DRAFT MONITORING PRIORITIES FOR WATERBIRD SPECIES AND POPULATIONS   
OF AEWA

**Introduction**

Through Resolution 5.2. the Meeting of the Parties requested the Technical Committee to identify priorities for the systematic development of waterbird monitoring. The need for prioritisation and systematic approach in further development of waterbird monitoring was amplified with the adoption of the AEWA Strategic Plan 2019-2027.

Target 1.4 of the Strategic Plan aims at improving the quality of waterbird population status assessments, including information on drivers of population trends, so that at least two-thirds of all AEWA populations are being assessed on the basis of the most complete and up-to-date monitoring information available.

In response to this mandate, the identification of priorities for the monitoring of AEWA-listed populations and the drivers of their trends was added as task 5.2 of the Technical Committee workplan 2019-2021. The Technical Committee (TC) at its 15th meeting in April 2019 agreed on Terms of Reference for outsourcing this task.

With the financial support from the Governments of Switzerland and the Netherlands as well as the in-kind contribution of Wetlands International through a grant provided by the European Commission, the Secretariat commissioned in October 2020 to Wetlands International the compilation of a document to address the task at hand in cooperation with BirdLife International and SOVON (Dutch Centre for Field Ornithology).

A consultation meeting, attended by TC members and observers, was convened on 22 January 2021 in advance the 16th meeting of the Committee (TC16) to discuss a preliminary document that proposed a methodology for prioritising populations for monitoring and explored the options for monitoring drivers of populations trends. The outcomes of this consultation were presented at TC16 and further discussion took place at the meeting; on the basis of this the TC approved the proposed approach for the further elaboration of the full document.

The full document was then compiled following this approved approach and consulted and agreed by the TC through the TC Workspace. The document was submitted to the 18th meeting of the Standing Committee on 28 July 2021 and approved for submission to MOP8.

**Action Requested from the Meeting of the Parties**

The Meeting of the Parties is requested to review the draft document and adopt the priorities and recommendations outlined in it to guide the further development and strengthening of the monitoring of AEWA waterbird populations and drivers of their trends.

DRAFT MONITORING PRIORITIES FOR WATERBIRD SPECIES AND POPULATIONS OF AEWA

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Table of Contents

[Executive summary 6](#_Toc73464608)

[1 Background 7](#_Toc73464609)

[2 Why monitor waterbird species and populations, which methods and which data? 8](#_Toc73464610)

[2.1 Why? 8](#_Toc73464611)

[2.2 Which methods? 8](#_Toc73464612)

[2.3 Which data? 9](#_Toc73464613)

[2.3.1 Population size 9](#_Toc73464614)

[2.3.2 Population trend 9](#_Toc73464615)

[3 Prioritizing AEWA populations for the development of monitoring 10](#_Toc73464616)

[3.1 Introduction 10](#_Toc73464617)

[3.2 Methods 10](#_Toc73464618)

[3.2.1 Gap analysis 10](#_Toc73464619)

[3.2.2 Prioritizing populations 14](#_Toc73464620)

[3.2.3 Assessing feasibility 15](#_Toc73464621)

[3.2.3.1 Security situation 16](#_Toc73464622)

[3.2.3.2 Unknown distribution 16](#_Toc73464623)

[3.2.3.3 Accessibility 16](#_Toc73464624)

[3.2.4 Prioritising countries to target the development of monitoring schemes 16](#_Toc73464625)

[3.3 Results 18](#_Toc73464626)

[3.3.1 Priority populations 18](#_Toc73464627)

[3.3.2 Feasibility 19](#_Toc73464628)

[3.3.2.1 Security situation 19](#_Toc73464629)

[3.3.2.2 Unknown distribution of the population 19](#_Toc73464630)

[3.3.2.3 Accessibility 19](#_Toc73464631)

[3.3.2.4 Number of priority populations remaining after exclusions 19](#_Toc73464632)

[3.3.3 Priority monitoring methods 19](#_Toc73464633)

[3.3.4 Priority regions and countries for the development of the main monitoring schemes 22](#_Toc73464634)

[3.3.4.1 Priority regions and countries for the development of the International Waterbird Census (IWC) 23](#_Toc73464635)

[3.3.4.2 Priority regions and countries for the development of periodic aerial surveys of inland wetlands 26](#_Toc73464636)

[3.3.4.3 Priority regions and countries for the development of periodic offshore aerial or boat surveys 29](#_Toc73464637)

[3.3.4.4 Priority regions and countries for the development of colonial breeding bird monitoring 32](#_Toc73464638)

[3.3.4.5 Priority regions and countries for the development of species-specific breeding bird monitoring 35](#_Toc73464639)

[3.3.5 Recurring schedule of international surveys 38](#_Toc73464640)

[3.3.6 Training and capacity needs for data collection and analysis 40](#_Toc73464641)

[3.3.6.1 Government Technical Officers 40](#_Toc73464642)

[3.3.6.2 Scheme Coordinators 40](#_Toc73464643)

[3.3.6.3 Observers 41](#_Toc73464644)

[3.3.7 Conclusions and recommendations 41](#_Toc73464645)

[4 Methods of investigating factors driving change in AEWA species and populations 42](#_Toc73464646)

[4.1 Introduction 42](#_Toc73464647)

[4.2 Review of available data sources for monitoring environmental drivers 42](#_Toc73464648)

[4.2.1 IUCN Red List 42](#_Toc73464649)

[4.2.2 EU Birds Directive Article 12 Reporting 44](#_Toc73464650)

[4.2.3 Other data sources 44](#_Toc73464651)

[4.3 Recommended approach 45](#_Toc73464652)

[5 References 46](#_Toc73464653)

[Appendix 1. Recommened monitoring methods for AEWA populations 47](#_Toc73464654)

[Appendix 2. Populations considered already well-monitored (Priority 0) 67](#_Toc73464655)

[Appendix 3. Priority 1 populations 74](#_Toc73464656)

[Appendix 4. Priority 2 populations 76](#_Toc73464657)

[Appendix 5. Priority 3 populations 77](#_Toc73464658)

[Appendix 6. Priority 4 populations 80](#_Toc73464659)

[Appendix 7. Priority 5 populations 81](#_Toc73464660)

[Appendix 8. Priority 6 populations 83](#_Toc73464661)

[Appendix 9. West Siberian populations excluded because their monitoring is deemed not feasible under the current circumstances 89](#_Toc73464662)

[Appendix 10. Not well-monitored populations to be monitored through the IWC both for size and trend 90](#_Toc73464663)

[Appendix 11. Not well-monitored populations to be monitored through aerial surveys for population size and through the IWC for trend 91](#_Toc73464664)

[Appendix 12. Not well-monitored populations to be monitored through offshore surveys for population size and through the IWC for trend 92](#_Toc73464665)

[Appendix 13. Not well-monitored populations to be monitored through colonial breeding bird monitoring for population size and through the IWC for trend 93](#_Toc73464666)

[Appendix 14. Not well-monitored populations to be monitored through common breeding bird monitoring for population size and through the IWC for trend 94](#_Toc73464667)

[Appendix 15. Not well-monitored populations to be monitored through special breeding bird monitoring for population size and through the IWC for trend 95](#_Toc73464668)

[Appendix 16. Not well-monitored populations to be monitored through colonial breeding birds surveys both for population size and trend 96](#_Toc73464669)

[Appendix 17. Not well-monitored populations to be monitored through species-specific breeding bird surveys both for population size and trend 98](#_Toc73464670)

[Appendix 18. Overview of the threat information available from the IUCN Red List 100](#_Toc73464671)

[Threats and impacts 100](#_Toc73464672)

[Stresses 100](#_Toc73464673)

[Appendix 19. AEWA waterbird species, indicating which have been included in the IUCN and Article 12 threat assessments 105](#_Toc73464674)

[Appendix 20. IUCN threat categories 116](#_Toc73464675)

[Appendix 21. Natura 2000 pressures and threats 119](#_Toc73464676)

# Executive summary

The objective of this report is to support the achievement of Target 1.4 of the AEWA Strategic Plan   
2019–2027 that aims that *“The quality of waterbird population status assessments, including information on drivers of population trends, is improved so that at least two-thirds of all AEWA populations are being assessed on the basis of the most complete and up-to-date monitoring information available”*.

Achieving the target set in the AEWA Strategic Plan for 2019–2027 would require (i) an at least 40% increase in the number of well-monitored populations and (ii) the development of a system for the monitoring of pressures affecting the AEWA populations.

These two issues are dealt with separately in this report. Chapter 3 focuses on the prioritisation of AEWA populations for the development of monitoring activities. Based on a country-by-country assessment of the quality of population size and trend estimates, 35% of the AEWA populations can be considered being already sufficiently well-monitored for status assessment purposes. Our prioritisation method for targeting the remaining 65% of the AEWA populations takes into account whether

* a population is included in an AEWA action or management plan (Priority 1),
* it is a Globally Threatened or Near Threatened Species (Priority 2),
* the number of countries where improvement of its monitoring is needed (Priority 3) and
* it could be monitored using a cost-effective multi-species method (Priorities 4 and 5) or not (Priority 6).

The two-third target set in the AEWA Strategic Plan can be theoretically achieved by focusing only on the Priority 1-5 populations, if (1) current monitoring efforts are maintained for the already well-monitored populations and (2) adequate monitoring schemes are set up for **all** Priority 1-5 populations. Our analysis shows that the IWC should be complemented by other monitoring methods to produce robust population size estimates. Although species-specific breeding bird monitoring would be required for 56 Priority 1-5 populations of colonial breeding birds and for 49 Priority 1-5 populations of more dispersed species, in practice, the average number of populations to be monitored through such method would be only 2.3 per country for both groups. These would be mainly populations of Globally Threatened and Near Threatened species or populations that occur only in a small number of countries. Hence, the combination of multi-species methods and geographically tightly targeted species-specific methods offer a cost effective and realistic approach to achieve the AEWA Strategic Plan target. It would be most practical to organise the monitoring activities along the three major flyways following a recurring 6-year cycle. In the East Atlantic flyway this could address the monitoring needs of 38 Priority 1–5 populations, 24 in the Black Sea - Mediterranean - Sahelian one and 49 in the West Asian / East African one. For 31 populations the monitoring should be improved in more than one major flyway. In order to achieve Target 1.4 by 2027 as foreseen in the AEWA Strategic Plan 2019–2027, we propose to implement the first “total counts” in 2023 in the East Atlantic, in 2024 in the Black Sea - Mediterranean - Sahelian and in 2025 in the West Asian / East African flyways.

Chapter 4 focuses on reviewing the available methods and systems to assess environmental drivers. Unfortunately, the available data collection systems use incompatible threat taxonomies. In addition, national reporting would present additional burden. Therefore, it is recommended that thorough assessments of environmental drivers are incorporated into the future editions of the AEWA Conservation Status Report and undertaken periodically by a network of experts as proposed by the Technical Committee at its 15th meeting (UNEP/AEWA/TC15.22[[4]](#footnote-4)). Adequate time and resources would be necessary for consultation also with national experts, who may undertake further consultation at national level with site managers, etc. This process should be supported by online tools to facilitate the consultation process as it is already the case for the population status assessments.

# 1 Background

Target 1.4 of the AEWA Strategic Plan 2019–2027 aims that *“The quality of waterbird population status assessments, including information on drivers of population trends, is improved so that at least* ***two-thirds of all AEWA populations*** *are being assessed on the basis of the most complete and up-to-date monitoring information available”*. Achieving this target set in the AEWA Strategic Plan would require (i) an at least 40% increase in the number of well-monitored populations and (ii) the development of a system for the monitoring of pressures affecting the AEWA populations.

The AEWA Technical Committee has developed a Terms of Reference for the project *Elaborating priorities for the systematic development of monitoring of waterbird populations and the drivers of their trends*, which identified the following tasks:

1. Identify gaps in monitoring of populations listed in Table 1 of the AEWA Action Plan, including population size, trend and drivers of population change;
2. Describe the improvements required in the monitoring of each population;
3. Develop a methodology to prioritise populations and countries in consultation with the AEWA Technical Committee;
4. Produce a proposal for a recurring schedule of international surveys for different groups of species for which sampling-based monitoring does not provide sufficient basis to estimate the population size, taking into account the relevant reporting obligations under different frameworks and their timelines;
5. Apply the agreed prioritisation method and report results;
6. Identify and prioritise training & capacity needs for data collection and analysis across the Agreement area;
7. Develop recommendations on geographic or thematic groupings to facilitate implementation

# 2 Why monitor waterbird species and populations, which methods and which data?

## 2.1 Why?

The overall goal of waterbird monitoring of species and populations is to provide the data needed for effective conservation and management of waterbirds. Monitoring is an integral part of the management process; monitoring data are used to undertake assessments of the status of the population, which leads to the identification and implementation of management actions based on the available evidence. Data from monitoring then provide feedback about the effects of the management actions undertaken and contribute to a new assessment of both the status and the effectiveness of the actions.

Monitoring programmes that both take into account the fate of the bird populations, and that identify the drivers are referred to as **integrated monitoring**. This integrated approach provides further insight to why observed changes in bird abundance are happening, that basic abundance monitoring cannot. Integrated monitoring involves the regular integrated analysis of data collected by the monitoring of abundance, vital rates and environmental conditions and pressures.

## 2.2 Which methods?

The methods chosen for monitoring should consider the following factors:

* Is there a need for either absolute or relative estimates? For estimating population size, absolute estimates are needed. For trend analyses, relative estimates are sufficient if the trend is based on a representative sample of the population. Usually, it is not necessary to count the whole population at each time. Regular full censuses are only feasible for relative a few populations.
* Does the species have a clumped or dispersed distribution? When the species aggregates in relatively large numbers during parts of their year cycle (colonial breeding or wintering at a relatively few key sites and countries) that provides good opportunities for robust estimates of their population sizes and trends. If the species is dispersed or it has a cryptic behaviour, other methods are needed (for instance sampling-based common breeding bird monitoring or collecting species lists registering frequency of occurrence).
* When is the population geographically discrete? Count data can be best used to characterise the status of a flyway population when they are collected in the season when that population is geographically isolated from other populations. If the counts are carried out in seasons when populations are mixed, the data will characterise the status of the combined populations and it will require assumptions to use this for assessing the status of an individual population.
* Are there sufficient number of trained observers available to participate in the monitoring? Also limited observer capacity and security concerns in some regions influences the choice of the most suitable method for species and populations monitoring.

In order to support the effective use of the resources available for flyway-scale monitoring, each AEWA population has been allocated to a recommended census type, defining the method and timing (i.e. breeding or non-breeding season) for when it is recommended to monitor the flyway population size and trend in Hearn et al. (2018). These allocations have been revised in this report and presented in Appendix 1.

It is very beneficial for monitoring programmes to align their surveys and reporting to established international reporting cycles, such as:

* AEWA Conservation Status Report (every 3 years),
* EU Birds Directive Article 12 report and AEWA national population status report (every 6 years),
* Waterbird Population Estimates and updates of international 1% thresholds for the application of Ramsar Criterion (every 9 years, but no fix timetable exists, and thresholds shall be updated in case of significant change of the population size estimate).

Aligning survey outputs to these international reporting cycles means that the most up-to-date data are available for decisions about conservation and management priorities. One way to maximise the efficiency of this is to stagger the organisation of different major surveys in order to maximise synergies and to minimise competition for funding.

## 2.3 Which data?

### 2.3.1 Population size

This is one of the fundamental attributes used to assess the status of a flyway population. The sizes of waterbird populations are constantly changing, yet population size estimates are usually only measured periodically (updates once in every 3-12 years). Therefore, it is important to use metrics that provide the best characterisation of the population size until the next assessment. If the population is fluctuating, the best characterisation of the ‘current’ population size is to present the five-year mean of the population estimate +/- the 95% confidence intervals (if a sufficient number of annual surveys have taken place). In the case of populations that are clearly increasing or decreasing, the five-year mean would be a biased characterisation of the ‘current’ population size, therefore the five-year maximum or minimum is used, respectively. When the population estimate is not based on yearly counts, but only minimum and maximum estimates are available, the geometric mean of these two values is used because it provides a more robust estimate of the population size than the arithmetic mean.

### 2.3.2 Population trend

Description of the direction and rate of change in population size (i.e. trend) is the other fundamental attribute used to assess the status of a species or population at site, national or flyway scales. However, both the length of the trend period and the trend classification depends on the purpose of the analysis and data availability. Ideally, trends are based on annual data for better statistical power, but less frequent (ideally not less frequent than once in every 3 years) data collection might be acceptable if establishing the trend would require very extensive surveys.

Trend periods can be:

1. A fixed moving time period (typically the last 5, 10 or 25 years) used to characterise the current (i.e. most recent short-term) or long-term trend. The current trends can be used as an early warning, while the long-term trends are less influenced by short-term fluctuations. This makes them more robust but also less sensitive. The long-term trend could indicate a problem too late if a population for example recovered at some point in the time series, but then declined again.
2. Linked to some policy-relevant benchmark, e.g. 1980 is used both for the EU Article 12 reporting as this is the first full year after the Birds Directive came into force. (For the sake of consistency, the same start year has been adopted also for the AEWA national population status reporting). The year of designation of a protected area can be used to assess whether the site still holds the numbers it has been designated for.
3. Linked to generation length, e.g. the trend rend over *10 years or 3 generations, whichever is the longer* is used by both the IUCN Red List and for the classification of populations on AEWA Table 1 under the criteria 2c and 3c of Columns A and B respectively.

The rate of change is often compared to certain pre-set values, either to classify the trend or to use it in alert or trigger systems based on its value and the width of its confidence intervals.

# 3 Prioritising AEWA populations for the development of monitoring

## 3.1 Introduction

The purpose of elaborating priorities for the systematic development of monitoring is to achieve the   
two-third target set in the AEWA Strategic Plan for 2019–2027.

Based on the 7th edition of the AEWA Conservation Status Report, 42% of the AEWA populations can be assessed based on monitoring of both for population size and trend. This means that achieving   
two-third target set in the AEWA Strategic Plan for 2019–2027 would require the improvement of monitoring in case of another 149 populations, which would represent a 40% increase in the number of well monitored populations. Achieving such an increase requires systematic development of the monitoring activities and making smart choices where to fill gaps in the monitoring efforts.

In consultation with the AEWA Technical Committee at its 16th meeting in January 2021, we have developed a prioritisation methodology that aims to identify a suit of populations that can result in achieving the two-third target in the most efficient manner. This chapter of the report presents the results of the application of the agreed methodology.

## 3.2 Methods

We applied a four-step approach to identify priority populations and countries for the development of waterbird monitoring:

1. Gap analysis;
2. Prioritising populations for development of their monitoring;
3. Identifying populations where achieving substantial improvement of monitoring is **currently** not feasible;
4. Identifying thematic[[5]](#footnote-5) and geographic groupings to reach the AEWA target most effectively taking into account of feasibility;

In accordance with our ToR, we also developed two additional steps focusing on the deployment of adequate monitoring activities in order to achieve Target 1.4.

1. Proposed a recurring schedule of international surveys for different groups of species for which sampling-based monitoring does not provide sufficient basis to estimate the population size;
2. Identified and prioritised training and capacity needs for data collection and analysis across the Agreement area.

### 3.2.1 Gap analysis

The gap analysis aimed to identify the populations with significant deficiencies in their monitoring to estimate their population sizes and/or trends reliably. It builds on a number of information sources including the following:

* BirdLife International’s country checklists which can be accessed through the *Data table and detailed info* tabs of the species factsheets on the [Data Zone of BirdLife International](http://datazone.birdlife.org/species/search);
* BirdLife International’s species range maps[[6]](#footnote-6);
* The population boundaries maintained by Wetlands International and available through the [Critical Sites Network Tool 2.0](http://criticalsites.wetlands.org/en/species);
* The draft of the second edition of BirdLife International’s European Red List of Birds that also includes the Member States reports under the EU Birds Directive Article 12;
* Population status reports of AEWA Parties to the Secretariat;
* The national population size and trend estimates produced by the partner organisations of BirdLife International in Russia (for West Siberia), Kazakhstan, Uzbekistan and Turkmenistan;
* The [IWC trend analyses for the 8th edition of the AEWA Conservation Status Report](http://iwc.wetlands.org/index.php/aewatrends8);
* Other literature reviewed for the 8th edition of the AEWA Conservation Status Report.

For each population, we identified the range states in which they occur based on BirdLife International’s country check lists, the European Red List of Birds, the IWC data, the range maps and the flyway boundaries. Then we assessed the importance of each range state for the population in the recommended monitoring season and recommended monitoring methods (from Hearn et al. 2018; listed in Table 3.1.

Table 3.1: Monitoring method codes.

|  |  |
| --- | --- |
| Codes | Monitoring methods |
| Breeding bird monitoring |  |
| C | Colony counts |
| D | Dispersed species surveys |
| V | Vocalisation based counts |
| L | List method / reporting rate |
| S | Other specialised breeding bird surveys |
| Non-breeding bird monitoring |  |
| I | Coordinated January counts of inland and inshore coastal wetlands |
| J | Coordinated July counts of inland and inshore coastal wetlands |
| G | Goose and swan counts |
| P | Daylight migration counts |
| R | Roost counts |
| M | Counts at moulting sites |
| O | Offshore water- and seabird counts (complemented by IWC counts) |
| A | Aerial surveys (complemented by IWC counts) |

As there are no national population size and trend estimates available for most of the populations outside of Europe, it was not possible to calculate the proportion of the population that breeds or winter in a country Therefore, we have assigned each range state to one of the following three classes (or **importance scores**):

1. The country supports < 5% of the flyway population;
2. The country supports 5 – 50% of the flyway population;
3. The country supports > 50% of the flyway population.

Based on the IWC database and the European Red List of Birds and other information sources, we assessed the quality of the population size and trend estimates in each range state and assigned a **quality score** for each of these attributes.

Our scoring is comparable to ones used in the EU Birds Directive Article 12, in the European Red List of Birds and in the AEWA national population status reports. If national reports were available in any of these reports, we used the countries’ self-assessment. Otherwise, we applied some complementary criteria as explained below.

For the quality of population size estimates we used the following criteria:

1. Complete survey or statistically robust estimate:
   1. Method (a) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
   2. At least one complete survey from the majority of the known distribution area in the last 6-year reporting cycle;
   3. At least one representative sampling using sufficient method and sample size to estimate population size in the last 6-year reporting cycle;
2. Extrapolation from limited data:
   1. Method (b) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
   2. Existing estimate earlier than the last reporting cycle updated using representative trend data;
   3. Estimate is based on extensive but incomplete surveys in the last 6-year cycle;
   4. Estimate is based on biased sampling in the last 6-year cycle;
3. Expert opinion based on very limited data:
   1. Method (c) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
   2. Estimate is based on only local surveys from a small part of the known distribution area in the country;
   3. Estimate is based on data older than 6-years and not updated;
4. No survey:
   1. Method (d) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
   2. The monitoring programme recommended in Hearn et al. (2018) does not exists in the country.

A similar scoring system was used to assess the quality of population trend monitoring:

1. Complete survey or statistically robust estimate:
   1. Method (a) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
   2. Comparison of two estimates of population size originating from complete surveys;
   3. Adequate monitoring programme with sufficient sample size and distribution and at least 3-year frequency of surveys;
2. Limited but consistent monitoring:
   1. Method (b) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
   2. The trend is based on consistent monitoring with insufficient sample size or geographically biased coverage of the distribution area;
   3. The trend is extrapolated from other measurements;
3. Very limited and/or inconsistent monitoring:
   1. Method (c) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
   2. Monitoring activities are insufficient to calculate trend;
4. No monitoring in the last reporting cycle:
   1. Method (d) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
   2. The monitoring programme recommended in Hearn et al. (2018) does not exists in the country.

The monitoring of each population in each of its range state during the monitoring-relevant seasons was coded up in an Excel worksheet containing the following fields:

* Population ID;
* Country ISO code;
* Attribute monitored, i.e. population size (S) or population trend (T);
* Recommended monitoring method as presented in Appendix 1;
* Importance score (see above);
* Quality score (see above);
* Notes

This dataset is visually presented on this website: <https://szabolcsnagy.shinyapps.io/MonPriorPopMap/>

Mean **monitoring quality scores** were calculated for each population both for population size and trend based on the national quality scores and weighted by the importance of the range states.

Where:

*Qik*: The weighted mean quality score of population *i* for attribute *k* (i.e. population size or trend);

*wij*: The weighting score for population *i* in country *j* based on the importance of the country for the population. The following weighting factors were used: (1) 2.5, (2) 30 and (3) 75 reflecting the arithmetic means of the importance ranges.

*qij*: The quality score for population *i* in country *j*.

The mean population monitoring quality scores were rounded to the nearest integer (see a worked-out example in Table 3.2). Populations with mean quality scores of 1 or 2 for both population size and trend were considered as being “well-monitored” ones and populations with a mean quality score of 3 or 4 for either population size or trend or for both were considered as insufficiently monitored ones.

Table 3.2: Worked out example of calculating the monitoring quality score of a population for population trend

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute | Country | Importance | Quality (qij) | Weight (wij) | wij × qij |
| T | MA | 2 | 1 | 30.0 | 30.0 |
| T | MR | 3 | 2 | 75.0 | 150.0 |
| T | SN | 1 | 2 | 2.5 | 5.0 |
| T | GW | 1 | 3 | 2.5 | 7.5 |
| T | GN | 1 | 3 | 2.5 | 7.5 |
| T | SL | 1 | 3 | 2.5 | 7.5 |
|  | Sums: |  |  | 115.0 | 207.5 |
|  | Weighted mean rounded to the nearest integer: |  |  |  | 2.0 |

### 3.2.2 Prioritising populations

The purpose of this prioritization process is to identify those populations where the improvement of monitoring can result in an overall improvement of the quality of the population status assessment **within the timeframe of the AEWA Strategic Plan 2019–2027**.

Based on their mean monitoring quality scores, the AEWA populations were prioritised following the process outlined in Figure 3.1 and described below.

First, we identified the populations that are already well monitored (**Priority 0**, Score 0). These are populations where the rounded population level quality scores (*Qik*) are equal to 1 or 2 both for population size and for trend. **In case of these populations, it is important to maintain their current level of monitoring in order to attain the AEWA Strategic Plan target**.

All the remaining populations were classified in six hierarchical[[7]](#footnote-7) **priority categories** as follows:

**Priority 1**: Other populations that are subject to an existing AEWA single species action or management plan. Usually, the AEWA action and management plans already have provisions for monitoring of the target populations. Thus, this category simply recognises the need of implementing the existing provisions of the action and management plans (Score 6).

**Priority 2**: Other populations that belong to a Globally Threatened and Near Threatened species (Score 5).

**Priority 3**: Other populations with a small number (< 5) of countries with poor population size and/or trend estimates. The rationale behind giving a higher priority to such populations is that it is usually easier and more cost effective to develop monitoring activities in a smaller number of countries than for populations with large ranges (Score 4).

**Priority 4**: Other populations for which population size and trend estimates can be obtained from multi-species methods and one of the population-level quality scores is already 1 or 2. We considered common breeding bird monitoring, list methods, the IWC, aerial and offshore surveys being the most relevant multi-species methods. These populations would receive a higher score because using multi-species methods would be more cost-effective than using a lot of different species-specific methods (Score 3).

**Priority 5**: Other populations for which population size and trend estimates can be obtained from multi-species methods and both of the population-level quality scores are 3 or 4 (Score 2).

**Priority 6**: All other populations. Typically, these would require using species-specific monitoring methods in a large number of countries (Score 1).

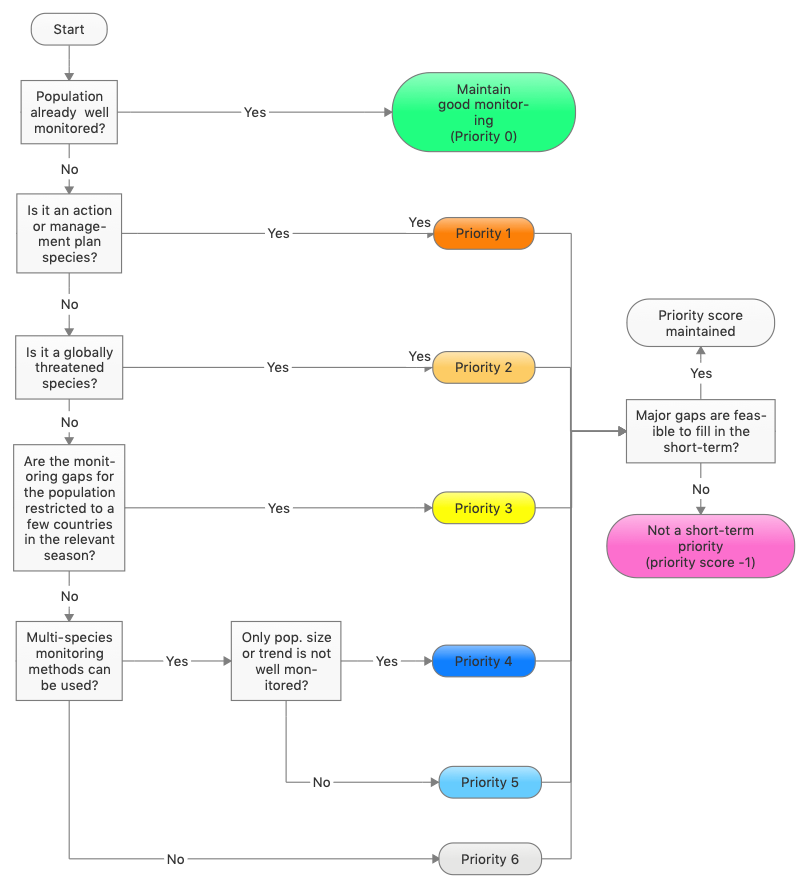


Figure 3.1: Flowchart of prioritising populations for the development of monitoring.

### 3.2.3 Assessing feasibility

Improving the monitoring for some of the priority populations might not be feasible within the limited time available by 2027 for various reasons including:

* the current security situation makes waterbird monitoring impossible in certain countries;
* it is unknown where to monitor the population because its current distribution is insufficiently known;
* lack of suitable monitoring techniques (e.g. for some burrow nesting seabirds);
* inaccessibility of certain geographic areas (e.g. the West Siberian taiga);
* limited availability of observers;
* political commitment (i.e. the Principal Range States of the population are not AEWA Contracting Parties nor engaged with other complementary biodiversity monitoring and reporting processes such as the Arctic Biodiversity Monitoring Programme, EU Birds Directive Article 12 reporting, European Red List of Birds or participate in monitoring programmes such as the IWC).

Populations where the improvement of monitoring is deemed not to be feasible received a priority score of -1 and were excluded from the current targeting of the development of monitoring activities. However, the value in monitoring these populations is recognized (which is why they were included in the prioritization assessment), and they are listed separately in this report with the justification of their exclusion.

#### 3.2.3.1 Security situation

In this assessment we excluded from the list of target populations those that have >50% of their populations in Mali, the Central African Republic, South Sudan, Somalia, Libya, Yemen, Syria, Iraq or Afghanistan, i.e. countries considered being high security risk due to political violence and social unrest[[8]](#footnote-8).

#### 3.2.3.2 Unknown distribution

In this assessment we have excluded those populations that have insufficient records to geographically target monitoring activities.

#### 3.2.3.3 Accessibility

In this assessment we excluded from the list of target populations those populations that have >50% in the scarcely populated and difficult to access parts of West Siberia (Russia) and would require the application of a breeding bird monitoring scheme to estimate their population size and/or trend).

### 3.2.4 Prioritising countries to target the development of monitoring schemes

In order to identify priority countries for the short-term development of certain monitoring methods (e.g. the IWC or aerial surveys), we prioritized countries based on:

1. The country’s importance for the Priority 1-5 populations remaining after the feasibility assessment. In calculating aggregated priority scores for a country, we only considered the populations whose importance scores are 2 or 3 in the country (i.e. the country is one of the Principal Range States for the population in the relevant season);
2. For each country, we aggregated the priority scores of only those populations from step 1 that are not yet well-monitored there either for population size or trend (taken the worst case of the two);

Where:

*Sjl*: The priority score of country *j* for monitoring method *l* (e.g. the IWC or colonial breeding bird monitoring);

*si*: The priority score of population *i* as described above.

*Pij*: Importance score of population *i* in country *j*.

*qij*: Quality score of of population *i* in country *j*.

A worked-out example is provided in Table 3.3.

Table 3.3: Worked out example of calculating the country priority score of a monitoring method.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Species | Population | Attribute | Importance | Population priority score | Quality | Country priority score |
| Numenius phaeopus | islandicus, Iceland, Faroes & Scotland/West Africa | S | 3 | 4 | 2 | 0 |
| Tringa totanus | robusta, Iceland & Faroes/Western Europe | S | 3 | 4 | 2 | 0 |
| Phalaropus fulicarius | Canada & Greenland/Atlantic coast of Africa | S | 1 | 4 | 1 | 0 |
| Gallinago gallinago | faeroeensis, Iceland, Faroes & Northern Scotland/Ireland | S | 3 | 4 | 4 | 4 |
| Pluvialis apricaria | altifrons, Iceland & Faroes/East Atlantic coast | S | 3 | 4 | 4 | 4 |
| Catharacta skua | N Europe/N Atlantic | S | 2 | 4 | 2 | 0 |
| Larus hyperboreus | leuceretes, Canada, Greenland & Iceland (bre) | S | 1 | 4 | 4 | 0 |
| Charadrius hiaticula | psammodromus, Canada, Greenland & Iceland/W & S Africa | S | 2 | 1 | 2 | 0 |
| Limosa limosa | islandica, Iceland/Western Europe | S | 3 | 0 | 2 | 0 |
| Calidris alpina | schinzii, Iceland & Greenland/NW and West Africa | S | 3 | 0 | 2 | 0 |
| Haematopus ostralegus | ostralegus, Europe/South & West Europe & NW Africa | S | 1 | 0 | 2 | 0 |
| Podiceps auritus | auritus, North-west Europe (large-billed) | S | 3 | 0 | 1 | 0 |
| Phalaropus lobatus | Western Eurasia/Arabian Sea | S | 1 | -1 | 4 | 0 |
| Aggregated country priority score |  |  |  |  |  | 8 |

## 3.3 Results

The prioritization method described above was applied to 560 population listed in Table 1 of Annex 3 of AEWA[[9]](#footnote-9). For these populations, 15,495 population × country × attribute (i.e. population size or trend) combinations were assessed covering 149 countries or territories.

### 3.3.1 Priority populations

Based on our assessment, 197 (35%) AEWA populations are already well monitored both for population size and trend (Appendix 2, Figure 3.2). The monitoring is inadequate for 34 populations with action or management plans, which means that 6% of the AEWA populations are Priority 1 (Appendix 3). Another 24 populations of Globally Threatened or Near Threatened species (4% of all AEWA populations) are Priority 2 populations (Appendix 4). There are 84 AEWA populations (15%) with a small number of range states (<5) with inadequate monitoring which are not in the previous categories (Priority 3, Appendix 5). In case of 18 AEWA populations (3%) just one of the population sizes or the trend is already well-monitored, but improvements are needed for the other attribute (Priority 4, Appendix 6). Both the population size and the trend can be monitored using a multi-species method (such as the IWC, offshore or aerial surveys, common breeding bird monitoring or list method) in case of 35 (6%) AEWA populations (Priority 5, Appendix 7). However, single-species methods would be needed in at least one season for a substantial proportion of the AEWA populations that are not well-monitored (168 populations, i.e. 30% of all AEWA populations, Appendix 8).

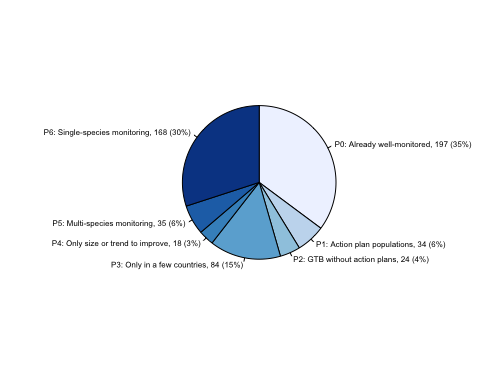


Figure 3.2: AEWA populations by priority categories for the development of monitoring

### 3.3.2 Feasibility

#### 3.3.2.1 Security situation

10 populations were excluded because field surveys would be not possible due to the threat of political violence or social unrest (Table 3.4).

Table 3.4: Priority populations excluded because of the security situation.

|  |  |
| --- | --- |
| Species | Population |
| Glareola pratincola | pratincola, SW Asia/SW Asia & NE Africa |
| Thalasseus bengalensis | emigratus, S Mediterranean/NW & West Africa coasts |
| Phalacrocorax nigrogularis | Gulf of Aden, Socotra, Arabian Sea |
| Geronticus eremita | South-west Asia |
| Threskiornis aethiopicus | Iraq & Iran |
| Balaeniceps rex | Central Tropical Africa |
| Spatula querquedula | Western Siberia & Europe/West Africa |
| Spatula querquedula | Western Siberia/SW Asia, NE & Eastern Africa |
| Marmaronetta angustirostris | South-west Asia |
| Anser erythropus | NE Europe & W Siberia/Black Sea & Caspian |

#### 3.3.2.2 Unknown distribution of the population

The Lake Chad basin populations of Spotted Teal *Spatula hottentota* and Cape Teal *Anas capensis* were excluded because it is not possible to target their monitoring based on our limited knowledge about their distribution. These are both very small populations (the former is estimated at 1 – 500 individuals, the latter at 100 – 1,000 individuals), but there are only very few observations of these populations in the IWC database and there are no records on the reporting websites (such as eBird) either.

We also excluded the Slender-billed Curlew *Numenius tenuirostris* because there are no confirmed records of the species from the last two decades despite of extensive surveys. Therefore, it is impossible to monitor this population.

#### 3.3.2.3 Accessibility

24 populations were excluded because >50% of their population occur in the scarcely populated and inaccessible central and northern parts of West Siberia where they should have been monitored during the breeding season because non-breeding surveys elsewhere produced no reliable estimates so far or likely underestimate their numbers (Appendix 9).

In total, 36 (6%) populations were excluded because of feasibility issues in the short-term.

#### 3.3.2.4 Number of priority populations remaining after exclusions

After the exclusion of these 36 populations due to feasibility issues, 331 priority populations remain. 177 of these are in priority categories 1–5. Together with the already well-monitored populations these represent 66% of the AEWA populations.

### 3.3.3 Priority monitoring methods

Figure 3.3, shows that colonial (C) and species-specific breeding bird monitoring schemes (S) are the methods that would produce reliable population size estimates for most of the Priority 1-5 populations, while the January waterbird monitoring (IWC) counts (I) could provide adequate trend information for the vast majority of these populations.

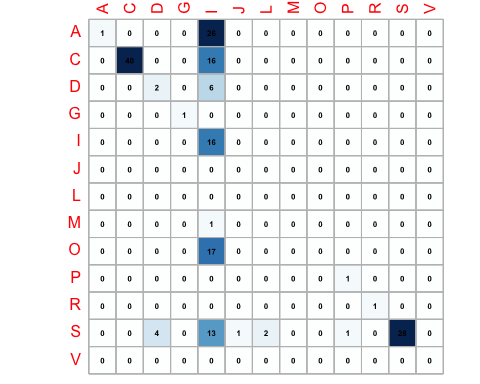


Figure 3.3: Correspondence between recommended methods to monitor population size (vertical axis) and trends (horizontal axis) for the Priority 1-5 populations. Method codes are the same as in Table 3.1. The numbers in the grid cells show the number of populations for the combination of methods.

Various combinations of the main monitoring methods can contribute to achieving the target set in the Strategic Plan target as follows:

* For 16 populations (3%, Appendix 10) the **IWC** is the recommended monitoring method both for trend and size. For trend estimates it is sufficient to monitor a relatively small number of monitoring sites annually, ideally counted synchronously on the international census dates. However, to obtain reliable population size estimates more extensive surveys (so called “*total counts*”) are needed periodically (at least once in every 6 years[[10]](#footnote-10)).
* For 26 populations (5%, Appendix 11) the annual **IWC** is the recommended monitoring method for population trend, but for population size periodic (ideally once in every 6 years, but at least once in every 12 years) **aerial surveys** are also recommended to cover large wetlands that cannot be well covered by ground surveys.
* For 17 populations (3%, Appendix 12) the annual **IWC** is the recommended monitoring method for population trend, but periodic (ideally once in every 6 years, but at least once in every 12 years) **off-shore aerial or boat surveys** are needed to estimate the population size.
* For 16 populations (3%, Appendix 13) the annual **IWC** is the recommended monitoring method for population trend, but periodic (ideally once in every 6 years, but at least once in every 12 years) **“complete” census of the breeding colonies** is needed to estimate the population size.
* For 6 populations (1%, Appendix 14) the annual **IWC** is the recommended monitoring method for population trend and sample-based **common breeding bird monitoring** is needed to estimate the population size.
* For 13 populations (2%, Appendix 15) the annual **IWC** is the recommended monitoring method for population trend, but periodic (ideally once in every 6 years, but at least once in every 12 years) **species-specific sample-based surveys** are needed to estimate the population size.
* For 40 populations (7%, Appendix 16) **colonial breeding bird monitoring** is the recommended method both for trend and size. For trend estimates it may be sufficient to monitor a smaller number of colonies annually or at least once in every 3 years. However, for robust population size estimates more extensive surveys are needed periodically (ideally once in every 6 years, but at least once in every 12 years).
* For 28 populations (5%, Appendix 17) **species-specific sample-based special breeding bird monitoring** methods are recommended both for trend and size estimation. For trend, it is sufficient to monitor a smaller number of sample plots annually (or at least once in every 3 years). However, depending on the variability of counts in the samples, more extensive surveys might be needed periodically (ideally once in every 6 years, but at least once in every 12 years) to keep the 95% confidence interval around the population size in an acceptable range.

Figure 3.4 shows that with the above-mentioned main methods the size and trends of 359 AEWA populations could be monitored. This includes an extra 162 populations on top of the 197 currently well monitored ones, it is 14 populations fewer than the two-third target. Therefore, it will be necessary to implement also some additional methods (e.g. roost or passage counts) for these populations. Figure 3.4 also highlights that **the IWC needs to be complemented by other methods to increase the number of well-monitored populations** otherwise the target of the Strategic Plan cannot be achieved.

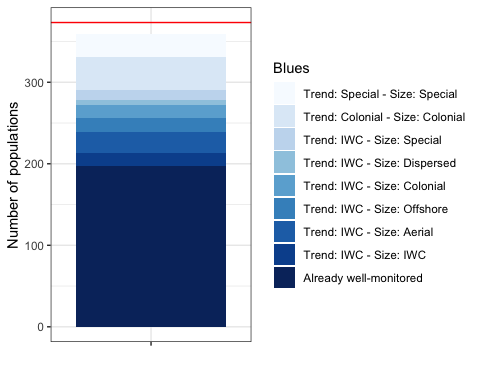


Figure 3.4: The contribution of various combination of monitoring methods towards Target 1.4 of the AEWA Strategic Plan 2019–2027 (red line).

### 3.3.4 Priority regions and countries for the development of the main monitoring schemes

In this section, we identify priority regions and countries for the development of the main monitoring schemes. These priority regions and countries are the ones where the development of appropriate monitoring schemes will make the greatest impact towards achieving the AEWA Strategic Plan target.

Regions follow the major intercontinental flyways as presented in Figure 3.5.

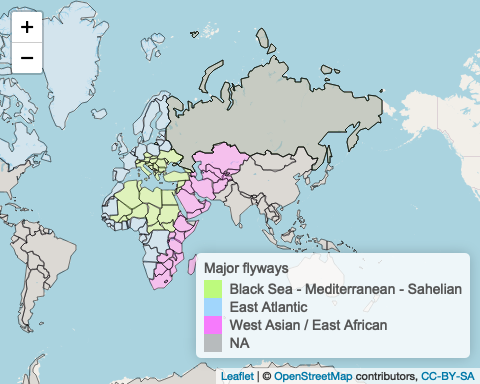


Figure 3.5: Major flyways for organising monitorings schemes. Data from certain countries will contribute to the monitoring of populations that may belong to another flyway. E.g. data from France or Spain may contribute to assessing populations that belong to either the East Atlantic or to the Black Sea – Mediterranean – Sahelian flyways.

Then each population was allocated to a flyway or a combination of flyways (Table 3.5). Obviously, the simplified allocation of countries to flyways that are practical for organising monitoring work does not neatly match the distribution of each biogeographic population and some population (e.g. widespread European populations or widespread populations in Sub-Saharan Africa can be allocated to more than one flyways. However, the purpose of this calculation is to highlight where is the most important to improve monitoring activities and to develop some spatial grouping that can serve as the basis of organising schemes and capacity building activities. In summary, 38 Priority 1–5 populations can be allocated to the East Atlantic Flyway, 11 plus 13 to the Black Sea - Mediterranean Flyway or they are shared between these and the previous flyway (i.e. 24 in total), 49 populations can be allocated to the West Asian / East African flyway and 31 populations can be assigned to other flyway combinations and would require development in more than one flyway.

Table 3.5: Number of Priority 1–5 and Priority 0–5 populations per flyway

|  |  |  |
| --- | --- | --- |
| Flyway or flyway combination | Nr. of Priority 1-5 populations | Nr. of Priority 0-5 populations |
| East Atlantic | 38 | 117 |
| East Atlantic & Black Sea - Mediterranean - Sahelian | 13 | 68 |
| Black Sea - Mediterranean - Sahelian | 11 | 54 |
| Black Sea - Mediterranean - Sahelian & West Asian / East African | 6 | 10 |
| West Asian / East African | 49 | 71 |
| East Atlantic & West Asian / East African | 22 | 37 |
| East Atlantic & Black Sea - Mediterranean - Sahelian & West Asian / East African | 3 | 11 |

In each case, we present three maps:

* The first shows the number of all populations (including the well-monitored ones) for which the method is recommended. This helps appreciating the overall contribution of the method to the AEWA Strategic Plan target;
* The second shows the number of Priority 1-5 populations per country regardless of the quality of monitoring in the country or the country’s importance for the population. This helps appreciating the geographic distribution of populations whose monitoring needs to be improved;
* The third shows the aggregated priority scores per country for the method in question (see Section 3.2.4).

In addition, an online look up tool[[11]](#footnote-11) was developed to show all the populations by monitoring methods for each country.

#### 3.3.4.1 Priority regions and countries for the development of the International Waterbird Census (IWC)

The IWC is the recommended monitoring method for 263 populations (Appendix 1). 77 populations are considered already being well-monitored (Appendix 2) and a further 95 are listed in the Priority 1-5 categories.

Figure 3.6 shows that the largest number of populations 91 are to be monitored by the IWC in Russia. This high number reflects the fact that the country supports different flyway populations of the same species in the Baltic, the Black Sea and the Caspian regions. On average, countries support 40 populations. There is a slightly larger number of populations in the eastern part of the Agreement Area than elsewhere. The Nordic and Continental countries support a smaller number of populations than elsewhere because the winter distribution of most of their populations is limited by the freezing over of wetlands.

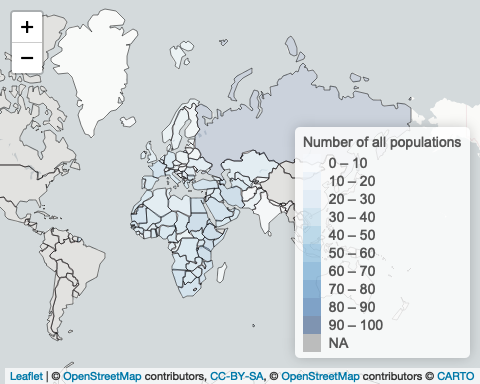


Figure 3.6: Number of all AEWA populations to be monitored by the International Waterbird Census per country.

Figure 3.7 shows that there are very big differences in the distribution of Priority 1-5 populations for which improvement of monitoring is required amongst the different regions within the Agreement Area. There are only a few Priority 1-5 populations in Northwest Europe where the IWC has longer traditions, better integration into national biodiversity monitoring frameworks and funding from national governments. The situation is less favourable elsewhere although the results of investments into capacity building are clearly visible in North Africa and in Western Africa and there is a more Priority 1-5 populations in Central Asia, Arabia, Southern and Eastern Africa.

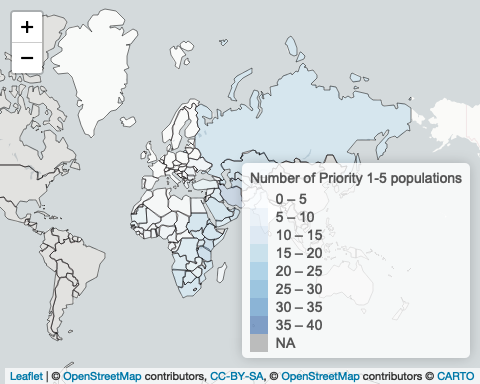


Figure 3.7: Number of Priority 1-5 populations per country for which monitoring is required by the IWC method.

Figure 3.8 highlights that the most critical countries for the development of the IWC are mainly in the **West Asia / East Africa flyway**: Tanzania, Turkmenistan, Azerbaijan and Mozambique have registered the highest scores, but it is notable that Pakistan (a country outside of the Agreement Area) is also relatively important. Other priority countries in this flyway also include Russia (the Caspian part), Uzbekistan and Oman. On the other hand, there are rather solid national schemes in South Africa, Botswana, Kenya and Ethiopia, but these efforts are insufficient without complementary activities in other countries sharing the same populations. Likewise, the relatively good monitoring in Iran is insufficient to estimate the trends for the Southwest Asian populations without complementary schemes elsewhere in the Caspian region and in Arabia.

In the **Black Sea - Mediterranean - Sahelian flyway**, further improvements are needed in all Sahelian countries. Although an increasing amount of data is available as the result of foreign expeditions, the results of such expeditions can be used only to obtain population size estimates. However, there are very few sites that are counted regularly in this flyway to produce population trend estimates.

The **East Atlantic flyway** includes fewer priority countries partly because this region is already subject of capacity building activities, partly because only a few of these countries are Principal Range States for many Priority 1-5 populations. Although Angola and the Democratic Republic of Congo is allocated to this flyway from a capacity building perspective, the IWC in these countries would be more important on inland wetlands focusing on intra-African migrants than for Palearctic migrants on coastal wetlands.

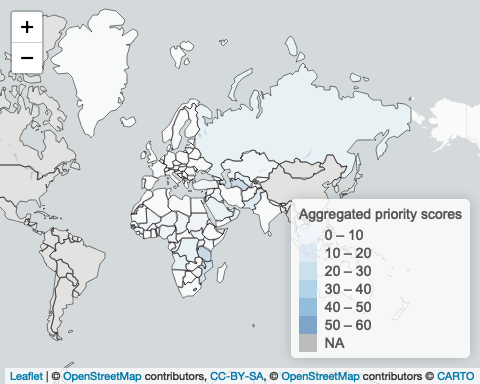


Figure 3.8: Aggregated priority scores for the development of the IWC per country

#### 3.3.4.2 Priority regions and countries for the development of periodic aerial surveys of inland wetlands

Periodic aerial surveys is the recommended monitoring method for 35 populations (Appendix 1). 4 populations are considered already being well-monitored (Appendix 2) and 27 are listed in the Priority 2-5 categories (Appendix 11). (This method would be not required for any Priority 1 population). As shown in Section 3.3.3, periodic aerial surveys would be necessary to obtain better population size estimates for intra-African and Palearctic migrant *Anatidae* populations and Red-knobbed Coot *Fulica cristata*, as currently the estimates for these populations are mainly dependent only on best guess. IWC counts totals are typically one-tenth or less of the population size estimates, although somewhat better in the Western part of the Sahel where a campaign of aerial surveys was carried out in the late 2000s.

As Figure 3.9 shows that periodic aerial surveys of inland wetlands would be primarily needed in countries with large lakes and floodplains (e.g. the Okawango Delta, Kafue Flats, Lake Victoria and the Sudd in East Africa, the Niger River floodplain, Hadejia-Nguru wetlands, Lake Chad, Logone floodplain in West Africa) that are difficult to count properly by ground or boat surveys, but a few populations in the Caspian region would also benefit from such surveys.

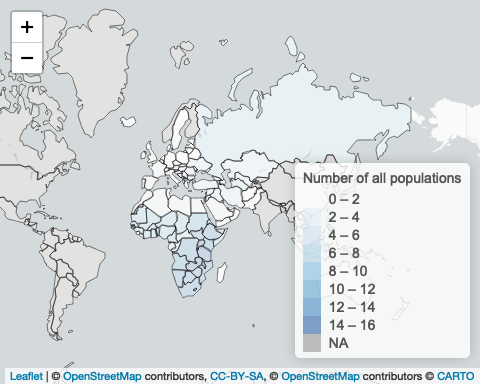


Figure 3.9: Number of all AEWA populations to be monitored by periodic aerial surveys of inland wetlands per country.

As comprehensive aerial surveys have not been carried out or were carried out more than a decade ago in most of Africa, Figures 3.10 and 3.11 show a similar picture to Figure 3.9.

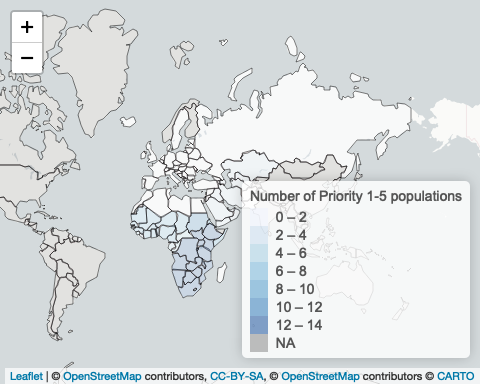


Figure 3.10: Number of Priority 1-5 populations to be monitored by periodic aerial surveys of inland wetlands per country

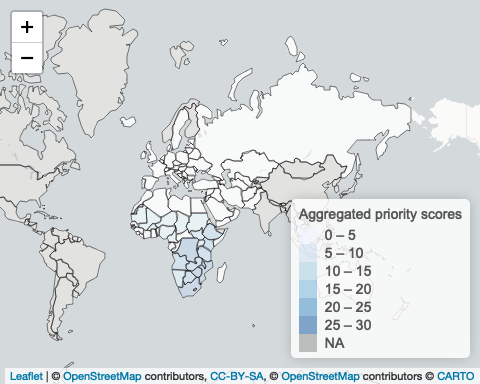


Figure 3.11: Aggregated priority scores for the development of by periodic aerial surveys of inland wetlands per country

#### 3.3.4.3 Priority regions and countries for the development of periodic offshore aerial or boat surveys

Periodic offshore aerial or boat surveys are the recommended monitoring method for 43 populations (Appendix 1). 26 populations are considered as being already well-monitored (Appendix 2) and 17 are listed in the Priority 1-5 categories (Appendix 12). (This method would be not required for any Priority 6 population).

Figure 3.12 shows that the highest number of populations whose population size should be monitored through periodic offshore winter surveys are in the Baltic and North Sea region, followed by a smaller number of populations in the Caspian and Black Sea regions. (Like in case of the IWC, Russia has the highest number of populations to be monitored with this method because the country supports different populations of the same species in the Baltic, Black and Caspian Sea regions. For many of the populations to be monitored by offshore surveys, such as the Tufted Duck *Aythya fuligula*, complementary IWC counts of inland wetlands are also needed. Hence, the offshore surveys are only recommended for the countries with significant numbers wintering in areas that cannot be covered well by land-based surveys and definitely not in the landlocked countries as Figure 3.12 would suggest).

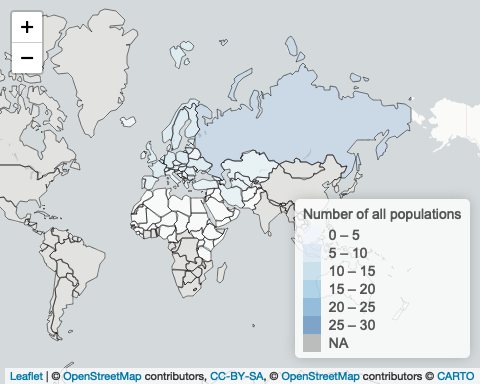


Figure 3.12: Number of all AEWA populations to be monitored by periodic offshore surveys per country.

Figure 3.13 shows that periodic offshore surveys would be primarily needed in the Caspian and to a lesser extent in Black Sea and Mediterranean regions, while the populations in the Baltic and North Sea region are already better monitored.

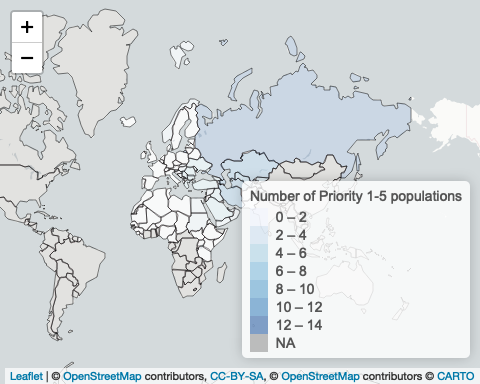


Figure 3.13: Number of Priority 1-5 populations to be monitored by periodic offshore surveys per country

Figure 3.14 shows that the Caspian Sea (Azerbaijan and Turkmenistan in particular) should be the main focus of developing offshore surveys. It would be important to explore the possibilities of some Caspian surveys in collaboration with the UNEP Tehran Convention and the oil and gas industry active in the region because only Turkmenistan is a Party to AEWA at this moment.

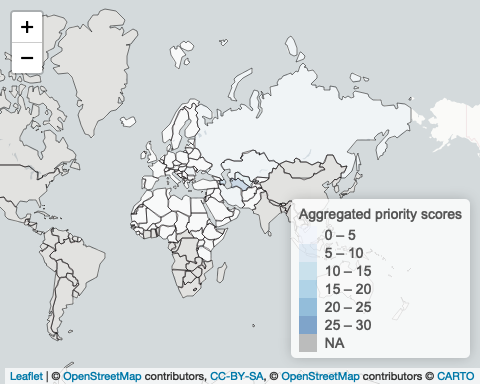


Figure 3.14: Aggregated priority scores for the development of by by periodic offshore surveys per country

#### 3.3.4.4 Priority regions and countries for the development of colonial breeding bird monitoring

Colonial breeding bird monitoring is the recommended monitoring method for 201 populations (Appendix 1). 64 populations are considered already being well-monitored (Appendix 2) and 16 belong to a Globally Threatened or Near Threatened species and listed as Priorities 1 or 2 populations and another 40 are listed as Priority 3 populations (Appendices 13 and 16). No Priorities 4 or 5 populations were identified as the consequence of our prioritisation methodology (see Section 3.2.2). However, there are another 64 more widespread populations (mostly in Sub-Saharan Africa) whose monitoring should be also improved (Priority 6).

Figure 3.15 shows that most of the populations to be monitored by this method occur in Russia for the same reasons as already mentioned for other methods. In general, coastal countries in the temperate and tropical zones support more populations that should be monitored by colonial breeding bird methods. This reflects that many cormorant, auk, gull and tern populations are coastal. However, many heron, flamingo, ibis, pelican and gull populations also occur at inland wetlands.



Figure 3.15: Number of all AEWA populations to be monitored by colonial breeding bird surveys per country.

Although a total of 56 priority populations were identified for colonial breeding bird monitoring in 94 countries or territories, on average, only 2.3 Priority 1-3 populations should be monitored per country, which means that monitoring of the priority populations would not very demanding in most countries.

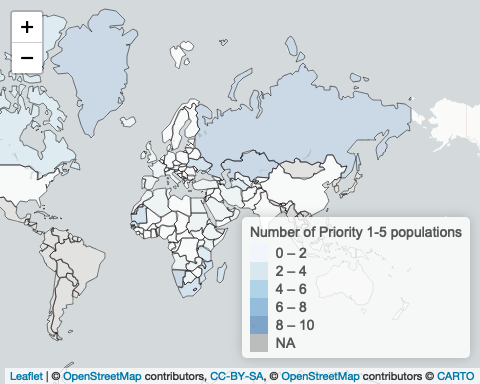


Figure 3.16: Number of Priority 1-5 populations to be monitored by colonial breeding bird surveys per country

Figure 3.17 shows a very similar picture as Figure 3.16 but plays down the importance of Mozambique while highlights the importance of Tanzania. The latter was elevated because it supports two Globally Near Threatened species: the Lesser Flamingo *Phoeniconaias minor* and African Skimmer *Rhyncops flavirostris* while the former only supports the latter species. Unfortunately, most of these countries except South Africa, Senegal and Ukraine are not (yet) parties to AEWA. This presents some challenges concerning the feasibility of rolling out adequate monitoring schemes in these countries. However, Kazakhstan and Namibia already collaborate with AEWA on the implementation of relevant AEWA Species Action Plans (such as the one on Black-winged Pratincole and on the Benguela Current Upwelling System Coastal Seabirds), while Russia and Greenland might be targeted through the [Circumpolar Biodiversity Monitoring Programme](https://www.caff.is/index.php?option=com_content&view=article&id=499&Itemid=1014) of the Conservation of Arctic Flora and Fauna (CAFF).



Figure 3.17: Aggregated priority scores for the development of by colonial breeding bird surveys per country

#### 3.3.4.5 Priority regions and countries for the development of species-specific breeding bird monitoring

Species-specific breeding bird monitoring is the recommended monitoring method for 173 populations (Appendix 1). 40 populations are considered as being already well-monitored (Appendix 2) and 24 belong to Globally Threatened or Near Threatened species and listed as Priorities 1 or 2 populations and another 25 are listed as Priority 3 populations (Appendices 15 and 17). No Priorities 4 or 5 population is identified because of the prioritization method. However, there are another 40 more widespread populations whose monitoring should be also improved.

Figure 3.18 shows that most of the populations to be monitored by this method occur in Russia for the same reasons as already mentioned for the other methods, and also a larger number of populations occur in Northern and Eastern Europe, Kazakhstan as well as in South Africa than in the rest of Africa or the Middle East.

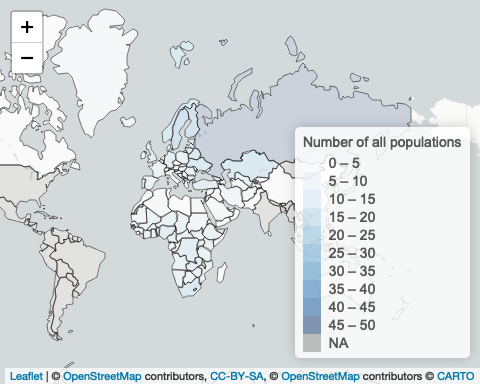


Figure 3.18: Number of all AEWA populations to be monitored by some species-specific breeding bird survey methods per country.

A total of 24 Priority 1-3 populations were identified and species-specific breeding bird monitoring would be necessary in 83 countries or territories. However, the average number of populations to be monitored by such methods is only 2.3 per country.

Figure 3.19 shows that Iceland supports the second largest number of Priority 1-3 populations after South Africa. For the Whimbrel *Numenius phaeopus*, Common Redshank *Tringa totanus*, Common Snipe *Gallinago gallinago*, Eurasian Golden Plover *Pluvialis apricaria*, Black-tailed Godwit *Limosa limosa* and Dunlin *Calidris alpina*, the country supports the majority of the breeding population. Most of these populations mix with other populations of the same species outside of the breeding season, which prevents their reliable monitoring elsewhere. Therefore, it would be very important to establish adequate breeding bird monitoring for these populations on Iceland that could produce reliable data both the trend and the population size estimates.

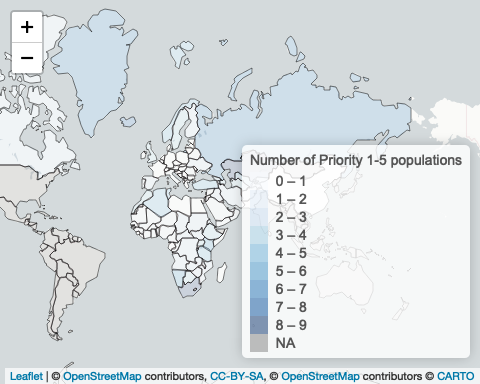


Figure 3.19: Number of Priority 1-5 populations to be monitored by some species-specific breeding bird survey methods per country

Figure 3.20 highlights the particular importance of species-specific monitoring in South Africa, Namibia in Southern Africa, Morocco, Algeria and Tunisia in North Africa, Kenya and Tanzania in Eastern Africa and Kazakhstan in Central Asia mainly because of the larger number of Globally Threatened and Near Threatened Species in these countries.

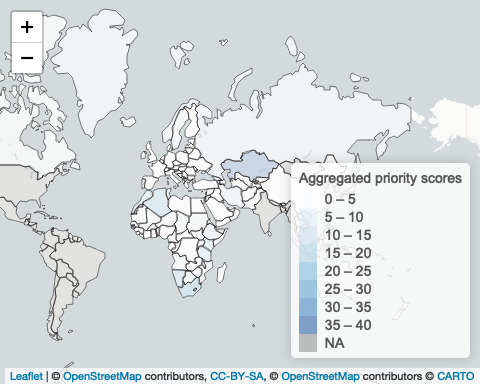


Figure 3.20: Aggregated priority scores for the development of by some special breeding bird survey methods per country

### 3.3.5 Recurring schedule of international surveys

There are already a few rolling international surveys for populations that cannot be monitored through the annual IWC counts alone (Table 3.6).

Table 3.6: Worked out example of calculating the monitoring quality score of a population for population trend

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Species covered | Geographic scope | Frequency | Last survey | Next survey |
| International Swan Census | Bewick Swan, Whooper swan | Europe | 5 years | 2020 | 2025 |
| Baltic Sea Seaduck Surveys | Seaducks | Baltic Sea | 5 years | 2020/2021 | 2025 |
| East Atlantic Flyway | Coastal waterbirds | East Atlantic Flyway | 3 years | 2020 | 2022 |
| European Golden Plover | Eurasian Golden Plover, Northern Lapwing, Eurasian Curlew | NWEurope | 5-6 years | 2020 | Not yet known |
| Greenland Barnacle Goose | Barnacle Goose | UK Ireland | 5 years, but likely change to every 3 years | 2020 | 2023 |

It would be useful to replicate the 3-yearly *“total counts”* approach of the East Atlantic Flyway also in the Black Sea - Mediterranean - Sahelian and the West Asian / East African flyways. Although, double counting could be avoided, and uncertainties concerning the results could be reduced, if these counts were implemented in the same years. However, it may be problematic to secure funding and capacity for all of these surveys in the same years. Therefore, it we recommend establishing a rotating three-year-cycle between the three flyway total counts in the years between 2023 and 2025 and then in every 6 years preceeding the 6-yearly AEWA national population status reporting.

These *“total counts”* should be complemented, where feasible, by the relevant aerial and offshore surveys in the same flyways.

*Offshore surveys* in the Baltic/North Sea could be implemented also on a 6-year-cycle. Discussions are already ongoing within the AEWA Seaduck International Working Group, but coordination of the timing of the *total counts* in the East Atlantic flyway would be ideal. In this context, it would be important to ensure that synchronised surveys are carried out both in the Baltic and the North Sea because they support the same populations of some species including the Long-tailed Duck *Clangula hyemalis*, Velvet Scoter *Melanitta fusca* and Common Eider *Somateria mollissima*, which are all subject of AEWA International Single Species Action Plans. Similar coordinated offshore surveys in the Caspian and possible also in the Black Sea could be implemented ideally once in every 6 years[[12]](#footnote-12). Ideally, such surveys should take place in the same year as the “total counts” in the respective flyway.

Organising *aerial surveys* in Africa would be also more realistic on a 6-year-cycle[[13]](#footnote-13) and the timing of these should be coordinated with the respective “total counts”. Ideally, the first round of such offshore and aerial surveys should take place before 2027 to make progress towards the two-third target of the AEWA Strategic Plan 2019–2027.

If the aim is to carry out such non-breeding surveys in time to improve population size estimates for the priority populations before 2027, the first round of such surveys should take place between 2023 and 2025 otherwise the results cannot contribute to the assessment of the AEWA Strategic Plan 2019–2027 (Figure 3.21).

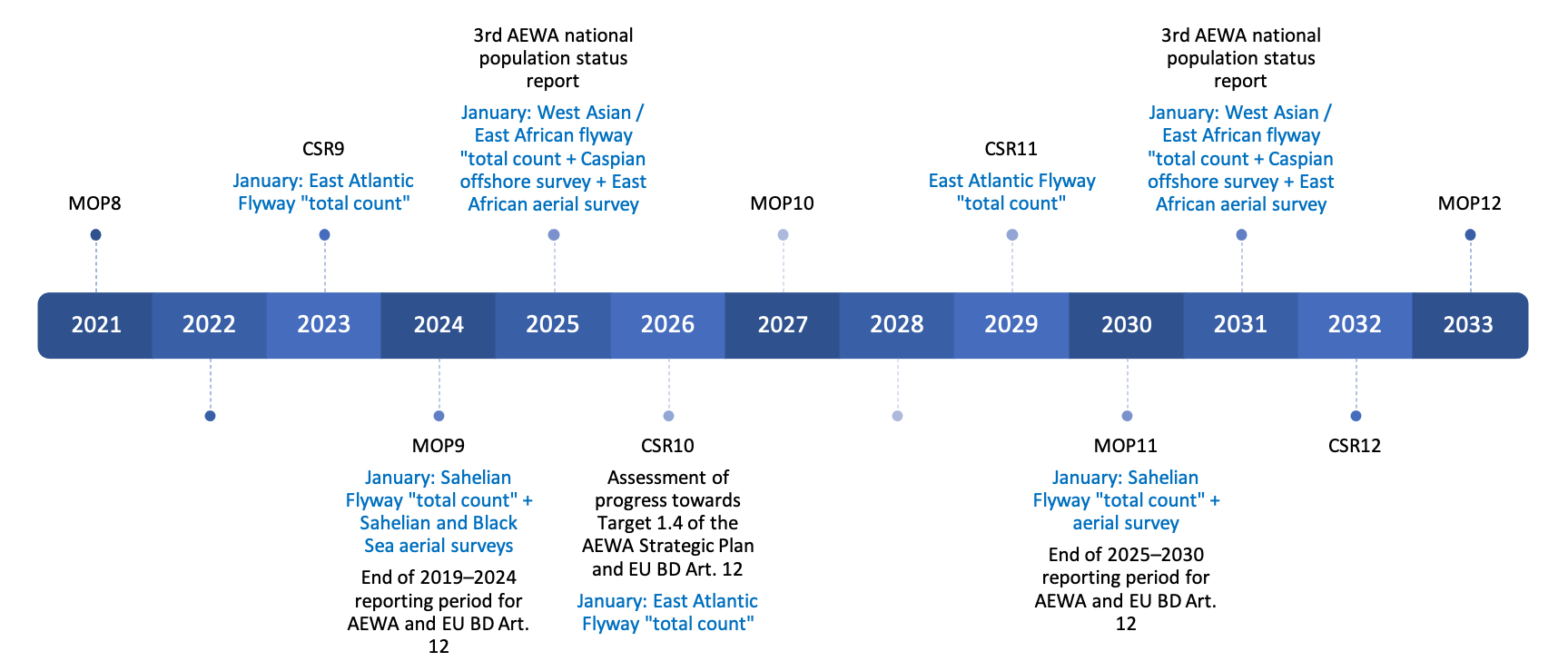


Figure 3.21: A proposed schedule for the timing of flyway-level counts in the context of the AEWA Meeting of Parties, Conservation Status Reports, national population status reports to AEWA and the EU Birds Directive Article 12 reporting.

There could be more flexibility in the timing of the species-specific and colonial breeding bird surveys. These do not need to be in the same years as the “total counts” as in case of the non-breeding offshore and aerial surveys. However, it would be still important that counts of the populations of colonial breeding birds take place within the same year across their ranges to avoid double counting. Considering the large number of populations that would require breeding bird counts, the timing of such surveys should be harmonised regionally in collaboration with other relevant instruments such as certain UNEP Regional Sea Conventions or coordinated by the relevant AEWA International Species Working or Expert Groups.

### 3.3.6 Training and capacity needs for data collection and analysis

In contributing to the Target 1.4 of the AEWA Strategic Plan 2019–2027, the Plan of Action for Africa identifies the following actions for the AEWA Secretariat:

* Assess priorities for training needs in data collection and analysis (by 2021);
* Organise training courses to enhance national capacity for data collection and analysis in priority countries based on outcomes.

In this context training and capacity development are needed fundamentally at three functional levels:

1. Technical officers;
2. Scheme coordinators;
3. Observers.

#### 3.3.6.1 Government Technical Officers

Technical Officers at the governments are required to identify the monitoring needs of the implementation of AEWA and establish, in collaboration with relevant scientific institutes and NGOs, a sufficiently trained and resourced national monitoring network that produces the required information for future AEWA reporting on population status and trend. This also includes the ability to produce sound AEWA national population status reports in every six years based on the available monitoring data. This requires an understanding how to use available tools (such as the Critical Site Network Tool) and how they can be used to establish the list of AEWA populations present in the country. They should be able to apply the standards set in the AEWA reporting formats and guidelines. Importantly, the Technical Officers should be able to oversee the purposeful development of the national monitoring framework with all its necessary components. Ideally, training of Technical Officers is to be provided in the early years of the AEWA six-yearly reporting cycle on population status. Such trainings should be provided by the AEWA Secretariat not only to contracting parties in Africa but also to parties and other interested range states in Southwest Asia and non-EU European countries.

#### 3.3.6.2 Scheme Coordinators

In practice, monitoring schemes are coordinated by Scheme Coordinators who are responsible for the day-to-day operations of these schemes. The AEWA Guidelines on Waterbird Monitoring (Hearn et al., 2018) already provides a general description of the capacity needs for coordinating a waterbird monitoring scheme and provides access to additional guidance and training materials.

Regional trainings for IWC coordinators have been provided for all African, Arabian and Central Asian countries and further support is provided through regional initiatives such as the Wadden Sea Flyway Initiative, the RESOURCE project, the Mediterranean Waterbirds Network, the Adriatic Flyway Initiative and directly by Wetlands International. A mechanism for data flow has already been established for the IWC data through the IWC Online portal and Wetlands International already provides the results of country-level trend analyses to the national IWC coordinators as a side product of the trend analyses for the AEWA Conservation Status Report.

It is more important to recognise the importance of establishing capacity for aerial surveys in Africa and Central Asia and for offshore surveys in the Caspian region. New Scheme Coordinators should become familiar with the survey techniques, relevant sampling design and the analytical methods. However, each of these potential schemes would require its own specialized trainings preceding the first flyway-level surveys. Potential trainers for the aerial surveys include Technical Support Unit for the Plan of Action for Africa that already carries out aerial surveys in the Sahel. For the Caspian offshore surveys, potential trainers could be available from the Baltic Sea region.

In case of the colonial and species-specific breeding bird monitoring schemes the challenge facing the AEWA is that monitoring these populations will require a variety of methods depending on the species, the location, etc. However, some training capacity already exists or should be established within the framework of the relevant AEWA Species Action and Management Plans that would cover the Priority 1 populations and could be provided within the fraemwork of the AEWA International Species Working Groups. For other priority populations, AEWA could organise introductory training for Scheme Coordinators should focus on survey techniques, sampling design, statistical techniques to produce population size estimates from samples, trend analyses, data management, reporting and coordination.

#### 3.3.6.3 Observers

Observers are required to collate and submit the results of their local surveys. Training of observers is the responsibility of the national coordinators of individual schemes. There are already existing training materials available to support training of IWC observers in North and Sub-Saharan Africa.

Colonial and species-specific breeding bird monitoring would require specific training of still a relatively large number of observers, but the focus should be primarily on the proper specific survey techniques rather than on broad identification skills.

Aerial and offshore surveys are likely to involve only a small number of specialist observers. In many African countries there are already teams that have experience with aerial surveys of wildlife and complementary training in the relevant techniques and in specific identification skills would be necessary.

### 3.3.7 Conclusions and recommendations

Based on our country-by-country analysis, 197 of the AEWA populations are already well-monitored both for population size and trend.

Our prioritisation method allowed focusing on the AEWA conservation and management priorities (Priorities 1-2) and to consider cost effectiveness and feasibility (Priorities 3-6). Theoretically, the two-third target of the AEWA Strategic Plan can be just attained by focusing on the development of monitoring activities for Priority 1-5 populations (i.e. leaving out the 168 more widespread Priority 6 populations that would require more species-specific monitoring methods.

Most of the Priority 1-5 populations would require improvement of the IWC though regional schemes focusing on the **West Asian / East African flyway** with possibly three subregional components in the Central Asia, Arabia and Eastern and Southern Africa. In the latter region, improvements in Tanzania and Mozambique are particularly important. In the **Black Sea - Mediterranean - Sahelian flyway** the focus should be primarily on the Sahel countries and especially on increasing the consistency of annual counts. The quality of monitoring is already better in the Black Sea and Mediterranean regions. In the **East Atlantic**, the ongoing capacity-building activities should continue and the consistency and representativity of site coverage should be further strengthened in most countries. Angola would require a major capacity improvement but primarily for the intra-African migrants on inland wetlands.

It is also clear that the targets of the AEWA Strategic Plan cannot be achieved without complementing the IWC with periodic aerial surveys both in Western Africa as well as in Eastern and Southern Africa, by setting up a periodic offshore waterbird monitoring scheme in the Caspian Sea and by focusing in each country on a relatively small number of breeding bird species strategically selected in this report.

# 4 Methods of investigating factors driving change in AEWA species and populations

## 4.1 Introduction

Integrating drivers of change provides valuable additional insight through understanding of why observed changes in bird abundance are happening, that basic abundance monitoring cannot (Hearn et al. 2018). Integrated monitoring involves the regular integrated analysis of data collected by the monitoring of abundance, vital rates and, ideally, environmental conditions and pressures. Together, they may uncover the drivers behind changes in abundance, to increase the possibilities for early warning and enables prediction of future population change. The interaction between the results of demographic monitoring and environmental monitoring can lead to an insight into the effects of human pressures and conservation measures. The information generated allows decision makers to implement and prioritise cost-effective conservation policies and actions.

Recommended approaches to monitoring demographic drivers has been dealt with extensively in AEWA Conservation Guidelines on Waterbird Monitoring (Hearn et al. 2018), with specific guidelines on how productivity, survival and population structure should be monitored. Here we focus on how environmental conditions may be monitored over time.

To date, very little information has been compiled and analysed with a focus on identifying the environmental drivers of waterbird trends across the AEWA Region. Here, we set out to define an approach to gathering information that will inform the impacts of environmental drivers on trends.

## 4.2 Review of available data sources for monitoring environmental drivers

In order to be able to identify and determine the impacts of environmental drivers on waterbirds, we need to gather information on the main threats, and how they affect the species. There are two centralized datasets that are readily available and that deliver these requirements, and they are the IUCN Red List (produced by BirdLife International as the Red List Authority for birds) which compiles comprehensive threat information primarily against Globally Threatened and Near Threatened birds, and the European Union Birds Directive Article 12 reports (last updated in 2019). These, and other potential sources of information on drivers of trends are detailed below.

### 4.2.1 IUCN Red List

Data on threats to species represent a core part of Red List assessments, and BirdLife International collates and compiles the latest information on threats to species through its ongoing programme to reassess all bird species every four years. The assessment of threats is done at species level via a combination of expert consultation (in collaboration with e.g. the respective IUCN Species Survival Commission (SSC) Specialist Groups) and bibliographic searches for studies reporting threats to each species. AEWA has applied the Red List threat assessment system in its action planning process.

Information on major threats to all Globally Threatened and Near Threatened species is required (coded to the lowest level) using a standard hierarchal Threats Classification Scheme developed by the IUCN . This threat classification scheme is based on a hierarchal scheme of three levels, with 11, 31 and 99 nested categories respectively, and was developed to improve information sharing and learning among conservation practitioners (Salafsky et al. 2008) aiming to help practitioners, managers and/ or decisionmakers to:

* Identify threats occurring at a site or affecting species.
* Tally the frequency of threats across sites, at various scales.
* Link targets, threats, contributing factors and actions, and to be able to share these datasets.

An overall Impact score for each threat and species is estimated as the sum of individual scores of timing (when the threat is taking place), scope (extent of the population affected) and severity (rate of reduction of the population). Each of these factors is scored between 0 and 3 (Table 4.1). The overall level of impact for each is assigned as:

* High impact (score 8-9)
* Medium impact (score 6-7)
* Low impact (score 3-5)
* Negligible/ no impact (score 0-2)

Table 4.1: Scoring of timing, scope and severity for the IUCN Red List[[14]](#footnote-14)

|  |  |  |  |
| --- | --- | --- | --- |
| Score | Timing | Scope | Severity |
|  |  |  | Very Rapid Declines (>30% over longer of 10 years or 3 generations |
| 3 | Ongoing | Whole (>90%) |  |
|  |  |  | Rapid Declines (20-30% over longer of 10 years or 3 generations) |
| 2 |  | Majority (50-90%) |  |
|  |  |  | Slow but significant Declines (<20% |
|  |  |  | over longer of 10 years or 3 generations) of fluctuations |
| 1 | Future | Minority (<50%) |  |
| 0 | Past | Negligible minority | Negligible/ no decline/ unknown |

For the threatened and near-threatened AEWA waterbirds, the most recent updates were generated in 2016; and for all AEWA seabirds, they were updated again in 2018 as part of a dedicated global review of threats to all seabirds globally (Dias et al. 2019). For most of the other species, the last threat assessment took place under the [Wings Over Wetlands project](https://www.wetlands.org/the-wings-over-wetlands-wow-project/#%3A~%3Atext%3DThe%20Wings%20Over%20Wetlands%20(WOW)%20Project%20was%20the%20first%20international%2Cin%20the%20African%2DEurasian%20region.%26text%3DWings%20Over%20Wetlands%20was%20a%2CSecretariat%20and%20the%20Ramsar%20Convention) 10 years ago.

For each species and threat, stresses as set out in the [IUCN Stresses Classification Scheme](https://www.iucnredlist.org/resources/stresses-classification-scheme) are recorded that inform how each threat impacts on a species. Further details specifically on how each threat affects each of the species are also compiled on three hierarchical levels:

1. Level 1: Whether the stress affects the species or ecosystems
2. Level 2: If species, does it cause (a) disturbance, (b) mortality, or (c) indirect effects. If ecosystems, is it due to (d) conversion, (e) degradation or (f) indirect ecosystem effects.
3. Level 3: Provided for a selection of the records only, and aims to provide further details relating to those threats considered to pose indirect species effects, and the following were reported for waterbirds:
   * Hybridisation
   * Competition
   * Skewed sex ratios
   * Reduced reproductive success
   * Other

In all cases, the latest data currently held in the Red List database (i.e. up to and including the partial 2019 update) were used to identify the range of threats identified for each AEWA species, their level of impact, and the nature of these threats.

A detailed overview of the threat information available is presented in Appendix 14. In total, some threat information was available for 192 of the 255 AEWA-listed species (listed in Appendix 15), with comprehensive threat assessments of 50 species listed as globally threatened (Critically Endangered, Endangered or Vulnerable) or Near Threatened. Threatened and near-threatened species were comprehensively assessed in 2016 (32 species, 16% of all species for which threat assessments were completed), all seabirds (including some threatened and near-threatened species) in 2018 (78 species / 41%), and the remaining species that are least concern (82 species / 43%) were assessed approximately 10 years ago.

### 4.2.2 EU Birds Directive Article 12 Reporting

EU Member States are required by the EU Birds Directive (Council Directive 2009/147/EC, 2009) to report on the population sizes and trends for all regularly occurring bird taxa every six years. They are also required to report pressures and threats for some of their bird taxa. Pressures are defined in Article 12 reports as ongoing issues, whereas threats are defined as future issues. For the purpose of this report, the term ‘threat’ is used to define the activities affecting the species, and those threats happening now presented separately from those predicted as future threats.

Reporting is mandatory for all species listed on Annex I of the Birds Directive, and for species that trigger Special Protected Area (SPA) designations within certain Member States. Pressures and threats can also be optionally reported by Member States for species that are not present in either of these categories.

For each species, data are reported separately for each season (breeding, wintering and passage seasons). Member States can report up to 10 seasonal pressures and 10 seasonal threats per species, classifying them as of ‘high’ or ‘medium’ impact. Member States can report up to five high and five medium impact pressures and threats for each species. For each pressure and threat identified next to a species, the Member State must also identify whether it affects the species within their country, elsewhere in the EU, inside and outside the EU, or outside the EU.

The pressures and threats classification scheme used is designed specifically for the characterisation of pressures/threats’ of the Article 12 Birds Directive (as well as Article 17 Habitats Directive reports). The categories have been identified to find the root cause activities and are linked with policies to regulate them on an EU level. It is a bespoke hierarchal scheme, and the version used for the last reports for the 2013–2018 reporting period is based on 15 main categories corresponding to the main sectoral driver[[15]](#footnote-15), with 219 nested sub-categories.

An overview of the datasets submitted for the last Article 12 report by Memer States is presented in Appendix 16. In total, some threat information was available for 150 of the 255 AEWA-listed species, across the 28 EU countries. The results should be treated with some caution given the variability in reporting requirements (limited to SPA trigger species and Annex I species, and optional for others).

### 4.2.3 Other data sources

A range of other data sources that could be used to inform the status of the drivers of waterbird trends include:

* Literature – available for many populations and across various geographic scales (e.g. site, national, flyway levels).
* Other site monitoring frameworks that link threats to sites, and identify the importance of sites for species (e.g. information from Natura 2000 Standard Data Forms, IBA monitoring protocol) – the direct link here between species and threat may be a little tenuous, but a review of these data may be useful to help inform potential threats, especially for species where information is otherwise limited. In this context, the monitoring of pressures for AEWA poulations would greatly benefit from the adoption and implementation of a site monitoring framework for the AEWA Flyway Site Network as required by Target 3.2 of the AEWA Strategic Plan (Crowe et al., 2021).

## 4.3 Recommended approach

It is recommended that thorough assessments of environmental drivers are undertaken periodically, and ideally following the completion of comprehensive assessments such as those described above (thereby accessing verified datasets). These assessments should be resourced and drafted centrally, with adequate time and resources for consultation with national experts, who may undertake further consultation with site managers etc. The draft assessments would ideally be prepared and available online in a system that accommodates interaction and feedback.

It is recommended that these assessments draw on information gathered as part of the two centralized assessments described above. However, there are substantial differences between the two threat classification schemes described above (IUCN compared with Article 12). Comparison at the top level (Figure 4.1) shows that many of the Article 12 threats cut across more than one of the IUCN threats, and vice versa. Unfortunately, this means that by choosing any one scheme, it is not possible to automatically translate possible results from the other.

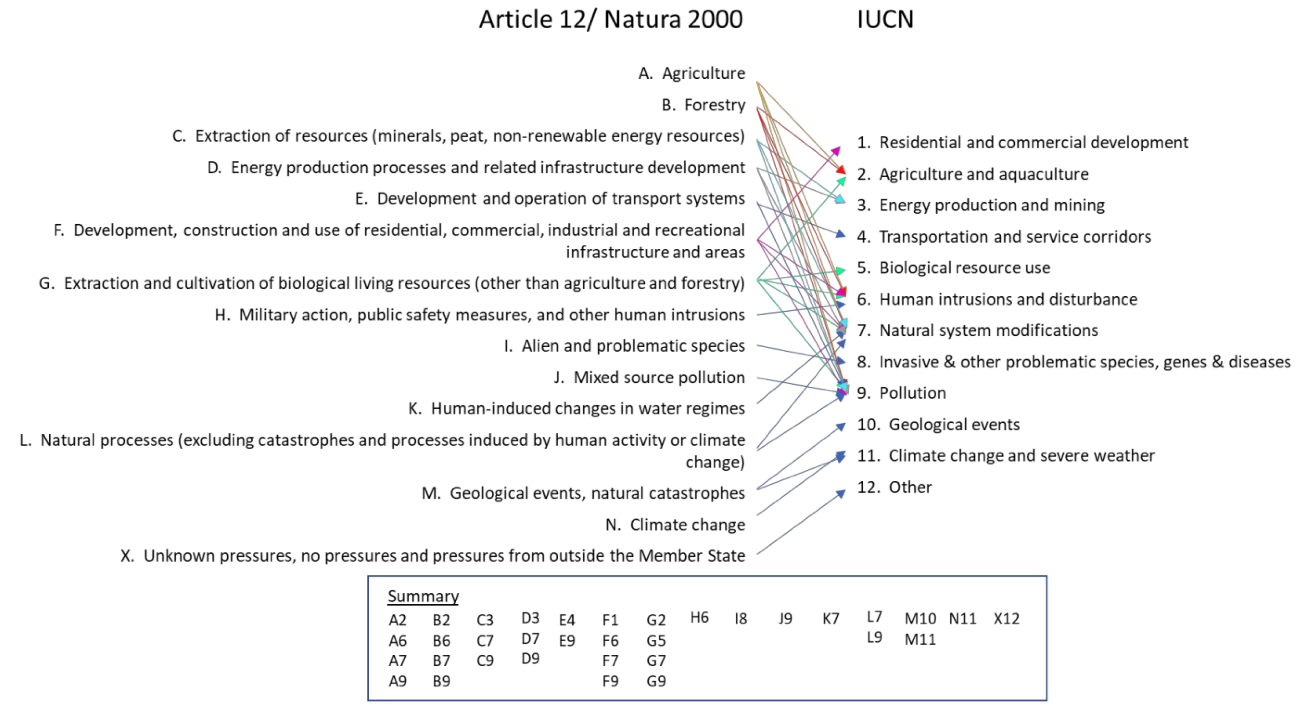


Figure 4.1: Comparison of the threat classification schemes adopted by the IUCN and that used in Article 12 assessments.

Given differences in the threat classification schemes that cannot be easily resolved, it is recommended that future assessments are based on one of them, and that the other scheme is used as an information source. The main pros and cons of each scheme are as follows:

* The IUCN classification scheme has a wider global reach, and it would deliver more thorough assessments (more detail). While assessments are available for more AEWA species compared with Article 12, the compilation of threats to date has been fundamentally focused on Globally Threatened and Near Threatened species, which is a narrower subset.
* Article 12 reports are required and completed by EU Member States every six years, but the optional approach to gathering information on threats for all other than Annex I species, and those that trigger SPAs means that assessments are patchy and of limited consistency. Furthermore, the classification scheme was modified between the last two reporting periods, with some limited translation.

On the basis that AEWA Focal Points are predominantly Government led, it is likely that an Article 12 basis for these reports will be favourable, with information provided including AEWA site, species, threat (using EU threat classification scheme), impact (high, medium, low); where the threat occurs or acts (inside the country, outside, or both).

Thereafter the gaps to fill will include:

1. AEWA species present in a country but not listed in Annex 1 and not listed as one of the country’s SPA triggers
2. AEWA species present in other AEWA countries outside the EU.

Efforts to resolve gaps resulting from the first-listed point could focus on information available elsewhere (Red List, literature, site monitoring assessments). In some cases, species gaps may be resolved by grouping species with similar distributions and habitat requirements (thereby inferring similar threats are affecting them). Assessments for other AEWA countries could be drafted using a combination of the information available from the EU, and online sources of information relating to the threats – e.g. remote sensing data that inform wetland condition, infrastructure development etc. following the principles of objective meta-data analysis and avoiding relying on subjective expert opinion as much as possible.

Given the importance of wide consultation in this process, an online portal should be made available to disseminate these draft assessments for consultation and to accommodate feedback from the AEWA Focal Points and others (site managers etc.). If the Article 12 approach is adopted, the next assessment should begin in 2026, following the submissions by Member States and compilation and availability of the datasets centrally. The assessment should be undertaken over a 1-2 year period, enabling sufficient time for feedback. The results of the assessment should be made available online, enabling extraction of any combinations of species, country and driver.

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# Appendix 1. Recommended monitoring methods for AEWA populations

This table is an update of Appendix 1 in Hearn et al. (2018).

Method codes are in Table 3.1 in this report.

|  |  |  |  |
| --- | --- | --- | --- |
| Scientific\_name | Population\_name | Size\_method | Trend\_method |
| Dendrocygna viduata | West Africa (Senegal to Chad) | A | I |
| Dendrocygna viduata | Eastern & Southern Africa | A | I |
| Dendrocygna bicolor | West Africa (Senegal to Chad) | A | I |
| Dendrocygna bicolor | Eastern & Southern Africa | A | I |
| Thalassornis leuconotus | leuconotus, West Africa | S | S |
| Thalassornis leuconotus | leuconotus, Eastern & Southern Africa | S | I |
| Oxyura maccoa | Eastern Africa | S | I |
| Oxyura maccoa | Southern Africa | S | I |
| Oxyura leucocephala | West Mediterranean (Spain & Morocco) | S | I |
| Oxyura leucocephala | Algeria & Tunisia | S | I |
| Oxyura leucocephala | East Mediterranean, Turkey & South-west Asia | S | I |
| Cygnus olor | North-west Mainland & Central Europe | I | I |
| Cygnus olor | Black Sea | A | I |
| Cygnus olor | West & Central Asia/Caspian | A | I |
| Cygnus cygnus | Iceland/UK & Ireland | G | G |
| Cygnus cygnus | North-west Mainland Europe | G | G |
| Cygnus cygnus | N Europe & W Siberia/Black Sea & E Mediterranean | G | G |
| Cygnus cygnus | West & Central Siberia/Caspian | A | G |
| Cygnus columbianus | bewickii, Western Siberia & NE Europe/North-west Europe | G | G |
| Cygnus columbianus | bewickii, Northern Siberia/Caspian | A | G |
| Branta bernicla | bernicla, Western Siberia/Western Europe | G | G |
| Branta bernicla | hrota, Svalbard/Denmark & UK | G | G |
| Branta bernicla | hrota, Canada & Greenland/Ireland | G | G |
| Branta leucopsis | East Greenland/Scotland & Ireland | A | G |
| Branta leucopsis | Svalbard/South-west Scotland | G | G |
| Branta leucopsis | Russia/Germany & Netherlands | G | G |
| Branta ruficollis | Northern Siberia/Black Sea & Caspian | P | P |
| Anser anser | anser, Iceland/UK & Ireland | G | G |
| Anser anser | anser, NW Europe/South-west Europe | S | G |
| Anser anser | anser, Central Europe/North Africa | G | G |
| Anser anser | rubrirostris, Black Sea & Turkey | G | G |
| Anser anser | rubrirostris Western Siberia/Caspian & Iraq | G | G |
| Anser fabalis | fabalis, North-east Europe/North-west Europe | G | G |
| Anser fabalis | rossicus, West & Central Siberia/NE & SW Europe | G | G |
| Anser fabalis | johanseni, West & Central Siberia/Turkmenistan to W China | G | G |
| Anser brachyrhynchus | East Greenland & Iceland/UK | G | G |
| Anser brachyrhynchus | Svalbard/North-west Europe | G | G |
| Anser albifrons | albifrons, NW Siberia & NE Europe/North-west Europe | G | G |
| Anser albifrons | albifrons, Western Siberia/Central Europe | G | G |
| Anser albifrons | albifrons, Western Siberia/Black Sea & Turkey | G | G |
| Anser albifrons | albifrons, Northern Siberia/Caspian & Iraq | G | G |
| Anser albifrons | flavirostris, Greenland/Ireland & UK | G | G |
| Anser erythropus | Fennoscandia | M | G |
| Anser erythropus | NE Europe & W Siberia/Black Sea & Caspian | P | G |
| Clangula hyemalis | Iceland & Greenland (bre) | M | I |
| Clangula hyemalis | Western Siberia/North Europe (bre) | O | P |
| Somateria spectabilis | East Greenland, NE Europe & Western Siberia | M | M |
| Somateria mollissima | mollissima, Baltic, North & Celtic Sea | O | S |
| Somateria mollissima | mollissima, Norway & Russia | O | I |
| Somateria mollissima | borealis, Svalbard & Franz Joseph (bre) | S | C |
| Polysticta stelleri | Western Siberia/North-east Europe | O | I |
| Melanitta fusca | Western Siberia & Northern Europe/NW Europe | O | P |
| Melanitta fusca | Black Sea & Caspian | S | S |
| Melanitta nigra | W Siberia & N Europe/W Europe & NW Africa | O | P |
| Bucephala clangula | clangula, North-west & Central Europe (win) | O | I |
| Bucephala clangula | clangula, North-east Europe/Adriatic | I | I |
| Bucephala clangula | clangula, Western Siberia & North-east Europe/Black Sea | O | I |
| Bucephala clangula | clangula, Western Siberia/Caspian | O | I |
| Mergellus albellus | North-west & Central Europe (win) | O | I |
| Mergellus albellus | North-east Europe/Black Sea & East Mediterranean | O | I |
| Mergellus albellus | Western Siberia/South-west Asia | O | I |
| Mergus merganser | merganser, North-west & Central Europe (win) | O | I |
| Mergus merganser | merganser, North-east Europe/Black Sea | O | I |
| Mergus merganser | merganser, Western Siberia/Caspian | O | I |
| Mergus serrator | North-west & Central Europe (win) | O | I |
| Mergus serrator | North-east Europe/Black Sea & Mediterranean | O | I |
| Mergus serrator | Western Siberia/South-west & Central Asia | O | I |
| Alopochen aegyptiaca | West Africa | A | I |
| Alopochen aegyptiaca | Eastern & Southern Africa | A | I |
| Tadorna tadorna | North-west Europe | I | I |
| Tadorna tadorna | Black Sea & Mediterranean | I | I |
| Tadorna tadorna | Western Asia/Caspian & Middle East | I | I |
| Tadorna ferruginea | North-west Africa | S | I |
| Tadorna ferruginea | East Mediterranean & Black Sea/North-east Africa | S | I |
| Tadorna ferruginea | Western Asia & Caspian/Iran & Iraq | S | I |
| Tadorna cana | Southern Africa | A | I |
| Plectropterus gambensis | gambensis, West Africa | A | I |
| Plectropterus gambensis | gambensis, Eastern Africa (Sudan to Zambia) | A | I |
| Plectropterus gambensis | niger, Southern Africa | A | I |
| Sarkidiornis melanotos | West Africa | A | I |
| Sarkidiornis melanotos | Southern & Eastern Africa | A | I |
| Nettapus auritus | West Africa | A | I |
| Nettapus auritus | Southern & Eastern Africa | A | I |
| Marmaronetta angustirostris | West Mediterranean/West Medit. & West Africa | S | I |
| Marmaronetta angustirostris | East Mediterranean | S | I |
| Marmaronetta angustirostris | South-west Asia | S | I |
| Netta rufina | South-west & Central Europe/West Mediterranean | I | I |
| Netta rufina | Black Sea & East Mediterranean | O | I |
| Netta rufina | Western & Central Asia/South-west Asia | O | I |
| Netta erythrophthalma | brunnea, Southern & Eastern Africa | A | I |
| Aythya ferina | North-east Europe/North-west Europe | I | I |
| Aythya ferina | Central & NE Europe/Black Sea & Mediterranean | I | I |
| Aythya ferina | Western Siberia/South-west Asia | I | I |
| Aythya nyroca | West Mediterranean/North & West Africa | S | S |
| Aythya nyroca | Eastern Europe/E Mediterranean & Sahelian Africa | S | S |
| Aythya nyroca | Western Asia/SW Asia & NE Africa | S | S |
| Aythya fuligula | North-west Europe (win) | O | I |
| Aythya fuligula | Central Europe, Black Sea & Mediterranean (win) | O | I |
| Aythya fuligula | Western Siberia/SW Asia & NE Africa | O | I |
| Aythya marila | marila, Northern Europe/Western Europe | O | I |
| Aythya marila | marila, Western Siberia/Black Sea & Caspian | O | I |
| Spatula querquedula | Western Siberia & Europe/West Africa | A | I |
| Spatula querquedula | Western Siberia/SW Asia, NE & Eastern Africa | A | I |
| Spatula hottentota | Lake Chad Basin | S | I |
| Spatula hottentota | Eastern Africa (south to N Zambia) | A | I |
| Spatula hottentota | Southern Africa (north to S Zambia) | A | I |
| Spatula clypeata | North-west & Central Europe (win) | I | I |
| Spatula clypeata | W Siberia, NE & E Europe/S Europe & West Africa | A | I |
| Spatula clypeata | W Siberia/SW Asia, NE & Eastern Africa | A | I |
| Mareca strepera | strepera, North-west Europe | I | I |
| Mareca strepera | strepera, North-east Europe/Black Sea & Mediterranean | I | I |
| Mareca strepera | strepera, Western Siberia/SW Asia & NE Africa | I | I |
| Mareca penelope | Western Siberia & NE Europe/NW Europe | I | I |
| Mareca penelope | W Siberia & NE Europe/Black Sea & Mediterranean | I | I |
| Mareca penelope | Western Siberia/SW Asia & NE Africa | I | I |
| Anas undulata | undulata, Southern Africa | I | I |
| Anas platyrhynchos | platyrhynchos, North-west Europe | I | I |
| Anas platyrhynchos | platyrhynchos, Northern Europe/West Mediterranean | I | I |
| Anas platyrhynchos | platyrhynchos, Eastern Europe/Black Sea & East Mediterranean | I | I |
| Anas platyrhynchos | platyrhynchos, Western Siberia/South-west Asia | I | I |
| Anas capensis | Eastern Africa (Rift Valley) | A | I |
| Anas capensis | Lake Chad basin | S | S |
| Anas capensis | Southern Africa (N to Angola & Zambia) | A | I |
| Anas erythrorhyncha | Southern Africa | A | I |
| Anas erythrorhyncha | Eastern Africa | A | I |
| Anas erythrorhyncha | Madagascar | A | I |
| Anas acuta | North-west Europe | I | I |
| Anas acuta | W Siberia, NE & E Europe/S Europe & West Africa | A | I |
| Anas acuta | Western Siberia/SW Asia & Eastern Africa | A | I |
| Anas crecca | crecca, North-west Europe | I | I |
| Anas crecca | crecca, W Siberia & NE Europe/Black Sea & Mediterranean | I | I |
| Anas crecca | crecca, Western Siberia/SW Asia & NE Africa | I | I |
| Tachybaptus ruficollis | ruficollis, Europe & North-west Africa | D | I |
| Podiceps grisegena | grisegena, North-west Europe (win) | O | I |
| Podiceps grisegena | grisegena, Black Sea & Mediterranean (win) | O | I |
| Podiceps grisegena | grisegena, Caspian (win) | O | I |
| Podiceps cristatus | cristatus, North-west & Western Europe | O | I |
| Podiceps cristatus | cristatus, Black Sea & Mediterranean (win) | O | I |
| Podiceps cristatus | cristatus, Caspian & South-west Asia (win) | O | I |
| Podiceps cristatus | infuscatus, Eastern Africa (Ethiopia to N Zambia) | S | I |
| Podiceps cristatus | infuscatus, Southern Africa | S | I |
| Podiceps auritus | auritus, North-west Europe (large-billed) | O | S |
| Podiceps auritus | auritus, North-east Europe (small-billed) | O | S |
| Podiceps auritus | auritus, Caspian & South Asia (win) | O | I |
| Podiceps nigricollis | nigricollis, Europe/South & West Europe & North Africa | C | I |
| Podiceps nigricollis | nigricollis, Western Asia/South-west & South Asia | C | I |
| Podiceps nigricollis | gurneyi, Southern Africa | C | I |
| Phoenicopterus roseus | Eastern Africa | C | I |
| Phoenicopterus roseus | Southern Africa (to Madagascar) | C | I |
| Phoenicopterus roseus | West Africa | C | I |
| Phoenicopterus roseus | West Mediterranean | C | I |
| Phoenicopterus roseus | East Mediterranean | C | I |
| Phoenicopterus roseus | South-west & South Asia | C | I |
| Phoeniconaias minor | West Africa | C | I |
| Phoeniconaias minor | Eastern Africa | C | I |
| Phoeniconaias minor | Southern Africa (to Madagascar) | C | I |
| Phaethon aethereus | aetherus, South Atlantic | C | C |
| Phaethon aethereus | indicus, Persian Gulf, Gulf of Aden, Red Sea | C | C |
| Phaethon rubricauda | rubricauda, Indian Ocean | C | C |
| Phaethon lepturus | lepturus, W Indian Ocean | C | C |
| Sarothrura elegans | elegans, NE, Eastern & Southern Africa | V | L |
| Sarothrura elegans | reichenovi, S West Africa to Central Africa | V | L |
| Sarothrura boehmi | Central Africa | V | L |
| Sarothrura ayresi | Ethiopia | S | S |
| Sarothrura ayresi | Southern Africa | S | S |
| Rallus aquaticus | aquaticus, Europe & North Africa | V | V |
| Rallus aquaticus | korejewi, Western Siberia/South-west Asia | V | V |
| Rallus caerulescens | Southern & Eastern Africa | V | V |
| Crex egregia | Sub-Saharan Africa | V | V |
| Crex crex | Europe & Western Asia/Sub-Saharan Africa | V | V |
| Porzana porzana | Europe/Africa | V | V |
| Zapornia flavirostra | Sub-Saharan Africa | V | I |
| Zapornia parva | Western Eurasia/Africa | V | V |
| Zapornia pusilla | intermedia, Europe (bre) | V | V |
| Amaurornis marginalis | Sub-Saharan Africa | V | V |
| Porphyrio alleni | Sub-Saharan Africa | S | I |
| Gallinula chloropus | chloropus, Europe & North Africa | D | D |
| Gallinula chloropus | chloropus, West & South-west Asia | D | I |
| Paragallinula angulata | Sub-Saharan Africa | S | I |
| Fulica cristata | Spain & Morocco | I | I |
| Fulica cristata | Sub-Saharan Africa | A | I |
| Fulica atra | atra, North-west Europe (win) | O | I |
| Fulica atra | atra, Black Sea & Mediterranean (win) | O | I |
| Fulica atra | atra, South-west Asia (win) | O | I |
| Balearica regulorum | regulorum, Southern Africa (N to Angola & S Zimbabwe) | S | S |
| Balearica regulorum | gibbericeps, Eastern Africa (Kenya to Mozambique) | S | S |
| Balearica pavonina | pavonina, West Africa (Senegal to Chad) | S | S |
| Balearica pavonina | ceciliae, Eastern Africa (Sudan to Uganda) | S | S |
| Leucogeranus leucogeranus | Iran (win) | I | I |
| Bugeranus carunculatus | Central & Southern Africa | A | A |
| Anthropoides paradiseus | Extreme Southern Africa | S | S |
| Anthropoides virgo | Black Sea (Ukraine)/North-east Africa | S | S |
| Anthropoides virgo | Kalmykia/North-east Africa | S | R |
| Grus grus | grus, North-west Europe/Iberia & Morocco | R | R |
| Grus grus | grus, North-east & Central Europe/North Africa | R | R |
| Grus grus | grus, Eastern Europe/Turkey, Middle East & NE Africa | R | R |
| Grus grus | archibaldi, Turkey & Georgia (bre) | S | S |
| Grus grus | grus, Western Siberia/South Asia | R | R |
| Gavia stellata | North-west Europe (win) | O | P |
| Gavia stellata | Caspian, Black Sea & East Mediterranean (win) | O | I |
| Gavia arctica | arctica, Northern Europe & Western Siberia/Europe | O | I |
| Gavia arctica | arctica, Central Siberia/Caspian | O | I |
| Gavia immer | Europe (win) | O | I |
| Gavia adamsii | Northern Europe (win) | O | I |
| Spheniscus demersus | Southern Africa | C | C |
| Leptoptilos crumenifer | Sub-Saharan Africa | C | I |
| Mycteria ibis | Sub-Saharan Africa (excluding Madagascar) | S | I |
| Anastomus lamelligerus | lamelligerus, Sub-Saharan Africa | S | I |
| Ciconia nigra | Southern Africa | S | S |
| Ciconia nigra | South-west Europe/West Africa | S | S |
| Ciconia nigra | Central & Eastern Europe/Sub-Saharan Africa | S | S |
| Ciconia abdimii | Sub-Saharan Africa & SW Arabia | S | S |
| Ciconia microscelis | Sub-Saharan Africa | S | S |
| Ciconia ciconia | ciconia, Southern Africa | S | S |
| Ciconia ciconia | ciconia, W Europe & North-west Africa/Sub-Saharan Africa | S | S |
| Ciconia ciconia | ciconia, Central & Eastern Europe/Sub-Saharan Africa | S | S |
| Ciconia ciconia | ciconia, Western Asia/South-west Asia | S | S |
| Platalea alba | Sub-Saharan Africa | C | I |
| Platalea leucorodia | leucorodia, West Europe/West Mediterranean & West Africa | C | C |
| Platalea leucorodia | balsaci, Coastal West Africa (Mauritania) | C | C |
| Platalea leucorodia | archeri, Red Sea & Somalia | C | C |
| Platalea leucorodia | leucorodia, Western Asia/South-west & South Asia | C | I |
| Threskiornis aethiopicus | Sub-Saharan Africa | C | I |
| Threskiornis aethiopicus | Iraq & Iran | C | C |
| Geronticus eremita | Morocco | C | C |
| Geronticus eremita | South-west Asia | C | C |
| Plegadis falcinellus | Sub-Saharan Africa (bre) | C | C |
| Plegadis falcinellus | Black Sea & Mediterranean/West Africa | C | C |
| Plegadis falcinellus | South-west Asia/Eastern Africa | C | C |
| Botaurus stellaris | stellaris, W Europe, NW Africa (bre) | V | L |
| Botaurus stellaris | stellaris, C & E Europe, Black Sea & E Mediterranean (bre) | V | L |
| Botaurus stellaris | stellaris, South-west Asia (win) | V | L |
| Botaurus stellaris | capensis, Southern Africa | V | L |
| Ixobrychus minutus | minutus, W Europe, NW Africa/Subsaharan Africa | V | L |
| Ixobrychus minutus | minutus, C & E Europe, Black Sea & E Mediterranean/Sub-saharan Africa | V | L |
| Ixobrychus minutus | minutus, West & South-west Asia/Sub-Saharan Africa | V | L |
| Ixobrychus minutus | payesii, Sub-Saharan Africa | V | L |
| Ixobrychus sturmii | Sub-Saharan Africa | V | L |
| Nycticorax nycticorax | nycticorax, W Europe, NW Africa (bre) | C | C |
| Nycticorax nycticorax | nycticorax, C & E Europe/Black Sea & E Mediterranean (bre) | C | C |
| Nycticorax nycticorax | nycticorax, Western Asia/SW Asia & NE Africa | C | C |
| Nycticorax nycticorax | nycticorax, Sub-Saharan Africa & Madagascar | C | J |
| Ardeola ralloides | ralloides, SW Europe, NW Africa (bre) | C | C |
| Ardeola ralloides | ralloides, C & E Europe, Black Sea & E Mediterranean (bre) | C | C |
| Ardeola ralloides | ralloides, West & South-west Asia/Sub-Saharan Africa | C | C |
| Ardeola ralloides | paludivaga, Sub-Saharan Africa & Madagascar | C | C |
| Ardeola idae | Madagascar & Aldabra/Central & Eastern Africa | C | C |
| Ardeola rufiventris | Central, Eastern & Southern Africa | C | C |
| Bubulcus ibis | ibis, Southern Africa | C | I |
| Bubulcus ibis | ibis, Tropical Africa | C | C |
| Bubulcus ibis | ibis, North-west Africa | C | C |
| Bubulcus ibis | ibis, South-west Europe | C | I |
| Bubulcus ibis | ibis, East Mediterranean & South-west Asia | C | C |
| Ardea cinerea | cinerea, Sub-Saharan Africa | C | J |
| Ardea cinerea | cinerea, Northern & Western Europe | C | I |
| Ardea cinerea | cinerea, Central & Eastern Europe | C | I |
| Ardea cinerea | cinerea, West & South-west Asia (bre) | C | I |
| Ardea melanocephala | Sub-Saharan Africa | C | I |
| Ardea purpurea | purpurea, Tropical Africa | C | J |
| Ardea purpurea | purpurea, West Europe & West Mediterranean/West Africa | C | C |
| Ardea purpurea | purpurea, East Europe, Black Sea & Mediterranean/Sub-Saharan Africa | C | C |
| Ardea purpurea | purpurea, SW Asia (bre) | C | C |
| Ardea alba | alba, W, C & SE Europe/Black Sea & Mediterranean | C | I |
| Ardea alba | alba, Western Asia/South-west Asia | C | I |
| Ardea alba | melanorhynchos, Sub-Saharan Africa & Madagascar | C | I |
| Ardea brachyrhyncha | Sub-Saharan Africa | C | I |
| Egretta ardesiaca | Sub-Saharan Africa | C | I |
| Egretta vinaceigula | Central Southern Africa | C | I |
| Egretta garzetta | garzetta, Sub-Saharan Africa | C | J |
| Egretta garzetta | garzetta, Western Europe, NW Africa | C | C |
| Egretta garzetta | garzetta, Central & E Europe, Black Sea, E Mediterranean | C | C |
| Egretta garzetta | garzetta, Western Asia/SW Asia, NE & Eastern Africa | C | C |
| Egretta gularis | gularis, West Africa | C | I |
| Egretta gularis | schistacea, North-east Africa & Red Sea | C | I |
| Egretta gularis | schistacea, South-west Asia & South Asia | C | I |
| Egretta gularis | dimorpha, Coastal Eastern Africa | C | I |
| Balaeniceps rex | Central Tropical Africa | S | S |
| Pelecanus crispus | Black Sea & Mediterranean (win) | C | I |
| Pelecanus crispus | South-west Asia & South Asia (win) | C | I |
| Pelecanus rufescens | Tropical Africa & SW Arabia | C | I |
| Pelecanus onocrotalus | West Africa | C | I |
| Pelecanus onocrotalus | Eastern Africa | C | I |
| Pelecanus onocrotalus | Southern Africa | C | I |
| Pelecanus onocrotalus | Europe & Western Asia (bre) | C | I |
| Fregata ariel | iredalei, W Indian Ocean | C | C |
| Fregata minor | aldabrensis, W Indian Ocean | C | C |
| Morus bassanus | North Atlantic | C | C |
| Morus capensis | Southern Africa | C | C |
| Sula dactylatra | melanops, W Indian Ocean | C | C |
| Microcarbo coronatus | Coastal South-west Africa | C | I |
| Microcarbo pygmaeus | Black Sea & Mediterranean | C | I |
| Microcarbo pygmaeus | South-west Asia | C | I |
| Gulosus aristotelis | desmarestii, Adriatic | C | C |
| Phalacrocorax carbo | carbo, North-west Europe | C | C |
| Phalacrocorax carbo | sinensis, Northern & Central Europe | C | I |
| Phalacrocorax carbo | sinensis, Black Sea & Mediterranean | C | I |
| Phalacrocorax carbo | sinensis, West & South-west Asia | C | I |
| Phalacrocorax carbo | lucidus, Central & Eastern Africa | C | I |
| Phalacrocorax carbo | lucidus, Coastal West Africa | C | I |
| Phalacrocorax carbo | lucidus, Coastal Southern Africa | C | I |
| Phalacrocorax capensis | Coastal Southern Africa | C | C |
| Phalacrocorax nigrogularis | Arabian Coast | C | C |
| Phalacrocorax nigrogularis | Gulf of Aden, Socotra, Arabian Sea | C | C |
| Phalacrocorax neglectus | Coastal South-west Africa | C | C |
| Burhinus senegalensis | West Africa | V | V |
| Burhinus senegalensis | North-east & Eastern Africa | V | V |
| Pluvianus aegyptius | West Africa | S | I |
| Pluvianus aegyptius | Eastern Africa | S | I |
| Pluvianus aegyptius | Lower Congo Basin | S | I |
| Haematopus moquini | Coastal Southern Africa | S | I |
| Haematopus ostralegus | ostralegus, Europe/South & West Europe & NW Africa | S | I |
| Haematopus ostralegus | longipes, SE Eur & W Asia/SW Asia & NE Africa | S | I |
| Recurvirostra avosetta | Southern Africa | C | I |
| Recurvirostra avosetta | Eastern Africa | C | I |
| Recurvirostra avosetta | Western Europe & North-west Africa (bre) | C | I |
| Recurvirostra avosetta | South-east Europe, Black Sea & Turkey (bre) | C | I |
| Recurvirostra avosetta | West & South-west Asia/Eastern Africa | C | I |
| Himantopus himantopus | himantopus, Sub-Saharan Africa (excluding south) | S | J |
| Himantopus himantopus | himantopus, Southern Africa | S | I |
| Himantopus himantopus | himantopus, SW Europe & North-west Africa/West Africa | S | S |
| Himantopus himantopus | himantopus, Central Europe & E Mediterranean/N-Central Africa | S | S |
| Himantopus himantopus | himantopus, W, C & SW Asia/SW Asia & NE Africa | S | S |
| Pluvialis squatarola | squatarola, W Siberia/W Europe & W Africa | I | I |
| Pluvialis squatarola | squatarola, C & E Siberia/SW Asia, Eastern & Southern Africa | I | I |
| Pluvialis apricaria | apricaria, Britain, Ireland, Denmark, Germany & Baltic (bre) | S | S |
| Pluvialis apricaria | altifrons, Iceland & Faroes/East Atlantic coast | S | S |
| Pluvialis apricaria | altifrons, Northern Europe/Western Europe & NW Africa | S | S |
| Pluvialis apricaria | altifrons, Northern Siberia/Caspian & Asia Minor | S | S |
| Pluvialis fulva | North-central Siberia/South & SW Asia, NE Africa | I | I |
| Eudromias morinellus | Europe/North-west Africa | S | S |
| Eudromias morinellus | Asia/Middle East | S | S |
| Charadrius hiaticula | hiaticula, Northern Europe/Europe & North Africa | S | I |
| Charadrius hiaticula | psammodromus, Canada, Greenland & Iceland/W & S Africa | S | I |
| Charadrius hiaticula | tundrae, NE Europe & Siberia/SW Asia, E & S Africa | S | I |
| Charadrius dubius | curonicus, Europe & North-west Africa/West Africa | S | I |
| Charadrius dubius | curonicus, West & South-west Asia/Eastern Africa | S | I |
| Charadrius pecuarius | Southern & Eastern Africa | S | J |
| Charadrius pecuarius | West Africa | S | I |
| Charadrius tricollaris | Southern & Eastern Africa | S | I |
| Charadrius forbesi | Western & Central Africa | S | L |
| Charadrius marginatus | mechowi, Inland East & Central Africa | S | L |
| Charadrius marginatus | hesperius, West Africa | S | L |
| Charadrius alexandrinus | alexandrinus, West Europe & West Mediterranean/West Africa | S | I |
| Charadrius alexandrinus | alexandrinus, Black Sea & East Mediterranean/Eastern Sahel | S | I |
| Charadrius alexandrinus | alexandrinus, SW & Central Asia/SW Asia & NE Africa | S | I |
| Charadrius pallidus | pallidus, Southern Africa | S | I |
| Charadrius pallidus | venustus, Eastern Africa | S | I |
| Charadrius mongolus | pamirensis, West-central Asia/SW Asia & Eastern Africa | S | I |
| Charadrius leschenaultii | leschenaultii, Central Asia/Eastern & Southern Africa | S | I |
| Charadrius leschenaultii | columbinus, Turkey & SW Asia/E. Mediterranean & Red Sea | S | L |
| Charadrius leschenaultii | scythicus, Caspian & SW Asia/Arabia & NE Africa | S | I |
| Charadrius asiaticus | SE Europe & West Asia/E & Central Southern Africa | S | S |
| Vanellus vanellus | Europe, W Asia/Europe, N Africa & SW Asia | D | D |
| Vanellus spinosus | Black Sea & Mediterranean (bre) | S | L |
| Vanellus albiceps | West & Central Africa | S | L |
| Vanellus lugubris | Central & Eastern Africa | S | L |
| Vanellus lugubris | Southern West Africa | S | L |
| Vanellus melanopterus | minor, Southern Africa | S | L |
| Vanellus coronatus | coronatus, Eastern & Southern Africa | S | L |
| Vanellus coronatus | coronatus, Central Africa | S | L |
| Vanellus coronatus | coronatus, South-west Africa | S | L |
| Vanellus senegallus | senegallus, West Africa | S | L |
| Vanellus senegallus | lateralis, Eastern & South-east Africa | S | L |
| Vanellus superciliosus | West & Central Africa | S | L |
| Vanellus gregarius | Central Asia/S, SW Asia, NE Africa | S | S |
| Vanellus leucurus | C & SW Asia/NE Africa, SW & S Asia | S | S |
| Numenius phaeopus | phaeopus, Northern Europe/West Africa | S | D |
| Numenius phaeopus | phaeopus, West Siberia/Southern & Eastern Africa | S | I |
| Numenius phaeopus | islandicus, Iceland, Faroes & Scotland/West Africa | S | D |
| Numenius phaeopus | alboaxilliaris, N of Caspian/Eastern Africa | S | S |
| Numenius phaeopus | rogachevae, C Siberia (bre) | S | S |
| Numenius tenuirostris | Central Siberia/Mediterranean & SW Asia | S | S |
| Numenius arquata | arquata, Europe/Europe, North & West Africa | S | S |
| Numenius arquata | orientalis, Western Siberia/SW Asia, E & S Africa | S | I |
| Numenius arquata | suschkini, South-east Europe & South-west Asia (bre) | S | S |
| Limosa lapponica | lapponica, Northern Europe/Western Europe | I | I |
| Limosa lapponica | taymyrensis, Western Siberia/West & South-west Africa | I | I |
| Limosa lapponica | taymyrensis, Central Siberia/South & SW Asia & Eastern Africa | I | I |
| Limosa limosa | limosa, Western Europe/NW & West Africa | S | D |
| Limosa limosa | limosa, Eastern Europe/Central & Eastern Africa | S | D |
| Limosa limosa | limosa, West-central Asia/SW Asia & Eastern Africa | S | D |
| Limosa limosa | islandica, Iceland/Western Europe | S | D |
| Arenaria interpres | interpres, NE Canada & Greenland/W Europe & NW Africa | I | I |
| Arenaria interpres | interpres, Northern Europe/West Africa | I | I |
| Arenaria interpres | interpres, West & Central Siberia/SW Asia, E & S Africa | I | I |
| Calidris tenuirostris | Eastern Siberia/SW Asia & W Southern Asia | I | I |
| Calidris canutus | canutus, Northern Siberia/West & Southern Africa | I | I |
| Calidris canutus | islandica, NE Canada & Greenland/Western Europe | I | I |
| Calidris pugnax | Northern Europe & Western Siberia/West Africa | S | I |
| Calidris pugnax | Northern Siberia/SW Asia, E & S Africa | S | I |
| Calidris falcinellus | falcinellus, Northern Europe/SW Asia & Africa | S | I |
| Calidris ferruginea | Western Siberia/West Africa | I | I |
| Calidris ferruginea | Central Siberia/SW Asia, E & S Africa | I | I |
| Calidris temminckii | Fennoscandia/North & West Africa | D | D |
| Calidris temminckii | NE Europe & W Siberia/SW Asia & Eastern Africa | S | I |
| Calidris alba | alba, East Atlantic Europe, West & Southern Africa (win) | I | I |
| Calidris alba | alba, South-west Asia, Eastern & Southern Africa (win) | I | I |
| Calidris alpina | alpina, NE Europe & NW Siberia/W Europe & NW Africa | S | I |
| Calidris alpina | centralis, Central Siberia/SW Asia & NE Africa | S | I |
| Calidris alpina | schinzii, Iceland & Greenland/NW and West Africa | S | I |
| Calidris alpina | schinzii, Baltic/SW Europe & NW Africa | S | S |
| Calidris alpina | schinzii, Britain & Ireland/SW Europe & NW Africa | S | S |
| Calidris alpina | arctica, NE Greenland/West Africa | S | S |
| Calidris maritima | N Europe & W Siberia (breeding) | D | I |
| Calidris maritima | NE Canada & N Greenland (breeding) | D | I |
| Calidris minuta | N Europe/S Europe, North & West Africa | S | I |
| Calidris minuta | Western Siberia/SW Asia, E & S Africa | S | I |
| Scolopax rusticola | Europe/South & West Europe & North Africa | S | S |
| Scolopax rusticola | Western Siberia/South-west Asia (Caspian) | S | S |
| Gallinago stenura | Northern Siberia/South Asia & Eastern Africa | S | S |
| Gallinago media | Scandinavia/probably West Africa | S | S |
| Gallinago media | Western Siberia & NE Europe/South-east Africa | S | S |
| Gallinago gallinago | gallinago, Europe/South & West Europe & NW Africa | S | S |
| Gallinago gallinago | gallinago, Western Siberia/South-west Asia & Africa | S | S |
| Gallinago gallinago | faeroeensis, Iceland, Faroes & Northern Scotland/Ireland | S | S |
| Lymnocryptes minimus | Northern Europe/S & W Europe & West Africa | S | S |
| Lymnocryptes minimus | Western Siberia/SW Asia & NE Africa | S | S |
| Phalaropus lobatus | Western Eurasia/Arabian Sea | S | S |
| Phalaropus fulicarius | Canada & Greenland/Atlantic coast of Africa | S | S |
| Xenus cinereus | NE Europe & W Siberia/SW Asia, E & S Africa | S | I |
| Actitis hypoleucos | West & Central Europe/West Africa | D | I |
| Actitis hypoleucos | E Europe & W Siberia/Central, E & S Africa | D | I |
| Tringa ochropus | Northern Europe/S & W Europe, West Africa | S | I |
| Tringa ochropus | Western Siberia/SW Asia, NE & Eastern Africa | S | I |
| Tringa erythropus | N Europe/Southern Europe, North & West Africa | S | I |
| Tringa erythropus | Western Siberia/SW Asia, NE & Eastern Africa | S | I |
| Tringa nebularia | Northern Europe/SW Europe, NW & West Africa | S | I |
| Tringa nebularia | Western Siberia/SW Asia, E & S Africa | S | I |
| Tringa totanus | totanus, Northern Europe (breeding) | S | D |
| Tringa totanus | totanus, Central & East Europe (breeding) | S | D |
| Tringa totanus | ussuriensis, Western Asia/SW Asia, NE & Eastern Africa | S | I |
| Tringa totanus | robusta, Iceland & Faroes/Western Europe | S | D |
| Tringa totanus | totanus, Britain & Ireland/Britain, Ireland, France | S | S |
| Tringa glareola | North-west Europe/West Africa | S | D |
| Tringa glareola | NE Europe & W Siberia/Eastern & Southern Africa | S | I |
| Tringa stagnatilis | Eastern Europe/West & Central Africa | S | I |
| Tringa stagnatilis | Western Asia/SW Asia, Eastern & Southern Africa | S | I |
| Dromas ardeola | North-west Indian Ocean, Red Sea & Gulf | C | I |
| Glareola pratincola | pratincola, Western Europe & NW Africa/West Africa | C | C |
| Glareola pratincola | pratincola, Black Sea & E Mediterranean/Eastern Sahel zone | C | C |
| Glareola pratincola | pratincola, SW Asia/SW Asia & NE Africa | C | C |
| Glareola nordmanni | SE Europe & Western Asia/Southern Africa | C | C |
| Glareola ocularis | Madagascar/East Africa | C | C |
| Glareola nuchalis | nuchalis, Eastern & Central Africa | C | C |
| Glareola nuchalis | liberiae, West Africa | C | C |
| Glareola cinerea | SE West Africa & Central Africa | S | S |
| Anous stolidus | plumbeigularis, Red Sea & Gulf of Aden | C | C |
| Anous tenuirostris | tenuirostris, Indian OceanIslands to E Africa | C | C |
| Rynchops flavirostris | Coastal West Africa & Central Africa | C | C |
| Rynchops flavirostris | Eastern & Southern Africa | C | C |
| Hydrocoloeus minutus | Central & E Europe/SW Europe & W Mediterranean | C | C |
| Hydrocoloeus minutus | W Asia/E Mediterranean, Black Sea & Caspian | C | C |
| Xema sabini | sabini, Canada & Greenland/SE Atlantic | C | C |
| Rissa tridactyla | tridactyla, Arctic from NE Canada to Novaya Zemlya/N Atlantic | C | C |
| Larus genei | West Africa (bre) | C | I |
| Larus genei | Black Sea & Mediterranean (bre) | C | I |
| Larus genei | West, South-west & South Asia (bre) | C | I |
| Larus ridibundus | W Europe/W Europe, W Mediterranean, West Africa | C | I |
| Larus ridibundus | East Europe/Black Sea & East Mediterranean | C | I |
| Larus ridibundus | West Asia/SW Asia & NE Africa | C | I |
| Larus hartlaubii | Coastal South-west Africa | C | I |
| Larus cirrocephalus | poiocephalus, West Africa | C | I |
| Larus cirrocephalus | Central, Eastern and Southern Africa | C | I |
| Larus ichthyaetus | Black Sea & Caspian/South-west Asia | C | I |
| Larus melanocephalus | W Europe, Mediterranean & NW Africa | C | I |
| Larus hemprichii | Red Sea, Gulf, Arabia & Eastern Africa | C | I |
| Larus leucophthalmus | Red Sea & nearby coasts | C | I |
| Larus audouinii | Mediterranean/N & W coasts of Africa | C | C |
| Larus canus | canus, NW & C Europe/Atlantic coast & Mediterranean | C | C |
| Larus canus | heinei, NE Europe & Western Siberia/Black Sea & Caspian | C | C |
| Larus dominicanus | vetula, Coastal Southern Africa | C | I |
| Larus dominicanus | vetula, Coastal West Africa | C | I |
| Larus fuscus | heuglini, NE Europe & W Siberia/SW Asia & NE Africa | C | C |
| Larus fuscus | barabensis, South-west Siberia/South-west Asia | C | C |
| Larus fuscus | fuscus, NE Europe/Black Sea, SW Asia & Eastern Africa | C | C |
| Larus fuscus | graellsii, Western Europe/Mediterranean & West Africa | C | C |
| Larus fuscus | intermedius, S Scandinavia, Netherlands, Ebro Delta, Spain | C | C |
| Larus argentatus | argentatus, North & North-west Europe | C | C |
| Larus argentatus | argenteus, Iceland & Western Europe | C | C |
| Larus armenicus | Armenia, Eastern Turkey & NW Iran | C | C |
| Larus michahellis | Mediterranean, Iberia & Morocco | C | I |
| Larus cachinnans | Black Sea & Western Asia/SW Asia, NE Africa | C | C |
| Larus glaucoides | glaucoides, Greenland/Iceland & North-west Europe | S | S |
| Larus hyperboreus | hyperboreus, Svalbard & N Russia (bre) | S | S |
| Larus hyperboreus | leuceretes, Canada, Greenland & Iceland (bre) | S | S |
| Larus marinus | North & West Europe | C | I |
| Onychoprion fuscatus | nubilosus, Red Sea, Gulf of Aden, E to Pacific | C | C |
| Onychoprion anaethetus | melanopterus, W Africa | C | C |
| Onychoprion anaethetus | antarcticus, W Indian Ocean | C | C |
| Onychoprion anaethetus | antarcticus, Red Sea, E Africa, Persian Gulf, Arabian Sea to W India | C | C |
| Sternula albifrons | albifrons, Black Sea & East Mediterranean (bre) | S | S |
| Sternula albifrons | albifrons, Caspian (bre) | S | S |
| Sternula albifrons | guineae, West Africa (bre) | S | S |
| Sternula albifrons | albifrons, Europe north of Mediterranean (bre) | S | S |
| Sternula albifrons | albifrons, West Mediterranean/ W Africa (bre) | S | S |
| Sternula saundersi | W South Asia, Red Sea, Gulf & Eastern Africa | S | S |
| Sternula balaenarum | Namibia & South Africa/Atlantic coast to Ghana | S | S |
| Gelochelidon nilotica | nilotica, Western Europe/West Africa | C | C |
| Gelochelidon nilotica | nilotica, Black Sea & East Mediterranean/Eastern Africa | C | C |
| Gelochelidon nilotica | nilotica, West & Central Asia/South-west Asia | C | C |
| Hydroprogne caspia | Southern Africa (bre) | C | I |
| Hydroprogne caspia | West Africa (bre) | C | I |
| Hydroprogne caspia | Caspian (bre) | C | C |
| Hydroprogne caspia | Baltic (bre) | C | C |
| Hydroprogne caspia | Black Sea (bre) | C | C |
| Chlidonias hybrida | hybrida, Western Europe & North-west Africa (bre) | S | I |
| Chlidonias hybrida | hybrida, Black Sea & East Mediterranean (bre) | S | I |
| Chlidonias hybrida | hybrida, Caspian (bre) | S | I |
| Chlidonias hybrida | delalandii, Eastern Africa (Kenya & Tanzania) | S | I |
| Chlidonias hybrida | delalandii, Southern Africa (Malawi & Zambia to South Africa) | S | I |
| Chlidonias leucopterus | Eastern Europe & Western Asia/Africa | S | I |
| Chlidonias niger | niger, Europe & Western Asia/Atlantic coast of Africa | S | S |
| Sterna dougallii | dougallii, East Africa | C | C |
| Sterna dougallii | dougallii, Europe (bre) | C | C |
| Sterna dougallii | gracilis, North Arabian Sea (Oman) | C | C |
| Sterna dougallii | dougallii, Southern Africa and Madagascar | C | C |
| Sterna dougallii | gracilis, Seychelles & Mascarenes | C | C |
| Sterna hirundo | hirundo, Northern & Eastern Europe (bre) | C | C |
| Sterna hirundo | hirundo, Southern & Western Europe (bre) | C | C |
| Sterna hirundo | hirundo, Western Asia (bre) | C | C |
| Sterna repressa | W South Asia, Red Sea, Gulf & Eastern Africa | C | C |
| Sterna paradisaea | Western Eurasia (bre) | C | C |
| Sterna vittata | vittata, P.Edward, Marion, Crozet & Kerguelen/South Africa | S | S |
| Sterna vittata | sanctipauli | S | S |
| Sterna vittata | tristanensis, Tristan da Cunha & Gough/South Africa | S | S |
| Thalasseus bengalensis | emigratus, S Mediterranean/NW & West Africa coasts | C | C |
| Thalasseus bengalensis | bengalensis, Red Sea/Eastern Africa | C | I |
| Thalasseus bengalensis | bengalensis, Gulf/Southern Asia | C | I |
| Thalasseus sandvicensis | sandvicensis, Western Europe/West Africa | C | C |
| Thalasseus sandvicensis | sandvicensis, Black Sea & Mediterranean (bre) | C | C |
| Thalasseus sandvicensis | sandvicensis, West & Central Asia/South-west & South Asia | C | C |
| Thalasseus maximus | albidorsalis, West Africa (bre) | C | C |
| Thalasseus bergii | bergii, Southern Africa (Angola - Mozambique) | C | C |
| Thalasseus bergii | bergii, Madagascar & Mozambique/Southern Africa | C | C |
| Thalasseus bergii | thalassinus, Eastern Africa & Seychelles | C | I |
| Thalasseus bergii | velox, Red Sea & North-east Africa | C | I |
| Stercorarius longicaudus | longicaudus, N Europe & W Siberia/S Atlantic | S | P |
| Catharacta skua | N Europe/N Atlantic | S | P |
| Cepphus grylle | grylle, Baltic Sea | C | C |
| Cepphus grylle | islandicus, Iceland | C | C |
| Cepphus grylle | faeroeensis, Faeroes | C | C |
| Alca torda | islandica, Iceland, Faeroes, Britain, Ireland, Helgoland, NW France | C | C |
| Uria aalge | albionis, Ireland, S Britain, France, Iberia, Helgoland | C | C |
| Uria aalge | hyperborea, Svalbard, N Norway to Novaya Zemlya | C | C |

# Appendix 2. Populations considered already well-monitored (Priority 0)

|  |  |  |  |
| --- | --- | --- | --- |
| Species | Population | Method.S | Method.T |
| Oxyura leucocephala | West Mediterranean (Spain & Morocco) | S | I |
| Cygnus olor | North-west Mainland & Central Europe | I | I |
| Cygnus olor | Black Sea | A | I |
| Cygnus cygnus | Iceland/UK & Ireland | G | G |
| Cygnus cygnus | North-west Mainland Europe | G | G |
| Cygnus cygnus | N Europe & W Siberia/Black Sea & E Mediterranean | G | G |
| Cygnus columbianus | bewickii, Western Siberia & NE Europe/North-west Europe | G | G |
| Branta bernicla | bernicla, Western Siberia/Western Europe | G | G |
| Branta bernicla | hrota, Svalbard/Denmark & UK | G | G |
| Branta bernicla | hrota, Canada & Greenland/Ireland | G | G |
| Branta leucopsis | East Greenland/Scotland & Ireland | A | G |
| Branta leucopsis | Svalbard/South-west Scotland | G | G |
| Branta leucopsis | Russia/Germany & Netherlands | G | G |
| Anser anser | anser, Iceland/UK & Ireland | G | G |
| Anser anser | anser, NW Europe/South-west Europe | S | G |
| Anser anser | anser, Central Europe/North Africa | G | G |
| Anser anser | rubrirostris, Black Sea & Turkey | G | G |
| Anser anser | rubrirostris Western Siberia/Caspian & Iraq | G | G |
| Anser fabalis | fabalis, North-east Europe/North-west Europe | G | G |
| Anser fabalis | rossicus, West & Central Siberia/NE & SW Europe | G | G |
| Anser brachyrhynchus | East Greenland & Iceland/UK | G | G |
| Anser brachyrhynchus | Svalbard/North-west Europe | G | G |
| Anser albifrons | albifrons, NW Siberia & NE Europe/North-west Europe | G | G |
| Anser albifrons | albifrons, Western Siberia/Central Europe | G | G |
| Anser albifrons | albifrons, Western Siberia/Black Sea & Turkey | G | G |
| Anser albifrons | flavirostris, Greenland/Ireland & UK | G | G |
| Anser erythropus | Fennoscandia | M | G |
| Clangula hyemalis | Western Siberia/North Europe (bre) | O | P |
| Somateria mollissima | borealis, Svalbard & Franz Joseph (bre) | S | C |
| Somateria mollissima | mollissima, Baltic, North & Celtic Seas | O | P |
| Polysticta stelleri | Western Siberia/North-east Europe | O | I |
| Melanitta fusca | Western Siberia & Northern Europe/NW Europe | O | P |
| Melanitta nigra | W Siberia & N Europe/W Europe & NW Africa | O | P |
| Bucephala clangula | clangula, North-west & Central Europe (win) | O | I |
| Bucephala clangula | clangula, North-east Europe/Adriatic | I | I |
| Mergellus albellus | North-west & Central Europe (win) | O | I |
| Mergellus albellus | North-east Europe/Black Sea & East Mediterranean | O | I |
| Mergellus albellus | Western Siberia/South-west Asia | O | I |
| Mergus merganser | merganser, North-west & Central Europe (win) | O | I |
| Mergus merganser | merganser, North-east Europe/Black Sea | O | I |
| Mergus serrator | North-west & Central Europe (win) | O | I |
| Tadorna tadorna | North-west Europe | I | I |
| Tadorna tadorna | Black Sea & Mediterranean | I | I |
| Netta rufina | South-west & Central Europe/West Mediterranean | I | I |
| Netta rufina | Black Sea & East Mediterranean | O | I |
| Aythya ferina | North-east Europe/North-west Europe | I | I |
| Aythya ferina | Central & NE Europe/Black Sea & Mediterranean | I | I |
| Aythya nyroca | Eastern Europe/E Mediterranean & Sahelian Africa | S | S |
| Aythya fuligula | North-west Europe (win) | O | I |
| Aythya fuligula | Central Europe, Black Sea & Mediterranean (win) | O | I |
| Aythya marila | marila, Northern Europe/Western Europe | O | I |
| Spatula querquedula | Western Siberia & Europe/West Africa | A | I |
| Spatula clypeata | North-west & Central Europe (win) | I | I |
| Spatula clypeata | W Siberia, NE & E Europe/S Europe & West Africa | A | I |
| Mareca strepera | strepera, North-west Europe | I | I |
| Mareca strepera | strepera, North-east Europe/Black Sea & Mediterranean | I | I |
| Mareca penelope | Western Siberia & NE Europe/NW Europe | I | I |
| Mareca penelope | W Siberia & NE Europe/Black Sea & Mediterranean | I | I |
| Anas platyrhynchos | platyrhynchos, North-west Europe | I | I |
| Anas platyrhynchos | platyrhynchos, Northern Europe/West Mediterranean | I | I |
| Anas platyrhynchos | platyrhynchos, Eastern Europe/Black Sea & East Mediterranean | I | I |
| Anas acuta | North-west Europe | I | I |
| Anas acuta | W Siberia, NE & E Europe/S Europe & West Africa | A | I |
| Anas crecca | crecca, North-west Europe | I | I |
| Anas crecca | crecca, W Siberia & NE Europe/Black Sea & Mediterranean | I | I |
| Tachybaptus ruficollis | ruficollis, Europe & North-west Africa | D | I |
| Podiceps grisegena | grisegena, North-west Europe (win) | O | I |
| Podiceps grisegena | grisegena, Black Sea & Mediterranean (win) | O | I |
| Podiceps cristatus | cristatus, North-west & Western Europe | O | I |
| Podiceps auritus | auritus, North-west Europe (large-billed) | O | S |
| Podiceps auritus | auritus, North-east Europe (small-billed) | O | S |
| Podiceps nigricollis | nigricollis, Europe/South & West Europe & North Africa | C | I |
| Phoenicopterus roseus | East Mediterranean | C | I |
| Phaethon aethereus | aetherus, South Atlantic | C | C |
| Phaethon lepturus | lepturus, W Indian Ocean | C | C |
| Rallus aquaticus | aquaticus, Europe & North Africa | V | V |
| Crex crex | Europe & Western Asia/Sub-Saharan Africa | V | V |
| Fulica cristata | Spain & Morocco | I | I |
| Fulica atra | atra, North-west Europe (win) | O | I |
| Leucogeranus leucogeranus | Iran (win) | I | I |
| Anthropoides paradiseus | Extreme Southern Africa | S | S |
| Anthropoides virgo | Kalmykia/North-east Africa | S | S |
| Grus grus | grus, North-west Europe/Iberia & Morocco | R | R |
| Grus grus | grus, North-east & Central Europe/North Africa | R | R |
| Grus grus | grus, Eastern Europe/Turkey, Middle East & NE Africa | R | R |
| Grus grus | archibaldi, Turkey & Georgia (bre) | S | S |
| Gavia stellata | North-west Europe (win) | O | P |
| Gavia stellata | Caspian, Black Sea & East Mediterranean (win) | O | I |
| Gavia arctica | arctica, Northern Europe & Western Siberia/Europe | O | I |
| Gavia immer | Europe (win) | O | I |
| Spheniscus demersus | Southern Africa | C | C |
| Ciconia nigra | South-west Europe/West Africa | S | S |
| Ciconia nigra | Central & Eastern Europe/Sub-Saharan Africa | S | S |
| Ciconia ciconia | ciconia, W Europe & North-west Africa/Sub-Saharan Africa | S | S |
| Ciconia ciconia | ciconia, Central & Eastern Europe/Sub-Saharan Africa | S | S |
| Platalea leucorodia | leucorodia, West Europe/West Mediterranean & West Africa | C | C |
| Platalea leucorodia | balsaci, Coastal West Africa (Mauritania) | C | C |
| Platalea leucorodia | leucorodia, C Europe/ CentralMediterranean & Tropical Africa | C | C |
| Platalea leucorodia | leucorodia, SE Europe/Mediterranean, SW Asia & East Africa | C | C |
| Geronticus eremita | Morocco | C | C |
| Geronticus eremita | South-west Asia | C | C |
| Plegadis falcinellus | Black Sea & Mediterranean/West Africa | C | C |
| Botaurus stellaris | stellaris, W Europe, NW Africa (bre) | V | L |
| Botaurus stellaris | stellaris, C & E Europe, Black Sea & E Mediterranean (bre) | V | L |
| Ixobrychus minutus | minutus, W Europe, NW Africa/Subsaharan Africa | V | L |
| Ixobrychus minutus | minutus, C & E Europe, Black Sea & E Mediterranean/Sub-saharan Africa | V | L |
| Nycticorax nycticorax | nycticorax, W Europe, NW Africa (bre) | C | C |
| Nycticorax nycticorax | nycticorax, C & E Europe/Black Sea & E Mediterranean (bre) | C | C |
| Ardeola ralloides | ralloides, C & E Europe, Black Sea & E Mediterranean (bre) | C | C |
| Bubulcus ibis | ibis, South-west Europe | C | I |
| Ardea cinerea | cinerea, Northern & Western Europe | C | I |
| Ardea purpurea | purpurea, West Europe & West Mediterranean/West Africa | C | C |
| Ardea purpurea | purpurea, East Europe, Black Sea & Mediterranean/Sub-Saharan Africa | C | C |
| Ardea alba | alba, W, C & SE Europe/Black Sea & Mediterranean | C | I |
| Egretta garzetta | garzetta, Western Europe, NW Africa | C | C |
| Egretta garzetta | garzetta, Central & E Europe, Black Sea, E Mediterranean | C | C |
| Fregata ariel | iredalei, W Indian Ocean | C | C |
| Morus bassanus | North Atlantic | C | C |
| Morus capensis | Southern Africa | C | C |
| Microcarbo coronatus | Coastal South-west Africa | C | I |
| Microcarbo pygmaeus | Black Sea & Mediterranean | C | I |
| Phalacrocorax carbo | carbo, North-west Europe | C | C |
| Phalacrocorax carbo | sinensis, Northern & Central Europe | C | I |
| Phalacrocorax capensis | Coastal Southern Africa | C | C |
| Haematopus moquini | Coastal Southern Africa | S | I |
| Haematopus ostralegus | ostralegus, Europe/South & West Europe & NW Africa | S | I |
| Himantopus himantopus | himantopus, Central Europe & E Mediterranean/N-Central Africa | S | S |
| Pluvialis squatarola | squatarola, W Siberia/W Europe & W Africa | I | I |
| Pluvialis apricaria | apricaria, Britain, Ireland, Denmark, Germany & Baltic (bre) | S | S |
| Eudromias morinellus | Europe/North-west Africa | S | S |
| Charadrius hiaticula | hiaticula, Northern Europe/Europe & North Africa | S | I |
| Charadrius alexandrinus | alexandrinus, West Europe & West Mediterranean/West Africa | S | I |
| Vanellus vanellus | Europe, W Asia/Europe, N Africa & SW Asia | D | D |
| Numenius phaeopus | phaeopus, Northern Europe/West Africa | S | D |
| Numenius arquata | arquata, Europe/Europe, North & West Africa | S | D |
| Limosa lapponica | lapponica, Northern Europe/Western Europe | I | I |
| Limosa limosa | limosa, Western Europe/NW & West Africa | S | D |
| Limosa limosa | limosa, Eastern Europe/Central & Eastern Africa | S | D |
| Limosa limosa | islandica, Iceland/Western Europe | S | D |
| Arenaria interpres | interpres, NE Canada & Greenland/W Europe & NW Africa | I | I |
| Arenaria interpres | interpres, Northern Europe/West Africa | I | I |
| Calidris canutus | islandica, NE Canada & Greenland/Western Europe | I | I |
| Calidris pugnax | Northern Europe & Western Siberia/West Africa | S | I |
| Calidris ferruginea | Western Siberia/West Africa | I | I |
| Calidris temminckii | Fennoscandia/North & West Africa | D | D |
| Calidris alba | alba, East Atlantic Europe, West & Southern Africa (win) | I | I |
| Calidris alpina | alpina, NE Europe & NW Siberia/W Europe & NW Africa | S | I |
| Calidris alpina | schinzii, Iceland & Greenland/NW and West Africa | S | I |
| Calidris alpina | schinzii, Baltic/SW Europe & NW Africa | S | S |
| Calidris alpina | schinzii, Britain & Ireland/SW Europe & NW Africa | S | S |
| Calidris minuta | N Europe/S Europe, North & West Africa | D | I |
| Gallinago media | Western Siberia & NE Europe/South-east Africa | S | S |
| Gallinago gallinago | gallinago, Europe/South & West Europe & NW Africa | S | S |
| Tringa ochropus | Northern Europe/S & W Europe, West Africa | S | I |
| Tringa erythropus | N Europe/Southern Europe, North & West Africa | S | I |
| Tringa nebularia | Northern Europe/SW Europe, NW & West Africa | S | I |
| Tringa totanus | totanus, Central & East Europe (breeding) | S | D |
| Tringa totanus | totanus, Britain & Ireland/Britain, Ireland, France | S | D |
| Tringa glareola | North-west Europe/West Africa | S | D |
| Hydrocoloeus minutus | Central & E Europe/SW Europe & W Mediterranean | C | C |
| Rissa tridactyla | tridactyla, Arctic from NE Canada to Novaya Zemlya/N Atlantic | C | C |
| Larus genei | West Africa (bre) | C | I |
| Larus genei | Black Sea & Mediterranean (bre) | C | I |
| Larus ridibundus | W Europe/W Europe, W Mediterranean, West Africa | C | I |
| Larus ridibundus | East Europe/Black Sea & East Mediterranean | C | I |
| Larus melanocephalus | W Europe, Mediterranean & NW Africa | C | I |
| Larus audouinii | Mediterranean/N & W coasts of Africa | C | C |
| Larus canus | canus, NW & C Europe/Atlantic coast & Mediterranean | C | C |
| Larus fuscus | fuscus, NE Europe/Black Sea, SW Asia & Eastern Africa | C | C |
| Larus fuscus | intermedius, S Scandinavia, Netherlands, Ebro Delta, Spain | C | C |
| Larus argentatus | argentatus, North & North-west Europe | C | C |
| Larus armenicus | Armenia, Eastern Turkey & NW Iran | C | C |
| Larus michahellis | Mediterranean, Iberia & Morocco | C | I |
| Larus cachinnans | Black Sea & Western Asia/SW Asia, NE Africa | C | C |
| Larus marinus | North & West Europe | C | I |
| Sternula albifrons | albifrons, Europe north of Mediterranean (bre) | S | S |
| Sternula albifrons | albifrons, West Mediterranean/ W Africa (bre) | S | S |
| Gelochelidon nilotica | nilotica, Black Sea & East Mediterranean/Eastern Africa | C | C |
| Hydroprogne caspia | Baltic (bre) | C | C |
| Chlidonias niger | niger, Europe & Western Asia/Atlantic coast of Africa | S | S |
| Sterna dougallii | dougallii, Europe (bre) | C | C |
| Sterna hirundo | hirundo, Northern & Eastern Europe (bre) | C | C |
| Sterna hirundo | hirundo, Southern & Western Europe (bre) | C | C |
| Sterna paradisaea | Western Eurasia (bre) | C | C |
| Thalasseus sandvicensis | sandvicensis, Western Europe/West Africa | C | C |
| Thalasseus sandvicensis | sandvicensis, Black Sea & Mediterranean (bre) | C | C |
| Thalasseus maximus | albidorsalis, West Africa (bre) | C | C |
| Fratercula arctica | East Atlantic (bre) | C | C |
| Cepphus grylle | grylle, Baltic Sea | C | C |
| Alca torda | islandica, Iceland, Faeroes, Britain, Ireland, Helgoland, NW France | C | C |
| Alca torda | torda, East Atlantic | C | C |
| Uria lomvia | lomvia, W Atlantic (bre) | C | C |
| Uria lomvia | lomvia, E Atlantic (bre) | C | C |
| Uria aalge | albionis, Ireland, S Britain, France, Iberia, Helgoland | C | C |
| Uria aalge | hyperborea, Svalbard, N Norway to Novaya Zemlya | C | C |
| Uria aalge | aalge, E Atlantic (bre) | C | C |
| Uria aalge | aalge, Baltic (bre) | C | C |

# Appendix 3. Priority 1 populations

Populations that are subject to an existing AEWA single species action or management plan and not well-monitored.

|  |  |  |  |
| --- | --- | --- | --- |
| Species | Population | Size | Trend |
| Oxyura maccoa | Eastern Africa | S | I |
| Oxyura maccoa | Southern Africa | S | I |
| Oxyura leucocephala | Algeria & Tunisia | S | I |
| Oxyura leucocephala | East Mediterranean, Turkey & South-west Asia | S | I |
| Branta ruficollis | Northern Siberia/Black Sea & Caspian | P | P |
| Anser fabalis | johanseni, West & Central Siberia/Turkmenistan to W China | G | G |
| Anser erythropus | NE Europe & W Siberia/Black Sea & Caspian | P | G |
| Clangula hyemalis | Iceland & Greenland (bre) | M | I |
| Somateria mollissima | mollissima, Norway & Russia | O | I |
| Melanitta fusca | Black Sea & Caspian | S | S |
| Marmaronetta angustirostris | West Mediterranean/West Medit. & West Africa | S | I |
| Marmaronetta angustirostris | East Mediterranean | S | I |
| Marmaronetta angustirostris | South-west Asia | S | I |
| Aythya nyroca | West Mediterranean/North & West Africa | S | S |
| Aythya nyroca | Western Asia/SW Asia & NE Africa | S | S |
| Phoeniconaias minor | West Africa | C | I |
| Phoeniconaias minor | Eastern Africa | C | I |
| Phoeniconaias minor | Southern Africa (to Madagascar) | C | I |
| Sarothrura ayresi | Ethiopia | S | S |
| Sarothrura ayresi | Southern Africa | S | S |
| Balearica regulorum | regulorum, Southern Africa (N to Angola & S Zimbabwe) | S | S |
| Balearica regulorum | gibbericeps, Eastern Africa (Kenya to Mozambique) | S | S |
| Gavia adamsii | Northern Europe (win) | O | I |
| Platalea leucorodia | archeri, Red Sea & Somalia | C | C |
| Platalea leucorodia | leucorodia, Western Asia/South-west & South Asia | C | I |
| Ardeola idae | Madagascar & Aldabra/Central & Eastern Africa | C | C |
| Egretta vinaceigula | Central Southern Africa | C | I |
| Balaeniceps rex | Central Tropical Africa | S | S |
| Pelecanus crispus | Black Sea & Mediterranean (win) | C | I |
| Pelecanus crispus | South-west Asia & South Asia (win) | C | I |
| Numenius arquata | orientalis, Western Siberia/SW Asia, E & S Africa | S | I |
| Numenius arquata | suschkini, South-east Europe & South-west Asia (bre) | S | S |
| Limosa limosa | limosa, West-central Asia/SW Asia & Eastern Africa | S | D |
| Glareola nordmanni | SE Europe & Western Asia/Southern Africa | C | C |

# Appendix 4. Priority 2 populations

Other not-well monitored populations that belong to a Globally Threatened and Near Threatened species.

|  |  |  |  |
| --- | --- | --- | --- |
| Species | Population | Size | Trend |
| Aythya ferina | Western Siberia/South-west Asia | I | I |
| Podiceps auritus | auritus, Caspian & South Asia (win) | O | I |
| Balearica pavonina | pavonina, West Africa (Senegal to Chad) | S | S |
| Balearica pavonina | ceciliae, Eastern Africa (Sudan to Uganda) | S | S |
| Bugeranus carunculatus | Central & Southern Africa | A | A |
| Phalacrocorax nigrogularis | Arabian Coast | C | C |
| Phalacrocorax nigrogularis | Gulf of Aden, Socotra, Arabian Sea | C | C |
| Phalacrocorax neglectus | Coastal South-west Africa | C | C |
| Haematopus ostralegus | longipes, SE Eur & W Asia/SW Asia & NE Africa | S | I |
| Charadrius pallidus | pallidus, Southern Africa | S | J |
| Charadrius pallidus | venustus, Eastern Africa | S | I |
| Vanellus gregarius | Central Asia/S, SW Asia, NE Africa | S | S |
| Numenius tenuirostris | Central Siberia/Mediterranean & SW Asia | S | S |
| Limosa lapponica | taymyrensis, Western Siberia/West & South-west Africa | I | I |
| Limosa lapponica | taymyrensis, Central Siberia/South & SW Asia & Eastern Africa | I | I |
| Calidris tenuirostris | Eastern Siberia/SW Asia & W Southern Asia | I | I |
| Calidris canutus | canutus, Northern Siberia/West & Southern Africa | I | I |
| Calidris ferruginea | Central Siberia/SW Asia, E & S Africa | I | I |
| Gallinago media | Scandinavia/probably West Africa | S | S |
| Glareola ocularis | Madagascar/East Africa | C | C |
| Rynchops flavirostris | Coastal West Africa & Central Africa | C | C |
| Rynchops flavirostris | Eastern & Southern Africa | C | C |
| Sternula balaenarum | Namibia & South Africa/Atlantic coast to Ghana | S | S |
| Alca torda | torda, West Atlantic | C | C |

# Appendix 5. Priority 3 populations

Other not well-monitored populations with a small number (< 5) of countries with poor population size and/or trend estimates

|  |  |  |  |
| --- | --- | --- | --- |
| Species | Population | Size | Trend |
| Bucephala clangula | clangula, Western Siberia/Caspian | O | I |
| Mergus merganser | merganser, Western Siberia/Caspian | O | I |
| Tadorna ferruginea | North-west Africa | S | I |
| Tadorna cana | Southern Africa | A | I |
| Spatula hottentota | Lake Chad Basin | S | I |
| Anas capensis | Lake Chad basin | S | S |
| Anas erythrorhyncha | Madagascar | A | I |
| Podiceps cristatus | infuscatus, Southern Africa | S | I |
| Phoenicopterus roseus | West Africa | C | I |
| Phoenicopterus roseus | West Mediterranean | C | I |
| Phaethon rubricauda | rubricauda, Indian Ocean | C | C |
| Anthropoides virgo | Black Sea (Ukraine)/North-east Africa | S | S |
| Grus grus | grus, Western Siberia/South Asia | R | R |
| Gavia arctica | arctica, Central Siberia/Caspian | O | I |
| Ciconia ciconia | ciconia, Southern Africa | S | S |
| Ciconia ciconia | ciconia, Western Asia/South-west Asia | S | S |
| Threskiornis aethiopicus | Iraq & Iran | C | C |
| Plegadis falcinellus | South-west Asia/Eastern Africa | C | C |
| Ardeola ralloides | ralloides, SW Europe, NW Africa (bre) | C | C |
| Bubulcus ibis | ibis, North-west Africa | C | C |
| Egretta gularis | dimorpha, Coastal Eastern Africa | C | I |
| Fregata minor | aldabrensis, W Indian Ocean | C | C |
| Gulosus aristotelis | desmarestii, Adriatic | C | C |
| Phalacrocorax carbo | lucidus, Coastal West Africa | C | I |
| Pluvianus aegyptius | Lower Congo Basin | S | I |
| Pluvialis apricaria | altifrons, Iceland & Faroes/East Atlantic coast | S | S |
| Pluvialis apricaria | altifrons, Northern Europe/Western Europe & NW Africa | S | S |
| Pluvialis apricaria | altifrons, Northern Siberia/Caspian & Asia Minor | S | S |
| Eudromias morinellus | Asia/Middle East | S | S |
| Vanellus melanopterus | minor, Southern Africa | S | L |
| Vanellus coronatus | coronatus, Central Africa | S | L |
| Numenius phaeopus | islandicus, Iceland, Faroes & Scotland/West Africa | S | D |
| Numenius phaeopus | alboaxilliaris, N of Caspian/Eastern Africa | S | S |
| Numenius phaeopus | rogachevae, C Siberia (bre) | S | S |
| Calidris alpina | arctica, NE Greenland/West Africa | S | S |
| Calidris maritima | NE Canada & N Greenland (breeding) | D | D |
| Gallinago stenura | Northern Siberia/South Asia & Eastern Africa | S | S |
| Gallinago gallinago | gallinago, Western Siberia/South-west Asia & Africa | S | S |
| Gallinago gallinago | faeroeensis, Iceland, Faroes & Northern Scotland/Ireland | S | S |
| Lymnocryptes minimus | Western Siberia/SW Asia & NE Africa | S | S |
| Phalaropus fulicarius | Canada & Greenland/Atlantic coast of Africa | S | S |
| Tringa totanus | totanus, Northern Europe (breeding) | S | D |
| Tringa totanus | robusta, Iceland & Faroes/Western Europe | S | D |
| Anous tenuirostris | tenuirostris, Indian OceanIslands to E Africa | C | C |
| Hydrocoloeus minutus | W Asia/E Mediterranean, Black Sea & Caspian | C | C |
| Xema sabini | sabini, Canada & Greenland/SE Atlantic | C | C |
| Larus hartlaubii | Coastal South-west Africa | C | I |
| Larus canus | heinei, NE Europe & Western Siberia/Black Sea & Caspian | C | C |
| Larus dominicanus | vetula, Coastal Southern Africa | C | I |
| Larus dominicanus | vetula, Coastal West Africa | C | I |
| Larus fuscus | heuglini, NE Europe & W Siberia/SW Asia & NE Africa | C | C |
| Larus fuscus | barabensis, South-west Siberia/South-west Asia | C | C |
| Larus argentatus | argenteus, Iceland & Western Europe | C | C |
| Larus glaucoides | glaucoides, Greenland/Iceland & North-west Europe | S | S |
| Larus hyperboreus | hyperboreus, Svalbard & N Russia (bre) | S | S |
| Larus hyperboreus | leuceretes, Canada, Greenland & Iceland (bre) | S | S |
| Onychoprion fuscatus | nubilosus, Red Sea, Gulf of Aden, E to Pacific | C | C |
| Onychoprion anaethetus | melanopterus, W Africa | C | C |
| Hydroprogne caspia | Southern Africa (bre) | C | I |
| Hydroprogne caspia | Black Sea (bre) | C | C |
| Chlidonias hybrida | delalandii, Eastern Africa (Kenya & Tanzania) | S | I |
| Sterna dougallii | dougallii, East Africa | C | C |
| Sterna dougallii | gracilis, North Arabian Sea (Oman) | C | C |
| Sterna dougallii | dougallii, Southern Africa and Madagascar | C | C |
| Sterna dougallii | gracilis, Seychelles & Mascarenes | C | C |
| Sterna vittata | vittata, P.Edward, Marion, Crozet & Kerguelen/South Africa | S | S |
| Sterna vittata | sanctipauli | S | S |
| Sterna vittata | tristanensis, Tristan da Cunha & Gough/South Africa | S | S |
| Thalasseus bengalensis | emigratus, S Mediterranean/NW & West Africa coasts | C | C |
| Thalasseus sandvicensis | sandvicensis, West & Central Asia/South-west & South Asia | C | C |
| Thalasseus bergii | bergii, Southern Africa (Angola - Mozambique) | C | C |
| Thalasseus bergii | bergii, Madagascar & Mozambique/Southern Africa | C | C |
| Thalasseus bergii | thalassinus, Eastern Africa & Seychelles | C | I |
| Stercorarius longicaudus | longicaudus, N Europe & W Siberia/S Atlantic | S | P |
| Catharacta skua | N Europe/N Atlantic | S | P |
| Cepphus grylle | islandicus, Iceland | C | C |
| Cepphus grylle | faeroeensis, Faeroes | C | C |
| Cepphus grylle | mandtii, E Canadian Arctic & W Greenland (bre) | C | C |
| Cepphus grylle | mandtii, E Greenland to E Laptev Sea (bre) | C | C |
| Cepphus grylle | arcticus, NE America and S Greenland (bre) | C | C |
| Cepphus grylle | arcticus, British Isles and N Europe | C | C |
| Alle alle | alle, West Atlantic (bre) | C | C |
| Alle alle | alle, East Atlantic (bre) | C | C |
| Alle alle | polaris, Franz Josef Land & Severnaya Zemlya (bre) | C | C |

# Appendix 6. Priority 4 populations

Other populations for which population size and trend estimates can be obtained from multi-species methods and one of the population-level quality scores is already 1 or 2.

|  |  |  |  |
| --- | --- | --- | --- |
| Species | Population | Size | Trend |
| Cygnus olor | West & Central Asia/Caspian | A | I |
| Mergus serrator | North-east Europe/Black Sea & Mediterranean | O | I |
| Mergus serrator | Western Siberia/South-west & Central Asia | O | I |
| Netta rufina | Western & Central Asia/South-west Asia | O | I |
| Aythya marila | marila, Western Siberia/Black Sea & Caspian | O | I |
| Spatula hottentota | Southern Africa (north to S Zambia) | A | I |
| Anas undulata | undulata, Southern Africa | I | I |
| Anas capensis | Eastern Africa (Rift Valley) | A | I |
| Anas capensis | Southern Africa (N to Angola & Zambia) | A | I |
| Anas erythrorhyncha | Southern Africa | A | I |
| Podiceps grisegena | grisegena, Caspian (win) | O | I |
| Podiceps cristatus | cristatus, Black Sea & Mediterranean (win) | O | I |
| Gallinula chloropus | chloropus, Europe & North Africa | D | D |
| Fulica atra | atra, Black Sea & Mediterranean (win) | O | I |
| Calidris temminckii | NE Europe & W Siberia/SW Asia & Eastern Africa | D | I |
| Calidris maritima | N Europe & W Siberia (breeding) | D | I |
| Actitis hypoleucos | West & Central Europe/West Africa | D | I |
| Actitis hypoleucos | E Europe & W Siberia/Central, E & S Africa | D | I |

# Appendix 7. Priority 5 populations

Other populations for which population size and trend estimates can be obtained from multi-species methods and both of the population-level quality scores are 3 or 4.

|  |  |  |  |
| --- | --- | --- | --- |
| Species | Population | Size | Trend |
| Dendrocygna viduata | West Africa (Senegal to Chad) | A | I |
| Dendrocygna viduata | Eastern & Southern Africa | A | I |
| Dendrocygna bicolor | West Africa (Senegal to Chad) | A | I |
| Dendrocygna bicolor | Eastern & Southern Africa | A | I |
| Bucephala clangula | clangula, Western Siberia & North-east Europe/Black Sea | O | I |
| Alopochen aegyptiaca | West Africa | A | I |
| Alopochen aegyptiaca | Eastern & Southern Africa | A | I |
| Tadorna tadorna | Western Asia/Caspian & Middle East | I | I |
| Plectropterus gambensis | gambensis, West Africa | A | I |
| Plectropterus gambensis | gambensis, Eastern Africa (Sudan to Zambia) | A | I |
| Plectropterus gambensis | niger, Southern Africa | A | I |
| Sarkidiornis melanotos | West Africa | A | I |
| Sarkidiornis melanotos | Southern & Eastern Africa | A | I |
| Nettapus auritus | West Africa | A | I |
| Nettapus auritus | Southern & Eastern Africa | A | I |
| Netta erythrophthalma | brunnea, Southern & Eastern Africa | A | I |
| Aythya fuligula | Western Siberia/SW Asia & NE Africa | O | I |
| Spatula querquedula | Western Siberia/SW Asia, NE & Eastern Africa | A | I |
| Spatula hottentota | Eastern Africa (south to N Zambia) | A | I |
| Spatula clypeata | W Siberia/SW Asia, NE & Eastern Africa | A | I |
| Mareca strepera | strepera, Western Siberia/SW Asia & NE Africa | I | I |
| Mareca penelope | Western Siberia/SW Asia & NE Africa | I | I |
| Anas platyrhynchos | platyrhynchos, Western Siberia/South-west Asia | I | I |
| Anas erythrorhyncha | Eastern Africa | A | I |
| Anas acuta | Western Siberia/SW Asia & Eastern Africa | A | I |
| Anas crecca | crecca, Western Siberia/SW Asia & NE Africa | I | I |
| Podiceps cristatus | cristatus, Caspian & South-west Asia (win) | O | I |
| Gallinula chloropus | chloropus, West & South-west Asia | D | I |
| Fulica cristata | Sub-Saharan Africa | A | I |
| Fulica atra | atra, South-west Asia (win) | O | I |
| Pluvialis squatarola | squatarola, C & E Siberia/SW Asia, Eastern & Southern Africa | I | I |
| Pluvialis fulva | North-central Siberia/South & SW Asia, NE Africa | I | I |
| Arenaria interpres | interpres, West & Central Siberia/SW Asia, E & S Africa | I | I |
| Calidris alba | alba, South-west Asia, Eastern & Southern Africa (win) | I | I |
| Calidris minuta | Western Siberia/SW Asia, E & S Africa | D | I |

# Appendix 8. Priority 6 populations

All other not well-monitored populations.

|  |  |  |  |
| --- | --- | --- | --- |
| Species | Population | Size | Trend |
| Thalassornis leuconotus | leuconotus, West Africa | S | S |
| Thalassornis leuconotus | leuconotus, Eastern & Southern Africa | S | I |
| Cygnus cygnus | West & Central Siberia/Caspian | A | G |
| Cygnus columbianus | bewickii, Northern Siberia/Caspian | A | G |
| Anser albifrons | albifrons, Northern Siberia/Caspian & Iraq | G | G |
| Somateria spectabilis | East Greenland, NE Europe & Western Siberia | M | M |
| Tadorna ferruginea | East Mediterranean & Black Sea/North-east Africa | S | I |
| Tadorna ferruginea | Western Asia & Caspian/Iran & Iraq | S | I |
| Podiceps cristatus | infuscatus, Eastern Africa (Ethiopia to N Zambia) | S | I |
| Podiceps nigricollis | nigricollis, Western Asia/South-west & South Asia | C | I |
| Podiceps nigricollis | gurneyi, Southern Africa | C | I |
| Phoenicopterus roseus | Eastern Africa | C | I |
| Phoenicopterus roseus | Southern Africa (to Madagascar) | C | I |
| Phoenicopterus roseus | South-west & South Asia | C | I |
| Phaethon aethereus | indicus, Persian Gulf, Gulf of Aden, Red Sea | C | C |
| Sarothrura elegans | elegans, NE, Eastern & Southern Africa | V | L |
| Sarothrura elegans | reichenovi, S West Africa to Central Africa | V | L |
| Sarothrura boehmi | Central Africa | V | L |
| Rallus aquaticus | korejewi, Western Siberia/South-west Asia | V | V |
| Rallus caerulescens | Southern & Eastern Africa | V | V |
| Crex egregia | Sub-Saharan Africa | V | V |
| Porzana porzana | Europe/Africa | V | V |
| Zapornia flavirostra | Sub-Saharan Africa | V | I |
| Zapornia parva | Western Eurasia/Africa | V | V |
| Zapornia pusilla | intermedia, Europe (bre) | V | V |
| Amaurornis marginalis | Sub-Saharan Africa | V | V |
| Porphyrio alleni | Sub-Saharan Africa | S | I |
| Paragallinula angulata | Sub-Saharan Africa | S | I |
| Leptoptilos crumenifer | Sub-Saharan Africa | C | I |
| Mycteria ibis | Sub-Saharan Africa (excluding Madagascar) | S | I |
| Anastomus lamelligerus | lamelligerus, Sub-Saharan Africa | S | I |
| Ciconia nigra | Southern Africa | S | S |
| Ciconia abdimii | Sub-Saharan Africa & SW Arabia | S | S |
| Ciconia microscelis | Sub-Saharan Africa | S | I |
| Platalea alba | Sub-Saharan Africa | C | I |
| Threskiornis aethiopicus | Sub-Saharan Africa | C | I |
| Plegadis falcinellus | Sub-Saharan Africa (bre) | C | C |
| Botaurus stellaris | stellaris, South-west Asia (win) | V | L |
| Botaurus stellaris | capensis, Southern Africa | V | L |
| Ixobrychus minutus | minutus, West & South-west Asia/Sub-Saharan Africa | V | L |
| Ixobrychus minutus | payesii, Sub-Saharan Africa | V | L |
| Ixobrychus sturmii | Sub-Saharan Africa | V | L |
| Nycticorax nycticorax | nycticorax, Western Asia/SW Asia & NE Africa | C | C |
| Nycticorax nycticorax | nycticorax, Sub-Saharan Africa & Madagascar | C | J |
| Ardeola ralloides | ralloides, West & South-west Asia/Sub-Saharan Africa | C | C |
| Ardeola ralloides | paludivaga, Sub-Saharan Africa & Madagascar | C | C |
| Ardeola rufiventris | Central, Eastern & Southern Africa | C | C |
| Bubulcus ibis | ibis, Southern Africa | C | I |
| Bubulcus ibis | ibis, Tropical Africa | C | C |
| Bubulcus ibis | ibis, East Mediterranean & South-west Asia | C | C |
| Ardea cinerea | cinerea, Sub-Saharan Africa | C | J |
| Ardea cinerea | cinerea, Central & Eastern Europe | C | I |
| Ardea cinerea | cinerea, West & South-west Asia (bre) | C | I |
| Ardea melanocephala | Sub-Saharan Africa | C | I |
| Ardea purpurea | purpurea, Tropical Africa | C | J |
| Ardea purpurea | purpurea, SW Asia (bre) | C | C |
| Ardea alba | alba, Western Asia/South-west Asia | C | I |
| Ardea alba | melanorhynchos, Sub-Saharan Africa & Madagascar | C | I |
| Ardea brachyrhyncha | Sub-Saharan Africa | C | I |
| Egretta ardesiaca | Sub-Saharan Africa | C | I |
| Egretta garzetta | garzetta, Sub-Saharan Africa | C | J |
| Egretta garzetta | garzetta, Western Asia/SW Asia, NE & Eastern Africa | C | C |
| Egretta gularis | gularis, West Africa | C | I |
| Egretta gularis | schistacea, North-east Africa & Red Sea | C | I |
| Egretta gularis | schistacea, South-west Asia & South Asia | C | I |
| Pelecanus rufescens | Tropical Africa & SW Arabia | C | I |
| Pelecanus onocrotalus | West Africa | C | I |
| Pelecanus onocrotalus | Eastern Africa | C | I |
| Pelecanus onocrotalus | Southern Africa | C | I |
| Pelecanus onocrotalus | Europe & Western Asia (bre) | C | I |
| Sula dactylatra | melanops, W Indian Ocean | C | C |
| Microcarbo pygmaeus | South-west Asia | C | I |
| Phalacrocorax carbo | sinensis, Black Sea & Mediterranean | C | I |
| Phalacrocorax carbo | sinensis, West & South-west Asia | C | I |
| Phalacrocorax carbo | lucidus, Central & Eastern Africa | C | I |
| Phalacrocorax carbo | lucidus, Coastal Southern Africa | C | I |
| Burhinus senegalensis | West Africa | V | V |
| Burhinus senegalensis | North-east & Eastern Africa | V | V |
| Pluvianus aegyptius | West Africa | S | I |
| Pluvianus aegyptius | Eastern Africa | S | I |
| Recurvirostra avosetta | Southern Africa | C | I |
| Recurvirostra avosetta | Eastern Africa | C | I |
| Recurvirostra avosetta | Western Europe & North-west Africa (bre) | C | I |
| Recurvirostra avosetta | South-east Europe, Black Sea & Turkey (bre) | C | I |
| Recurvirostra avosetta | West & South-west Asia/Eastern Africa | C | I |
| Himantopus himantopus | himantopus, Sub-Saharan Africa (excluding south) | S | J |
| Himantopus himantopus | himantopus, Southern Africa | S | I |
| Himantopus himantopus | himantopus, SW Europe & North-west Africa/West Africa | S | S |
| Himantopus himantopus | himantopus, W, C & SW Asia/SW Asia & NE Africa | S | S |
| Charadrius hiaticula | psammodromus, Canada, Greenland & Iceland/W & S Africa | S | I |
| Charadrius hiaticula | tundrae, NE Europe & Siberia/SW Asia, E & S Africa | S | I |
| Charadrius dubius | curonicus, Europe & North-west Africa/West Africa | S | I |
| Charadrius dubius | curonicus, West & South-west Asia/Eastern Africa | S | I |
| Charadrius pecuarius | Southern & Eastern Africa | S | J |
| Charadrius pecuarius | West Africa | S | I |
| Charadrius tricollaris | Southern & Eastern Africa | S | I |
| Charadrius forbesi | Western & Central Africa | S | L |
| Charadrius marginatus | mechowi, Inland East & Central Africa | S | L |
| Charadrius marginatus | hesperius, West Africa | S | L |
| Charadrius alexandrinus | alexandrinus, Black Sea & East Mediterranean/Eastern Sahel | S | I |
| Charadrius alexandrinus | alexandrinus, SW & Central Asia/SW Asia & NE Africa | S | I |
| Charadrius mongolus | pamirensis, West-central Asia/SW Asia & Eastern Africa | S | I |
| Charadrius leschenaultii | leschenaultii, Central Asia/Eastern & Southern Africa | S | I |
| Charadrius leschenaultii | columbinus, Turkey & SW Asia/E. Mediterranean & Red Sea | S | L |
| Charadrius leschenaultii | scythicus, Caspian & SW Asia/Arabia & NE Africa | S | I |
| Charadrius asiaticus | SE Europe & West Asia/E & Central Southern Africa | S | S |
| Vanellus spinosus | Black Sea & Mediterranean (bre) | S | L |
| Vanellus albiceps | West & Central Africa | S | L |
| Vanellus lugubris | Central & Eastern Africa | S | L |
| Vanellus lugubris | Southern West Africa | S | L |
| Vanellus coronatus | coronatus, Eastern & Southern Africa | S | L |
| Vanellus coronatus | coronatus, South-west Africa | S | L |
| Vanellus senegallus | senegallus, West Africa | S | L |
| Vanellus senegallus | lateralis, Eastern & South-east Africa | S | L |
| Vanellus superciliosus | West & Central Africa | S | L |
| Vanellus leucurus | C & SW Asia/NE Africa, SW & S Asia | S | S |
| Numenius phaeopus | phaeopus, West Siberia/Southern & Eastern Africa | S | I |
| Calidris pugnax | Northern Siberia/SW Asia, E & S Africa | S | I |
| Calidris falcinellus | falcinellus, Northern Europe/SW Asia & Africa | S | I |
| Calidris alpina | centralis, Central Siberia/SW Asia & NE Africa | S | I |
| Scolopax rusticola | Europe/South & West Europe & North Africa | S | S |
| Scolopax rusticola | Western Siberia/South-west Asia (Caspian) | S | S |
| Lymnocryptes minimus | Northern Europe/S & W Europe & West Africa | S | S |
| Phalaropus lobatus | Western Eurasia/Arabian Sea | S | S |
| Xenus cinereus | NE Europe & W Siberia/SW Asia, E & S Africa | S | I |
| Tringa ochropus | Western Siberia/SW Asia, NE & Eastern Africa | S | I |
| Tringa erythropus | Western Siberia/SW Asia, NE & Eastern Africa | S | I |
| Tringa nebularia | Western Siberia/SW Asia, E & S Africa | S | I |
| Tringa totanus | ussuriensis, Western Asia/SW Asia, NE & Eastern Africa | S | I |
| Tringa glareola | NE Europe & W Siberia/Eastern & Southern Africa | S | I |
| Tringa stagnatilis | Eastern Europe/West & Central Africa | S | I |
| Tringa stagnatilis | Western Asia/SW Asia, Eastern & Southern Africa | S | I |
| Dromas ardeola | North-west Indian Ocean, Red Sea & Gulf | C | I |
| Glareola pratincola | pratincola, Western Europe & NW Africa/West Africa | C | C |
| Glareola pratincola | pratincola, Black Sea & E Mediterranean/Eastern Sahel zone | C | C |
| Glareola pratincola | pratincola, SW Asia/SW Asia & NE Africa | C | C |
| Glareola nuchalis | nuchalis, Eastern & Central Africa | C | C |
| Glareola nuchalis | liberiae, West Africa | C | C |
| Glareola cinerea | SE West Africa & Central Africa | S | S |
| Anous stolidus | plumbeigularis, Red Sea & Gulf of Aden | C | C |
| Larus genei | West, South-west & South Asia (bre) | C | I |
| Larus ridibundus | West Asia/SW Asia & NE Africa | C | I |
| Larus cirrocephalus | poiocephalus, West Africa | C | I |
| Larus cirrocephalus | poiocephalus, Central, Eastern and Southern Africa | C | I |
| Larus ichthyaetus | Black Sea & Caspian/South-west Asia | C | I |
| Larus hemprichii | Red Sea, Gulf, Arabia & Eastern Africa | C | I |
| Larus leucophthalmus | Red Sea & nearby coasts | C | I |
| Larus fuscus | graellsii, Western Europe/Mediterranean & West Africa | C | C |
| Onychoprion anaethetus | antarcticus, W Indian Ocean | C | C |
| Onychoprion anaethetus | antarcticus, Red Sea, E Africa, Persian Gulf, Arabian Sea to W India | C | C |
| Sternula albifrons | albifrons, Black Sea & East Mediterranean (bre) | S | S |
| Sternula albifrons | albifrons, Caspian (bre) | S | S |
| Sternula albifrons | guineae, West Africa (bre) | S | S |
| Sternula saundersi | W South Asia, Red Sea, Gulf & Eastern Africa | S | S |
| Gelochelidon nilotica | nilotica, Western Europe/West Africa | C | C |
| Gelochelidon nilotica | nilotica, West & Central Asia/South-west Asia | C | C |
| Hydroprogne caspia | West Africa (bre) | C | I |
| Hydroprogne caspia | Caspian (bre) | C | C |
| Chlidonias hybrida | hybrida, Western Europe & North-west Africa (bre) | S | I |
| Chlidonias hybrida | hybrida, Black Sea & East Mediterranean (bre) | S | I |
| Chlidonias hybrida | hybrida, Caspian (bre) | S | I |
| Chlidonias hybrida | delalandii, Southern Africa (Malawi & Zambia to South Africa) | S | I |
| Chlidonias leucopterus | Eastern Europe & Western Asia/Africa | S | I |
| Sterna hirundo | hirundo, Western Asia (bre) | C | C |
| Sterna repressa | W South Asia, Red Sea, Gulf & Eastern Africa | C | C |
| Thalasseus bengalensis | bengalensis, Red Sea/Eastern Africa | C | I |
| Thalasseus bengalensis | bengalensis, Gulf/Southern Asia | C | I |
| Thalasseus bergii | velox, Red Sea & North-east Africa | C | I |

# Appendix 9. West Siberian populations excluded because their monitoring is deemed not feasible under the current circumstances

|  |  |
| --- | --- |
| Species | Population |
| Botaurus stellaris | stellaris, South-west Asia (win) |
| Pluvialis apricaria | altifrons, Northern Siberia/Caspian & Asia Minor |
| Eudromias morinellus | Asia/Middle East |
| Numenius phaeopus | phaeopus, West Siberia/Southern & Eastern Africa |
| Numenius phaeopus | rogachevae, C Siberia (bre) |
| Numenius tenuirostris | Central Siberia/Mediterranean & SW Asia |
| Calidris pugnax | Northern Siberia/SW Asia, E & S Africa |
| Calidris alpina | centralis, Central Siberia/SW Asia & NE Africa |
| Scolopax rusticola | Western Siberia/South-west Asia (Caspian) |
| Gallinago stenura | Northern Siberia/South Asia & Eastern Africa |
| Gallinago media | Western Siberia & NE Europe/South-east Africa |
| Gallinago gallinago | gallinago, Western Siberia/South-west Asia & Africa |
| Lymnocryptes minimus | Western Siberia/SW Asia & NE Africa |
| Phalaropus lobatus | Western Eurasia/Arabian Sea |
| Xenus cinereus | NE Europe & W Siberia/SW Asia, E & S Africa |
| Tringa ochropus | Western Siberia/SW Asia, NE & Eastern Africa |
| Tringa erythropus | Western Siberia/SW Asia, NE & Eastern Africa |
| Tringa nebularia | Western Siberia/SW Asia, E & S Africa |
| Tringa glareola | NE Europe & W Siberia/Eastern & Southern Africa |
| Hydrocoloeus minutus | W Asia/E Mediterranean, Black Sea & Caspian |
| Larus ridibundus | West Asia/SW Asia & NE Africa |
| Sterna hirundo | hirundo, Western Asia (bre) |
| Sterna paradisaea | Western Eurasia (bre) |
| Stercorarius longicaudus | longicaudus, N Europe & W Siberia/S Atlantic |

# Appendix 10. Not well-monitored populations to be monitored through the IWC both for size and trend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Population | Size | Trend | Priority |
| Aythya ferina | Western Siberia/South-west Asia | I | I | 2 |
| Limosa lapponica | taymyrensis, Western Siberia/West & South-west Africa | I | I | 2 |
| Limosa lapponica | taymyrensis, Central Siberia/South & SW Asia & Eastern Africa | I | I | 2 |
| Calidris tenuirostris | Eastern Siberia/SW Asia & W Southern Asia | I | I | 2 |
| Calidris canutus | canutus, Northern Siberia/West & Southern Africa | I | I | 2 |
| Calidris ferruginea | Central Siberia/SW Asia, E & S Africa | I | I | 2 |
| Anas undulata | undulata, Southern Africa | I | I | 4 |
| Tadorna tadorna | Western Asia/Caspian & Middle East | I | I | 5 |
| Mareca strepera | strepera, Western Siberia/SW Asia & NE Africa | I | I | 5 |
| Mareca penelope | Western Siberia/SW Asia & NE Africa | I | I | 5 |
| Anas platyrhynchos | platyrhynchos, Western Siberia/South-west Asia | I | I | 5 |
| Anas crecca | crecca, Western Siberia/SW Asia & NE Africa | I | I | 5 |
| Pluvialis squatarola | squatarola, C & E Siberia/SW Asia, Eastern & Southern Africa | I | I | 5 |
| Pluvialis fulva | North-central Siberia/South & SW Asia, NE Africa | I | I | 5 |
| Arenaria interpres | interpres, West & Central Siberia/SW Asia, E & S Africa | I | I | 5 |
| Calidris alba | alba, South-west Asia, Eastern & Southern Africa (win) | I | I | 5 |

# Appendix 11. Not well-monitored populations to be monitored through aerial surveys for population size and through the IWC for trend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Population | Size | Trend | Priority |
| Tadorna cana | Southern Africa | A | I | 3 |
| Anas erythrorhyncha | Madagascar | A | I | 3 |
| Cygnus olor | West & Central Asia/Caspian | A | I | 4 |
| Spatula hottentota | Southern Africa (north to S Zambia) | A | I | 4 |
| Anas capensis | Eastern Africa (Rift Valley) | A | I | 4 |
| Anas capensis | Southern Africa (N to Angola & Zambia) | A | I | 4 |
| Anas erythrorhyncha | Southern Africa | A | I | 4 |
| Dendrocygna viduata | West Africa (Senegal to Chad) | A | I | 5 |
| Dendrocygna viduata | Eastern & Southern Africa | A | I | 5 |
| Dendrocygna bicolor | West Africa (Senegal to Chad) | A | I | 5 |
| Dendrocygna bicolor | Eastern & Southern Africa | A | I | 5 |
| Alopochen aegyptiaca | West Africa | A | I | 5 |
| Alopochen aegyptiaca | Eastern & Southern Africa | A | I | 5 |
| Plectropterus gambensis | gambensis, West Africa | A | I | 5 |
| Plectropterus gambensis | gambensis, Eastern Africa (Sudan to Zambia) | A | I | 5 |
| Plectropterus gambensis | niger, Southern Africa | A | I | 5 |
| Sarkidiornis melanotos | West Africa | A | I | 5 |
| Sarkidiornis melanotos | Southern & Eastern Africa | A | I | 5 |
| Nettapus auritus | West Africa | A | I | 5 |
| Nettapus auritus | Southern & Eastern Africa | A | I | 5 |
| Netta erythrophthalma | brunnea, Southern & Eastern Africa | A | I | 5 |
| Spatula hottentota | Eastern Africa (south to N Zambia) | A | I | 5 |
| Spatula clypeata | W Siberia/SW Asia, NE & Eastern Africa | A | I | 5 |
| Anas erythrorhyncha | Eastern Africa | A | I | 5 |
| Anas acuta | Western Siberia/SW Asia & Eastern Africa | A | I | 5 |
| Fulica cristata | Sub-Saharan Africa | A | I | 5 |

# Appendix 12. Not well-monitored populations to be monitored through offshore surveys for population size and through the IWC for trend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Population | Size | Trend | Priority |
| Somateria mollissima | mollissima, Norway & Russia | O | I | 1 |
| Gavia adamsii | Northern Europe (win) | O | I | 1 |
| Podiceps auritus | auritus, Caspian & South Asia (win) | O | I | 2 |
| Bucephala clangula | clangula, Western Siberia/Caspian | O | I | 3 |
| Mergus merganser | merganser, Western Siberia/Caspian | O | I | 3 |
| Gavia arctica | arctica, Central Siberia/Caspian | O | I | 3 |
| Mergus serrator | North-east Europe/Black Sea & Mediterranean | O | I | 4 |
| Mergus serrator | Western Siberia/South-west & Central Asia | O | I | 4 |
| Netta rufina | Western & Central Asia/South-west Asia | O | I | 4 |
| Aythya marila | marila, Western Siberia/Black Sea & Caspian | O | I | 4 |
| Podiceps grisegena | grisegena, Caspian (win) | O | I | 4 |
| Podiceps cristatus | cristatus, Black Sea & Mediterranean (win) | O | I | 4 |
| Fulica atra | atra, Black Sea & Mediterranean (win) | O | I | 4 |
| Bucephala clangula | clangula, Western Siberia & North-east Europe/Black Sea | O | I | 5 |
| Aythya fuligula | Western Siberia/SW Asia & NE Africa | O | I | 5 |
| Podiceps cristatus | cristatus, Caspian & South-west Asia (win) | O | I | 5 |
| Fulica atra | atra, South-west Asia (win) | O | I | 5 |

# Appendix 13. Not well-monitored populations to be monitored through colonial breeding bird monitoring for population size and through the IWC for trend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Population | Size | Trend | Priority |
| Phoeniconaias minor | West Africa | C | I | 1 |
| Phoeniconaias minor | Eastern Africa | C | I | 1 |
| Phoeniconaias minor | Southern Africa (to Madagascar) | C | I | 1 |
| Platalea leucorodia | leucorodia, Western Asia/South-west & South Asia | C | I | 1 |
| Egretta vinaceigula | Central Southern Africa | C | I | 1 |
| Pelecanus crispus | Black Sea & Mediterranean (win) | C | I | 1 |
| Pelecanus crispus | South-west Asia & South Asia (win) | C | I | 1 |
| Phoenicopterus roseus | West Africa | C | I | 3 |
| Phoenicopterus roseus | West Mediterranean | C | I | 3 |
| Egretta gularis | dimorpha, Coastal Eastern Africa | C | I | 3 |
| Phalacrocorax carbo | lucidus, Coastal West Africa | C | I | 3 |
| Larus hartlaubii | Coastal South-west Africa | C | I | 3 |
| Larus dominicanus | vetula, Coastal Southern Africa | C | I | 3 |
| Larus dominicanus | vetula, Coastal West Africa | C | I | 3 |
| Hydroprogne caspia | Southern Africa (bre) | C | I | 3 |
| Thalasseus bergii | thalassinus, Eastern Africa & Seychelles | C | I | 3 |

# Appendix 14. Not well-monitored populations to be monitored through common breeding bird monitoring for population size and through the IWC for trend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Population | Size | Trend | Priority |
| Calidris temminckii | NE Europe & W Siberia/SW Asia & Eastern Africa | D | I | 4 |
| Calidris maritima | N Europe & W Siberia (breeding) | D | I | 4 |
| Actitis hypoleucos | West & Central Europe/West Africa | D | I | 4 |
| Actitis hypoleucos | E Europe & W Siberia/Central, E & S Africa | D | I | 4 |
| Gallinula chloropus | chloropus, West & South-west Asia | D | I | 5 |
| Calidris minuta | Western Siberia/SW Asia, E & S Africa | D | I | 5 |

# Appendix 15. Not well-monitored populations to be monitored through special breeding bird monitoring for population size and through the IWC for trend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Population | Size | Trend | Priority |
| Oxyura maccoa | Eastern Africa | S | I | 1 |
| Oxyura maccoa | Southern Africa | S | I | 1 |
| Oxyura leucocephala | Algeria & Tunisia | S | I | 1 |
| Oxyura leucocephala | East Mediterranean, Turkey & South-west Asia | S | I | 1 |
| Marmaronetta angustirostris | West Mediterranean/West Medit. & West Africa | S | I | 1 |
| Marmaronetta angustirostris | East Mediterranean | S | I | 1 |
| Numenius arquata | orientalis, Western Siberia/SW Asia, E & S Africa | S | I | 1 |
| Haematopus ostralegus | longipes, SE Eur & W Asia/SW Asia & NE Africa | S | I | 2 |
| Charadrius pallidus | venustus, Eastern Africa | S | I | 2 |
| Tadorna ferruginea | North-west Africa | S | I | 3 |
| Podiceps cristatus | infuscatus, Southern Africa | S | I | 3 |
| Pluvianus aegyptius | Lower Congo Basin | S | I | 3 |
| Chlidonias hybrida | delalandii, Eastern Africa (Kenya & Tanzania) | S | I | 3 |

# Appendix 16. Not well-monitored populations to be monitored through colonial breeding birds surveys both for population size and trend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Population | Size | Trend | Priority |
| Platalea leucorodia | archeri, Red Sea & Somalia | C | C | 1 |
| Ardeola idae | Madagascar & Aldabra/Central & Eastern Africa | C | C | 1 |
| Glareola nordmanni | SE Europe & Western Asia/Southern Africa | C | C | 1 |
| Phalacrocorax nigrogularis | Arabian Coast | C | C | 2 |
| Phalacrocorax neglectus | Coastal South-west Africa | C | C | 2 |
| Glareola ocularis | Madagascar/East Africa | C | C | 2 |
| Rynchops flavirostris | Coastal West Africa & Central Africa | C | C | 2 |
| Rynchops flavirostris | Eastern & Southern Africa | C | C | 2 |
| Alca torda | torda, West Atlantic | C | C | 2 |
| Phaethon rubricauda | rubricauda, Indian Ocean | C | C | 3 |
| Plegadis falcinellus | South-west Asia/Eastern Africa | C | C | 3 |
| Ardeola ralloides | ralloides, SW Europe, NW Africa (bre) | C | C | 3 |
| Bubulcus ibis | ibis, North-west Africa | C | C | 3 |
| Fregata minor | aldabrensis, W Indian Ocean | C | C | 3 |
| Gulosus aristotelis | desmarestii, Adriatic | C | C | 3 |
| Anous tenuirostris | tenuirostris, Indian OceanIslands to E Africa | C | C | 3 |
| Xema sabini | sabini, Canada & Greenland/SE Atlantic | C | C | 3 |
| Larus canus | heinei, NE Europe & Western Siberia/Black Sea & Caspian | C | C | 3 |
| Larus fuscus | heuglini, NE Europe & W Siberia/SW Asia & NE Africa | C | C | 3 |
| Larus fuscus | barabensis, South-west Siberia/South-west Asia | C | C | 3 |
| Larus argentatus | argenteus, Iceland & Western Europe | C | C | 3 |
| Onychoprion fuscatus | nubilosus, Red Sea, Gulf of Aden, E to Pacific | C | C | 3 |
| Onychoprion anaethetus | melanopterus, W Africa | C | C | 3 |
| Hydroprogne caspia | Black Sea (bre) | C | C | 3 |
| Sterna dougallii | dougallii, East Africa | C | C | 3 |
| Sterna dougallii | gracilis, North Arabian Sea (Oman) | C | C | 3 |
| Sterna dougallii | dougallii, Southern Africa and Madagascar | C | C | 3 |
| Sterna dougallii | gracilis, Seychelles & Mascarenes | C | C | 3 |
| Thalasseus sandvicensis | sandvicensis, West & Central Asia/South-west & South Asia | C | C | 3 |
| Thalasseus bergii | bergii, Southern Africa (Angola - Mozambique) | C | C | 3 |
| Thalasseus bergii | bergii, Madagascar & Mozambique/Southern Africa | C | C | 3 |
| Cepphus grylle | islandicus, Iceland | C | C | 3 |
| Cepphus grylle | faeroeensis, Faeroes | C | C | 3 |
| Cepphus grylle | mandtii, E Canadian Arctic & W Greenland (bre) | C | C | 3 |
| Cepphus grylle | mandtii, E Greenland to E Laptev Sea (bre) | C | C | 3 |
| Cepphus grylle | arcticus, NE America and S Greenland (bre) | C | C | 3 |
| Cepphus grylle | arcticus, British Isles and N Europe | C | C | 3 |
| Alle alle | alle, West Atlantic (bre) | C | C | 3 |
| Alle alle | alle, East Atlantic (bre) | C | C | 3 |
| Alle alle | polaris, Franz Josef Land & Severnaya Zemlya (bre) | C | C | 3 |

# Appendix 17. Not well-monitored populations to be monitored through species-specific breeding bird surveys both for population size and trend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Population | Size | Trend | Priority |
| Melanitta fusca | Black Sea & Caspian | S | S | 1 |
| Aythya nyroca | West Mediterranean/North & West Africa | S | S | 1 |
| Aythya nyroca | Western Asia/SW Asia & NE Africa | S | S | 1 |
| Sarothrura ayresi | Ethiopia | S | S | 1 |
| Sarothrura ayresi | Southern Africa | S | S | 1 |
| Balearica regulorum | regulorum, Southern Africa (N to Angola & S Zimbabwe) | S | S | 1 |
| Balearica regulorum | gibbericeps, Eastern Africa (Kenya to Mozambique) | S | S | 1 |
| Numenius arquata | suschkini, South-east Europe & South-west Asia (bre) | S | S | 1 |
| Balearica pavonina | pavonina, West Africa (Senegal to Chad) | S | S | 2 |
| Balearica pavonina | ceciliae, Eastern Africa (Sudan to Uganda) | S | S | 2 |
| Vanellus gregarius | Central Asia/S, SW Asia, NE Africa | S | S | 2 |
| Gallinago media | Scandinavia/probably West Africa | S | S | 2 |
| Sternula balaenarum | Namibia & South Africa/Atlantic coast to Ghana | S | S | 2 |
| Anthropoides virgo | Black Sea (Ukraine)/North-east Africa | S | S | 3 |
| Ciconia ciconia | ciconia, Southern Africa | S | S | 3 |
| Ciconia ciconia | ciconia, Western Asia/South-west Asia | S | S | 3 |
| Pluvialis apricaria | altifrons, Iceland & Faroes/East Atlantic coast | S | S | 3 |
| Pluvialis apricaria | altifrons, Northern Europe/Western Europe & NW Africa | S | S | 3 |
| Numenius phaeopus | alboaxilliaris, N of Caspian/Eastern Africa | S | S | 3 |
| Calidris alpina | arctica, NE Greenland/West Africa | S | S | 3 |
| Gallinago gallinago | faeroeensis, Iceland, Faroes & Northern Scotland/Ireland | S | S | 3 |
| Phalaropus fulicarius | Canada & Greenland/Atlantic coast of Africa | S | S | 3 |
| Larus glaucoides | glaucoides, Greenland/Iceland & North-west Europe | S | S | 3 |
| Larus hyperboreus | hyperboreus, Svalbard & N Russia (bre) | S | S | 3 |
| Larus hyperboreus | leuceretes, Canada, Greenland & Iceland (bre) | S | S | 3 |
| Sterna vittata | vittata, P.Edward, Marion, Crozet & Kerguelen/South Africa | S | S | 3 |
| Sterna vittata | sanctipauli | S | S | 3 |
| Sterna vittata | tristanensis, Tristan da Cunha & Gough/South Africa | S | S | 3 |

# Appendix 18. Overview of the threat information available from the IUCN Red List

## Threats and impacts

A total of 38 different threats were reported for AEWA species based on the IUCN threat classification system. Hunting and trapping, habitat shifting and alteration, invasive alien species, and dams and water management were recorded for most species overall (Figure 5.1), although the threats considered to be having the greatest impacts on Globally Threatened or Near Threatened species were annual and perennial non-timber crops, hunting and trapping, and fishing and harvesting aquatic resources.

Further details were available on some of these threats (Figure 5.2) and illustrated the following:

* Most hunting and trapping was intentional use with the species being targeted.
* American Mink Neovison vison and Botulism Clostridium botulinum were the predominant invasive aliens recorded.
* Both dams and water abstraction (surface and ground water) are known threats.
* Agro-industry farming was the predominant threat within the annual and perennial non- timber crop category.

## Stresses

Waterbird species are most affected by threats that affect them directly, and/ or their habitats. Proportionally, hunting and viruses cause most mortality, and recreational activities and other works cause greatest disturbance. Industrial and military effluents, invasive alien species and fishing & harvesting of aquatic resources cause both mortality and/ or disturbance (Figure 5.3). Most of the habitat changes caused are due to degradation, with a smaller number of threats deemed to be due to conversion (dams and water management, and annual and perennial crops).

Among those threats indirectly affecting species, a reduction in reproductive success was the most widely reported in waterbirds, for 197 species-threat combinations overall, and most widely under hunting and trapping, invasive alien species and recreational activities (Figure 5.4). However, proportionally it was temperature extremes and storms & flooding leading to reduced reproductive success that were highest. Competition (20 species-threat combinations) and hybridization (6 species-threat combinations) were the other stresses reported as indirectly affecting species.

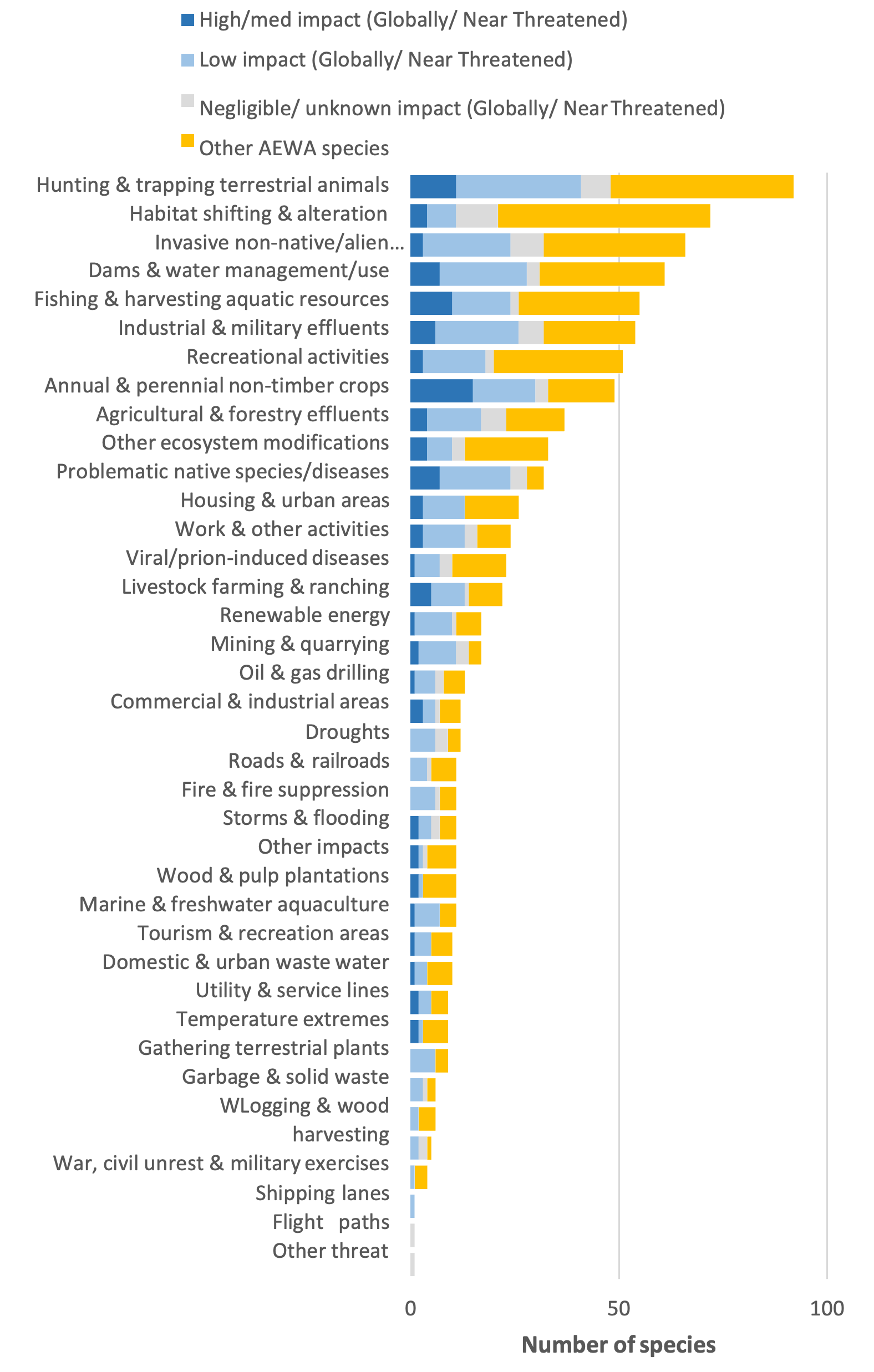


Figure 5.1: Threats most frequently recorded, illustrating those affecting Globally Threatened and Near Threatened species (blue), and other AEWA species (orange). The threats identified for Globally and Near Threatened species are divided into high/ medium impact (darkest blue), low impact (medium blue) and negligible/ unknown (lightest blue).

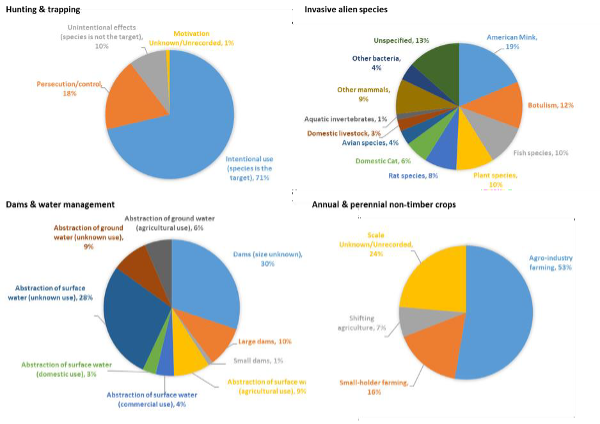


Figure 5.2: Further details on threats assigned to AEWA species relating to Hunting & trapping, Invasive alien species, Dams and water management, and annual and perennial non-timber crops.

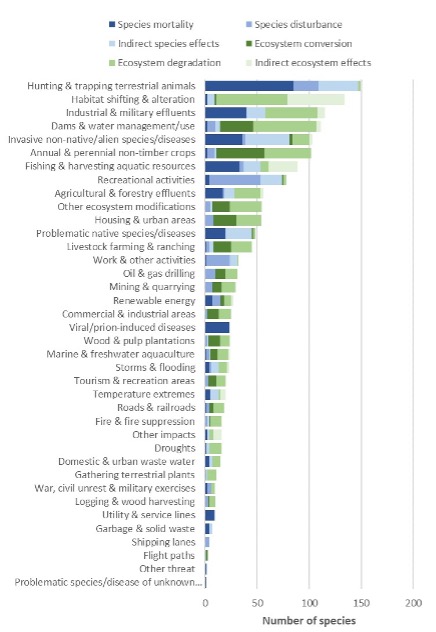


Figure 5.3: Relationship between threats and stresses posed to waterbirds, illustrating species stresses (blue) and ecosystems stresses (green). Note that in some cases a threat has been recorded as posing more than one stress type on a species (hence differences when compared with the previous figure.

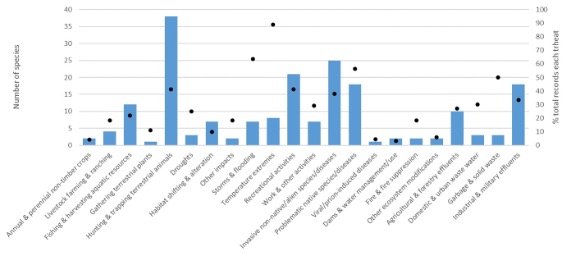


Figure 5.4: Threats deemed to pose indirect stress on waterbird species through reduced reproductive success, illustrating the number of species affected (bars) and the proportion within each threat affected in this way (dots).

# Appendix 19. AEWA waterbird species, indicating which have been included in the IUCN and Article 12 threat assessments

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Species | Common name | RL Category (2020) | IUCN RL | Article 12 | IUCN period | Article 12 period |
| Fratercula arctica | Atlantic Puffin | VU | Y | Y | 2018 | 2014-2019 |
| Cepphus grylle | Black Guillemot | LC | Y | Y | 2018 | 2014-2019 |
| Alca torda | Razorbill | NT | Y | Y | 2018 | 2014-2019 |
| Alle alle | Little Auk | LC | Y | Y | 2018 | 2014-2019 |
| Uria lomvia | Thick-billed Murre | LC | Y |  | 2018 |  |
| Uria aalge | Common Murre | LC | Y | Y | 2018 | 2014-2019 |
| Dendrocygna viduata | White-faced Whistling-duck |  |  |  |  |  |
| Dendrocygna bicolor | Fulvous Whistling-duck | LC | Y |  | 2010 |  |
| Thalassornis leuconotus | White-backed Duck |  |  |  |  |  |
| Oxyura maccoa | Maccoa Duck | VU | Y |  | 2016 |  |
| Oxyura leucocephala | White-headed Duck | EN | Y | Y | 2016 | 2014-2019 |
| Cygnus olor | Mute Swan |  |  | Y |  | 2014-2019 |
| Cygnus cygnus | Whooper Swan | LC | Y | Y | 2010 | 2014-2019 |
| Cygnus columbianus | Tundra Swan | LC | Y | Y | 2010 | 2014-2019 |
| Branta bernicla | Brent Goose | LC | Y | Y | 2010 | 2014-2019 |
| Branta leucopsis | Barnacle Goose | LC | Y | Y | 2010 | 2014-2019 |
| Branta ruficollis | Red-breasted Goose | VU | Y | Y | 2016 | 2014-2019 |
| Anser fabalis | Bean Goose | LC | Y | Y | 2010 | 2014-2019 |
| Anser brachyrhynchus | Pink-footed Goose | LC | Y | Y | 2010 | 2014-2019 |
| Anser albifrons | Greater White-fronted Goose | LC | Y | Y | 2010 | 2014-2019 |
| Anser erythropus | Lesser White-fronted Goose | VU | Y | Y | 2016 | 2014-2019 |
| Clangula hyemalis | Long-tailed Duck | VU | Y | Y | 2018 | 2014-2019 |
| Somateria spectabilis | King Eider | LC | Y |  | 2018 |  |
| Somateria mollissima | Common Eider | NT | Y | Y | 2018 | 2014-2019 |
| Polysticta stelleri | Steller’s Eider | VU | Y | Y | 2018 | 2014-2019 |
| Melanitta fusca | Velvet Scoter | VU | Y | Y | 2018 | 2014-2019 |
| Melanitta nigra | Common Scoter | LC | Y | Y | 2018 | 2014-2019 |
| Mergellus albellus | Smew | LC | Y | Y | 2010 | 2014-2019 |
| Alopochen aegyptiaca | Egyptian Goose |  |  | Y |  | 2014-2019 |
| Mareca penelope | Eurasian Wigeon | LC | Y | Y | 2010 | 2014-2019 |
| Tadorna ferruginea | Ruddy Shelduck | LC | Y | Y | 2010 | 2014-2019 |
| Tadorna cana | South African Shelduck | LC | Y |  | 2010 |  |
| Plectropterus gambensis | Spur-winged Goose |  |  |  |  |  |
| Sarkidiornis melanotos | African Comb Duck | LC | Y |  | 2010 |  |
| Nettapus auritus | African Pygmy-goose |  |  |  |  |  |
| Marmaronetta angustirostris | Marbled Teal | VU | Y | Y | 2016 | 2014-2019 |
| Netta rufina | Red-crested Pochard |  |  | Y |  | 2014-2019 |
| Netta erythrophthalma | Southern Pochard | LC | Y |  | 2010 |  |
| Aythya nyroca | Ferruginous Duck | NT | Y | Y | 2016 | 2014-2019 |
| Aythya marila | Greater Scaup | LC | Y | Y | 2018 | 2014-2019 |
| Spatula hottentota | Hottentot Teal | LC | Y |  | 2010 |  |
| Mareca strepera | Gadwall |  |  | Y |  | 2014-2019 |
| Anas undulata | Yellow-billed Duck | LC | Y |  | 2010 |  |
| Bucephala clangula | Common Goldeneye | LC | Y | Y | 2018 | 2014-2019 |
| Anas capensis | Cape Teal | LC | Y |  | 2010 |  |
| Anas erythrorhyncha | Red-billed Teal | LC | Y |  | 2010 |  |
| Mergus serrator | Red-breasted Merganser | LC | Y | Y | 2018 | 2014-2019 |
| Aythya fuligula | Tufted Duck |  |  | Y |  | 2014-2019 |
| Anas acuta | Northern Pintail |  |  | Y |  | 2014-2019 |
| Anas crecca | Common Teal |  |  | Y |  | 2014-2019 |
| Mergus merganser | Goosander | LC | Y | Y | 2018 | 2014-2019 |
| Tadorna tadorna | Common Shelduck |  |  | Y |  | 2014-2019 |
| Aythya ferina | Common Pochard | VU | Y | Y | 2016 | 2014-2019 |
| Spatula querquedula | Garganey | LC | Y | Y | 2010 | 2014-2019 |
| Spatula clypeata | Northern Shoveler | LC | Y | Y | 2010 | 2014-2019 |
| Anser anser | Greylag Goose |  |  | Y |  | 2014-2019 |
| Anas platyrhynchos | Mallard |  |  | Y |  | 2014-2019 |
| Botaurus stellaris | Eurasian Bittern |  |  | Y |  | 2014-2019 |
| Ixobrychus minutus | Common Little Bittern |  |  | Y |  | 2014-2019 |
| Ixobrychus sturmii | Dwarf Bittern |  |  |  |  |  |
| Nycticorax nycticorax | Black-crowned Night-heron |  |  | Y |  | 2014-2019 |
| Ardeola ralloides | Squacco Heron |  |  | Y |  | 2014-2019 |
| Ardeola idae | Madagascar Pond-heron | EN | Y |  | 2016 |  |
| Ardeola rufiventris | Rufous-bellied Heron |  |  |  |  |  |
| Bubulcus ibis | Cattle Egret |  |  | Y |  | 2014-2019 |
| Ardea melanocephala | Black-headed Heron |  |  |  |  |  |
| Ardea purpurea | Purple Heron |  |  | Y |  | 2014-2019 |
| Ardea alba | Great White Egret | LC | Y | Y | 2010 | 2014-2019 |
| Ardea brachyrhyncha | Yellow-billed Egret | LC | Y |  | 2010 |  |
| Egretta ardesiaca | Black Heron | LC | Y |  | 2010 |  |
| Egretta vinaceigula | Slaty Egret | VU | Y |  | 2016 |  |
| Egretta garzetta | Little Egret |  |  | Y |  | 2014-2019 |
| Egretta gularis | Western Reef-egret | LC | Y |  | 2010 |  |
| Ardea cinerea | Grey Heron | LC | Y | Y | 2010 | 2014-2019 |
| Balaeniceps rex | Shoebill | VU | Y |  | 2016 |  |
| Burhinus senegalensis | Senegal Thick-knee | LC | Y |  | 2010 |  |
| Pluvialis squatarola | Grey Plover | LC | Y | Y | 2010 | 2014-2019 |
| Pluvialis apricaria | Eurasian Golden Plover | LC | Y | Y | 2010 | 2014-2019 |
| Pluvialis fulva | Pacific Golden Plover | LC | Y |  | 2010 |  |
| Eudromias morinellus | Eurasian Dotterel | LC | Y | Y | 2010 | 2014-2019 |
| Charadrius hiaticula | Common Ringed Plover | LC | Y | Y | 2010 | 2014-2019 |
| Charadrius pecuarius | Kittlitz’s Plover | LC | Y |  | 2010 |  |
| Charadrius tricollaris | African Three-banded Plover |  |  |  |  |  |
| Charadrius forbesi | Forbes’s Plover |  |  |  |  |  |
| Charadrius marginatus | White-fronted Plover | LC | Y |  | 2010 |  |
| Charadrius alexandrinus | Kentish Plover | LC | Y | Y | 2010 | 2014-2019 |
| Charadrius pallidus | Chestnut-banded Plover | NT | Y |  | 2016 |  |
| Charadrius mongolus | Lesser Sandplover | LC | Y |  | 2010 |  |
| Charadrius leschenaultii | Greater Sandplover | LC | Y | Y | 2010 | 2014-2019 |
| Charadrius asiaticus | Caspian Plover | LC | Y |  | 2010 |  |
| Vanellus vanellus | Northern Lapwing | NT | Y | Y | 2016 | 2014-2019 |
| Vanellus spinosus | Spur-winged Lapwing |  |  | Y |  | 2014-2019 |
| Vanellus albiceps | White-headed Lapwing | LC | Y |  | 2010 |  |
| Vanellus lugubris | Senegal Lapwing |  |  |  |  |  |
| Vanellus melanopterus | Black-winged Lapwing | LC | Y |  | 2010 |  |
| Vanellus coronatus | Crowned Lapwing |  |  |  |  |  |
| Vanellus senegallus | Wattled Lapwing | LC | Y |  | 2010 |  |
| Vanellus superciliosus | Brown-chested Lapwing |  |  |  |  |  |
| Vanellus gregarius | Sociable Lapwing | CR | Y |  | 2016 |  |
| Vanellus leucurus | White-tailed Lapwing | LC | Y |  | 2010 |  |
| Charadrius dubius | Little Ringed Plover | LC | Y | Y | 2010 | 2014-2019 |
| Leptoptilos crumenifer | Marabou |  |  |  |  |  |
| Mycteria ibis | Yellow-billed Stork |  |  |  |  |  |
| Anastomus lamelligerus | African Openbill |  |  |  |  |  |
| Ciconia nigra | Black Stork |  |  | Y |  | 2014-2019 |
| Ciconia abdimii | Abdim’s Stork | LC | Y |  | 2010 |  |
| Ciconia microscelis | African Woollyneck |  |  |  |  |  |
| Ciconia ciconia | White Stork |  |  | Y |  | 2014-2019 |
| Dromas ardeola | Crab-plover |  |  |  |  |  |
| Fregata ariel | Lesser Frigatebird | LC | Y |  | 2010 |  |
| Fregata minor | Great Frigatebird | LC | Y |  | 2010 |  |
| Gavia stellata | Red-throated Loon | LC | Y | Y | 2018 | 2014-2019 |
| Gavia arctica | Arctic Loon | LC | Y | Y | 2018 | 2014-2019 |
| Gavia immer | Common Loon | LC | Y | Y | 2018 | 2014-2019 |
| Gavia adamsii | Yellow-billed Loon | NT | Y | Y | 2018 | 2014-2019 |
| Glareola pratincola | Collared Pratincole |  |  | Y |  | 2014-2019 |
| Glareola nordmanni | Black-winged Pratincole | NT | Y |  | 2016 |  |
| Glareola ocularis | Madagascar Pratincole | VU | Y |  | 2016 |  |
| Glareola nuchalis | Rock Pratincole | LC | Y |  | 2010 |  |
| Glareola cinerea | Grey Pratincole | LC | Y |  | 2010 |  |
| Balearica regulorum | Grey Crowned-crane | EN | Y |  | 2016 |  |
| Balearica pavonina | Black Crowned-crane | VU | Y |  | 2016 |  |
| Leucogeranus leucogeranus | Siberian Crane | CR | Y |  | 2016 |  |
| Bugeranus carunculatus | Wattled Crane | VU | Y |  | 2016 |  |
| Anthropoides paradiseus | Blue Crane | VU | Y |  | 2016 |  |
| Anthropoides virgo | Demoiselle Crane | LC | Y | Y | 2010 | 2014-2019 |
| Grus grus | Common Crane | LC | Y | Y | 2010 | 2014-2019 |
| Haematopus moquini | African Oystercatcher | LC | Y |  | 2010 |  |
| Haematopus ostralegus | Eurasian Oystercatcher |  |  | Y |  | 2014-2019 |
| Larus canus | Mew Gull |  |  | Y |  | 2014-2019 |
| Hydrocoloeus minutus | Little Gull |  |  | Y |  | 2014-2019 |
| Larus marinus | Great Black-backed Gull | LC | Y | Y | 2018 | 2014-2019 |
| Larus argentatus | European Herring Gull | LC | Y | Y | 2018 | 2014-2019 |
| Larus fuscus | Lesser Black-backed Gull | LC | Y | Y | 2018 | 2014-2019 |
| Larus ridibundus | Black-headed Gull |  |  | Y |  | 2014-2019 |
| Anous stolidus | Brown Noddy | LC | Y |  | 2018 |  |
| Anous tenuirostris | Lesser Noddy |  |  |  |  |  |
| Rynchops flavirostris | African Skimmer | NT | Y |  | 2018 |  |
| Xema sabini | Sabine’s Gull | LC | Y |  | 2018 |  |
| Rissa tridactyla | Black-legged Kittiwake | VU | Y | Y | 2018 | 2014-2019 |
| Larus genei | Slender-billed Gull | LC | Y | Y | 2018 | 2014-2019 |
| Larus hartlaubii | Hartlaub’s Gull |  |  |  |  |  |
| Larus cirrocephalus | Grey-headed Gull | LC | Y |  | 2018 |  |
| Larus ichthyaetus | Pallas’s Gull | LC | Y |  | 2018 |  |
| Larus melanocephalus | Mediterranean Gull | LC | Y | Y | 2018 | 2014-2019 |
| Larus hemprichii | Sooty Gull | LC | Y |  | 2018 |  |
| Larus leucophthalmus | White-eyed Gull | LC | Y |  | 2018 |  |
| Larus audouinii | Audouin’s Gull | LC | Y | Y | 2018 | 2014-2019 |
| Sterna hirundo | Common Tern | LC | Y | Y | 2018 | 2014-2019 |
| Larus dominicanus | Kelp Gull |  |  |  |  |  |
| Larus armenicus | Armenian Gull | NT | Y | Y | 2018 | 2014-2019 |
| Larus michahellis | Yellow-legged Gull | LC | Y | Y | 2018 | 2014-2019 |
| Larus cachinnans | Caspian Gull | LC | Y | Y | 2018 | 2014-2019 |
| Larus glaucoides | Iceland Gull |  |  | Y |  | 2014-2019 |
| Larus hyperboreus | Glaucous Gull |  |  | Y |  | 2014-2019 |
| Onychoprion fuscatus | Sooty Tern | LC | Y |  | 2018 |  |
| Onychoprion anaethetus | Bridled Tern | LC | Y |  | 2018 |  |
| Sternula albifrons | Little Tern | LC | Y | Y | 2018 | 2014-2019 |
| Sternula saundersi | Saunders’s Tern | LC | Y |  | 2018 |  |
| Sternula balaenarum | Damara Tern | VU | Y |  | 2018 |  |
| Gelochelidon nilotica | Common Gull-billed Tern | LC | Y | Y | 2018 | 2014-2019 |
| Hydroprogne caspia | Caspian Tern | LC | Y | Y | 2018 | 2014-2019 |
| Chlidonias hybrida | Whiskered Tern |  |  | Y |  | 2014-2019 |
| Chlidonias leucopterus | White-winged Tern |  |  | Y |  | 2014-2019 |
| Chlidonias niger | Black Tern | LC | Y | Y | 2018 | 2014-2019 |
| Sterna dougallii | Roseate Tern | LC | Y | Y | 2018 | 2014-2019 |
| Sterna repressa | White-cheeked Tern | LC | Y |  | 2018 |  |
| Sterna paradisaea | Arctic Tern | LC | Y | Y | 2018 | 2014-2019 |
| Sterna vittata | Antarctic Tern | LC | Y |  | 2018 |  |
| Thalasseus bengalensis | Lesser Crested Tern |  |  | Y |  | 2014-2019 |
| Thalasseus sandvicensis | Sandwich Tern | LC | Y | Y | 2018 | 2014-2019 |
| Thalasseus maximus | Royal Tern | LC | Y |  | 2018 |  |
| Thalasseus bergii | Greater Crested Tern | LC | Y |  | 2018 |  |
| Pelecanus crispus | Dalmatian Pelican | NT | Y | Y | 2018 | 2014-2019 |
| Pelecanus rufescens | Pink-backed Pelican | LC | Y |  | 2018 |  |
| Pelecanus onocrotalus | Great White Pelican | LC | Y | Y | 2018 | 2014-2019 |
| Phaethon aethereus | Red-billed Tropicbird | LC | Y |  | 2018 |  |
| Phaethon rubricauda | Red-tailed Tropicbird | LC | Y |  | 2018 |  |
| Phaethon lepturus | White-tailed Tropicbird | LC | Y |  | 2018 |  |
| Microcarbo coronatus | Crowned Cormorant | NT | Y |  | 2018 |  |
| Microcarbo pygmaeus | Pygmy Cormorant | LC | Y | Y | 2018 | 2014-2019 |
| Phalacrocorax aristotelis | European Shag | LC | Y | Y | 2018 | 2014-2019 |
| Phalacrocorax capensis | Cape Cormorant | EN | Y |  | 2018 |  |
| Phalacrocorax nigrogularis | Socotra Cormorant | VU | Y |  | 2018 |  |
| Phalacrocorax neglectus | Bank Cormorant | EN | Y |  | 2018 |  |
| Phalacrocorax carbo | Great Cormorant | LC | Y | Y | 2018 | 2014-2019 |
| Phoenicopterus roseus | Greater Flamingo |  |  | Y |  | 2014-2019 |
| Phoeniconaias minor | Lesser Flamingo | NT | Y |  | 2016 |  |
| Pluvianus aegyptius | Egyptian Plover |  |  |  |  |  |
| Podiceps auritus | Horned Grebe | VU | Y | Y | 2016 | 2014-2019 |
| Tachybaptus ruficollis | Little Grebe |  |  | Y |  | 2014-2019 |
| Podiceps cristatus | Great Crested Grebe | LC | Y | Y | 2018 | 2014-2019 |
| Podiceps nigricollis | Black-necked Grebe | LC | Y | Y | 2018 | 2014-2019 |
| Podiceps grisegena | Red-necked Grebe | LC | Y | Y | 2018 | 2014-2019 |
| Sarothrura elegans | Buff-spotted Flufftail | LC | Y |  | 2010 |  |
| Sarothrura boehmi | Streaky-breasted Flufftail |  |  |  |  |  |
| Sarothrura ayresi | White-winged Flufftail | CR | Y |  | 2016 |  |
| Rallus aquaticus | Western Water Rail | LC | Y | Y | 2010 | 2014-2019 |
| Rallus caerulescens | African Rail |  |  |  |  |  |
| Crex egregia | African Crake | LC | Y |  | 2010 |  |
| Crex crex | Corncrake | LC | Y | Y | 2010 | 2014-2019 |
| Porzana porzana | Spotted Crake | LC | Y | Y | 2010 | 2014-2019 |
| Zapornia flavirostra | Black Crake |  |  |  |  |  |
| Zapornia parva | Little Crake | LC | Y | Y | 2010 | 2014-2019 |
| Zapornia pusilla | Baillon’s Crake | LC | Y | Y | 2010 | 2014-2019 |
| Amaurornis marginalis | Striped Crake | LC | Y |  | 2010 |  |
| Porphyrio alleni | Allen’s Gallinule | LC | Y |  | 2010 |  |
| Gallinula chloropus | Common Moorhen |  |  | Y |  | 2014-2019 |
| Gallinula angulata | Lesser Moorhen | LC | Y |  | 2010 |  |
| Fulica cristata | Red-knobbed Coot | LC | Y | Y | 2010 | 2014-2019 |
| Fulica atra | Common Coot | LC | Y | Y | 2010 | 2014-2019 |
| Recurvirostra avosetta | Pied Avocet |  |  | Y |  | 2014-2019 |
| Himantopus himantopus | Black-winged Stilt |  |  | Y |  | 2014-2019 |
| Gallinago media | Great Snipe | NT | Y | Y | 2016 | 2014-2019 |
| Tringa nebularia | Common Greenshank | LC | Y | Y | 2010 | 2014-2019 |
| Calidris pugnax | Ruff | LC | Y | Y | 2010 | 2014-2019 |
| Xenus cinereus | Terek Sandpiper | LC | Y | Y | 2010 | 2014-2019 |
| Tringa glareola | Wood Sandpiper | LC | Y | Y | 2010 | 2014-2019 |
| Tringa ochropus | Green Sandpiper | LC | Y | Y | 2010 | 2014-2019 |
| Gallinago gallinago | Common Snipe |  |  | Y |  | 2014-2019 |
| Numenius arquata | Eurasian Curlew | NT | Y | Y | 2016 | 2014-2019 |
| Limosa limosa | Black-tailed Godwit | NT | Y | Y | 2016 | 2014-2019 |
| Numenius phaeopus | Whimbrel | LC | Y | Y | 2010 | 2014-2019 |
| Numenius tenuirostris | Slender-billed Curlew | CR | Y | Y | 2016 | 2014-2019 |
| Limosa lapponica | Bar-tailed Godwit | NT | Y | Y | 2016 | 2014-2019 |
| Arenaria interpres | Ruddy Turnstone | LC | Y | Y | 2010 | 2014-2019 |
| Calidris tenuirostris | Great Knot | EN | Y |  | 2016 |  |
| Calidris canutus | Red Knot | NT | Y | Y | 2016 | 2014-2019 |
| Calidris falcinellus | Broad-billed Sandpiper | LC | Y | Y | 2010 | 2014-2019 |
| Calidris ferruginea | Curlew Sandpiper | NT | Y | Y | 2016 | 2014-2019 |
| Calidris temminckii | Temminck’s Stint | LC | Y | Y | 2010 | 2014-2019 |
| Calidris alba | Sanderling | LC | Y | Y | 2010 | 2014-2019 |
| Calidris alpina | Dunlin | LC | Y | Y | 2010 | 2014-2019 |
| Calidris maritima | Purple Sandpiper | LC | Y | Y | 2010 | 2014-2019 |
| Calidris minuta | Little Stint | LC | Y | Y | 2010 | 2014-2019 |
| Gallinago stenura | Pintail Snipe | LC | Y |  | 2010 |  |
| Lymnocryptes minimus | Jack Snipe | LC | Y | Y | 2010 | 2014-2019 |
| Phalaropus lobatus | Red-necked Phalarope | LC | Y | Y | 2018 | 2014-2019 |
| Phalaropus fulicarius | Red Phalarope | LC | Y |  | 2018 |  |
| Tringa totanus | Common Redshank |  |  | Y |  | 2014-2019 |
| Tringa erythropus | Spotted Redshank | LC | Y | Y | 2010 | 2014-2019 |
| Tringa stagnatilis | Marsh Sandpiper | LC | Y | Y | 2010 | 2014-2019 |
| Actitis hypoleucos | Common Sandpiper | LC | Y | Y | 2010 | 2014-2019 |
| Scolopax rusticola | Eurasian Woodcock |  |  | Y |  | 2014-2019 |
| Spheniscus demersus | Jackass Penguin | EN | Y |  | 2018 |  |
| Stercorarius longicaudus | Long-tailed Jaeger | LC | Y | Y | 2018 | 2014-2019 |
| Catharacta skua | Great Skua | LC | Y | Y | 2018 | 2014-2019 |
| Morus bassanus | Northern Gannet | LC | Y | Y | 2018 | 2014-2019 |
| Morus capensis | Cape Gannet | EN | Y |  | 2018 |  |
| Sula dactylatra | Masked Booby | LC | Y |  | 2018 |  |
| Platalea alba | African Spoonbill | LC | Y |  | 2018 |  |
| Platalea leucorodia | Eurasian Spoonbill |  |  | Y |  | 2014-2019 |
| Threskiornis aethiopicus | African Sacred Ibis | LC | Y |  | 2010 |  |
| Geronticus eremita | Northern Bald Ibis | EN | Y |  | 2016 |  |
| Plegadis falcinellus | Glossy Ibis | LC | Y | Y | 2010 | 2014-2019 |

# Appendix 20. IUCN threat categories

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Threat Level 1 | | Threat Level 2 | | | | Threat Level 3 |
| Residential commercial development | and | housing and urban areas | | | | housing and urban areas |
| commercial and industrial development | | | | commercial and industrial development |
| tourism and recreation areas | | | | tourism and recreation areas |
| Agriculture aquaculture | and | annual & perennial non-timber crops | | | | shifting agriculture |
| small-holder farming |
| agro-industry farming |
| scale unknown/unrecorded |
| wood and afforestation) | pulp | plantations | (includes | small-holder plantations |
| agro-industry plantations |
| scale unknown/unrecorded |
| livestock farming and ranching | | | | nomadic grazing |
| small-holder grazing, ranching or farming |
| agro-industry grazing, ranching or farming |
| scale unknown/unrecorded |
| marine and freshwater aquaculture | | | | subsistence/artisinal aquaculture |
| industrial aquaculture |
| scale unknown/unrecorded |
| Energy production and mining | | oil and gas drilling | | | | oil and gas drilling |
| mining and quarrying | | | | mining and quarrying |
| renewable energy | | | | renewable energy |
| Transportation service corridors | and | roads and railroads | | | | roads and railroads |
| utility & service lines | | | | utility & service lines |
| shipping lanes | | | | shipping lanes |
| flight paths | | | | flight paths |
| Biological resource use | | hunting & collecting terrestrial animals | | | | intentional use (species being assessed is  the target) |
| unintentional effects (species is not the target) |
| persecution/control |

|  |  |  |
| --- | --- | --- |
|  |  | motivation unknown/unrecorded |
| gathering terrestrial plants | intentional use (species being assessed is  the target) |
| unintentional effects (species being assessed is not the target) |
| persecution/control |
| motivation unknown/unrecorded |
| logging & wood harvesting | intentional use: subsistence/small scale |
| intentional use: large scale |
| unintentional effects: subsistence/small scale |
| unintentional effects: large scale |
| motivation unknown/unrecorded |
| fishing & harvesting aquatic resources | intentional use: subsistence/sml scale |
| intentional use: lg scale |
| unintentional effects: subsistence/small  scale |
| unintentional effects: large scale |
| persecution/control |
| motivation unknown/unrecorded |
| Human intrusions and disturbance | recreational activities | recreational activities |
| war, civil unrest and military exercises | war, civil unrest and military exercises |
| work and other activities | work and other activities |
| Natural system modifications | fire & fire suppression | fire & fire suppression - increase in fire  frequency/intensity |
| fire & fire suppression - suppression in fire  frequency/intensity |
| fire & fire suppression - trend  unknown/unrecorded |
| dams & water management/use | abstraction of surface water (domestic use) |
| large dams |
| dams (size unknown) |
| abstraction of surface water (commercial  use) |
| abstraction of surface water (agricultural  use) |
| abstraction of surface water (unknown use) |
| abstraction of ground water (domestic use) |
| abstraction of ground water (commercial  use) |
| abstraction of ground water (agricultural  use) |
| small dams |
| abstraction of ground water (unknown use) |
| other ecosystem modifications | other ecosystem modifications |
| Invasive & other problematic species, genes & diseases | invasive non-native/alien species/diseases | unspecified species |
| named species |
| problematic native species/diseases | unspecified species |
| named species |
| introduced genetic material | introduced genetic material |
| problematic species/diseases of unknown origin | unspecified species |
| named species |
| viral/prion-induced diseases | viral/prion-induced diseases - unspecified  'species' (disease) |
| viral/prion-induced diseases - named 'species' (disease) |
| disease of unknown cause | disease of unknown cause |
| Pollution | domestic & urban wastewater | sewage |

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|  |  | run-off |
| type unknown/unrecorded |
| industrial & military effluents | oil spills |
| seepage from mining |
| type unknown/unrecorded |
| agricultural & forestry effluents | nutrient loads |
| soil erosion, sedimentation |
| herbicides and pesticides |
| type unknown/unrecorded |
| garbage & solid waste | garbage & solid waste |
| air-borne pollutants | air-borne pollutants - acid rain |
| air-borne pollutants - smog |
| air-borne pollutants - ozone |
| air-borne pollutants - type  unknown/unrecorded |
| excess energy | excess energy - light pollution |
| excess energy - thermal pollution |
| excess energy - noise pollution |
| excess energy - type unknown/unrecorded |
| Geological events | volcanic eruptions | volcanic eruptions |
| earthquakes/tsunamis | earthquakes/tsunamis |
| avalanches/landslides | avalanches/landslides |
| Climate change and severe weather | habitat shifting and alteration | habitat shifting and alteration |
| drought | drought |
| temperature extremes | temperature extremes |
| storms and floods | storms and floods |
| other impacts | other impacts |
| Other | other threat | other threat |

# Appendix 21. Natura 2000 pressures and threats

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| **Level 1** | **Level 2** |
| Agriculture | Conversion into agricultural land (excluding drainage and burning) |
| Conversion from one type of agricultural land use to another (excluding drainage and burning) |
| Conversion from mixed farming and agroforestry systems to specialised (e.g. single crop) production |
| Changes in terrain and surface of agricultural areas |
| Removal of small landscape features for agricultural land parcel consolidation (hedges, stone  walls, rushes, open ditches, springs, solitary trees, etc.) |
| Abandonment of grassland management (e.g. cessation of grazing or mowing) |
| Abandonment of management/use of other agricultural and agroforestry systems (all except  grassland) |
| Mowing or cutting of grasslands |
| Intensive grazing or overgrazing by livestock |
| Extensive grazing or undergrasing by livestock |
| Burning for agriculture |
| Suppression of fire for agriculture |
| Reseeding of grasslands and other semi-natural habitats |
| Livestock farming (without grazing) |
| Tillage practices (e.g. ploughing) in agriculture |
| Other soil management practices in agriculture |
| Harvesting of crops and cutting of croplands |
| Irrigation of agricultural land |
| Application of natural fertilisers on agricultural land |
| Application of synthetic (mineral) fertilisers on agricultural land |
| Use of plant protection chemicals in agriculture |
| Use of physical plant protection in agriculture |
| Use of other pest control methods in agriculture (excluding tillage) |
| Agricultural activities generating point source pollution to surface or ground waters |
| Agricultural activities generating diffuse pollution to surface or ground waters |
| Agricultural activities generating air pollution |
| Agricultural activities generating marine pollution |
| Agricultural activities generating soil pollution |
| Active abstractions from groundwater, surface water or mixed water for agriculture |
| Drainage for use as agricultural land |
| Development and operation of dams for agriculture |
| Modification of hydrological flow or physical alteration of water bodies for agriculture (excluding  development and operation of dams) |
| Agricultural crops for renewable energy production |
| Agriculture activities not referred to above |
| Forestry | Conversion to forest from other land uses, or afforestation (excluding drainage) |
| Conversion to other types of forests including monocultures |
| Replanting with or introducing non-native or non-typical species (including new species and  GMOs) |
| Abandonment of traditional forest management |
| Logging without replanting or natural regrowth |
| Logging (excluding clear cutting) of individual trees |
| Removal of dead and dying trees, including debris |
| Removal of old trees (excluding dead or dying trees) |
| Clear-cutting, removal of all trees |
| Illegal logging |
| Cork extraction and forest exploitation excluding logging |
| Thinning of tree layer |
| Burning for forestry |
| Forest management reducing old growth forests |
| Wood transport |
| Tillage practices in forestry and other soil management practices in forestry |
| Application of natural fertilisers |
| Application of synthetic fertilisers in forestry, including liming of forest soils |
| Use of plant protection chemicals in forestry |
|  | Forestry activities generating pollution to surface or ground waters |
| Forestry activities generating marine pollution |
| Modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams) |
| Other forestry activities, excluding those relating to agro-forestry |
| Extraction of resources (minerals, peat, non-  renewable energy resources | Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell) |
| Extraction of salt |
| Extraction of oil and gas, including infrastructure |
| Peat extraction |
| Dumping/depositing of inert materials from terrestrial extraction |
| Abandonment or conversion of saltpans |
| Geotechnical surveying |
| Extraction activities generating point source pollution to surface or ground waters |
| Extraction activities generating diffuse pollution to ground or surface waters |
| Extraction activities generating marine pollution |
| Extraction activities generating noise, light or other forms of pollution |
| Abstraction of surface and ground water for resource extraction |
| Mining and extraction activities not referred to above |
| Energy production processes and related infrastructure development | Wind, wave and tidal power, including infrastructure |
| Hydropower (dams, weirs, run-off-the-river), including infrastructure |
| Solar power, including infrastructure |
| Development and operation of energy production plants (including bioenergy plants, fossil and  nuclear energy plants) |
| Transmission of electricity and communications (cables) |
| Oil and gas pipelines |
| Energy production and transmission activities generating pollution to surface or ground waters |
| Energy production and transmission activities generating air pollution |
| Energy production and transmission activities generating marine pollution |
| Energy production and transmission activities generating noise pollution |
| Abstraction of surface and ground water for energy production (excluding hydropower) |
| Energy production and transmission activities not referred to above |
| Development and operation of transport systems | Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) |
| Shipping lanes and ferry lanes transport operations |
| Shipping lanes, ferry lanes and anchorage infrastructure (e.g. canalisation, dredging) |
| Flight paths of planes, helicopter and other non-leisure aircrafts |
| Land, water and air transport activities generating pollution to surface or ground waters |
| Land, water and air transport activities generating marine pollution |
| Land, water and air transport activities generating noise, light and other forms of pollution |
| Land, water and air transport activities not referred to above |
| Development and operation of transport systems | Conversion from other land uses to housing, settlement or recreational areas (excluding drainage  and modification of coastline, estuary and coastal conditions) |
| Construction or modification (e.g. of housing and settlements) in existing urban or recreational  areas |
| Conversion from other land uses to commercial / industrial areas (excluding drainage and modification of coastline, estuary and coastal conditions) |
| Construction or modification of commercial / industrial infrastructure in existing commercial /  industrial areas |
| Creation or development of sports, tourism and leisure infrastructure (outside the urban or  recreational areas) |
| Development and maintenance of beach areas for tourism and recreation incl. beach  nourishment and beach cleaning |
| Sports, tourism and leisure activities |
| Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea  defences or coastal protection works and infrastructures) |
| Deposition and treatment of waste/garbage from household/recreational facilities |
| Deposition and treatment of waste/garbage from commercial and industrial facilities |
| Pollution to surface or ground water due to urban run-offs |
| Discharge of urban wastewater (excluding storm overflows and/or urban run-offs) generating  pollution to surface or ground water |

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|  | Plants, contaminated or abandoned industrial sites generating pollution to surface or ground  water |
| Other residential and recreational activities and structures generating point pollution to surface or ground waters |
| Other industrial and commercial activities and structures generating point pollution to surface or  ground waters |
| Other residential and recreational activities and structures generating diffuse pollution to surface  or ground waters |
| Other industrial and commercial activities and structures generating diffuse pollution to surface  or ground waters |
| Industrial and commercial activities and structures generating air pollution |
| Residential or recreational activities and structures generating marine pollution (excl. marine  macro- and micro-particular pollution) |
| Industrial or commercial activities and structures generating marine pollution (excluding marine macro- and micro-particular pollution) |
| Residential or recreational activities and structures generating marine macro- and micro-  particulate pollution (e.g. plastic bags, Styrofoam) |
| Industrial or commercial activities and structures generating marine macro- and micro-  particulate pollution (e.g. plastic bags, Styrofoam) |
| Residential or recreational activities and structures generating noise, light, heat or other forms  of pollution |
| Industrial or commercial activities and structures generating noise, light, heat or other forms of pollution |
| Drainage, land reclamation and conversion of wetlands, marshes, bogs, etc. to settlement or  recreational areas |
| Drainage, land reclamation or conversion of wetlands, marshes, bogs, etc. to  industrial/commercial areas |
| Modification of flooding regimes, flood protection for residential or recreational development |
| Construction or development of reservoirs and dams for residential or recreational development |
| Construction or development of reservoirs and dams for industrial or commercial development |
| Other modification of hydrological conditions for residential or recreational development |
| Other modification of hydrological conditions for industrial or commercial development |
| Extraction and  cultivation of  biological living  resources (other than agriculture and forestry) | Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey  populations and disturbance of species |
| Marine fish and shellfish processing |
| Marine fish and shellfish harvesting (professional, recreational) activities causing physical loss  and disturbance of seafloor habitats |
| Marine plant harvesting |
| Freshwater fish and shellfish harvesting (professional) |
| Freshwater fish and shellfish harvesting (recreational) |
| Hunting |
| Management of fishing stocks and game |
| Harvesting or collecting of other wild plants and animals (excluding hunting and leisure fishing) |
| Illegal shooting/killing |
| Illegal harvesting, collecting and taking |
| Bycatch and incidental killing (due to fishing and hunting activities) |
| Poisoning of animals (excluding lead poisoning) |
| Use of lead ammunition or fishing weights |
| Modification of coastal conditions for marine aquaculture |
| Marine aquaculture generating marine pollution |
| Abandonment of marine aquaculture |
| Other impacts from marine aquaculture, including infrastructure |
| Abstraction of water, flow diversion, dams and other modifications of hydrological conditions for  freshwater aquaculture |
| Freshwater aquaculture generating point source pollution to surface or ground waters |
| Freshwater aquaculture generating diffuse source pollution to surface or ground waters |
| Introduction and spread of species (including alien species and GMOs) in freshwater aquaculture |
| Abandonment of freshwater aquaculture |
| Other impacts from freshwater aquaculture, including infrastructure |
|  | Military, paramilitary or police exercises and operations on land |

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| Military action,  public safety  measures, and other human intrusions | Military, paramilitary or police exercises and operations in the freshwater and marine  environment |
| Abandonment of terrestrial military or similar exercises (loss of open habitats) |
| Vandalism or arson |
| Closure or restricted access to site/habitat |
| Other human intrusions and disturbance not mentioned above |
| Alien and  problematic species | Invasive alien species of Union concern |
| Other invasive alien species (other than species of Union concern) |
| DO NOT USE Other alien species (not invasive) |
| Problematic native species |
| Plant and animal diseases, pathogens and pests |
| Mixed source pollution | Mixed source pollution to surface and ground waters (limnic and terrestrial) |
| Mixed source marine water pollution (marine and coastal) |
| Mixed source air pollution, air-borne pollutants |
| Mixed source soil pollution and solid waste (excluding discharges) |
| Mixed source excess energy |
| Human-induced changes in water regimes | Abstraction from groundwater, surface water or mixed water |
| Drainage |
| Development and operation of dams |
| Modification of hydrological flow |
| Physical alteration of water bodies |
| Natural processes (excluding catastrophes and processes induced by human activity or climate | Abiotic natural processes (e.g. erosion, silting up, drying out, submersion, salinization) |
| Natural succession resulting in species composition change (other than by direct changes of  agricultural or forestry practices) |
| Accumulation of organic material |
| Natural processes of eutrophication or acidification |
| Reduced fecundity / genetic depression (e.g. inbreeding or endogamy) |
| Interspecific relations (competition, predation, parasitism, pathogens) |
| Absence or reduction of interspecific faunal and floral relations (e.g. pollinators) |
| Geological events, natural catastrophes | Storm, cyclone |
| Flooding (natural processes) |
| Fire (natural) |
| Other natural catastrophes |
| Climate change | Temperature changes (e.g. rise of temperature & extremes) due to climate change |
| Droughts and decreases in precipitation due to climate change |
| Increases or changes in precipitation due to climate change |
| Sea-level and wave exposure changes due to climate change |
| Change of habitat location, size, and / or quality due to climate change |
| Desynchronisation of biological / ecological processes due to climate change |
| Decline or extinction of related species (e.g. food source / prey, predator / parasite, symbiote,  etc.) due to climate change |
| Change of species distribution (natural newcomers) due to climate change |
| Other climate related changes in abiotic conditions |
| Unknown pressures, no  pressures and  pressures from  outside the Member State and operation of  transport systems | Threats and pressures from outside the EU territory |
| Threats and pressures from outside the Member State |
| No information on pressures |
| No information on threats |
| Unknown pressure |
| No pressures |
| No threats |

1. Rubicon Foundation [↑](#footnote-ref-1)
2. BirdLife International [↑](#footnote-ref-2)
3. Sovon, Dutch Centre for Field Ornithology [↑](#footnote-ref-3)
4. <https://www.unep-aewa.org/en/document/discussion-paper-format-and-content-8th-edition-conservation-status-report-0> [↑](#footnote-ref-4)
5. I.e. based on the type of monitoring method. [↑](#footnote-ref-5)
6. Also available on the DataZone. [↑](#footnote-ref-6)
7. In this context, hierarchical means that only the populations not selected in a previous priority category are considered in the lower priority categories. [↑](#footnote-ref-7)
8. <https://travelriskmap.com/#/planner/map/security> [↑](#footnote-ref-8)
9. Taking into account of population changes approved by the AEWA Standing Committee intersessionally since MOP7 [↑](#footnote-ref-9)
10. The 6 years cycle is proposed to have at least one update in every AEWA and EU Birds Directive Article 12 reporting cycle. However, a more frequent cycle (e.g. 3 years) might be more beneficial if extensive site coverage is needed for trend calculation as in the East Atlantic Flyway. [↑](#footnote-ref-10)
11. <https://szabolcsnagy.shinyapps.io/PopsPerCountry/> [↑](#footnote-ref-11)
12. Or once in every 12 years if the 6 year cycle would be not possible. [↑](#footnote-ref-12)
13. Or once in every 12 years if the 6 year cycle would be not possible. [↑](#footnote-ref-13)
14. <https://www.unep-aewa.org/en/document/discussion-paper-format-and-content-8th-edition-conservation-status-report-0> [↑](#footnote-ref-14)
15. <http://cdr.eionet.europa.eu/help/habitats_art17> [↑](#footnote-ref-15)