoid include over-exploitation or excessive disturbance, lead poisoning, the spread of exotic species and farm-reared stock, and the degradation of habitats through 'improvements' solely designed to increase harvesting opportunity.

The African-Eurasian Waterbird Agreement makes a number of provisions with respect to the hunting of waterbirds (see Box 1), but more generally requires that any exploitation of waterbirds is sustainable and that populations are maintained in a 'favourable' conservation status. International co-operation is needed, as is a framework within which Range States may operate.

### Box 1: Extracts from the AEWA Action Plan concerning hunting

- 4.1.1 Parties shall cooperate to ensure that their hunting legislation implements the principle of sustainable use as envisaged in this Action Plan, taking into account the full geographical range of the waterbird populations concerned and their life history characteristics.
- 4.1.2 The Agreement secretariat shall be kept informed by the Parties of their legislation relating to the hunting of populations...
- 4.1.3 Parties shall cooperate with a view to developing a reliable and harmonized system for the collection of harvest data in order to assess the annual harvest of populations...
- 4.1.4 Parties shall endeavour to phase out the use of lead shot for hunting in wetlands by the year 2000.
- 4.1.5 Parties shall develop and introduce measures to reduce, and as far as possible, eliminate the use of poisoned baits.
- 4.1.6 Parties shall develop and implement measures to reduce, and as far as possible, eliminate illegal taking.
- 4.1.7 Where appropriate, Parties shall encourage hunters, at local, national and international levels, to form clubs or organisations to co-ordinate their activities and to help ensure sustainability.
- 4.1.8 Parties shall, where appropriate, promote the requirement of a proficiency test for hunters, including among other things, bird identification.

These guidelines assume that such a framework - a 'harvest framework' - is developed and explains:

- how individual Range States may participate in the harvest management process;
- the best harvesting practice to counteract any of the problems associated with hunting;
- how to maximise the positive benefits from hunter participation.

A series of steps is identified to assist Range States in adopting a sustainable approach to waterbird harvesting. Guidelines No.6: *Guidelines on regulating trade in migratory waterbirds* are also of some relevance in this context, because of the close relationship between some forms of hunting and trade in waterbirds.

<sup>1</sup> taking of adults, eggs and young for food, bedding, clothing or ceremonial reasons.



AEWA Conservation Guidelines

**Step 1: Conduct baseline assessment of the scale of hunting of waterbirds**

The numbers of each population of migratory waterbirds harvested within the AEWA area are incompletely known. Further guidance on baseline assessment of the scale of hunting of waterbirds should be developed. This information is vitally important and is needed to:

- consider the sustainability of hunting harvests;
- introduce protection measures where they are needed to conserve threatened or vulnerable species;
- assess the socio-economic importance of waterbird hunting;
- contribute to an assessment of trade in migratory waterbirds (see Guidelines No.6: *Guidelines on regulating trade in migratory waterbirds*).

## AEWA Conservation Guidelines

### **Step 2: Commit to and support international harvest management**

Any international harvest framework should be based on clear and unambiguous objectives for harvest management, these being related to the conservation status of particular waterbird populations. Analysis of the best available monitoring data for waterbirds (see Guidelines No.9: *Guidelines for a waterbird monitoring protocol*) and hunting harvests (see below) would allow informed judgement about sustainable levels of hunting harvest.

The harvest framework should address the following:

- which species may and may not be hunted;
- policies to be adopted to protect endangered 'look-alike' species;
- the seasons when hunting may occur;
- the maximum length of the seasons;
- whether bag limits would be appropriate;
- wise and unwise hunting practices, resulting in an AEWA code of practice.

After appropriate consultation, a harvest framework would be adopted as the goal for Range States to aim for in setting their own harvest regulations. Such frameworks should be synergistic with existing treaties and conventions.

AEWA Conservation Guidelines

**Step 3: Introduce or revise systems to manage harvests at the national level**

If overall management of waterbird harvests is to work, harvest frameworks should be adopted at the national and local level. This may be achieved through legislation or through a voluntary approach, using a national hunting organisation and/or local network of hunting clubs. The use of hunting clubs is relatively inexpensive, can be effective and long lasting, and provides a strong motive for involvement and a sense of ownership in the overall process. Alternatively, Range States may chose to adopt a more enforceable, legislative approach.

Whichever method a Range State selects to manage hunting activity, training of relevant personnel (*i.e.* employees or voluntary groups of hunters) is essential, to help with the enforcement of harvest regulations. Checks on hunters and observations of hunting in progress can be undertaken, with penalties (fines, bans, seizure of equipment *etc.*) introduced to discourage bad practice.

AEWA Conservation Guidelines

**Step 4: Adjust harvest frameworks to address national objectives**

Range States should have flexibility in implementing the recommended measures from the international harvest framework. On the one hand, national regulations can be more conservative, sometimes prohibiting the taking of some species altogether. This may be appropriate where hunting of particular waterbird species is illegal within a Range State or where the species is declining nationally. Alternatively, Range States might choose to be more liberal, perhaps extending season lengths or increasing bag limits. However this should be an exception, and should not be to the detriment of the populations concerned. The specific reasons for the derogation should be reported to the AEWA Secretariat. A national committee, with adequate representation from all interested parties, is helpful to formulate the detail of national harvest regulations.

## AEWA Conservation Guidelines

**Step 5: Set the nation's hunting regulations**

Components of the regulations would include when, where and how hunting can take place, and might include the maximum permissible take for each waterbird population. The latter necessitates good information on population status and trends (see Guidelines No.9: *Guidelines for a waterbird monitoring protocol*) and on the numbers and activities of hunters (see Step 8). The setting of national regulations is a question of realism and balance. If too liberal, hunters may be tempted to compromise hunting standards in order to take the maximum number of birds permissible, and if too strict, violations may occur because the hunters view the regulations as too restrictive.

Range States should decide on the timing of the hunting season and when hunting is to be permitted within a 24-hour period. Restricting hunting hours may be useful in leaving birds undisturbed for at least a part of the day, or where there might be safety or identification problems in poor visibility. Management control over hunting hours may be achieved through legislation or voluntarily through national or local hunting groups.

All Range States are likely to want to manage hunting, and to minimise disturbance in important conservation areas, e.g. internationally important wetlands. Refuges, where appropriate, should be:

- free from all activities that cause disturbance, not just those related to hunting;
- of sufficient size to be effective, usually calculated according to the sensitivity of the most vulnerable species;
- sufficiently diverse to include all habitat components required by the full range of waterbirds present;
- protected by buffer zones where hunting activity is managed, to increase the effectiveness of the refuge area;
- created where endangered species are difficult to distinguish from quarry species, and may therefore be at risk from accidental hunting mortality.

Local hunting clubs should be encouraged to play an active role in the implementation of a network of refuges.

## AEWA Conservation Guidelines

**Step 6: Introduce procedures to maintain high standards amongst hunters**

All organisations can contribute to maintaining high hunting standards. Hunting clubs should endeavour to ensure that individual hunters are proficient and well trained. A licensing system for hunters can be helpful for monitoring hunter numbers and to provide revenue for the administration of harvest management. Acquiring a licence can be made dependent on the passing of a proficiency test, attending a training course and/or supplying hunting statistics at the end of the season. All of these improve the overall quality of hunting activity within a particular Range State. Those who fail to adhere to regulations can be prevented from obtaining a hunting licence.

The ability of hunters to identify waterbirds is an important component of harvest management. Hunters should be able to recognise both the common and rare species encountered, with special attention given to endangered species (including 'look-alikes'). Identification skills can be tested and a minimum level of proficiency expected. Training materials may help, such as general field guides and videos for birdwatchers and hunters. Training courses can include more than just identification. Firearm safety, responsible hunting practices, wildlife conservation, hunter ethics and shooting skills are amongst topics commonly included. Courses can include practical demonstrations, shooting practice, films and lectures. Where possible, encouraging contact between experienced and inexperienced hunters is a good way of improving standards.

Training must be extended to the tourists who hunt in some countries and to their guides and agents. Guides may be offered official registration with a national hunting organisation to signify that they can provide safe and responsible services to others. There can also be formal licensing agreements between hunting organisations and guides.

Codes of practice, such as the one proposed as part of the harvest framework (see Step 2), will help to ensure that high standards are maintained amongst resident and visiting hunters.

## AEWA Conservation Guidelines

**Step 7: Minimise the negative impacts of hunting**

Hunting is a legitimate and traditional use of the rural environment. Progressive hunters and hunting organisations favour and actively support species and habitat conservation projects.

**Use of non-toxic ammunition**

Spent lead shot from hunting cartridges is toxic, and has been highlighted as a key problem for waterbirds. The use of steel, tungsten or bismuth instead of lead can address the problem of poisoning. These alternatives are already widely available and in use. Lead poisoning is an unacceptable waste of the waterbird resource, and in recognition of this, the Agreement encouraged Parties to phase out the use of lead shot for hunting in wetlands by the year 2000 (Paragraph 4.1.4 in the AEWA Action Plan).

**Minimising disturbance**

Assessment of hunting disturbance must distinguish between short-term effects and long-term impacts on population size and health, and should be made in relation to disturbance caused by all factors at each site. Disturbance may cause the displacement of birds, the disruption of daily activities and the break-up of family units. Where nutrient reserves are lost at critical times, disturbance may also affect rates of reproduction and survival. An assessment of disturbance levels can be obtained by counting the number of shots heard from a fixed point over a fixed period of time per day. This can be an efficient way of monitoring the relative degree of disturbance to particular areas.

Management authorities and hunting clubs can establish disturbance free areas and reduce the intensity of hunting where this is judged to be too high. Further measures can include reducing season lengths, hunter numbers and density, bag sizes *etc.* These aspects should be incorporated within a plan for disturbance management, both on and around the site. Hunting plans are best developed and agreed locally with all interested parties.

Further measures to limit disturbance may be desirable during times of stress, *e.g.* when the birds are breeding, moulting or on migration, during prolonged periods of severe weather or during incidents of pollution (see Guidelines No.2: *Guidelines on identifying and tackling emergency situations for migratory waterbirds*). Under such circumstances, the governing agency or hunting groups themselves may call for restraint on hunting disturbance.

**Exotic species**

The introduction of exotic species outside their native range inevitably causes alterations to the structure of native waterbird communities. It can cause genetic erosion, and may threaten the survival of some waterbird populations. It is now regarded as poor practice and should be actively discouraged.

**Stocking**

The release of farm-reared birds may reduce the harvest of wild birds, increase hunter satisfaction and boost local hunting economies. However, such birds may be prone to disease and relatively tame, and may offer poor sport. Habitat protection and improvement are probably a better way of increasing waterbird harvests and should be part of any stocking programme.

**Good habitat management**

Hunting organisations and individual hunters already carry out major and important wetland creation and improvement projects. Hunters can be engaged in habitat conservation and management and the control of predators, including alien species. Several hunting organisations have developed 'habitat stamp' schemes using designs by famous artists, with sales producing substantial amounts of revenue for habitat conservation projects. Such efforts should be recognised and encouraged.

Conversely, the management of wetlands to 'improve' harvesting opportunities may include undesirable activities for the ecosystem as a whole, *e.g.* disruption of the hydrological regime, destruction of wetland vegetation or removal of fish as competitors of waterbirds. Such habitat

## AEWA Conservation Guidelines

degradation should be avoided. Care should be taken not to damage or degrade existing wildlife habitats, including surrounding and nearby lands. The involvement of conservation groups and habitat specialists is recommended to obtain maximum benefit from any wetland enhancement projects.



## AEWA Conservation Guidelines

**Step 8: Introduce, where possible, the monitoring of hunting harvests**

Essential to the regular review of harvest frameworks is information on the size and composition of hunting harvests. This information should be collected, where possible, by individual Range States, and made available centrally for international analysis.

An annual survey by means of questionnaires to hunters should be a high priority for implementation in each Range State. This is useful in providing standardised information on both hunting success and hunter effort. Such questionnaires may form an integral part of a licensing system for hunters, and should at least include the date of the hunt, location and, for each species, the number taken or shot but not collected.

Of secondary importance is a 'Parts Survey' which provides a sample of wings, tails or other parts of the birds shot during the hunting season. These parts are identified to species, sex and age, providing valuable data on the composition of the waterbird harvest. Such data can be used to assess the degree of hunting 'pressure' on the different sexes and age-components, information of great value in assessing harvesting impact on particular populations. These data also complement and extend the information gained from hunter questionnaire surveys.

Ideally, parts should be collected from hunters throughout the hunting season, and may be deposited at, or mailed to, regional collection points. An alternative approach is to rely on a small number of purposely-trained hunters who examine and report on the bags themselves. Training, regular experience and identification materials are needed for operating a Parts Survey successfully.

To achieve compatibility in methods and reporting for both harvest and parts surveys, it is best to adopt minimum, internationally agreed standards for recording in the AEWA area. Also, it is vital that a summary of the information gained is reported back to the contributors, if interest and support are to be maintained. This can be done both nationally and internationally. Ringing recoveries are also valuable in assessing harvest rates, and hunters should be encouraged to report any rings that are found.

AEWA Conservation Guidelines

**Step 9: Raise awareness of the value of hunting and of sustainable practices amongst hunters and non-hunters**

Many existing hunting organisations currently run education and awareness programmes for hunters, teachers and the general public. Some groups hold conferences and local meetings, produce videos, publish magazines and newsletters, and provide information on the World Wide Web. Such materials aim to place hunting in perspective. They explain the various forms of hunting, consider the importance of predation and the conservation of populations and habitats, and may explain the environmental and societal benefits of hunting. For the future, a particular challenge will be to secure the involvement of subsistence and market hunters into the broader management framework for harvests. Not only will this allow improved decision-making, but it will also ensure a local commitment to waterbird conservation and that all-important sense of ownership of the shared resource.

## 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](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.

## AEWA Conservation Guidelines

- 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.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/empres/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.

## AEWA Conservation Guidelines

- 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](http://www.ramsar.org/key_ris_index.htm)
- Ramsar Information Sheet explanatory notes and guidelines  
[http://ramsar.org/key\\_ris.htm#note](http://ramsar.org/key_ris.htm#note)
- Ramsar criteria  
[http://ramsar.org/key\\_criteria.htm](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.

## AEWA Conservation Guidelines

- 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](http://ramsar.org/key_guide_mgt_new_e.htm)

Ramsar wise use guidelines

[http://ramsar.org/key\\_wiseuse.htm](http://ramsar.org/key_wiseuse.htm)

Additional guidance for the implementation of the Wise Use concept

[http://ramsar.org/key\\_add\\_guide.htm](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. 2<sup>nd</sup> 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/>

## AEWA Conservation Guidelines

- 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://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.

## AEWA Conservation Guidelines

- 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-*



## AEWA Conservation Guidelines

- 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](http://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](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*. 2<sup>nd</sup> 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., & Hagemeyer, W. 2002. *Numbers and distribution of wintering waterbirds in the Western Palearctic and Southwest Asia in*

## AEWA Conservation Guidelines

- 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. 10<sup>th</sup> 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. 12<sup>th</sup> 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>

AEWA Conservation Guidelines

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](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>

AEWA Conservation Guidelines

## 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](mailto: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](mailto: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](mailto: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](http://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](mailto: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](mailto: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](mailto:europawebmaster@cec.eu.int)  
WWW: [www.europa.eu.int/comm/index.htm](http://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](mailto:ecnc@ecnc.org)  
WWW: [www.ecnc.nl](http://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](mailto: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](http://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

AEWA Conservation Guidelines

E-mail: [ramsar@ramsar.org](mailto:ramsar@ramsar.org)

WWW: [www.ramsar.org](http://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](http://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](mailto: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](mailto:wh-info@unesco.org)

WWW: [www.unesco.org/whc](http://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](mailto: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](mailto:post@wetlands.org)

WWW: [www.wetlands.org](http://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](http://www.panda.org/about_wwf/who_we_are/offices/offices.cfm)

WWW: [www.panda.org](http://www.panda.org)

## AEWA Conservation Guidelines

### 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](mailto:info@medwet.org)  
WWW: [www.medwet.org](http://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](mailto:eurosite@kub.nl)  
WWW: [www.eurosite-nature.org](http://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](mailto:face.europe@infoboard.be)  
WWW: <http://www.face-europe.org/>

AEWA Conservation Guidelines

**Trade**

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

TRAFFIC Europe  
Waterloosteenweg 608  
1060 Brussels  
Belgium  
Tel.: +32-2-3470111  
Fax: +32-2-3440511  
WWW: [www.traffic.org](http://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](mailto: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](http://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



AEWA Conservation Guidelines

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](mailto: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](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>

## AEWA Conservation Guidelines

## 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](mailto: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](mailto: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](mailto: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](mailto: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](mailto:watc@riza.rws.minvenw.nl)

## AEWA Conservation Guidelines

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

---

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