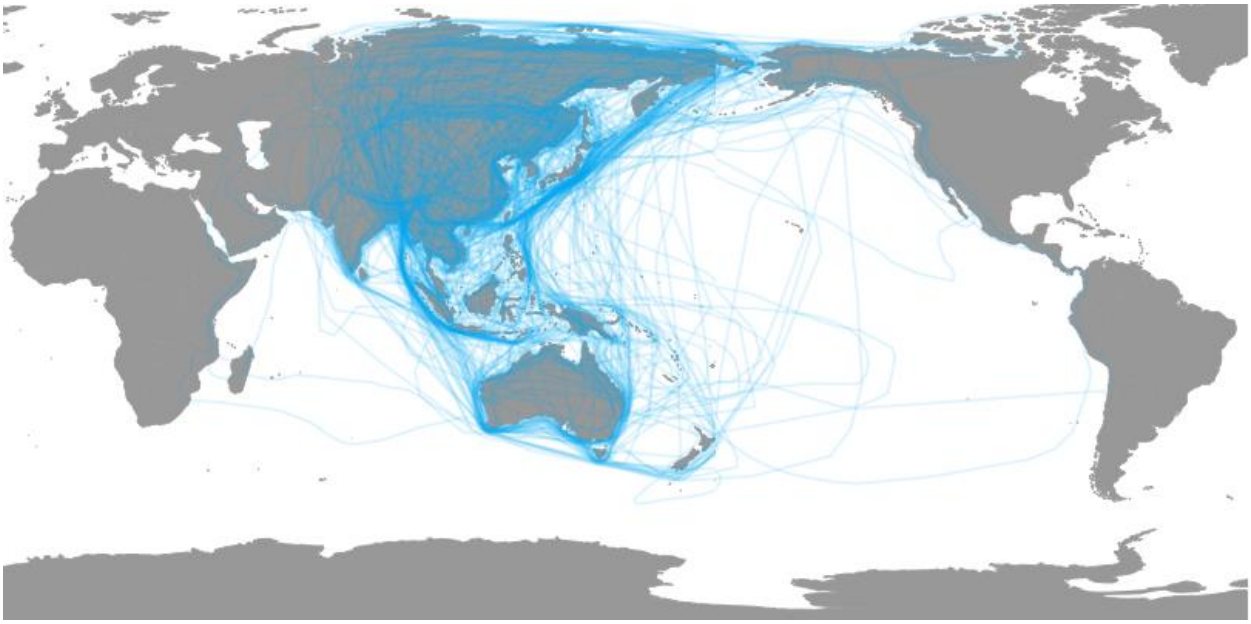
Report on the Conservation Status of Migratory Waterbirds of the East Asian – Australasian Flyway

First Edition



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July 2022

Financially supported by
East Asian – Australasian Flyway Partnership
Norwegian Environment Agency

EAAFP

Norwegian Environment Agency

Suggested citation: Mundkur, T. and Langendoen, T. 2022. Report on the Conservation Status of Migratory Waterbirds of the East Asian – Australasian Flyway. First Edition. Report to the East Asian – Australasian Flyway Partnership. Wetlands International, Ede, The Netherlands. URL: https://www.wetlands.org/eaaf-conservation-status-review1/

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Front cover: Image of composite of the biogeographic population polygons of all 276 migratory waterbirds of 216 species that includes a minimum of two countries of the EAAF.

The final version of the EAAF CSR 1 Summary Report is available for download on the EAAF Partnership www.eaaflyway.net and Wetlands international www.wetlands.org websites.

The population size estimates, trends, 1% thresholds and population boundaries are publicly accessible on the global Waterbird Populations Portal http://wpp.wetlands.org/.

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Key Messages

- Size estimates and 1% thresholds are provided for 248 (90%) of the 276 EAAF biogeographic populations of 216 migratory waterbird species.
- 32 (12%) of 1% thresholds, are lower than previous assessments (WPE5) and 57 (21%) are higher. 22 (8%) populations have population size estimates and 1% thresholds for the first time. These new thresholds should be used for all future EAAF Flyway Network Site designations.
- Of the 159 populations with a known trend, 67 (42%) are decreasing and only 43 (27%) are increasing, with 48 (30%) stable or fluctuating. Trends could not be assessed for 118 (43%) populations.
- 34 (16%) of the EAAFP populations belong to species on the IUCN Red List of Threatened Species 2021 and a further 25 (12%) are of Near Threatened species.
- Boundary maps for all EAAF biogeographic populations have been produced for the first time. These will support the use of population information for designation and management of Flyway Network Sites, prioritization of species and populations for research and conservation - but will require further refinement.
- Major gaps and limitations in knowledge about the distribution, size estimates and trends of many populations have been identified and recommendations provided to address these.
- These gaps can only be addressed by strengthening existing monitoring programmes, establishing new monitoring programmes and improving the systems and procedures to collate and synthesise new information. This will require local and national stakeholder engagement along with international partnerships.
- All population size estimates, trends, 1% thresholds and boundary maps are available on the Waterbird Populations Portal http://wpp.wetlands.org/ following formally adoption by the EAAF Technical Sub-Committee.

The East Asian - Australasian Flyway (EAAF)

The East Asian - Australasian Flyway (EAAF) is one of the world's major global waterbird flyways. The EAAF includes 276 migratory waterbird populations. The ranges of some populations extend to parts of the adjacent Central Pacific and Central Asian Flyways as well as populations that span large areas of the Indian and Pacific Oceans.

The East Asian - Australasian Flyway Partnership (EAAFP) provides the flyway-wide framework to promote dialogue, cooperation and collaboration between a range of stakeholders to conserve migratory waterbirds and their habitats within the EAAF region.

The EAAF Conservation Status Report 1

Recognising the urgent need for updated waterbird population status information, EAAFP Partners adopted Decision 12 at MoP10 that requested Wetlands International to produce a 1st edition of the EAAF Conservation Status Report (CSR1), as a contribution to Objective 3 of the EAAFP Strategic Plan 2019-2028[1].

The report has been prepared by Wetlands International in collaboration with EAAF Partners, Working Groups and experts and jointly organised with the EAAF Secretariat. This is the first review of the conservation status of all EAAF migratory waterbird populations since the 5th edition of Waterbird Population Estimates (WPE5) in 2012.

CSR1 covers 276 migratory populations of 216 waterbird species of 20 families. Populations of eight families of more pelagic waterbird species, including those recently added to the Partnership list will be included in future editions.

[1] Objective 3: Enhance flyway research and monitoring activities, build knowledge and promote exchange of information on waterbirds and their habitats list requires conservation status reviews for waterbird populations to be periodically produced to set and adapt priorities for action.

CSR1 results

Globally threatened EAAF waterbird species:

- Thirty-four (16%) of the EAAFP populations belong to species that have a globally threatened status (Critically Endangered, Endangered or Vulnerable) in the IUCN Red List of Threatened Species 2021 and a further 25 (12%) are Near Threatened.

Population size estimates:

- 248 (90%) migratory waterbird populations have population size estimates.
- 45 (16%) of these population estimates are census-based, 81 (29%) are expert opinion and 122 (44%) are best guess.
- Data is currently not sufficient to propose population size estimates for 28 (11%) populations, mainly *Ardeidae* (Herons and egrets) where colonial counts would be most informative, *Laridae* (Gulls and terns) particularly northern breeders, and *Rallidae* (Rails, crakes and allies) which are dispersed, often secretive and difficult to census or sample.
- There is substantial geographic variation in the quality of information on population size estimates: 64% of populations in the Eastern Palearctic and 52% of East Asian-Australasian Flyway populations are expert opinion or census-based, compared to only 22% of Indo-Malay and 17% of Australasian populations.
- Of the 90% of EAAF populations with a size estimate, 58% have an estimate of 100,000 individuals or fewer. 32% of populations have a geomean of the minimum and maximum estimate greater than 100,000 individuals, with 4% greater than 1,000,000 individuals.
- The smallest populations are of the Critically Endangered Chinese Crested Tern *Thalasseus bernsteini* and Dalmatian Pelican *Pelecanus crispus,* each with only up to 150 individuals remaining.
- The largest populations are Black-legged Kittiwake *Rissa tridactyla* (estimated at least 4.8 million individuals in the northwest Pacific) and Sooty Tern *Onychoprion fuscatus* (estimated at 18.2 million individuals across the Indian and Pacific Oceans), both being marine and far-ranging populations.
- The total of the other EAAF populations with estimates is between 28-68 million individuals.

Population trend estimates:

- Only 32 (12%) of EAAF waterbird populations have good trend information, 48 (17%) reasonable, 78 (28%) poor and 118 (43%) have no recent trend information.
- Of the 159 EAAF populations with a known trend, 67 (42%) are decreasing and only 43 (27%) are increasing, with 48 (30%) stable or fluctuating.
- Population trend quality varies considerably across waterbird families:
    - Families with mostly good or reasonable population trend qualities are *Gruidae* (Cranes) (13 or 81%), *Anseranatidae* (Magpie Goose) (1 or 100%), *Heliornithidae* (Finfoots) (1 or 100%), *Ciconiidae* (Storks) (3 or 50%) and *Pelecanidae* (Pelicans) (2 or 100%).
    - The largest families, *Anatidae* (Ducks, geese and swans) (63 populations) and *Scolopacidae* (Sandpipers and allies) (49 populations) have respectively 38% and 37% good or reasonable trend qualities.
    - Families with only a quarter or less of their populations with good or reasonable trend quality are: *Laridae* (Gulls and terns) (8 or 21%), *Ardeidae* (Herons and egrets) (2 or 7%), *Charadriidae* (Plovers) (4 or 21%), *Threskiornithidae* (Ibises and spoonbills) (2 or 25%), *Podicipedidae* (Grebes) (1 or 20%).
    - Families with no good or reasonable population trend qualities are: *Rallidae* (Rails, crakes and allies), *Gaviidae* (Loons or Divers), *Phalacrocoracidae* (Cormorants), *Glareolidae* (Coursers and pratincoles), *Haematopodidae* (Oystercatchers), *Jacanidae* (Jacanas) and *Rostratulidae* (Painted-snipes).

- Prioritising conservation action for EAAF waterbird populations will be challenging without an improvement in quality of such trend information.

Population size thresholds for identifying internationally important wetlands for waterbirds:

Up-to-date population size thresholds, derived from population size estimates, are essential for the correct identification and designation of EAAFP Flyway Network Sites (FNSs) (1% and 0.25% population size thresholds) and Wetlands of International Importance (Ramsar Sites) (1% thresholds only).

- Derived from the CSR1 population size estimates, 248 of 276 migratory waterbird populations have 1% thresholds.
- 32 new estimates of population sizes, and 1% thresholds, are lower than previous assessments (WPE5) and 57 are higher. 22 populations (8%) have population size estimates and 1% thresholds for the first time.

Population boundaries:

Boundaries that geographically delineate populations are important to visualise the distribution of these populations and to facilitate application of the correct 1% thresholds.

- For the first time for the Flyway, the CSR1 provides population boundary maps for all 276 waterbird populations covered by the EAAFP. 12% of these boundaries are based on sound knowledge of the movement of individual birds, 15% are prepared from basic distribution and movement information and 73% on very limited and large-scale distribution information.
- Based on recent advances in technology on tracking of birds and improvements in knowledge of migratory movements of birds in the last decade, it is expected that the quality and accuracy of the boundaries of these maps may be improved incrementally in future.

CSR1 identified gaps in knowledge

The CSR1 report identifies the following three major gaps in knowledge of waterbird populations on the EAAF:

- The majority of population size estimates and trends are unknown or of low quality.
- The distribution and definition of most biogeographic populations is poorly understood.
- There has been limited feedback/accessibility to information from the CSR1 consultation process

CSR1 recommendations

The CSR1 report provides the following recommendations to address these major gaps:

Improve information on waterbird population size estimates and trends:

- Develop and resource a comprehensive flyway monitoring programme covering all EAAFP waterbird populations.
- Give priority to the 28 populations for which no population size estimate exists and populations for which no recent size and trend estimate are available (nearly 70 populations). This should include breeding surveys, migration surveys, and special monitoring efforts for small and threatened populations, secretive populations, those occurring outside wetlands and offshore populations.
- Provide national monitoring guidance (as called for by MOP Decision 10.12), including advice and standards for the appropriate methods to monitor different waterbird populations.
- Strengthen national monitoring efforts, through incorporation of waterbird monitoring activities as a priority action within EAAFP national and site partnerships (including through their incorporation into new EAAF guidelines being developed by the Partnership in 2021-22).
- Establish a partnership of organisations with international experience of waterbird monitoring to develop and support implementation of an EAAF monitoring programme, including development of national monitoring guidance.
- Strengthen and resource ongoing national and local waterbird monitoring efforts in all EAAFP countries (in line with KRA 3.1 of the EAAFP Strategic Plan 2019-2028) to ensure regular monitoring at all sites of national and international importance (incl. EAAF Network, Ramsar and World Heritage Sites).

- Strengthen and expand the Asian Waterbird Census (AWC) in areas with currently low coverage and capacity gaps.

Improve understanding of distribution and definition of biogeographic populations:

- Establish a procedure linked to the CSR to review the list of species and populations covered by the EAAFP to incorporate taxonomic updates, review of new information, update delineations or definitions and authorise changes to populations prior to the review of size estimates and trends.
- Prioritise research to determine the international movement patterns of populations for which information is limited (as called for by MOP Decision 9.9).

Improve the procedures for the preparation of future EAAFP CSRs:

- Produce CSR updates in a regular reporting cycle (every three years, or “at least every alternate MOP or not more than four yearly” as called for by MOP Decision 10.12) that ensures familiarity and establishes a routine, both for data reporting from monitoring programmes and for experts contributing to the consultation process.
- Identify of ways to enhance and strengthen involvement of the existing EAAF Working Groups and Task Forces in future CSR developments.
- Establish additional EAAF Working Groups to cover taxonomic gaps and to contribute to future reviews.

Acknowledgements

This review has been undertaken in collaboration and coordinated jointly with the EAAFP Secretariat. We are particularly grateful to Qing Zheng of the Science Unit and Doug Watkins, Vivian Fu and Hyeseon Do of the Secretariat. They have also been responsible for organising the partners and experts webinars to launch and present outcomes of the project.

Our report has greatly benefited from information and feedback provided through a review of populations estimates, trends and boundaries from a range of experts from within and beyond the EAAFP, including from the EAAFP Working Groups, Task Forces, Specialist Groups of IUCN SSC and Wetlands International. We are extremely grateful to all of them, including:

Brad Andres, Aleksei Antonov, George Archibald, Qingquan Bai, Dave Bakewell, Bas van Balen, Nyambayar Batbayar, Phil Battley, Mark R. Bezuijen, Simba Chan, Ying Chi Chan, Jimmy Choi, Chang-Yong Choi, Jesse Conklin, Nick Davidson, Devinder Singh Dhadwal, Igor Fefelov, Julian Fischer, Richard Fuller, Stephen Garnett, Ken Gosbell, Ward Hagemeijer, Birgita Hansen, Chris Hassell, Richard Hearn, Jiang Hongxing, Elena Ilyashenko, Micha Jackson, Roger Jaensch, Shengwu Jiao, Jin Jiefeng, Arne Jensen, Allen Jeyarajasingam, Yifei Jia, Robb Kaler, Li Keesup, Kyong-Chol Kim, Woo-Yuel Kim, Marcel Klaassen, Kazuo Koyama, Masayuki Kurechi, Benoit Laliberte, Richard Lanctot, David Li, Cao Lei, Fanjuan Ma, Nikki McArthur, Bruce McKinlay, Spike Millington, Ma Ming, Claire Mirande, Yulia Satsuki Momose, Nial Moores, Colin O'Donnell, Kiyoaki Ozaki, Olga Prokopenko, T Piyakarn, Nuchjaree Purchkoon, Pinjia Que, Adrian Riegen, Xiaotong Ren, Chung-Song Ri, Danny Rogers, Philip D. Round, Sonia Rozenfeld, Daniel R. Ruthrauff, Jin Ryu, Paul Sagar, Yusuke Sawa, Anthony Sebastian, Sampath Seneviratne, Boripat Siriaroonrat, Tetsuo Shimada, Diana Solovyeva (and colleagues of the Laboratory of Ornithology, Institute of Biological Problems of the North, Far East Branch Russian Academy of Sciences), Ha-Cheol Sung, Pavel Tomkovich, Terry Townshend, Triet Tran, Brian Uher-Koch, Katsumi Ushiyama, Tatsuya Ura, Eric J. Woehler, Chol-Nam Yun, Ma Zhijun, Christoph Zockler and Bingrun Zhu.

The information on waterbirds collected through the Asian Waterbird Census (AWC) has been the basis for a majority of population trend assessments and other information presented in this report. We wish to thank all AWC national coordinators current and past for their dedication in promoting and coordinating national monitoring programmes and to make this information available to the International Waterbird Census (IWC) database maintained by Wetlands International. This information would not have been forthcoming without the tremendous and untiring efforts of a large network of volunteer participants, dedicated bird watchers, citizen scientists and conservationists from all walks of life who have conducted the annual counts and provided their information to the census. We are grateful for the financial support towards annual data management provided by the Association of Members of Wetlands International and the Ministry of the Environment, Japan.

Monitoring data from the China Coastal Waterbird Census (CCWC) has also provided important information for many population assessments. We acknowledge the results of species-specific surveys organised by the various EAAF Task Forces and Working Groups. We value the input of Colette Hall of Wildfowl and Wetlands Trust and Sirui Ye and Tímea Kocsis, volunteers with Wetlands International in producing draft population boundaries. We apologise in advance to any other contributors whom we may have inadvertently left out.

For this review, we greatly appreciate input and feedback from the following AWC national or subnational Coordinators and database managers – Hong Chamnan (Cambodia), Tomoko Ichikawa (Japan), Hwajung Kim (Republic of Korea), Da-Li Lin (Taiwan), David Melville (New Zealand), Toshifumi Moriya (Japan), Yus Rusila Noor (Indonesia) and Yat-Tung Yu (Hong Kong SAR).

We value the excellent feedback on the Summary Report by members of the EAAFP Technical Sub Committee (Nick Davidson - Chair, David Melville - Vice-Chair, Chang-yong Choi, Sergey Dereliev, Richard Fuller, Casey Burns, Noboru Nakamura and Jonathan C. Slaght) and their final approval of it.

We are grateful to Szabolcs Nagy (Wetlands International European Association) for his guidance and experience in the population delineation, generating estimates, trends and CSR development and Ward Hagemeijer (Wetlands International) for his guidance and input.

The preparation of the review has been generously supported by the EAAFP Secretariat and the Norwegian Environment Agency. In addition, we are grateful for financial support towards development of

the Waterbird Populations Consultation Portal by Environment Canada and the Environment Agency of Abu Dhabi that enabled us to undertake the consultation of the CSR and development of the Waterbird Populations Portal by the Environment Agency of Abu Dhabi where the final size and trends estimates and boundary maps will be available.

Introduction

The East Asian – Australasian Flyway (EAAF) is one of the major global flyways for migratory waterbirds, connecting the Alaskan and Russian breeding grounds with East Asia, South East Asia and Australasia. The East Asian – Australasian Flyway Partnership (EAAFP) provides a flyway wide framework to promote dialogue, cooperation and collaboration between a range of stakeholders to conserve migratory waterbirds and their habitats.

Understanding the current size and status of populations of waterbirds in the East Asian – Australasian Flyway (EAAF) is a core requirement for the East Asian – Australasian Flyway Partnership (EAAFP) to deliver its vision, which is to see that migratory waterbirds and their habitats in the East Asian – Australasian Flyway are recognised and conserved for the benefit of people and biodiversity.

Identification, designation and management of EAAF Network Sites, under the EAAFP is based on 1% and 0.25% thresholds derived from waterbird population size estimates compiled by Wetlands International through its long-running Waterbird Population Estimates (WPE) programme.

Decision 12[2] of the EAAFP 10th Meeting of Partners (MoP) states that the Partnership:

1. Adopts a systematic process to maintain up-to-date information on waterbird population estimates, trends and 1% thresholds through the preparation of a periodic EAAF Conservation Status Review;
2. Calls on the Partners and the Secretariat to support periodic production of the EAAF Conservation Status Review (at least every alternate MoP or not more than four yearly) as appropriate within national circumstances;
3. Mandates Wetlands International to coordinate preparation of the EAAF Conservation Status Review in consultation with the Technical Sub-Committee, Science Unit of the Secretariat, Partners, Working Groups, Task Forces and other experts, with a target for a first edition to be produced by end 2019 (with a draft structure provided in Annex 3);
4. Calls on Secretariat in liaison with Wetlands International to ensure that the output of the periodic EAAF Conservation Status Reviews feed into the global WPE updates;
5. Calls on the Monitoring Task Force to develop standardised guidance required for development and implementation of comprehensive national waterbird monitoring programmes.

Objective 3 of the EAAFP Strategic Plan 2019-2028 calls for "*Enhance flyway research and monitoring activities, build knowledge and promote exchange of information on waterbirds and their habitats list requires conservation status reviews for waterbird populations to be periodically produced to set and adapt priorities for action*".

More specifically, the CSR contributes to "Key Result Area 3.2 Conservation status reviews for waterbird populations are produced and updated to set and adapt priorities for action" of the Strategic Plan; for which two Indicators have been identified:

3.2.1 Data on migratory waterbird population estimates, trends and distributions is maintained by the Partnership, and

3.2.2 Two updates have been produced and published by 2028.

In addition to the EAAFP, designation of Wetlands of International Importance (Ramsar Sites) by the Ramsar Convention on Wetlands under its Criterion 6 depends on the availability of 1% waterbird population thresholds. Regular updating of the WPE has been strongly encouraged by Resolutions of the Ramsar Convention to support its Criterion 6 (e.g. Res VI.4, VIII.38, X.22 and XIII.201), and Convention on Migratory Species (e.g. Res 12.112). Additionally, this links priorities of the Ramsar Strategic Plan 2016-2024 (Target 6), The Strategic Plan for Migratory Species 2015-2023 (Goal 3) and the CAFF Arctic Migratory Birds Initiative (AMBI) Work Plan 2019-2023 (Objective 4).

Wetlands International has undertaken periodic updates of the WPE, with the last global update issued in 2012 (5th edition). For the EAAFP region, collation of information was coordinated by Roger Jaensch, Chang-Yong Choi and Taej Mundkur and undertaken in close consultation with EAAF Partners, Working Groups, Task Forces and other experts. However, since 2012 there has not been a comprehensive review of EAAF migratory waterbird population size estimates and trends. New information has been published or collected, including for globally threatened species (including for Black-faced Spoonbill *Platalea minor*, Dalmatian Pelican, Spoon-billed Sandpiper *Calidris pygmaea*, Scaly-sided Merganser *Mergus squamatus*, Nordmann's Greenshank *Tringa guttifer*), as well as a selection of *Gruidae* (Cranes)

[2] https://www.eaaflyway.net/decision-12-development-of-an-eaafp-conservation-status-review-pdf/

(Mirande & Harris 2019), *Anatidae* (Ducks, geese and swans) (Fox & Leafloor 2018) and long-distance shorebird species reaching Australia (Hansen *et al*. 2016, 2022). This information has been generated by a range of researchers, Partners, Working Groups and Task Forces in the last few years.

During this time, the number of globally threatened species on the IUCN Red List of Threatened Species has increased and many populations have declined. As a result, 1% thresholds for many EAAF waterbird populations established under WPE5 (Waterbird Population Estimates 5th Edition) are now too high. Many wetlands may now qualify as new EAAFP Flyway Network Sites (FNS) or Ramsar Sites based on updated 1% thresholds.

Therefore, there is an urgency to undertake an EAAF-wide comprehensive review of population sizes and trends to ensure that up-to-date conservation status assessments are available to inform the work of the Partnership. A similar process is already well established for the African Eurasian Waterbird Agreement (AEWA) for a triennial review and the most recent edition of the AEWA Conservation Status Review (CSR)[3] provides a basis for the development of the first EAAF CSR.

Based on EAAFP MoP10 Decision 12, the EAAFP Secretariat contracted Wetlands International in December 2020 to produce the 1st edition of the EAAF CSR working in close collaboration with EAAF Partners, Working Groups and experts and jointly organised with the EAAFP Secretariat (see Annex 1 for Terms of Reference, a provisional timeline and role of partners).

[3] https://www.unep-aewa.org/en/document/report-conservation-status-migratory-waterbirds-agreement-area-eighth-edition

Part 1. Taxonomic and geographic patterns of migratory waterbird populations included in the EAAFP

Understanding the current size and trend status of populations of waterbirds in the EAAF is a core requirement for the EAAFP. This section provides the context and outlines the scope of the report.

Taxonomy & Nomenclature

The taxonomy used in the CSR report is harmonised with the nomenclature in the *Handbook of the Birds of the World and BirdLife International Checklist of the Birds of the World (2014)*, as per EAAFP Decision 10.10[4]. This taxonomy also serves as the official taxonomic reference to the IUCN Red List of Threatened Species, the Convention on Migratory Species and African Eurasian Waterbird Agreement, and is expected to be implemented globally in the 6th edition of the Waterbird Population Estimates.

Biogeographical Population

A waterbird "biogeographical population" is defined as:

> *'A population of a species or a subspecies that is either geographically discrete from other populations at all times of the year, or at some times of the year only, or is a specified part of a continuous distribution so defined for the purposes of conservation management".*

Rather than distinct biological populations, biogeographic populations are practical management units with considerable exchange of individuals although they always belong to a single subspecies of the species. Biogeographic populations are usually defined by their unique breeding (bre) or non-breeding (non-bre) area but may extensively overlap with other populations during other stages of its annual cycle. This definition provides the basis of identification of populations (migratory and residents) used by the Ramsar Convention and EAAFP.

Migratory Population

The definition of a *migratory population* for the EAAFP[5] is provided in Annex 2 of the Partnership document as:

East Asian – Australasian Flyway population of any species or lower taxon of waterbirds of the taxonomic groups identified in Appendix III, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries.

As per the Partnership document, Appendix III includes a list of families. A list of species and populations has been derived from the WPE5.

Scope of this CSR

The CSR1 includes populations of taxa included in families adopted in Appendix III of the Partnership Document (Figure 1) and covers 216 species (Annex 8) and 276 biogeographic populations (Annex 3 of this report). These include EAAFP migratory waterbird populations listed in the WPE5 and changes in line with latest taxonomic updates (Handbook of the Birds of the World and BirdLife International, 2020). In addition, population definitions have been updated by newly published research that has enabled evidence-based definition of flyways and populations of some species and subspecies (particularly of

[4] https://www.eaaflyway.net/decision-10-standardized-taxonomy-for-migratory-waterbirds-pdf/
[5] Dec9.1 Definition of Migratory Species

Gruidae (Crane), *Anatidae* (Ducks, geese and swans) and shorebird species). New species or subspecies that are not formally recognised by the Handbook of the Birds of the World and BirdLife International (2020) have not been considered as new populations for this review, including those described recently, such as Black-tailed Godwit *Limosa limosa bohaii* (Zhu et al. 2021).

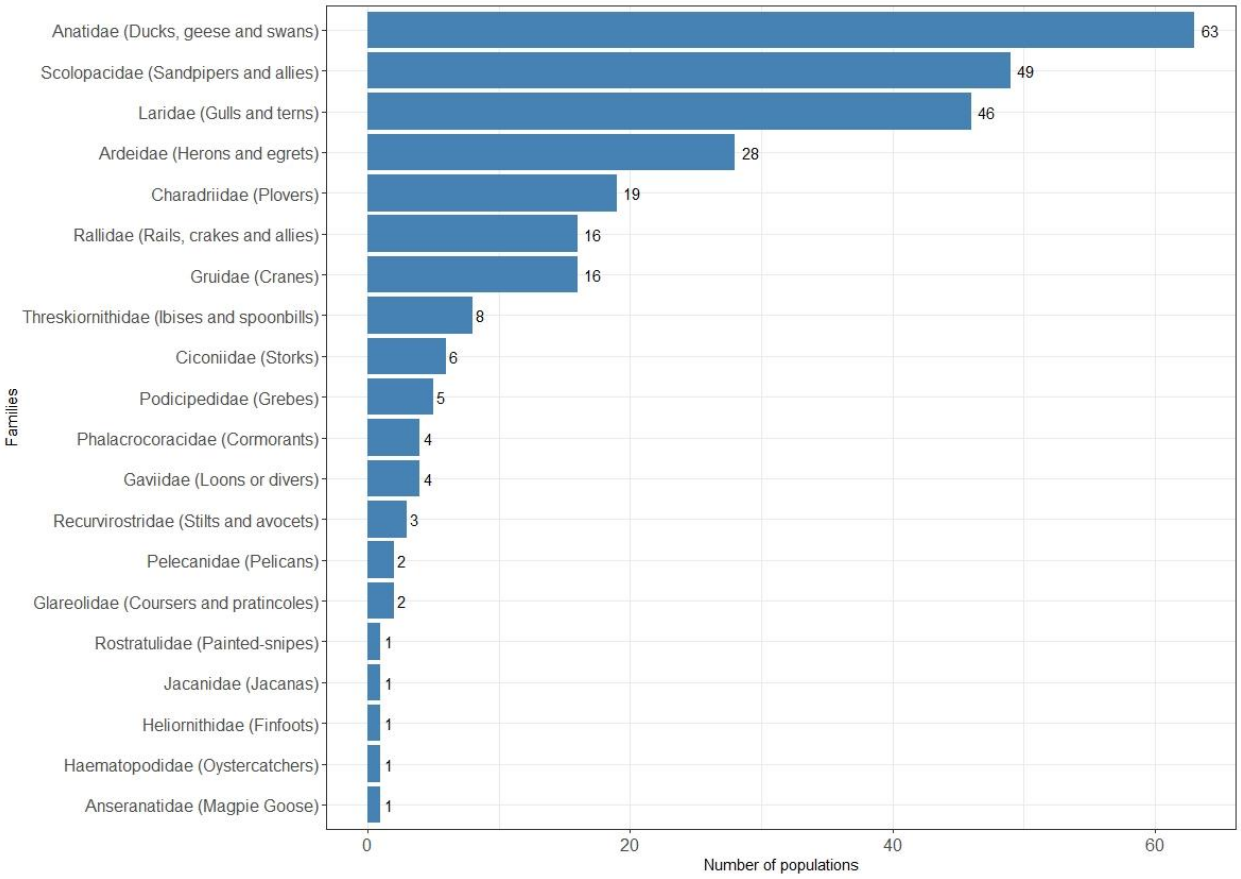

Figure 1. Number of EAAFP populations per family.

The largest families are *Anatidae* (Ducks, geese and swans) with 63 populations (23%), *Scolopacidae* (Sandpipers and allies), 49 populations (18%) and *Laridae* (Gulls and terns), 46 populations, (17%). Together, these three families represent 58% of the EAAF populations.

Individual biogeographic populations of eight other waterbird groups, namely, *Alcidae* (Auks, murres and puffins), *Oceanitidae* (Austral Storm Petrels), *Procellarridae* (Shearwaters & petrels), *Stercorariidae* (Skuas and jaegers), *Phaethontidae* (Tropicbirds), *Hydrobatidae* (Northern storm petrels), *Sulidae* (Gannets and boobies), *Fregatidae* (Frigatebirds) are included in Appendix III of the Partnership document (as listed in Annex 2). These populations need to be defined by the Seabird Working Group (with population size estimates, trends and boundaries) and adopted by the Partnership. It is expected that these populations will be included in future CSR editions.

Globally, migratory waterbird populations are classified into major flyway groups based on multi-species groups which may overlap particularly in the breeding grounds and staging sites, particularly for the long distance migrants (Figure 2). Alternatively, populations may be allocated to biogeographic realms if they remain entirely or largely within this realm during their life cycle. Biogeographic realms are divisions of the land masses of the world according to their distinctive floras and faunas following WWF as outlined in Olson *et al*. (2001), with the additional distinction between the east and west Palearctic realms (Figure 3). Consequently, populations have been assigned to the zone (realm or flyway) where they spend the longer part of their annual cycle. Against this simplified generalisation, some movements are east-west between biogeographic realms, especially populations migrating between the Eastern Palearctic and the Nearctic. These populations have been assigned to the Central Pacific Flyway.

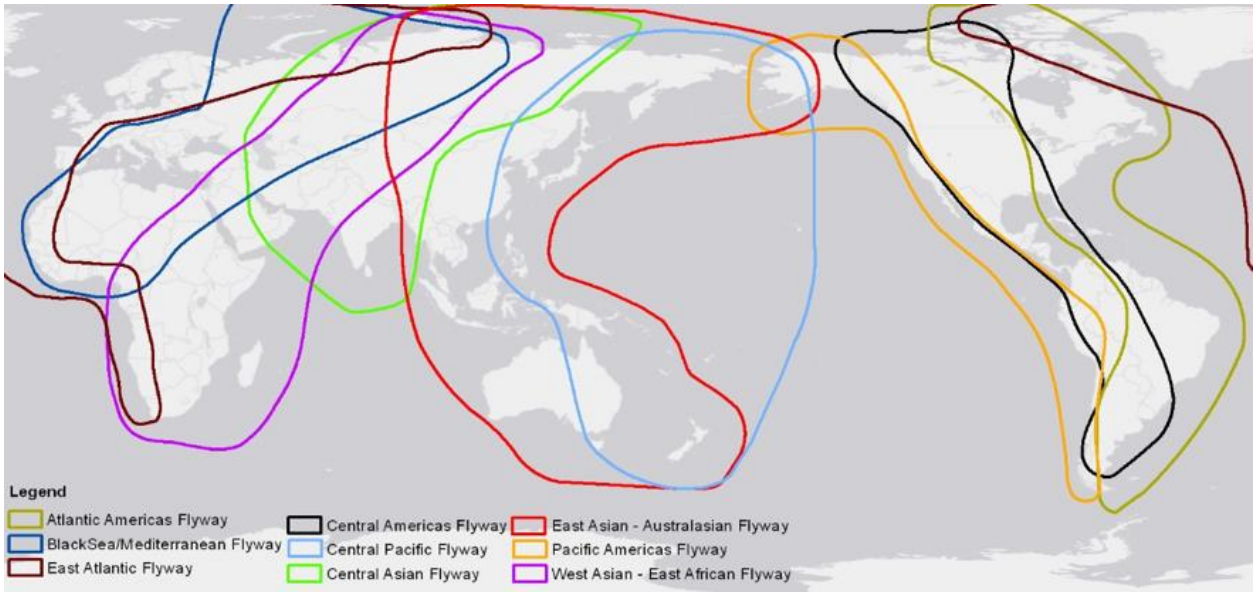

Figure 2. Migratory waterbird flyways (source: https://wpp.wetlands.org/background/WAF)

The populations covered by the EAAFP are assigned to three main flyways: the East Asian-Australasian Flyway (128 populations, 46%); Central Pacific Flyway (15 populations, 5%); and Central Asian Flyway (CAF) (12 populations, 4%). Some populations that migrate into the African-Eurasian Flyways and Americas flyways also breed in the arctic region (in Siberia and Alaska/NW Canada) with northern breeding EAAF populations. As these populations are largely peripheral in the EAAFP region, they are not listed under the Partnership and are hence not included in this review. Most of the remaining EAAFP populations are assigned to three biogeographic realms: the Eastern Palaearctic (59 populations, 21%); Indo-Malay (37 populations, 13%); and Australasia (23 populations, 8%). Two populations are largely marine and occur widely across the Indian and/or Pacific Oceans. As these cannot be accommodated within the traditional flyways or biogeographic realms, a new category “Indian and Pacific Oceans” is introduced for these populations.

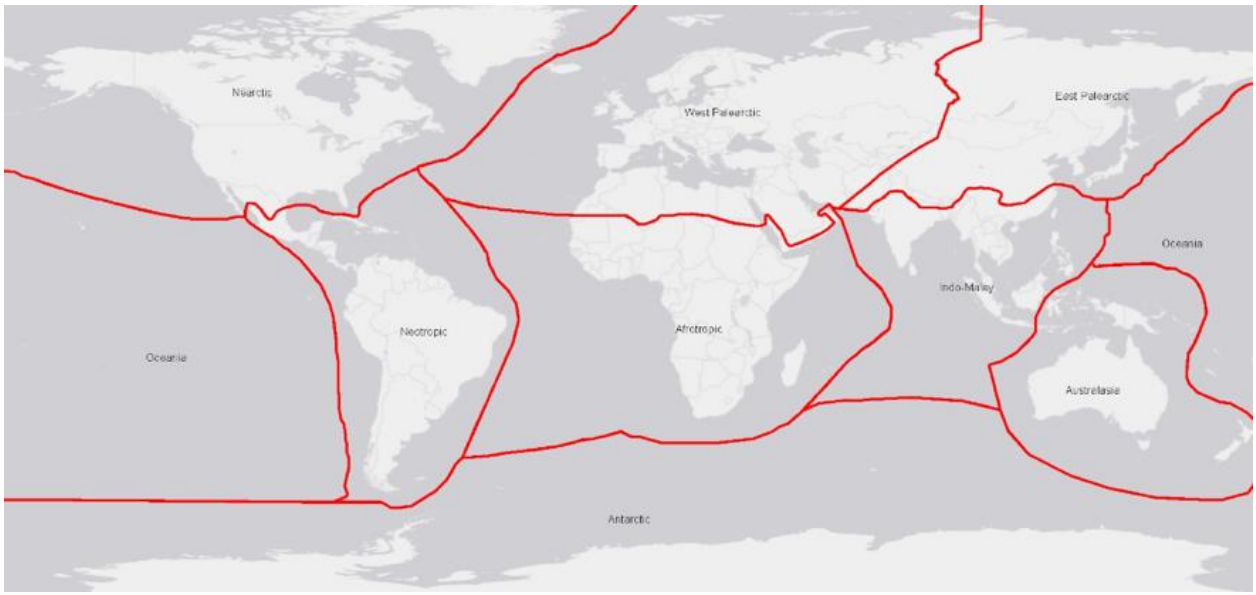

Figure 3. Biogeographic realms of the world (based on Olson *et al*. 2001)

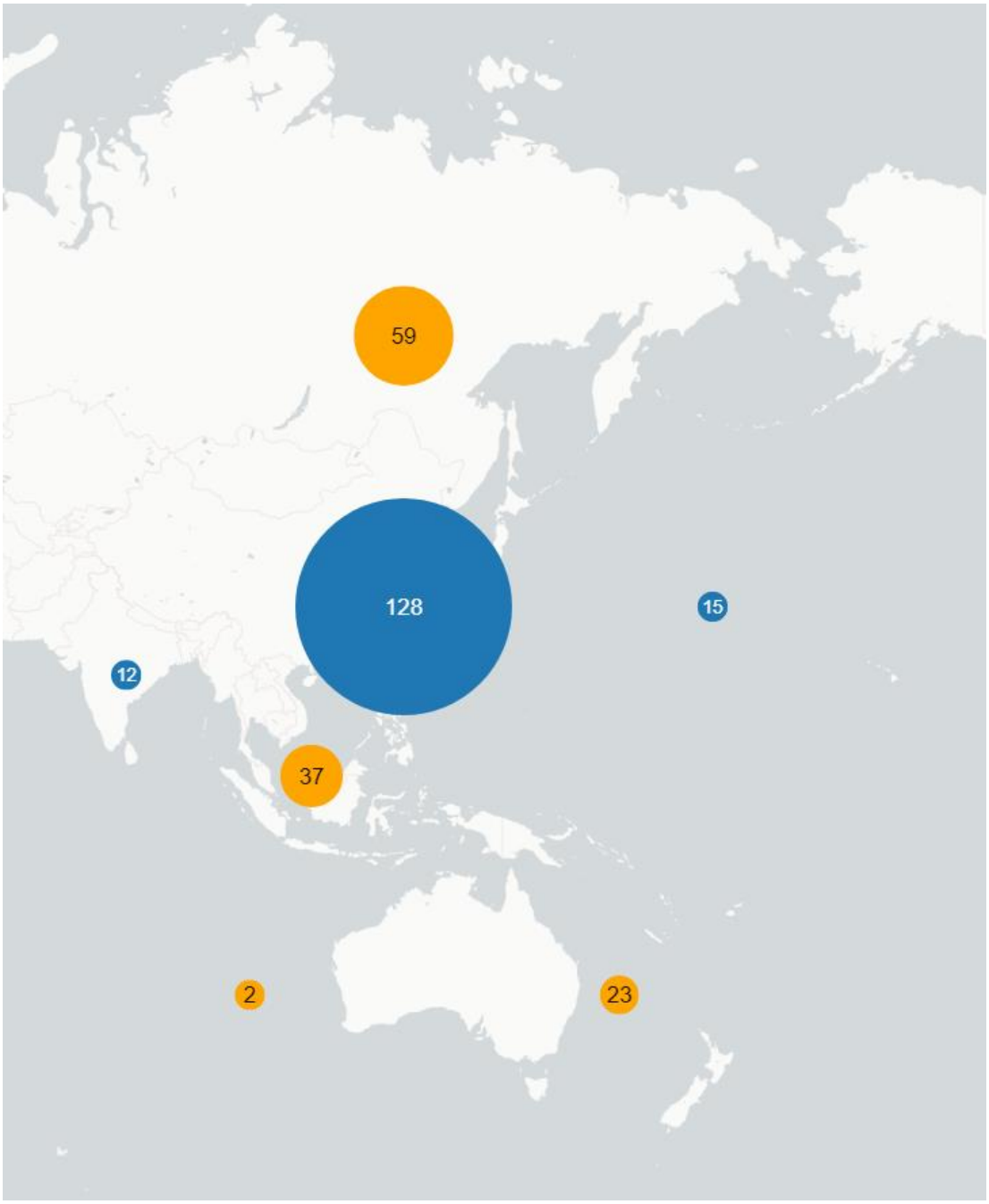

Figure 4. Number of EAAFP populations by flyway groups. Upper row Eastern Palearctic realm in orange, middle row from left to right Central Asian Flyway, East-Asian Australasian Flyway and Central Pacific Flyway in blue, lower row Indo Malay realm in orange, bottom row from left to right Indian and Pacific Oceans and Australasia realm in orange.

Population Size Estimates and Trends

The CSR1 updates population status information provided in the WPE5. For 159 (58%) EAAF populations, new information was available to review population trends and 104 (37%) have information collected or published after 2012 that have contributed to population size estimates revisions. For 28 (10%) populations, there is insufficient information to propose any population size estimate. 25 (9%) of estimates are based on information from 1994 or earlier[6]. 104 (38%) EAAF waterbird species have population size estimates based on data since 2012[7].

Draft size and trend estimates were derived from literature reviews and analysis of available datasets.

[6] Publication of the first edition of the Waterbird Population Estimates in 1994.
[7] Publication of the fifth edition of the Waterbird Population Estimates in 2012.

For 73 populations, trend estimates are produced based partly or entirely on AWC data, which is especially appropriate to monitor wetland populations that are geographically discrete in the non-breeding season. Coverage under the AWC is generally insufficient for accurate population size estimates, although when AWC count totals exceeded earlier population estimates, this was used as evidence to revise size estimates. Other important data sources for population size and trend assessments included national trend analyses reports, global or regional Red List assessments, specialised taxonomic or regional status assessments, action plans, information available from EAAFP Working Groups, Task Forces or IUCN SSC and Wetlands International Species Specialist Groups, articles and personal communications with researchers and specialists. Published population size and trend estimates were reviewed critically. If there were multiple references, the recency and the quality of the data were assessed, and the more recent and better assessments were preferred. Trend quality was assessed according to the criteria established for WPE5, based on the system of the International Wader Study Group. For further details see Mundkur et al. (2021).

The draft size and trend estimates have been refined through an international expert consultation during May-July 2021. A draft was uploaded on a Waterbird Population Estimates Portal and guidance for the review was produced (Mundkur et al. 2021). These were shared by the EAAFP Science Unit to all Working Groups, Task Forces, waterbird specialist groups of IUCN and Wetlands International and a large number of national and international species experts. Thereafter we have followed up with experts on specific issues.

Feedback has been compiled and the latest version of the size estimates, trends and 1% thresholds are uploaded on the Waterbird Populations Portal https://wpp.wetlands.org/

Notes on treatment of Bangladesh in EAAF population trends.
Bangladesh (and NE India) straddle an area of overlap of the EAAF and CAF. For purposes of the definition of many biogeographic boundaries, this region is geographically connected during the annual migrations of birds that use either flyway.

For calculation of EAAF population trends, Bangladesh is treated as follows:

- Largely East and/or South east Asian populations that depend on coastal habitats, Bangladesh and coastal Bay of Bengal are included as EAAF populations. These include Red-necked Stint *Calidris ruficollis* and Spoon-billed Sandpiper. Some of these overlap areas may also be included in future CAF trend analyses.
- Largely East and/or Southeast Asian populations that extend into eastern India and Bangladesh are included in the EAAF analysis e.g. Falcated Duck *Mareca falcata* and Baer's Pochard *Aythya baeri*.
- Continguous populations across inland/freshwater habitats of South and Southeast Asia, Bangladesh is included only in CAF populations. This reflects the closer linkage between the terminus of migration in Bangladesh with adjoining shared rivers systems, mainly Brahmaputra, with northern India. We delineate this boundary, by the eastern Himalaya and adjoining mountains that separate Myanmar from Bangladesh and Northeast India and which hold few large wetlands. It is known that these are not high mountains and most species can overfly them. This includes Common Pochard *Aythya ferina*, Tufted Duck *Aythya fuligula*, Garganey *Spatula querquedula*, Northern Shoveler *Spatula clypeata*, Common Teal *Anas crecca*, Common Shelduck *Tadorna tadorna* and Ruddy Shelduck *Tadorna ferruginea*.

The main implication of such allocation is limited to a few populations in Bangladesh that will no longer be included in the EAAF list and so would not normally qualify for designation of network sites.

Population Boundaries

A simple map (polygon) has been produced showing the geographic limits of each biogeographic population. Population boundaries follow the range definition of the Convention on Migratory Species (Article I.1.h): "*Range means all the areas of land or water that a migratory species inhabits, stays in temporarily, crosses or overflies at any time on its normal migration route*". As stated in the flyway definition for populations, the range includes the breeding, moulting and non-breeding and all areas passed between these. This range definition is also applicable to sedentary or dispersive species and their populations.

The aim of the delineation of biogeographic populations is to assist conservation and management. Therefore, it is more important to capture the main distribution areas rather than including the exceptions. Thus the population boundaries should encompass the areas where the species normally occurs and vagrants should not be included into the range of the population. Additionally, areas used during cold or dry weather movements should be included because using those areas is a critical part of the species ecology and survival strategy.

This is the first time population boundary maps have been created for all EAAF populations, based on criteria outlined in Mundkur *et al.* (2021). The population boundaries for most *Anatidae* (Ducks, geese and swans) species are based on Miyabayashi & Mundkur (1999) and have been redrawn by the Wildfowl & Wetlands Trust, while boundaries for *Gruidae* (Crane) populations are largely based on Mirande & Harris (2019). Additional draft maps have been made by volunteers at Wetlands International. The BirdLife International Data Zone, eBird, AWC reports and national/regional field guides (see References) have been used to create the first draft boundaries for these populations.

A citation to other major references that contribute to the delineation and refinement of the population boundaries are provided based on movement data on tracking studies and movements of colour marked birds, tracking by satellite tracking and geolocators (see details in Mundkur et al. 2021).

The draft boundaries have been refined through consultation with international experts. To support this, draft boundary maps were uploaded on an open access Waterbird Population Boundaries Consultation Portal, as well as family group boundary map images prepared in pdf files. These were widely shared by the EAAFP Science Unit to all Working Groups, Task Forces, waterbird specialist groups of IUCN and Wetlands International and a large number of national and international species experts.

Feedback has been compiled and the final versions are available on the global Waterbird Populations Portal https://wpp.wetlands.org/.

Further review and refinements are expected to be conducted as part of future CSR procedures.

Part 2. Population sizes – summarising information available on population estimates and gaps

The CSR1 summaries the latest information available on the waterbird population size estimates. It provides an update from the information provided in the WPE5 (2012). Size estimates are available for 248 (90%) of the EAAF populations and 28 (11%) populations have none.

Population size estimate quality categories in the EAAF CSR1 are equivalent to those in the WPE and AEWA CSRs (Table 1).

Table 1. Population size estimate quality categories.

Category	Description
No estimate	No population estimate is available at all
Best guess	The population estimate is based on very little survey data
Expert opinion	The population estimate is based on incomplete survey data and expert knowledge was used to account for missing data
Census based	The population estimate is based on almost complete survey or statistically robust estimates

Based on this first CSR review, the population size estimates of 45 populations (16%) are census based, 81 populations (29%) are based on expert opinion, and 122 populations (44%) are best guess (Figure 5).

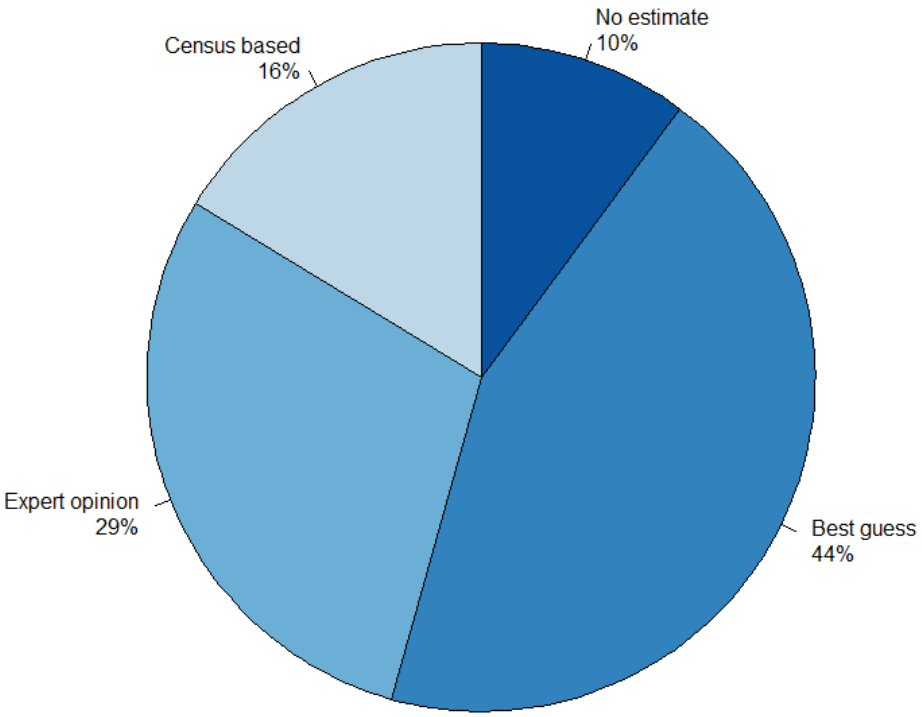

Figure 5. Quality of population size estimates of EAAF populations.

The quality of information on population size estimates is geographically variable. 64% of populations in the Eastern Palearctic region are either census-based or expert opinion compared to 52% of East Asian-Australasian Flyway populations, 50% for the Indian and Pacific Oceans, 33% for Central Pacific, 42% for Central Asia, 22% for Indo-Malay and 17% for Australasian populations (Figure 6). The high proportion in the Eastern Palearctic region is due to the higher number of *Gruidae* (Cranes) and geese populations, which combined account for 52% of Eastern Palearctic populations with known estimates. These larger sized species are easier to identify and monitor under existing monitoring efforts.

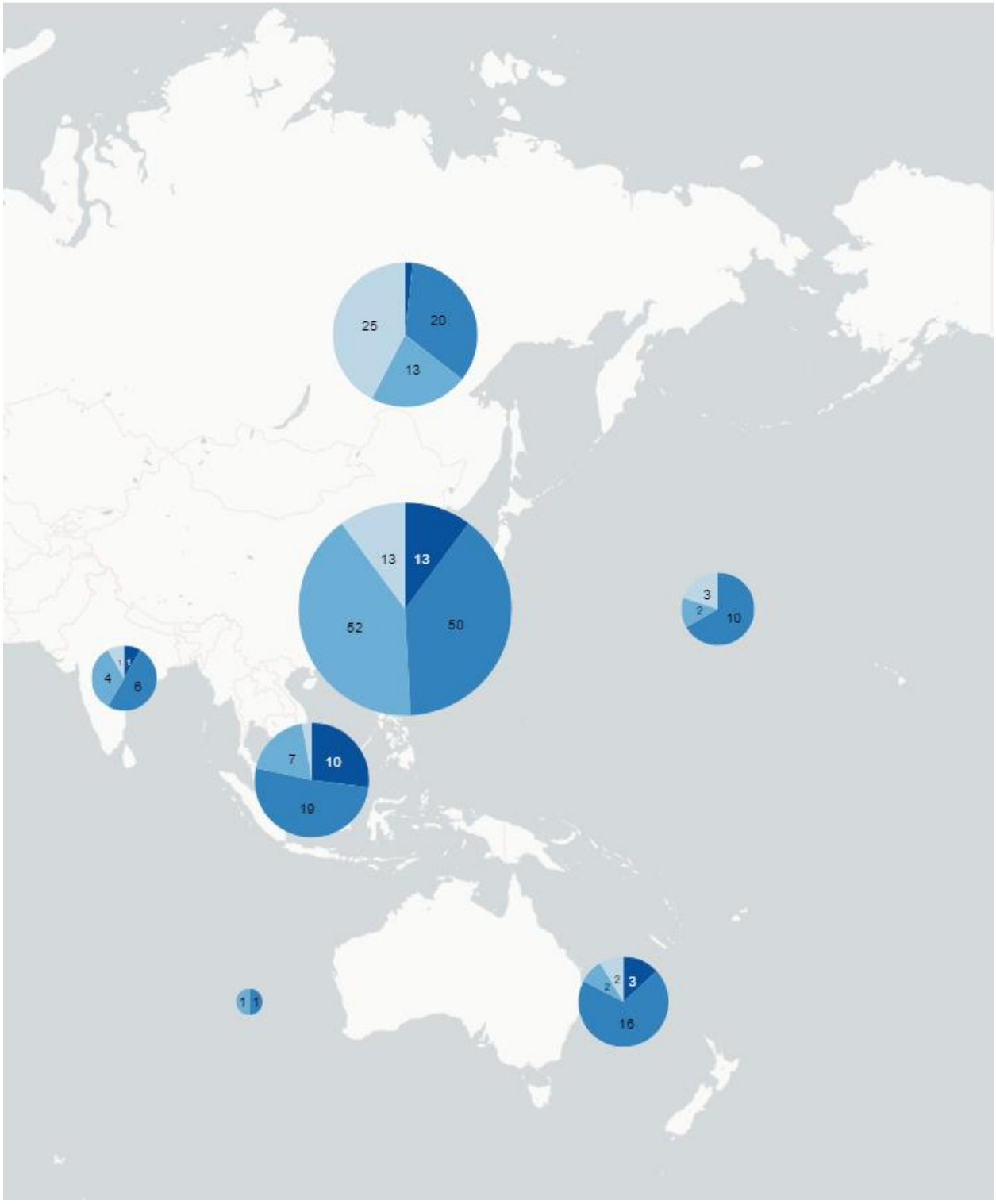

Figure 6. Quality of population size estimates by flyway groups (numbers). Flyway groups as in Figure 3. Colour codes from darkest to lightest blue: no estimate, best guess, expert opinion and census based.

The quality of information on population size estimates across families is also variable (Figure 7). 94% of *Gruidae* (Cranes) and 71% of *Anatidae* (Ducks, geese and swans) have population size estimates that are either census-based or expert opinion, whereas no *Podicipedidae* (Grebes), *Rallidae* (Rails, crakes and allies) or *Gaviidae* (Loons or divers) have estimates better than a best guess. Populations of these families are generally poorly covered by existing monitoring schemes for various reasons (see Part 7).

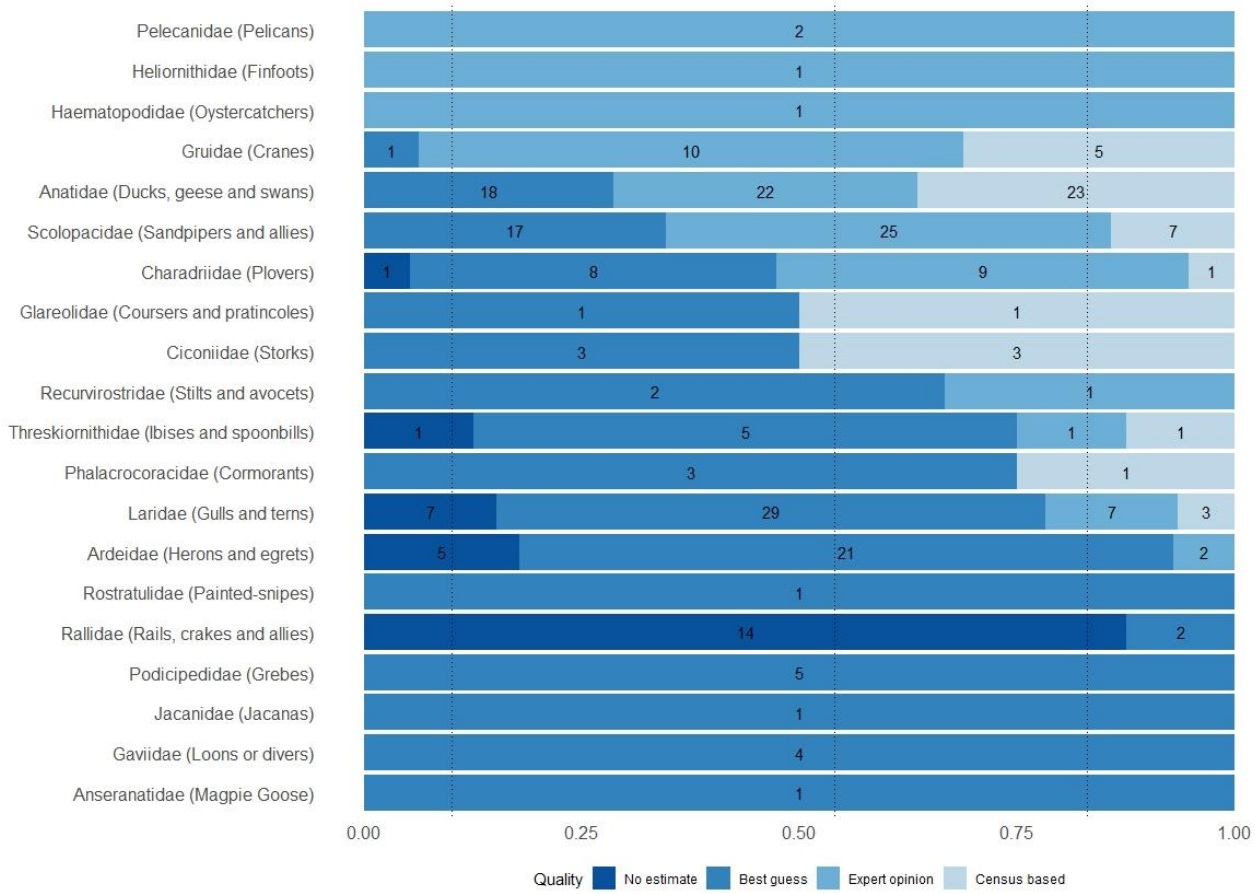

Figure 7. Quality of population size estimates by family. The dotted lines from the left to right indicate the overall proportion of populations with no estimate, best guess estimates and expert opinion.

No size estimate is available for 28 populations (11%), mainly *Ardeidae* (Herons and egrets) where colonial counts would be most informative, *Laridae* (Gulls and terns) particularly northern breeders and *Rallidae* (Rails, crakes and allies) that are mostly secretive species and difficult to census (Table 2). The 122 populations for which a "best guess" estimate is available are listed in Annex 4.

Table 2. EAAFP populations with no size estimates.

Family	Scientific Name	Common Name	Population Name
Rallidae	*Rallina tricolor*	Red-necked Crake	New Guinea, NE Australia
Rallidae	*Rallina fasciata*	Red-legged Crake	S & SE Asia
Rallidae	*Rallina eurizonoides*	Slaty-legged Crake	*telmatophila*
Rallidae	*Rallus aquaticus*	Western Water Rail	*korejewi*, Western Siberia/South-west Asia
Rallidae	*Rallus indicus*	Eastern Water Rail	*indicus*
Rallidae	*Lewinia striata*	Slaty-breasted Rail	*albiventer*
Rallidae	*Lewinia striata*	Slaty-breasted Rail	*gularis*
Rallidae	*Zapornia fusca*	Ruddy-breasted Crake	*erythrothorax*
Rallidae	*Zapornia fusca*	Ruddy-breasted Crake	*bakeri*

Family	Scientific Name	Common Name	Population Name
Rallidae	*Zapornia paykullii*	Band-bellied Crake	E, SE Asia
Rallidae	*Zapornia pusilla*	Baillon's Crake	*pusilla* SE Asia (non-bre)
Rallidae	*Amaurornis phoenicurus*	White-breasted Waterhen	*phoenicurus*, E & SE Asia
Rallidae	*Gallicrex cinerea*	Watercock	*cinerea*, E & SE Asia
Rallidae	*Gallinula chloropus*	Common Moorhen	*chloropus*, SE Asia (non-bre)
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	E, SE Asia
Ardeidae	*Butorides striata*	Green-backed Heron	*amurensis*
Ardeidae	*Butorides striata*	Green-backed Heron	*actophila*
Ardeidae	*Ardeola speciosa*	Javan Pond-heron	*speciosa*
Ardeidae	*Ardea alba*	Great White Egret	*modesta*, E/SE Asia (bre)
Ardeidae	*Ardea alba*	Great White Egret	*alba*, E Asia (bre)
Charadriidae	*Charadrius alexandrinus*	Kentish Plover	*nihonensis*
Laridae	*Anous minutus*	Black Noddy	*worcesteri*
Laridae	*Larus smithsonianus*	Arctic Herring Gull	*vegae*
Laridae	*Onychoprion fuscatus*	Sooty Tern	*nubilosus*, Indonesia
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus* (*rogersi*)
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus* (*novaehollandiae*)
Laridae	*Chlidonias hybrida*	Whiskered Tern	*hybrida*, Transbaikalia to E China mainland & Taiwan
Laridae	*Sterna sumatrana*	Black-naped Tern	*sumatrana*

All but one are species classified as least concern under the IUCN Red List; with the Band-bellied Crake *Zapornia paykullii* (E, SE Asia population) listed as near threatened.

144 population size estimates are based on data collated from 2012 or earlier (i.e. the publication of the WPE5). This is due to:

1. Insufficient collection of monitoring data in recent years. Data from breeding surveys is particularly lacking, which, amongst others, prohibits reliable updates of colonial breeding species, reed-bed or cryptic nesting species (e.g. *Ardeidae* (Herons and egrets), *Laridae* (Gulls or terns) and *Phalacrocoracidae* (Cormorants)) and populations that cannot be separated in the non-breeding season (e.g. the four populations of Dunlin *Calidris alpina* and Lesser Sandplover *Charadrius mongolus,* and three populations of Common Redshank *Tringa totanus*). Occasionally a population is only adequately monitored across a part of its range e.g. Emperor Goose *Anser canagicus* or Pacific Loon *Gavia pacifica* which are monitored in Alaska but not in eastern Russia.

2. Inadequate knowledge on the distribution and definition of populations, such as the Wrangel Island (Russia) breeding subspecies of Grey Plover *Pluvialis squatarola tomkovichi* in its non-breeding grounds in East and Southeast Asia or the Bar-tailed Godwit *Limosa lapponica anadyrensis* in its Russian breeding grounds.

3. Uncertain species and subspecies status, such as Kentish Plover *Charadrius alexandrinus* that was split into two species, *Charadrius alexandrinus* and White-faced Plover *Charadrius dealbatus*, the exact distributions and populations of which are not completely known. The status and distribution of the subspecies *Charadrius alexandrinus nihonensis* in East Asia – Southeast Asia / western Pacific is also uncertain.

58% of populations have 100,000 individuals or fewer. 32% of populations have a geomean of the minimum and maximum estimate greater than 100,000 individuals, with 4% greater than 1,000,000 individuals (Figure 8).

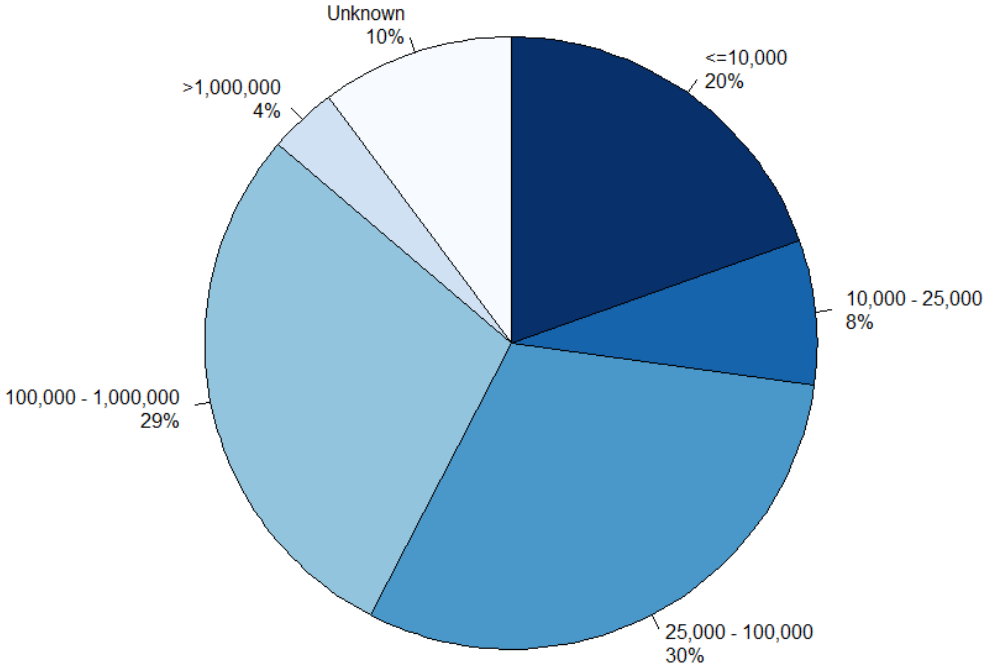

Figure 8. EAAFP populations by size classes (in individuals).

In all, 17 populations have an estimated size of less than or up to 1,000 individuals (Table 3). The smallest populations are of the Critically Endangered Chinese Crested Tern and Dalmatian Pelican, each with only up to 150 individuals remaining.

Table 3. EAAFP species with population size estimates of less than 1,000 individuals.

Family	Scientific Name	Common Name	Population Name	RL[1]	Min	Max	Quality
Anatidae	*Cygnus olor*	Mute Swan	E China (non-bre)	LC	400	400	Census based
Anatidae	*Cygnus olor*	Mute Swan	Korean Peninsula (non-bre)	LC	200	300	Best guess
Anatidae	*Anser cygnoid*	Swan Goose	coastal China & Korea (non-bre)	VU	420	420	Census based
Anatidae	*Anser fabalis*	Bean Goose	serrirostris, Japan (non-bre)	LC	900	900	Census based
Heliornithidae	*Heliopais personatus*	Masked Finfoot	S, SE Asia	EN	160	460	Expert opinion
Gruidae	*Grus vipio*	White-naped Crane	China (non-bre)	VU	900	1000	Expert opinion
Gruidae	*Grus antigone*	Sarus Crane	sharpii, Myanmar	VU	300	400	Expert opinion
Gruidae	*Grus antigone*	Sarus Crane	sharpii, Indochina	VU	250	250	Expert opinion
Gruidae	*Grus japonensis*	Red-crowned Crane	E China (non-bre)	VU	350	600	Expert opinion
Gruidae	*Grus nigricollis*	Black-necked Crane	Central (non-bre)	NT	230	300	Expert opinion
Ciconiidae	*Leptoptilos dubius*	Greater Adjutant	Cambodia (bre)	EN	750	750	Census based
Ciconiidae	*Ciconia nigra*	Black Stork	E Asia (non-bre)	LC	250	250	Census based
Pelecanidae	*Pelecanus crispus*	Dalmatian Pelican	E Asia	NT	130	150	Expert opinion
Scolopacidae	*Calidris pugnax*	Ruff	E & SE Asia, Australia (non-bre)	LC	500	1000	Best guess
Scolopacidae	*Calidris pygmaea*	Spoon-billed Sandpiper	E Siberia (bre)	CR	800	800	Census based
Scolopacidae	*Calidris alpina*	Dunlin	actites	LC	900	900	Best guess
Laridae	*Thalasseus bernsteini*	Chinese Crested Tern	E China (bre)	CR	100	150	Expert opinion

[1] RL is the IUCN Red List status of the species; Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) and Least Concern (LC).

Overall, the minimum and maximum estimates of the migratory waterbirds of the EAAF is estimated to be between 28 to 68 million individuals from the 248 of 276 populations with size estimates. This estimate does not include two largely marine and far-ranging populations of the Indian and Pacific Oceans (Sooty Tern *Onychoprion fuscatus nubilosus*, Red Sea, Gulf of Aden, E to Pacific) and Pacific Ocean (Black-legged Kittiwake *Rissa tridactyla pollicaris*, W Pacific (bre)), which are estimated at 18,200,000 and 4,800,000 individuals respectively.

Part 3. Population trends

For populations based on the AWC, count and site data in the IWC database was checked and allocated to population level prior to an analysis to calculate trends, as per the process outlined in Langendoen et al. (2021). Where possible, three periods of AWC population trends were calculated, namely:

- The 10-year trend to assess whether a population is in short-term increase or decline.
- The population change over three generations, important in the context of application of BirdLife/IUCN Red List assessment.
- The overall (long-term) trend, providing context to judge whether a population has changed over the entire period that it has been monitored sufficiently under the AWC.

The 10-year trend was preferred for population trends based on AWC data. This is partly because short term trends are more sensitive to recent changes and partly because the reliability of data has increased as national monitoring schemes have become more standardised over time. Trends derived from other sources use the period defined by the reference. Any trend older than 10 years was considered unknown. The quality of trend estimates was assessed following the scoring system developed by the International Wader Study Group and has been used by the AEWA CSR reports. During the CSR1 process these population trend codes were interpreted further as defined in Table 4.

Table 4. Trend quality categories.

Category	**Description**
1. **No idea**	No monitoring at international scale in either breeding or non-breeding/wintering periods. Trends unknown. This category also includes populations where trends are statistically uncertain unless other evidence allows estimation of the trend.
2. **Poor**	Some international monitoring in either breeding or non-breeding periods although inadequate in quality or scope. Trends assumed through partial information. a. Assumed from anecdotal information or based on habitat change; b. Unrepresentative coverage; c. Short-term trend based on <5 years of data
3. **Reasonable**	International monitoring in either breeding or non-breeding/wintering periods that is adequate in quality or scope to track direction of population changes. a. Trend is statistically uncertain but has adequate quality and scope. b. Different sources provide different trend direction
4. **Good**	International monitoring in either breeding or non-breeding/wintering periods that is adequate in quality or scope to track direction of population changes with defined statistical precision. The trend is statistically certain and has adequate quality and scope.

29% of populations are either good or reasonable (Figure 9), with 32 (12%) populations assessed as good and 48 (17%) reasonable. For 78 (28%) information remains poor and for 118 (43%) we have no idea. Prioritising conservation action for EAAF populations will be challenging without an improvement in quality of such trend information.

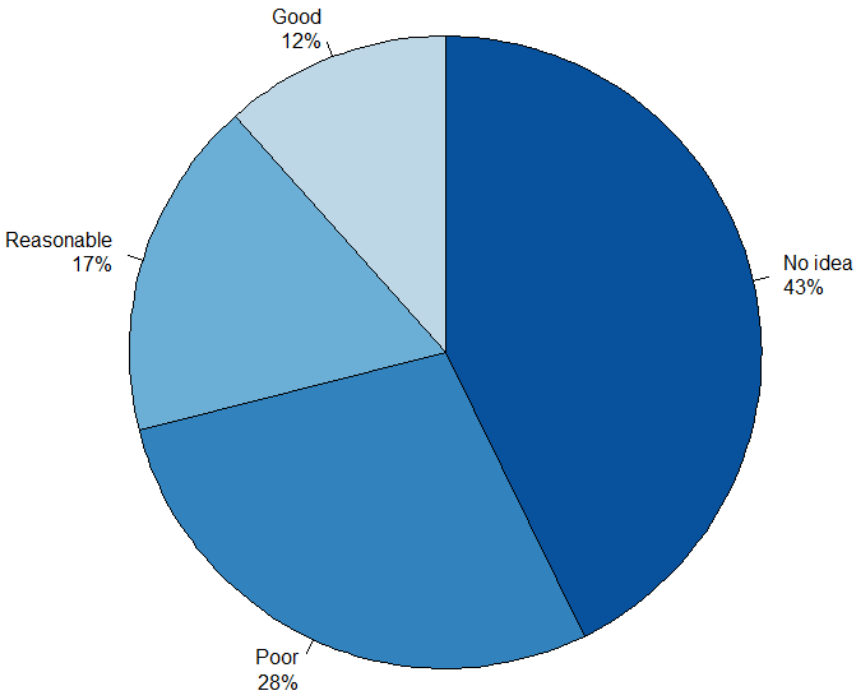

Figure 9. Trend estimates quality of EAAFP populations. Colour codes from darkest to lightest blue: no idea, poor, reasonable and good (see Table 4).

The best population trend estimates are for the Eastern Palearctic (27 or 46% of populations, good or reasonable) followed by populations of the East Asian-Australasian Flyway (36 or 28%), Central Asian Flyway (3 or 25%), Central Pacific Flyway (1 or 7%), Indo-Malay (9 or 24%), Australasia (4 or 17%) and Indian and Pacific Oceans (0 or 0%) regions (Figure 10).

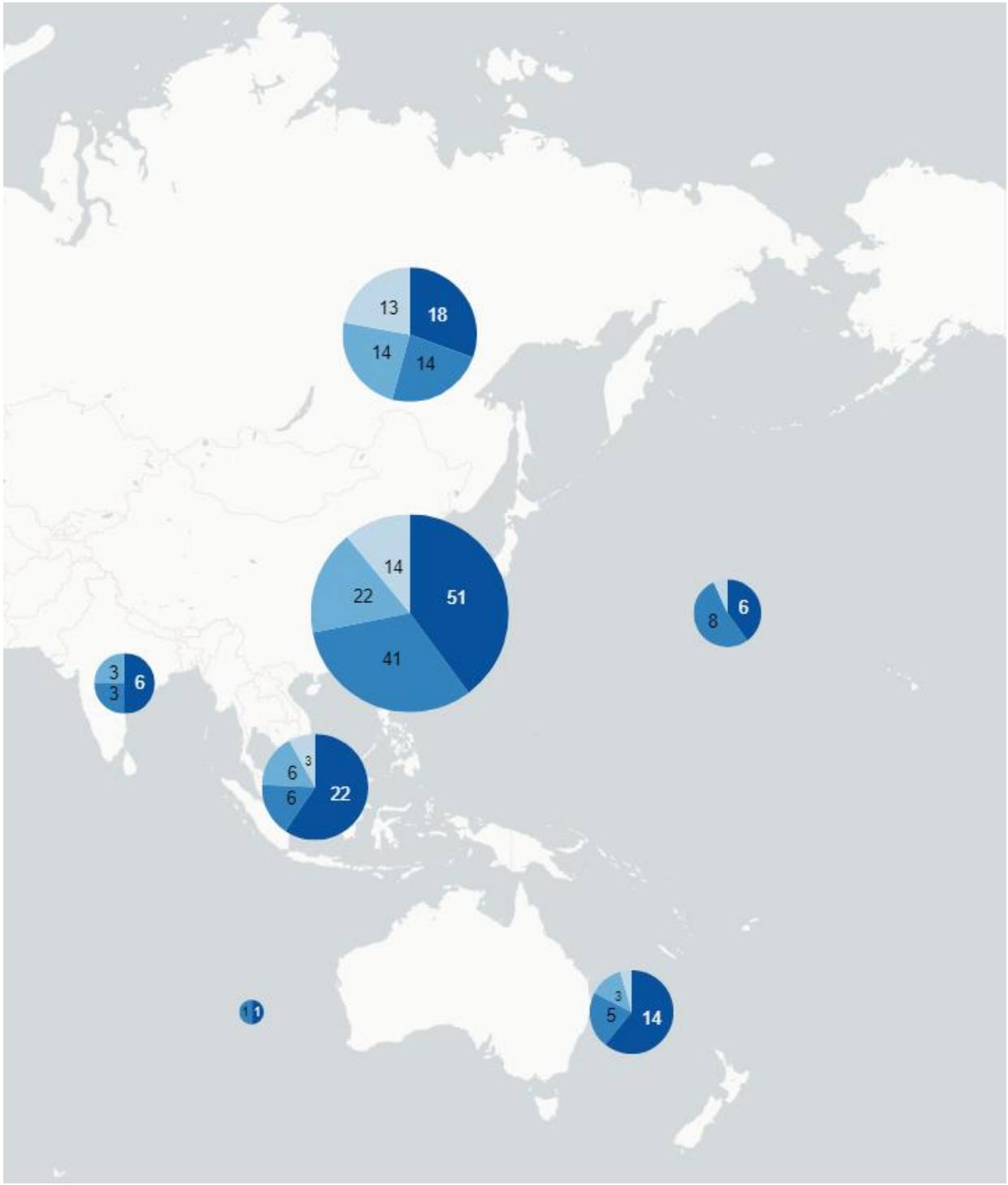

Figure 10. Trend estimates quality by flyway group. Colour codes from darkest to lightest blue: no idea, poor, reasonable and good.

Trend quality varied considerably across families (Figure 11). *Gruidae* (Cranes) (13 or 81%), *Anseranatidae* (Magpie Goose) (1 or 100%), *Heliornithidae* (Finfoots) (1 or 100%), *Ciconiidae* (Storks) (3 or 50%) and *Pelecanidae* (Pelicans) (2 or 100%) all had a majority of trends assessed as good or reasonable, though many of these are small families. The largest families, *Anatidae* (ducks, geese and swans) (63 populations) and *Scolopacidae* (Sandpipers and allies) (49 populations) had respectively 38% and 37% good or reasonable populations. Many of these are based on non-breeding census data, such as the AWC. *Laridae* (Gulls and terns) (8 or 21%), *Ardeidae* (Herons and egrets) (2 or 7%), *Charadriidae* (Plovers) (4 or 21%), *Threskiornithidae* (Ibises and spoonbills) (2 or 25%), *Podicipedidae* (Grebes) (1 or 20%) all had a quarter of their populations or fewer with good or reasonable trends whilst *Rallidae* (Rails, crakes and allies), *Gaviidae* (Loons or divers), *Phalacrocoracidae* (Cormorants), *Glareolidae* (Coursers and pratincoles), *Haematopodidae* (Oystercatchers), *Jacanidae* (Jacanas) and *Rostratulidae* (Painted-snipes) had no good or reasonable trends.

Populations with “No idea” and “Poor” trend quality are listed in Annex 5.

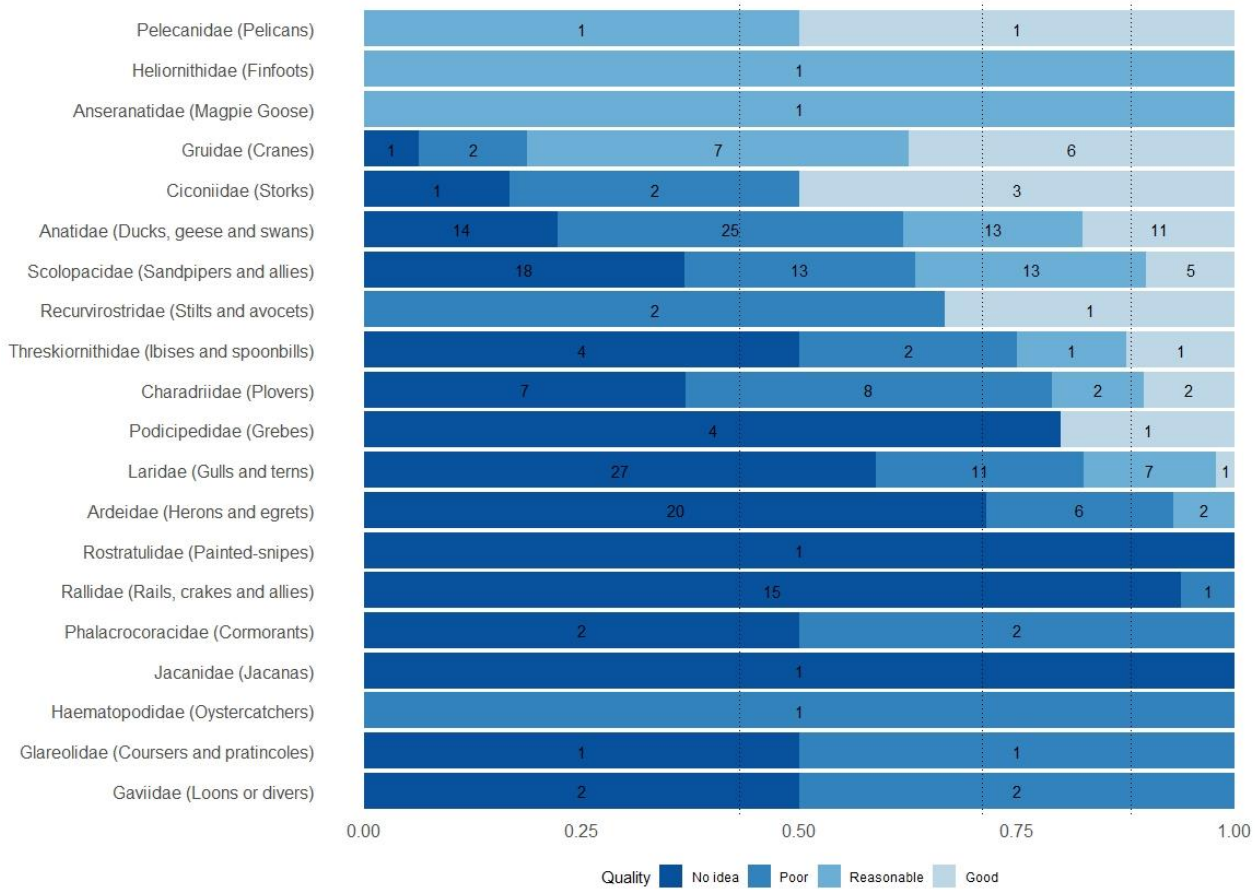

Figure 11. Trend estimates quality by family. Dotted lines from left to right represent the overall proportion of populations with trend qualities - no idea (43%), poor (28%), reasonable (17%) and good (12%).

118 (43%) of EAAFP populations have unknown/uncertain trend, 67 (24%) decreasing, 48 (17%) stable/fluctuating and 43 (16%) increasing (Figure 12).

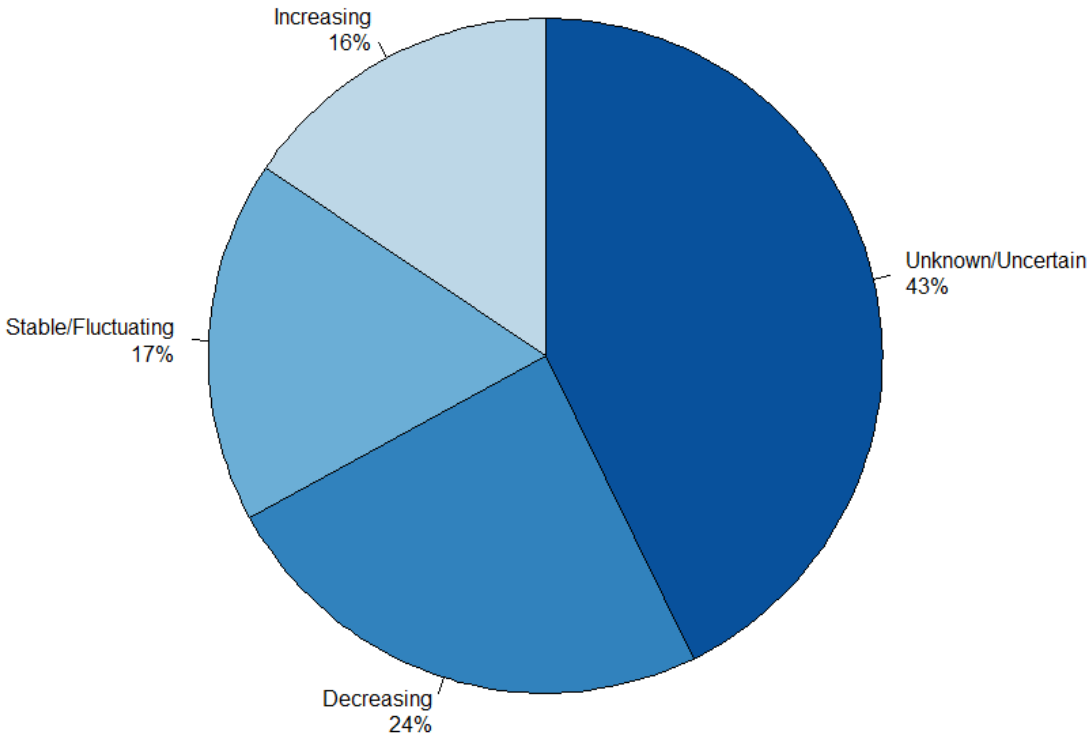

Figure 12. Trend directions of EAAFP populations.

A majority of populations allocated to the East Asian-Australasian Flyway (85 or 66%), Central Asian Flyway (10 or 83%), Central Pacific Flyway (10 or 66%), Indo-Malay (32 or 89%) and Australasia (18 or 78%) regions have decreasing or unknown/uncertain compared to increasing or stable/fluctuating trends. The Eastern Palearctic populations are mostly increasing or stable/fluctuating (30 or 51%) versus decreasing and unknown/uncertain trend. One (50%) of the Indian and Pacific Oceans populations is increasing and 1 (50%) is decreasing (Figure 13).

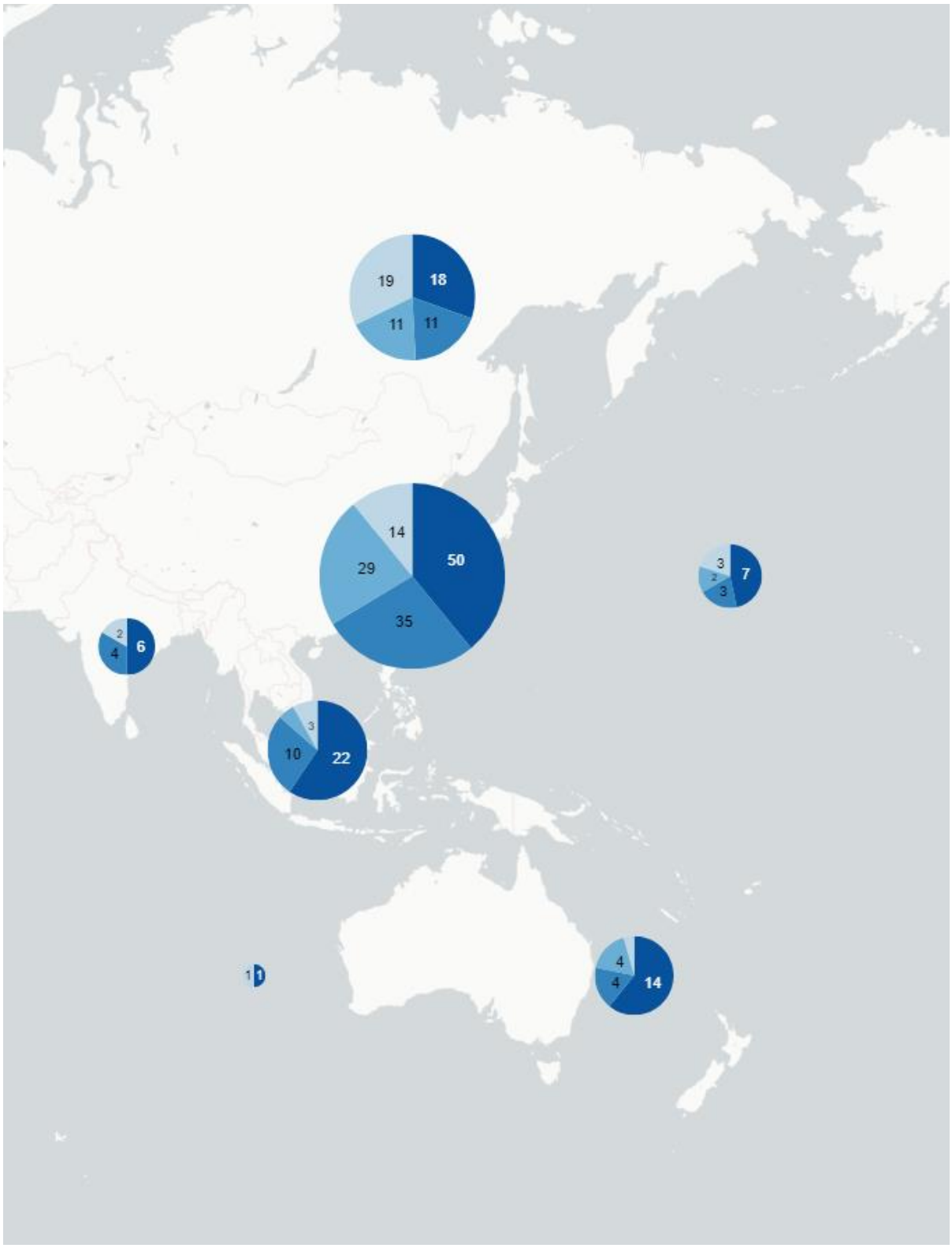

Figure 13. Trend direction by flyway groups. Flyway groups as in Figure 4 and trend codes as in Figure 11.

Ciconiidae (Storks) are mostly increasing (3 or 50%). *Gruidae* (Cranes) (10 or 63%), *Phalacrocoracidae* (Cormorants) (2 or 50%), *Pelecanidae* (Pelicans) (1 or 50%), *Anatidae* (Ducks, geese and swans) (39 or 62%), *Glareolidae* (Coursers and pratincoles) (1 or 50%) all have at least half of their populations increasing or stable/fluctuating. Two families with a single population, oystercatcher *Haematopodidae* (Oystercatchers) and Magpie Goose *Anseranatidae* (Magpie Goose) are stable/fluctuating (Figure 14).

A majority of populations are declining or unknown/uncertain in the *Rallidae*, (Rails, crakes and allies) (15 or 94%), *Ardeidae* (Herons and egrets) (23 or 82%), *Laridae* (Gulls and terns) (40 or 87%), *Scolopacidae* (Sandpipers and allies) (38 or 78%) and *Charadriidae* (Plovers) (14 or 74%). A similar situation exists for families with a small numbers of populations, including *Threskiornithidae* (Ibises and spoonbills), *Podicipedidae* (Grebes), *Gaviidae* (Loons or divers), *Recurvirostridae* (Stilts and avocets), or single population families, such as *Jacanidae* (Jacanas), and *Rostratulidae* (Painted-snipes). The Masked Finfoot *Heliornithidae* is decreasing and may be the most rapidly declining species in the EAAF.

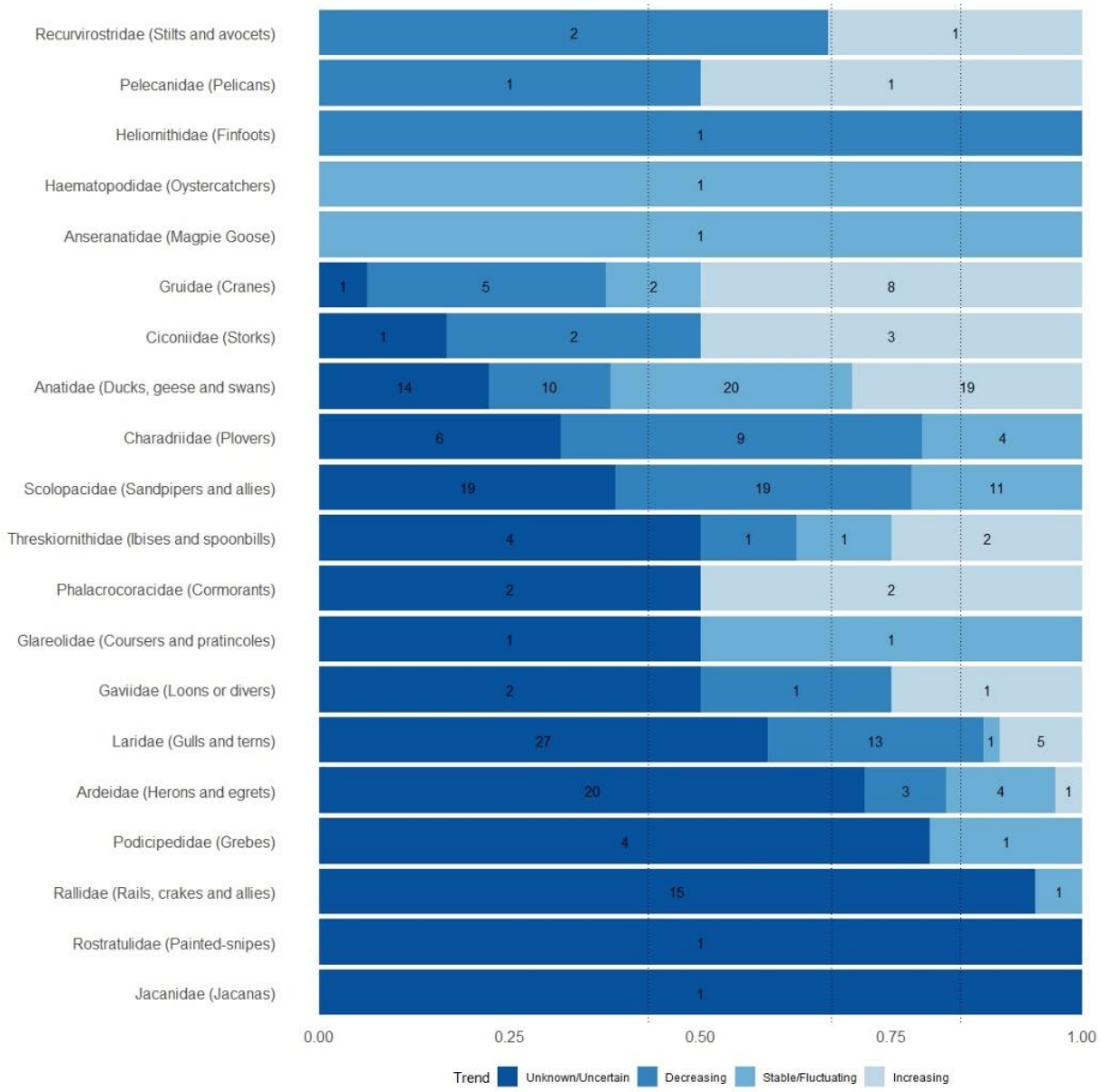

Figure 14. Trend direction of EAAFP populations by family. Dotted lines from left to right represent the overall proportion of populations with unknown/uncertain (43%), decreasing (24%), stable/fluctuating (18%) and increasing trends (15%).

Based on available information, population trends in this review cover a wide range of time periods (Figure 15). For a majority of populations (71%), trends start from 2010 onwards. 6% of population trends start before 1990, 9% start in the 1990s and 13% in the 2000s.

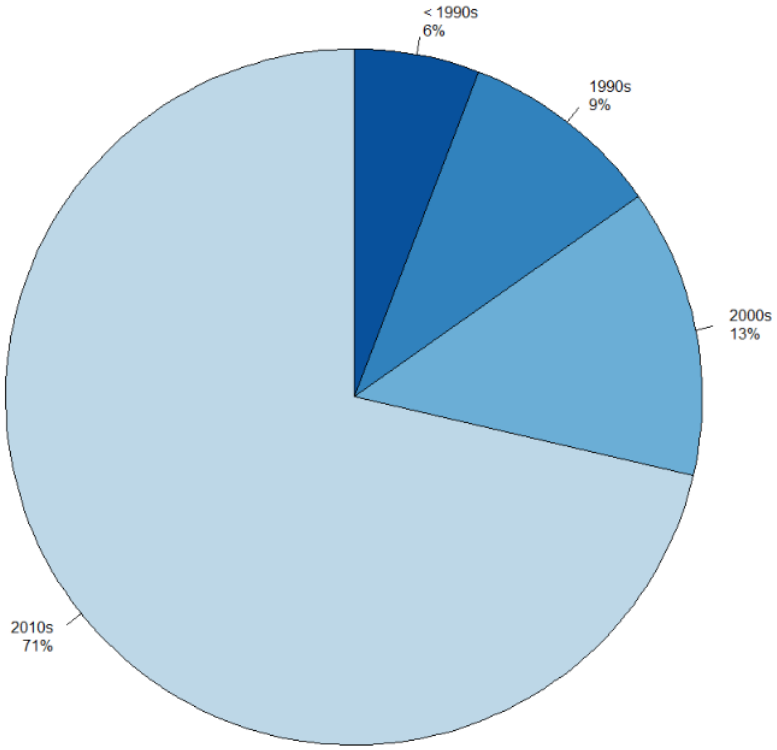

Figure 15. Population trend of EAAFP populations based on start year.

Part 4. Red List status information for the species

Forty biogeographic populations, belonging to 34 species of waterbirds, are listed on the IUCN Red List of Threatened Species 2021 as per BirdLife International (2021) (Table 5). 27% or 59 of 216 species are Threatened or Near Threatened (Figure 16). Of these species, four are listed as Critically Endangered (CR), 12 Endangered (EN) and 18 Vulnerable (VU).

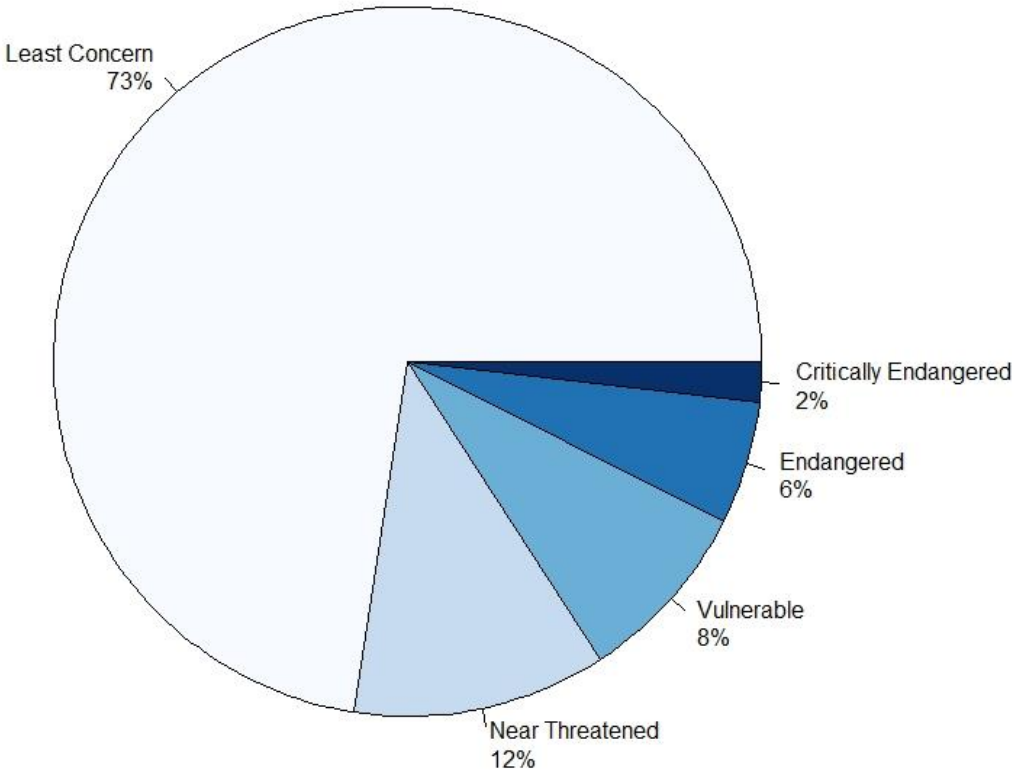

Figure 16. Global Red List status of species listed in the EAAFP.

Table 5. Globally Threatened species on EAAFP list as of January 2021.

Family	Scientific Name	Common Name	Red List
Anatidae	*Anser cygnoid*	Swan Goose	VU
Anatidae	*Anser erythropus*	Lesser White-fronted Goose	VU
Anatidae	*Clangula hyemalis*	Long-tailed Duck	VU
Anatidae	*Polysticta stelleri*	Steller's Eider	VU
Anatidae	*Mergus squamatus*	Scaly-sided Merganser	EN
Anatidae	*Aythya ferina*	Common Pochard	VU
Anatidae	*Aythya baeri*	Baer's Pochard	CR
Podicipedidae	*Podiceps auritus*	Horned Grebe	VU
Heliornithidae	*Heliopais personatus*	Masked Finfoot	EN
Rallidae	*Coturnicops exquisitus*	Swinhoe's Rail	VU
Gruidae	*Leucogeranus leucogeranus*	Siberian Crane	CR
Gruidae	*Grus vipio*	White-naped Crane	VU
Gruidae	*Grus antigone*	Sarus Crane	VU
Gruidae	*Grus japonensis*	Red-crowned Crane	VU
Gruidae	*Grus monacha*	Hooded Crane	VU

Family	Scientific Name	Common Name	Red List
Ciconiidae	*Leptoptilos dubius*	Greater Adjutant	EN
Ciconiidae	*Ciconia boyciana*	Oriental Stork	EN
Threskiornithidae	*Platalea minor*	Black-faced Spoonbill	EN
Ardeidae	*Oroanassa magnifica*	White-eared Night-heron	EN
Ardeidae	*Gorsachius goisagi*	Japanese Night-heron	VU
Ardeidae	*Egretta eulophotes*	Chinese Egret	VU
Scolopacidae	*Numenius madagascariensis*	Far Eastern Curlew	EN
Scolopacidae	*Calidris tenuirostris*	Great Knot	EN
Scolopacidae	*Calidris pygmaea*	Spoon-billed Sandpiper	CR
Scolopacidae	*Gallinago nemoricola*	Wood Snipe	VU
Scolopacidae	*Tringa guttifer*	Spotted Greenshank	EN
Laridae	*Rynchops albicollis*	Indian Skimmer	EN
Laridae	*Saundersilarus saundersi*	Saunders's Gull	VU
Laridae	*Rissa tridactyla*	Black-legged Kittiwake	VU
Laridae	*Larus relictus*	Relict Gull	VU
Laridae	*Onychoprion aleuticus*	Aleutian Tern	VU

In addition, 25 are listed as Near Threatened (NT) (Table 6), while 156 are listed as Least Concern (LC) and one as Data Deficient (DD), the recently rediscovered White-faced Plover.

Table 6. Globally Near Threatened species listed on EAAFP list as of January 2021.

Family	Scientific Name	Common Name
Anatidae	*Anser canagicus*	Emperor Goose
Anatidae	*Anser canagicus*	Emperor Goose
Anatidae	*Somateria fischeri*	Spectacled Eider
Anatidae	*Somateria mollissima*	Common Eider
Anatidae	*Melanitta americana*	Black Scoter
Anatidae	*Aythya nyroca*	Ferruginous Duck
Anatidae	*Mareca falcata*	Falcated Duck
Rallidae	*Zapornia paykullii*	Band-bellied Crake
Gruidae	*Grus nigricollis*	Black-necked Crane
Gruidae	*Grus nigricollis*	Black-necked Crane
Gruidae	*Grus nigricollis*	Black-necked Crane
Gaviidae	*Gavia adamsii*	Yellow-billed Loon
Ciconiidae	*Mycteria leucocephala*	Painted Stork
Threskiornithidae	*Threskiornis melanocephalus*	Black-headed Ibis
Pelecanidae	*Pelecanus crispus*	Dalmatian Pelican
Pelecanidae	*Pelecanus philippensis*	Spot-billed Pelican
Haematopodidae	*Haematopus ostralegus*	Eurasian Oystercatcher
Charadriidae	*Charadrius bicinctus*	Double-banded Plover
Charadriidae	*Vanellus vanellus*	Northern Lapwing
Scolopacidae	*Numenius arquata*	Eurasian Curlew
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit
Scolopacidae	*Limosa limosa*	Black-tailed Godwit
Scolopacidae	*Calidris canutus*	Red Knot

Family	Scientific Name	Common Name
Scolopacidae	*Calidris canutus*	Red Knot
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper
Scolopacidae	*Calidris ruficollis*	Red-necked Stint
Scolopacidae	*Limnodromus semipalmatus*	Asian Dowitcher
Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler
Laridae	*Sterna striata*	White-fronted Tern

Part 5. One percent thresholds

Up-to-date population size estimates are essential to generate 1% thresholds to designate “Sites of International Importance for Waterbirds”, including for EAAFP Flyway Network Sites and Ramsar Sites. Derived from the CSR1 population size estimates, 248 of 276 migratory waterbird populations have 1% thresholds (Annex 6). 32 (12%) of 1% thresholds, are lower than previous assessments (WPE5) and 57 (21%) are higher. 22 (8%) populations have population size estimates and 1% thresholds for the first time. These new thresholds should be used for all future EAAF Flyway Network Site designations. For seven populations without an upper maximum estimate, the threshold is set to a maximum of 20,000 individuals, namely, Black Noddy *Anous minutus*, Brown Noddy *Anous stolidus*, Black-headed Gull *Larus ridibundus*, Arctic Tern *Sterna paradisaea*, Magpie Goose *Anseranas semipalmata*, Little Egret *Egretta garzetta* and Common Coot *Fulica atra*.

Population size estimates are not available for 28 (10%) populations, mainly of *Ardeidae* (Herons and egrets) where colonial counts would be most informative, *Laridae* (Gulls and terns) particularly northern breeders and *Rallidae* (Rails, crakes and allies) that are mostly secretive and difficult to census (Table 2). The quality of 1% thresholds depends on the quality of the size estimates as outlined in Part 2.

In addition to the 1% threshold, a 0.25% threshold is provided in Annex 6 as a reference to the application of the “staging site” population size threshold of >0.25% for designation of EAAFP Flyway Network Sites[8].

[8] Information on the EAAF Site Network Criteria and listing process is available in https://www.eaaflyway.net/wp-content/uploads/2020/08/eaaf-sis_form_newver_2017.docx

Part 6. Population boundaries

Delineation of population boundaries are important to define the distribution of populations. Boundaries are produced for the first time for all 276 waterbird populations covered by the EAAFP (see cover image for a composite of all populations).

Given that the current information available for waterbird populations is very variable, it is rarely possible to define precise biogeographic population boundaries for a population. Based on advances in technology and knowledge of movements of birds, the quality and accuracy of the precise boundaries of these maps should be possible to improve in the future.

For the CSR1, the following three codes of quality of information have been proposed:

1 Based on **poorly studied and uncertain ranges** of populations during breeding and /or non-breeding period.
2 Based on **basic distribution information** during breeding and non-breeding period, with some information from movements of marked individuals, genetics, isotope and/or morphological differences.
3 Based on **extensive knowledge of distribution** during breeding and non-breeding period, including results from movements of marked individuals, genetics, isotope and/or morphological differences or distinct subspecies.

For 34 (12%) populations, boundaries are based on knowledge of the movement of several individuals across its range, including species of *Gruidae* (Cranes), *Anatidae* (Ducks, geese and swans) and Shorebirds. For 41 (15%) populations, boundaries are prepared on basic information of distribution supported by limited information on movements and 201 (73%) populations have only very basic information of distribution. A full list is provided in Annex 7.

A sample of biogeographic boundaries of some families covered by the report are provided in Figures 17-24. The quality of information varies between the three populations of Bar-tailed Godwit *Limosa lapponica*. The *baueri* population has the most extensive knowledge based on telemetry, while the boundary of *menzbieri* is based on comparatively less information and that of *anadyrensis* has the most poorly known distribution. Similarly for the six populations of Bean Goose *Anser fabalis* in the EAAFP region, the boundaries of *middendorffi* Japan (non-bre), *middendorffi* Korea (non-bre), *serrirostris* Japan (non-bre),and *serrirostris* Korea (non-bre) are based on the most extensive knowledge, while the boundaries of *serrirostris* China (non-bre) and *middendorffi* China (non-bre) are based on comparatively less telemetry and marking information.

New populations often lack detailed information on their distribution. The three populations of the Black-necked Crane *Grus nigricollis* have recently been separated from a single population in the WPE5 and are defined on basic distribution information during the breeding and non-breeding period. For the three populations of Great White Egret *Ardea alba* –the newly delineated population *alba, E Asia (bre),* and *modesta, E/SE Asia (bre)* are based on comparatively less information while *modesta, Australia, S New Guinea* is based on more extensive knowledge.

Both Magpie Goose and Little Grebe *Tachybaptus ruficollis poggei* have a single EAAF population. The former is based on extensive information in most of its Australian range while the distribution of the latter in China needs verification. Populations of secretive species or species in inaccessable habitats (e.g. marine) are often poorly defined and understood. Boundaries of both populations of Slaty-breasted Rail *Lewinia striata albiventer* and *gularis* are poorly studied and have uncertain ranges. All three populations of the more marine Sooty Tern (*nubilosus* Indonesia, *nubilosus* Red Sea, Gulf of Aden, E to Pacific and *serratus*) are poorly defined, at least in part of their ranges.

All population boundaries are accessible on the Waterbird Populations Portal https://wpp.wetlands.org/

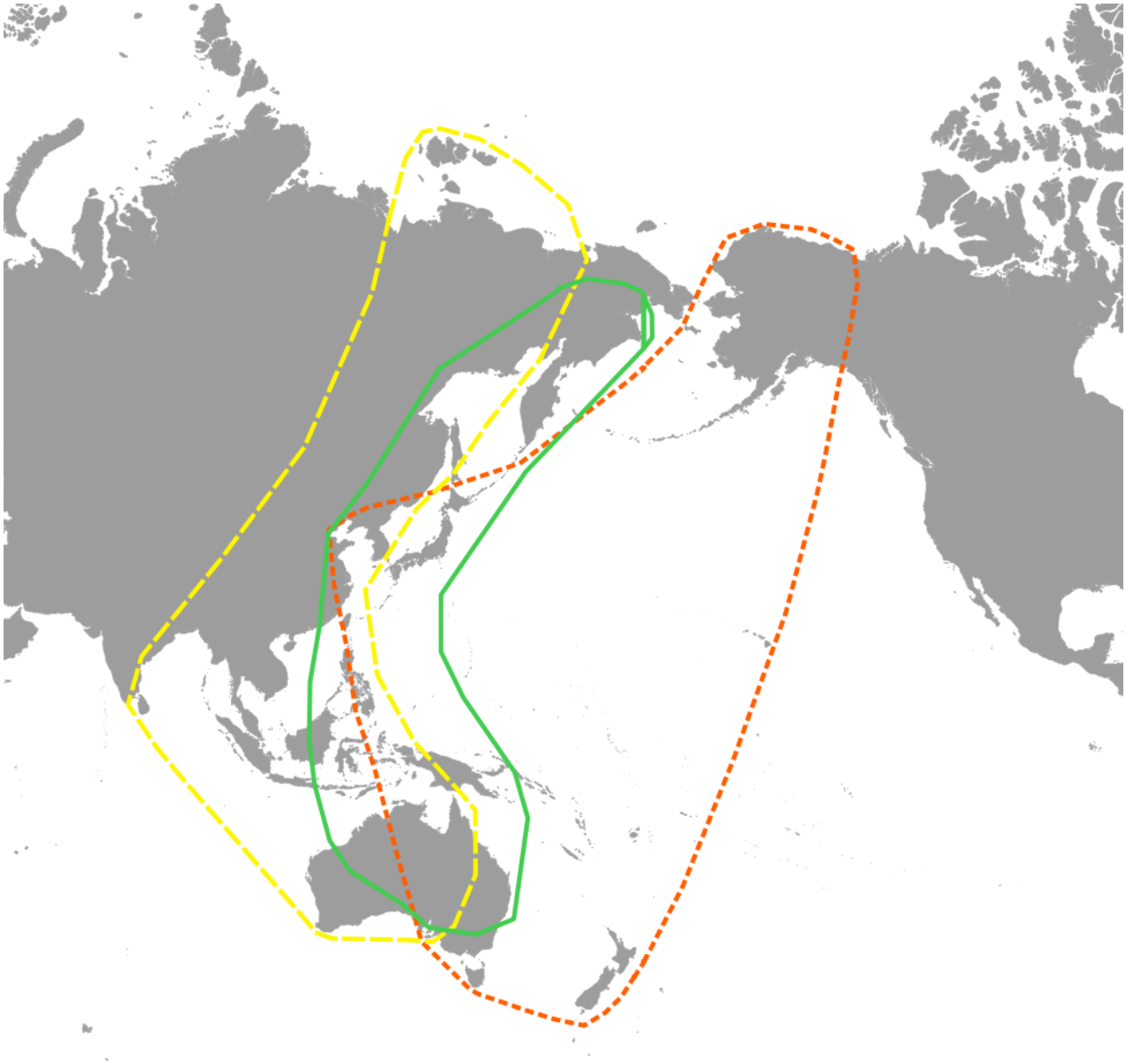

Figure 17. Biogeographic boundaries for three populations of Bar-tailed Godwit *Limosa lapponica* in the EAAFP region. The boundaries are (orange dotted line) *baueri*, (yellow dashed line) *menzbieri* and (green solid line) *anadyrensis*.

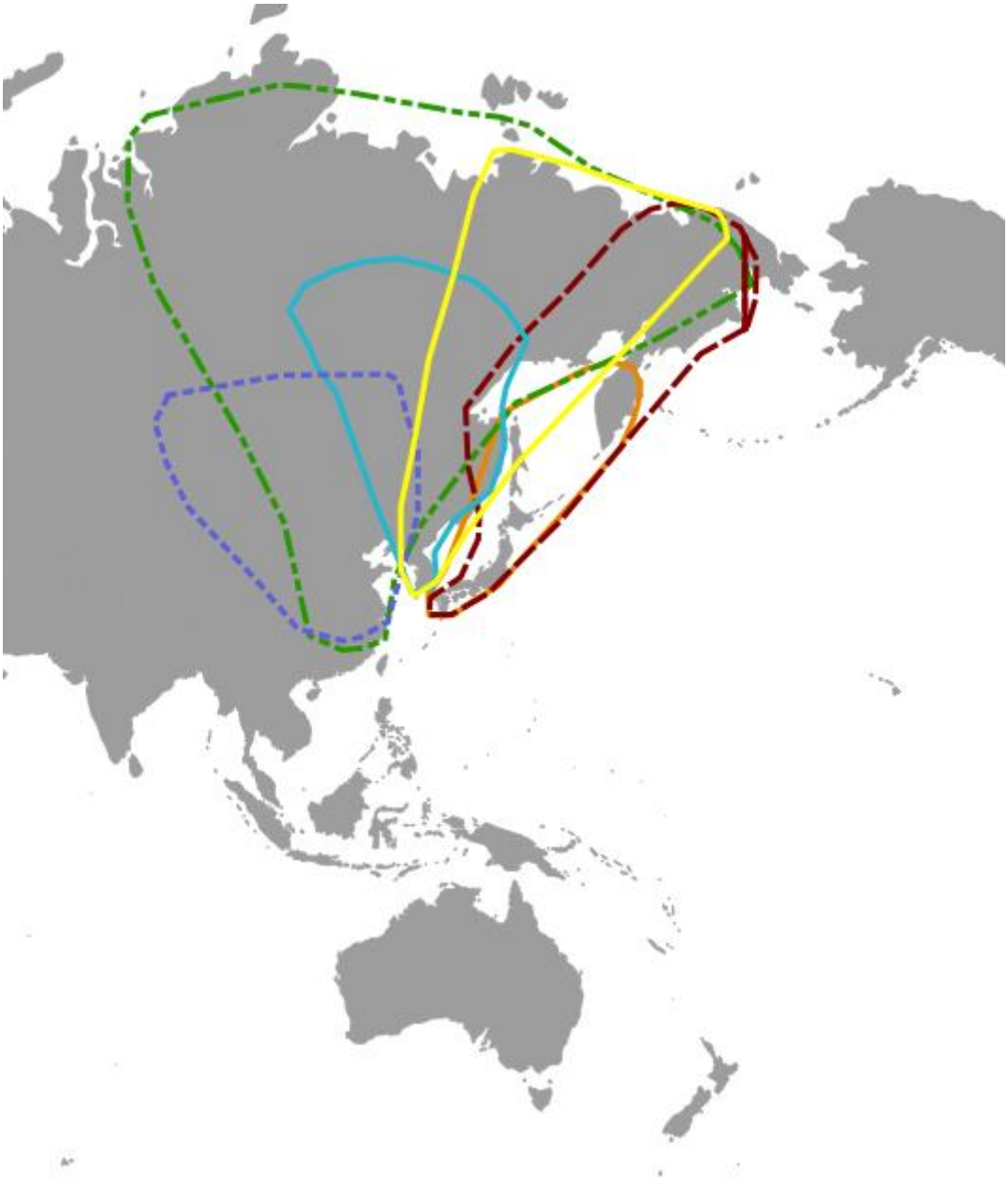

Figure 18. Biogeographic boundaries for six populations of Bean Goose *Anser fabalis* in the EAAFP region. The boundaries are (blue dashed line) *middendorffi* China (non-bre), (orange solid line) *middendorffi* Japan (non-bre), (light blue solid line) *middendorffi* Korea (non-bre), (green dashed line) *serrirostris* China (non-bre), (dark red dashed line) *serrirostris* Japan (non-bre), and (yellow solid line) *serrirostris* Korea (non-bre).

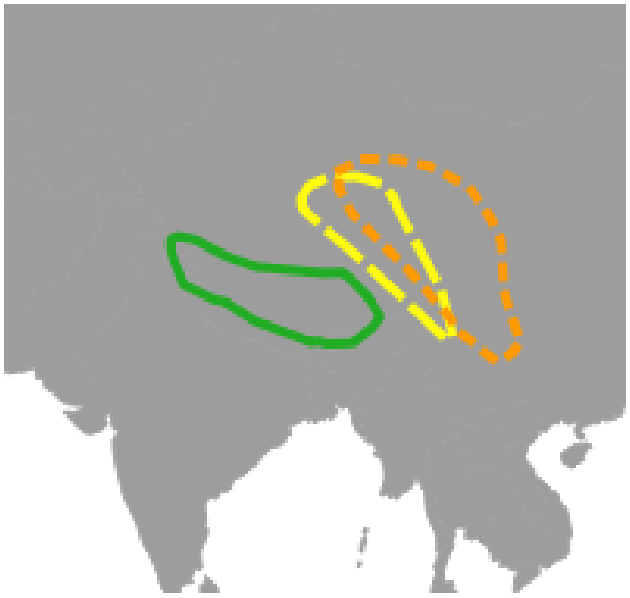

Figure 19. Three populations of Black-necked Crane *Grus nigricollis* - (orange dashed line) Eastern (non-bre), (yellow dashed line) Central (non-bre), and (green solid line) Western (non-bre).

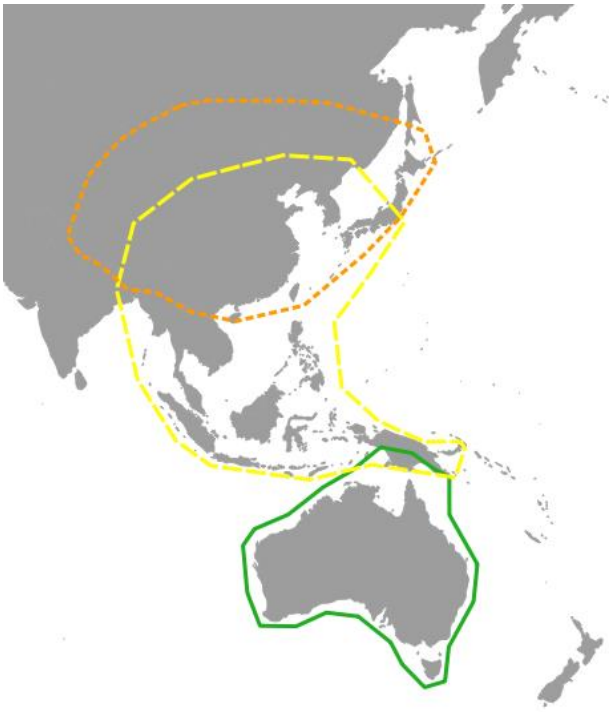

Figure 20. Three populations of Great White Egret *Ardea alba* - (orange dashed line) *alba, E Asia (bre),* (yellow dashed line) *modesta, E/SE Asia (bre)* and *(*green solid line) *modesta, Australia, S New Guinea.*

Figure 21. One population of Magpie Goose *Anseranas semipalmata* - N Australia, SE Indonesia, S New Guinea *(*green solid line).

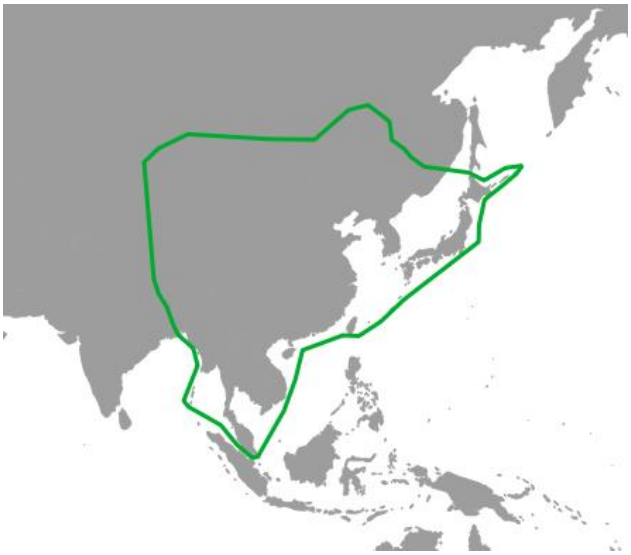

Figure 22. One population of Little Grebe *Tachybaptus ruficollis poggei (*green solid line).

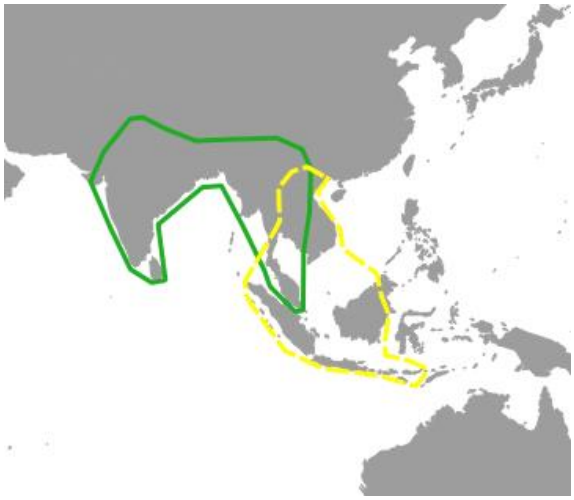

Figure 23. Two populations of Slaty-breasted Rail *Lewinia striata (*green solid line) *albiventer* and (yellow dashed line) *gularis.*

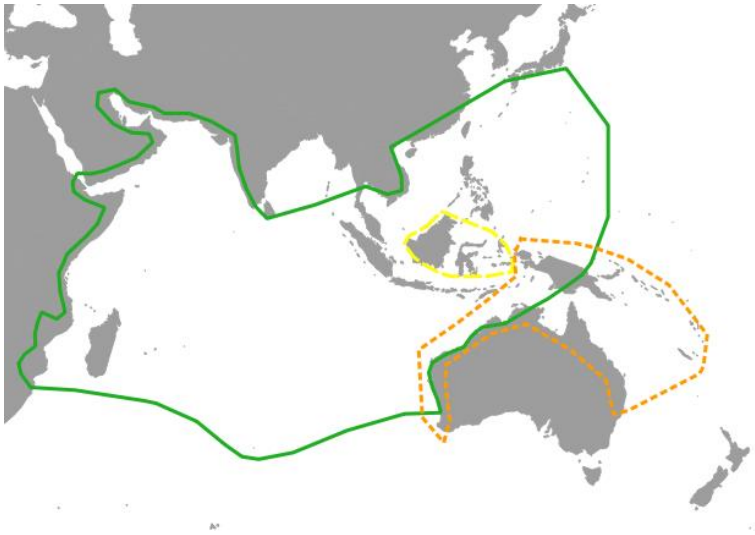

Figure 24. Three populations of Sooty Tern *Onychoprion fuscatus* - (yellow dashed line) *nubilosus* Indonesia, *(*green solid line) *nubilosus* Red Sea, Gulf of Aden, E to Pacific and (orange dashed line) *serratus.*

Part 7. Identification of gaps and recommendations

This section provides an evaluation of the major gaps identified through the review process and recommendations for the future.

Gaps

1. ***The majority of population size estimates and trends is unknown or of low quality***

   Monitoring a sample of a population is sufficient to estimate trends if the sample is representative and spatial and temporal biases are avoided. This requires regular, synchronised monitoring across the range of a population when it is geographically discrete. This can provide a minimum population size estimate based on counted numbers and an extrapolation to areas with potential habitat and where some count information may exist, although better quality size estimates would be based on further extensive survey efforts and statistical extrapolation or full census counts.

   Well-designed monitoring programmes can provide information on multiple species, which makes them highly informative and cost effective. The AWC is the most extensive and oldest monitoring programme in the EAAF. However AWC coverage varies across the flyway and requires strengthening and expanding in some countries, notably China, Vietnam, Laos, Myanmar, Indonesia, Timor-Leste and Papua New Guinea. Russia, Mongolia and northern China are largely frozen during the AWC and so are not included within the AWC. Information being generated through some sub-national monitoring schemes may not be received by the AWC. Other periodic national or subnational surveying programmes contribute useful information but are insufficient for population level status updates. Regular international surveys focused on individual species (usually endangered) also provide high quality information but only for few populations.

   All of the waterbird categories below require improved, extended or new monitoring schemes to improve the size estimate and trend information:

   Waterbird species congregating in the non-breeding period including *Anatidae* (Ducks, geese and swans), Magpie Goose, Common Coot and some populations of *Podicipedidae* (Grebes), *Haemoatopodidae* (Oystercatchers), *Recurvirostridae* (Stilts and avocets), *Charadriidae* (Plovers) and *Scolopacidae* (Sandpipers and allies). These can be effectively monitored by a strengthened AWC and connection with national/sub-national schemes and other look-see surveys for specific species or species groups, such as the Spoon-billed Sandpiper.

   Waterbird species congregating at communal roosting sites in the non-breeding period including *Ardeidae* (Herons and egrets), *Laridae* (Gulls and terns), geese and shorebird populations. These can sometimes be included in AWC surveys (e.g. high-tide shorebird counts) but separate roost surveys are generally needed to avoid double-counting at feeding sites.

   Colonially nesting waterbird species including *Pelecanidae* (Pelicans), *Phalacrocoracidae* (Cormorants), *Ardeidae* (Herons and egrets), *Ciconiidae* (Storks), *Threskiornithidae* (Ibises and spoonbills) and *Laridae* (Gulls and terns).

   Waterbirds with dispersed distribution in the non-breeding period including Mallard *Anas platyrhynchos*, Little Grebe and Common Moorhen *Gallinula chloropus*. Trends can be calculated from the AWC but size estimates require very extensive survey coverage and statistical extrapolation.

   Waterbirds with mixed populations in the non-breeding period including many arctic breeders such as Dunlin. These require surveying efforts during the breeding season when the populations are discrete but the species is widely dispersed.

   Waterbirds with secretive behaviour including Masked Finfoot *Heliopais personatus*, Greater Painted-snipe *Rostratula benghalensis*, White-eared Night-heron *Oroanassa magnifica*, snipes and many *Rallidae* (Rails, crakes and allies). Secretive species, many of which are normally feeding

within vegetation (including rice fields, mangroves and forest streams), require highly specialised efforts during the breeding season such as surveys of singing males; use of infrared scopes or portable thermal cameras with drones to monitor numbers of birds in vegetation and/or increased search frequencies by boat and foot along waterways in known sites to develop indices of abundance.

Waterbird species that congregate away from wetlands including on farmlands (such as geese, lapwings and some plovers and stints), rubbish tips (*Laridae* Gulls and terns) and other open habitats (*Glareolidae* Coursers and pratincoles).

Waterbird species that congregate offshore including seaducks, *Gaviidae* (Loons or divers) and some populations of *Podicipedidae* (Grebes) and *Phalacrocoracidae* (Cormorants). These species require aerial or ship surveys.

2. The distribution and definition of most biogeographic populations is poorly understood

While basic distribution ranges are available for most species and populations, details are inadequate for the following:

- **Distribution of species with multiple subspecies**, especially those that cannot be separated easily in the field and at times of the year when they are normally monitored e.g. Common Redshank, Lesser Sandplover and Whiskered Tern *Chlidonias hybrida*.
- **Distribution of species that cannot be separated easily in the field** and at times of the year when they are normally monitored, such as Pond Herons in non-breeding plumage (Javan *Ardeola speciosa*, Chinese *Ardeola bacchus* and Indian *Ardeola grayii* Pond-herons), or similar sized white coloured egrets (Little Egret, Chinese *Egretta eulophotes* and Pacific Reef Egret *Egretta sacra*) in some parts of their range.
- **Newly described populations**, such as Grey Plover *Pluvialis squatarola tomkovichi* and Black-tailed Godwit *Limosa limosa bohaii.*

Furthermore the status and definition of some populations is uncertain:

- Some arctic breeding species may have distinct biogeographic populations defined by their breeding grounds in Russia and North America (e.g. Ruddy Turnstone *Arenaria interpres,* Wandering Tattler *Tringa incana* and Arctic Tern). Inclusion of populations in the EAAFP list will need to be assessed based on their abundance and distribution during the migration and termini of migration and non-breeding range within the EAAF. Conversely, other species may have a continuous population across the Eastern Palearctic and Nearctic (e.g. some seaducks).
- The *variegatus* population of Whimbrel *Numenius phaeopus* may be separated into two biogeographic populations to recognise the *rogachevae* subspecies (Kuang *et al* 2022).
- Some extant populations may now qualify as EAAFP populations based on their range, such as Long-billed Dowitcher *Limnodromus scolopaceus*.
- The range of *alexandrinus* and *nihonensis* subspecies for Kentish Plover and some “white-headed “ *Larus* species are unknown.
- Currently there are no populations defined, and hence no size estimates, trends or population boundaries, for the eight seabird families included in the EAAFP (excluded from this report).

3. Limited feedback/accessibility of information from the consultation process

The CSR1 consultation was undertaken jointly with EAAFP Science Unit and Secretariat and organised with the EAAF Working Groups and Task Forces, specialist groups of the IUCN / Wetlands International and individual experts. Despite this wide consultation, few experts responded directly and prolonged follow-up was necessary to access information. Some information remains unavailable in English and requires translation. In addition, the EAAFP lacks Working Groups with responsibility for eight families covered by the Partnership. This includes six families with multiple populations, namely *Podicipedidae* (Grebes), *Phalacrocoracidae* (Cormorants), *Ardeidae* (Herons and egrets), *Ciconiidae* (Storks) with the exception of the Oriental Stork and Black Stork covered by the Crane

Working Group, *Threskiornithidae* (Ibises and Spoonbills) with the exception of the Black-faced Spoonbill Working Group, *Rallidae* (Rails, crakes and allies); and two families with single populations, *Heliornithidae* (Finfoots) and *Jacanidae* (Jacanas).

Nevertheless, new information is generated continuously. For example, Russian and US scientists have been undertaking extensive aerial and ground surveys across the northern arctic coasts in 2020 and 2021 and are expected to provide new information on the estimates of breeding species that will serve to update current estimates of several arctic breeding species of swan, geese and sea ducks (Sonia Rozenfeld, pers. comm., 2021). Such results will be important to include in future CSR editions.

Recommendations

1. Improving information on population size estimates and trends

a. Develop a comprehensive flyway monitoring programme covering all EAAFP waterbird populations, prioritising the 28 populations for which no size estimate exists and for which no recent size (144 populations with data before WPE5 in 2012) and trend (118 populations) estimate are available. This should include a schedule for special effort surveys to feed into the CSR process, including:
    - Breeding surveys, especially for colonial species and dispersed breeders.
    - Migration surveys, especially if found appropriate for some species and populations that may congregate during migration at bottleneck sites/areas.
    - Special monitoring efforts for small, threatened populations that may not be adequately covered in standard monitoring efforts. such as Greater Adjutant *Leptoptilos dubius*, Black-bellied Tern *Sterna acuticauda* and River Tern *Sterna aurantia* in Southeast Asia.
    - Special monitoring efforts for secretive species.
    - Special monitoring efforts for waterbirds occurring outside wetlands.
    - Aerial or boat surveys for off-shore waterbird populations.
b. Provide national monitoring guidance (as called for by MOP Decision 10.12), including advice and standards for the appropriate methods to monitor different waterbird populations.
c. Strengthen national monitoring efforts through incorporation of waterbird monitoring activities as a priority action within EAAFP national and site partnerships (including through their incorporation into new EAAF guidelines being developed by the Partnership in 2021-22).
d. Establish a partnership of organisations with international experience of waterbird monitoring to develop and support the implementation of the flyway monitoring programme and national monitoring guidance.
e. Strengthen and resource ongoing national and local waterbird monitoring efforts in all countries (in line with KRA 3.1 of the EAAFP Strategic Plan 2019-2028)[9]. This includes:
    - Regular (optimally monthly) counts at all sites of national and international importance, including EAAF Network Sites, Ramsar Sites, World Heritage Sites, national and local protected areas and unprotected areas.
    - Expanding AWC in areas with low coverage and capacity gaps.
f. Maximize impact of ongoing non-breeding season international monitoring programmes of single species (Black-faced Spoonbill, Spoon-billed Sandpiper, Eastern Curlew *Numenius madagascariensis*, Baer's Pochard, Scaly-sided Merganser, Indian Skimmer *Rynchops albicollis* etc.) through:
    - collection of information on all waterbirds and assessment of wetlands
    - provision of information to national partners for incorporation into the AWC database.
g. Examine novel methods to analyse and extrapolate from existing monitoring data sources.

2. Improving understanding of biogeographic populations distribution and definition

[9] EAAFP 2019 – 2028 Strategic Plan - Indicator 3.1.1 A standardized monitoring methodology for migratory waterbirds and their habitat is developed and used in nationally coordinated monitoring programmes. Indicator 3.1.2 All country partners have nationally-coordinated monitoring programs in place.

a. Establish a procedure linked to the CSR to review the list of species and populations covered by the EAAFP (including for eight families of seabirds not covered in this first review). This will include:
    - Incorporating taxonomic updates made by the latest version of the Handbook of the Birds of the World and BirdLife International to species and subspecies.
    - Review of new information, propose updated delineations or definitions and authorise changes to populations.
    - Institute a schedule to ensure all population definition and delineation updates are made prior to the review of size estimates and trends.
b. Prioritise research to determine the international movement patterns of populations for which information is limited (as called for by MOP Decision 9.9).

3. Improving the procedures to prepare the CSR

a. Produce CSR updates in a regular reporting cycle[10]. This will ensure familiarity and establish a routine, both for data reporting from monitoring programmes and for experts contributing to the consultation process. Ideally an updated CSR should be produced every three years and in line with reviews in other flyways so as to feed into global WPE updates or "at least every alternate MOP or not more than four yearly" as called for by MOP Decision 10.12.
b. Identification of ways to enhance and strengthen involvement of the existing EAAF Working Groups and Task Forces in future CSR developments. This may be through mandating and resourcing them to coordinate reviews of taxa covered by their group by reaching out to in country experts/networks and to ensure improved access to locally available information, especially in local languages and unpublished data sources.
c. Establish EAAF Working Groups to cover taxonomic gaps and to contribute to future reviews.

[10] EAAFP 2019 – 2028 Strategic Plan - Indicator 3.2.2 Two updates of waterbird population estimates have been produced and published.

References and literature cited

The references below are cited in the main text of this report and in Annex 7.

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Annex 1. Terms of Reference, provisional timeline and role of partners

Proposed Actions

1. Prepare a 1st EAAF Conservation Status Review derived from the up-to-date information on waterbird population estimates, trends and 1% thresholds, supported by individual population boundary polygons;
   a. assess population delimitations
   b. estimate population sizes and derive 1% population thresholds
   c. calculate / estimate population trends
2. Undertake its preparation in coordination with the EAAF Partnership and in close consultation with the Technical Sub-Committee, Science Unit of the Secretariat, Partners, Working Groups, Task Forces and other experts;
3. Coordinate with the EAAFP Secretariat to ensure that the output of the periodic EAAF Conservation Status Review feed into the 2020 global WPE update.
4. Present the final results for adoption at MoP11, scheduled for March 2022 (and finalise with feedback from Partners by June 2022).

Project Outputs

1. EAAFP CSR1 summary report (incl. identification of Gaps and Priorities for Future CSRs), see Annex 1.3
2. Population estimates & trends review of all waterbird populations covered by the Partnership (delivered through Waterbird Populations Portal)
3. First biogeographic population boundaries for all waterbird species covered by the Partnership (delivered through Waterbird Populations Portal)
4. Submission of CSR1 Paper to EAAFP MOP11 meeting agenda

Provisional Timeline for Development and Delivery of 1st EAAF-CSR

Main Action		**2020**	**2021**				**2022**	
		Q4	Q1	Q2	Q3	Q4	Q1	Q2
1	Review species and biogeographic populations of the EAAF (i.e. BirdLife/HBW and WPE)	X						
2	Population estimates and trends review of waterbird populations		X	X				
3	Delineation of waterbird biogeographic populations (maps)	X	X	X				
4	EAAFP CSR1 summary report (incl. identification of Gaps and Priorities for Future CSRs)				X			
5	Submission of CSR1 paper to EAAFP MOP					X		
6	Presentation of draft CSR1 (following review and approval by Tech SC) at EAAFP MOP11						X	
7	Submission of final CSR1 to EAAFP (following post MOP consultations with Parties, final review and approval by Tech SC & Management Comm)							X

Role of Partners

The project will be implemented as a collaborative project led by Wetlands International and the EAAFP Science Unit and involve all EAAFP working groups, task forces, EAAFP Partners and a wide range of external experts. The proposed roles are outlined below:

Wetlands International
(a) overall coordination and project management,
(b) development of technical guidelines,
(c) joint coordination with EAAFP Science Unit of consultation of populations estimates and trends review and development of population boundary maps,
(d) provision and management of consultation website for waterbird populations for review of boundaries,
(e) drafting population boundaries for a selected set of species,
(f) provision of existing Waterbird Populations Estimates Portal for consultation of review waterbird population estimates and trends,
(g) provision of Waterbird Populations Portal for delivery of final estimates and trends and 1%
(h) coordination of drafting and finalisation of CSR report with all project partners,
(i) reporting the draft and final CSR to the EAAFP, jointly with the EAAFP Science Unit.

EAAFP Science Unit
(a) joint coordination with Wetlands International of consultation of populations estimates and trends review and development of population boundary maps,
(b) coordinate consultation with EAAFP Working Groups, Task Forces, Waterbird Specialist Groups associated with Wetlands International and IUCN SSC, other expert groups, and
(c) reporting the draft and final CSR report to the EAAFP, jointly with Wetlands International.

EAAFP Working Groups & Task Forces
(a) review population estimates and trends review,
(b) review boundaries maps, and
(c) generate population maps for missing species and populations
(d) review of the draft CSR report.

EAAFP Technical Sub-Committee
(a) technical review of project concept, and
(b) review and approve the CSR report.

Annex 2. Taxonomic groups of waterbirds and seabirds included in the East Asian-Australasian Flyway Partnership and their coverage by working groups and task forces

(as per Appendix III of the Partnership Document post MoP10)

Taxonomic Group	English Name	EAAFP Working Groups or Task Forces	Coverage of EAAFP Working Groups or Task Forces of families
WATERBIRDS			
1. Gaviidae	Divers/Loons	Seabird Working Group	One of two species included in Seabird priority list
2. Podicipedidae	Grebes	None	None
3. Phalacrocoracidae	Cormorants	Seabird Working Group	Some species included in Seabird priority list of Seabird Working Group, status to be confirmed
4. Pelecanidae	Pelicans	Dalmatian Pelican TF	Both species included in the seabird priority list of Seabird Working Group
5. Ardeidae	Herons, Egrets and Bitterns	None	None
6. Ciconiidae	Storks	None	Two species (Oriental Stork and Black Stork) covered by the Crane Working Group; other storks not covered
7. Threskiornithidae	Ibises and Spoonbills	None	Black-faced Spoonbill Working Group for single species, other spoonbill and ibises not covered
8. Anatidae	Swans, Geese and Ducks	Anatidae Working Group	All covered
9. Gruidae	Cranes	Crane Working Group	All covered
10. Rallidae	Rails, Gallinules and Coots	None	None
11. Heliornithidae	Finfoots	None	None
12. Jacanidae	Jacanas	None	None
13. Haematopodidae	Oystercatcher	Shorebird Working Group	All covered
14. Recurvirostridae	Stilts and Avocet	Shorebird Working Group	All covered
15. Glareolidae	Pratincoles	Shorebird Working Group	All covered
16. Charadriidae	Plovers	Shorebird Working Group	All covered
17. Scolopacidae	Sandpipers	Shorebird Working Group	All covered
18. Laridae	Gulls, Terns and Skimmers	Seabird Working Group	Some species included in the seabird priority list of Seabird Working Group
SEABIRDS			
19. Alcidae	Auks, murres and puffins	Seabird Working Group	All covered
20. Oceanitidae	Austral Storm Petrels	Seabird Working Group	All covered
21. Procellarridae	Shearwaters & petrels	Seabird Working Group	All covered
22. Stercorariidae	Skuas and jaegers	Seabird Working Group	All covered
23. Phaethontidae	Tropicbirds	Seabird Working Group	All covered
24. Hydrobatidae	Northern storm petrels	Seabird Working Group	All covered
25. Sulidae	Gannets and boobies	Seabird Working Group	All covered
26. Fregatidae	Frigatebirds	Seabird Working Group	All covered

Annex 3. EAAF populations size estimates and trends

The updated population size and trend estimates are provided as separate attachments to this document (as PDF and Excel files).

The final information is available on the Waterbird Populations Portal[11].

The results of the IWC trend analysis (Langendoen *et al*., 2021) is available on the IWC Online Portal[12].

[11] http://wpp.wetlands.org
[12] http://iwc.wetlands.org/index.php/eaaftrends

Annex 4. EAAF populations with only "Best guess" population estimates

Family	Scientific Name	Common Name	Population Name	Start Year	End Year	Min	Max
Anseranatidae	*Anseranas semipalmata*	Magpie Goose	N Australia, SE Indonesia, S New Guinea	1999	1999	1000000	1000001
Anatidae	*Dendrocygna bicolor*	Fulvous Whistling-duck	S Asia	2006	2006	50000	50000
Anatidae	*Dendrocygna eytoni*	Plumed Whistling-duck	Australia, S New Guinea	2004	2008	100000	1000000
Anatidae	*Dendrocygna arcuata*	Wandering Whistling-duck	*australis*	1988	2008	100000	1000000
Anatidae	*Dendrocygna javanica*	Lesser Whistling-duck	E & SE Asia	1987	1991	100000	1000000
Anatidae	*Cygnus olor*	Mute Swan	Korean Peninsula (non-bre)	2016	2021	200	300
Anatidae	*Branta bernicla*	Brent Goose	*nigricans*, China (non-bre)	1993	2018	2500	6000
Anatidae	*Somateria spectabilis*	King Eider	N Pacific	2014	2014	400000	500000
Anatidae	*Bucephala clangula*	Common Goldeneye	*clangula*, E Asia (non-bre)	2006	2006	100000	1000000
Anatidae	*Mergus merganser*	Goosander	*merganser*, E Asia (non-bre)	1998	1998	50000	100000
Anatidae	*Mergus serrator*	Red-breasted Merganser	E Asia (non-bre)	1997	1997	25000	100000
Anatidae	*Histrionicus histrionicus*	Harlequin Duck	E Asia (*pacificus*)	1994	1994	25000	100000
Anatidae	*Nettapus coromandelianus*	Cotton Pygmy-goose	*coromandelianus*, E & SE Asia	1987	1991	25000	1000000
Anatidae	*Spatula querquedula*	Garganey	E & SE Asia (non-bre)	2006	2006	100000	200000
Anatidae	*Spatula clypeata*	Northern Shoveler	E & SE Asia (non-bre)	2002	2002	500000	500000
Anatidae	*Mareca falcata*	Falcated Duck	C & E Asia	2016	2020	132500	132500
Anatidae	*Anas zonorhyncha*	Chinese Spot-billed Duck	*zonorhyncha*	1987	1998	800000	1600000
Anatidae	*Anas poecilorhyncha*	Indian Spot-billed Duck	*haringtoni*	1987	1991	10000	100000
Anatidae	*Anas crecca*	Common Teal	*crecca*, E & SE Asia (non-bre)	1992	1997	600000	1000000
Podicipedidae	*Tachybaptus ruficollis*	Little Grebe	*poggei*	2001	2001	100000	1000000
Podicipedidae	*Podiceps grisegena*	Red-necked Grebe	*holbollii*, E Asia	2006	2006	50000	50000
Podicipedidae	*Podiceps cristatus*	Great Crested Grebe	*cristatus*, E Asia (non-bre)	1987	1991	25000	50000
Podicipedidae	*Podiceps auritus*	Horned Grebe	*auritus*, E Asia (non-bre)	2006	2006	10000	25000
Podicipedidae	*Podiceps nigricollis*	Black-necked Grebe	*nigricollis*, E Asia (non-bre)	1987	1991	10000	100000
Rallidae	*Coturnicops exquisitus*	Swinhoe's Rail	E Asia	2005	2005	3500	15000
Rallidae	*Fulica atra*	Common Coot	*atra*, E, SE Asia (non-bre)	2012	2020	100000	1000001
Gruidae	*Anthropoides virgo*	Demoiselle Crane	E Asia (bre)	2019	2019	65000	98000
Gaviidae	*Gavia stellata*	Red-throated Loon	E Asia (non-bre)	1994	1994	10000	100000

Family	Scientific Name	Common Name	Population Name	Start Year	End Year	Min	Max
Gaviidae	*Gavia arctica*	Arctic Loon	*viridigularis*	1987	1991	25000	1000000
Gaviidae	*Gavia pacifica*	Pacific Loon	E Asia	1987	1991	25000	100000
Gaviidae	*Gavia adamsii*	Yellow-billed Loon	N Pacific (non-bre)	2010	2021	10000	10000
Ciconiidae	*Mycteria leucocephala*	Painted Stork	SE Asia	1987	1991	5000	10000
Ciconiidae	*Anastomus oscitans*	Asian Openbill	S, SE Asia	2006	2006	300000	300000
Ciconiidae	*Ciconia nigra*	Black Stork	South Asia (non-bre)	2012	2020	500	10000
Threskiornithidae	*Platalea regia*	Royal Spoonbill	Australia, New Zealand	2004	2009	25000	100000
Threskiornithidae	*Threskiornis melanocephalus*	Black-headed Ibis	SE Asia	2001	2001	1	10000
Threskiornithidae	*Threskiornis moluccus*	Australian Ibis	*moluccus*	1993	1993	80000	80000
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis	Australia, S New Guinea	1983	2009	100000	1000000
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	Philippines, Indonesia & Australia	1995	2009	25000	1000000
Ardeidae	*Botaurus stellaris*	Eurasian Bittern	*stellaris*, SE & E Asia (non-bre)	2001	2001	25000	100000
Ardeidae	*Ixobrychus sinensis*	Yellow Bittern	E & SE Asia	2006	2006	100000	1000000
Ardeidae	*Ixobrychus eurhythmus*	Schrenck's Bittern	E & SE Asia	2008	2008	1000	50000
Ardeidae	*Ixobrychus cinnamomeus*	Cinnamon Bittern	E, SE Asia	2006	2006	100000	1000000
Ardeidae	*Ixobrychus flavicollis*	Black Bittern	*flavicollis*, E, SE Asia	2006	2006	10000	100000
Ardeidae	*Gorsachius melanolophus*	Malay Night-heron	*melanolophus*, SE Asia	1994	2021	500	50000
Ardeidae	*Nycticorax nycticorax*	Black-crowned Night-heron	*nycticorax*, E, SE Asia	2006	2006	100000	1000000
Ardeidae	*Ardeola bacchus*	Chinese Pond-heron	E, SE & S Asia	2001	2001	25000	1000000
Ardeidae	*Ardeola speciosa*	Javan Pond-heron	*continentalis*	1987	1991	10000	100000
Ardeidae	*Bubulcus ibis*	Cattle Egret	*coromanda*, E, SE Asia	2001	2001	100000	1000000
Ardeidae	*Bubulcus ibis*	Cattle Egret	*coromanda*, Oceania	1999	2011	25000	1000000
Ardeidae	*Ardea cinerea*	Grey Heron	*jouyi*, E, SE Asia	1987	1991	100000	1000000
Ardeidae	*Ardea purpurea*	Purple Heron	*manilensis*, E & SE Asia	1987	1991	10000	100000
Ardeidae	*Ardea alba*	Great White Egret	*modesta*, Australia, S New Guinea	1995	2011	25000	100000
Ardeidae	*Ardea intermedia*	Intermediate Egret	*intermedia*, E, SE Asia	2006	2006	25000	100000
Ardeidae	*Ardea plumifera*	Plumed Egret	*plumifera*	1995	2011	100000	1000000
Ardeidae	*Egretta picata*	Pied Heron	Australia, Sulawesi, New Guinea	1995	2002	25000	100000
Ardeidae	*Egretta garzetta*	Little Egret	*garzetta*, E, SE Asia	1996	1996	100000	1000000
Ardeidae	*Egretta garzetta*	Little Egret	*nigripes*	1987	1991	25000	1000001

Family	Scientific Name	Common Name	Population Name	Start Year	End Year	Min	Max
Ardeidae	*Egretta garzetta*	Little Egret	*immaculata*	2002	2004	25000	100000
Ardeidae	*Egretta eulophotes*	Chinese Egret	E, SE Asia	2012	2012	3800	15000
Phalacrocoracidae	*Urile urile*	Red-faced Cormorant	N Pacific	1997	1997	200000	200000
Phalacrocoracidae	*Phalacrocorax carbo*	Great Cormorant	*sinensis*, E, SE Asia (non-bre)	2002	2002	25000	100000
Phalacrocoracidae	*Phalacrocorax capillatus*	Japanese Cormorant	E Asia	1994	1994	25000	100000
Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	*himantopus*, E & SE Asia	2007	2007	25000	100000
Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	*leucocephalus*, SE Asia - Australia	1992	2009	25000	1000000
Charadriidae	*Pluvialis squatarola*	Grey Plover	*tomkovichi*	2010	2020	3750	5400
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	Pacific Is (non-bre)	2006	2006	35000	50000
Charadriidae	*Charadrius placidus*	Long-billed Plover	E, SE & S Asia	2007	2007	1000	10000
Charadriidae	*Charadrius dubius*	Little Ringed Plover	*jerdoni*	1987	1991	25000	100000
Charadriidae	*Charadrius alexandrinus*	Kentish Plover	*alexandrinus*, E Asia	2007	2007	70000	70000
Charadriidae	*Charadrius dealbatus*	White-faced Plover	SE & E Asia	2007	2007	30000	30000
Charadriidae	*Vanellus vanellus*	Northern Lapwing	E, SE Asia (non-bre)	2006	2006	100000	1000000
Charadriidae	*Vanellus cinereus*	Grey-headed Lapwing	E, SE & S Asia	2001	2001	25000	100000
Rostratulidae	*Rostratula benghalensis*	Greater Painted-snipe	E & SE Asia	2007	2007	25000	100000
Jacanidae	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	E & SE Asia	2012	2021	30000	50000
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	*anadyrensis*	2010	2020	6300	7400
Scolopacidae	*Calidris pugnax*	Ruff	E & SE Asia, Australia (non-bre)	2021	2021	500	1000
Scolopacidae	*Calidris temminckii*	Temminck's Stint	E & SE Asia (non-bre)	2007	2007	25000	100000
Scolopacidae	*Calidris alpina*	Dunlin	*kistchinskii*	2007	2007	100000	1000000
Scolopacidae	*Calidris alpina*	Dunlin	*sakhalina*	2002	2002	100000	1000000
Scolopacidae	*Calidris alpina*	Dunlin	*actites*	2002	2002	900	900
Scolopacidae	*Scolopax rusticola*	Eurasian Woodcock	C & E Asia (bre)	2005	2005	25000	1000000
Scolopacidae	*Gallinago solitaria*	Solitary Snipe	*japonica*	2005	2005	1	10000
Scolopacidae	*Gallinago nemoricola*	Wood Snipe	S & S East Asia, SW China	2000	2000	3500	15000
Scolopacidae	*Gallinago gallinago*	Common Snipe	*gallinago*, E & SE Asia (non-bre)	1987	1991	100000	1000000
Scolopacidae	*Lymnocryptes minimus*	Jack Snipe	E, SE Asia (non-bre)	2001	2001	1	10000
Scolopacidae	*Tringa ochropus*	Green Sandpiper	E & SE Asia (non-bre)	1987	2000	25000	100000
Scolopacidae	*Tringa incana*	Wandering Tattler	N N America (bre)	2012	2012	10000	25000

Family	Scientific Name	Common Name	Population Name	Start Year	End Year	Min	Max
Scolopacidae	*Tringa totanus*	Common Redshank	*ussuriensis*, S & SE Asia (non-bre)	2002	2002	25000	100000
Scolopacidae	*Tringa totanus*	Common Redshank	*terrignotae*	2002	2002	10000	100000
Scolopacidae	*Tringa totanus*	Common Redshank	*craggi*	2002	2002	10000	100000
Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	E, SE Asia, Oceania (non-bre)	2005	2016	130000	130000
Glareolidae	*Stiltia isabella*	Australian Pratincole	Australia, New Guinea, E Indonesia	1992	2009	25000	100000
Laridae	*Anous stolidus*	Brown Noddy	*pileatus*	2001	2008	1000000	1000001
Laridae	*Anous minutus*	Black Noddy	*minutus*	1999	2004	1000000	1000001
Laridae	*Rissa tridactyla*	Black-legged Kittiwake	*pollicaris*, W Pacific (bre)	1995	1995	4800000	4800001
Laridae	*Larus brunnicephalus*	Brown-headed Gull	C Asia (bre)	2006	2006	100000	200000
Laridae	*Larus ridibundus*	Black-headed Gull	E & SE Asia (non-bre)	2001	2001	100000	1000001
Laridae	*Larus ichthyaetus*	Pallas's Gull	C Asia (bre)	1987	1991	25000	100000
Laridae	*Larus relictus*	Relict Gull	C Asia (bre)	2010	2011	15000	30000
Laridae	*Larus crassirostris*	Black-tailed Gull	E Asia	2001	2001	1100000	1100000
Laridae	*Larus canus*	Mew Gull	*kamtschatschensis*	2001	2001	25000	100000
Laridae	*Larus smithsonianus*	Arctic Herring Gull	*mongolicus*	2000	2000	57000	66000
Laridae	*Larus schistisagus*	Slaty-backed Gull	NE Asia	1994	1994	25000	1000000
Laridae	*Larus glaucescens*	Glaucous-winged Gull	N Pacific	2005	2005	422000	422000
Laridae	*Larus hyperboreus*	Glaucous Gull	*pallidissimus*	2005	2005	103000	103250
Laridae	*Onychoprion fuscatus*	Sooty Tern	*serratus*	1995	2011	1200000	1500000
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus*	1994	2011	100000	1000000
Laridae	*Sternula albifrons*	Little Tern	*pusilla*	2006	2006	50000	100000
Laridae	*Sternula albifrons*	Little Tern	*sinensis*	1993	1993	10000	100000
Laridae	*Gelochelidon nilotica*	Common Gull-billed Tern	*affinis*	1994	2021	10000	100000
Laridae	*Gelochelidon macrotarsa*	Australian Gull-billed Tern	Australia (bre)	2004	2004	25000	100000
Laridae	*Hydroprogne caspia*	Caspian Tern	E & SE Asia (non-bre)	1987	1991	10000	25000
Laridae	*Chlidonias hybrida*	Whiskered Tern	*javanicus*	1987	1991	100000	1000000
Laridae	*Chlidonias leucopterus*	White-winged Tern	Asia, Australasia	1987	1991	100000	1000000
Laridae	*Sterna dougallii*	Roseate Tern	*gracilis*, S Asia	1994	1994	1	10000
Laridae	*Sterna hirundo*	Common Tern	*longipennis*	1993	2006	30000	70000
Laridae	*Sterna hirundo*	Common Tern	*tibetana*	1987	1991	10000	100000

Family	Scientific Name	Common Name	Population Name	Start Year	End Year	Min	Max
Laridae	*Sterna paradisaea*	Arctic Tern	NW N America & E Russia (bre)	2012	2015	500000	1000001
Laridae	*Sterna acuticauda*	Black-bellied Tern	S & SE Asia	2005	2005	10000	25000
Laridae	*Thalasseus bengalensis*	Lesser Crested Tern	*torresii*	1995	1995	25000	100000
Laridae	*Thalasseus bergii*	Greater Crested Tern	*cristatus*	1995	1995	100000	1000000

Annex 5. EAAF populations with limited information on trends ("no idea" and "poor" trend quality)

Population trend estimates are unknown, uncertain (UNC), decreasing (DEC), stable (STA), fluctuating (FLU) or increasing (INC). For trends with sources proposing different directions and where no preference can be given, 2 trend classifications are given separated by a "/" e.g. DEC/STA. The trend quality categories (as given in Table 4) are the following:

Category	**Description**
1. **No idea**	No monitoring at international scale in either breeding or non-breeding/wintering periods. Trends unknown. This category also includes populations where trends are statistically uncertain unless other evidence allows estimation of the trend.
2. **Poor**	Some international monitoring in either breeding or non-breeding periods although inadequate in quality or scope. Trends assumed through partial information. a. Assumed from anecdotal information or based on habitat change; b. Unrepresentative coverage; c. Short-term trend based on <5 years of data
3. **Reasonable**	International monitoring in either breeding or non-breeding/wintering periods that is adequate in quality or scope to track direction of population changes. a. Trend is statistically uncertain but has adequate quality and scope. b. Different sources provide different trend direction
4. **Good**	International monitoring in either breeding or non-breeding/wintering periods that is adequate in quality or scope to track direction of population changes with defined statistical precision. The trend is statistically certain and has adequate quality and scope.

Family	Scientific Name	Common Name	Population Name	Trend	Quality
Anatidae	*Dendrocygna bicolor*	Fulvous Whistling-duck	S Asia	Unknown	No idea
Anatidae	*Dendrocygna eytoni*	Plumed Whistling-duck	Australia, S New Guinea	STA	Poor
Anatidae	*Dendrocygna arcuata*	Wandering Whistling-duck	*australis*	STA	Poor
Anatidae	*Dendrocygna javanica*	Lesser Whistling-duck	E & SE Asia	STA	Poor
Anatidae	*Cygnus olor*	Mute Swan	E China (non-bre)	UNC	No idea
Anatidae	*Cygnus olor*	Mute Swan	Korean Peninsula (non-bre)	Unknown	No idea
Anatidae	*Branta bernicla*	Brent Goose	*nigricans*, China (non-bre)	Unknown	No idea
Anatidae	*Anser caerulescens*	Snow Goose	*caerulescens*, E Asia	INC?	Poor
Anatidae	*Anser indicus*	Bar-headed Goose	C, S & SE Asia	INC	Poor
Anatidae	*Anser anser*	Greylag Goose	*rubrirostris*, E Asia (non-bre)	INC?	Poor
Anatidae	*Anser fabalis*	Bean Goose	*middendorffi*, Korea (non-bre)	STA/INC?	Poor
Anatidae	*Anser fabalis*	Bean Goose	*serrirostris*, China (non-bre)	INC	Poor
Anatidae	*Clangula hyemalis*	Long-tailed Duck	E Asia (non-bre)	Unknown	No idea
Anatidae	*Somateria fischeri*	Spectacled Eider	E Siberia, N & W Alaska	DEC	Poor
Anatidae	*Somateria spectabilis*	King Eider	N Pacific	STA/DEC?	Poor
Anatidae	*Somateria mollissima*	Common Eider	v-*nigrum*	STA	Poor
Anatidae	*Polysticta stelleri*	Steller's Eider	N Pacific (non-bre)	Unknown	No idea
Anatidae	*Melanitta stejnegeri*	Siberian Scoter	E Asia	Unknown	No idea
Anatidae	*Melanitta americana*	Black Scoter	*americana*, E Asia	Unknown	No idea
Anatidae	*Bucephala clangula*	Common Goldeneye	*clangula*, E Asia (non-bre)	STA	Poor
Anatidae	*Mergellus albellus*	Smew	E Asia (non-bre)	DEC	Poor
Anatidae	*Mergus serrator*	Red-breasted Merganser	E Asia (non-bre)	DEC	Poor
Anatidae	*Histrionicus histrionicus*	Harlequin Duck	E Asia (*pacificus*)	Unknown	No idea
Anatidae	*Tadorna tadorna*	Common Shelduck	E Asia (non-bre)	STA	Poor
Anatidae	*Tadorna ferruginea*	Ruddy Shelduck	E Asia (non-bre)	INC	Poor
Anatidae	*Nettapus coromandelianus*	Cotton Pygmy-goose	*coromandelianus*, E & SE Asia	Unknown	No idea
Anatidae	*Aix galericulata*	Mandarin Duck	China (non-bre)	Unknown	No idea
Anatidae	*Aix galericulata*	Mandarin Duck	Japan (non-bre)	Unknown	No idea
Anatidae	*Aythya nyroca*	Ferruginous Duck	S, E & SE Asia (non-bre)	Unknown	No idea

Family	Scientific Name	Common Name	Population Name	Trend	Quality
Anatidae	*Aythya marila*	Greater Scaup	*nearctica*, E Asia	STA	Poor
Anatidae	*Spatula querquedula*	Garganey	E & SE Asia (non-bre)	INC?	Poor
Anatidae	*Mareca falcata*	Falcated Duck	C & E Asia	STA/INC?	Poor
Anatidae	*Mareca strepera*	Gadwall	*strepera*, E Asia (non-bre)	STA	Poor
Anatidae	*Mareca penelope*	Eurasian Wigeon	E Asia (non-bre)	INC	Poor
Anatidae	*Anas zonorhyncha*	Chinese Spot-billed Duck	*zonorhyncha*	INC?	Poor
Anatidae	*Anas poecilorhyncha*	Indian Spot-billed Duck	*haringtoni*	STA	Poor
Anatidae	*Anas platyrhynchos*	Mallard	*platyrhynchos*, E Asia (non-bre)	Unknown	No idea
Anatidae	*Anas acuta*	Northern Pintail	E & SE Asia	STA?	Poor
Anatidae	*Anas crecca*	Common Teal	*crecca*, E & SE Asia (non-bre)	STA	Poor
Podicipedidae	*Tachybaptus ruficollis*	Little Grebe	*poggei*	Unknown	No idea
Podicipedidae	*Podiceps grisegena*	Red-necked Grebe	*holbollii*, E Asia	Unknown	No idea
Podicipedidae	*Podiceps auritus*	Horned Grebe	*auritus*, E Asia (non-bre)	Unknown	No idea
Podicipedidae	*Podiceps nigricollis*	Black-necked Grebe	*nigricollis*, E Asia (non-bre)	Unknown	No idea
Rallidae	*Rallina tricolor*	Red-necked Crake	New Guinea, NE Australia	Unknown	No idea
Rallidae	*Rallina fasciata*	Red-legged Crake	S & SE Asia	Unknown	No idea
Rallidae	*Rallina eurizonoides*	Slaty-legged Crake	*telmatophila*	Unknown	No idea
Rallidae	*Coturnicops exquisitus*	Swinhoe's Rail	E Asia	Unknown	No idea
Rallidae	*Rallus aquaticus*	Western Water Rail	*korejewi*, Western Siberia/South-west Asia	Unknown	No idea
Rallidae	*Rallus indicus*	Eastern Water Rail	*indicus*	Unknown	No idea
Rallidae	*Lewinia striata*	Slaty-breasted Rail	*albiventer*	Unknown	No idea
Rallidae	*Lewinia striata*	Slaty-breasted Rail	*gularis*	Unknown	No idea
Rallidae	*Zapornia fusca*	Ruddy-breasted Crake	*erythrothorax*	Unknown	No idea
Rallidae	*Zapornia fusca*	Ruddy-breasted Crake	*bakeri*	Unknown	No idea
Rallidae	*Zapornia paykullii*	Band-bellied Crake	E & SE Asia	Unknown	No idea
Rallidae	*Zapornia pusilla*	Baillon's Crake	*pusilla* SE Asia (non-bre)	Unknown	No idea
Rallidae	*Amaurornis phoenicurus*	White-breasted Waterhen	*phoenicurus*, E & SE Asia	Unknown	No idea
Rallidae	*Gallicrex cinerea*	Watercock	*cinerea*, E & SE Asia	Unknown	No idea
Rallidae	*Gallinula chloropus*	Common Moorhen	*chloropus*, SE Asia (non-bre)	Unknown	No idea

Family	Scientific Name	Common Name	Population Name	Trend	Quality
Rallidae	*Fulica atra*	Common Coot	*atra*, E, SE Asia (non-bre)	STA	Poor
Gruidae	*Grus vipio*	White-naped Crane	China (non-bre)	Unknown	No idea
Gruidae	*Grus antigone*	Sarus Crane	*sharpii*, Myanmar	DEC	Poor
Gruidae	*Grus monacha*	Hooded Crane	C China (non-bre)	DEC?	Poor
Gaviidae	*Gavia stellata*	Red-throated Loon	E Asia (non-bre)	DEC	Poor
Gaviidae	*Gavia arctica*	Arctic Loon	*viridigularis*	Unknown	No idea
Gaviidae	*Gavia pacifica*	Pacific Loon	E Asia	Unknown	No idea
Gaviidae	*Gavia adamsii*	Yellow-billed Loon	N Pacific (non-bre)	INC	Poor
Ciconiidae	*Mycteria leucocephala*	Painted Stork	SE Asia	INC	Poor
Ciconiidae	*Ciconia nigra*	Black Stork	South Asia (non-bre)	DEC	Poor
Ciconiidae	*Ciconia nigra*	Black Stork	E Asia (non-bre)	Unknown	No idea
Threskiornithidae	*Platalea regia*	Royal Spoonbill	Australia, New Zealand	STA	Poor
Threskiornithidae	*Threskiornis melanocephalus*	Black-headed Ibis	SE Asia	Unknown	No idea
Threskiornithidae	*Threskiornis moluccus*	Australian Ibis	*moluccus*	Unknown	No idea
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis	Australia, S New Guinea	Unknown	No idea
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	Philippines, Indonesia & Australia	DEC?	Poor
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	E & SE Asia	Unknown	No idea
Ardeidae	*Botaurus stellaris*	Eurasian Bittern	*stellaris*, SE & E Asia (non-bre)	Unknown	No idea
Ardeidae	*Ixobrychus sinensis*	Yellow Bittern	E & SE Asia	Unknown	No idea
Ardeidae	*Ixobrychus eurhythmus*	Schrenck's Bittern	E & SE Asia	DEC	Poor
Ardeidae	*Ixobrychus cinnamomeus*	Cinnamon Bittern	E & SE Asia	Unknown	No idea
Ardeidae	*Ixobrychus flavicollis*	Black Bittern	*flavicollis*, E, SE Asia	Unknown	No idea
Ardeidae	*Oroanassa magnifica*	White-eared Night-heron	SE Asia	DEC	Poor
Ardeidae	*Gorsachius goisagi*	Japanese Night-heron	E & SE Asia	Unknown	No idea
Ardeidae	*Gorsachius melanolophus*	Malay Night-heron	*melanolophus*, SE Asia	Unknown	No idea
Ardeidae	*Nycticorax nycticorax*	Black-crowned Night-heron	*nycticorax*, E, SE Asia	Unknown	No idea
Ardeidae	*Butorides striata*	Green-backed Heron	*amurensis*	Unknown	No idea
Ardeidae	*Butorides striata*	Green-backed Heron	*actophila*	Unknown	No idea
Ardeidae	*Ardeola bacchus*	Chinese Pond-heron	E, SE & S Asia	STA	Poor

Family	Scientific Name	Common Name	Population Name	Trend	Quality
Ardeidae	*Ardeola speciosa*	Javan Pond-heron	*speciosa*	Unknown	No idea
Ardeidae	*Ardeola speciosa*	Javan Pond-heron	*continentalis*	Unknown	No idea
Ardeidae	*Bubulcus ibis*	Cattle Egret	*coromanda*, Oceania	Unknown	No idea
Ardeidae	*Ardea cinerea*	Grey Heron	*jouyi*, E, SE Asia	STA	Poor
Ardeidae	*Ardea purpurea*	Purple Heron	*manilensis*, E & SE Asia	STA	Poor
Ardeidae	*Ardea alba*	Great White Egret	*modesta*, Australia, S New Guinea	Unknown	No idea
Ardeidae	*Ardea alba*	Great White Egret	*alba*, E Asia (bre)	Unknown	No idea
Ardeidae	*Ardea intermedia*	Intermediate Egret	*intermedia*, E, SE Asia	Unknown	No idea
Ardeidae	*Ardea plumifera*	Plumed Egret	*plumifera*	Unknown	No idea
Ardeidae	*Egretta picata*	Pied Heron	Australia, Sulawesi, New Guinea	Unknown	No idea
Ardeidae	*Egretta garzetta*	Little Egret	*garzetta*, E, SE Asia	Unknown	No idea
Ardeidae	*Egretta garzetta*	Little Egret	*nigripes*	Unknown	No idea
Ardeidae	*Egretta garzetta*	Little Egret	*immaculata*	Unknown	No idea
Ardeidae	*Egretta eulophotes*	Chinese Egret	E & SE Asia	STA	Poor
Phalacrocoracidae	*Urile pelagicus*	Pelagic Cormorant	*pelagicus*	INC?	Poor
Phalacrocoracidae	*Urile urile*	Red-faced Cormorant	N Pacific	Unknown	No idea
Phalacrocoracidae	*Phalacrocorax carbo*	Great Cormorant	*sinensis*, E, SE Asia (non-bre)	INC	Poor
Phalacrocoracidae	*Phalacrocorax capillatus*	Japanese Cormorant	E Asia	Unknown	No idea
Haematopodidae	*Haematopus ostralegus*	Eurasian Oystercatcher	*osculans*	STA	Poor
Recurvirostridae	*Recurvirostra avosetta*	Pied Avocet	E Asia	DEC?	Poor
Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	*himantopus*, E & SE Asia	INC	Poor
Charadriidae	*Pluvialis squatarola*	Grey Plover	*squatarola*, E, SE Asia & Australia (non-bre)	STA	Poor
Charadriidae	*Pluvialis squatarola*	Grey Plover	*tomkovichi*	DEC	Poor
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	Pacific Is (non-bre)	DEC	Poor
Charadriidae	*Charadrius placidus*	Long-billed Plover	E, SE & S Asia	DEC	No idea
Charadriidae	*Charadrius dubius*	Little Ringed Plover	*curonicus* E, SE & S Asia	DEC?	Poor
Charadriidae	*Charadrius dubius*	Little Ringed Plover	*jerdoni*	Unknown	No idea
Charadriidae	*Charadrius alexandrinus*	Kentish Plover	*alexandrinus*, E Asia	Unknown	No idea
Charadriidae	*Charadrius dealbatus*	White-faced Plover	SE & E Asia	Unknown	No idea

Family	Scientific Name	Common Name	Population Name	Trend	Quality
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*mongolus*	DEC	Poor
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*atrifrons*	Unknown	No idea
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*schaeferi*	Unknown	No idea
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*stegmanni*	DEC	Poor
Charadriidae	*Charadrius veredus*	Oriental Plover	C Asia (bre)	STA	Poor
Charadriidae	*Vanellus vanellus*	Northern Lapwing	E, SE Asia (non-bre)	Unknown	No idea
Charadriidae	*Vanellus cinereus*	Grey-headed Lapwing	E, SE & S Asia	STA	Poor
Rostratulidae	*Rostratula benghalensis*	Greater Painted-snipe	E & SE Asia	Unknown	No idea
Jacanidae	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	E & SE Asia	Unknown	No idea
Scolopacidae	*Numenius minutus*	Little Curlew	N Siberia (bre)	DEC?	Poor
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	*anadyrensis*	Unknown	No idea
Scolopacidae	*Limosa limosa*	Black-tailed Godwit	*melanuroides*	STA	Poor
Scolopacidae	*Calidris pugnax*	Ruff	E & SE Asia, Australia (non-bre)	DEC	Poor
Scolopacidae	*Calidris falcinellus*	Broad-billed Sandpiper	*sibirica*	Unknown	No idea
Scolopacidae	*Calidris temminckii*	Temminck's Stint	E & SE Asia (non-bre)	Unknown	No idea
Scolopacidae	*Calidris subminuta*	Long-toed Stint	Siberia (bre)	DEC?	Poor
Scolopacidae	*Calidris alpina*	Dunlin	*kistchinskii*	Unknown	No idea
Scolopacidae	*Calidris alpina*	Dunlin	*sakhalina*	Unknown	No idea
Scolopacidae	*Calidris alpina*	Dunlin	*actites*	Unknown	No idea
Scolopacidae	*Calidris ptilocnemis*	Rock Sandpiper	*tschuktschorum*	Unknown	No idea
Scolopacidae	*Limnodromus semipalmatus*	Asian Dowitcher	C & E Asia (bre)	STA	Poor
Scolopacidae	*Scolopax rusticola*	Eurasian Woodcock	C & E Asia (bre)	Unknown	No idea
Scolopacidae	*Gallinago solitaria*	Solitary Snipe	*japonica*	Unknown	No idea
Scolopacidae	*Gallinago hardwickii*	Latham's Snipe	E Asia (bre)	DEC	Poor
Scolopacidae	*Gallinago nemoricola*	Wood Snipe	S & S East Asia, SW China	DEC?	Poor
Scolopacidae	*Gallinago stenura*	Pintail Snipe	E & SE Asia (non-bre)	Unknown	No idea
Scolopacidae	*Gallinago megala*	Swinhoe's Snipe	C Asia (bre)	Unknown	No idea
Scolopacidae	*Gallinago gallinago*	Common Snipe	*gallinago*, E & SE Asia (non-bre)	Unknown	No idea
Scolopacidae	*Lymnocryptes minimus*	Jack Snipe	E, SE Asia (non-bre)	Unknown	No idea

Family	Scientific Name	Common Name	Population Name	Trend	Quality
Scolopacidae	*Phalaropus lobatus*	Red-necked Phalarope	NE Asia (bre)	Unknown	No idea
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	E & SE Asia to Oceania (non-bre)	STA	Poor
Scolopacidae	*Tringa ochropus*	Green Sandpiper	E & SE Asia (non-bre)	STA	Poor
Scolopacidae	*Tringa incana*	Wandering Tattler	N N America (bre)	Unknown	Poor
Scolopacidae	*Tringa erythropus*	Spotted Redshank	E, SE Asia (non-bre)	Unknown	No idea
Scolopacidae	*Tringa totanus*	Common Redshank	*ussuriensis*, S & SE Asia (non-bre)	Unknown	No idea
Scolopacidae	*Tringa totanus*	Common Redshank	*terrignotae*	Unknown	No idea
Scolopacidae	*Tringa totanus*	Common Redshank	*craggi*	Unknown	No idea
Scolopacidae	*Tringa glareola*	Wood Sandpiper	E, SE Asia & Australia (non-bre)	DEC	Poor
Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	E, SE Asia, Oceania (non-bre)	STA	Poor
Scolopacidae	*Tringa guttifer*	Spotted Greenshank	NE Asia (bre)	STA?	Poor
Glareolidae	*Stiltia isabella*	Australian Pratincole	Australia, New Guinea, E Indonesia	Unknown	No idea
Glareolidae	*Glareola maldivarum*	Oriental Pratincole	E-SE Asia, Australia	STA?	Poor
Laridae	*Anous stolidus*	Brown Noddy	*pileatus*	INC	Poor
Laridae	*Anous minutus*	Black Noddy	*minutus*	Unknown	No idea
Laridae	*Anous minutus*	Black Noddy	*worcesteri*	Unknown	No idea
Laridae	*Rissa tridactyla*	Black-legged Kittiwake	*pollicaris*, W Pacific (bre)	Unknown	No idea
Laridae	*Larus ridibundus*	Black-headed Gull	E & SE Asia (non-bre)	STA	Poor
Laridae	*Larus ichthyaetus*	Pallas's Gull	C Asia (bre)	DEC	Poor
Laridae	*Larus relictus*	Relict Gull	C Asia (bre)	DEC	Poor
Laridae	*Larus crassirostris*	Black-tailed Gull	E Asia	Unknown	No idea
Laridae	*Larus canus*	Mew Gull	*kamtschatschensis*	Unknown	No idea
Laridae	*Larus smithsonianus*	Arctic Herring Gull	*vegae*	Unknown	No idea
Laridae	*Larus smithsonianus*	Arctic Herring Gull	*mongolicus*	Unknown	No idea
Laridae	*Larus schistisagus*	Slaty-backed Gull	NE Asia	DEC?	Poor
Laridae	*Larus glaucescens*	Glaucous-winged Gull	N Pacific	Unknown	No idea
Laridae	*Larus hyperboreus*	Glaucous Gull	*pallidissimus*	Unknown	No idea
Laridae	*Onychoprion aleuticus*	Aleutian Tern	N Pacific (bre)	DEC	Poor
Laridae	*Onychoprion fuscatus*	Sooty Tern	*nubilosus*, Red Sea, Gulf of Aden, E to Pacific	Unknown	No idea

Family	Scientific Name	Common Name	Population Name	Trend	Quality
Laridae	*Onychoprion fuscatus*	Sooty Tern	*nubilosus*, Indonesia	Unknown	No idea
Laridae	*Onychoprion fuscatus*	Sooty Tern	*serratus*	Unknown	No idea
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus*	Unknown	No idea
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus* (*rogersi*)	Unknown	No idea
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus* (*novaehollandiae*)	Unknown	No idea
Laridae	*Sternula albifrons*	Little Tern	*pusilla*	Unknown	No idea
Laridae	*Sternula albifrons*	Little Tern	*sinensis*	Unknown	No idea
Laridae	*Gelochelidon nilotica*	Common Gull-billed Tern	*affinis*	Unknown	No idea
Laridae	*Gelochelidon macrotarsa*	Australian Gull-billed Tern	Australia (bre)	INC	Poor
Laridae	*Hydroprogne caspia*	Caspian Tern	E & SE Asia (non-bre)	Unknown	No idea
Laridae	*Chlidonias hybrida*	Whiskered Tern	*hybrida*, Transbaikalia to E China mainland & Taiwan	Unknown	No idea
Laridae	*Chlidonias hybrida*	Whiskered Tern	*javanicus*	Unknown	No idea
Laridae	*Chlidonias leucopterus*	White-winged Tern	Asia, Australasia	DEC?	Poor
Laridae	*Sterna dougallii*	Roseate Tern	*gracilis*, SE Asia	Unknown	No idea
Laridae	*Sterna dougallii*	Roseate Tern	*gracilis*, S Asia	Unknown	No idea
Laridae	*Sterna dougallii*	Roseate Tern	*gracilis*, Australia & Moluccas Is	Unknown	No idea
Laridae	*Sterna sumatrana*	Black-naped Tern	*sumatrana*	Unknown	No idea
Laridae	*Sterna hirundo*	Common Tern	*longipennis*	Unknown	No idea
Laridae	*Sterna hirundo*	Common Tern	*tibetana*	Unknown	No idea
Laridae	*Sterna paradisaea*	Arctic Tern	NW N America & E Russia (bre)	DEC	Poor
Laridae	*Thalasseus bengalensis*	Lesser Crested Tern	*torresii*	DEC	Poor
Laridae	*Thalasseus bergii*	Greater Crested Tern	*cristatus*	INC	Poor

Annex 6. EAAF populations 1% and 0.25% thresholds

Populations with no size estimate, have "-1" as 1% and 0.25% population thresholds. For populations when the upper estimate is expressed as >1 million individuals (indicated with a maximum estimate of 1,000,001) the 1% and 0.25% thresholds are set at 20,000 individuals.

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Anseranatidae	*Anseranas semipalmata*	Magpie Goose	N Australia, SE Indonesia, S New Guinea	20000	20000
Anatidae	*Dendrocygna bicolor*	Fulvous Whistling-duck	S Asia	500	130
Anatidae	*Dendrocygna eytoni*	Plumed Whistling-duck	Australia, S New Guinea	10000	2500
Anatidae	*Dendrocygna arcuata*	Wandering Whistling-duck	*australis*	10000	2500
Anatidae	*Dendrocygna javanica*	Lesser Whistling-duck	E & SE Asia	10000	2500
Anatidae	*Cygnus olor*	Mute Swan	Korean Peninsula (non-bre)	2	1
Anatidae	*Cygnus olor*	Mute Swan	E China (non-bre)	4	1
Anatidae	*Cygnus cygnus*	Whooper Swan	E Asia	580	150
Anatidae	*Cygnus columbianus*	Tundra Swan	*bewickii*, Japan/Korea (non-bre)	450	110
Anatidae	*Cygnus columbianus*	Tundra Swan	*bewickii*, China (non-bre)	650	160
Anatidae	*Branta bernicla*	Brent Goose	*nigricans*, China (non-bre)	40	10
Anatidae	*Branta bernicla*	Brent Goose	*nigricans*, Japan (non-bre)	25	6
Anatidae	*Branta hutchinsii*	Cackling Goose	*leucopareia*, Kuril (Ekarmar-Japan)	90	20
Anatidae	*Anser canagicus*	Emperor Goose	N Pacific	1600	400
Anatidae	*Anser caerulescens*	Snow Goose	*caerulescens*, E Asia	6	2
Anatidae	*Anser indicus*	Bar-headed Goose	C, S & SE Asia	1100	270
Anatidae	*Anser anser*	Greylag Goose	*rubrirostris*, E Asia (non-bre)	320	80
Anatidae	*Anser cygnoid*	Swan Goose	coastal China & Korea (non-bre)	4	1
Anatidae	*Anser cygnoid*	Swan Goose	inland China (non-bre)	540	140
Anatidae	*Anser fabalis*	Bean Goose	*serrirostris*, Japan (non-bre)	9	2
Anatidae	*Anser fabalis*	Bean Goose	*middendorffi*, Korea(non-bre)	75	20
Anatidae	*Anser fabalis*	Bean Goose	*middendorffi*, Japan (non-bre)	95	25
Anatidae	*Anser fabalis*	Bean Goose	*middendorffi*, China (non-bre)	240	60

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Anatidae	*Anser fabalis*	Bean Goose	*serrirostris*, Korea (non-bre)	810	200
Anatidae	*Anser fabalis*	Bean Goose	*serrirostris*, China (non-bre)	2300	570
Anatidae	*Anser albifrons*	Greater White-fronted Goose	*frontalis*, China (non-bre)	480	120
Anatidae	*Anser albifrons*	Greater White-fronted Goose	*frontalis*, Korea (non-bre)	1400	360
Anatidae	*Anser albifrons*	Greater White-fronted Goose	*frontalis*, Japan (non-bre)	2300	580
Anatidae	*Anser erythropus*	Lesser White-fronted Goose	C & E Siberia	70	20
Anatidae	*Clangula hyemalis*	Long-tailed Duck	E Asia (non-bre)	7100	1800
Anatidae	*Somateria fischeri*	Spectacled Eider	E Siberia, N & W Alaska	3800	950
Anatidae	*Somateria spectabilis*	King Eider	N Pacific	4500	1100
Anatidae	*Somateria mollissima*	Common Eider	v-*nigrum*	1500	370
Anatidae	*Polysticta stelleri*	Steller's Eider	N Pacific (non-bre)	1800	450
Anatidae	*Melanitta stejnegeri*	Siberian Scoter	E Asia	7700	1900
Anatidae	*Melanitta americana*	Black Scoter	*americana*, E Asia	3900	970
Anatidae	*Bucephala clangula*	Common Goldeneye	*clangula*, E Asia (non-bre)	10000	2500
Anatidae	*Mergellus albellus*	Smew	E Asia (non-bre)	300	75
Anatidae	*Mergus merganser*	Goosander	*merganser*, E Asia (non-bre)	710	180
Anatidae	*Mergus squamatus*	Scaly-sided Merganser	E & SE Asia	45	10
Anatidae	*Mergus serrator*	Red-breasted Merganser	E Asia (non-bre)	1000	250
Anatidae	*Histrionicus histrionicus*	Harlequin Duck	E Asia (pacificus)	1000	250
Anatidae	*Tadorna tadorna*	Common Shelduck	E Asia (non-bre)	1200	310
Anatidae	*Tadorna ferruginea*	Ruddy Shelduck	E Asia (non-bre)	710	180
Anatidae	*Nettapus coromandelianus*	Cotton Pygmy-goose	*coromandelianus*, E & SE Asia	10000	2500
Anatidae	*Aix galericulata*	Mandarin Duck	Korea (non-bre)	50	15
Anatidae	*Aix galericulata*	Mandarin Duck	China (non-bre)	200	50
Anatidae	*Aix galericulata*	Mandarin Duck	Japan (non-bre)	400	100
Anatidae	*Aythya ferina*	Common Pochard	E Asia (non-bre)	3000	750

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Anatidae	*Aythya baeri*	Baer's Pochard	C, E, SE & S Asia	15	4
Anatidae	*Aythya nyroca*	Ferruginous Duck	S, E & SE Asia (non-bre)	1000	250
Anatidae	*Aythya fuligula*	Tufted Duck	E & SE Asia (non-bre)	2400	610
Anatidae	*Aythya marila*	Greater Scaup	*nearctica*, E Asia	2400	610
Anatidae	*Spatula querquedula*	Garganey	E & SE Asia (non-bre)	1400	350
Anatidae	*Spatula clypeata*	Northern Shoveler	E & SE Asia (non-bre)	5000	1300
Anatidae	*Sibirionetta formosa*	Baikal Teal	E Asia	5900	1500
Anatidae	*Mareca falcata*	Falcated Duck	C & E Asia	1300	330
Anatidae	*Mareca strepera*	Gadwall	*strepera*, E Asia (non-bre)	7100	1800
Anatidae	*Mareca penelope*	Eurasian Wigeon	E Asia (non-bre)	7100	1800
Anatidae	*Anas zonorhyncha*	Chinese Spot-billed Duck	*zonorhyncha*	11300	2800
Anatidae	*Anas poecilorhyncha*	Indian Spot-billed Duck	*haringtoni*	1000	250
Anatidae	*Anas platyrhynchos*	Mallard	*platyrhynchos*, E Asia (non-bre)	15000	3800
Anatidae	*Anas acuta*	Northern Pintail	E & SE Asia	2400	610
Anatidae	*Anas crecca*	Common Teal	*crecca*, E & SE Asia (non-bre)	7700	1900
Podicipedidae	*Tachybaptus ruficollis*	Little Grebe	*poggei*	10000	2500
Podicipedidae	*Podiceps grisegena*	Red-necked Grebe	*holbollii*, E Asia	500	130
Podicipedidae	*Podiceps cristatus*	Great Crested Grebe	*cristatus*, E Asia (non-bre)	350	90
Podicipedidae	*Podiceps auritus*	Horned Grebe	*auritus*, E Asia (non-bre)	250	65
Podicipedidae	*Podiceps nigricollis*	Black-necked Grebe	*nigricollis*, E Asia (non-bre)	1000	250
Heliornithidae	*Heliopais personatus*	Masked Finfoot	S, SE Asia	3	1
Rallidae	*Rallina tricolor*	Red-necked Crake	New Guinea, NE Australia	-1	-1
Rallidae	*Rallina fasciata*	Red-legged Crake	S & SE Asia	-1	-1
Rallidae	*Rallina eurizonoides*	Slaty-legged Crake	*telmatophila*	-1	-1
Rallidae	*Coturnicops exquisitus*	Swinhoe's Rail	E Asia	70	20
Rallidae	*Rallus aquaticus*	Western Water Rail	*korejewi*, Western Siberia/South-west Asia	-1	-1

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Rallidae	*Rallus indicus*	Eastern Water Rail	*indicus*	-1	-1
Rallidae	*Lewinia striata*	Slaty-breasted Rail	*albiventer*	-1	-1
Rallidae	*Lewinia striata*	Slaty-breasted Rail	*gularis*	-1	-1
Rallidae	*Zapornia fusca*	Ruddy-breasted Crake	*erythrothorax*	-1	-1
Rallidae	*Zapornia fusca*	Ruddy-breasted Crake	*bakeri*	-1	-1
Rallidae	*Zapornia paykullii*	Band-bellied Crake	E & SE Asia	-1	-1
Rallidae	*Zapornia pusilla*	Baillon's Crake	*pusilla* SE Asia (non-bre)	-1	-1
Rallidae	*Amaurornis phoenicurus*	White-breasted Waterhen	*phoenicurus*, E & SE Asia	-1	-1
Rallidae	*Gallicrex cinerea*	Watercock	*cinerea*, E & SE Asia	-1	-1
Rallidae	*Gallinula chloropus*	Common Moorhen	*chloropus*, SE Asia (non-bre)	-1	-1
Rallidae	*Fulica atra*	Common Coot	*atra*, E, SE Asia (non-bre)	20000	20000
Gruidae	*Leucogeranus leucogeranus*	Siberian Crane	E Asia	50	10
Gruidae	*Grus vipio*	White-naped Crane	Korea, Japan (non-bre)	65	15
Gruidae	*Grus vipio*	White-naped Crane	China (non-bre)	9	2
Gruidae	*Grus antigone*	Sarus Crane	*sharpii*, Myanmar	3	1
Gruidae	*Grus antigone*	Sarus Crane	*sharpii*, Indochina	2	1
Gruidae	*Anthropoides virgo*	Demoiselle Crane	E Asia (bre)	800	200
Gruidae	*Grus japonensis*	Red-crowned Crane	Japan	20	5
Gruidae	*Grus japonensis*	Red-crowned Crane	Korea (non-bre)	15	3
Gruidae	*Grus japonensis*	Red-crowned Crane	E China (non-bre)	5	1
Gruidae	*Grus grus*	Common Crane	*grus*, C/S China, Myanmar, Vietnam (non-bre)	590	150
Gruidae	*Grus grus*	Common Crane	*grus*, SW China (non-bre)	130	35
Gruidae	*Grus monacha*	Hooded Crane	Korea, Japan (non-bre)	160	40
Gruidae	*Grus monacha*	Hooded Crane	C China (non-bre)	8	2
Gruidae	*Grus nigricollis*	Black-necked Crane	Western (non-bre)	110	30
Gruidae	*Grus nigricollis*	Black-necked Crane	Eastern (non-bre)	40	10

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Gruidae	*Grus nigricollis*	Black-necked Crane	Central (non-bre)	3	1
Gaviidae	*Gavia stellata*	Red-throated Loon	E Asia (non-bre)	1000	250
Gaviidae	*Gavia arctica*	Arctic Loon	*viridigularis*	10000	2500
Gaviidae	*Gavia pacifica*	Pacific Loon	E Asia	1000	250
Gaviidae	*Gavia adamsii*	Yellow-billed Loon	N Pacific (non-bre)	100	25
Ciconiidae	*Leptoptilos dubius*	Greater Adjutant	Cambodia (bre)	8	2
Ciconiidae	*Mycteria leucocephala*	Painted Stork	SE Asia	70	20
Ciconiidae	*Anastomus oscitans*	Asian Openbill	S, SE Asia	3000	750
Ciconiidae	*Ciconia nigra*	Black Stork	E Asia (non-bre)	3	1
Ciconiidae	*Ciconia nigra*	Black Stork	South Asia (non-bre)	20	6
Ciconiidae	*Ciconia boyciana*	Oriental Stork	E Asia	100	25
Threskiornithidae	*Platalea leucorodia*	Eurasian Spoonbill	*leucorodia*, E Asia	200	50
Threskiornithidae	*Platalea minor*	Black-faced Spoonbill	*minor*	50	15
Threskiornithidae	*Platalea regia*	Royal Spoonbill	Australia, New Zealand	1000	250
Threskiornithidae	*Threskiornis melanocephalus*	Black-headed Ibis	SE Asia	100	25
Threskiornithidae	*Threskiornis moluccus*	Australian Ibis	*moluccus*	800	200
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis	Australia, S New Guinea	10000	2500
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	E & SE Asia	-1	-1
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	Philippines, Indonesia & Australia	10000	2500
Ardeidae	*Botaurus stellaris*	Eurasian Bittern	*stellaris*, SE & E Asia (non-bre)	1000	250
Ardeidae	*Ixobrychus sinensis*	Yellow Bittern	E & SE Asia	10000	2500
Ardeidae	*Ixobrychus eurhythmus*	Schrenck's Bittern	E & SE Asia	250	65
Ardeidae	*Ixobrychus cinnamomeus*	Cinnamon Bittern	E & SE Asia	10000	2500
Ardeidae	*Ixobrychus flavicollis*	Black Bittern	*flavicollis*, E, SE Asia	1000	250
Ardeidae	*Oroanassa magnifica*	White-eared Night-heron	SE Asia	7	2
Ardeidae	*Gorsachius goisagi*	Japanese Night-heron	E & SE Asia	110	25

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Ardeidae	*Gorsachius melanolophus*	Malay Night-heron	*melanolophus*, SE Asia	50	15
Ardeidae	*Nycticorax nycticorax*	Black-crowned Night-heron	*nycticorax*, E, SE Asia	10000	2500
Ardeidae	*Butorides striata*	Green-backed Heron	*amurensis*	-1	-1
Ardeidae	*Butorides striata*	Green-backed Heron	*actophila*	-1	-1
Ardeidae	*Ardeola bacchus*	Chinese Pond-heron	E, SE & S Asia	10000	2500
Ardeidae	*Ardeola speciosa*	Javan Pond-heron	*speciosa*	-1	-1
Ardeidae	*Ardeola speciosa*	Javan Pond-heron	*continentalis*	1000	250
Ardeidae	*Bubulcus ibis*	Cattle Egret	*coromanda*, Oceania	10000	2500
Ardeidae	*Bubulcus ibis*	Cattle Egret	*coromanda*, E, SE Asia	10000	2500
Ardeidae	*Ardea cinerea*	Grey Heron	*jouyi*, E, SE Asia	10000	2500
Ardeidae	*Ardea purpurea*	Purple Heron	*manilensis*, E & SE Asia	1000	250
Ardeidae	*Ardea alba*	Great White Egret	*alba*, E Asia (bre)	-1	-1
Ardeidae	*Ardea alba*	Great White Egret	*modesta*, E/SE Asia (bre)	-1	-1
Ardeidae	*Ardea alba*	Great White Egret	*modesta*, Australia, S New Guinea	1000	250
Ardeidae	*Ardea intermedia*	Intermediate Egret	*intermedia*, E, SE Asia	1000	250
Ardeidae	*Ardea plumifera*	Plumed Egret	*plumifera*	10000	2500
Ardeidae	*Egretta picata*	Pied Heron	Australia, Sulawesi, New Guinea	1000	250
Ardeidae	*Egretta garzetta*	Little Egret	*nigripes*	20000	20000
Ardeidae	*Egretta garzetta*	Little Egret	*immaculata*	1000	250
Ardeidae	*Egretta garzetta*	Little Egret	*garzetta*, E, SE Asia	10000	2500
Ardeidae	*Egretta eulophotes*	Chinese Egret	E & SE Asia	75	20
Pelecanidae	*Pelecanus crispus*	Dalmatian Pelican	E Asia	1	1
Pelecanidae	*Pelecanus philippensis*	Spot-billed Pelican	SE Asia	55	15
Phalacrocoracidae	*Urile pelagicus*	Pelagic Cormorant	*pelagicus*	250	65
Phalacrocoracidae	*Urile urile*	Red-faced Cormorant	N Pacific	2000	500
Phalacrocoracidae	*Phalacrocorax carbo*	Great Cormorant	*sinensis*, E, SE Asia (non-bre)	1000	250

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Phalacrocoracidae	*Phalacrocorax capillatus*	Japanese Cormorant	E Asia	1000	250
Haematopodidae	*Haematopus ostralegus*	Eurasian Oystercatcher	*osculans*	110	30
Recurvirostridae	*Recurvirostra avosetta*	Pied Avocet	*E Asia*	1000	250
Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	*himantopus*, E & SE Asia	1000	250
Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	*leucocephalus*, SE Asia - Australia	10000	2500
Charadriidae	*Pluvialis squatarola*	Grey Plover	*tomkovichi*	45	10
Charadriidae	*Pluvialis squatarola*	Grey Plover	*squatarola*, E, SE Asia & Australia (non-bre)	800	200
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	Pacific Is (non-bre)	420	100
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	E, SE Asia Australia & New Zealand (non-bre)	1200	300
Charadriidae	*Charadrius placidus*	Long-billed Plover	E, SE & S Asia	250	65
Charadriidae	*Charadrius dubius*	Little Ringed Plover	*jerdoni*	1000	250
Charadriidae	*Charadrius dubius*	Little Ringed Plover	*curonicus* E, SE & S Asia	250	65
Charadriidae	*Charadrius alexandrinus*	Kentish Plover	*nihonensis*	-1	-1
Charadriidae	*Charadrius alexandrinus*	Kentish Plover	*alexandrinus*, E Asia	700	180
Charadriidae	*Charadrius dealbatus*	White-faced Plover	SE & E Asia	300	75
Charadriidae	*Charadrius bicinctus*	Double-banded Plover	*bicinctus*	230	55
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*stegmanni*	130	35
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*mongolus*	260	65
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*schaeferi*	300	75
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*atrifrons*	1300	340
Charadriidae	*Charadrius leschenaultii*	Greater Sandplover	*leschenaultii*, SE Asia, Australia (non-bre)	2400	610
Charadriidae	*Charadrius veredus*	Oriental Plover	C Asia (bre)	2300	580
Charadriidae	*Vanellus vanellus*	Northern Lapwing	E, SE Asia (non-bre)	10000	2500
Charadriidae	*Vanellus cinereus*	Grey-headed Lapwing	E, SE & S Asia	1000	250
Rostratulidae	*Rostratula benghalensis*	Greater Painted-snipe	E & SE Asia	1000	250
Jacanidae	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	E & SE Asia	390	95

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Scolopacidae	*Numenius phaeopus*	Whimbrel	*variegatus*, E & SE Asia (non-bre)	650	160
Scolopacidae	*Numenius minutus*	Little Curlew	N Siberia (bre)	1100	280
Scolopacidae	*Numenius arquata*	Eurasian Curlew	*orientalis*, E & SE Asia (non-bre)	1000	250
Scolopacidae	*Numenius madagascariensis*	Far Eastern Curlew	C & E Asia (bre)	350	90
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	*anadyrensis*	70	15
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	*menzbieri*	1200	310
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	*baueri*	1300	320
Scolopacidae	*Limosa limosa*	Black-tailed Godwit	*melanuroides*	1600	400
Scolopacidae	*Arenaria interpres*	Ruddy Turnstone	*interpres*, Pacific & SE Asia (non-bre)	300	75
Scolopacidae	*Calidris tenuirostris*	Great Knot	SE Asia, Australia (non-bre)	4300	1100
Scolopacidae	*Calidris canutus*	Red Knot	*rogersi*	540	130
Scolopacidae	*Calidris canutus*	Red Knot	*piersmai*	560	140
Scolopacidae	*Calidris pugnax*	Ruff	E & SE Asia, Australia (non-bre)	7	2
Scolopacidae	*Calidris falcinellus*	Broad-billed Sandpiper	*sibirica*	300	75
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	C & E Siberia (bre)	850	210
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	E, SE Asia & Australia (non-bre)	900	230
Scolopacidae	*Calidris temminckii*	Temminck's Stint	E & SE Asia (non-bre)	1000	250
Scolopacidae	*Calidris subminuta*	Long-toed Stint	Siberia (bre)	250	65
Scolopacidae	*Calidris pygmaea*	Spoon-billed Sandpiper	E Siberia (bre)	8	2
Scolopacidae	*Calidris ruficollis*	Red-necked Stint	NE Siberia (bre)	4800	1200
Scolopacidae	*Calidris alba*	Sanderling	*rubida*, E & SE Asia, Australia, New Zealand (non-bre)	300	75
Scolopacidae	*Calidris alpina*	Dunlin	*actites*	9	2
Scolopacidae	*Calidris alpina*	Dunlin	*kistchinskii*	10000	2500
Scolopacidae	*Calidris alpina*	Dunlin	*sakhalina*	10000	2500
Scolopacidae	*Calidris alpina*	Dunlin	*arcticola*	4600	1100
Scolopacidae	*Calidris ptilocnemis*	Rock Sandpiper	*tschuktschorum*	500	130

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Scolopacidae	*Limnodromus semipalmatus*	Asian Dowitcher	C & E Asia (bre)	280	70
Scolopacidae	*Scolopax rusticola*	Eurasian Woodcock	C & E Asia (bre)	10000	2500
Scolopacidae	*Gallinago solitaria*	Solitary Snipe	*japonica*	100	25
Scolopacidae	*Gallinago hardwickii*	Latham's Snipe	E Asia (bre)	350	90
Scolopacidae	*Gallinago nemoricola*	Wood Snipe	S & S East Asia, SW China	70	20
Scolopacidae	*Gallinago stenura*	Pintail Snipe	E & SE Asia (non-bre)	10000	2500
Scolopacidae	*Gallinago megala*	Swinhoe's Snipe	C Asia (bre)	400	100
Scolopacidae	*Gallinago gallinago*	Common Snipe	*gallinago*, E & SE Asia (non-bre)	10000	2500
Scolopacidae	*Lymnocryptes minimus*	Jack Snipe	E, SE Asia (non-bre)	100	25
Scolopacidae	*Phalaropus lobatus*	Red-necked Phalarope	NE Asia (bre)	2500	630
Scolopacidae	*Xenus cinereus*	Terek Sandpiper	E, SE Asia & Australia (non-bre)	500	130
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	E & SE Asia to Oceania (non-bre)	1900	480
Scolopacidae	*Tringa ochropus*	Green Sandpiper	E & SE Asia (non-bre)	1000	250
Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler	C & E Siberia (bre)	700	180
Scolopacidae	*Tringa incana*	Wandering Tattler	N N America (bre)	250	65
Scolopacidae	*Tringa erythropus*	Spotted Redshank	E, SE Asia (non-bre)	250	65
Scolopacidae	*Tringa nebularia*	Common Greenshank	E, SE Asia, Australia (non-bre)	1100	280
Scolopacidae	*Tringa totanus*	Common Redshank	*terrignotae*	1000	250
Scolopacidae	*Tringa totanus*	Common Redshank	*craggi*	1000	250
Scolopacidae	*Tringa totanus*	Common Redshank	*ussuriensis*, S & SE Asia (non-bre)	1000	250
Scolopacidae	*Tringa glareola*	Wood Sandpiper	E, SE Asia & Australia (non-bre)	1300	330
Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	E, SE Asia, Oceania (non-bre)	1300	330
Scolopacidae	*Tringa guttifer*	Spotted Greenshank	NE Asia (bre)	10	3
Glareolidae	*Stiltia isabella*	Australian Pratincole	Australia, New Guinea, E Indonesia	1000	250
Glareolidae	*Glareola maldivarum*	Oriental Pratincole	E-SE Asia, Australia	28800	7200
Laridae	*Anous stolidus*	Brown Noddy	*pileatus*	20000	20000

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Laridae	*Anous minutus*	Black Noddy	*worcesteri*	-1	-1
Laridae	*Anous minutus*	Black Noddy	*minutus*	20000	20000
Laridae	*Rynchops albicollis*	Indian Skimmer	S & SE Asia	40	10
Laridae	*Saundersilarus saundersi*	Saunders's Gull	NE Asia (bre)	340	85
Laridae	*Rissa tridactyla*	Black-legged Kittiwake	*pollicaris*, W Pacific (bre)	48000	12000
Laridae	*Larus brunnicephalus*	Brown-headed Gull	C Asia (bre)	1400	350
Laridae	*Larus ridibundus*	Black-headed Gull	E & SE Asia (non-bre)	20000	20000
Laridae	*Larus ichthyaetus*	Pallas's Gull	C Asia (bre)	1000	250
Laridae	*Larus relictus*	Relict Gull	C Asia (bre)	210	55
Laridae	*Larus crassirostris*	Black-tailed Gull	E Asia	11000	2800
Laridae	*Larus canus*	Mew Gull	*kamtschatschensis*	1000	250
Laridae	*Larus smithsonianus*	Arctic Herring Gull	*vegae*	-1	-1
Laridae	*Larus smithsonianus*	Arctic Herring Gull	*mongolicus*	610	150
Laridae	*Larus schistisagus*	Slaty-backed Gull	NE Asia	10000	2500
Laridae	*Larus glaucescens*	Glaucous-winged Gull	N Pacific	4200	1100
Laridae	*Larus hyperboreus*	Glaucous Gull	*pallidissimus*	1000	260
Laridae	*Onychoprion aleuticus*	Aleutian Tern	N Pacific (bre)	470	120
Laridae	*Onychoprion fuscatus*	Sooty Tern	*nubilosus*, Indonesia	-1	-1
Laridae	*Onychoprion fuscatus*	Sooty Tern	*nubilosus*, Red Sea, Gulf of Aden, E to Pacific	182000	45500
Laridae	*Onychoprion fuscatus*	Sooty Tern	*serratus*	13400	3400
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus* (*rogersi*)	-1	-1
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus* (*novaehollandiae*)	-1	-1
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus*	10000	2500
Laridae	*Sternula albifrons*	Little Tern	*placens*	15	4
Laridae	*Sternula albifrons*	Little Tern	*sinensis*	1000	250
Laridae	*Sternula albifrons*	Little Tern	*pusilla*	710	180

Family	Scientific Name	Common Name	Population Name	1%	0.25%
Laridae	*Gelochelidon nilotica*	Common Gull-billed Tern	*affinis*	1000	250
Laridae	*Gelochelidon macrotarsa*	Australian Gull-billed Tern	Australia (bre)	1000	250
Laridae	*Hydroprogne caspia*	Caspian Tern	E & SE Asia (non-bre)	250	65
Laridae	*Chlidonias hybrida*	Whiskered Tern	*hybrida*, Transbaikalia to E China mainland & Taiwan	-1	-1
Laridae	*Chlidonias hybrida*	Whiskered Tern	*javanicus*	10000	2500
Laridae	*Chlidonias leucopterus*	White-winged Tern	Asia, Australasia	10000	2500
Laridae	*Sterna aurantia*	River Tern	S & SE Asia	550	140
Laridae	*Sterna dougallii*	Roseate Tern	*gracilis*, S Asia	100	25
Laridae	*Sterna dougallii*	Roseate Tern	*gracilis*, SE Asia	440	110
Laridae	*Sterna dougallii*	Roseate Tern	*gracilis*, Australia & Moluccas Is	900	230
Laridae	*Sterna striata*	White-fronted Tern	*striata*	150	40
Laridae	*Sterna sumatrana*	Black-naped Tern	*sumatrana*	-1	-1
Laridae	*Sterna hirundo*	Common Tern	*tibetana*	1000	250
Laridae	*Sterna hirundo*	Common Tern	*longipennis*	460	110
Laridae	*Sterna paradisaea*	Arctic Tern	NW N America & E Russia (bre)	20000	20000
Laridae	*Sterna acuticauda*	Black-bellied Tern	S & SE Asia	250	65
Laridae	*Thalasseus bengalensis*	Lesser Crested Tern	*torresii*	1000	250
Laridae	*Thalasseus bernsteini*	Chinese Crested Tern	E China (bre)	1	1
Laridae	*Thalasseus bergii*	Greater Crested Tern	*cristatus*	10000	2500

Annex 7. EAAF biogeographic population boundaries

Population Boundary Quality (Qlt) : 1 - based on poorly studied/uncertain ranges with greater uncertainty concerning separation of populations during breeding or non-breeding period when population can be best distinguished. 2 - based on basic distribution information, 3 - extensive knowledge

Family	Scientific Name	Common Name	Population Name	Qlt	Sources
Anseranatidae	*Anseranas semipalmata*	Magpie Goose	N Australia, SE Indonesia, S New Guinea	2	
Anatidae	*Dendrocygna bicolor*	Fulvous Whistling-duck	S Asia	1	
Anatidae	*Dendrocygna eytoni*	Plumed Whistling-duck	Australia, S New Guinea	1	
Anatidae	*Dendrocygna arcuata*	Wandering Whistling-duck	*australis*	1	
Anatidae	*Dendrocygna javanica*	Lesser Whistling-duck	E & SE Asia	1	
Anatidae	*Cygnus olor*	Mute Swan	E China (non-bre)	2	Meng et al. 2020
Anatidae	*Cygnus olor*	Mute Swan	Korean Peninsula (non-bre)	3	Meng et al. 2020
Anatidae	*Cygnus cygnus*	Whooper Swan	E Asia	3	Ao et al. 2020, Shimada et al. 2014
Anatidae	*Cygnus columbianus*	Tundra Swan	*bewickii*, China (non-bre)	2	Fang et al. 2020, Vangeluwe et al. 2018
Anatidae	*Cygnus columbianus*	Tundra Swan	*bewickii*, Japan/Korea (non-bre)	3	Fang et al. 2020
Anatidae	*Branta bernicla*	Brent Goose	*nigricans*, China (non-bre)	1	Sawa et al. 2020
Anatidae	*Branta bernicla*	Brent Goose	*nigricans*, Japan (non-bre)	2	Sawa et al. 2020
Anatidae	*Branta hutchinsii*	Cackling Goose	*leucopareia*, Kuril (Ekarmar-Japan)	3	Kurechi & Sugawa (eds) 2021
Anatidae	*Anser canagicus*	Emperor Goose	N Pacific	1	
Anatidae	*Anser caerulescens*	Snow Goose	*caerulescens*, E Asia	1	
Anatidae	*Anser indicus*	Bar-headed Goose	C, S & SE Asia	3	
Anatidae	*Anser anser*	Greylag Goose	*rubrirostris*, E Asia (non-bre)	2	Yan et al. 2020
Anatidae	*Anser cygnoid*	Swan Goose	coastal China & Korea (non-bre)	3	Damba et al. 2020, Damba et al. 2021
Anatidae	*Anser cygnoid*	Swan Goose	inland China (non-bre)	3	Damba et al. 2020, Damba et al. 2021
Anatidae	*Anser fabalis*	Bean Goose	*middendorffi*, China (non-bre)	2	Li et al. 2020
Anatidae	*Anser fabalis*	Bean Goose	*middendorffi*, Japan (non-bre)	3	Li et al. 2020
Anatidae	*Anser fabalis*	Bean Goose	*middendorffi*, Korea(non-bre)	3	Li et al. 2020
Anatidae	*Anser fabalis*	Bean Goose	*serrirostris*, China (non-bre)	2	Li et al. 2020

Family	Scientific Name	Common Name	Population Name	Qlt	Sources
Anatidae	*Anser fabalis*	Bean Goose	*serrirostris*, Japan (non-bre)	3	Li et al. 2020
Anatidae	*Anser fabalis*	Bean Goose	*serrirostris*, Korea (non-bre)	3	Li et al. 2020
Anatidae	*Anser albifrons*	Greater White-fronted Goose	*frontalis*, China (non-bre)	2	Deng et al. 2020
Anatidae	*Anser albifrons*	Greater White-fronted Goose	*frontalis*, Japan (non-bre)	3	Deng et al. 2020
Anatidae	*Anser albifrons*	Greater White-fronted Goose	*frontalis*, Korea (non-bre)	3	Deng et al. 2020
Anatidae	*Anser erythropus*	Lesser White-fronted Goose	C & E Siberia	2	Ao et al. 2020b
Anatidae	*Clangula hyemalis*	Long-tailed Duck	E Asia (non-bre)	1	
Anatidae	*Somateria fischeri*	Spectacled Eider	E Siberia, N & W Alaska	1	
Anatidae	*Somateria spectabilis*	King Eider	N Pacific	1	
Anatidae	*Somateria mollissima*	Common Eider	v-*nigrum*	1	
Anatidae	*Polysticta stelleri*	Steller's Eider	N Pacific (non-bre)	1	
Anatidae	*Melanitta stejnegeri*	Siberian Scoter	E Asia	1	
Anatidae	*Melanitta americana*	Black Scoter	*americana*, E Asia	1	
Anatidae	*Bucephala clangula*	Common Goldeneye	*clangula*, E Asia (non-bre)	1	
Anatidae	*Mergellus albellus*	Smew	E Asia (non-bre)	1	
Anatidae	*Mergus merganser*	Goosander	*merganser*, E Asia (non-bre)	1	
Anatidae	*Mergus squamatus*	Scaly-sided Merganser	E & SE Asia	3	Solovyeva et al. 2017
Anatidae	*Mergus serrator*	Red-breasted Merganser	E Asia (non-bre)	1	
Anatidae	*Histrionicus histrionicus*	Harlequin Duck	E Asia (*pacificus*)	1	
Anatidae	*Tadorna tadorna*	Common Shelduck	E Asia (non-bre)	1	
Anatidae	*Tadorna ferruginea*	Ruddy Shelduck	E Asia (non-bre)	1	
Anatidae	*Nettapus coromandelianus*	Cotton Pygmy-goose	*coromandelianus*, E & SE Asia	1	
Anatidae	*Aix galericulata*	Mandarin Duck	China (non-bre)	1	
Anatidae	*Aix galericulata*	Mandarin Duck	Japan (non-bre)	1	

Family	Scientific Name	Common Name	Population Name	Qlt	Sources
Anatidae	*Aix galericulata*	Mandarin Duck	Korea (non-bre)	1	
Anatidae	*Aythya ferina*	Common Pochard	E Asia (non-bre)	1	http://www.biodic.go.jp//birdRinging_en/index.html
Anatidae	*Aythya baeri*	Baer's Pochard	C, E, SE & S Asia	1	Wu et al. 2022
Anatidae	*Aythya nyroca*	Ferruginous Duck	S, E & SE Asia (non-bre)	1	
Anatidae	*Aythya fuligula*	Tufted Duck	E & SE Asia (non-bre)	1	
Anatidae	*Aythya marila*	Greater Scaup	*nearctica*, E Asia	1	
Anatidae	*Spatula querquedula*	Garganey	E & SE Asia (non-bre)	1	
Anatidae	*Spatula clypeata*	Northern Shoveler	E & SE Asia (non-bre)	1	
Anatidae	*Sibirionetta formosa*	Baikal Teal	E Asia	1	
Anatidae	*Mareca falcata*	Falcated Duck	C & E Asia	1	Zhang et al. 2020
Anatidae	*Mareca strepera*	Gadwall	*strepera*, E Asia (non-bre)	1	
Anatidae	*Mareca penelope*	Eurasian Wigeon	E Asia (non-bre)	1	
Anatidae	*Anas zonorhyncha*	Chinese Spot-billed Duck	*zonorhyncha*	2	
Anatidae	*Anas poecilorhyncha*	Indian Spot-billed Duck	*haringtoni*	1	
Anatidae	*Anas platyrhynchos*	Mallard	*platyrhynchos*, E Asia (non-bre)	1	Yamaguchi et al. 2008
Anatidae	*Anas acuta*	Northern Pintail	E & SE Asia	2	http://www.biodic.go.jp//birdRinging_en/index.html
Anatidae	*Anas crecca*	Common Teal	*crecca*, E & SE Asia (non-bre)	1	
Podicipedidae	*Tachybaptus ruficollis*	Little Grebe	*poggei*	1	A&N book
Podicipedidae	*Podiceps grisegena*	Red-necked Grebe	*holbollii*, E Asia	1	
Podicipedidae	*Podiceps cristatus*	Great Crested Grebe	*cristatus*, E Asia (non-bre)	1	
Podicipedidae	*Podiceps auritus*	Horned Grebe	*auritus*, E Asia (non-bre)	1	
Podicipedidae	*Podiceps nigricollis*	Black-necked Grebe	*nigricollis*, E Asia (non-bre)	1	
Heliornithidae	*Heliopais personatus*	Masked Finfoot	S, SE Asia	1	Chowdhury et al 2020
Rallidae	*Rallina tricolor*	Red-necked Crake	New Guinea, NE Australia	1	
Rallidae	*Rallina fasciata*	Red-legged Crake	S & SE Asia	1	
Rallidae	*Rallina eurizonoides*	Slaty-legged Crake	*telmatophila*	1	Liu & Chen 2021, Eaton et al 2021
Rallidae	*Coturnicops exquisitus*	Swinhoe's Rail	E Asia	1	Liu & Chen 2021

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Rallidae	*Rallus aquaticus*	Western Water Rail	*korejewi*, Western Siberia/South-west Asia	1	
Rallidae	*Rallus indicus*	Eastern Water Rail	*indicus*	1	
Rallidae	*Lewinia striata*	Slaty-breasted Rail	*albiventer*	1	
Rallidae	*Lewinia striata*	Slaty-breasted Rail	*gularis*	1	
Rallidae	*Zapornia fusca*	Ruddy-breasted Crake	*bakeri*	1	
Rallidae	*Zapornia fusca*	Ruddy-breasted Crake	*erythrothorax*	1	
Rallidae	*Zapornia paykullii*	Band-bellied Crake	E, SE Asia	1	
Rallidae	*Zapornia pusilla*	Baillon's Crake	*pusilla* SE Asia (non-bre)	1	
Rallidae	*Amaurornis phoenicurus*	White-breasted Waterhen	*phoenicurus*, E & SE Asia	1	
Rallidae	*Gallicrex cinerea*	Watercock	*cinerea*, E & SE Asia	1	
Rallidae	*Gallinula chloropus*	Common Moorhen	*chloropus*, SE Asia (non-bre)	1	
Rallidae	*Fulica atra*	Common Coot	*atra*, E, SE Asia (non-bre)	1	
Gruidae	*Leucogeranus leucogeranus*	Siberian Crane	E Asia	3	Mirande & Harris 2019
Gruidae	*Grus vipio*	White-naped Crane	China (non-bre)	3	Mirande & Harris 2019
Gruidae	*Grus vipio*	White-naped Crane	Korea, Japan (non-bre)	3	Mirande & Harris 2019
Gruidae	*Grus antigone*	Sarus Crane	*sharpii*, Myanmar	3	Mirande & Harris 2019
Gruidae	*Grus antigone*	Sarus Crane	*sharpii*, Indochina	2	Mirande & Harris 2019
Gruidae	*Anthropoides virgo*	Demoiselle Crane	E Asia (bre)	3	Mirande & Harris 2019
Gruidae	*Grus japonensis*	Red-crowned Crane	E China (non-bre)	3	Mirande & Harris 2019
Gruidae	*Grus japonensis*	Red-crowned Crane	Japan	3	Mirande & Harris 2019
Gruidae	*Grus japonensis*	Red-crowned Crane	Korea (non-bre)	3	Mirande & Harris 2019
Gruidae	*Grus grus*	Common Crane	*grus*, C/S China, Myanmar, Vietnam (non-bre)	1	Mirande & Harris 2019
Gruidae	*Grus grus*	Common Crane	*grus*, SW China (non-bre)	1	Mirande & Harris 2019
Gruidae	*Grus monacha*	Hooded Crane	C China (non-bre)	3	Mirande & Harris 2019
Gruidae	*Grus monacha*	Hooded Crane	Korea, Japan (non-bre)	3	Mirande & Harris 2019
Gruidae	*Grus nigricollis*	Black-necked Crane	Central (non-bre)	2	Mirande & Harris 2019

Family	Scientific Name	Common Name	Population Name	Qlt	Sources
Gruidae	*Grus nigricollis*	Black-necked Crane	Eastern (non-bre)	2	Mirande & Harris 2019
Gruidae	*Grus nigricollis*	Black-necked Crane	Western (non-bre)	2	Mirande & Harris 2019
Gaviidae	*Gavia stellata*	Red-throated Loon	E Asia (non-bre)	2	McCloskey et al. 2018
Gaviidae	*Gavia arctica*	Arctic Loon	*viridigularis*	2	
Gaviidae	*Gavia pacifica*	Pacific Loon	E Asia	1	
Gaviidae	*Gavia adamsii*	Yellow-billed Loon	N Pacific (non-bre)	1	McCloskey et al. 2018
Ciconiidae	*Leptoptilos dubius*	Greater Adjutant	Cambodia (bre)	1	
Ciconiidae	*Mycteria leucocephala*	Painted Stork	SE Asia	1	
Ciconiidae	*Anastomus oscitans*	Asian Openbill	S, SE Asia	1	Liu et al 2015; Ratanakorn et al. 2018
Ciconiidae	*Ciconia nigra*	Black Stork	E Asia (non-bre)	1	
Ciconiidae	*Ciconia nigra*	Black Stork	South Asia (non-bre)	3	Liu et al. 2013; SOIB 2020; Zöckler et al 2020.
Ciconiidae	*Ciconia boyciana*	Oriental Stork	E Asia	1	Fan et al. 2020
Threskiorn-ithidae	*Platalea leucorodia*	Eurasian Spoonbill	*leucorodia*, E Asia	1	
Threskiorn-ithidae	*Platalea minor*	Black-faced Spoonbill	Minor	3	Chen et al. 2021
Threskiorn-ithidae	*Platalea regia*	Royal Spoonbill	Australia, New Zealand	1	
Threskiorn-ithidae	*Threskiornis melanocephalus*	Black-headed Ibis	SE Asia	1	
Threskiorn-ithidae	*Threskiornis moluccus*	Australian Ibis	*moluccus*	1	
Threskiorn-ithidae	*Threskiornis spinicollis*	Straw-necked Ibis	Australia, S New Guinea	1	
Threskiorn-ithidae	*Plegadis falcinellus*	Glossy Ibis	E, SE Asia	1	
Threskiorn-ithidae	*Plegadis falcinellus*	Glossy Ibis	Philippines, Indonesia & Australia	1	
Ardeidae	*Botaurus stellaris*	Eurasian Bittern	*stellaris*, SE & E Asia (non-bre)	1	
Ardeidae	*Ixobrychus sinensis*	Yellow Bittern	E & SE Asia	1	
Ardeidae	*Ixobrychus eurhythmus*	Schrenck's Bittern	E & SE Asia	1	
Ardeidae	*Ixobrychus cinnamomeus*	Cinnamon Bittern	E, SE Asia	1	

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Ardeidae	*Ixobrychus flavicollis*	Black Bittern	*flavicollis*, E, SE Asia	1	Eaton et al 2017; Allen 2021
Ardeidae	*Oroanassa magnifica*	White-eared Night-heron	SE Asia	1	Liu & Chen 2021
Ardeidae	*Gorsachius goisagi*	Japanese Night-heron	E & SE Asia	1	
Ardeidae	*Gorsachius melanolophus*	Malay Night-heron	*melanolophus*, SE Asia	1	
Ardeidae	*Nycticorax nycticorax*	Black-crowned Night-heron	*nycticorax*, E, SE Asia	1	
Ardeidae	*Butorides striata*	Green-backed Heron	*actophila*	1	
Ardeidae	*Butorides striata*	Green-backed Heron	*amurensis*	1	
Ardeidae	*Ardeola bacchus*	Chinese Pond-heron	E, SE & S Asia	1	
Ardeidae	*Ardeola speciosa*	Javan Pond-heron	*speciosa*	1	
Ardeidae	*Ardeola speciosa*	Javan Pond-heron	*continentalis*	1	
Ardeidae	*Bubulcus ibis*	Cattle Egret	*coromanda*, E, SE Asia	1	
Ardeidae	*Bubulcus ibis*	Cattle Egret	*coromanda*, Oceania	1	
Ardeidae	*Ardea cinerea*	Grey Heron	*jouyi*, E, SE Asia	1	Ye et al. 2018; http://www.biodic.go.jp//birdRinging_en/index.html
Ardeidae	*Ardea purpurea*	Purple Heron	*manilensis*, E & SE Asia	1	
Ardeidae	*Ardea alba*	Great White Egret	*alba*, E Asia (bre)	1	
Ardeidae	*Ardea alba*	Great White Egret	*modesta*, E/SE Asia (bre)	1	
Ardeidae	*Ardea alba*	Great White Egret	*modesta*, Australia, S New Guinea	2	
Ardeidae	*Ardea intermedia*	Intermediate Egret	*intermedia*, E, SE Asia	1	
Ardeidae	*Ardea plumifera*	Plumed Egret	*plumifera*	2	
Ardeidae	*Egretta picata*	Pied Heron	Australia, Sulawesi, New Guinea	1	
Ardeidae	*Egretta garzetta*	Little Egret	*immaculata*	1	
Ardeidae	*Egretta garzetta*	Little Egret	*garzetta*, E, SE Asia	1	
Ardeidae	*Egretta garzetta*	Little Egret	*nigripes*	1	
Ardeidae	*Egretta eulophotes*	Chinese Egret	E, SE Asia	2	Huang et al. 2021
Pelecanidae	*Pelecanus crispus*	Dalmatian Pelican	E Asia	2	Catsadorakis & Portolou 2018

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Pelecanidae	*Pelecanus philippensis*	Spot-billed Pelican	SE Asia	1	
Phalacroc-oracidae	*Urile pelagicus*	Pelagic Cormorant	*pelagicus*	1	
Phalacroc-oracidae	*Urile urile*	Red-faced Cormorant	N Pacific	1	
Phalacroc-oracidae	*Phalacrocorax carbo*	Great Cormorant	*sinensis*, E, SE Asia (non-bre)	1	
Phalacroc-oracidae	*Phalacrocorax capillatus*	Japanese Cormorant	E Asia	1	http://www.biodic.go.jp//birdRinging_en/index.html
Haematop-odidae	*Haematopus ostralegus*	Eurasian Oystercatcher	*osculans*	1	Mirande & Harris 2019
Recurviro-stridae	*Recurvirostra avosetta*	Pied Avocet	E Asia	1	
Recurviro-stridae	*Himantopus himantopus*	Black-winged Stilt	*himantopus*, E & SE Asia	1	
Recurviro-stridae	*Himantopus himantopus*	Black-winged Stilt	*leucocephalus*, SE Asia - Australia	1	
Charadriidae	*Pluvialis squatarola*	Grey Plover	*squatarola*, E, SE Asia & Australia (non-bre)	1	
Charadriidae	*Pluvialis squatarola*	Grey Plover	*tomkovichi*	2	Flaherty 2017; Tomkovich et al. 2014
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	E, SE Asia Australia & New Zealand (non-bre)	1	Johnson et al 2017
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	Pacific Is (non-bre)	1	Johnson et al 2020
Charadriidae	*Charadrius placidus*	Long-billed Plover	E, SE & S Asia	1	
Charadriidae	*Charadrius dubius*	Little Ringed Plover	*curonicus* E, SE & S Asia	1	
Charadriidae	*Charadrius dubius*	Little Ringed Plover	*jerdoni*	1	
Charadriidae	*Charadrius alexandrinus*	Kentish Plover	*nihonensis*	1	
Charadriidae	*Charadrius alexandrinus*	Kentish Plover	*alexandrinus*, E Asia	1	
Charadriidae	*Charadrius dealbatus*	White-faced Plover	SE & E Asia	1	
Charadriidae	*Charadrius bicinctus*	Double-banded Plover	*bicinctus*	1	
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*atrifrons*	1	
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*mongolus*	1	

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Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*schaeferi*	1	
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	*stegmanni*	1	
Charadriidae	*Charadrius leschenaultii*	Greater Sandplover	*leschenaultii*, SE Asia, Australia (non-bre)	3	Minton et al. 2011
Charadriidae	*Charadrius veredus*	Oriental Plover	C Asia (bre)	1	
Charadriidae	*Vanellus vanellus*	Northern Lapwing	E, SE Asia (non-bre)	1	
Charadriidae	*Vanellus cinereus*	Grey-headed Lapwing	E, SE & S Asia	2	Lei et al. 2021
Rostratulidae	*Rostratula benghalensis*	Greater Painted-snipe	E & SE Asia	1	
Jacanidae	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	E & SE Asia	1	
Scolopacidae	*Numenius phaeopus*	Whimbrel	*variegatus*, E & SE Asia (non-bre)	2	Li et al 2020
Scolopacidae	*Numenius minutus*	Little Curlew	N Siberia (bre)	2	
Scolopacidae	*Numenius arquata*	Eurasian Curlew	*orientalis*, E & SE Asia (non-bre)	1	
Scolopacidae	*Numenius madagascariensis*	Far Eastern Curlew	C & E Asia (bre)	3	Ueta et al. 2002, Gatbalt et al. 2021.
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	*baueri*	3	Battley et al. 2012
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	*menzbieri*	2	Battley et al. 2012
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	*anadyrensis*	1	Tomkovich 2010
Scolopacidae	*Limosa limosa*	Black-tailed Godwit	*melanuroides*	2	
Scolopacidae	*Arenaria interpres*	Ruddy Turnstone	*interpres*, Pacific & SE Asia (non-bre)	2	Minton et al. 2010; Minton et al. 2011
Scolopacidae	*Calidris tenuirostris*	Great Knot	SE Asia, Australia (non-bre)	2	Minton et al. 2011
Scolopacidae	*Calidris canutus*	Red Knot	*piersmai*	3	Piersma et al. 2021
Scolopacidae	*Calidris canutus*	Red Knot	*rogersi*	2	Tomkovich et al 2013
Scolopacidae	*Calidris pugnax*	Ruff	E & SE Asia, Australia (non-bre)	1	
Scolopacidae	*Calidris falcinellus*	Broad-billed Sandpiper	*sibirica*	2	
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	C & E Siberia (bre)	1	Lindström et al. 2011
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	E, SE Asia & Australia (non-bre)	3	Lisovski et al. 2020
Scolopacidae	*Calidris temminckii*	Temminck's Stint	E & SE Asia (non-bre)	1	
Scolopacidae	*Calidris subminuta*	Long-toed Stint	Siberia (bre)	1	

Family	Scientific Name	Common Name	Population Name	Qlt	Sources
Scolopacidae	*Calidris pygmaea*	Spoon-billed Sandpiper	E Siberia (bre)	3	Green et al. 2021
Scolopacidae	*Calidris ruficollis*	Red-necked Stint	NE Siberia (bre)	2	Lisovski et al. 2020
Scolopacidae	*Calidris alba*	Sanderling	*rubida*, E & SE Asia, Australia, New Zealand (non-bre)	2	Lisovski et al 2016
Scolopacidae	*Calidris alpina*	Dunlin	*arcticola*	1	.
Scolopacidae	*Calidris alpina*	Dunlin	*actites*	1	
Scolopacidae	*Calidris alpina*	Dunlin	*kistchinskii*	1	
Scolopacidae	*Calidris alpina*	Dunlin	*sakhalina*	1	
Scolopacidae	*Calidris ptilocnemis*	Rock Sandpiper	*tschuktschorum*	1	
Scolopacidae	*Limnodromus semipalmatus*	Asian Dowitcher	C & E Asia (bre)	2	
Scolopacidae	*Scolopax rusticola*	Eurasian Woodcock	C & E Asia (bre)	1	
Scolopacidae	*Gallinago solitaria*	Solitary Snipe	*japonica*	1	
Scolopacidae	*Gallinago hardwickii*	Latham's Snipe	E Asia (bre)	2	Hansen et al. 2020
Scolopacidae	*Gallinago nemoricola*	Wood Snipe	S & SE Asia	1	
Scolopacidae	*Gallinago stenura*	Pintail Snipe	E & SE Asia (non-bre)	1	
Scolopacidae	*Gallinago megala*	Swinhoe's Snipe	C Asia (bre)	1	
Scolopacidae	*Gallinago gallinago*	Common Snipe	*gallinago*, E & SE Asia (non-bre)	1	
Scolopacidae	*Lymnocryptes minimus*	Jack Snipe	E, SE Asia (non-bre)	1	
Scolopacidae	*Phalaropus lobatus*	Red-necked Phalarope	NE Asia (bre)	1	Tong et al 201
Scolopacidae	*Xenus cinereus*	Terek Sandpiper	E, SE Asia & Australia (non-bre)	1	
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	E & SE Asia to Oceania (non-bre)	1	
Scolopacidae	*Tringa ochropus*	Green Sandpiper	E & SE Asia (non-bre)	1	
Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler	C & E Siberia (bre)	1	Branson et al 2010
Scolopacidae	*Tringa incana*	Wandering Tattler	N N America Is (bre)	1	
Scolopacidae	*Tringa erythropus*	Spotted Redshank	E, SE Asia (non-bre)	1	
Scolopacidae	*Tringa nebularia*	Common Greenshank	E, SE Asia, Australia (non-bre)	1	
Scolopacidae	*Tringa totanus*	Common Redshank	*craggi*	1	Li et al 2020
Scolopacidae	*Tringa totanus*	Common Redshank	*terrignotae*	1	Li et al 2020

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Scolopacidae	*Tringa totanus*	Common Redshank	*ussuriensis*, S & SE Asia (non-bre)	1	
Scolopacidae	*Tringa glareola*	Wood Sandpiper	E, SE Asia & Australia (non-bre)	1	
Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	E, SE Asia, Oceania (non-bre)	1	
Scolopacidae	*Tringa guttifer*	Spotted Greenshank	NE Asia (bre)	1	
Glareolidae	*Stiltia isabella*	Australian Pratincole	Australia, New Guinea, E Indonesia	1	
Glareolidae	*Glareola maldivarum*	Oriental Pratincole	E-SE Asia, Australia	1	Moores & Kim. 2014
Laridae	*Anous stolidus*	Brown Noddy	*pileatus*	1	
Laridae	*Anous minutus*	Black Noddy	*worcesteri*	1	
Laridae	*Anous minutus*	Black Noddy	*minutus*	1	
Laridae	*Rynchops albicollis*	Indian Skimmer	S & SE Asia	3	BirdLife International 2020
Laridae	*Saundersilarus saundersi*	Saunders's Gull	NE Asia (bre)	2	
Laridae	*Rissa tridactyla*	Black-legged Kittiwake	*pollicaris*, W Pacific (bre)	1	
Laridae	*Larus brunnicephalus*	Brown-headed Gull	C Asia (bre)	1	Ratanakorn et al. 2012
Laridae	*Larus ridibundus*	Black-headed Gull	E & SE Asia (non-bre)	2	http://www.biodic.go.jp//birdRinging_en/index.html
Laridae	*Larus ichthyaetus*	Pallas's Gull	C Asia (bre)	1	Muzaffar et al. 2008; Zhang et al. 2014
Laridae	*Larus relictus*	Relict Gull	C Asia (bre)	2	Liu et al. 2017
Laridae	*Larus crassirostris*	Black-tailed Gull	E Asia	2	
Laridae	*Larus canus*	Mew Gull	*kamtschatschensis*	1	
Laridae	*Larus smithsonianus*	Arctic Herring Gull	*vegae*	1	
Laridae	*Larus smithsonianus*	Arctic Herring Gull	*mongolicus*	1	
Laridae	*Larus schistisagus*	Slaty-backed Gull	NE Asia	1	
Laridae	*Larus glaucescens*	Glaucous-winged Gull	N Pacific	1	Distribution to Korea based on feedback from Nial Moores
Laridae	*Larus hyperboreus*	Glaucous Gull	*pallidissimus*	1	Distribution to Korea based on feedback from Nial Moores
Laridae	*Onychoprion aleuticus*	Aleutian Tern	N Pacific (bre)	2	Goldstein et al. 2019
Laridae	*Onychoprion fuscatus*	Sooty Tern	*nubilosus*, Indonesia	1	
Laridae	*Onychoprion fuscatus*	Sooty Tern	*nubilosus*, Red Sea, Gulf of Aden, E to Pacific	1	

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Laridae	*Onychoprion fuscatus*	Sooty Tern	*serratus*	1	
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus* (*novaehollandiae*)	1	
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus* (*rogersi*)	1	
Laridae	*Onychoprion anaethetus*	Bridled Tern	*anaethetus*	1	
Laridae	*Sternula albifrons*	Little Tern	*sinensis*	1	http://www.biodic.go.jp//birdRinging_en/index.html
Laridae	*Sternula albifrons*	Little Tern	*placens*	1	Garnett & Baker 2020; https://www.nzbirdsonline.org.nz/
Laridae	*Sternula albifrons*	Little Tern	*pusilla*	1	
Laridae	*Gelochelidon nilotica*	Common Gull-billed Tern	*affinis*	1	
Laridae	*Gelochelidon macrotarsa*	Australian Gull-billed Tern	Australia (bre)	1	
Laridae	*Hydroprogne caspia*	Caspian Tern	E & SE Asia (non-bre)	1	
Laridae	*Chlidonias hybrida*	Whiskered Tern	*hybrida*, Transbaikalia to E China and Taiwan	1	
Laridae	*Chlidonias hybrida*	Whiskered Tern	*javanicus*	1	
Laridae	*Chlidonias leucopterus*	White-winged Tern	Asia, Australasia	1	
Laridae	*Sterna aurantia*	River Tern	S & SE Asia	3	Liu & Chen 2021, Zheng et al 2020
Laridae	*Sterna dougallii*	Roseate Tern	*gracilis*, S Asia	1	
Laridae	*Sterna dougallii*	Roseate Tern	*gracilis*, Australia & Moluccas Is	1	
Laridae	*Sterna dougallii*	Roseate Tern	*gracilis*, SE Asia	1	
Laridae	*Sterna striata*	White-fronted Tern	*striata*	1	
Laridae	*Sterna sumatrana*	Black-naped Tern	*sumatrana*	1	http://seabirdtracking.org/mapper/
Laridae	*Sterna hirundo*	Common Tern	*tibetana*	1	
Laridae	*Sterna hirundo*	Common Tern	*longipennis*	1	
Laridae	*Sterna paradisaea*	Arctic Tern	NW N America & E Russia (bre)	1	
Laridae	*Sterna acuticauda*	Black-bellied Tern	S & SE Asia	2	BirdLife International 2017

Family	Scientific Name	Common Name	Population Name	Qlt	Sources
Laridae	*Thalasseus bengalensis*	Lesser Crested Tern	*torresii*	1	
Laridae	*Thalasseus bernsteini*	Chinese Crested Tern	E China (bre)	1	Seabird Working Group, Yu Yat Tung
Laridae	*Thalasseus bergii*	Greater Crested Tern	*cristatus*	1	

Annex 8. EAAFP species list

IUCN Red List of Threatened Species 2021 categories: Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC) and Data Deficient (DD),

Family	Scientific Name	Common Name	Red List
Anseranatidae	*Anseranas semipalmata*	Magpie Goose	LC
Anatidae	*Dendrocygna bicolor*	Fulvous Whistling-duck	LC
Anatidae	*Dendrocygna eytoni*	Plumed Whistling-duck	LC
Anatidae	*Dendrocygna arcuata*	Wandering Whistling-duck	LC
Anatidae	*Dendrocygna javanica*	Lesser Whistling-duck	LC
Anatidae	*Cygnus olor*	Mute Swan	LC
Anatidae	*Cygnus cygnus*	Whooper Swan	LC
Anatidae	*Cygnus columbianus*	Tundra Swan	LC
Anatidae	*Branta bernicla*	Brent Goose	LC
Anatidae	*Branta hutchinsii*	Cackling Goose	LC
Anatidae	*Anser canagicus*	Emperor Goose	NT
Anatidae	*Anser caerulescens*	Snow Goose	LC
Anatidae	*Anser indicus*	Bar-headed Goose	LC
Anatidae	*Anser anser*	Greylag Goose	LC
Anatidae	*Anser cygnoid*	Swan Goose	VU
Anatidae	*Anser fabalis*	Bean Goose	LC
Anatidae	*Anser albifrons*	Greater White-fronted Goose	LC
Anatidae	*Anser erythropus*	Lesser White-fronted Goose	VU
Anatidae	*Clangula hyemalis*	Long-tailed Duck	VU
Anatidae	*Somateria fischeri*	Spectacled Eider	NT
Anatidae	*Somateria spectabilis*	King Eider	LC
Anatidae	*Somateria mollissima*	Common Eider	NT
Anatidae	*Polysticta stelleri*	Steller's Eider	VU
Anatidae	*Melanitta stejnegeri*	Siberian Scoter	LC
Anatidae	*Melanitta americana*	Black Scoter	NT
Anatidae	*Bucephala clangula*	Common Goldeneye	LC
Anatidae	*Mergellus albellus*	Smew	LC
Anatidae	*Mergus merganser*	Goosander	LC
Anatidae	*Mergus squamatus*	Scaly-sided Merganser	EN
Anatidae	*Mergus serrator*	Red-breasted Merganser	LC
Anatidae	*Histrionicus histrionicus*	Harlequin Duck	LC
Anatidae	*Tadorna tadorna*	Common Shelduck	LC
Anatidae	*Tadorna ferruginea*	Ruddy Shelduck	LC
Anatidae	*Nettapus coromandelianus*	Cotton Pygmy-goose	LC
Anatidae	*Aix galericulata*	Mandarin Duck	LC
Anatidae	*Aythya ferina*	Common Pochard	VU
Anatidae	*Aythya baeri*	Baer's Pochard	CR
Anatidae	*Aythya nyroca*	Ferruginous Duck	NT
Anatidae	*Aythya fuligula*	Tufted Duck	LC

Family	Scientific Name	Common Name	Red List
Anatidae	*Aythya marila*	Greater Scaup	LC
Anatidae	*Spatula querquedula*	Garganey	LC
Anatidae	*Spatula clypeata*	Northern Shoveler	LC
Anatidae	*Sibirionetta formosa*	Baikal Teal	LC
Anatidae	*Mareca falcata*	Falcated Duck	NT
Anatidae	*Mareca strepera*	Gadwall	LC
Anatidae	*Mareca penelope*	Eurasian Wigeon	LC
Anatidae	*Anas zonorhyncha*	Chinese Spot-billed Duck	LC
Anatidae	*Anas poecilorhyncha*	Indian Spot-billed Duck	LC
Anatidae	*Anas platyrhynchos*	Mallard	LC
Anatidae	*Anas acuta*	Northern Pintail	LC
Anatidae	*Anas crecca*	Common Teal	LC
Podicipedidae	*Tachybaptus ruficollis*	Little Grebe	LC
Podicipedidae	*Podiceps grisegena*	Red-necked Grebe	LC
Podicipedidae	*Podiceps cristatus*	Great Crested Grebe	LC
Podicipedidae	*Podiceps auritus*	Horned Grebe	VU
Podicipedidae	*Podiceps nigricollis*	Black-necked Grebe	LC
Heliornithidae	*Heliopais personatus*	Masked Finfoot	EN
Rallidae	*Rallina tricolor*	Red-necked Crake	LC
Rallidae	*Rallina fasciata*	Red-legged Crake	LC
Rallidae	*Rallina eurizonoides*	Slaty-legged Crake	LC
Rallidae	*Coturnicops exquisitus*	Swinhoe's Rail	VU
Rallidae	*Rallus aquaticus*	Western Water Rail	LC
Rallidae	*Rallus indicus*	Eastern Water Rail	LC
Rallidae	*Lewinia striata*	Slaty-breasted Rail	LC
Rallidae	*Zapornia fusca*	Ruddy-breasted Crake	LC
Rallidae	*Zapornia paykullii*	Band-bellied Crake	NT
Rallidae	*Zapornia pusilla*	Baillon's Crake	LC
Rallidae	*Amaurornis phoenicurus*	White-breasted Waterhen	LC
Rallidae	*Gallicrex cinerea*	Watercock	LC
Rallidae	*Gallinula chloropus*	Common Moorhen	LC
Rallidae	*Fulica atra*	Common Coot	LC
Gruidae	*Leucogeranus leucogeranus*	Siberian Crane	CR
Gruidae	*Grus vipio*	White-naped Crane	VU
Gruidae	*Grus antigone*	Sarus Crane	VU
Gruidae	*Anthropoides virgo*	Demoiselle Crane	LC
Gruidae	*Grus japonensis*	Red-crowned Crane	VU
Gruidae	*Grus grus*	Common Crane	LC
Gruidae	*Grus monacha*	Hooded Crane	VU
Gruidae	*Grus nigricollis*	Black-necked Crane	NT
Gaviidae	*Gavia stellata*	Red-throated Loon	LC
Gaviidae	*Gavia arctica*	Arctic Loon	LC
Gaviidae	*Gavia pacifica*	Pacific Loon	LC

Family	Scientific Name	Common Name	Red List
Gaviidae	*Gavia adamsii*	Yellow-billed Loon	NT
Ciconiidae	*Leptoptilos dubius*	Greater Adjutant	EN
Ciconiidae	*Mycteria leucocephala*	Painted Stork	NT
Ciconiidae	*Anastomus oscitans*	Asian Openbill	LC
Ciconiidae	*Ciconia nigra*	Black Stork	LC
Ciconiidae	*Ciconia boyciana*	Oriental Stork	EN
Threskiornithidae	*Platalea leucorodia*	Eurasian Spoonbill	LC
Threskiornithidae	*Platalea minor*	Black-faced Spoonbill	EN
Threskiornithidae	*Platalea regia*	Royal Spoonbill	LC
Threskiornithidae	*Threskiornis melanocephalus*	Black-headed Ibis	NT
Threskiornithidae	*Threskiornis moluccus*	Australian Ibis	LC
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis	LC
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	LC
Ardeidae	*Botaurus stellaris*	Eurasian Bittern	LC
Ardeidae	*Ixobrychus sinensis*	Yellow Bittern	LC
Ardeidae	*Ixobrychus eurhythmus*	Schrenck's Bittern	LC
Ardeidae	*Ixobrychus cinnamomeus*	Cinnamon Bittern	LC
Ardeidae	*Ixobrychus flavicollis*	Black Bittern	LC
Ardeidae	*Oroanassa magnifica*	White-eared Night-heron	EN
Ardeidae	*Gorsachius goisagi*	Japanese Night-heron	VU
Ardeidae	*Gorsachius melanolophus*	Malay Night-heron	LC
Ardeidae	*Nycticorax nycticorax*	Black-crowned Night-heron	LC
Ardeidae	*Butorides striata*	Green-backed Heron	LC
Ardeidae	*Ardeola bacchus*	Chinese Pond-heron	LC
Ardeidae	*Ardeola speciosa*	Javan Pond-heron	LC
Ardeidae	*Bubulcus ibis*	Cattle Egret	LC
Ardeidae	*Ardea cinerea*	Grey Heron	LC
Ardeidae	*Ardea purpurea*	Purple Heron	LC
Ardeidae	*Ardea alba*	Great White Egret	LC
Ardeidae	*Ardea intermedia*	Intermediate Egret	LC
Ardeidae	*Ardea plumifera*	Plumed Egret	LC
Ardeidae	*Egretta picata*	Pied Heron	LC
Ardeidae	*Egretta garzetta*	Little Egret	LC
Ardeidae	*Egretta eulophotes*	Chinese Egret	VU
Pelecanidae	*Pelecanus crispus*	Dalmatian Pelican	NT
Pelecanidae	*Pelecanus philippensis*	Spot-billed Pelican	NT
Phalacrocoracidae	*Urile pelagicus*	Pelagic Cormorant	LC
Phalacrocoracidae	*Urile urile*	Red-faced Cormorant	LC
Phalacrocoracidae	*Phalacrocorax carbo*	Great Cormorant	LC
Phalacrocoracidae	*Phalacrocorax capillatus*	Japanese Cormorant	LC
Haematopodidae	*Haematopus ostralegus*	Eurasian Oystercatcher	NT
Recurvirostridae	*Recurvirostra avosetta*	Pied Avocet	LC
Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	LC

Family	Scientific Name	Common Name	Red List
Charadriidae	*Pluvialis squatarola*	Grey Plover	LC
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	LC
Charadriidae	*Charadrius placidus*	Long-billed Plover	LC
Charadriidae	*Charadrius dubius*	Little Ringed Plover	LC
Charadriidae	*Charadrius alexandrinus*	Kentish Plover	LC
Charadriidae	*Charadrius dealbatus*	White-faced Plover	DD
Charadriidae	*Charadrius bicinctus*	Double-banded Plover	NT
Charadriidae	*Charadrius mongolus*	Lesser Sandplover	LC
Charadriidae	*Charadrius leschenaultii*	Greater Sandplover	LC
Charadriidae	*Charadrius veredus*	Oriental Plover	LC
Charadriidae	*Vanellus vanellus*	Northern Lapwing	NT
Charadriidae	*Vanellus cinereus*	Grey-headed Lapwing	LC
Rostratulidae	*Rostratula benghalensis*	Greater Painted-snipe	LC
Jacanidae	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	LC
Scolopacidae	*Numenius phaeopus*	Whimbrel	LC
Scolopacidae	*Numenius minutus*	Little Curlew	LC
Scolopacidae	*Numenius arquata*	Eurasian Curlew	NT
Scolopacidae	*Numenius madagascariensis*	Far Eastern Curlew	EN
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	NT
Scolopacidae	*Limosa limosa*	Black-tailed Godwit	NT
Scolopacidae	*Arenaria interpres*	Ruddy Turnstone	LC
Scolopacidae	*Calidris tenuirostris*	Great Knot	EN
Scolopacidae	*Calidris canutus*	Red Knot	NT
Scolopacidae	*Calidris pugnax*	Ruff	LC
Scolopacidae	*Calidris falcinellus*	Broad-billed Sandpiper	LC
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	LC
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	NT
Scolopacidae	*Calidris temminckii*	Temminck's Stint	LC
Scolopacidae	*Calidris subminuta*	Long-toed Stint	LC
Scolopacidae	*Calidris pygmaea*	Spoon-billed Sandpiper	CR
Scolopacidae	*Calidris ruficollis*	Red-necked Stint	NT
Scolopacidae	*Calidris alba*	Sanderling	LC
Scolopacidae	*Calidris alpina*	Dunlin	LC
Scolopacidae	*Calidris ptilocnemis*	Rock Sandpiper	LC
Scolopacidae	*Limnodromus semipalmatus*	Asian Dowitcher	NT
Scolopacidae	*Scolopax rusticola*	Eurasian Woodcock	LC
Scolopacidae	*Gallinago solitaria*	Solitary Snipe	LC
Scolopacidae	*Gallinago hardwickii*	Latham's Snipe	LC
Scolopacidae	*Gallinago nemoricola*	Wood Snipe	VU
Scolopacidae	*Gallinago stenura*	Pintail Snipe	LC
Scolopacidae	*Gallinago megala*	Swinhoe's Snipe	LC
Scolopacidae	*Gallinago gallinago*	Common Snipe	LC
Scolopacidae	*Lymnocryptes minimus*	Jack Snipe	LC

Family	Scientific Name	Common Name	Red List
Scolopacidae	*Phalaropus lobatus*	Red-necked Phalarope	LC
Scolopacidae	*Xenus cinereus*	Terek Sandpiper	LC
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	LC
Scolopacidae	*Tringa ochropus*	Green Sandpiper	LC
Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler	NT
Scolopacidae	*Tringa incana*	Wandering Tattler	LC
Scolopacidae	*Tringa erythropus*	Spotted Redshank	LC
Scolopacidae	*Tringa nebularia*	Common Greenshank	LC
Scolopacidae	*Tringa totanus*	Common Redshank	LC
Scolopacidae	*Tringa glareola*	Wood Sandpiper	LC
Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	LC
Scolopacidae	*Tringa guttifer*	Spotted Greenshank	EN
Glareolidae	*Stiltia isabella*	Australian Pratincole	LC
Glareolidae	*Glareola maldivarum*	Oriental Pratincole	LC
Laridae	*Anous stolidus*	Brown Noddy	LC
Laridae	*Anous minutus*	Black Noddy	LC
Laridae	*Rynchops albicollis*	Indian Skimmer	EN
Laridae	*Saundersilarus saundersi*	Saunders's Gull	VU
Laridae	*Rissa tridactyla*	Black-legged Kittiwake	VU
Laridae	*Larus brunnicephalus*	Brown-headed Gull	LC
Laridae	*Larus ridibundus*	Black-headed Gull	LC
Laridae	*Larus ichthyaetus*	Pallas's Gull	LC
Laridae	*Larus relictus*	Relict Gull	VU
Laridae	*Larus crassirostris*	Black-tailed Gull	LC
Laridae	*Larus canus*	Mew Gull	LC
Laridae	*Larus smithsonianus*	Arctic Herring Gull	LC
Laridae	*Larus schistisagus*	Slaty-backed Gull	LC
Laridae	*Larus glaucescens*	Glaucous-winged Gull	LC
Laridae	*Larus hyperboreus*	Glaucous Gull	LC
Laridae	*Onychoprion aleuticus*	Aleutian Tern	VU
Laridae	*Onychoprion fuscatus*	Sooty Tern	LC
Laridae	*Onychoprion anaethetus*	Bridled Tern	LC
Laridae	*Sternula albifrons*	Little Tern	LC
Laridae	*Gelochelidon nilotica*	Common Gull-billed Tern	LC
Laridae	*Gelochelidon macrotarsa*	Australian Gull-billed Tern	LC
Laridae	*Hydroprogne caspia*	Caspian Tern	LC
Laridae	*Chlidonias hybrida*	Whiskered Tern	LC
Laridae	*Chlidonias leucopterus*	White-winged Tern	LC
Laridae	*Sterna aurantia*	River Tern	VU
Laridae	*Sterna dougallii*	Roseate Tern	LC
Laridae	*Sterna striata*	White-fronted Tern	NT
Laridae	*Sterna sumatrana*	Black-naped Tern	LC
Laridae	*Sterna hirundo*	Common Tern	LC

Family	Scientific Name	Common Name	Red List
Laridae	*Sterna paradisaea*	Arctic Tern	LC
Laridae	*Sterna acuticauda*	Black-bellied Tern	EN
Laridae	*Thalasseus bengalensis*	Lesser Crested Tern	LC
Laridae	*Thalasseus bernsteini*	Chinese Crested Tern	CR
Laridae	*Thalasseus bergii*	Greater Crested Tern	LC