**GUIDANCE ON TAKING A SYSTEMATIC APPROACH TO RESPONDING TO WATERBIRD DECLINES: A CHECKLIST OF POTENTIAL ACTIONS**

A fundamental obligation of AEWA Parties is to restore the status of waterbirds in an unfavourable conservation status to a favourable condition: “*Parties shall take co-ordinated measures to maintain migratory waterbird species in a favourable conservation status* ***or to restore them to such a status***.” (Agreement text Article II, emphasis added).

Declines may occur at various scales from international (affecting an entire biogeographic population), to local – related to bird populations occupying a small area or site.

This document complements other AEWA Guidance and provides an overall framework that may assist Parties and others in planning responses to declines. More detailed guidance on species conservation processes is provided by IUCN’s *Guidelines for Species Conservation Planning* (IUCN 2017[[1]](#endnote-1)).

This current framework is designed to be applicable at multiple scales, from international (for example in addressing factors operating across more than one country) to more local situations.

It is based on an adaptive management approach (Figure 1), and draws heavily on the approach to develop and implement International Single Species Action Plans (ISSAP) (UNEP/AEWA Secretariat 2015[[2]](#endnote-2)). However, the checklist may also be of value in situations where it is not possible to develop full, internationally endorsed Action Plans, or where actions are needed for multiple species.



*Figure 1. Adaptive approaches to conservation management, a general approach to conservation planning that is valuable in multiple situations*

Section 1 provides an overall framework for a process to address declines, from diagnosis of drivers of change, through to identification of remedial actions, followed by implementation, and with monitoring of outcomes throughout. This is a typical approach, adopted and promoted in multiple other conservation planning frameworks (e.g*.* Sutherland 2000[[3]](#endnote-3); IUCN-SSC 2017i).

Section 2 provides, for a wide range of potential conservation interventions, an overview of useful methodologies and guidance documents. Alongside these, reference is made to particularly useful published case studies illustrating good/best practice, and from which further insights may be drawn.

**SECTION 1. A systematic approach to addressing waterbird declines**

**Take a systematic, evidence based approach to responding to waterbird declines**

1. Convene a task group or other network of experts at an appropriate scale to assist in development of actions. [See Section 2 of IUCN 2017]
2. Assemble available information on causes of declines. Include traditional knowledge as appropriate. [See Section 1, chapter 4 of IUCN 2017]
3. Undertake a formal science-based threats analysis to diagnose the causes of declines, in particular, seeking to identify the stage of the annual cycle and thus the likely geographic areas where negative factors are operating. [See Section 1, chapter 4 of IUCN 2017]
4. Identify and prioritise those issues that are the most likely main drivers of population decline, if necessary using scientific surveys.

**Develop and agree a clear statement of needs to steer necessary conservation actions**

1. Identify and prioritise those factors, the reduction of which is most likely to benefit the species concerned.
2. Document threats and responses in the form of plan with clear objectives, actions and targets[[4]](#footnote-1).
3. As appropriate, obtain necessary resources to implement actions.

**Seek assistance in implementing necessary actions**

1. Review membership of task group or other network so it is best able to assist in promoting implementation of actions. Different types of expertise might be useful to help implement actions.
2. Implement actions, as necessary through stakeholders (see Section 2). [See Section 1, chapter 6 of IUCN 2017]

**Monitor, review and adjust outcomes**

1. Monitor outcomes of interventions. [See Section 1, chapter 6 of IUCN 2017]
2. Review and adjust actions in the light of outcomes. [See Section 1, chapter 7 of IUCN 2017]

**SECTION 2. A checklist of potential interventions of value in addressing waterbird declines**

The following is a non-exhaustive list of conservation actions that are potentially of value in addressing species declines. Which are adopted in any particular circumstance will depend on the species and issues identified as being of concern. See, in particular, the key sources listed at the end which are of general applicability and so are not repeatedly listed.

The *Conservation Evidence* website to [www.conservationevidence.com](https://emea01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.conservationevidence.com&data=02%7C01%7CDavid.Stroud%40jncc.gov.uk%7C5608388bd1a241d1434408d5b1d14cac%7C444ee4e8b2fd491d8c318b0508370a6b%7C1%7C0%7C636610434871047586&sdata=4W5Z7ObKijiXTU6I6W9hNuMVx053DlbTdAur4QZM%2B4I%3D&reserved=0) provides a very valuable source of information on the effectiveness of a wide range of conservation interventions.

**Important note:** The AEWA Technical Committee and the UNEP/AEWA Secretariat do not necessarily endorse any of the content of the external websites listed here. They are given solely in the context of their possible utility to Contracting Parties and others.

Hyperlinks to original texts are given either in English (EN), French (FR) and/or Spanish (ES)

| **Conservation intervention** | **Guidance on methodology or approach** | **Good case studies** |
| --- | --- | --- |
| 1. **Sustain necessary habitat**
 |  |  |
| Avoid loss of critical habitat | Ramsar’s Integrated Framework and guidelines for avoiding, mitigating and compensating for wetland losses ([EN](http://archive.ramsar.org/pdf/guide/guide-losses-e.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/guide/guide-losses-fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/guide/guide-losses-sp.pdf))Ramsar STRP Briefing Note 3. Avoiding, mitigating, and compensating for loss and degradation of wetlands in national laws and policies ([EN](https://www.ramsar.org/sites/default/files/documents/library/bn3.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/bn/bn3-fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/bn/bn3-sp.pdf))AEWA Conservation Guidelines 15. Guidelines on National Legislation for the Protection of Species of Migratory Waterbirds and their Habitats ([EN](http://www.unep-aewa.org/sites/default/files/document/mop6_35_draft_legislation_guidelines_1.docx)) ([FR](http://www.unep-aewa.org/sites/default/files/document/mop6_35_draft_guidelines_national_legislation_fr.docx))Ramsar Handbook 1. Wise use of wetlands ([EN](https://www.ramsar.org/sites/default/files/documents/library/hbk4-01.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-01fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-01sp.pdf))Ramsar Handbook 16. Impact assessment ([EN](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-16.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-16fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-16sp.pdf)) |  |
| Sensitivity mapping | The Rift Valley / Red Sea flyway [Soaring Bird Sensitivity Map tool](https://maps.birdlife.org/MSBtool/) gives developers, planning authorities and other interested stakeholders access to information on distribution of soaring bird species |  |
| Cumulative Impact Assessment | Guiding Principles for Cumulative Impacts Assessment in offshore wind farms ([EN](https://nerc.ukri.org/innovation/activities/energy/offshore/cumulative-impact-assessment-guidelines/)) |  |
| Create protected areas |  |  |
| Ramsar Sites | Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance ([EN](https://www.ramsar.org/sites/default/files/documents/library/strategic_framework_rsis_en.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/library/strategic_framework_rsis_fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/library/strategic_framework_rsis_es.pdf))Ramsar Handbook 17. Designating Ramsar Sites ([EN](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-17.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/library/hbk4-17fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/library/hbk4-17sp.pdf)) |  |
| Other types of protected areas | Worboys et al*.* 2015. *Protected area governance and management[[5]](#endnote-4)*Marine Protected Areas ([EN](https://www.ospar.org/work-areas/bdc/marine-protected-areas))IUCN 2011. Guidelines for Protected Area legislation. ([EN](https://portals.iucn.org/library/sites/library/files/documents/eplp-081.pdf))SANBI Biodiversity stewardship <http://biodiversityadvisor.sanbi.org/industry-and-conservation/biodiversity-stewardship/>  | UK: development of a national protected area network ([EN](http://jncc.defra.gov.uk/page-7307))Ausden & Hirons 2002. Grassland nature reserves for breeding waders[[6]](#endnote-5)EWT’s biodiversity stewardship projects: <http://www.ewt.org.za/stewardship.html>  |
| **Manage protected areas** | Ramsar Handbook 18. Managing wetlands ([EN](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-18.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-18fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-18sp.pdf))[Wetland Management Planning. A guide for site managers.](http://assets.panda.org/downloads/wetlands_management_guide_2008.pdf)Ramsar Sites Management Toolkit ([EN](https://www.ramsar.org/resources/ramsar-sites-management-toolkit)) ([FR](https://www.ramsar.org/fr/ressources/outils-de-gestion-des-sites-ramsar)) ([ES](https://www.ramsar.org/es/recursos/juego-de-herramientas-para-el-manejo-de-sitios-ramsar))Ausden 2004. Habitat management[[7]](#endnote-6)Sutherland 2000. *The Conservation Handbook: Research, Management and Policy*iiiIUCN 2008. *Managing marine and coastal protected areas. A toolkit for South Asia.* ([EN](https://portals.iucn.org/library/sites/library/files/documents/2008-062.pdf))Sutherland & Hill 1995. *Managing habitats for conservation*[[8]](#endnote-7)Worboys et al*.* 2015. *Protected area governance and management* iv | See multiple studies summarised in [Bird Conservation. Global evidence for the effects of interventions](https://www.conservationevidence.com/synopsis/download/8) (Chapters 5 and 10) |
| Peatland | Conserving Bogs: The Management Handbook ([EN](https://issuu.com/peat123/docs/conserving_bogs)) |  |
| Wet grasslands | RSPB 1997. *The Wet Grassland Guide*[[9]](#endnote-8)RSPB 2005. Wet Grassland Practical Manual: breeding waders ([EN](http://ww2.rspb.org.uk/Images/wetgrasslandmanual_tcm9-132779.pdf)) | RSPB 1997. The Wet Grassland Guide – includes 15 case studies |
| Grasslands | SANBI 2013. Grasslands Ecosystem Guidelines: landscape interpretation for planners and managers. Compiled by Cadman, M., *et al*. South African National Biodiversity Institute, Pretoria. 139 pp |  |
| Reedbeds | RSPB Reedbed management handbook ([EN](http://ww2.rspb.org.uk/Images/bringing_reedbeds_to_life_tcm9-385799.pdf)) |  |
| **Respond to changes at protected areas** | For Ramsar Sites, consider Montreux Record listing and/or requesting Ramsar Advisory Mission as means of seeking assistance | Ramsar Advisory Missions ([EN](https://www.ramsar.org/activity/ramsar-advisory-missions)) ([FR](https://www.ramsar.org/fr/activite/missions-consultatives-ramsar)) |
| **Ensure wider habitat in appropriate ecological condition** | Ramsar Handbook 1. Wise use of wetlands ([EN](https://www.ramsar.org/sites/default/files/documents/library/hbk4-01.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-01fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-01sp.pdf))Ramsar Handbook 2. National wetland policies ([EN](https://www.ramsar.org/sites/default/files/documents/library/hbk4-02.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-02fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/library/hbk4-02sp.pdf)) |  |
| Agri-environment programmes |  | Wilson et al*.* 2007. Effectiveness of agri-environment schemes in England[[10]](#endnote-9) |
| **Maintain wetland hydrology** | Ramsar Handbook 1. Wise use of wetlands ([EN](https://www.ramsar.org/sites/default/files/documents/library/hbk4-01.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-01fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-01sp.pdf))Ramsar Handbook 8. Water-related guidance ([EN](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-08.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-08fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-08sp.pdf))Ramsar Handbook 10. Water allocation and management ([EN](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-10.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-10fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-10sp.pdf)) |  |
| **Restore degraded or lost habitats** |  | See multiple studies summarised in [Bird Conservation. Global evidence for the effects of interventions](https://www.conservationevidence.com/synopsis/download/8) (Chapter 11) |
| Lakes | Eiseltová 1994. Restoration of Lake Ecosystems[[11]](#endnote-10) |  |
| Saltmarshes and inter-tidal mudflats | RSPB 2005. Saltmarsh creation handbook: guide to creating saltmarsh and intertidal mudflat. (EN only) |  |
| Gravel pits and mineral workings | RSPB 1993. Gravel pit restoration for wildlife. (EN only) |  |
| Peatlands | Conserving Bogs: The Management Handbook ([EN](https://issuu.com/peat123/docs/conserving_bogs)) Ramsar Technical Report on peatland restoration 2018. (EN) (FR)  |  |
| Wetlands |  | Working for wetlands <https://www.environment.gov.za/projectsprogrammes/workingfowetlands>WWF Mondi Wetlands Programme <http://www.wwf.org.za/what_we_do/freshwater/mwp/>  |
| **Control aquatic Alien Invasive Species** | Hussner et al*.* 2017. Management and control methods of invasive alien freshwater aquatic plants: A review[[12]](#endnote-11) ([EN](http://hpkx.cnjournals.com/config/hpkx/news_category/2017-05-02/1-s2.0-S0304377016300924-main.pdf)) South Africa – ARC. Management of invasive alien plants ([EN](http://www.arc.agric.za/arc-ppri/Pages/Weeds%20Research/Management-of-invasive-alien-plants-.aspx))US FWS. Managing invasive plants. Concepts, principles and practices ([EN](https://www.fws.gov/invasives/staffTrainingModule/))IUCN. Alien Invasive Species in Africa’s wetlands. Some threats and solutions ([EN](https://portals.iucn.org/library/sites/library/files/documents/2003-003.pdf)) | See multiple studies summarised in [Bird Conservation. Global evidence for the effects of interventions](https://www.conservationevidence.com/synopsis/download/8) (Chapter 12)Water Hyacinth *Eihhornia crassipes* control ([EN](http://www.fao.org/fileadmin/templates/agphome/documents/Biodiversity-pollination/Weeds/Docs/Water_Hyacinth.pdf)) |
| 1. **Protect species**
 |  |  |
| **Ensure legal protection** | AEWA Conservation Guidelines 15. Guidelines on National Legislation for the Protection of Species of Migratory Waterbirds and their Habitats ([EN](http://www.unep-aewa.org/sites/default/files/document/mop6_35_draft_legislation_guidelines_1.docx)) ([FR](http://www.unep-aewa.org/sites/default/files/document/mop6_35_draft_guidelines_national_legislation_fr.docx)) | Davis 1998. Crane conservation techniques[[13]](#endnote-12) |
| **Address and eliminate illegal killing, taking and trade** | Plan of Action to Address Bird Trapping Along the Mediterranean Coasts of Egypt and Libya ([EN](http://www.unep-aewa.org/sites/default/files/document/tc_inf_12_4_poa_bird_trapping_egypt_0.pdf)) (FR)EU Roadmap towards eliminating illegal killing, trapping and trade of birds ([EN](http://ec.europa.eu/environment/nature/conservation/wildbirds/docs/Roadmap%20illegal%20killing.pdf)) (FR) (ES)Tunis Action Plan 2013-2020 for the eradication of illegal killing, trapping and trade of wild birds ([EN](https://rm.coe.int/1680746782)) (FR)Programme of work 2016-2020 for the Intergovernmental Task Force on illegal killing, taking and trade of migratory birds in the Mediterranean ([EN](http://www.cms.int/sites/default/files/uploads/unep_cms_mikt1_doc-04_program-of-work_FINAL.pdf)) (FR)Scoreboard to assess the progress in combating illegal killing, taking and trade of wild birds (IKB). A self-assessment framework for national use ([EN](http://www.cms.int/sites/default/files/document/cms_cop12_doc.24.1.1_rev2_illegal%20killing%20of%20birds_e_1.pdf)) ([FR](http://www.cms.int/sites/default/files/document/cms_cop12_doc.24.1.1_rev.2_abattage-ill%C3%A9gal-oiseaux_f_0.docx)) ([ES](https://www.cms.int/sites/default/files/document/cms_cop12_res.11.16%28rev.cop12%29_anexo1_evaluaci%C3%B3n_s.pdf))CMS/COP11/Doc.23.1.2 Review and Guidelines to prevent the risk of poisoning to migratory birds ([EN](http://www.cms.int/sites/default/files/document/COP11_Doc_23_1_2_Bird_Poisoning_Review_%26_Guidelines_E_0.pdf)) ([FR](http://www.cms.int/sites/default/files/document/COP11_Doc_23_1_3_Illegal_Killing_Birds_F.pdf))International Consortium on Combating Wildlife Crime 2012. *Wildlife and Forest Crime Analytic Toolkit.* Revised edition ([EN](http://www.cms.int/sites/default/files/uploads/meetings/MIKT1/mikt-page-docs/Wildlife_Forest_Crime_ICCWC_Toolkit_v2_english.pdf)) | 2016 - Illegal use of poisoned baits. Legal analysis and investigation ([EN](http://www.cms.int/sites/default/files/uploads/meetings/MIKT1/mikt-page-docs/ILLEGAL-USE-OF-POISONED-BAITS_SEO_BirdLife_March2016.pdf))Brochet, A.-L. et al*.* 2016. Scope and scale of illegal killing and taking of birds in the Mediterranean ([EN](https://www.cambridge.org/core/services/aop-cambridge-core/content/view/34A06A94874DB94BE2BBACC4F96C3B5F/S0959270915000416a.pdf/preliminary_assessment_of_the_scope_and_scale_of_illegal_killing_and_taking_of_birds_in_the_mediterranean.pdf))Brochet, A.-L. et al*.* 2017. Illegal killing and taking of birds in Europe outside the Mediterranean ([EN](https://www.cambridge.org/core/services/aop-cambridge-core/content/view/DE4D06F3BD4273B94FD3C9621C615A0A/S0959270917000533a.pdf/illegal_killing_and_taking_of_birds_in_europe_outside_the_mediterranean_assessing_the_scope_and_scale_of_a_complex_issue.pdf)) |
| **Ensure any hunting is sustainable** | AEWA Conservation Guidelines 5. Guidelines on Sustainable Harvest of Migratory Waterbirds ([EN](http://www.unep-aewa.org/sites/default/files/publication/ts62_cg5_sustainable%20_harvest_guidelines_0.pdf)) ([FR](http://www.unep-aewa.org/sites/default/files/document/mop6_36_draft_revised_sust%20_harvest_fr.docx))Runge *et al.* 2004. Exploitation[[14]](#endnote-13)Waterbirds & Wetland Recreation Handbook ([EN](http://www.wwt.org.uk/wwrh) only) | Francis et al*.* 1998. Restrictive harvest regulations affect duck survival[[15]](#endnote-14) |
| Replace toxic lead gunshot with non-toxic alternatives | AEWA 2009. *Non-toxic shot. A pathway towards sustainable use of the waterbird resource.* AEWA Technical Series No. 3. ([EN](http://www.unep-aewa.org/sites/default/files/publication/ts3_non-toxic_shot_english_0.pdf)) ([FR](http://www.unep-aewa.org/sites/default/files/publication/ts3_non_toxic_shot_french_1.pdf))AEWA 2009. *Phasing out the use of lead shot for hunting in wetlands. Experiences made and lessons learned by AEWA Range States* ([EN](http://www.cms.int/sites/default/files/document/COP11_Doc_23_1_3_Illegal_Killing_Birds_F.pdf)) ([FR](http://www.unep-aewa.org/sites/default/files/publication/lead-shot-fr_2.pdf))CMS/COP11/Doc.23.1.2 Review and Guidelines to prevent the risk of poisoning to migratory birds ([EN](http://www.cms.int/sites/default/files/document/COP11_Doc_23_1_2_Bird_Poisoning_Review_%26_Guidelines_E_0.pdf)) ([FR](http://www.cms.int/sites/default/files/document/COP11_Doc_23_1_3_Illegal_Killing_Birds_F.pdf)) |  |
| Hunter education |  | Noer et al*.* 2007. Reducing wounding from shotgun hunting[[16]](#endnote-15) |
| Create refuges to reducing hunting disturbance | Waterbirds & Wetland Recreation Handbook ([EN](http://www.wwt.org.uk/wwrh) only) | Fox & Madsen 1997. Principles of refuge design to reduce hunting disturbance[[17]](#endnote-16)Madsen 2008. Effect of waterfowl hunting refuges[[18]](#endnote-17)Evans & Day 2002. Effectiveness of waterfowl refuges[[19]](#endnote-18) |
| Harvest management to allow population recovery and maintenance of favourable status | AEWA Conservation Guidelines 5. Guidelines on Sustainable Harvest of Migratory Waterbirds ([EN](http://www.unep-aewa.org/sites/default/files/publication/ts62_cg5_sustainable%20_harvest_guidelines_0.pdf)) ([FR](http://www.unep-aewa.org/sites/default/files/document/mop6_36_draft_revised_sust%20_harvest_fr.docx))AEWA Guidance on implementing harvest management through domestic legal regulations (EN) | AEWA Taiga Bean Goose ISSAP ([EN](http://www.unep-aewa.org/sites/default/files/publication/ts56_issap_tbg_0.pdf) only) |
| **Ensure any trade is sustainable** | AEWA Conservation Guidelines 6. Guidelines on regulating trade in migratory waterbirds ([EN](http://www.unep-aewa.org/sites/default/files/publication/cg_6new_0.pdf) only)CITES Guidance ([EN](https://cites.org/eng)) ([FR](https://cites.org/fra)) ([ES](https://cites.org/esp)) |  |
| **Address by-catch and eliminate mortality from fisheries** | Much relevant guidance from the CMS Agreement on the Conservation of Albatrosses and Petrels | See multiple studies summarised in [Bird Conservation. Global evidence for the effects of interventions](https://www.conservationevidence.com/synopsis/download/8) (Chapter 8) |
| **Reduce unnecessary mortality** | AEWA Resolution 6.12 Avoiding additional and unnecessary mortality for migratory waterbirds ([EN](http://www.unep-aewa.org/sites/default/files/document/aewa_mop6_res12_mortality_en.docx)) ([FR](http://www.unep-aewa.org/sites/default/files/document/aewa_mop6_res12_mortality_fr.docx)) |  |
| Energy infrastructure | AEWA Resolution 6.11. Addressing impacts of renewable energy deployment on migratory waterbirds ([EN](http://www.unep-aewa.org/sites/default/files/document/aewa_mop6_res11_energy_en.docx)) ([FR](http://www.unep-aewa.org/sites/default/files/document/aewa_mop6_res11_energy_fr.docx))AEWA Conservation Guidelines 11. Guidelines on how to avoid, minimize or mitigate impact of infrastructural developments and related disturbance affecting waterbirds ([EN](http://www.unep-aewa.org/sites/default/files/publication/cg_11_0.pdf) only)AEWA Conservation Guidelines 14. Guidelines on How to Avoid or Mitigate Impact of Electricity Power Grids on Migratory Birds in the African-Eurasian Region ([EN](http://www.unep-aewa.org/sites/default/files/publication/ts50_electr_guidelines_03122014.pdf)) ([FR](http://www.unep-aewa.org/sites/default/files/publication/ts50_electr_guidelines_fr_03122014.pdf))AEWA Conservation Guidelines 8. Reducing crop damage, damage to fisheries, bird strikes and other forms of conflict between waterbirds and human activities ([EN](http://www.unep-aewa.org/sites/default/files/publication/cg_8new_0.pdf))CMS/AEWA Guidance on renewable energy technologies and migratory species: guidelines for sustainable deployment (Doc. AEWA/MOP 6.37) ([EN](http://www.unep-aewa.org/sites/default/files/document/mop6_37_draft_renewable_energy_guidelines.pdf)) ([FR](http://www.unep-aewa.org/sites/default/files/document/mop6_37_draft_renewable_energy_guidelines_fr_0.pdf)) | See multiple studies summarised in [Bird Conservation. Global evidence for the effects of interventions](https://www.conservationevidence.com/synopsis/download/8) (Chapter 7)Jenkins et al*.* 2010. Review of avian collisions with power lines[[20]](#endnote-19)ESKOM-Endangered Wildlife Trust Strategic Partnership <https://www.ewt.org.za/WEP/eskom.html>  |
| Poison baits and poisoning resulting from the use and/or abuse of agricultural chemicals | CMS/COP11/Doc.23.1.2 Review and Guidelines to prevent the risk of poisoning to migratory birds ([EN](http://www.cms.int/sites/default/files/document/COP11_Doc_23_1_2_Bird_Poisoning_Review_%26_Guidelines_E_0.pdf)) ([FR](http://www.cms.int/sites/default/files/document/COP11_Doc_23_1_3_Illegal_Killing_Birds_F.pdf)) |  |
| Pollution control | AEWA Conservation Guidelines 2. Guidelines on identifying and tackling emergency situations for migratory waterbirds ([EN](http://www.unep-aewa.org/sites/default/files/publication/cg_2new_0.pdf) only) | See multiple studies summarised in [Bird Conservation. Global evidence for the effects of interventions](https://www.conservationevidence.com/synopsis/download/8) (Chapter 13) |
| **Predator control (including invasive non-native species)** | *The GWCT Mink Raft.* Game & Wildlife Conservation Trust ([EN](https://www.gwct.org.uk/media/557953/GWCT-Mink-Raft-guidelines2015.pdf) only)*Building a GWCT Mink Raft*. Game & Wildlife Conservation Trust ([EN](https://www.gwct.org.uk/media/198263/gwct_mink_raft_buildinghr_2009.pdf) only)GCL 1994. *Predator Control.* Game Conservancy Ltd. (EN only)*Fox Snares: Guidance for the User.* Game & Wildlife Conservation Trust ([EN](https://www.gwct.org.uk/media/208800/fox_snaring_guidelines.pdf) only) *Hints for using Larsen traps*. Game & Wildlife Conservation Trust ([EN](https://www.gwct.org.uk/media/372992/Larsen-use-guidelines-2014.pdf) only)FDC 2010. *Le Guide du Piégeur.* Fédérations Nationale des Chasseurs de France, Issy-les-Moulineaux. (FR only)Saulnier, J.-C. 2010. *L'Incontournable du Piégeur.* Edition Chasse-Sports, Le Mesnil le Roi. (FR only)Gavard-Gongallud, N. & Lêmelse, J. 2010*. 1000 Trucs et Astuces du Piégeur.* Editions Chasse-Sports, Le Mesnil le Roi. (FR only)Review of cat eradication from islands ([EN](https://pdfs.semanticscholar.org/cb9c/82dce7594bf40f0e252fed70d76e61112297.pdf) only)Review of invasive rodent eradication from islands ([EN](http://bio.research.ucsc.edu/people/croll/pdf/Howald%20et_2007.pdf) only) | Moore et al*.* 2003. Mink *Mustela vison* eradication in Scotland[[21]](#endnote-20) ([EN](http://www.tandfonline.com/doi/pdf/10.1080/03014223.2003.9518351))Thompson 2006. Floating rafts to trap mink[[22]](#endnote-21)Ratcliffe et al*.* 2008. Modelling Mink *Mustela vison* management options[[23]](#endnote-22)Bryce et al*.* 2011. Community participation in mink control[[24]](#endnote-23)Ausden & Hirons 2011. Anti-predator fences increases wader productivity[[25]](#endnote-24)Reynolds et al*.* 2013. Mink control on rivers[[26]](#endnote-25)Fasola & Roesler 2016. Invasive predator control for rare bird conservation[[27]](#endnote-26)Niemczynowicza et al*.* 2017. Control of mink predating wader nests[[28]](#endnote-27)Fletcher et al*.* 2010. Impacts of legal predator control on ground-nesting birds[[29]](#endnote-28)Management of invasive Raccoon Dog *Nyctereutes procyonoides* in NE Europe ([EN](http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3784))Control of Mink ([EN](https://jagareforbundet.se/vilt/invasiva-frammande-arter/famna/sammanfattande-projektbeskrivning/abstract-english/)) |
| **Disease control and responses** | Ramsar Wetland Disease Manual. WWT ([EN](https://www.wwt.org.uk/conservation/saving-wetlands-and-wildlife/publications/ramsar-wetland-disease-manual/) only)World Organisation for Animal Health (OIE) & International Union for Conservation of Nature (IUCN) 2014. *Guidelines for Wildlife Disease Risk Analysis.* OIE, Paris. 24 pp. Published in association with IUCN and the Species Survival Commission. ([EN](https://portals.iucn.org/library/sites/library/files/documents/2014-006.pdf) only)Ramsar Handbook 4. Avian influenza and wetlands ([EN](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-04.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-04fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-04sp.pdf))*Wild bird highly pathogenic avian influenza surveillance.* FAO Animal Production and Health Manual 4. 2006 ([EN](http://www.fao.org/docrep/010/a0960e/a0960e00.htm) only)*Wild birds and avian influenza.* FAO Animal Production and Health Manual 5. 2007 ([EN](http://www.fao.org/docrep/010/a1521e/a1521e00.htm) only) |  |
| **Control animal Alien Invasive Species** | Action Plan for the eradication of the Ruddy Duck in the Western Palearctic ([EN](https://wcd.coe.int/com.instranet.InstraServlet?command=com.instranet.CmdBlobGet&InstranetImage=1757614&SecMode=1&DocId=1642848&Usage=2)) ([FR](https://rm.coe.int/1680746a87) summary only)AEWA Conservation Guidelines 10. Guidelines on Avoidance of Introductions of Non-native Waterbird Species ([EN](http://www.unep-aewa.org/sites/default/files/publication/ts12_guidelines_non-native-species_complete_0.pdf)) | Ruddy Duck eradication in the UK ([EN](http://www.nonnativespecies.org/index.cfm?pageid=244)) |
| **Conservation management of highly threatened species** | Jones 2004. Conservation management of endangered birds[[30]](#endnote-29)Sutherland 2000. The Conservation Handbook: Research, Management and Policy iii |  |
| Captive breeding | Jones 2004xxix | See multiple studies summarised in [Bird Conservation. Global evidence for the effects of interventions](https://www.conservationevidence.com/synopsis/download/8) (Chapter 16) |
| Re-establishment and translocation | IUCN. Guidelines for Reintroductions and Other Conservation Translocations ([EN](https://portals.iucn.org/library/efiles/documents/2013-009.pdf)) ([FR](https://portals.iucn.org/library/sites/library/files/documents/CD-029-Fr.pdf))AEWA Conservation Guidelines 13. Guidelines for the Translocation of Waterbirds for Conservation Purposes: Complementing the IUCN Guidelines ([EN](http://www.unep-aewa.org/sites/default/files/publication/ts%2049%20_translocation_guidelines.pdf)) ([FR](http://www.unep-aewa.org/sites/default/files/publication/ts%2049_translocation_guidelines_fr_0.pdf)) | Common Crane in: Soorae 2016[[31]](#endnote-30)See multiple studies summarised in [Bird Conservation. Global evidence for the effects of interventions](https://www.conservationevidence.com/synopsis/download/8) (Chapter 15) |
| Management of disturbance | Waterbirds & Wetland Recreation Handbook ([EN](http://www.wwt.org.uk/wwrh) only) |  |
| 1. **Regulate and manage human activity**
 |  |  |
| **Communicate with stakeholders** | Communication, Education and Public Awareness (CEPA) ([EN](https://www.cbd.int/cepa/toolkit/2008/doc/CBD-Toolkit-Complete.pdf)) ([FR](https://portals.iucn.org/library/sites/library/files/documents/CD-029-Fr.pdf))Mainstreaming biological diversity. The role of communication, education and public awareness ([EN](https://www.iucn.org/downloads/cec_mainstreaming_biological_diversity_cepa_eng.pdf)) (FR)Ramsar Handbook 5. Partnerships ([EN](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-05.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-05fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-05sp.pdf))Ramsar Handbook 6. Wetland CEPA ([EN](https://www.ramsar.org/sites/default/files/documents/library/hbk4-06.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/library/hbk4-06fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/library/hbk4-06sp.pdf))Waterbirds & Wetland Recreation Handbook ([EN](http://www.wwt.org.uk/wwrh) only) | Byers 2003. Education, Communication and Outreach success stories[[32]](#endnote-31) ([EN](http://www.brucebyersconsulting.com/wp-content/uploads/2011/07/ECO-Success-Stories-Report-20032.pdf)) – includes case studies on divers, geese, ducks and seabirds |
| **Raise awareness of the wider public** | Communication, Education and Public Awareness (CEPA) ([EN](https://www.cbd.int/cepa/toolkit/2008/doc/CBD-Toolkit-Complete.pdf)) ([FR](https://portals.iucn.org/library/sites/library/files/documents/CD-029-Fr.pdf)) AEWA Communication Strategy ([EN](http://www.unep-aewa.org/sites/default/files/basic_page_documents/AEWA_communication_strategy_adopted_by_MOP6.pdf)) ([FR](http://www.unep-aewa.org/sites/default/files/publication/communication_strategy_final_fr_complete.pdf))Ramsar Convention’s Programme on communication, capacity building, education, participation and awareness (CEPA) 2016-2024 ([EN](https://www.ramsar.org/sites/default/files/documents/library/cepa_programme_2016_2024_e.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/library/cepa_programme_2016_2024_f.pdf)) | See multiple studies summarised in [Bird Conservation. Global evidence for the effects of interventions](https://www.conservationevidence.com/synopsis/download/8) (Chapter 3) |
| **Seek high-level and political support** | Sutherland 2000. The Conservation Handbook: Research, Management and Policy iii |  |
| **Review laws and policies** | AEWA Conservation Guidelines 15. Guidelines on National Legislation for the Protection of Species of Migratory Waterbirds and their Habitats ([EN](http://www.unep-aewa.org/sites/default/files/document/mop6_35_draft_legislation_guidelines_1.docx)) ([FR](http://www.unep-aewa.org/sites/default/files/document/mop6_35_draft_guidelines_national_legislation_fr.docx))Ramsar Handbook 2. National wetland policies ([EN](https://www.ramsar.org/sites/default/files/documents/library/hbk4-02.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-02fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/library/hbk4-02sp.pdf))Ramsar Handbook 3. Laws and institutions ([EN](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-03.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-03fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-03sp.pdf))AEWA Guidance on implementing harvest management through domestic legal regulations (EN) |  |
| **Reduce disturbance** | AEWA Conservation Guidelines 11. Guidelines on how to avoid, minimize or mitigate impact of infrastructural developments and related disturbance affecting waterbirds ([EN](http://www.unep-aewa.org/sites/default/files/publication/cg_11_0.pdf) only)Waterbirds & Wetland Recreation Handbook ([EN](http://www.wwt.org.uk/wwrh) only) | See multiple studies summarised in [Bird Conservation. Global evidence for the effects of interventions](https://www.conservationevidence.com/synopsis/download/8) (Chapter 9) |
| 1. **Improve knowledge**
 |  |  |
| **Undertake necessary research** | Sutherland 2000. The Conservation Handbook: Research, Management and Policy iii |  |
| **Monitor species status and outcomes of interventions** | AEWA Conservation Guidelines 9. Guidelines for a waterbird monitoring protocol ([EN](http://www.unep-aewa.org/sites/default/files/publication/cg_9new_0.pdf) only)Ramsar Handbook 13. Inventory, assessment and monitoring ([EN](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-13.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-13fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-13sp.pdf))Gregory et al*.* 2004. Bird census and survey techniques[[33]](#endnote-32) |  |
| 1. **Maintain networks**
 |  |  |
| Cooperate internationally | Ramsar Handbook 20. International cooperation ([EN](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-20.pdf)) ([FR](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-03fr.pdf)) ([ES](https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-20sp.pdf)) | The Endangered Wildlife Trust / International Crane Foundation Partnership’s African Crane Conservation Programme <http://www.ewt.org.za/accp/accp.html>  |

**FURTHER GENERAL SOURCES OF INFORMATION AND GUIDANCE**

<https://www.conservationevidence.com/> (especially [https://www.conservationevidence.com/data/index/?synopsis\_id[]=8](https://www.conservationevidence.com/data/index/?synopsis_id%5b%5d=8) for summaries of evidence for the effectiveness of various conservation interventions for birds.

IUCN-SSC Species Conservation Planning Sub-Committee 2017. *Guidelines for Species Conservation Planning.* Version 1.0. Gland, Switzerland: IUCN. xiv + 114 pp. ([EN](https://portals.iucn.org/library/sites/library/files/documents/2017-065.pdf)) (FR)

Kirby, J., Giles, N., Davidson, N., Owen, M. & Spray, C. 2004. *Waterbirds & Wetland Recreation Handbook. A review of issues and management practice.* Wildfowl and Wetlands Trust, Slimbridge, UK. 128 pp. ([EN](http://www.wwt.org.uk/wwrh)) [Contains an extensive literature review and list of relevant publications]

Sutherland, W.J. (ed.) 2000. *The Conservation Handbook: Research, Management and Policy.* Blackwell, Oxford.

Sutherland, W.J. & Hill, D.A. 1995*. Managing habitats for conservation.* Cambridge University Press, UK. 399 pp. [Contains chapters on site management planning; access; coastal habitats; rivers, canals and dykes; waterbodies; reedbeds, fens and acid bogs; grasslands; farmland; lowland heathland; upland moors and heaths; woodland and scrub; and urban areas.]

Williams, D.R., Pople, R.G., Showler, D.A., Dicks, L.V., Child, M.F., zu Ermgassen, E.K.H.J. & Sutherland, W.J. 2013. *Bird Conservation. Global evidence for the effects of interventions.* Synopses of Conservation Evidence, Volume 2. Pelagic Publishing, Exeter, UK. 688 pp. <https://www.conservationevidence.com/synopsis/download/8>

1. IUCN – SSC Species Conservation Planning Sub-Committee 2017. *Guidelines for Species Conservation Planning.* Version 1.0. Gland, Switzerland: IUCN. xiv + 114 pp. ([EN](https://portals.iucn.org/library/sites/library/files/documents/2017-065.pdf)) (FR) [↑](#endnote-ref-1)
2. UNEP/AEWA Secretariat 2015. Overview on the status of preparation and implementation of AEWA ISSAPs and ISSMPs as well as multi-species Action Plans 2015. AEWA/MOP 6.16 Rev.1. ([EN](http://www.unep-aewa.org/sites/default/files/document/mop6_16_aewa_ssaps_review_rev1.docx)) ([FR](http://www.unep-aewa.org/sites/default/files/document/mop6_16_aewa_ssaps_review_fr_rev1.docx)) [↑](#endnote-ref-2)
3. Sutherland, W.J. (ed.) 2000. *The Conservation Handbook: Research, Management and Policy.* Blackwell, Oxford. [↑](#endnote-ref-3)
4. The AEWA format for International Single and Multi-species Action Plans provides a useful framework. [↑](#footnote-ref-1)
5. Worboys, G.L., Lockwood, M., Kothari, A., Feary, S. & Pulsford, I. (eds.) 2015. *Protected Area Governance and Management*. ANU Press, Canberra, Australia. [↑](#endnote-ref-4)
6. Ausden, M. & Hirons, G.J.M. 2002. Grassland nature reserves for breeding wading birds in England and the implications for the ESA agri-environment scheme. *Biological Conservation* 106: 279–291. [↑](#endnote-ref-5)
7. Ausden, M. 2004. Habitat management. Pp. 329-369. In: Sutherland, W.J., Newton, I. & Green, R.E. (eds.) *Bird Ecology and Conservation. A handbook of techniques.* Oxford University Press. [↑](#endnote-ref-6)
8. Sutherland, W.J. & Hill, D.A. 1995*. Managing habitats for conservation.* Cambridge University Press, UK. 399 pp. [Contains chapters on site management planning; access; coastal habitats; rivers, canals and dykes; waterbodies; reedbeds, fens and acid bogs; grasslands; farmland; lowland heathland; upland moors and heaths; woodland and scrub; and urban areas.] [↑](#endnote-ref-7)
9. Benstead, P., Drake, M., José, J., Mountford, O., Newbold, C. & Treweek, J. 1997. *The Wet Grassland Guide: managing floodplain and coastal wet grasslands for wildlife.* RSPB, Sandy, UK. [↑](#endnote-ref-8)
10. Wilson, A., Vickery, J. & Pendlebury, C. 2007. Agri-environment schemes as a tool for reversing declining populations of grassland waders: mixed benefits from Environmentally Sensitive Areas in England. *Biological Conservation* 136: 128–135. [↑](#endnote-ref-9)
11. Eiseltová, M. (ed.) 1994. *Restoration of Lake Ecosystems: a holistic approach.* IWRB Publication 32. IWRB, Slimbridge, UK. 182 pp. [↑](#endnote-ref-10)
12. Hussner, A., Stiers, I., Verhofstadd, M.J.J.M, Bakker, E.S., Grutters, B.M.C, Haurye, J., van Valkenburg, J.L.C.H, Brundug, G., Newman, J., Clayton, J.S., Anderson, L.W.J, Hofstrai, D. 2017. Management and control methods of invasive alien freshwater aquatic plants: A review. *Aquatic Botany* 136: 112–137. [↑](#endnote-ref-11)
13. Davis, C. 1998. A review of the success of major crane conservation techniques. *Bird Conservation International* 8: 19-30. [↑](#endnote-ref-12)
14. Runge, M.C., Kendall, W.L. & Nichols, J.D. 2004. Conservation management of endangered birds. Pp. 303-328. In: Sutherland, W.J., Newton, I. & Green, R.E. (eds.) *Bird Ecology and Conservation. A handbook of techniques.* Oxford University Press. [↑](#endnote-ref-13)
15. Francis, C.M., Sauer, J.R. & Serie, J.R. 1998. Effect of restrictive harvest regulations on survival and recovery rates of American black ducks. *The Journal of Wildlife Management* 62: 1544-1557. [↑](#endnote-ref-14)
16. Noer, H., Madsen, J. & Hartmann, P. 2007. Reducing wounding of game by shotgun hunting: effects of a Danish action plan on pink-footed geese. *Journal of Applied Ecology* 44: 653-662. [↑](#endnote-ref-15)
17. Fox, A.D. & Madsen, J. 1997. Behavioural and distributional effects of hunting disturbance: implications for refuge design. *Journal of Applied Ecology* 34: 1-13. [↑](#endnote-ref-16)
18. Madsen, J. 1998. Experimental refuges for migratory waterfowl in Danish wetlands. II. Tests of hunting disturbance effects. *Journal of Applied Ecology* 35: 398-417. [↑](#endnote-ref-17)
19. Evans, D.M. & Day, K.R. 2002. Hunting disturbance on a large shallow lake: the effectiveness of waterfowl refuges. *Ibis* 144: 2-8. [↑](#endnote-ref-18)
20. Jenkins, A.R., Smallie, J.J. & Diamond, M. 2010. Avian collisions with power lines: a global review of causes and mitigation with a South African perspective. *Bird Conservation International* 20: 263-278. [↑](#endnote-ref-19)
21. Moore, N.P., Roy, S.S. & Helyar, A. 2003. Mink (*Mustela vison*) eradication to protect ground‐nesting birds in the Western Isles, Scotland, United Kingdom. *New Zealand Journal of Zoology* 30: 443-452. [↑](#endnote-ref-20)
22. Thompson, H. 2006. The use of floating rafts to detect and trap American mink *Mustela vison* for the conservation of water voles *Arvicola terrestris* along the River Wensum in Norfolk, England. *Conservation Evidence* 3: 114-116. [↑](#endnote-ref-21)
23. Ratcliffe, N., Craik, C., Helyar, A., Roy, S. & Scott, M. 2008. Modelling the benefits of American Mink *Mustela vison* management options for terns in west Scotland. Ibis 150 (Suppl. 1): 114–121. [↑](#endnote-ref-22)
24. Bryce, R., Oliver, M.K., Davies, L., Gray, H., Urquhart, J. & Lambin, X. 2011. Turning back the tide of American mink invasion at an unprecedented scale through community participation and adaptive management. *Biological Conservation* 144: 575-583. [↑](#endnote-ref-23)
25. Ausden, M. & Hirons, G.J.M. 2011. Using anti-predator fences to increase wader productivity. *Conservation Land Management* 2011: 5-8. [↑](#endnote-ref-24)
26. Reynolds, J.C., Richardson, S.M., Rodgers, B.J.E. & Rodgers, O.R.K. 2013. Effective control of non-native American Mink by strategic trapping in a river catchment in mainland Britain. *Journal of Wildlife Management* 77: 545-554. [↑](#endnote-ref-25)
27. Fasola,L. & Roesler, I. 2016. Invasive predator control program in Austral Patagonia for endangered bird conservation. *European Journal of Wildlife Research* 62: 601-608. [↑](#endnote-ref-26)
28. Niemczynowicza, A., Swietochowskib, P., Brzezinskic, M. & Zalewski, A. 2017. Non-native predator control increases the nesting success of birds: American mink preying on wader nests. *Biological Conservation* 212: 86-95. [↑](#endnote-ref-27)
29. Fletcher, K., Aebischer, N.J., Baines, D., Foster, R. & Hoodless, A.N. 2010. Changes in breeding success and abundance of ground-nesting moorland birds in relation to the experimental deployment of legal predator control. *Journal of Applied Ecology* 47: 263-272. [↑](#endnote-ref-28)
30. Jones, C. 2004. Conservation management of endangered birds. Pp. 269-301. In: Sutherland, W.J., Newton, I. & Green, R.E. (eds.) *Bird Ecology and Conservation. A handbook of techniques.* Oxford University Press. [↑](#endnote-ref-29)
31. Soorae, P.S. (ed.) 2016. *Global Restoration Perspectives: 2016 Case studies from around the globe*. Gland, Switzerland: IUCN Re-introduction Specialist Group and Abu Dhabi, UEA: Environment Agency – Abu Dhabi. 276 pp. [↑](#endnote-ref-30)
32. Byers, B.A. 2003. *Education, Communication and Outreach (ECO) success stories: Solving conservation problems by changing behavior.* U.S. Fish and Wildlife Service National Conservation Training Center Division of Education Outreach report. [↑](#endnote-ref-31)
33. Gregory, R.D., Gibbons, D.W. & Donald, P.F. 2004. Bird census and survey techniques. Pp. 17-55. In: Sutherland, W.J., Newton, I. & Green, R.E. (eds.) *Bird Ecology and Conservation. A handbook of techniques.* Oxford University Press. [↑](#endnote-ref-32)