



8th SESSION OF THE MEETING OF THE PARTIES
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**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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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/TC15.22⁴). 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.

⁴ <https://www.unep-awea.org/en/document/discussion-paper-format-and-content-8th-edition-conservation-status-report-0>

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:

- i. Identify gaps in monitoring of populations listed in Table 1 of the AEWA Action Plan, including population size, trend and drivers of population change;
- ii. Describe the improvements required in the monitoring of each population;
- iii. Develop a methodology to prioritise populations and countries in consultation with the AEWA Technical Committee;
- iv. 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;
- v. Apply the agreed prioritisation method and report results;
- vi. Identify and prioritise training & capacity needs for data collection and analysis across the Agreement area;
- vii. 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:

- i. 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.
- ii. 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 AEWAs 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.
- iii. Linked to generation length, e.g. the trend trend 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 AEWAs 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 thematic⁵ 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.

5. 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;
6. 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;
- BirdLife International’s species range maps⁶;
- The population boundaries maintained by Wetlands International and available through the Critical Sites Network Tool 2.0;

⁵ I.e. based on the type of monitoring method.

⁶ Also available on the DataZone.

- 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 AEWPA 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 AEWPA Conservation Status Report;
- Other literature reviewed for the 8th edition of the AEWPA 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 AEWAs 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:
 - a. Method (a) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
 - b. At least one complete survey from the majority of the known distribution area in the last 6-year reporting cycle;
 - c. 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:
 - a. Method (b) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
 - b. Existing estimate earlier than the last reporting cycle updated using representative trend data;
 - c. Estimate is based on extensive but incomplete surveys in the last 6-year cycle;
 - d. Estimate is based on biased sampling in the last 6-year cycle;
3. Expert opinion based on very limited data:
 - a. Method (c) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
 - b. Estimate is based on only local surveys from a small part of the known distribution area in the country;
 - c. Estimate is based on data older than 6-years and not updated;
4. No survey:
 - a. Method (d) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
 - b. The monitoring programme recommended in Hearn et al. (2018) does not exist in the country.

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

1. Complete survey or statistically robust estimate:
 - a. Method (a) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
 - b. Comparison of two estimates of population size originating from complete surveys;
 - c. Adequate monitoring programme with sufficient sample size and distribution and at least 3-year frequency of surveys;
2. Limited but consistent monitoring:
 - a. Method (b) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
 - b. The trend is based on consistent monitoring with insufficient sample size or geographically biased coverage of the distribution area;
 - c. The trend is extrapolated from other measurements;

3. Very limited and/or inconsistent monitoring:
 - a. Method (c) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
 - b. Monitoring activities are insufficient to calculate trend;
4. No monitoring in the last reporting cycle:
 - a. Method (d) in national reports to the European Red List of Birds/Birds Directive Article 12/AEWA status reports;
 - b. The monitoring programme recommended in Hearn et al. (2018) does not exist 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.

$$Q_{ik} = \frac{\sum_{ij} w_{ij} q_{ij}}{\sum_{ij} w_{ij}}$$

Where:

Q_{ik} : The weighted mean quality score of population i for attribute k (i.e. population size or trend);

w_{ij} : 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.

q_{ij} : 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 (q _{ij})	Weight (w _{ij})	w _{ij} × q _{ij}
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 (Q_{ik}) 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 hierarchical⁷ **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).

⁷ In this context, hierarchical means that only the populations not selected in a previous priority category are considered in the lower priority categories.

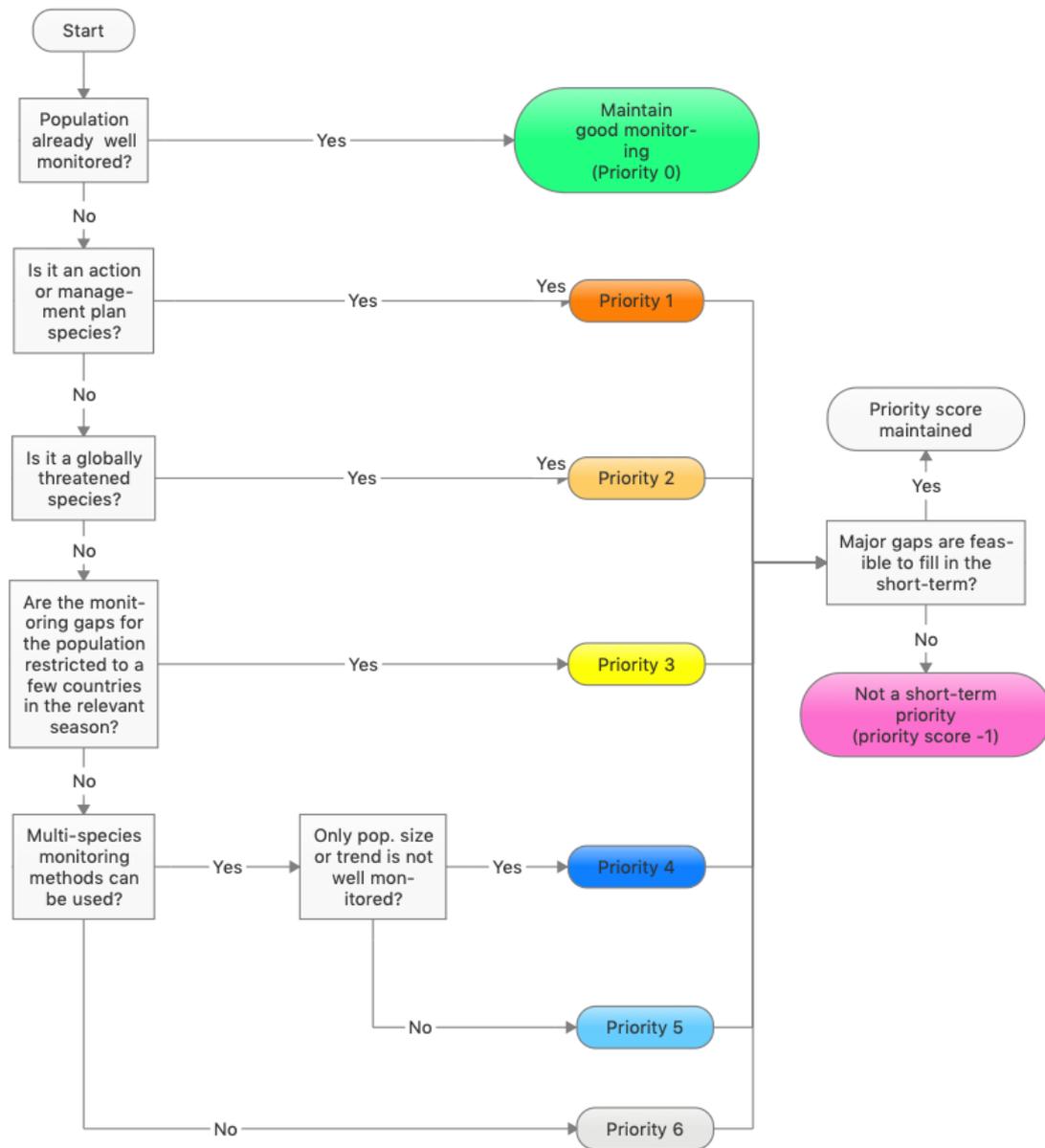


Figure 3.1: Flowchart of prioritising populations for the development of monitoring.

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 unrest⁸.

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);

$$S_{jkl} = \sum_i s_i$$

Where:

S_{jl} : The priority score of country j for monitoring method l (e.g. the IWC or colonial breeding bird monitoring);

s_i : The priority score of population i as described above.

P_{ij} : Importance score of population i in country j .

q_{ij} : Quality score of of population i in country j .

A worked-out example is provided in Table 3.3.

⁸ <https://travelriskmap.com/#/planner/map/security>

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	faeroensis, 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	leuceteres, Canada, Greenland & Iceland (bre)	S	1	4	4	0
Charadrius hiaticula	psammodytes, 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 AEWA⁹. 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).

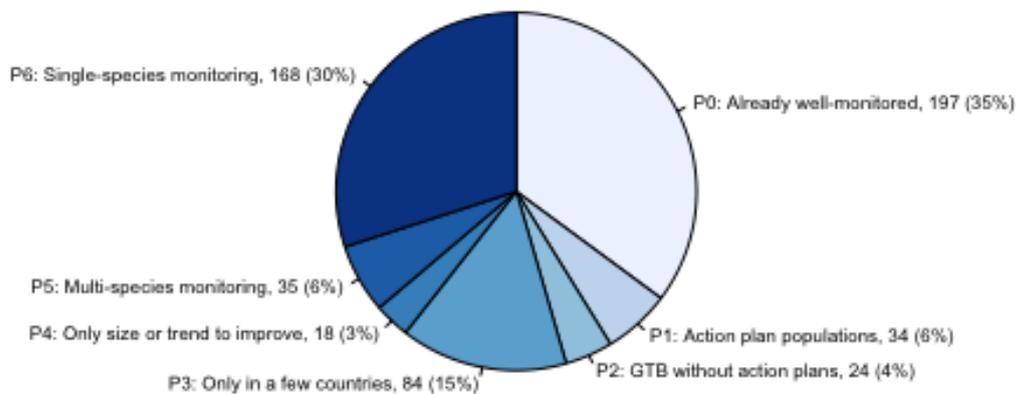


Figure 3.2: AEWA populations by priority categories for the development of monitoring

⁹ Taking into account of population changes approved by the AEWA Standing Committee intersessionally since MOP7

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

	A	C	D	G	I	J	L	M	O	P	R	S	V
A	1	0	0	0	26	0	0	0	0	0	0	0	0
C	0	40	0	0	16	0	0	0	0	0	0	0	0
D	0	0	2	0	6	0	0	0	0	0	0	0	0
G	0	0	0	1	0	0	0	0	0	0	0	0	0
I	0	0	0	0	16	0	0	0	0	0	0	0	0
J	0	0	0	0	0	0	0	0	0	0	0	0	0
L	0	0	0	0	0	0	0	0	0	0	0	0	0
M	0	0	0	0	1	0	0	0	0	0	0	0	0
O	0	0	0	0	17	0	0	0	0	0	0	0	0
P	0	0	0	0	0	0	0	0	0	1	0	0	0
R	0	0	0	0	0	0	0	0	0	0	1	0	0
S	0	0	4	0	13	1	2	0	0	1	0	28	0
V	0	0	0	0	0	0	0	0	0	0	0	0	0

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 years¹⁰).
- 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.

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.

- 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.

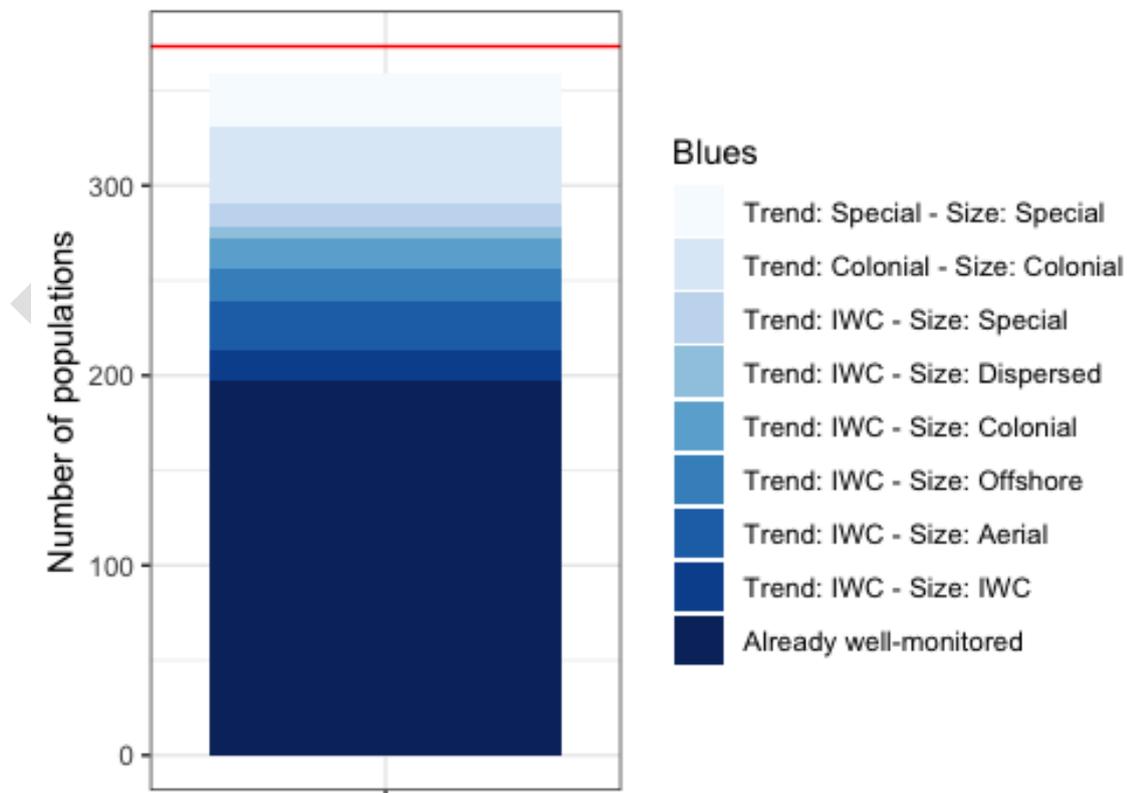


Figure 3.4: The contribution of various combination of monitoring methods towards Target 1.4 of the AEWA Strategic Plan 2019–2027 (red line).

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.

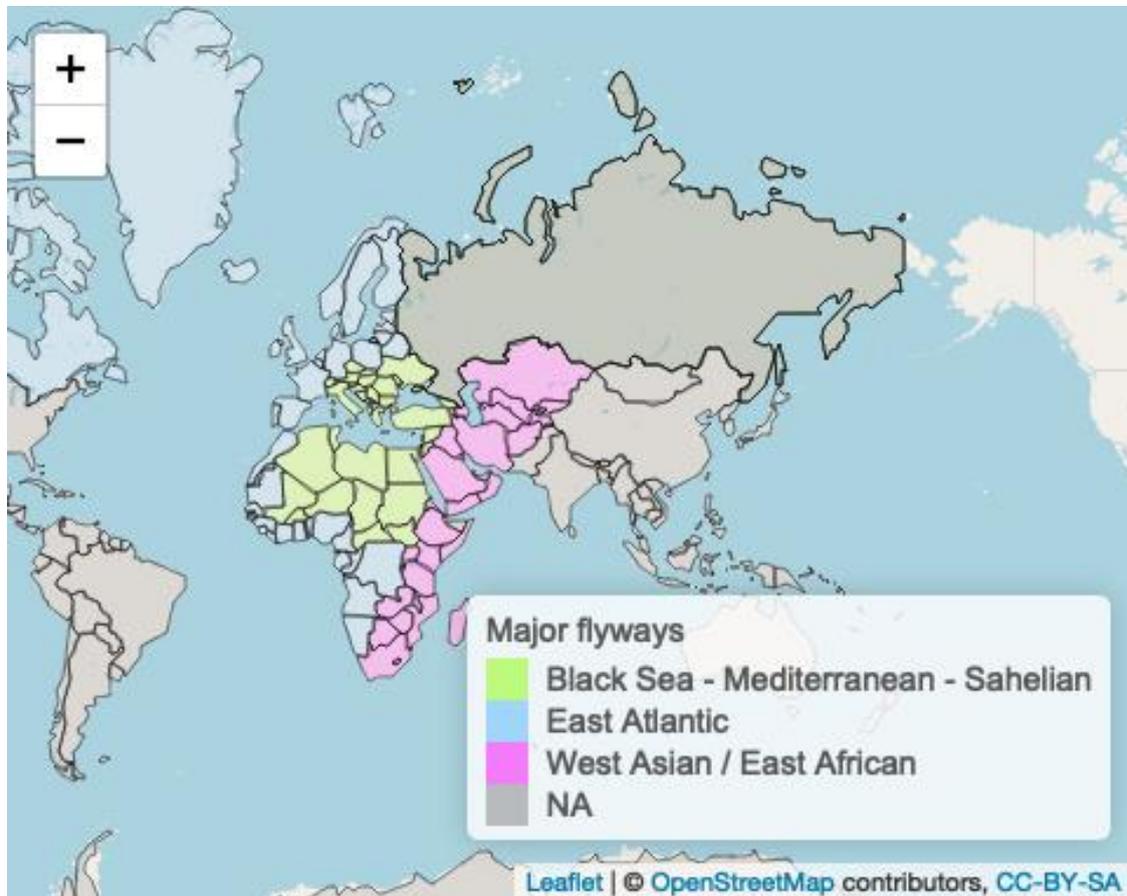


Figure 3.5: Major flyways for organising monitoring schemes. Data from certain countries will contribute to the monitoring of populations that may belong to another flyway. E.g. data from France or Spain may contribute to assessing populations that belong to either the East Atlantic or to the Black Sea – 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 flyway. 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 AEW 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 tool¹¹ 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.

¹¹ <https://szabolcsnagy.shinyapps.io/PopsPerCountry/>

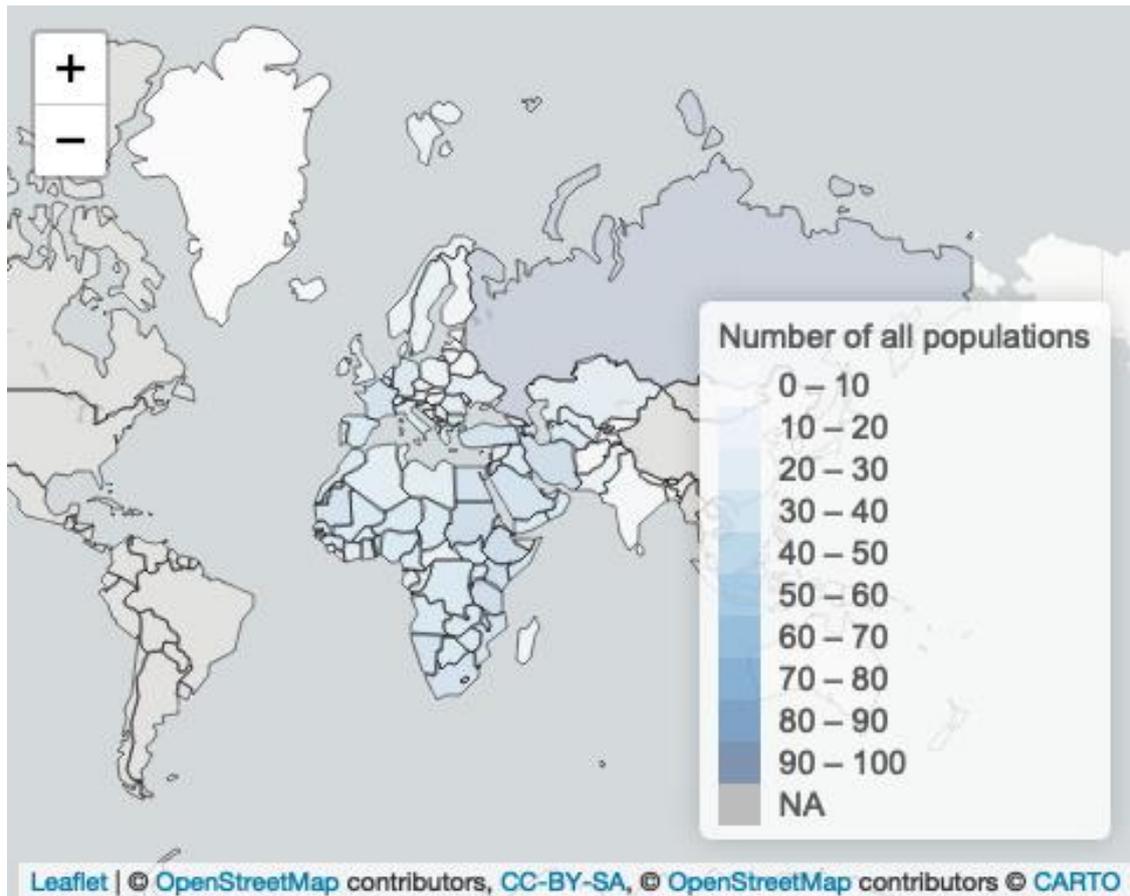


Figure 3.6: Number of all AEWA populations to be monitored by the International Waterbird Census per country.

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.

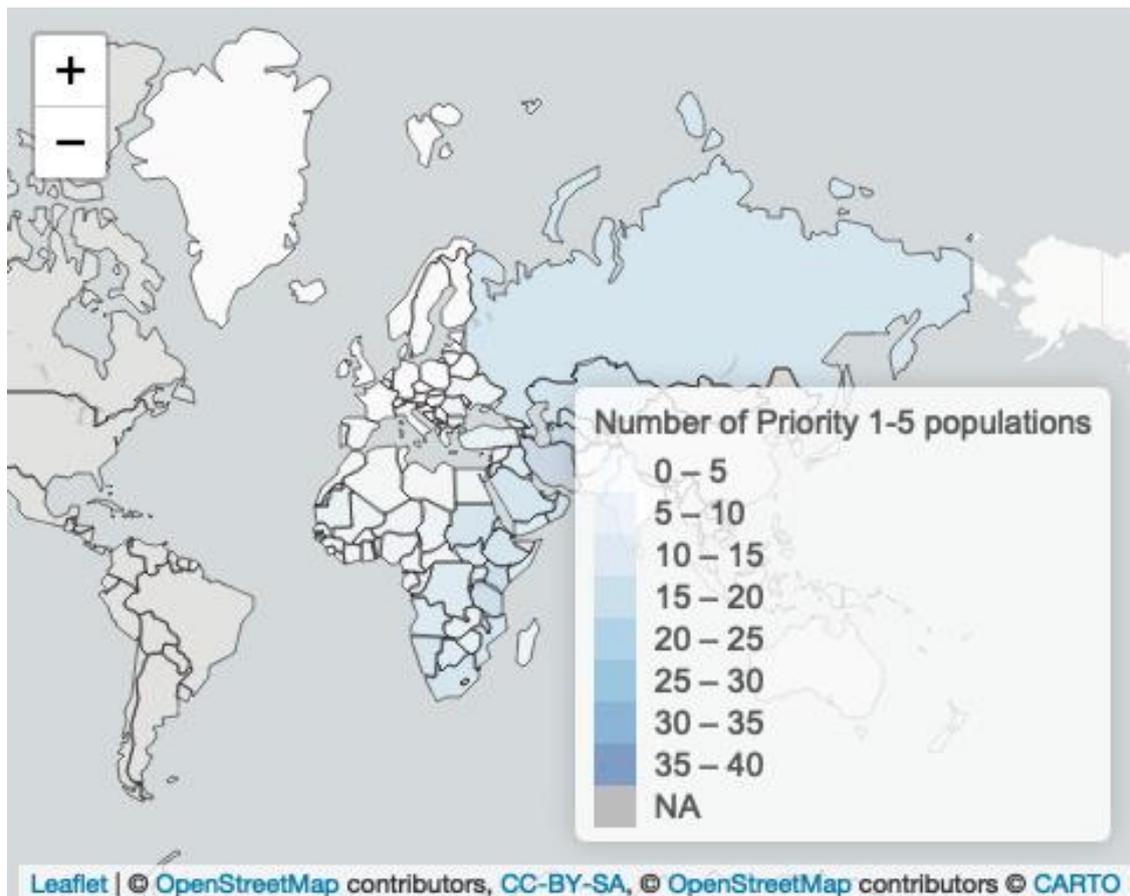


Figure 3.7: Number of Priority 1-5 populations per country for which monitoring is required by the IWC method.

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.

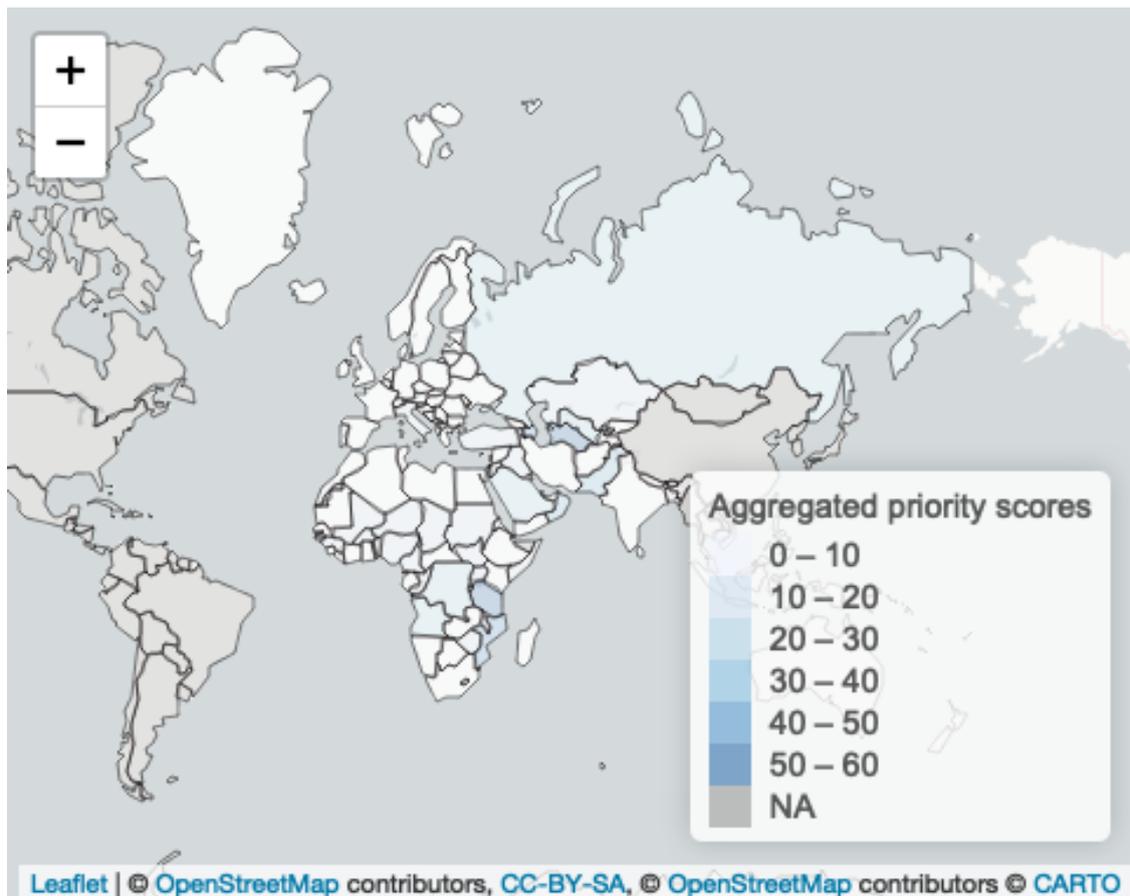


Figure 3.8: Aggregated priority scores for the development of the IWC per country

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 Okavango 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.

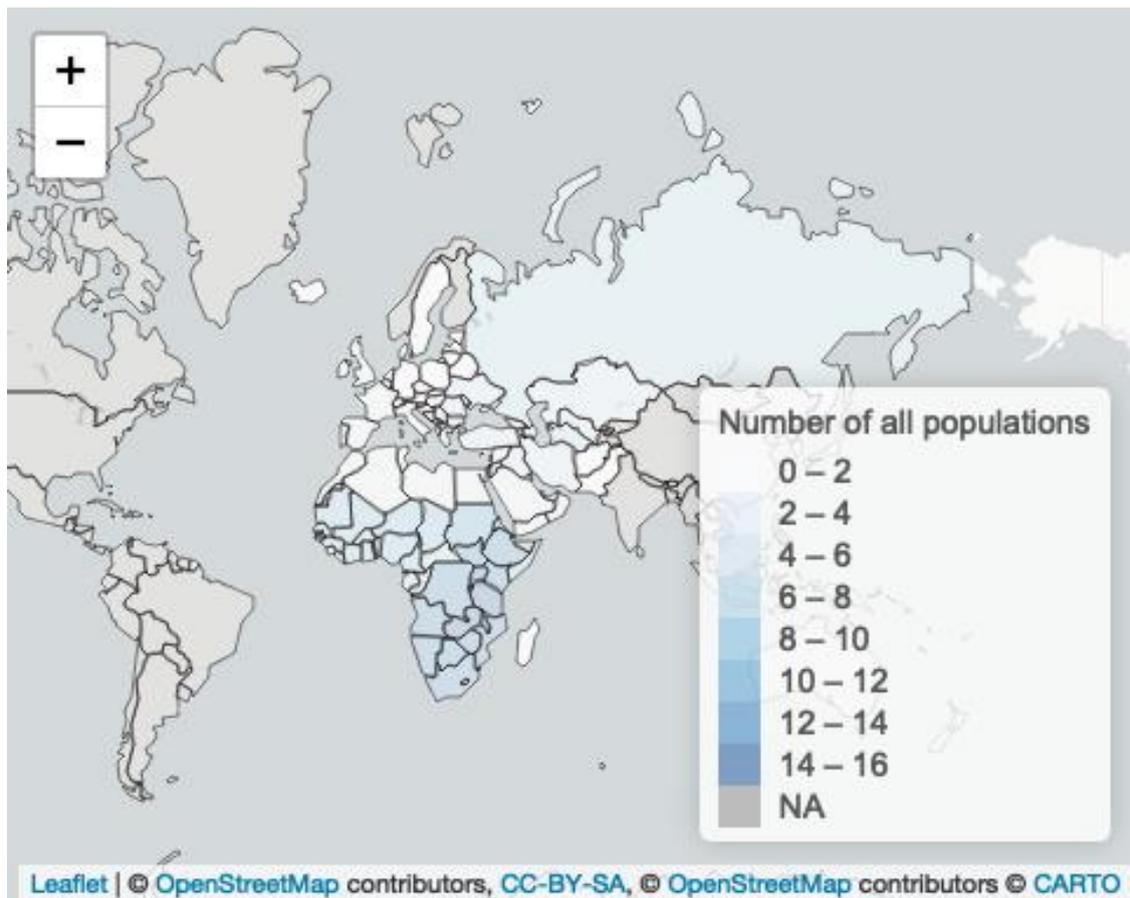


Figure 3.9: Number of all AEWA populations to be monitored by periodic aerial surveys of inland wetlands per country.

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.

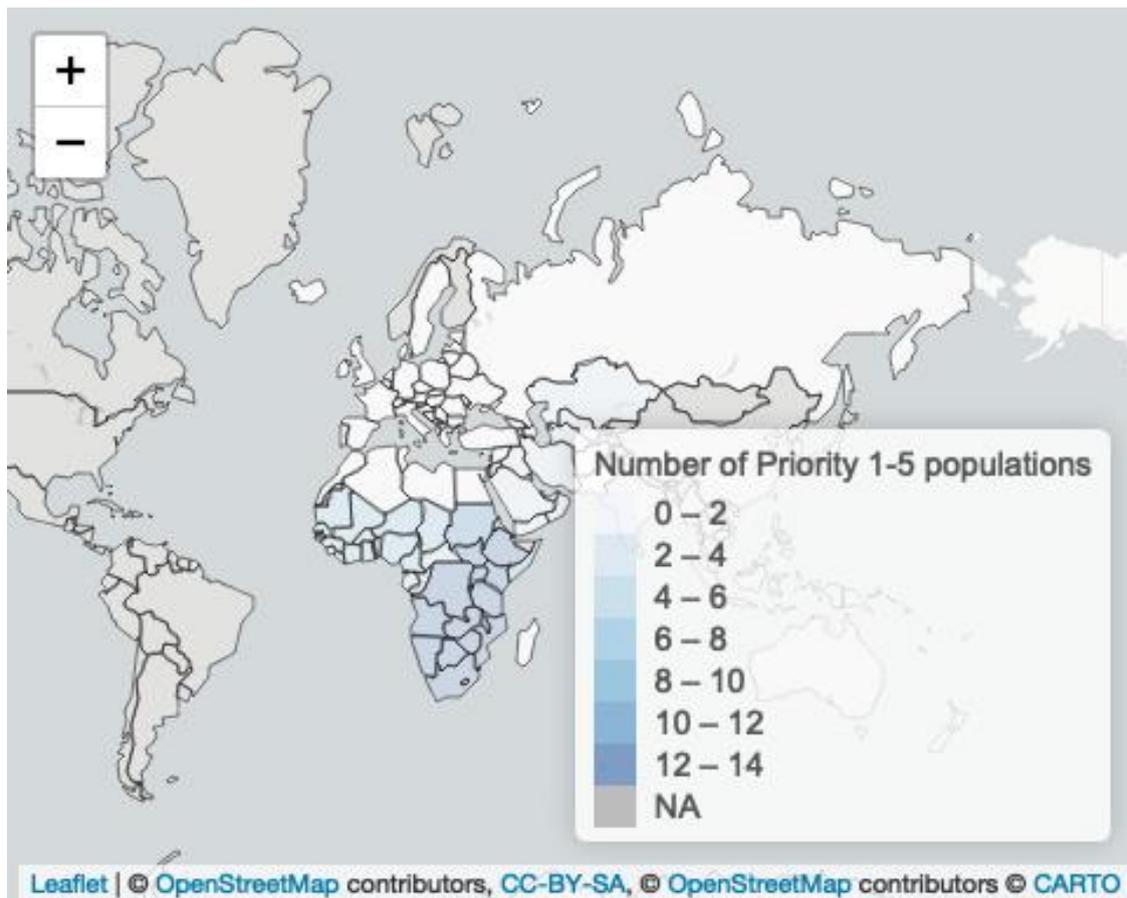


Figure 3.10: Number of Priority 1-5 populations to be monitored by periodic aerial surveys of inland wetlands per country

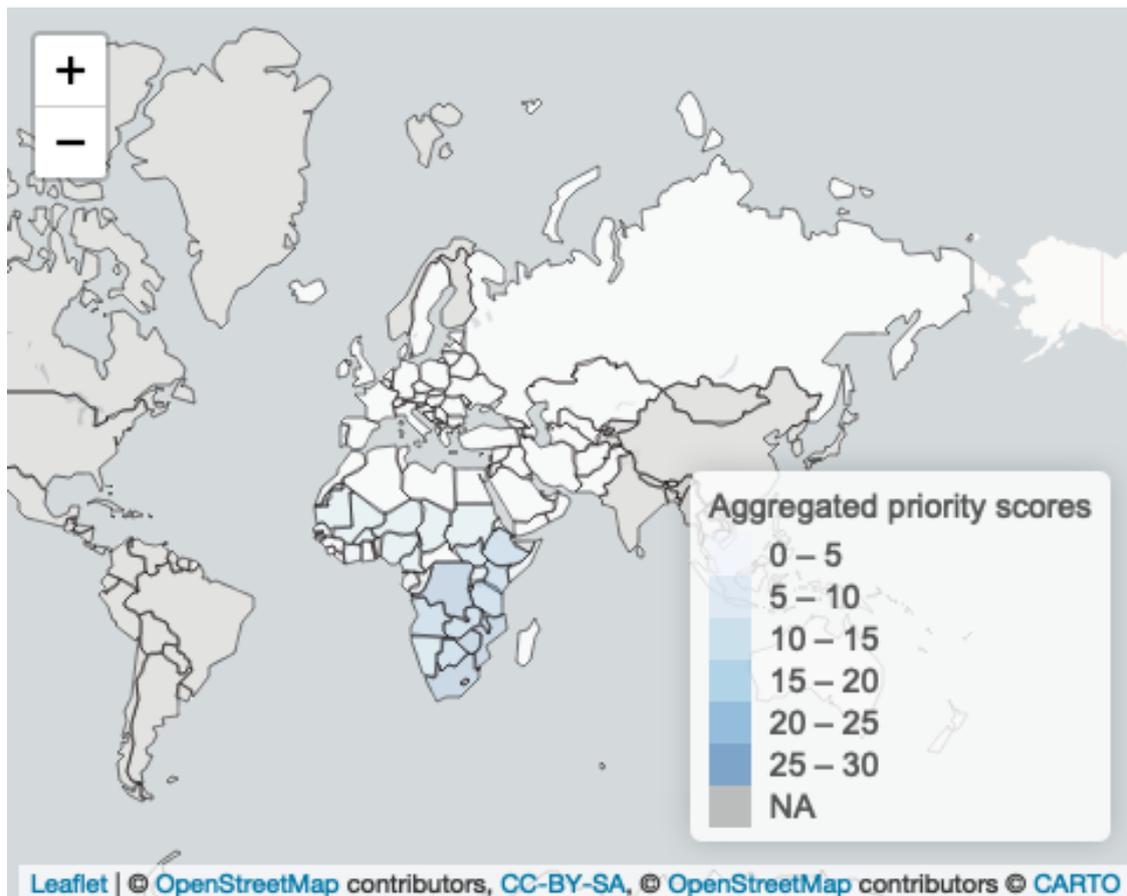


Figure 3.11: Aggregated priority scores for the development of by periodic aerial surveys of inland wetlands per country

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).

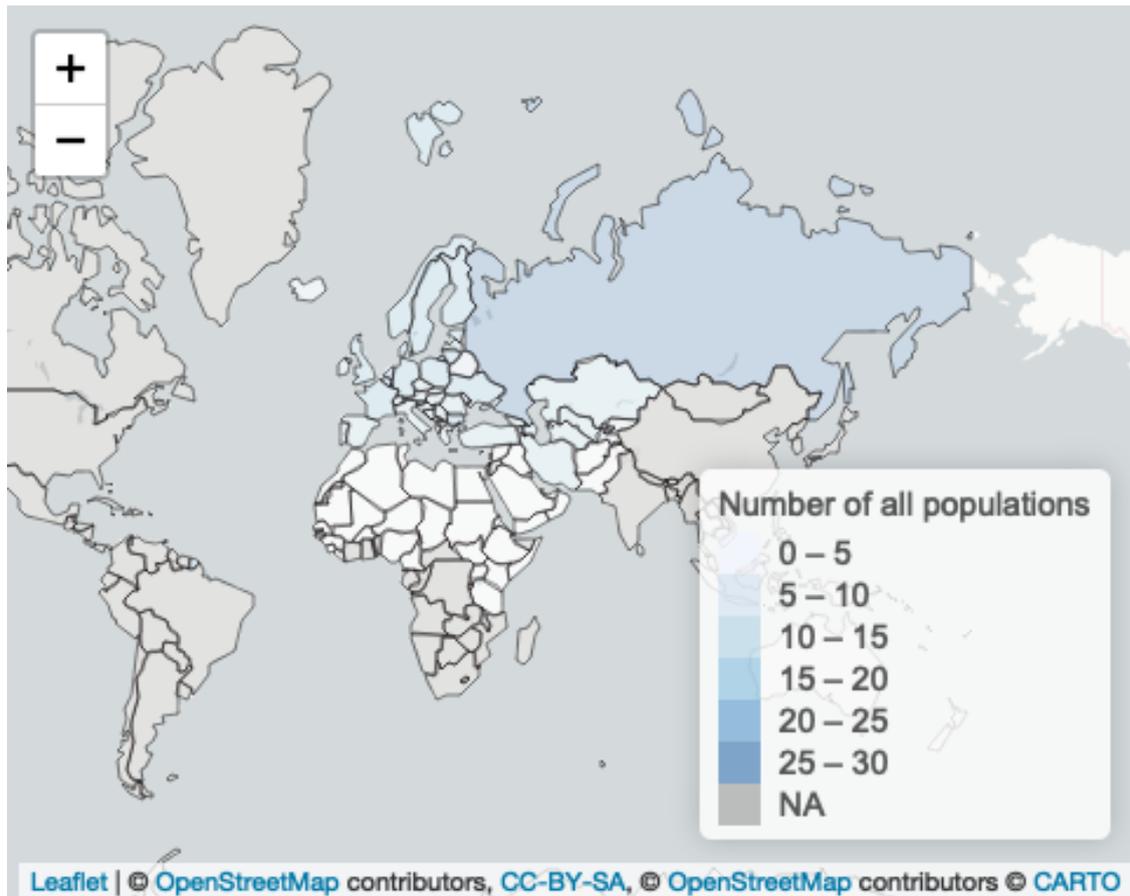


Figure 3.12: Number of all AEWA populations to be monitored by periodic offshore surveys per country.

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.

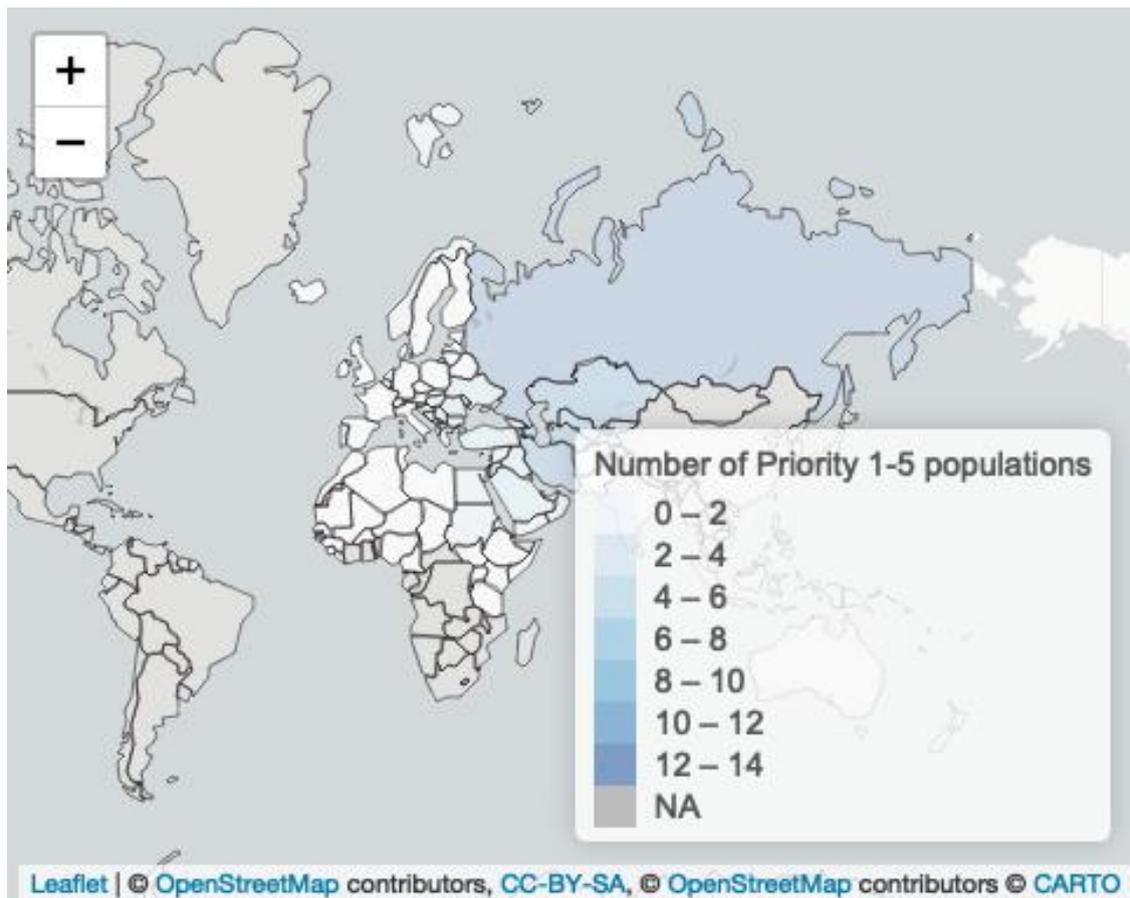


Figure 3.13: Number of Priority 1-5 populations to be monitored by periodic offshore surveys per country

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.

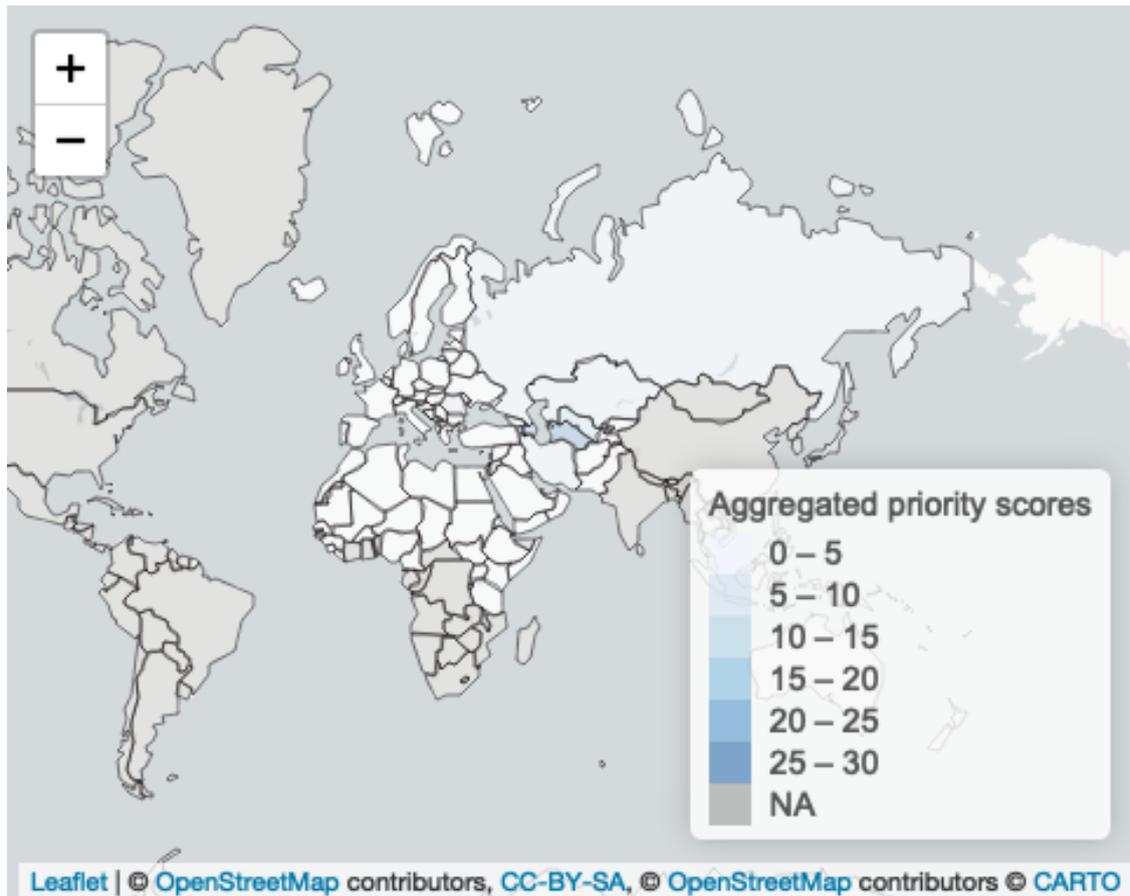


Figure 3.14: Aggregated priority scores for the development of by periodic offshore surveys per country

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.

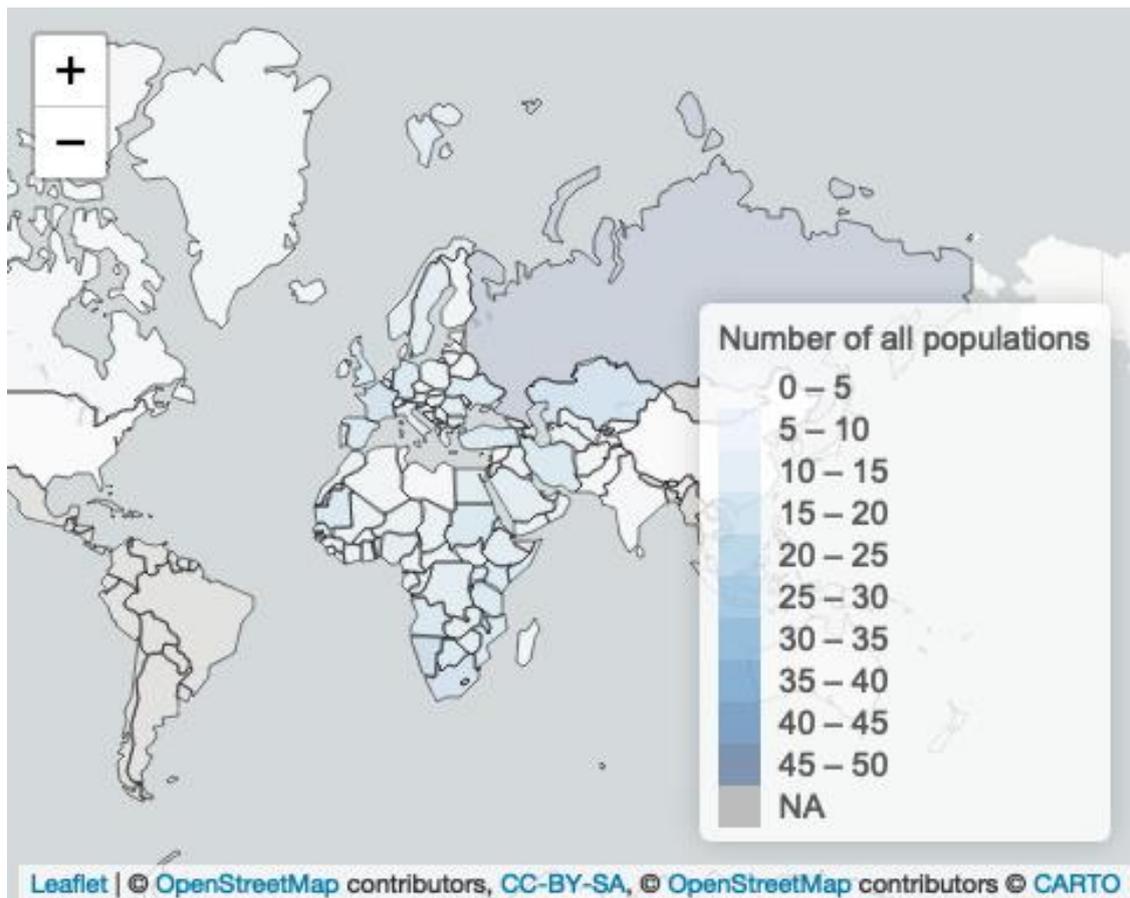


Figure 3.15: Number of all AEWA populations to be monitored by colonial breeding bird surveys per country.

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.

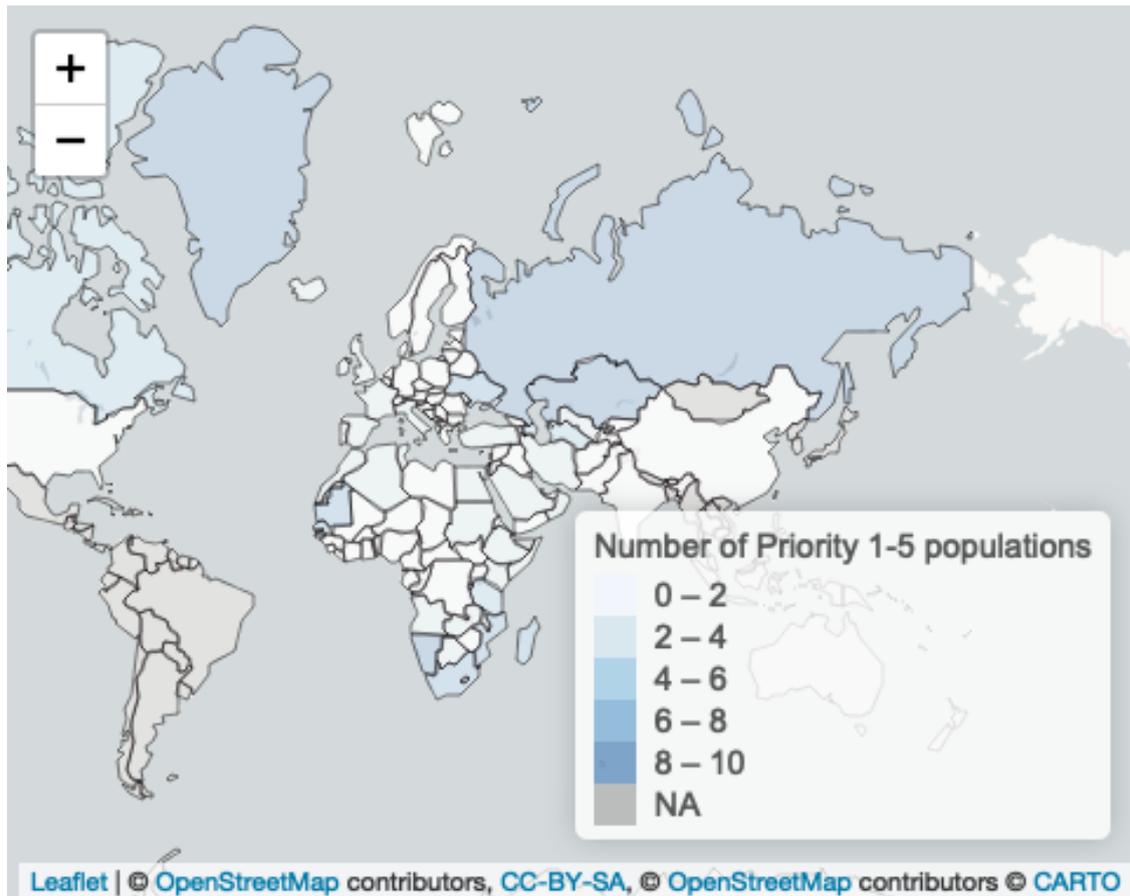


Figure 3.16: Number of Priority 1-5 populations to be monitored by colonial breeding bird surveys per country

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](#) of the Conservation of Arctic Flora and Fauna (CAFF).

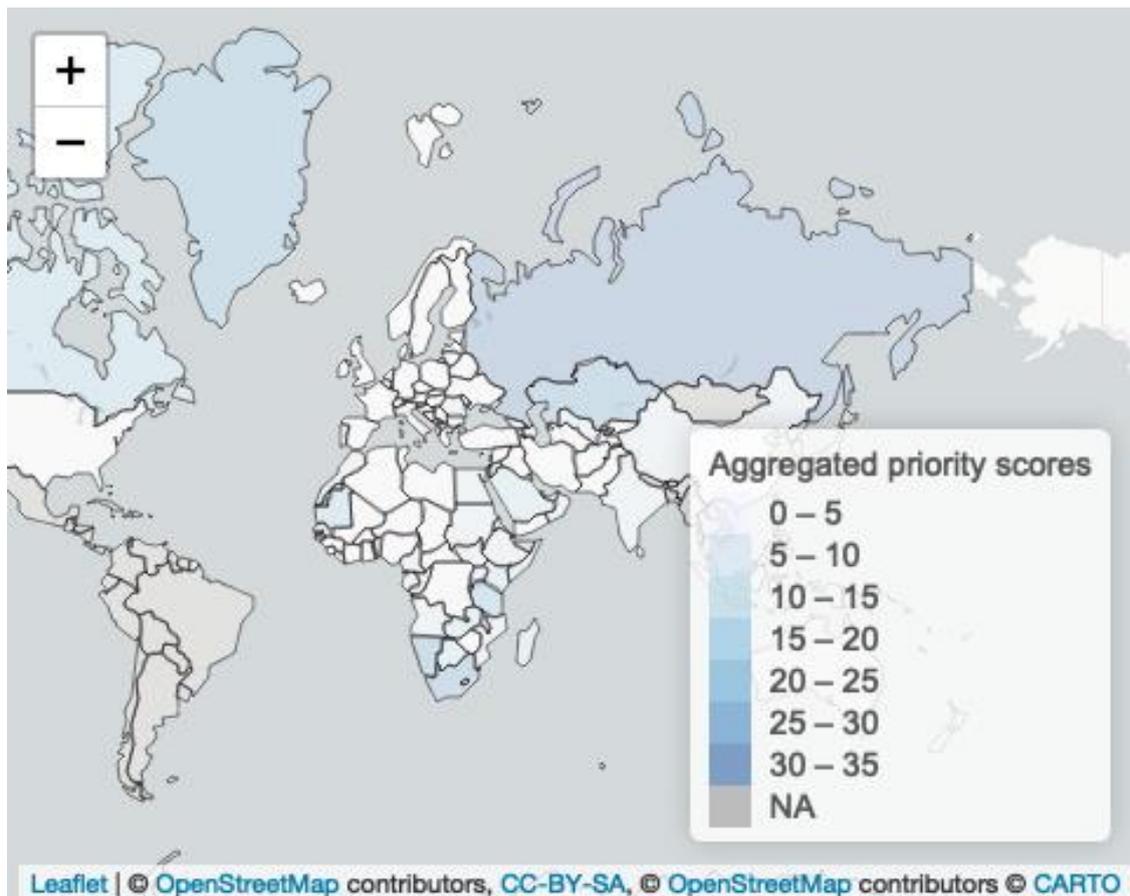


Figure 3.17: Aggregated priority scores for the development of by colonial breeding bird surveys per country

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.

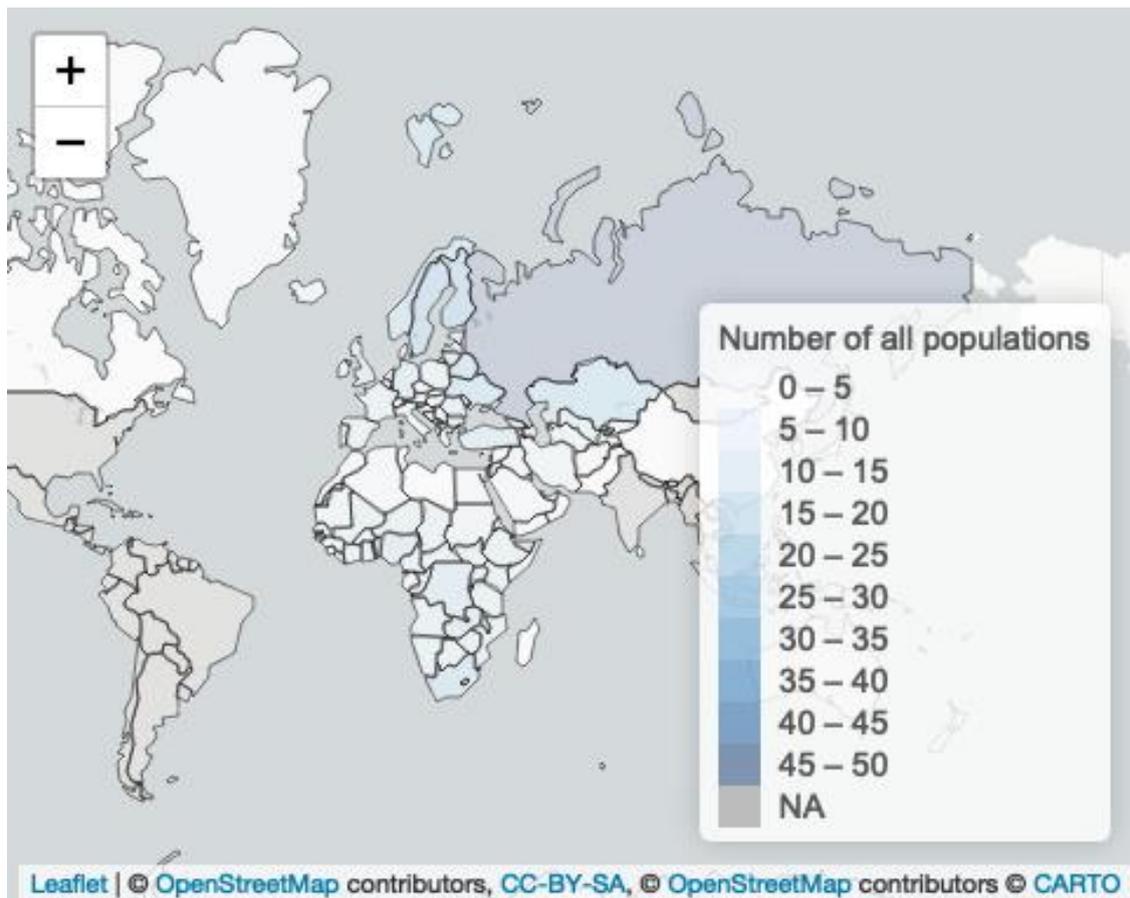


Figure 3.18: Number of all AEWA populations to be monitored by some species-specific breeding bird survey methods per country.

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.

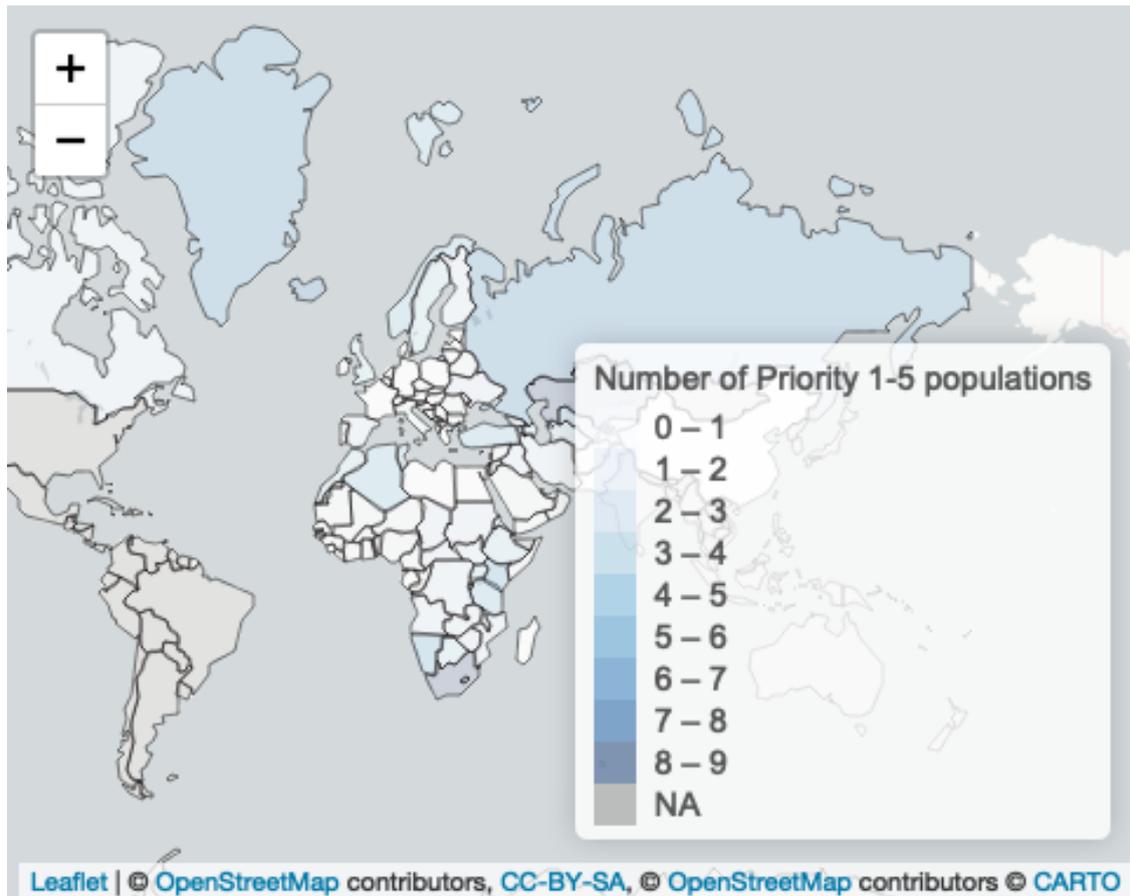


Figure 3.19: Number of Priority 1-5 populations to be monitored by some species-specific breeding bird survey methods per country

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.

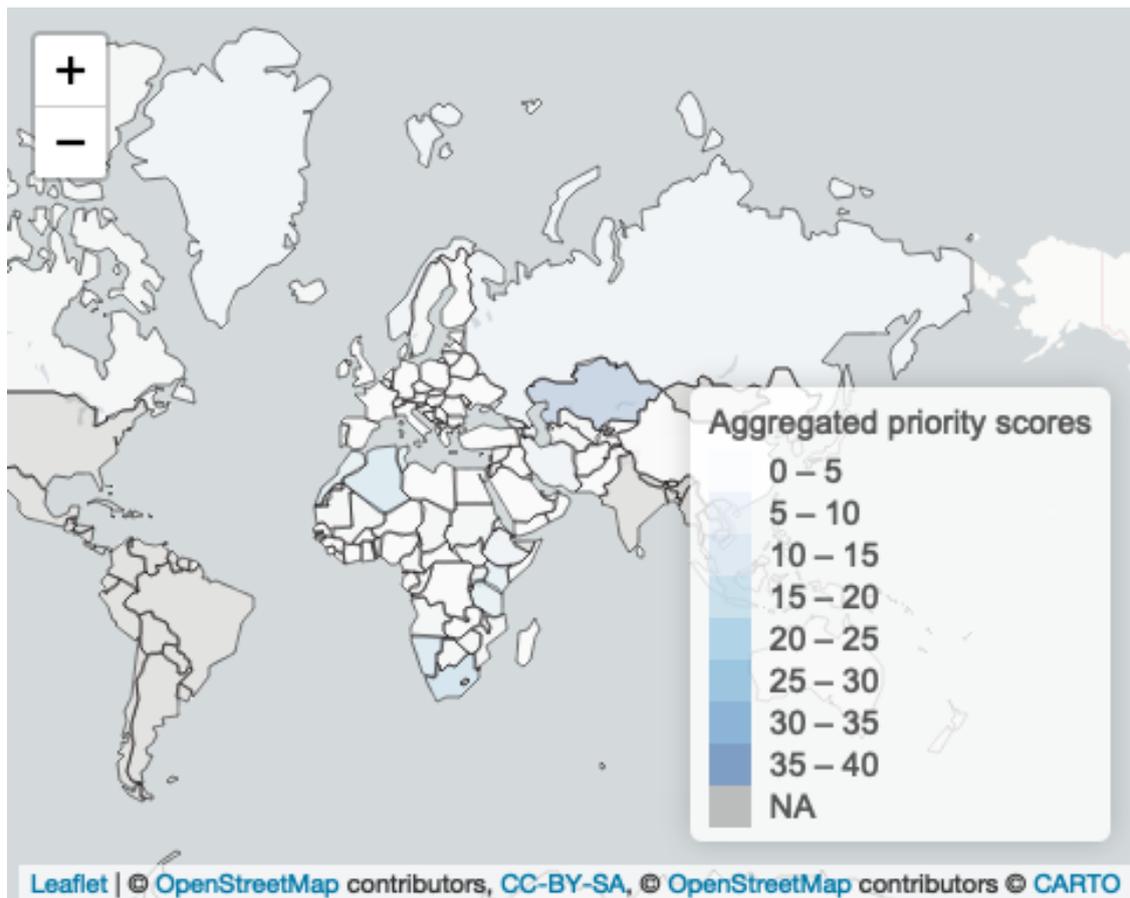


Figure 3.20: Aggregated priority scores for the development of by some special breeding bird survey methods per country

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 years¹². 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-cycle¹³ 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).

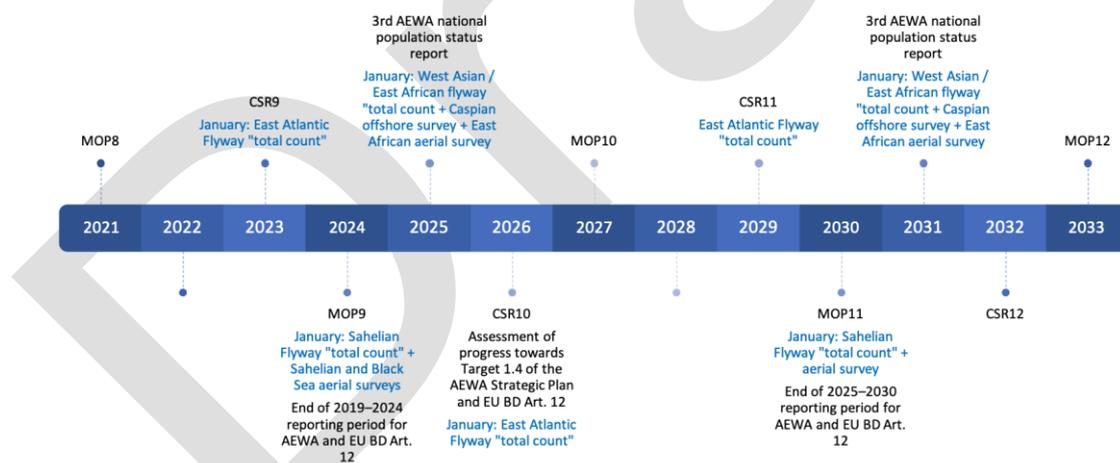


Figure 3.21: A proposed schedule for the timing of flyway-level counts in the context of the AEWA Meeting of Parties, Conservation Status Reports, national population status reports to AEWA and the EU Birds Directive Article 12 reporting.

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

¹² Or once in every 12 years if the 6 year cycle would be not possible.

¹³ Or once in every 12 years if the 6 year cycle would be not possible.

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 framework 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 through 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 hierarchical Threats Classification Scheme developed by the IUCN . This threat classification scheme is based on a hierarchical 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 List¹⁴

Score	Timing	Scope	Severity
3	Ongoing	Whole (>90%)	Very Rapid Declines (>30% over longer of 10 years or 3 generations)
2		Majority (50-90%)	Rapid Declines (20-30% over longer of 10 years or 3 generations)
1	Future	Minority (<50%)	Slow but significant Declines (<20% over longer of 10 years or 3 generations) of fluctuations
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](#) 10 years ago.

For each species and threat, stresses as set out in the [IUCN 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.

¹⁴ <https://www.unep-aewa.org/en/document/discussion-paper-format-and-content-8th-edition-conservation-status-report-0>

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 hierarchical 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 driver¹⁵, with 219 nested sub-categories.

An overview of the datasets submitted for the last Article 12 report by Member 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 populations 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).

¹⁵ http://cdr.eionet.europa.eu/help/habitats_art17

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.

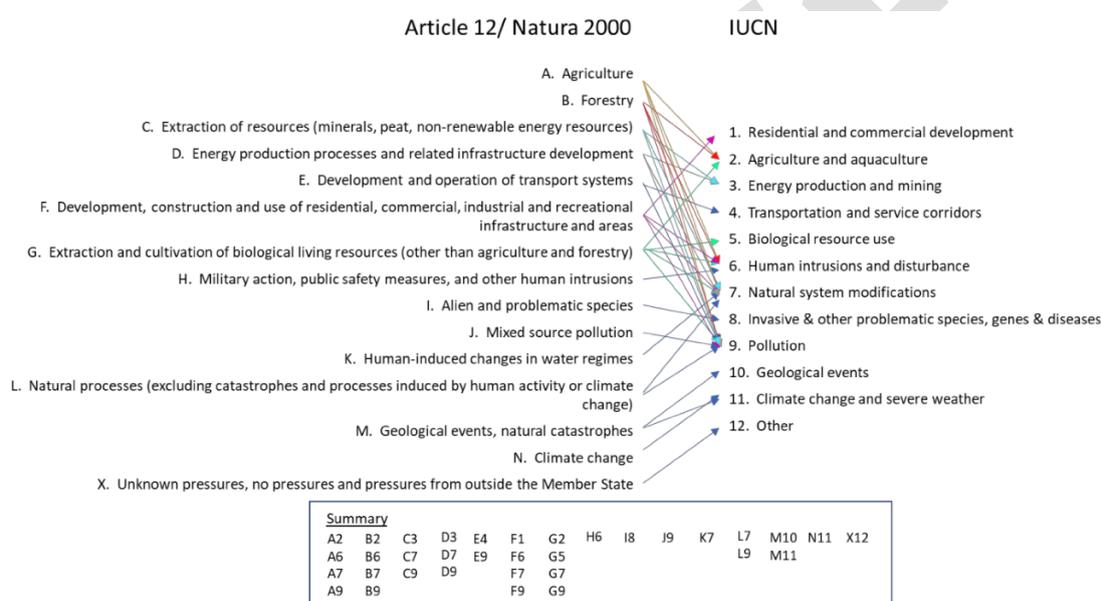


Figure 4.1: Comparison of the threat classification schemes adopted by the IUCN and that used in Article 12 assessments.

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

<i>Branta ruficollis</i>	Northern Siberia/Black Sea & Caspian	P	P
<i>Anser anser</i>	anser, Iceland/UK & Ireland	G	G
<i>Anser anser</i>	anser, NW Europe/South-west Europe	S	G
<i>Anser anser</i>	anser, Central Europe/North Africa	G	G
<i>Anser anser</i>	rubrirostris, Black Sea & Turkey	G	G
<i>Anser anser</i>	rubrirostris Western Siberia/Caspian & Iraq	G	G
<i>Anser fabalis</i>	fabalis, North-east Europe/North-west Europe	G	G
<i>Anser fabalis</i>	rossicus, West & Central Siberia/NE & SW Europe	G	G
<i>Anser fabalis</i>	johanseni, West & Central Siberia/Turkmenistan to W China	G	G
<i>Anser brachyrhynchus</i>	East Greenland & Iceland/UK	G	G
<i>Anser brachyrhynchus</i>	Svalbard/North-west Europe	G	G
<i>Anser albifrons</i>	albifrons, NW Siberia & NE Europe/North-west Europe	G	G
<i>Anser albifrons</i>	albifrons, Western Siberia/Central Europe	G	G
<i>Anser albifrons</i>	albifrons, Western Siberia/Black Sea & Turkey	G	G
<i>Anser albifrons</i>	albifrons, Northern Siberia/Caspian & Iraq	G	G
<i>Anser albifrons</i>	flavirostris, Greenland/Ireland & UK	G	G
<i>Anser erythropus</i>	Fennoscandia	M	G
<i>Anser erythropus</i>	NE Europe & W Siberia/Black Sea & Caspian	P	G
<i>Clangula hyemalis</i>	Iceland & Greenland (bre)	M	I
<i>Clangula hyemalis</i>	Western Siberia/North Europe (bre)	O	P
<i>Somateria spectabilis</i>	East Greenland, NE Europe & Western Siberia	M	M
<i>Somateria mollissima</i>	mollissima, Baltic, North & Celtic Sea	O	S
<i>Somateria mollissima</i>	mollissima, Norway & Russia	O	I
<i>Somateria mollissima</i>	borealis, Svalbard & Franz Joseph (bre)	S	C
<i>Polysticta stelleri</i>	Western Siberia/North-east Europe	O	I
<i>Melanitta fusca</i>	Western Siberia & Northern Europe/NW Europe	O	P
<i>Melanitta fusca</i>	Black Sea & Caspian	S	S
<i>Melanitta nigra</i>	W Siberia & N Europe/W Europe & NW Africa	O	P

<i>Bucephala clangula</i>	clangula, North-west & Central Europe (win)	O	I
<i>Bucephala clangula</i>	clangula, North-east Europe/Adriatic	I	I
<i>Bucephala clangula</i>	clangula, Western Siberia & North-east Europe/Black Sea	O	I
<i>Bucephala clangula</i>	clangula, Western Siberia/Caspian	O	I
<i>Mergellus albellus</i>	North-west & Central Europe (win)	O	I
<i>Mergellus albellus</i>	North-east Europe/Black Sea & East Mediterranean	O	I
<i>Mergellus albellus</i>	Western Siberia/South-west Asia	O	I
<i>Mergus merganser</i>	merganser, North-west & Central Europe (win)	O	I
<i>Mergus merganser</i>	merganser, North-east Europe/Black Sea	O	I
<i>Mergus merganser</i>	merganser, Western Siberia/Caspian	O	I
<i>Mergus serrator</i>	North-west & Central Europe (win)	O	I
<i>Mergus serrator</i>	North-east Europe/Black Sea & Mediterranean	O	I
<i>Mergus serrator</i>	Western Siberia/South-west & Central Asia	O	I
<i>Alopochen aegyptiaca</i>	West Africa	A	I
<i>Alopochen aegyptiaca</i>	Eastern & Southern Africa	A	I
<i>Tadorna tadorna</i>	North-west Europe	I	I
<i>Tadorna tadorna</i>	Black Sea & Mediterranean	I	I
<i>Tadorna tadorna</i>	Western Asia/Caspian & Middle East	I	I
<i>Tadorna ferruginea</i>	North-west Africa	S	I
<i>Tadorna ferruginea</i>	East Mediterranean & Black Sea/North-east Africa	S	I
<i>Tadorna ferruginea</i>	Western Asia & Caspian/Iran & Iraq	S	I
<i>Tadorna cana</i>	Southern Africa	A	I
<i>Plectropterus gambensis</i>	gambensis, West Africa	A	I
<i>Plectropterus gambensis</i>	gambensis, Eastern Africa (Sudan to Zambia)	A	I
<i>Plectropterus gambensis</i>	niger, Southern Africa	A	I
<i>Sarkidiornis melanotos</i>	West Africa	A	I
<i>Sarkidiornis melanotos</i>	Southern & Eastern Africa	A	I
<i>Nettapus auritus</i>	West Africa	A	I
<i>Nettapus auritus</i>	Southern & Eastern Africa	A	I
<i>Marmaronetta angustirostris</i>	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	aethereus, 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

<i>Rallus aquaticus</i>	korejewi, Western Siberia/South-west Asia	V	V
<i>Rallus caerulescens</i>	Southern & Eastern Africa	V	V
<i>Crex egregia</i>	Sub-Saharan Africa	V	V
<i>Crex crex</i>	Europe & Western Asia/Sub-Saharan Africa	V	V
<i>Porzana porzana</i>	Europe/Africa	V	V
<i>Zapornia flavirostra</i>	Sub-Saharan Africa	V	I
<i>Zapornia parva</i>	Western Eurasia/Africa	V	V
<i>Zapornia pusilla</i>	intermedia, Europe (bre)	V	V
<i>Amaurornis marginalis</i>	Sub-Saharan Africa	V	V
<i>Porphyrio alleni</i>	Sub-Saharan Africa	S	I
<i>Gallinula chloropus</i>	chloropus, Europe & North Africa	D	D
<i>Gallinula chloropus</i>	chloropus, West & South-west Asia	D	I
<i>Paragallinula angulata</i>	Sub-Saharan Africa	S	I
<i>Fulica cristata</i>	Spain & Morocco	I	I
<i>Fulica cristata</i>	Sub-Saharan Africa	A	I
<i>Fulica atra</i>	atra, North-west Europe (win)	O	I
<i>Fulica atra</i>	atra, Black Sea & Mediterranean (win)	O	I
<i>Fulica atra</i>	atra, South-west Asia (win)	O	I
<i>Balearica regulorum</i>	regulorum, Southern Africa (N to Angola & S Zimbabwe)	S	S
<i>Balearica regulorum</i>	gibbericeps, Eastern Africa (Kenya to Mozambique)	S	S
<i>Balearica pavonina</i>	pavonina, West Africa (Senegal to Chad)	S	S
<i>Balearica pavonina</i>	ceciliae, Eastern Africa (Sudan to Uganda)	S	S
<i>Leucogeranus leucogeranus</i>	Iran (win)	I	I
<i>Bugeranus carunculatus</i>	Central & Southern Africa	A	A
<i>Anthropoides paradiseus</i>	Extreme Southern Africa	S	S
<i>Anthropoides virgo</i>	Black Sea (Ukraine)/North-east Africa	S	S
<i>Anthropoides virgo</i>	Kalmykia/North-east Africa	S	R
<i>Grus grus</i>	grus, North-west Europe/Iberia & Morocco	R	R
<i>Grus grus</i>	grus, North-east & Central Europe/North Africa	R	R
<i>Grus grus</i>	grus, Eastern Europe/Turkey, Middle East & NE Africa	R	R
<i>Grus grus</i>	archibaldi, Turkey & Georgia (bre)	S	S

<i>Grus grus</i>	grus, Western Siberia/South Asia	R	R
<i>Gavia stellata</i>	North-west Europe (win)	O	P
<i>Gavia stellata</i>	Caspian, Black Sea & East Mediterranean (win)	O	I
<i>Gavia arctica</i>	arctica, Northern Europe & Western Siberia/Europe	O	I
<i>Gavia arctica</i>	arctica, Central Siberia/Caspian	O	I
<i>Gavia immer</i>	Europe (win)	O	I
<i>Gavia adamsii</i>	Northern Europe (win)	O	I
<i>Spheniscus demersus</i>	Southern Africa	C	C
<i>Leptoptilos crumenifer</i>	Sub-Saharan Africa	C	I
<i>Mycteria ibis</i>	Sub-Saharan Africa (excluding Madagascar)	S	I
<i>Anastomus lamelligerus</i>	lamelligerus, Sub-Saharan Africa	S	I
<i>Ciconia nigra</i>	Southern Africa	S	S
<i>Ciconia nigra</i>	South-west Europe/West Africa	S	S
<i>Ciconia nigra</i>	Central & Eastern Europe/Sub-Saharan Africa	S	S
<i>Ciconia abdimii</i>	Sub-Saharan Africa & SW Arabia	S	S
<i>Ciconia microscelis</i>	Sub-Saharan Africa	S	S
<i>Ciconia ciconia</i>	ciconia, Southern Africa	S	S
<i>Ciconia ciconia</i>	ciconia, W Europe & North-west Africa/Sub-Saharan Africa	S	S
<i>Ciconia ciconia</i>	ciconia, Central & Eastern Europe/Sub-Saharan Africa	S	S
<i>Ciconia ciconia</i>	ciconia, Western Asia/South-west Asia	S	S
<i>Platalea alba</i>	Sub-Saharan Africa	C	I
<i>Platalea leucorodia</i>	leucorodia, West Europe/West Mediterranean & West Africa	C	C
<i>Platalea leucorodia</i>	balsaci, Coastal West Africa (Mauritania)	C	C
<i>Platalea leucorodia</i>	archeri, Red Sea & Somalia	C	C
<i>Platalea leucorodia</i>	leucorodia, Western Asia/South-west & South Asia	C	I
<i>Threskiornis aethiopicus</i>	Sub-Saharan Africa	C	I
<i>Threskiornis aethiopicus</i>	Iraq & Iran	C	C
<i>Geronticus eremita</i>	Morocco	C	C
<i>Geronticus eremita</i>	South-west Asia	C	C
<i>Plegadis falcinellus</i>	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 sturmi	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

<i>Sula dactylatra</i>	melanops, W Indian Ocean	C	C
<i>Microcarbo coronatus</i>	Coastal South-west Africa	C	I
<i>Microcarbo pygmaeus</i>	Black Sea & Mediterranean	C	I
<i>Microcarbo pygmaeus</i>	South-west Asia	C	I
<i>Gulosus aristotelis</i>	desmarestii, Adriatic	C	C
<i>Phalacrocorax carbo</i>	carbo, North-west Europe	C	C
<i>Phalacrocorax carbo</i>	sinensis, Northern & Central Europe	C	I
<i>Phalacrocorax carbo</i>	sinensis, Black Sea & Mediterranean	C	I
<i>Phalacrocorax carbo</i>	sinensis, West & South-west Asia	C	I
<i>Phalacrocorax carbo</i>	lucidus, Central & Eastern Africa	C	I
<i>Phalacrocorax carbo</i>	lucidus, Coastal West Africa	C	I
<i>Phalacrocorax carbo</i>	lucidus, Coastal Southern Africa	C	I
<i>Phalacrocorax capensis</i>	Coastal Southern Africa	C	C
<i>Phalacrocorax nigrogularis</i>	Arabian Coast	C	C
<i>Phalacrocorax nigrogularis</i>	Gulf of Aden, Socotra, Arabian Sea	C	C
<i>Phalacrocorax neglectus</i>	Coastal South-west Africa	C	C
<i>Burhinus senegalensis</i>	West Africa	V	V
<i>Burhinus senegalensis</i>	North-east & Eastern Africa	V	V
<i>Pluvianus aegyptius</i>	West Africa	S	I
<i>Pluvianus aegyptius</i>	Eastern Africa	S	I
<i>Pluvianus aegyptius</i>	Lower Congo Basin	S	I
<i>Haematopus moquini</i>	Coastal Southern Africa	S	I
<i>Haematopus ostralegus</i>	ostralegus, Europe/South & West Europe & NW Africa	S	I
<i>Haematopus ostralegus</i>	longipes, SE Eur & W Asia/SW Asia & NE Africa	S	I
<i>Recurvirostra avosetta</i>	Southern Africa	C	I
<i>Recurvirostra avosetta</i>	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	psammmodromus, 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 tricoloris	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 melanocephalus	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	alboaxillaris, 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

<i>Calidris falcinellus</i>	falcinellus, Northern Europe/SW Asia & Africa	S	I
<i>Calidris ferruginea</i>	Western Siberia/West Africa	I	I
<i>Calidris ferruginea</i>	Central Siberia/SW Asia, E & S Africa	I	I
<i>Calidris temminckii</i>	Fennoscandia/North & West Africa	D	D
<i>Calidris temminckii</i>	NE Europe & W Siberia/SW Asia & Eastern Africa	S	I
<i>Calidris alba</i>	alba, East Atlantic Europe, West & Southern Africa (win)	I	I
<i>Calidris alba</i>	alba, South-west Asia, Eastern & Southern Africa (win)	I	I
<i>Calidris alpina</i>	alpina, NE Europe & NW Siberia/W Europe & NW Africa	S	I
<i>Calidris alpina</i>	centralis, Central Siberia/SW Asia & NE Africa	S	I
<i>Calidris alpina</i>	schinzii, Iceland & Greenland/NW and West Africa	S	I
<i>Calidris alpina</i>	schinzii, Baltic/SW Europe & NW Africa	S	S
<i>Calidris alpina</i>	schinzii, Britain & Ireland/SW Europe & NW Africa	S	S
<i>Calidris alpina</i>	arctica, NE Greenland/West Africa	S	S
<i>Calidris maritima</i>	N Europe & W Siberia (breeding)	D	I
<i>Calidris maritima</i>	NE Canada & N Greenland (breeding)	D	I
<i>Calidris minuta</i>	N Europe/S Europe, North & West Africa	S	I
<i>Calidris minuta</i>	Western Siberia/SW Asia, E & S Africa	S	I
<i>Scolopax rusticola</i>	Europe/South & West Europe & North Africa	S	S
<i>Scolopax rusticola</i>	Western Siberia/South-west Asia (Caspian)	S	S
<i>Gallinago stenura</i>	Northern Siberia/South Asia & Eastern Africa	S	S
<i>Gallinago media</i>	Scandinavia/probably West Africa	S	S
<i>Gallinago media</i>	Western Siberia & NE Europe/South-east Africa	S	S
<i>Gallinago gallinago</i>	gallinago, Europe/South & West Europe & NW Africa	S	S
<i>Gallinago gallinago</i>	gallinago, Western Siberia/South-west Asia & Africa	S	S
<i>Gallinago gallinago</i>	faeroensis, Iceland, Faroes & Northern Scotland/Ireland	S	S
<i>Lymnocyptes minimus</i>	Northern Europe/S & W Europe & West Africa	S	S

<i>Lymnocyptes minimus</i>	Western Siberia/SW Asia & NE Africa	S	S
<i>Phalaropus lobatus</i>	Western Eurasia/Arabian Sea	S	S
<i>Phalaropus fulicarius</i>	Canada & Greenland/Atlantic coast of Africa	S	S
<i>Xenus cinereus</i>	NE Europe & W Siberia/SW Asia, E & S Africa	S	I
<i>Actitis hypoleucos</i>	West & Central Europe/West Africa	D	I
<i>Actitis hypoleucos</i>	E Europe & W Siberia/Central, E & S Africa	D	I
<i>Tringa ochropus</i>	Northern Europe/S & W Europe, West Africa	S	I
<i>Tringa ochropus</i>	Western Siberia/SW Asia, NE & Eastern Africa	S	I
<i>Tringa erythropus</i>	N Europe/Southern Europe, North & West Africa	S	I
<i>Tringa erythropus</i>	Western Siberia/SW Asia, NE & Eastern Africa	S	I
<i>Tringa nebularia</i>	Northern Europe/SW Europe, NW & West Africa	S	I
<i>Tringa nebularia</i>	Western Siberia/SW Asia, E & S Africa	S	I
<i>Tringa totanus</i>	<i>totanus</i> , Northern Europe (breeding)	S	D
<i>Tringa totanus</i>	<i>totanus</i> , Central & East Europe (breeding)	S	D
<i>Tringa totanus</i>	<i>ussuriensis</i> , Western Asia/SW Asia, NE & Eastern Africa	S	I
<i>Tringa totanus</i>	<i>robusta</i> , Iceland & Faroes/Western Europe	S	D
<i>Tringa totanus</i>	<i>totanus</i> , Britain & Ireland/Britain, Ireland, France	S	S
<i>Tringa glareola</i>	North-west Europe/West Africa	S	D
<i>Tringa glareola</i>	NE Europe & W Siberia/Eastern & Southern Africa	S	I
<i>Tringa stagnatilis</i>	Eastern Europe/West & Central Africa	S	I
<i>Tringa stagnatilis</i>	Western Asia/SW Asia, Eastern & Southern Africa	S	I
<i>Dromas ardeola</i>	North-west Indian Ocean, Red Sea & Gulf	C	I
<i>Glareola pratincola</i>	<i>pratincola</i> , Western Europe & NW Africa/West Africa	C	C
<i>Glareola pratincola</i>	<i>pratincola</i> , Black Sea & E Mediterranean/Eastern Sahel zone	C	C
<i>Glareola pratincola</i>	<i>pratincola</i> , SW Asia/SW Asia & NE Africa	C	C
<i>Glareola nordmanni</i>	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 Ocean Islands 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 ichthyæetus	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 glaucooides	glaucooides, Greenland/Iceland & North-west Europe	S	S
Larus hyperboreus	hyperboreus, Svalbard & N Russia (bre)	S	S
Larus hyperboreus	leucetetes, 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

<i>Thalasseus bengalensis</i>	<i>bengalensis</i> , Gulf/Southern Asia	C	I
<i>Thalasseus sandvicensis</i>	<i>sandvicensis</i> , Western Europe/West Africa	C	C
<i>Thalasseus sandvicensis</i>	<i>sandvicensis</i> , Black Sea & Mediterranean (bre)	C	C
<i>Thalasseus sandvicensis</i>	<i>sandvicensis</i> , West & Central Asia/South-west & South Asia	C	C
<i>Thalasseus maximus</i>	<i>albidorsalis</i> , West Africa (bre)	C	C
<i>Thalasseus bergii</i>	<i>bergii</i> , Southern Africa (Angola - Mozambique)	C	C
<i>Thalasseus bergii</i>	<i>bergii</i> , Madagascar & Mozambique/Southern Africa	C	C
<i>Thalasseus bergii</i>	<i>thalassinus</i> , Eastern Africa & Seychelles	C	I
<i>Thalasseus bergii</i>	<i>velox</i> , Red Sea & North-east Africa	C	I
<i>Stercorarius longicaudus</i>	<i>longicaudus</i> , N Europe & W Siberia/S Atlantic	S	P
<i>Catharacta skua</i>	N Europe/N Atlantic	S	P
<i>Cephus grylle</i>	<i>grylle</i> , Baltic Sea	C	C
<i>Cephus grylle</i>	<i>islandicus</i> , Iceland	C	C
<i>Cephus grylle</i>	<i>faeroeensis</i> , Faeroes	C	C
<i>Alca torda</i>	<i>islandica</i> , Iceland, Faeroes, Britain, Ireland, Helgoland, NW France	C	C
<i>Uria aalge</i>	<i>albionis</i> , Ireland, S Britain, France, Iberia, Helgoland	C	C
<i>Uria aalge</i>	<i>hyperborea</i> , Svalbard, N Norway to Novaya Zemlya	C	C

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

Species	Population	Method.S	Method.T
<i>Oxyura leucocephala</i>	West Mediterranean (Spain & Morocco)	S	I
<i>Cygnus olor</i>	North-west Mainland & Central Europe	I	I
<i>Cygnus olor</i>	Black Sea	A	I
<i>Cygnus cygnus</i>	Iceland/UK & Ireland	G	G
<i>Cygnus cygnus</i>	North-west Mainland Europe	G	G
<i>Cygnus cygnus</i>	N Europe & W Siberia/Black Sea & E Mediterranean	G	G
<i>Cygnus columbianus</i>	bewickii, Western Siberia & NE Europe/North-west Europe	G	G
<i>Branta bernicla</i>	bernicla, Western Siberia/Western Europe	G	G
<i>Branta bernicla</i>	hrota, Svalbard/Denmark & UK	G	G
<i>Branta bernicla</i>	hrota, Canada & Greenland/Ireland	G	G
<i>Branta leucopsis</i>	East Greenland/Scotland & Ireland	A	G
<i>Branta leucopsis</i>	Svalbard/South-west Scotland	G	G
<i>Branta leucopsis</i>	Russia/Germany & Netherlands	G	G
<i>Anser anser</i>	anser, Iceland/UK & Ireland	G	G
<i>Anser anser</i>	anser, NW Europe/South-west Europe	S	G
<i>Anser anser</i>	anser, Central Europe/North Africa	G	G
<i>Anser anser</i>	rubrirostris, Black Sea & Turkey	G	G
<i>Anser anser</i>	rubrirostris Western Siberia/Caspian & Iraq	G	G
<i>Anser fabalis</i>	fabalis, North-east Europe/North-west Europe	G	G
<i>Anser fabalis</i>	rossicus, West & Central Siberia/NE & SW Europe	G	G
<i>Anser brachyrhynchus</i>	East Greenland & Iceland/UK	G	G
<i>Anser brachyrhynchus</i>	Svalbard/North-west Europe	G	G
<i>Anser albifrons</i>	albifrons, NW Siberia & NE Europe/North-west Europe	G	G
<i>Anser albifrons</i>	albifrons, Western Siberia/Central Europe	G	G
<i>Anser albifrons</i>	albifrons, Western Siberia/Black Sea & Turkey	G	G
<i>Anser albifrons</i>	flavirostris, Greenland/Ireland & UK	G	G
<i>Anser erythropus</i>	Fennoscandia	M	G
<i>Clangula hyemalis</i>	Western Siberia/North Europe (bre)	O	P
<i>Somateria mollissima</i>	borealis, Svalbard & Franz Joseph (bre)	S	C
<i>Somateria mollissima</i>	mollissima, Baltic, North & Celtic Seas	O	P
<i>Polysticta stelleri</i>	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

<i>Anas acuta</i>	W Siberia, NE & E Europe/S Europe & West Africa	A	I
<i>Anas crecca</i>	crecca, North-west Europe	I	I
<i>Anas crecca</i>	crecca, W Siberia & NE Europe/Black Sea & Mediterranean	I	I
<i>Tachybaptus ruficollis</i>	ruficollis, Europe & North-west Africa	D	I
<i>Podiceps grisegena</i>	grisegena, North-west Europe (win)	O	I
<i>Podiceps grisegena</i>	grisegena, Black Sea & Mediterranean (win)	O	I
<i>Podiceps cristatus</i>	cristatus, North-west & Western Europe	O	I
<i>Podiceps auritus</i>	auritus, North-west Europe (large-billed)	O	S
<i>Podiceps auritus</i>	auritus, North-east Europe (small-billed)	O	S
<i>Podiceps nigricollis</i>	nigricollis, Europe/South & West Europe & North Africa	C	I
<i>Phoenicopus roseus</i>	East Mediterranean	C	I
<i>Phaethon aethereus</i>	aethereus, South Atlantic	C	C
<i>Phaethon lepturus</i>	lepturus, W Indian Ocean	C	C
<i>Rallus aquaticus</i>	aquaticus, Europe & North Africa	V	V
<i>Crex crex</i>	Europe & Western Asia/Sub-Saharan Africa	V	V
<i>Fulica cristata</i>	Spain & Morocco	I	I
<i>Fulica atra</i>	atra, North-west Europe (win)	O	I
<i>Leucogeranus leucogeranus</i>	Iran (win)	I	I
<i>Anthropoides paradiseus</i>	Extreme Southern Africa	S	S
<i>Anthropoides virgo</i>	Kalmykia/North-east Africa	S	S
<i>Grus grus</i>	grus, North-west Europe/Iberia & Morocco	R	R
<i>Grus grus</i>	grus, North-east & Central Europe/North Africa	R	R
<i>Grus grus</i>	grus, Eastern Europe/Turkey, Middle East & NE Africa	R	R
<i>Grus grus</i>	archibaldi, Turkey & Georgia (bre)	S	S
<i>Gavia stellata</i>	North-west Europe (win)	O	P
<i>Gavia stellata</i>	Caspian, Black Sea & East Mediterranean (win)	O	I
<i>Gavia arctica</i>	arctica, Northern Europe & Western Siberia/Europe	O	I
<i>Gavia immer</i>	Europe (win)	O	I
<i>Spheniscus demersus</i>	Southern Africa	C	C
<i>Ciconia nigra</i>	South-west Europe/West Africa	S	S
<i>Ciconia nigra</i>	Central & Eastern Europe/Sub-Saharan Africa	S	S
<i>Ciconia ciconia</i>	ciconia, W Europe & North-west Africa/Sub-Saharan Africa	S	S

<i>Ciconia ciconia</i>	<i>ciconia</i> , Central & Eastern Europe/Sub-Saharan Africa	S	S
<i>Platalea leucorodia</i>	<i>leucorodia</i> , West Europe/West Mediterranean & West Africa	C	C
<i>Platalea leucorodia</i>	<i>balsaci</i> , Coastal West Africa (Mauritania)	C	C
<i>Platalea leucorodia</i>	<i>leucorodia</i> , C Europe/ CentralMediterranean & Tropical Africa	C	C
<i>Platalea leucorodia</i>	<i>leucorodia</i> , SE Europe/Mediterranean, SW Asia & East Africa	C	C
<i>Geronticus eremita</i>	Morocco	C	C
<i>Geronticus eremita</i>	South-west Asia	C	C
<i>Plegadis falcinellus</i>	Black Sea & Mediterranean/West Africa	C	C
<i>Botaurus stellaris</i>	<i>stellaris</i> , W Europe, NW Africa (bre)	V	L
<i>Botaurus stellaris</i>	<i>stellaris</i> , C & E Europe, Black Sea & E Mediterranean (bre)	V	L
<i>Ixobrychus minutus</i>	<i>minutus</i> , W Europe, NW Africa/Subsaharan Africa	V	L
<i>Ixobrychus minutus</i>	<i>minutus</i> , C & E Europe, Black Sea & E Mediterranean/Sub-saharan Africa	V	L
<i>Nycticorax nycticorax</i>	<i>nycticorax</i> , W Europe, NW Africa (bre)	C	C
<i>Nycticorax nycticorax</i>	<i>nycticorax</i> , C & E Europe/Black Sea & E Mediterranean (bre)	C	C
<i>Ardeola ralloides</i>	<i>ralloides</i> , C & E Europe, Black Sea & E Mediterranean (bre)	C	C
<i>Bubulcus ibis</i>	<i>ibis</i> , South-west Europe	C	I
<i>Ardea cinerea</i>	<i>cinerea</i> , Northern & Western Europe	C	I
<i>Ardea purpurea</i>	<i>purpurea</i> , West Europe & West Mediterranean/West Africa	C	C
<i>Ardea purpurea</i>	<i>purpurea</i> , East Europe, Black Sea & Mediterranean/Sub-Saharan Africa	C	C
<i>Ardea alba</i>	<i>alba</i> , W, C & SE Europe/Black Sea & Mediterranean	C	I
<i>Egretta garzetta</i>	<i>garzetta</i> , Western Europe, NW Africa	C	C
<i>Egretta garzetta</i>	<i>garzetta</i> , Central & E Europe, Black Sea, E Mediterranean	C	C
<i>Fregata ariel</i>	<i>iredalei</i> , W Indian Ocean	C	C
<i>Morus bassanus</i>	North Atlantic	C	C
<i>Morus capensis</i>	Southern Africa	C	C
<i>Microcarbo coronatus</i>	Coastal South-west Africa	C	I
<i>Microcarbo pygmaeus</i>	Black Sea & Mediterranean	C	I
<i>Phalacrocorax carbo</i>	<i>carbo</i> , North-west Europe	C	C
<i>Phalacrocorax carbo</i>	<i>sinensis</i> , Northern & Central Europe	C	I

<i>Phalacrocorax capensis</i>	Coastal Southern Africa	C	C
<i>Haematopus moquini</i>	Coastal Southern Africa	S	I
<i>Haematopus ostralegus</i>	ostralegus, Europe/South & West Europe & NW Africa	S	I
<i>Himantopus himantopus</i>	himantopus, Central Europe & E Mediterranean/N-Central Africa	S	S
<i>Pluvialis squatarola</i>	squatarola, W Siberia/W Europe & W Africa	I	I
<i>Pluvialis apricaria</i>	apricaria, Britain, Ireland, Denmark, Germany & Baltic (bre)	S	S
<i>Eudromias morinellus</i>	Europe/North-west Africa	S	S
<i>Charadrius hiaticula</i>	hiaticula, Northern Europe/Europe & North Africa	S	I
<i>Charadrius alexandrinus</i>	alexandrinus, West Europe & West Mediterranean/West Africa	S	I
<i>Vanellus vanellus</i>	Europe, W Asia/Europe, N Africa & SW Asia	D	D
<i>Numenius phaeopus</i>	phaeopus, Northern Europe/West Africa	S	D
<i>Numenius arquata</i>	arquata, Europe/Europe, North & West Africa	S	D
<i>Limosa lapponica</i>	lapponica, Northern Europe/Western Europe	I	I
<i>Limosa limosa</i>	limosa, Western Europe/NW & West Africa	S	D
<i>Limosa limosa</i>	limosa, Eastern Europe/Central & Eastern Africa	S	D
<i>Limosa limosa</i>	islandica, Iceland/Western Europe	S	D
<i>Arenaria interpres</i>	interpres, NE Canada & Greenland/W Europe & NW Africa	I	I
<i>Arenaria interpres</i>	interpres, Northern Europe/West Africa	I	I
<i>Calidris canutus</i>	islandica, NE Canada & Greenland/Western Europe	I	I
<i>Calidris pugnax</i>	Northern Europe & Western Siberia/West Africa	S	I
<i>Calidris ferruginea</i>	Western Siberia/West Africa	I	I
<i>Calidris temminckii</i>	Fennoscandia/North & West Africa	D	D
<i>Calidris alba</i>	alba, East Atlantic Europe, West & Southern Africa (win)	I	I
<i>Calidris alpina</i>	alpina, NE Europe & NW Siberia/W Europe & NW Africa	S	I
<i>Calidris alpina</i>	schinzii, Iceland & Greenland/NW and West Africa	S	I
<i>Calidris alpina</i>	schinzii, Baltic/SW Europe & NW Africa	S	S
<i>Calidris alpina</i>	schinzii, Britain & Ireland/SW Europe & NW Africa	S	S
<i>Calidris minuta</i>	N Europe/S Europe, North & West Africa	D	I
<i>Gallinago media</i>	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

<i>Sterna hirundo</i>	hirundo, Southern & Western Europe (bre)	C	C
<i>Sterna paradisaea</i>	Western Eurasia (bre)	C	C
<i>Thalasseus sandvicensis</i>	sandvicensis, Western Europe/West Africa	C	C
<i>Thalasseus sandvicensis</i>	sandvicensis, Black Sea & Mediterranean (bre)	C	C
<i>Thalasseus maximus</i>	albidorsalis, West Africa (bre)	C	C
<i>Fratercula arctica</i>	East Atlantic (bre)	C	C
<i>Cepphus grylle</i>	grylle, Baltic Sea	C	C
<i>Alca torda</i>	islandica, Iceland, Faeroes, Britain, Ireland, Helgoland, NW France	C	C
<i>Alca torda</i>	torda, East Atlantic	C	C
<i>Uria lomvia</i>	lomvia, W Atlantic (bre)	C	C
<i>Uria lomvia</i>	lomvia, E Atlantic (bre)	C	C
<i>Uria aalge</i>	albionis, Ireland, S Britain, France, Iberia, Helgoland	C	C
<i>Uria aalge</i>	hyperborea, Svalbard, N Norway to Novaya Zemlya	C	C
<i>Uria aalge</i>	aalge, E Atlantic (bre)	C	C
<i>Uria aalge</i>	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
<i>Oxyura maccoa</i>	Eastern Africa	S	I
<i>Oxyura maccoa</i>	Southern Africa	S	I
<i>Oxyura leucocephala</i>	Algeria & Tunisia	S	I
<i>Oxyura leucocephala</i>	East Mediterranean, Turkey & South-west Asia	S	I
<i>Branta ruficollis</i>	Northern Siberia/Black Sea & Caspian	P	P
<i>Anser fabalis</i>	johanseni, West & Central Siberia/Turkmenistan to W China	G	G
<i>Anser erythropus</i>	NE Europe & W Siberia/Black Sea & Caspian	P	G
<i>Clangula hyemalis</i>	Iceland & Greenland (bre)	M	I
<i>Somateria mollissima</i>	mollissima, Norway & Russia	O	I
<i>Melanitta fusca</i>	Black Sea & Caspian	S	S
<i>Marmaronetta angustirostris</i>	West Mediterranean/West Medit. & West Africa	S	I
<i>Marmaronetta angustirostris</i>	East Mediterranean	S	I
<i>Marmaronetta angustirostris</i>	South-west Asia	S	I
<i>Aythya nyroca</i>	West Mediterranean/North & West Africa	S	S
<i>Aythya nyroca</i>	Western Asia/SW Asia & NE Africa	S	S
<i>Phoeniconaias minor</i>	West Africa	C	I
<i>Phoeniconaias minor</i>	Eastern Africa	C	I
<i>Phoeniconaias minor</i>	Southern Africa (to Madagascar)	C	I
<i>Sarothrura ayresi</i>	Ethiopia	S	S
<i>Sarothrura ayresi</i>	Southern Africa	S	S
<i>Balearica regulorum</i>	regulorum, Southern Africa (N to Angola & S Zimbabwe)	S	S
<i>Balearica regulorum</i>	gibbericeps, Eastern Africa (Kenya to Mozambique)	S	S
<i>Gavia adamsii</i>	Northern Europe (win)	O	I
<i>Platalea leucorodia</i>	archeri, Red Sea & Somalia	C	C
<i>Platalea leucorodia</i>	leucorodia, Western Asia/South-west & South Asia	C	I
<i>Ardeola idae</i>	Madagascar & Aldabra/Central & Eastern Africa	C	C
<i>Egretta vinaceigula</i>	Central Southern Africa	C	I
<i>Balaeniceps rex</i>	Central Tropical Africa	S	S
<i>Pelecanus crispus</i>	Black Sea & Mediterranean (win)	C	I
<i>Pelecanus crispus</i>	South-west Asia & South Asia (win)	C	I
<i>Numenius arquata</i>	orientalis, Western Siberia/SW Asia, E & S Africa	S	I
<i>Numenius arquata</i>	suschkini, South-east Europe & South-west Asia (bre)	S	S

<i>Limosa limosa</i>	limosa, West-central Asia/SW Asia & Eastern Africa	S	D
<i>Glareola nordmanni</i>	SE Europe & Western Asia/Southern Africa	C	C

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Appendix 4. Priority 2 populations

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

Species	Population	Size	Trend
<i>Aythya ferina</i>	Western Siberia/South-west Asia	I	I
<i>Podiceps auritus</i>	auritus, Caspian & South Asia (win)	O	I
<i>Balearica pavonina</i>	pavonina, West Africa (Senegal to Chad)	S	S
<i>Balearica pavonina</i>	ceciliae, Eastern Africa (Sudan to Uganda)	S	S
<i>Bugeranus carunculatus</i>	Central & Southern Africa	A	A
<i>Phalacrocorax nigrogularis</i>	Arabian Coast	C	C
<i>Phalacrocorax nigrogularis</i>	Gulf of Aden, Socotra, Arabian Sea	C	C
<i>Phalacrocorax neglectus</i>	Coastal South-west Africa	C	C
<i>Haematopus ostralegus</i>	longipes, SE Eur & W Asia/SW Asia & NE Africa	S	I
<i>Charadrius pallidus</i>	pallidus, Southern Africa	S	J
<i>Charadrius pallidus</i>	venustus, Eastern Africa	S	I
<i>Vanellus gregarius</i>	Central Asia/S, SW Asia, NE Africa	S	S
<i>Numenius tenuirostris</i>	Central Siberia/Mediterranean & SW Asia	S	S
<i>Limosa lapponica</i>	taymyrensis, Western Siberia/West & South-west Africa	I	I
<i>Limosa lapponica</i>	taymyrensis, Central Siberia/South & SW Asia & Eastern Africa	I	I
<i>Calidris tenuirostris</i>	Eastern Siberia/SW Asia & W Southern Asia	I	I
<i>Calidris canutus</i>	canutus, Northern Siberia/West & Southern Africa	I	I
<i>Calidris ferruginea</i>	Central Siberia/SW Asia, E & S Africa	I	I
<i>Gallinago media</i>	Scandinavia/probably West Africa	S	S
<i>Glareola ocularis</i>	Madagascar/East Africa	C	C
<i>Rynchops flavirostris</i>	Coastal West Africa & Central Africa	C	C
<i>Rynchops flavirostris</i>	Eastern & Southern Africa	C	C
<i>Sternula balaenarum</i>	Namibia & South Africa/Atlantic coast to Ghana	S	S
<i>Alca torda</i>	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
<i>Bucephala clangula</i>	clangula, Western Siberia/Caspian	O	I
<i>Mergus merganser</i>	merganser, Western Siberia/Caspian	O	I
<i>Tadorna ferruginea</i>	North-west Africa	S	I
<i>Tadorna cana</i>	Southern Africa	A	I
<i>Spatula hottentota</i>	Lake Chad Basin	S	I
<i>Anas capensis</i>	Lake Chad basin	S	S
<i>Anas erythrorhyncha</i>	Madagascar	A	I
<i>Podiceps cristatus</i>	infuscatus, Southern Africa	S	I
<i>Phoenicopterus roseus</i>	West Africa	C	I
<i>Phoenicopterus roseus</i>	West Mediterranean	C	I
<i>Phaethon rubricauda</i>	rubricauda, Indian Ocean	C	C
<i>Anthropoides virgo</i>	Black Sea (Ukraine)/North-east Africa	S	S
<i>Grus grus</i>	grus, Western Siberia/South Asia	R	R
<i>Gavia arctica</i>	arctica, Central Siberia/Caspian	O	I
<i>Ciconia ciconia</i>	ciconia, Southern Africa	S	S
<i>Ciconia ciconia</i>	ciconia, Western Asia/South-west Asia	S	S
<i>Threskiornis aethiopicus</i>	Iraq & Iran	C	C
<i>Plegadis falcinellus</i>	South-west Asia/Eastern Africa	C	C
<i>Ardeola ralloides</i>	ralloides, SW Europe, NW Africa (bre)	C	C
<i>Bubulcus ibis</i>	ibis, North-west Africa	C	C
<i>Egretta gularis</i>	dimorpha, Coastal Eastern Africa	C	I
<i>Fregata minor</i>	aldabrensis, W Indian Ocean	C	C
<i>Gulosus aristotelis</i>	desmarestii, Adriatic	C	C
<i>Phalacrocorax carbo</i>	lucidus, Coastal West Africa	C	I
<i>Pluvianus aegyptius</i>	Lower Congo Basin	S	I
<i>Pluvialis apricaria</i>	altifrons, Iceland & Faroes/East Atlantic coast	S	S
<i>Pluvialis apricaria</i>	altifrons, Northern Europe/Western Europe & NW Africa	S	S
<i>Pluvialis apricaria</i>	altifrons, Northern Siberia/Caspian & Asia Minor	S	S
<i>Eudromias morinellus</i>	Asia/Middle East	S	S
<i>Vanellus melanopterus</i>	minor, Southern Africa	S	L
<i>Vanellus coronatus</i>	coronatus, Central Africa	S	L
<i>Numenius phaeopus</i>	islandicus, Iceland, Faroes & Scotland/West Africa	S	D
<i>Numenius phaeopus</i>	alboaxillaris, N of Caspian/Eastern Africa	S	S
<i>Numenius phaeopus</i>	rogachevae, C Siberia (bre)	S	S
<i>Calidris alpina</i>	arctica, NE Greenland/West Africa	S	S
<i>Calidris maritima</i>	NE Canada & N Greenland (breeding)	D	D

<i>Gallinago stenura</i>	Northern Siberia/South Asia & Eastern Africa	S	S
<i>Gallinago gallinago</i>	<i>gallinago</i> , Western Siberia/South-west Asia & Africa	S	S
<i>Gallinago gallinago</i>	<i>faeroeensis</i> , Iceland, Faroes & Northern Scotland/Ireland	S	S
<i>Lymnocyptes minimus</i>	Western Siberia/SW Asia & NE Africa	S	S
<i>Phalaropus fulicarius</i>	Canada & Greenland/Atlantic coast of Africa	S	S
<i>Tringa totanus</i>	<i>totanus</i> , Northern Europe (breeding)	S	D
<i>Tringa totanus</i>	<i>robusta</i> , Iceland & Faroes/Western Europe	S	D
<i>Anous tenuirostris</i>	<i>tenuirostris</i> , Indian Ocean Islands to E Africa	C	C
<i>Hydrocoloeus minutus</i>	W Asia/E Mediterranean, Black Sea & Caspian	C	C
<i>Xema sabini</i>	<i>sabini</i> , Canada & Greenland/SE Atlantic	C	C
<i>Larus hartlaubii</i>	Coastal South-west Africa	C	I
<i>Larus canus</i>	<i>heinei</i> , NE Europe & Western Siberia/Black Sea & Caspian	C	C
<i>Larus dominicanus</i>	<i>vetula</i> , Coastal Southern Africa	C	I
<i>Larus dominicanus</i>	<i>vetula</i> , Coastal West Africa	C	I
<i>Larus fuscus</i>	<i>heuglini</i> , NE Europe & W Siberia/SW Asia & NE Africa	C	C
<i>Larus fuscus</i>	<i>barabensis</i> , South-west Siberia/South-west Asia	C	C
<i>Larus argentatus</i>	<i>argenteus</i> , Iceland & Western Europe	C	C
<i>Larus glaucoides</i>	<i>glaucoides</i> , Greenland/Iceland & North-west Europe	S	S
<i>Larus hyperboreus</i>	<i>hyperboreus</i> , Svalbard & N Russia (bre)	S	S
<i>Larus hyperboreus</i>	<i>leucetetes</i> , Canada, Greenland & Iceland (bre)	S	S
<i>Onychoprion fuscatus</i>	<i>nubilosus</i> , Red Sea, Gulf of Aden, E to Pacific	C	C
<i>Onychoprion anaethetus</i>	<i>melanopterus</i> , W Africa	C	C
<i>Hydroprogne caspia</i>	Southern Africa (bre)	C	I
<i>Hydroprogne caspia</i>	Black Sea (bre)	C	C
<i>Chlidonias hybrida</i>	<i>delalandii</i> , Eastern Africa (Kenya & Tanzania)	S	I
<i>Sterna dougallii</i>	<i>dougallii</i> , East Africa	C	C
<i>Sterna dougallii</i>	<i>gracilis</i> , North Arabian Sea (Oman)	C	C
<i>Sterna dougallii</i>	<i>dougallii</i> , Southern Africa and Madagascar	C	C
<i>Sterna dougallii</i>	<i>gracilis</i> , Seychelles & Mascarenes	C	C
<i>Sterna vittata</i>	<i>vittata</i> , P.Edward, Marion, Crozet & Kerguelen/South Africa	S	S
<i>Sterna vittata</i>	<i>sanctipauli</i>	S	S
<i>Sterna vittata</i>	<i>tristanensis</i> , Tristan da Cunha & Gough/South Africa	S	S
<i>Thalasseus bengalensis</i>	<i>emigratus</i> , S Mediterranean/NW & West Africa coasts	C	C
<i>Thalasseus sandvicensis</i>	<i>sandvicensis</i> , West & Central Asia/South-west & South Asia	C	C
<i>Thalasseus bergii</i>	<i>bergii</i> , Southern Africa (Angola - Mozambique)	C	C
<i>Thalasseus bergii</i>	<i>bergii</i> , 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
<i>Cygnus olor</i>	West & Central Asia/Caspian	A	I
<i>Mergus serrator</i>	North-east Europe/Black Sea & Mediterranean	O	I
<i>Mergus serrator</i>	Western Siberia/South-west & Central Asia	O	I
<i>Netta rufina</i>	Western & Central Asia/South-west Asia	O	I
<i>Aythya marila</i>	marila, Western Siberia/Black Sea & Caspian	O	I
<i>Spatula hottentota</i>	Southern Africa (north to S Zambia)	A	I
<i>Anas undulata</i>	undulata, Southern Africa	I	I
<i>Anas capensis</i>	Eastern Africa (Rift Valley)	A	I
<i>Anas capensis</i>	Southern Africa (N to Angola & Zambia)	A	I
<i>Anas erythrorhyncha</i>	Southern Africa	A	I
<i>Podiceps grisegena</i>	grisegena, Caspian (win)	O	I
<i>Podiceps cristatus</i>	cristatus, Black Sea & Mediterranean (win)	O	I
<i>Gallinula chloropus</i>	chloropus, Europe & North Africa	D	D
<i>Fulica atra</i>	atra, Black Sea & Mediterranean (win)	O	I
<i>Calidris temminckii</i>	NE Europe & W Siberia/SW Asia & Eastern Africa	D	I
<i>Calidris maritima</i>	N Europe & W Siberia (breeding)	D	I
<i>Actitis hypoleucos</i>	West & Central Europe/West Africa	D	I
<i>Actitis hypoleucos</i>	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
<i>Dendrocygna viduata</i>	West Africa (Senegal to Chad)	A	I
<i>Dendrocygna viduata</i>	Eastern & Southern Africa	A	I
<i>Dendrocygna bicolor</i>	West Africa (Senegal to Chad)	A	I
<i>Dendrocygna bicolor</i>	Eastern & Southern Africa	A	I
<i>Bucephala clangula</i>	clangula, Western Siberia & North-east Europe/Black Sea	O	I
<i>Alopochen aegyptiaca</i>	West Africa	A	I
<i>Alopochen aegyptiaca</i>	Eastern & Southern Africa	A	I
<i>Tadorna tadorna</i>	Western Asia/Caspian & Middle East	I	I
<i>Plectropterus gambensis</i>	gambensis, West Africa	A	I
<i>Plectropterus gambensis</i>	gambensis, Eastern Africa (Sudan to Zambia)	A	I
<i>Plectropterus gambensis</i>	niger, Southern Africa	A	I
<i>Sarkidiornis melanotos</i>	West Africa	A	I
<i>Sarkidiornis melanotos</i>	Southern & Eastern Africa	A	I
<i>Nettapus auritus</i>	West Africa	A	I
<i>Nettapus auritus</i>	Southern & Eastern Africa	A	I
<i>Netta erythrophthalma</i>	brunnea, Southern & Eastern Africa	A	I
<i>Aythya fuligula</i>	Western Siberia/SW Asia & NE Africa	O	I
<i>Spatula querquedula</i>	Western Siberia/SW Asia, NE & Eastern Africa	A	I
<i>Spatula hottentota</i>	Eastern Africa (south to N Zambia)	A	I
<i>Spatula clypeata</i>	W Siberia/SW Asia, NE & Eastern Africa	A	I
<i>Mareca strepera</i>	strepera, Western Siberia/SW Asia & NE Africa	I	I
<i>Mareca penelope</i>	Western Siberia/SW Asia & NE Africa	I	I
<i>Anas platyrhynchos</i>	platyrhynchos, Western Siberia/South-west Asia	I	I
<i>Anas erythrorhynchos</i>	Eastern Africa	A	I
<i>Anas acuta</i>	Western Siberia/SW Asia & Eastern Africa	A	I
<i>Anas crecca</i>	crecca, Western Siberia/SW Asia & NE Africa	I	I
<i>Podiceps cristatus</i>	cristatus, Caspian & South-west Asia (win)	O	I
<i>Gallinula chloropus</i>	chloropus, West & South-west Asia	D	I
<i>Fulica cristata</i>	Sub-Saharan Africa	A	I
<i>Fulica atra</i>	atra, South-west Asia (win)	O	I
<i>Pluvialis squatarola</i>	squatarola, C & E Siberia/SW Asia, Eastern & Southern Africa	I	I
<i>Pluvialis fulva</i>	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

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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

<i>Ciconia nigra</i>	Southern Africa	S	S
<i>Ciconia abdimii</i>	Sub-Saharan Africa & SW Arabia	S	S
<i>Ciconia microscelis</i>	Sub-Saharan Africa	S	I
<i>Platalea alba</i>	Sub-Saharan Africa	C	I
<i>Threskiornis aethiopicus</i>	Sub-Saharan Africa	C	I
<i>Plegadis falcinellus</i>	Sub-Saharan Africa (bre)	C	C
<i>Botaurus stellaris</i>	stellaris, South-west Asia (win)	V	L
<i>Botaurus stellaris</i>	capensis, Southern Africa	V	L
<i>Ixobrychus minutus</i>	minutus, West & South-west Asia/Sub-Saharan Africa	V	L
<i>Ixobrychus minutus</i>	payesii, Sub-Saharan Africa	V	L
<i>Ixobrychus sturmi</i>	Sub-Saharan Africa	V	L
<i>Nycticorax nycticorax</i>	nycticorax, Western Asia/SW Asia & NE Africa	C	C
<i>Nycticorax nycticorax</i>	nycticorax, Sub-Saharan Africa & Madagascar	C	J
<i>Ardeola ralloides</i>	ralloides, West & South-west Asia/Sub-Saharan Africa	C	C
<i>Ardeola ralloides</i>	paludivaga, Sub-Saharan Africa & Madagascar	C	C
<i>Ardeola rufiventris</i>	Central, Eastern & Southern Africa	C	C
<i>Bubulcus ibis</i>	ibis, Southern Africa	C	I
<i>Bubulcus ibis</i>	ibis, Tropical Africa	C	C
<i>Bubulcus ibis</i>	ibis, East Mediterranean & South-west Asia	C	C
<i>Ardea cinerea</i>	cinerea, Sub-Saharan Africa	C	J
<i>Ardea cinerea</i>	cinerea, Central & Eastern Europe	C	I
<i>Ardea cinerea</i>	cinerea, West & South-west Asia (bre)	C	I
<i>Ardea melanocephala</i>	Sub-Saharan Africa	C	I
<i>Ardea purpurea</i>	purpurea, Tropical Africa	C	J
<i>Ardea purpurea</i>	purpurea, SW Asia (bre)	C	C
<i>Ardea alba</i>	alba, Western Asia/South-west Asia	C	I
<i>Ardea alba</i>	melanorhynchos, Sub-Saharan Africa & Madagascar	C	I
<i>Ardea brachyrhyncha</i>	Sub-Saharan Africa	C	I
<i>Egretta ardesiaca</i>	Sub-Saharan Africa	C	I
<i>Egretta garzetta</i>	garzetta, Sub-Saharan Africa	C	J
<i>Egretta garzetta</i>	garzetta, Western Asia/SW Asia, NE & Eastern Africa	C	C
<i>Egretta gularis</i>	gularis, West Africa	C	I
<i>Egretta gularis</i>	schistacea, North-east Africa & Red Sea	C	I
<i>Egretta gularis</i>	schistacea, South-west Asia & South Asia	C	I
<i>Pelecanus rufescens</i>	Tropical Africa & SW Arabia	C	I
<i>Pelecanus onocrotalus</i>	West Africa	C	I
<i>Pelecanus onocrotalus</i>	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	psammmodromus, 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
Lymnocyptes 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

<i>Dromas ardeola</i>	North-west Indian Ocean, Red Sea & Gulf	C	I
<i>Glareola pratincola</i>	pratincola, Western Europe & NW Africa/West Africa	C	C
<i>Glareola pratincola</i>	pratincola, Black Sea & E Mediterranean/Eastern Sahel zone	C	C
<i>Glareola pratincola</i>	pratincola, SW Asia/SW Asia & NE Africa	C	C
<i>Glareola nuchalis</i>	nuchalis, Eastern & Central Africa	C	C
<i>Glareola nuchalis</i>	liberiae, West Africa	C	C
<i>Glareola cinerea</i>	SE West Africa & Central Africa	S	S
<i>Anous stolidus</i>	plumbeigularis, Red Sea & Gulf of Aden	C	C
<i>Larus genei</i>	West, South-west & South Asia (bre)	C	I
<i>Larus ridibundus</i>	West Asia/SW Asia & NE Africa	C	I
<i>Larus cirrocephalus</i>	poiocephalus, West Africa	C	I
<i>Larus cirrocephalus</i>	poiocephalus, Central, Eastern and Southern Africa	C	I
<i>Larus ichthyaetus</i>	Black Sea & Caspian/South-west Asia	C	I
<i>Larus hemprichii</i>	Red Sea, Gulf, Arabia & Eastern Africa	C	I
<i>Larus leucophthalmus</i>	Red Sea & nearby coasts	C	I
<i>Larus fuscus</i>	graellsii, Western Europe/Mediterranean & West Africa	C	C
<i>Onychoprion anaethetus</i>	antarcticus, W Indian Ocean	C	C
<i>Onychoprion anaethetus</i>	antarcticus, Red Sea, E Africa, Persian Gulf, Arabian Sea to W India	C	C
<i>Sternula albifrons</i>	albifrons, Black Sea & East Mediterranean (bre)	S	S
<i>Sternula albifrons</i>	albifrons, Caspian (bre)	S	S
<i>Sternula albifrons</i>	guineae, West Africa (bre)	S	S
<i>Sternula saundersi</i>	W South Asia, Red Sea, Gulf & Eastern Africa	S	S
<i>Gelochelidon nilotica</i>	nilotica, Western Europe/West Africa	C	C
<i>Gelochelidon nilotica</i>	nilotica, West & Central Asia/South-west Asia	C	C
<i>Hydroprogne caspia</i>	West Africa (bre)	C	I
<i>Hydroprogne caspia</i>	Caspian (bre)	C	C
<i>Chlidonias hybrida</i>	hybrida, Western Europe & North-west Africa (bre)	S	I
<i>Chlidonias hybrida</i>	hybrida, Black Sea & East Mediterranean (bre)	S	I
<i>Chlidonias hybrida</i>	hybrida, Caspian (bre)	S	I
<i>Chlidonias hybrida</i>	delalandii, Southern Africa (Malawi & Zambia to South Africa)	S	I
<i>Chlidonias leucopterus</i>	Eastern Europe & Western Asia/Africa	S	I
<i>Sterna hirundo</i>	hirundo, Western Asia (bre)	C	C
<i>Sterna repressa</i>	W South Asia, Red Sea, Gulf & Eastern Africa	C	C
<i>Thalasseus bengalensis</i>	bengalensis, Red Sea/Eastern Africa	C	I
<i>Thalasseus bengalensis</i>	bengalensis, Gulf/Southern Asia	C	I

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

Species	Population
<i>Botaurus stellaris</i>	stellaris, South-west Asia (win)
<i>Pluvialis apricaria</i>	altifrons, Northern Siberia/Caspian & Asia Minor
<i>Eudromias morinellus</i>	Asia/Middle East
<i>Numenius phaeopus</i>	phaeopus, West Siberia/Southern & Eastern Africa
<i>Numenius phaeopus</i>	rogachevae, C Siberia (bre)
<i>Numenius tenuirostris</i>	Central Siberia/Mediterranean & SW Asia
<i>Calidris pugnax</i>	Northern Siberia/SW Asia, E & S Africa
<i>Calidris alpina</i>	centralis, Central Siberia/SW Asia & NE Africa
<i>Scolopax rusticola</i>	Western Siberia/South-west Asia (Caspian)
<i>Gallinago stenura</i>	Northern Siberia/South Asia & Eastern Africa
<i>Gallinago media</i>	Western Siberia & NE Europe/South-east Africa
<i>Gallinago gallinago</i>	gallinago, Western Siberia/South-west Asia & Africa
<i>Lymnocyptes minimus</i>	Western Siberia/SW Asia & NE Africa
<i>Phalaropus lobatus</i>	Western Eurasia/Arabian Sea
<i>Xenus cinereus</i>	NE Europe & W Siberia/SW Asia, E & S Africa
<i>Tringa ochropus</i>	Western Siberia/SW Asia, NE & Eastern Africa
<i>Tringa erythropus</i>	Western Siberia/SW Asia, NE & Eastern Africa
<i>Tringa nebularia</i>	Western Siberia/SW Asia, E & S Africa
<i>Tringa glareola</i>	NE Europe & W Siberia/Eastern & Southern Africa
<i>Hydrocoloeus minutus</i>	W Asia/E Mediterranean, Black Sea & Caspian
<i>Larus ridibundus</i>	West Asia/SW Asia & NE Africa
<i>Sterna hirundo</i>	hirundo, Western Asia (bre)
<i>Sterna paradisaea</i>	Western Eurasia (bre)
<i>Stercorarius longicaudus</i>	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
<i>Aythya ferina</i>	Western Siberia/South-west Asia	I	I	2
<i>Limosa lapponica</i>	taymyrensis, Western Siberia/West & South-west Africa	I	I	2
<i>Limosa lapponica</i>	taymyrensis, Central Siberia/South & SW Asia & Eastern Africa	I	I	2
<i>Calidris tenuirostris</i>	Eastern Siberia/SW Asia & W Southern Asia	I	I	2
<i>Calidris canutus</i>	canutus, Northern Siberia/West & Southern Africa	I	I	2
<i>Calidris ferruginea</i>	Central Siberia/SW Asia, E & S Africa	I	I	2
<i>Anas undulata</i>	undulata, Southern Africa	I	I	4
<i>Tadorna tadorna</i>	Western Asia/Caspian & Middle East	I	I	5
<i>Mareca strepera</i>	strepera, Western Siberia/SW Asia & NE Africa	I	I	5
<i>Mareca penelope</i>	Western Siberia/SW Asia & NE Africa	I	I	5
<i>Anas platyrhynchos</i>	platyrhynchos, Western Siberia/South-west Asia	I	I	5
<i>Anas crecca</i>	crecca, Western Siberia/SW Asia & NE Africa	I	I	5
<i>Pluvialis squatarola</i>	squatarola, C & E Siberia/SW Asia, Eastern & Southern Africa	I	I	5
<i>Pluvialis fulva</i>	North-central Siberia/South & SW Asia, NE Africa	I	I	5
<i>Arenaria interpres</i>	interpres, West & Central Siberia/SW Asia, E & S Africa	I	I	5
<i>Calidris alba</i>	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
<i>Tadorna cana</i>	Southern Africa	A	I	3
<i>Anas erythrorhyncha</i>	Madagascar	A	I	3
<i>Cygnus olor</i>	West & Central Asia/Caspian	A	I	4
<i>Spatula hottentota</i>	Southern Africa (north to S Zambia)	A	I	4
<i>Anas capensis</i>	Eastern Africa (Rift Valley)	A	I	4
<i>Anas capensis</i>	Southern Africa (N to Angola & Zambia)	A	I	4
<i>Anas erythrorhyncha</i>	Southern Africa	A	I	4
<i>Dendrocygna viduata</i>	West Africa (Senegal to Chad)	A	I	5
<i>Dendrocygna viduata</i>	Eastern & Southern Africa	A	I	5
<i>Dendrocygna bicolor</i>	West Africa (Senegal to Chad)	A	I	5
<i>Dendrocygna bicolor</i>	Eastern & Southern Africa	A	I	5
<i>Alopochen aegyptiaca</i>	West Africa	A	I	5
<i>Alopochen aegyptiaca</i>	Eastern & Southern Africa	A	I	5
<i>Plectropterus gambensis</i>	<i>gambensis</i> , West Africa	A	I	5
<i>Plectropterus gambensis</i>	<i>gambensis</i> , Eastern Africa (Sudan to Zambia)	A	I	5
<i>Plectropterus gambensis</i>	<i>niger</i> , Southern Africa	A	I	5
<i>Sarkidiornis melanotos</i>	West Africa	A	I	5
<i>Sarkidiornis melanotos</i>	Southern & Eastern Africa	A	I	5
<i>Nettapus auritus</i>	West Africa	A	I	5
<i>Nettapus auritus</i>	Southern & Eastern Africa	A	I	5
<i>Netta erythrophthalma</i>	<i>brunnea</i> , Southern & Eastern Africa	A	I	5
<i>Spatula hottentota</i>	Eastern Africa (south to N Zambia)	A	I	5
<i>Spatula clypeata</i>	W Siberia/SW Asia, NE & Eastern Africa	A	I	5
<i>Anas erythrorhyncha</i>	Eastern Africa	A	I	5
<i>Anas acuta</i>	Western Siberia/SW Asia & Eastern Africa	A	I	5
<i>Fulica cristata</i>	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
<i>Phoeniconaias minor</i>	West Africa	C	I	1
<i>Phoeniconaias minor</i>	Eastern Africa	C	I	1
<i>Phoeniconaias minor</i>	Southern Africa (to Madagascar)	C	I	1
<i>Platalea leucorodia</i>	leucorodia, Western Asia/South-west & South Asia	C	I	1
<i>Egretta vinaceigula</i>	Central Southern Africa	C	I	1
<i>Pelecanus crispus</i>	Black Sea & Mediterranean (win)	C	I	1
<i>Pelecanus crispus</i>	South-west Asia & South Asia (win)	C	I	1
<i>Phoenicopterus roseus</i>	West Africa	C	I	3
<i>Phoenicopterus roseus</i>	West Mediterranean	C	I	3
<i>Egretta gularis</i>	dimorpha, Coastal Eastern Africa	C	I	3
<i>Phalacrocorax carbo</i>	lucidus, Coastal West Africa	C	I	3
<i>Larus hartlaubii</i>	Coastal South-west Africa	C	I	3
<i>Larus dominicanus</i>	vetula, Coastal Southern Africa	C	I	3
<i>Larus dominicanus</i>	vetula, Coastal West Africa	C	I	3
<i>Hydroprogne caspia</i>	Southern Africa (bre)	C	I	3
<i>Thalasseus bergii</i>	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
<i>Calidris temminckii</i>	NE Europe & W Siberia/SW Asia & Eastern Africa	D	I	4
<i>Calidris maritima</i>	N Europe & W Siberia (breeding)	D	I	4
<i>Actitis hypoleucos</i>	West & Central Europe/West Africa	D	I	4
<i>Actitis hypoleucos</i>	E Europe & W Siberia/Central, E & S Africa	D	I	4
<i>Gallinula chloropus</i>	chloropus, West & South-west Asia	D	I	5
<i>Calidris minuta</i>	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
<i>Oxyura maccoa</i>	Eastern Africa	S	I	1
<i>Oxyura maccoa</i>	Southern Africa	S	I	1
<i>Oxyura leucocephala</i>	Algeria & Tunisia	S	I	1
<i>Oxyura leucocephala</i>	East Mediterranean, Turkey & South-west Asia	S	I	1
<i>Marmaronetta angustirostris</i>	West Mediterranean/West Medit. & West Africa	S	I	1
<i>Marmaronetta angustirostris</i>	East Mediterranean	S	I	1
<i>Numenius arquata</i>	orientalis, Western Siberia/SW Asia, E & S Africa	S	I	1
<i>Haematopus ostralegus</i>	longipes, SE Eur & W Asia/SW Asia & NE Africa	S	I	2
<i>Charadrius pallidus</i>	venustus, Eastern Africa	S	I	2
<i>Tadorna ferruginea</i>	North-west Africa	S	I	3
<i>Podiceps cristatus</i>	infuscatus, Southern Africa	S	I	3
<i>Pluvianus aegyptius</i>	Lower Congo Basin	S	I	3
<i>Chlidonias hybrida</i>	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
<i>Platalea leucorodia</i>	archeri, Red Sea & Somalia	C	C	1
<i>Ardeola idae</i>	Madagascar & Aldabra/Central & Eastern Africa	C	C	1
<i>Glareola nordmanni</i>	SE Europe & Western Asia/Southern Africa	C	C	1
<i>Phalacrocorax nigrogularis</i>	Arabian Coast	C	C	2
<i>Phalacrocorax neglectus</i>	Coastal South-west Africa	C	C	2
<i>Glareola ocularis</i>	Madagascar/East Africa	C	C	2
<i>Rynchops flavirostris</i>	Coastal West Africa & Central Africa	C	C	2
<i>Rynchops flavirostris</i>	Eastern & Southern Africa	C	C	2
<i>Alca torda</i>	torda, West Atlantic	C	C	2
<i>Phaethon rubricauda</i>	rubricauda, Indian Ocean	C	C	3
<i>Plegadis falcinellus</i>	South-west Asia/Eastern Africa	C	C	3
<i>Ardeola ralloides</i>	ralloides, SW Europe, NW Africa (bre)	C	C	3
<i>Bubulcus ibis</i>	ibis, North-west Africa	C	C	3
<i>Fregata minor</i>	aldabrensis, W Indian Ocean	C	C	3
<i>Gulosus aristotelis</i>	desmarestii, Adriatic	C	C	3
<i>Anous tenuirostris</i>	tenuirostris, Indian Ocean Islands to E Africa	C	C	3
<i>Xema sabini</i>	sabini, Canada & Greenland/SE Atlantic	C	C	3
<i>Larus canus</i>	heinei, NE Europe & Western Siberia/Black Sea & Caspian	C	C	3
<i>Larus fuscus</i>	heuglini, NE Europe & W Siberia/SW Asia & NE Africa	C	C	3
<i>Larus fuscus</i>	barabensis, South-west Siberia/South-west Asia	C	C	3
<i>Larus argentatus</i>	argenteus, Iceland & Western Europe	C	C	3
<i>Onychoprion fuscatus</i>	nubilosus, Red Sea, Gulf of Aden, E to Pacific	C	C	3
<i>Onychoprion anaethetus</i>	melanopterus, W Africa	C	C	3
<i>Hydroprogne caspia</i>	Black Sea (bre)	C	C	3
<i>Sterna dougallii</i>	dougallii, East Africa	C	C	3
<i>Sterna dougallii</i>	gracilis, North Arabian Sea (Oman)	C	C	3
<i>Sterna dougallii</i>	dougallii, Southern Africa and Madagascar	C	C	3
<i>Sterna dougallii</i>	gracilis, Seychelles & Mascarenes	C	C	3
<i>Thalasseus sandvicensis</i>	sandvicensis, West & Central Asia/South-west & South Asia	C	C	3
<i>Thalasseus bergii</i>	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
<i>Melanitta fusca</i>	Black Sea & Caspian	S	S	1
<i>Aythya nyroca</i>	West Mediterranean/North & West Africa	S	S	1
<i>Aythya nyroca</i>	Western Asia/SW Asia & NE Africa	S	S	1
<i>Sarothrura ayresi</i>	Ethiopia	S	S	1
<i>Sarothrura ayresi</i>	Southern Africa	S	S	1
<i>Balearica regulorum</i>	regulorum, Southern Africa (N to Angola & S Zimbabwe)	S	S	1
<i>Balearica regulorum</i>	gibbericeps, Eastern Africa (Kenya to Mozambique)	S	S	1
<i>Numenius arquata</i>	suschkini, South-east Europe & South-west Asia (bre)	S	S	1
<i>Balearica pavonina</i>	pavonina, West Africa (Senegal to Chad)	S	S	2
<i>Balearica pavonina</i>	ceciliae, Eastern Africa (Sudan to Uganda)	S	S	2
<i>Vanellus gregarius</i>	Central Asia/S, SW Asia, NE Africa	S	S	2
<i>Gallinago media</i>	Scandinavia/probably West Africa	S	S	2
<i>Sternula balaenarum</i>	Namibia & South Africa/Atlantic coast to Ghana	S	S	2
<i>Anthropoides virgo</i>	Black Sea (Ukraine)/North-east Africa	S	S	3
<i>Ciconia ciconia</i>	ciconia, Southern Africa	S	S	3
<i>Ciconia ciconia</i>	ciconia, Western Asia/South-west Asia	S	S	3
<i>Pluvialis apricaria</i>	altifrons, Iceland & Faroes/East Atlantic coast	S	S	3
<i>Pluvialis apricaria</i>	altifrons, Northern Europe/Western Europe & NW Africa	S	S	3
<i>Numenius phaeopus</i>	alboaxillaris, N of Caspian/Eastern Africa	S	S	3
<i>Calidris alpina</i>	arctica, NE Greenland/West Africa	S	S	3
<i>Gallinago gallinago</i>	faeroensis, Iceland, Faroes & Northern Scotland/Ireland	S	S	3
<i>Phalaropus fulicarius</i>	Canada & Greenland/Atlantic coast of Africa	S	S	3
<i>Larus glaucoides</i>	glaucoides, Greenland/Iceland & North-west Europe	S	S	3
<i>Larus hyperboreus</i>	hyperboreus, Svalbard & N Russia (bre)	S	S	3
<i>Larus hyperboreus</i>	leucereetes, Canada, Greenland & Iceland (bre)	S	S	3
<i>Sterna vittata</i>	vittata, P.Edward, Marion, Crozet & Kerguelen/South Africa	S	S	3
<i>Sterna vittata</i>	sanctipauli	S	S	3

Sterna vittata

tristanensis, Tristan da Cunha & Gough/South
Africa

S

S

3

Draft

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.

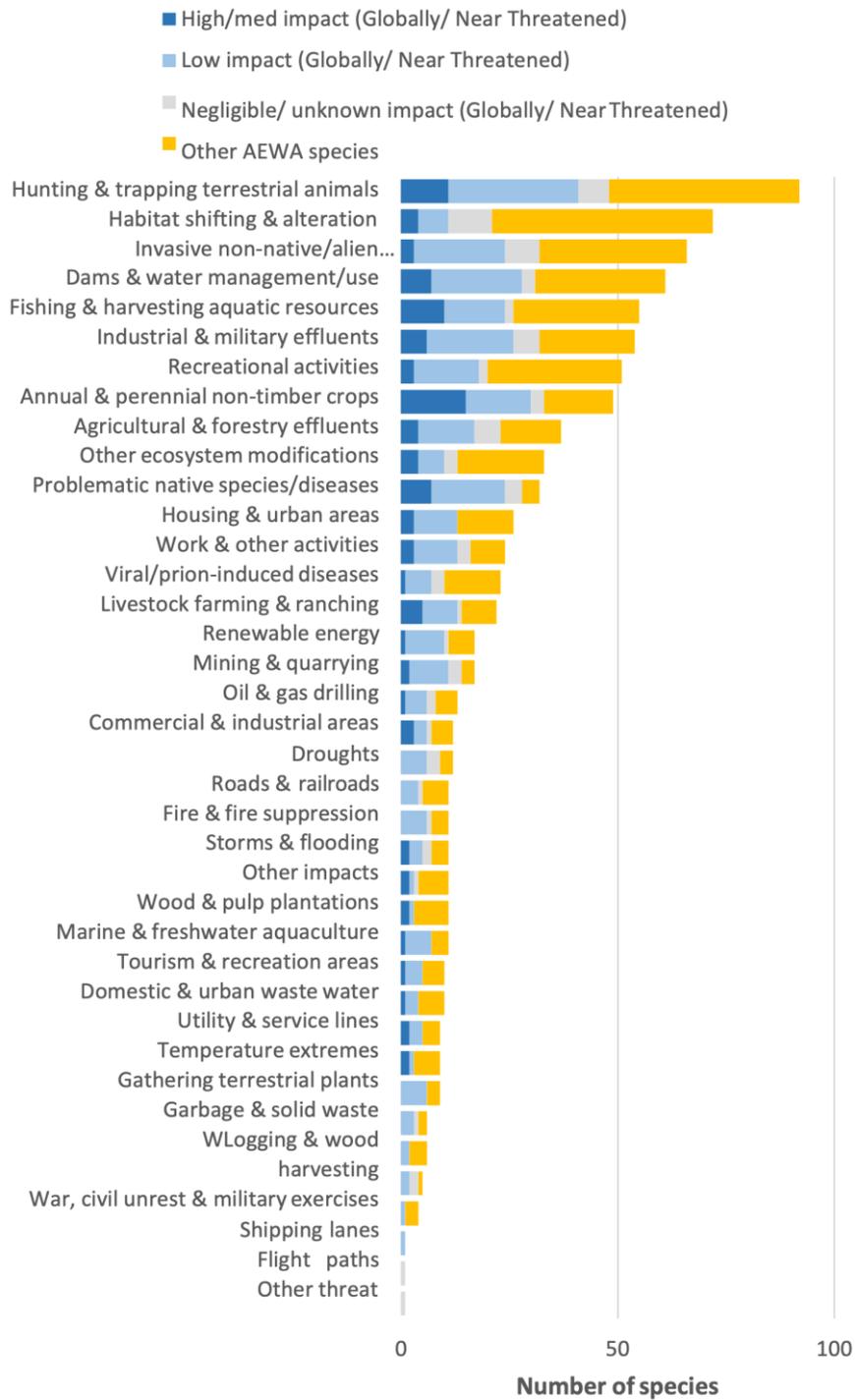


Figure 5.1: Threats most frequently recorded, illustrating those affecting Globally Threatened and Near Threatened species (blue), and other AEWA species (orange). The threats identified for Globally and Near Threatened species are divided into high/ medium impact (darkest blue), low impact (medium blue)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

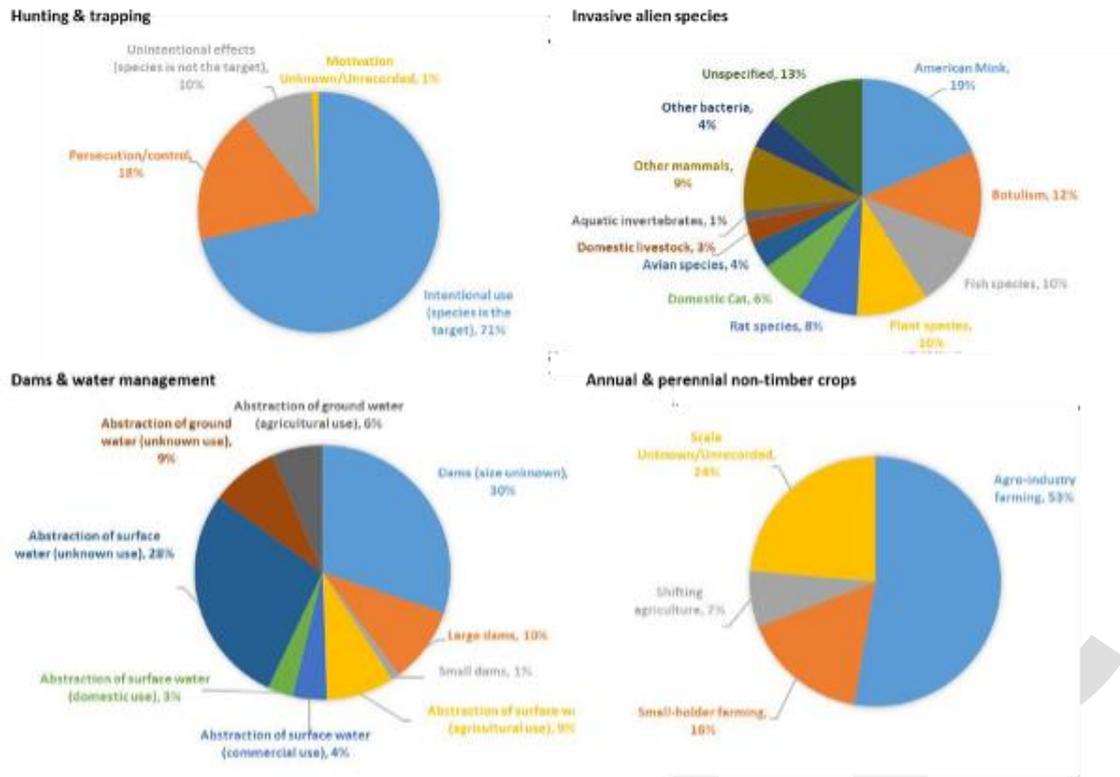


Figure 5.2: Further details on threats assigned to AEWA species relating to Hunting & trapping, Invasive alien species, Dams and water management, and annual and perennial non-timber crops.

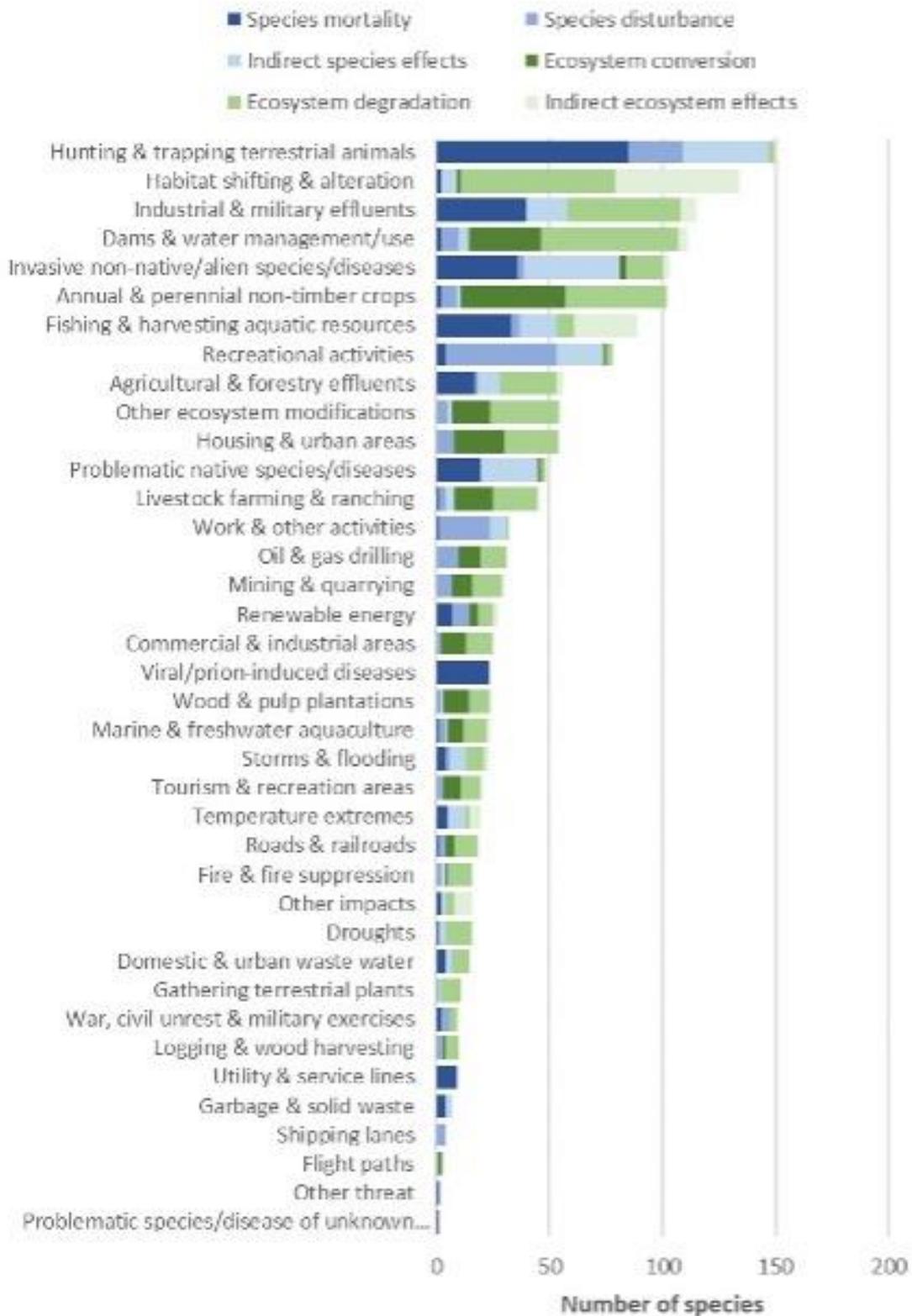


Figure 5.3: Relationship between threats and stresses posed to waterbirds, illustrating species stresses (blue) and ecosystems stresses (green). Note that in some cases a threat has been recorded as posing more than one stress type on a species (hence differences when compared with the previous figure).

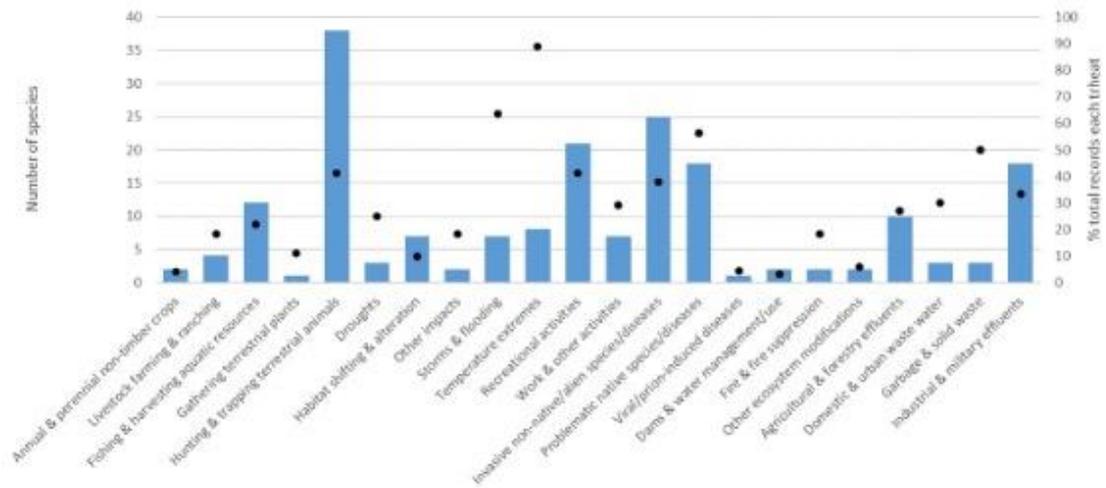


Figure 5.4: Threats deemed to pose indirect stress on waterbird species through reduced reproductive success, illustrating the number of species affected (bars) and the proportion within each threat affected in this way (dots).

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
<i>Fratercula arctica</i>	Atlantic Puffin	VU	Y	Y	2018	2014-2019
<i>Cepphus grylle</i>	Black Guillemot	LC	Y	Y	2018	2014-2019
<i>Alca torda</i>	Razorbill	NT	Y	Y	2018	2014-2019
<i>Alle alle</i>	Little Auk	LC	Y	Y	2018	2014-2019
<i>Uria lomvia</i>	Thick-billed Murre	LC	Y		2018	
<i>Uria aalge</i>	Common Murre	LC	Y	Y	2018	2014-2019
<i>Dendrocygna viduata</i>	White-faced Whistling-duck					
<i>Dendrocygna bicolor</i>	Fulvous Whistling-duck	LC	Y		2010	
<i>Thalassornis leuconotus</i>	White-backed Duck					
<i>Oxyura maccoa</i>	Maccoa Duck	VU	Y		2016	
<i>Oxyura leucocephala</i>	White-headed Duck	EN	Y	Y	2016	2014-2019
<i>Cygnus olor</i>	Mute Swan			Y		2014-2019
<i>Cygnus cygnus</i>	Whooper Swan	LC	Y	Y	2010	2014-2019
<i>Cygnus columbianus</i>	Tundra Swan	LC	Y	Y	2010	2014-2019
<i>Branta bernicla</i>	Brent Goose	LC	Y	Y	2010	2014-2019
<i>Branta leucopsis</i>	Barnacle Goose	LC	Y	Y	2010	2014-2019
<i>Branta ruficollis</i>	Red-breasted Goose	VU	Y	Y	2016	2014-2019
<i>Anser fabalis</i>	Bean Goose	LC	Y	Y	2010	2014-2019
<i>Anser brachyrhynchus</i>	Pink-footed Goose	LC	Y	Y	2010	2014-2019
<i>Anser albifrons</i>	Greater White-fronted Goose	LC	Y	Y	2010	2014-2019

<i>Anser erythropus</i>	Lesser White-fronted Goose	VU	Y	Y	2016	2014-2019
<i>Clangula hyemalis</i>	Long-tailed Duck	VU	Y	Y	2018	2014-2019
<i>Somateria spectabilis</i>	King Eider	LC	Y		2018	
<i>Somateria mollissima</i>	Common Eider	NT	Y	Y	2018	2014-2019
<i>Polysticta stelleri</i>	Steller's Eider	VU	Y	Y	2018	2014-2019
<i>Melanitta fusca</i>	Velvet Scoter	VU	Y	Y	2018	2014-2019
<i>Melanitta nigra</i>	Common Scoter	LC	Y	Y	2018	2014-2019
<i>Mergellus albellus</i>	Smew	LC	Y	Y	2010	2014-2019
<i>Alopochen aegyptiaca</i>	Egyptian Goose			Y		2014-2019
<i>Mareca penelope</i>	Eurasian Wigeon	LC	Y	Y	2010	2014-2019
<i>Tadorna ferruginea</i>	Ruddy Shelduck	LC	Y	Y	2010	2014-2019
<i>Tadorna cana</i>	South African Shelduck	LC	Y		2010	
<i>Plectropterus gambensis</i>	Spur-winged Goose					
<i>Sarkidiornis melanotos</i>	African Comb Duck	LC	Y		2010	
<i>Nettapus auritus</i>	African Pygmy-goose					
<i>Marmaronetta angustirostris</i>	Marbled Teal	VU	Y	Y	2016	2014-2019
<i>Netta rufina</i>	Red-crested Pochard			Y		2014-2019
<i>Netta erythrophthalma</i>	Southern Pochard	LC	Y		2010	
<i>Aythya nyroca</i>	Ferruginous Duck	NT	Y	Y	2016	2014-2019
<i>Aythya marila</i>	Greater Scaup	LC	Y	Y	2018	2014-2019
<i>Spatula hottentota</i>	Hottentot Teal	LC	Y		2010	
<i>Mareca strepera</i>	Gadwall			Y		2014-2019
<i>Anas undulata</i>	Yellow-billed Duck	LC	Y		2010	
<i>Bucephala clangula</i>	Common Goldeneye	LC	Y	Y	2018	2014-2019

<i>Anas capensis</i>	Cape Teal	LC	Y		2010	
<i>Anas erythrorhyncha</i>	Red-billed Teal	LC	Y		2010	
<i>Mergus serrator</i>	Red-breasted Merganser	LC	Y	Y	2018	2014-2019
<i>Aythya fuligula</i>	Tufted Duck			Y		2014-2019
<i>Anas acuta</i>	Northern Pintail			Y		2014-2019
<i>Anas crecca</i>	Common Teal			Y		2014-2019
<i>Mergus merganser</i>	Goosander	LC	Y	Y	2018	2014-2019
<i>Tadorna tadorna</i>	Common Shelduck			Y		2014-2019
<i>Aythya ferina</i>	Common Pochard	VU	Y	Y	2016	2014-2019
<i>Spatula querquedula</i>	Garganey	LC	Y	Y	2010	2014-2019
<i>Spatula clypeata</i>	Northern Shoveler	LC	Y	Y	2010	2014-2019
<i>Anser anser</i>	Greylag Goose			Y		2014-2019
<i>Anas platyrhynchos</i>	Mallard			Y		2014-2019
<i>Botaurus stellaris</i>	Eurasian Bittern			Y		2014-2019
<i>Ixobrychus minutus</i>	Common Little Bittern			Y		2014-2019
<i>Ixobrychus sturmii</i>	Dwarf Bittern					
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron			Y		2014-2019
<i>Ardeola ralloides</i>	Squacco Heron			Y		2014-2019
<i>Ardeola idae</i>	Madagascar Pond-heron	EN	Y		2016	
<i>Ardeola rufiventris</i>	Rufous-bellied Heron					
<i>Bubulcus ibis</i>	Cattle Egret			Y		2014-2019
<i>Ardea melanocephala</i>	Black-headed Heron					
<i>Ardea purpurea</i>	Purple Heron			Y		2014-2019
<i>Ardea alba</i>	Great White Egret	LC	Y	Y	2010	2014-2019

<i>Ardea brachyrhyncha</i>	Yellow-billed Egret	LC	Y		2010	
<i>Egretta ardesiaca</i>	Black Heron	LC	Y		2010	
<i>Egretta vinaceigula</i>	Slaty Egret	VU	Y		2016	
<i>Egretta garzetta</i>	Little Egret			Y		2014- 2019
<i>Egretta gularis</i>	Western Reef- egret	LC	Y		2010	
<i>Ardea cinerea</i>	Grey Heron	LC	Y	Y	2010	2014- 2019
<i>Balaeniceps rex</i>	Shoebill	VU	Y		2016	
<i>Burhinus senegalensis</i>	Senegal Thick- knee	LC	Y		2010	
<i>Pluvialis squatarola</i>	Grey Plover	LC	Y	Y	2010	2014- 2019
<i>Pluvialis apricaria</i>	Eurasian Golden Plover	LC	Y	Y	2010	2014- 2019
<i>Pluvialis fulva</i>	Pacific Golden Plover	LC	Y		2010	
<i>Eudromias morinellus</i>	Eurasian Dotterel	LC	Y	Y	2010	2014- 2019
<i>Charadrius hiaticula</i>	Common Ringed Plover	LC	Y	Y	2010	2014- 2019
<i>Charadrius pecuarius</i>	Kittlitz's Plover	LC	Y		2010	
<i>Charadrius tricollaris</i>	African Three- banded Plover					
<i>Charadrius forbesi</i>	Forbes's Plover					
<i>Charadrius marginatus</i>	White-fronted Plover	LC	Y		2010	
<i>Charadrius alexandrinus</i>	Kentish Plover	LC	Y	Y	2010	2014- 2019
<i>Charadrius pallidus</i>	Chestnut-banded Plover	NT	Y		2016	
<i>Charadrius mongolus</i>	Lesser Sandplover	LC	Y		2010	
<i>Charadrius leschenaultii</i>	Greater Sandplover	LC	Y	Y	2010	2014- 2019
<i>Charadrius asiaticus</i>	Caspian Plover	LC	Y		2010	
<i>Vanellus vanellus</i>	Northern Lapwing	NT	Y	Y	2016	2014- 2019
<i>Vanellus spinosus</i>	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

<i>Glareola nordmanni</i>	Black-winged Pratincole	NT	Y		2016	
<i>Glareola ocularis</i>	Madagascar Pratincole	VU	Y		2016	
<i>Glareola nuchalis</i>	Rock Pratincole	LC	Y		2010	
<i>Glareola cinerea</i>	Grey Pratincole	LC	Y		2010	
<i>Balearica regulorum</i>	Grey Crowned-crane	EN	Y		2016	
<i>Balearica pavonina</i>	Black Crowned-crane	VU	Y		2016	
<i>Leucogeranus leucogeranus</i>	Siberian Crane	CR	Y		2016	
<i>Bugeranus carunculatus</i>	Wattled Crane	VU	Y		2016	
<i>Anthropoides paradiseus</i>	Blue Crane	VU	Y		2016	
<i>Anthropoides virgo</i>	Demoiselle Crane	LC	Y	Y	2010	2014-2019
<i>Grus grus</i>	Common Crane	LC	Y	Y	2010	2014-2019
<i>Haematopus moquini</i>	African Oystercatcher	LC	Y		2010	
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher			Y		2014-2019
<i>Larus canus</i>	Mew Gull			Y		2014-2019
<i>Hydrocoloeus minutus</i>	Little Gull			Y		2014-2019
<i>Larus marinus</i>	Great Black-backed Gull	LC	Y	Y	2018	2014-2019
<i>Larus argentatus</i>	European Herring Gull	LC	Y	Y	2018	2014-2019
<i>Larus fuscus</i>	Lesser Black-backed Gull	LC	Y	Y	2018	2014-2019
<i>Larus ridibundus</i>	Black-headed Gull			Y		2014-2019
<i>Anous stolidus</i>	Brown Noddy	LC	Y		2018	
<i>Anous tenuirostris</i>	Lesser Noddy					
<i>Rynchops flavirostris</i>	African Skimmer	NT	Y		2018	
<i>Xema sabini</i>	Sabine's Gull	LC	Y		2018	
<i>Rissa tridactyla</i>	Black-legged Kittiwake	VU	Y	Y	2018	2014-2019
<i>Larus genei</i>	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

<i>Sterna repressa</i>	White-cheeked Tern	LC	Y		2018	
<i>Sterna paradisaea</i>	Arctic Tern	LC	Y	Y	2018	2014-2019
<i>Sterna vittata</i>	Antarctic Tern	LC	Y		2018	
<i>Thalasseus bengalensis</i>	Lesser Crested Tern			Y		2014-2019
<i>Thalasseus sandvicensis</i>	Sandwich Tern	LC	Y	Y	2018	2014-2019
<i>Thalasseus maximus</i>	Royal Tern	LC	Y		2018	
<i>Thalasseus bergii</i>	Greater Crested Tern	LC	Y		2018	
<i>Pelecanus crispus</i>	Dalmatian Pelican	NT	Y	Y	2018	2014-2019
<i>Pelecanus rufescens</i>	Pink-backed Pelican	LC	Y		2018	
<i>Pelecanus onocrotalus</i>	Great White Pelican	LC	Y	Y	2018	2014-2019
<i>Phaethon aethereus</i>	Red-billed Tropicbird	LC	Y		2018	
<i>Phaethon rubricauda</i>	Red-tailed Tropicbird	LC	Y		2018	
<i>Phaethon lepturus</i>	White-tailed Tropicbird	LC	Y		2018	
<i>Microcarbo coronatus</i>	Crowned Cormorant	NT	Y		2018	
<i>Microcarbo pygmaeus</i>	Pygmy Cormorant	LC	Y	Y	2018	2014-2019
<i>Phalacrocorax aristotelis</i>	European Shag	LC	Y	Y	2018	2014-2019
<i>Phalacrocorax capensis</i>	Cape Cormorant	EN	Y		2018	
<i>Phalacrocorax nigrogularis</i>	Socotra Cormorant	VU	Y		2018	
<i>Phalacrocorax neglectus</i>	Bank Cormorant	EN	Y		2018	
<i>Phalacrocorax carbo</i>	Great Cormorant	LC	Y	Y	2018	2014-2019
<i>Phoenicopterus roseus</i>	Greater Flamingo			Y		2014-2019
<i>Phoeniconaias minor</i>	Lesser Flamingo	NT	Y		2016	
<i>Pluvianus aegyptius</i>	Egyptian Plover					
<i>Podiceps auritus</i>	Horned Grebe	VU	Y	Y	2016	2014-2019

<i>Tachybaptus ruficollis</i>	Little Grebe			Y			2014-2019
<i>Podiceps cristatus</i>	Great Crested Grebe	LC	Y	Y	2018		2014-2019
<i>Podiceps nigricollis</i>	Black-necked Grebe	LC	Y	Y	2018		2014-2019
<i>Podiceps grisegena</i>	Red-necked Grebe	LC	Y	Y	2018		2014-2019
<i>Sarothrura elegans</i>	Buff-spotted Flufftail	LC	Y				2010
<i>Sarothrura boehmi</i>	Streaky-breasted Flufftail						
<i>Sarothrura ayresi</i>	White-winged Flufftail	CR	Y				2016
<i>Rallus aquaticus</i>	Western Water Rail	LC	Y	Y	2010		2014-2019
<i>Rallus caerulescens</i>	African Rail						
<i>Crex egregia</i>	African Crake	LC	Y				2010
<i>Crex crex</i>	Corncrake	LC	Y	Y	2010		2014-2019
<i>Porzana porzana</i>	Spotted Crake	LC	Y	Y	2010		2014-2019
<i>Zapornia flavirostra</i>	Black Crake						
<i>Zapornia parva</i>	Little Crake	LC	Y	Y	2010		2014-2019
<i>Zapornia pusilla</i>	Baillon's Crake	LC	Y	Y	2010		2014-2019
<i>Amaurornis marginalis</i>	Striped Crake	LC	Y				2010
<i>Porphyrio alleni</i>	Allen's Gallinule	LC	Y				2010
<i>Gallinula chloropus</i>	Common Moorhen			Y			2014-2019
<i>Gallinula angulata</i>	Lesser Moorhen	LC	Y				2010
<i>Fulica cristata</i>	Red-knobbed Coot	LC	Y	Y	2010		2014-2019
<i>Fulica atra</i>	Common Coot	LC	Y	Y	2010		2014-2019
<i>Recurvirostra avosetta</i>	Pied Avocet			Y			2014-2019
<i>Himantopus himantopus</i>	Black-winged Stilt			Y			2014-2019
<i>Gallinago media</i>	Great Snipe	NT	Y	Y	2016		2014-2019

<i>Tringa nebularia</i>	Common Greenshank	LC	Y	Y	2010	2014-2019
<i>Calidris pugnax</i>	Ruff	LC	Y	Y	2010	2014-2019
<i>Xenus cinereus</i>	Terek Sandpiper	LC	Y	Y	2010	2014-2019
<i>Tringa glareola</i>	Wood Sandpiper	LC	Y	Y	2010	2014-2019
<i>Tringa ochropus</i>	Green Sandpiper	LC	Y	Y	2010	2014-2019
<i>Gallinago gallinago</i>	Common Snipe			Y		2014-2019
<i>Numenius arquata</i>	Eurasian Curlew	NT	Y	Y	2016	2014-2019
<i>Limosa limosa</i>	Black-tailed Godwit	NT	Y	Y	2016	2014-2019
<i>Numenius phaeopus</i>	Whimbrel	LC	Y	Y	2010	2014-2019
<i>Numenius tenuirostris</i>	Slender-billed Curlew	CR	Y	Y	2016	2014-2019
<i>Limosa lapponica</i>	Bar-tailed Godwit	NT	Y	Y	2016	2014-2019
<i>Arenaria interpres</i>	Ruddy Turnstone	LC	Y	Y	2010	2014-2019
<i>Calidris tenuirostris</i>	Great Knot	EN	Y		2016	
<i>Calidris canutus</i>	Red Knot	NT	Y	Y	2016	2014-2019
<i>Calidris falcinellus</i>	Broad-billed Sandpiper	LC	Y	Y	2010	2014-2019
<i>Calidris ferruginea</i>	Curlew Sandpiper	NT	Y	Y	2016	2014-2019
<i>Calidris temminckii</i>	Temminck's Stint	LC	Y	Y	2010	2014-2019
<i>Calidris alba</i>	Sanderling	LC	Y	Y	2010	2014-2019
<i>Calidris alpina</i>	Dunlin	LC	Y	Y	2010	2014-2019
<i>Calidris maritima</i>	Purple Sandpiper	LC	Y	Y	2010	2014-2019
<i>Calidris minuta</i>	Little Stint	LC	Y	Y	2010	2014-2019
<i>Gallinago stenura</i>	Pintail Snipe	LC	Y		2010	
<i>Lymnocyptes minimus</i>	Jack Snipe	LC	Y	Y	2010	2014-2019
<i>Phalaropus lobatus</i>	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 and commercial development	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 and aquaculture	annual & perennial non-timber crops	shifting agriculture
		small-holder farming
		agro-industry farming
		scale unknown/unrecorded
	wood and pulp plantations (includes afforestation)	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 and service corridors	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

		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

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 undergrazing 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

	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

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