European Environment Agency
European Topic Centre on
Biological Diversity

Article 12 EU population status assessments- Methodology

Methodology of assessments under Article 12 of the EU Birds Directive 2013-2018.

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1. Article 12 reporting

Article 12 requires Member States to report on their progress in implementing Council Directive 2009/147/EC of April 1979, amended in 2009, on the conservation of wild birds (Bird Directive) to the European Commission every six years. The six-year reporting cycle was established in agreement with Member States in 2008-2012 before being legislatively established as well (2019). In mid-2019, Member States submitted their second report under Article 12 of the Birds Directive using the new format established in 2011 and updated in 2016. The reports are required for all regularly occurring breeding species, and also for wintering and passage Annex I taxa and non-Annex I taxa triggering SPA designations (and in addition for Annex II species not occurring as breeders).[1] The reported data include, among others, **population size**, **trends** and **distribution**, along with information on the **main pressures and threats**, **conservation measures** and coverage by the **Special Protection Area (SPA) network.**

2. Assessing the EU population size and trends

Data across Member States were combined to produce overall EU population sizes and trends for each taxon. Different Member States used different methodologies for estimating population sizes and trends, and potentially adopted differing interpretations of some aspects of the guidance on reporting (e.g. in some cases Member States deviate from the agreed definition of stable or uncertain trends), which needs to be taken into consideration when reviewing overall figures.

EU population size

The reported population size data across all Member States (minimum and maximum or best values) were summed to calculate the overall EU minimum and maximum population size of each bird taxon. To allow total EU species population sizes to be calculated, all Member States were requested to report their national data using a common population unit. Population units for most breeding birds were breeding pairs (except a minority of taxa with unusual or complex breeding biology or cryptic behaviour, for which other units, such as calling or lekking males, were used); for wintering birds, units were individuals. These population units were agreed during the consultation for the Member State species checklists. In cases where population size data were reported in population size units different to those specified for Article 12 reporting, the reported values were converted to the appropriate units based on expert opinion and with reference to any relevant national sources. In cases when population size was indicated as a minimum or maximum value only, with no additional information to verify that this was the only value intended to be provided (e.g. type of estimate indicated as minimum), this was considered an omission and the value provided was used as a best single value. When only best single value was indicated, this was used as both minimum and maximum when calculating the overall EU population size.

1 DG Environment. 2017. Reporting under Article 12 of the Birds Directive: Explanatory notes and guidelines for the period 2013-2018. Brussels. 63 pp. Available at https://circabc.europa.eu/sd/a/39f54f36-404b-4d5d-9abe-2a07e3043934/Doc%20NADEG%2016-11-02%20d%29%20Field%20by%20field%20guidance%20Art%2012.pdf

With the agreement of the European Commission, population data from national NGOs or other alternative sources were used in some particular cases (e.g. where important omissions from Member States' reports were identified, or more recent good quality data were not taken into consideration). These surrogate data were used to ensure the bird species assessments, which are based around a rigorous scientific exercise, are able to deliver a clear and up-to-date status of each species in the EU[2].

EU population trends

Population trend data from all Member States were combined and weighted by each Member State's contribution according to the size of its population. Weightings were based on the geometric mean of the Member State's minimum and maximum population size (or the population size best single value where such was provided), compared to the best single value or geometric mean of the equivalent totals for the overall EU population. This analysis was carried out using a dedicated tool developed by the IUCN to estimate overall trends based on data from multiple (national) subpopulations[3].

Trend information reported as unknown (where there are insufficient or no data available to be possible to estimate a trend direction or calculate magnitudes) and missing information (e.g. trend magnitude not reported) was problematic for the analysis and evaluation of the EU trends and status. Where trend directions were reported as unknown for more than half the total EU population (based on geometric means or best single values), the overall EU trend was classified as unknown, as the true actual trend of the unknown populations could plausibly have driven the overall EU trend in the opposite direction to that of the reported populations. Where over half of the total population trend of a species was reported as uncertain (where the magnitudes reported span 0, but it is difficult to ascertain the direction of the trend – e.g. minimum -38 and maximum +19), or where trend directions were reported as unknown for less than half of EU populations, but allocating a trend category with confidence was not possible due to conflicting trend information or lack of trend magnitudes, the overall EU trend was classified as uncertain. Where relevant, the robustness of trend categories in terms of the effects of missing data were tested using plausible 'good' and 'bad' scenarios, based on other sources of information, such as any other trend information reported by the Member State, other published sources, and/or recent national Red Lists, and in some cases on expert opinion.

The interpretation of trend direction categories by Member States varied throughout the countries. The correct ways to define these categories are given in the supporting document available on the Article 12 reference portal[4]. Where trend direction categories were seen to be deviating from the magnitudes given, these were adjusted according to the magnitude data, and the change recorded in the species' audit trail, which can be found on the Article 12 reporting webtool[5].

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[2] If relevant the use of any surrogate data is documented in the audit trail for distinct species assessments which can be reached via the Article 12 reporting webtool (available soon) https://nature-art12.eionet.europa.eu/article12/summary

[3] IUCN (2019) Criterion A tool: population reduction calculator. Available at https://www.iucnredlist.org/resources/criterion-a

[4] The N2K Group (2019) Reporting trend magnitudes for different categories of short- and long-term trend. Available at http://biodiversity.eionet.europa.eu/activities/Reporting/Article_12/Reports_2019/Files_2019/Guidance%20on%20reporting%20trend%20magnitudes%2020180703.docx

[5](available soon) https://nature-art12.eionet.europa.eu/article12/summary

Both EU trend direction and magnitude were calculated and used for the EU level assessments. The trend directions for each species are provided on the Article 12 reporting web tool, together with the population size estimates.

Bird taxa population size and trend data for which Member States reported at a sub-specific, sub-population or biogeographical population level were aggregated to obtain species level data, as this is the taxa level needed to undertake regional Red List assessments. In addition, separate EU size and trend data at the subspecies level were produced for sub-species listed in the Annexes of the Directive and their aggregated counterparts, or for sub-species/biogeographical populations with international Action Plans and their aggregated counterparts.

2.1 Population status of species

For a majority of species, the EU population status assessments were based on data from the breeding season, but for a minority of species, winter data were (also) used. The EU population status of species that do not breed (regularly) within the EU were based solely on winter data, where the data reported was representative enough of the total EU wintering population (22 taxa including both species and subspecies level assessments), while for species that occur in both seasons, the assessment process was carried out independently on data for both breeding and wintering populations. During winter, individuals can be much more mobile, which could potentially complicate the aggregation of the Member States data. However, most of the species for which winter data were requested are covered by coordinated international schemes, such as the African-Eurasian Waterbird Census (coordinated by Wetlands International), that take this into account. Furthermore, for some species in winter, underlying population trends can be obscured by demographic factors, often related to inter-annual variations in weather conditions. In some years, for example, birds that usually winter in the EU may be forced to move elsewhere to escape harsh winter conditions; in others, birds that usually winter outside the EU may show marked influxes into the region.

Consequently, EU population status assessments were carried out principally on the basis of breeding data, provided that the breeding data were more representative and reliable, and that the resulting status category was the same as or higher than (i.e. more threatened) that obtained using winter data. The assessed EU population status was based on wintering data for three species which also breed in the EU (*Calidris maritima*, *Calidris minuta*, and *Clangula hyemalis*).

The EU population status was assessed using an agreed standardised methodology[6]. The methodology aims to maintain as much comparability as possible with that used to calculate the baseline for Target 1(ii) for birds under the EU Biodiversity Strategy for 2020 (BirdLife International, 2004), and to maximise the use of the data reported by the Member States under Article 12. The first step in the EU population status assessment process is assessing whether taxa are regionally threatened or near threatened, i.e. if they meet or are close to meeting the

[6] DG Env (2014) Using the data reported by Member States under Article 12 of the Birds Directive to summarise and present species' population status at EU level and measure progress towards Target 1(ii)of the EU Biodiversity Strategy to 2020. Available at https://circabc.europa.eu/sd/a/4b101339-6e13-4379-ada5-400e5d1ec8ac/Point%203%20-%20Background-Paper-%2021%20Nov%202013%20.pdf

IUCN Red List criteria at the EU28 level [7,8]. This process feeds directly into the Pan-European Red List of Birds that is being prepared in parallel, as a core deliverable of the European Commission–funded contract led by BirdLife International to support Article 12 reporting[9].

Two previous complete assessments of the population status of birds at EU level were published in 2004[10] (EU25) and 2015[11] (EU27), respectively. The assessments are based on the IUCN Red List methodology, but adapted as regards the IUCN 'Least Concern' category, which is sub-divided into 'Declining', 'Depleted' and 'Secure'. For consistency with these earlier assessments, the 2020 assessment has applied the same set of quantitative criteria to classify species into a small number of categories, according to their EU population status (Table 2.1).

Step 1: Combining national data-sets and producing descriptive statistics

The EU-level analysis of the Article 12 involves combining the national data sets provided by each country to produce one EU-level data set, which summarises the size and trend of each species' population and breeding range size at EU level. This is described in detail in the first part of this section.

Step 2: Applying the IUCN Red List criteria to the EU data-set

The IUCN Red List of Threatened Species™ categories and criteria[12] are well known and widely respected, with clear guidelines[13]. They identify the immediate risk of extinction of species which is just one of many ways of informing conservation priorities. This concept is very relevant to the Birds Directive (e.g. Article 4) and has been used to help prioritise species (e.g. for Species Action Plans, LIFE funding, etc.). Including a regional Red List application[14] in the system used to assess the EU population status of species is thus highly relevant.

However, Article 2 of the Birds Directive demands much more than avoiding extinction:

> *"Member States shall take the requisite measures to maintain the population of the species referred to in Article 1* [i.e. all naturally occurring wild birds in the EU] *at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level."*

[7] IUCN (2012) IUCN Red List categories and criteria, version 3.1, second edition. Gland and Cambridge, 32pp. Available at http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria.

[8] IUCN (2019) Guidelines for using the IUCN Red List categories and criteria. Version 14. Prepared by the Standards and Petitions Committee. Available at https://www.iucnredlist.org/resources/redlistguidelines

[9] BirdLife International (2019) Datazone website. Available at http://www.birdlife.org/datazone/info/taxonomy.

[10] BirdLife International (2004a) *Birds in the European Union: a status assessment*. BirdLife International. Wageningen, The Netherlands.

[11] EEA (2015) *State of Nature in the EU - Results from Reporting under the Nature Directives 2007–2012.* Technical report No 2/2015, European Environment Agency, Copenhagen.

[12] IUCN (2012) *IUCN Red List Categories and Criteria. Version 3.1*. Second edition. IUCN. Gland, Switzerland & Cambridge, U.K. Available at https://www.iucnredlist.org/resources/categories-and-criteria

[13] IUCN (2017) *Guidelines for Using the IUCN Red List Categories and Criteria. Version 13.* Prepared by the Standards and Petitions Subcommittee. Available at https://www.iucnredlist.org/resources/redlistguidelines

[14] IUCN (2012) *Guidelines for application of IUCN Red List Criteria at regional and national levels. Version 4.0.* IUCN. Gland, Switzerland & Cambridge, U.K. Available at https://www.iucnredlist.org/resources/regionalguidelines

This is why the application of the IUCN Red List criteria is not enough. Many European bird species have declined significantly since the 1970s, and many are still declining today[15], albeit at rates slower than those triggering IUCN Red List thresholds. Such declines are exactly the type of deterioration that the Birds Directive intends to prevent (Article 2), so whilst the species involved may not (yet) be threatened according to IUCN Red List guidelines, they definitely cannot be considered Secure/in good status either.

Table 2.1 Criteria to allocate bird species to population status categories in the EU level assessment in 2020.

Broad category	EU population status category (and acronym)	Brief description of criteria 2020
THREATENED / BAD	Regionally Extinct (RE)	As per IUCN (i.e. no reasonable doubt that last individual in EU28 has died)
	Critically Endangered (CR)	Meets IUCN Red List criteria for CR at EU28 scale
	Endangered (EN)	Meets IUCN Red List criteria for EN at EU28 scale
	Vulnerable (VU)	Meets IUCN Red List criteria for VU at EU28 scale
NOT SECURE / POOR	Near Threatened (NT)	Close to meeting IUCN Red List criteria for VU at EU28 scale
	Declining	EU28 population or range declined by ≥20% since 1980 with continuing decline since 2007
	Depleted	EU28 population or range declined by ≥20% since 1980 but no longer declining since 2007
SECURE / GOOD	Secure	Does not currently meet any of the criteria above in EU28
UNKNOWN		Inadequate information available to assess EU28 status

Note: For the sake of common presentation with results under the Habitats Directive in the State of Nature report, broad categories & colour codes may be used.

Step 3: Applying additional criteria to the EU data-set

Recognising the need to differentiate between those species that are neither Threatened or Near Threatened according to IUCN Red List guidance (see Table 2.1 above), nor yet Secure/in good status, two additional criteria (which were first developed and used in earlier pan-

[15] PECBMS (2018) *Trends of Common Birds in Europe, 2018 update*. CSO. Prague, Czech Republic. https://pecbms.info/trends_2018/

European assessments[16,17]) were refined and used in the 2004 and 2015 EU assessments to identify a broader list of species of conservation concern with relevance to the Birds Directive:

Declining: Many European bird populations have declined substantially since the 1970s, albeit often too slowly to meet IUCN Red List thresholds. It is important to highlight these species, so that action can be taken to arrest their declines before they become Threatened (from which it is much harder and costlier to recover). Range contractions are often less marked, but are also of conservation significance, given the importance of maintaining the area of species' distributions, as well as their populations. In 2020, as in 2015, species will be evaluated as Declining if their long-term EU-level trend (c. 1980-2018) indicates an overall decline/contraction of ≥20% and their short-term EU-level trend (2007-2018) indicates an ongoing decline (assuming they do not meet any higher criteria).

Depleted: This category was introduced in 2004 to highlight species whose earlier declines (between 1970 and 1990) had ceased or slowed (between 1990 and 2000), but whose populations remained below the level envisaged under Article 2 of the Birds Directive. It thereby highlights species that have already undergone a decline of the type that the Birds Directive intends to prevent, and which have not yet recovered, even though they are no longer declining. In 2020, as in 2015, species will be evaluated as Depleted if their long-term EU-level trend (c. 1980-2018) indicates an overall decline/contraction of ≥20% since 1980 but their short-term EU-level trend (2007-2018) indicates that they are now stable or even starting to recover (assuming they do not meet any higher criteria).

The 1980 baseline does not adequately capture the pre-1980 declines of many species, whose deterioration stimulated the development of the Directive. Given the difficulty of establishing an ecological baseline for many species in most countries, and the lack of monitoring data from before the 1970s however, using 1980 is a pragmatic solution and corresponds with the entry into force of the Birds Directive.

Four of the species for which Member States have provided the population and trend data were not assessed, three non-native species (*Meleagris gallopavo, Columba livia, Branta canadensis*) and one species occurring sporadically within the EU (*Larus ichthyaetus*)

3. Assessing progress towards Target 1

In an effort to halt the loss of biodiversity and the degradation of ecosystem services in the EU, the European Commission adopted a Biodiversity Strategy in 2011. The Strategy includes six targets to be reached by 2020. Target 1 strives to reach a proper implementation of the Nature Directives, not least through improvements in the status of all covered species and habitats.

Target 1 concerns nature conservation and restoration and is based on improving the conservation status of species covered by the Habitats Directive and species covered by the Birds Directive.

[16] Tucker, G.M. & Heath, M.F. (1994) *Birds in Europe: their conservation status*. BirdLife International (BirdLife Conservation Series No. 3). Cambridge, U.K.

[17] BirdLife International (2004b) *Birds in Europe: population estimates, trends and conservation status.* BirdLife International (BirdLife Conservation Series No. 12). Cambridge, U.K.

Box 6.1 Target 1 of the EU 2020 Biodiversity Strategy

To halt the deterioration in the status of all species and habitats covered by EU nature legislation and achieve a significant and measurable improvement in their status so that, by 2020, compared to current assessments:

(i) 100% more habitat assessments and 50% more species assessments under the Habitats Directive show (a favourable or) an improved conservation status; and

(ii) 50% more species assessments under the Birds Directive show a secure or improved status

To quantitatively measure this target, a methodology was developed by the Expert Group on Reporting under the Nature Directives and further validated by the Group of Experts on the Birds and the Habitats Directive. It is based on a changes matrix which displays the different possible combinations of changes in bird population status (for Article 12) since 2004 - used as the baseline for 2010 - when Birds in the European Union (BirdLife, 2004) was published.

The baseline for birds is 52%, based on the number of species considered to be secure in the only EU-level assessment conducted before 2010 (in 2004, at EU25 level[18]). If the target was simply to increase this figure by 50%, then it would mean that 78% of species (rounded up to 80% in some EC documents[19]) would need to be in secure status by 2020. However, the target includes species whose status is either *secure* or *improved*. It is therefore necessary to use the data reported under Art. 12 to: (a) determine which species are *secure*; and (b) define the conditions under which non-secure species will be classified as *improved*. This is very important, as many species are a long way from being secure, but some are recovering, some remain depleted and others are still declining.

Calculating progress towards Target 1 (Birds Directive) in 2020

The method and parameters used to assess the conservation status of habitats and taxa under Article 17 of the Habitats Directive do not apply to birds. However, retaining the logic of the proposal above for the Habitats Directive, and striving for consistency, the formula to be used for measuring progress between the baseline assessment (2004) and the closest assessment to 2020 (2013–2018) is as follows:

- Percentage of bird species with Secure assessments in 2020 (based on reports from 2013-2018)
  (**sub-value A**)

[18] BirdLife International (2004) *Birds in the European Union: a status assessment*. Wageningen, The Netherlands: BirdLife International. http://datazone.birdlife.org/userfiles/file/Species/erlob/BOCC_birds_in_the_eu.pdf

[19] Commission staff working paper: Impact assessment (SEC (2011) 540) http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/1_EN_impact_assesment_part1_v4.pdf

- Percentage of improved non-secure assessments from Table 6.2 below; the improved assessments are identified according to a combination of the population short-term (2007-2018) and long-term (1980-2018) trends
  (sub-value B)

NB: The criteria and method proposed for 2020 is the same that was used in 2015; the only changes concern the periods used for estimating the short-term and long-term of the EU population trends.

Table 6.2 Classifying changes in trend direction of non-secure bird species at EU level as improvements (sub value B)

Long-term trend (1980–2018)	Short-term trend (2007–2018)			
	Increasing	Stable/Fluctuating	Decreasing	Unknown
Increasing	Yes	No	No	No
Stable/Fluctuating	Yes	No	No	No
Decreasing	Yes	Yes	No	No
Unknown	Yes	No	No	No

Due to the way in which Target 1 is formulated, *improvements* are only relevant to species classified as non-secure (i.e. Threatened or Not Secure). If a species has stopped declining but remains depleted (and is thus non-secure), it contributes towards the 2020 target, because the loss of this particular aspect of biodiversity has been halted (i.e. improvement). Conversely, if a species is still declining, albeit it at a slower rate than previously, it does not contribute towards the 2020 target, because it represents ongoing biodiversity loss (i.e. deterioration - code C used in the web tool).