European Environment Agency
European Topic Centre on
Biological Diversity

Data quality coherence check

Summary of results checking quality of data collected under the Nature Directives

Fact sheet

FI

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Summary of task

Reporting under Articles 12 of the Birds Directive, Article 17 of the Habitats Directive and reporting on Natura 2000 sites are the most comprehensive and regularly updated and coordinated datasets on biodiversity in the European Union. These datasets are used in support to EU biodiversity policies (through generation of maps, indicators and other statistics) and also by the academic world and stakeholders. It is essential that the data are of the highest quality as possible. This task sets out to highlight critical gaps or inconsistencies in Article 12 and Article17 reporting to guide Member States to improve data quality for the nature reporting period 2019 – 2024. The task additionally addresses inconsistencies in reporting Natura 2000.

For which purposes are the data used at the European level?

The data collected under the nature directives have to be 'fit' for the following main purposes[1]:

- assessing and enhancing completeness of the Natura 2000 network (Natura 2000 sufficiency assessments)
  preparation of the Union Lists (sites designated under the Habitats Directive by biogeographical region)
- quantification of restoration needs and prioritization in the PAFs

[1] The list is not exclusive

- providing a regular assessment of the State of Nature in the EU
- informing on progress towards the EU biodiversity strategy to 2030
- providing the biodiversity component of "The European Environment – State and Outlook report" (SOER)
- underpinning outreach products such as the "Natura 2000 Barometer and Viewer"

Furthermore, the information reported on species and habitats distribution, conservation status and trends, as well as on threats and pressures is highly relevant to assess cross-sectoral policy impacts.

The following analyses are better understood when seen together with the relevant dashboards. A description of the methodologies used in the following analyses and the dashboards can be found in links below. In some cases, the numbers of reported habitat types or species are small and this makes the calculated percentages for these particular cases not statistically robust. Therefore, attention should be paid to these values. Where possible, the number of observations has been placed in brackets next to the percentages. The analysis below is based on Member State level. Some of the online dashboards may contain a filter for biogeographic/marine region should the user wish to further investigate. The EU average refers to EU28.

Summary of the results for FI

1. Coherence check of nature reporting data with data reported under Natura 2000

For the analysis comparing values in Natura 2000 with those reported in the Article 12 and 17 reports, 'comparable' records are those which could be linked between the 2 datasets based on a combination of fields for habitats (Member State, biogeographic/marine region, habitat code, area), non-bird species (Member State, biogeographic/marine region, species code, population unit, population value), and bird species (Member State, species code, season, population unit, population value). Where one or more of these links could not be made, the record was 'non-comparable'.

It must be noted that this is not a validity check of the reported habitat area and species population values.

1.1 Habitats: comparison of Article 17 and Natura 2000 habitat areas

There should be coherence in data between the Natura 2000 database and the information provided in the Article 17 report, e.g. for a given habitat type, the combined area reported in Natura 2000 sites in the Member State's Natura 2000 database should not exceed the national area reported in the Article 17 report. Additionally, the combined Natura 2000 habitat area reported in the Natura 2000 database should be the same (or similar) to the Natura 2000 habitat area submitted in the Article 17 report.

Article 17 area and Natura 2000 area from the Natura 2000 database:

The majority of FI habitats reported in Article 17 could be compared with an area reported in the Natura 2000 database (97.1%). The majority of these reported a Natura 2000 database area of less than or equal to the Article 17 habitat area (81.8%, EU average 74.9%). The next largest category of reporting was 10.6% (EU average 13.1%) where the Natura 2000 database area was 1 to 1.5 times the Article 17 area.

Natura 2000 area reported in Article 17 and Natura 2000 area from the Natura 2000 database:

All FI habitats reported in the Natura 2000 area field in Article 17 could be compared with an area reported in the Natura 2000 database. The majority of habitat reports fell into 2 categories: 49% (EU average 32.7%) report a Natura 2000 database area of 1 to 1.5 times greater than that reported for the Natura 2000 section in Article 17. The next largest category of reporting was 38.2% (EU average 46.2%) where the Natura 2000 database area is less than the area reported for Natura 2000 in Article 17.

For further details see the online statistics here.

1.2 Non-bird species: comparison of Article 17 and Natura 2000 species population

There should be coherence in data between the Natura 2000 database and the information provided in the Article 17 report e.g. for a given species, the combined population reported in Natura 2000 sites in the Member State's Natura 2000 database should not exceed the national population reported in the Article 17 report. Additionally, the combined Natura 2000 population reported in the Natura 2000 database should be the same (or similar) to the Natura 2000 population submitted in the Article 17 report. However, it must be noted that for Art. 17 reporting, agreed population units are used which is not the case for Natura 2000. Therefore, it is not an obligation for Member States to use the same population units in both reporting flows. This is an added complication for comparing records between the two reporting flows.

Article 17 population and Natura 2000 population from the Natura 2000 database:

Only 20.3% of all species reported in FI were compared between the Article 17 database and the Natura 2000 database. The highest comparable proportion among Member States does not exceed 34.2%.

Of this comparable proportion, 91.7% reported a species population value in Natura 2000 as smaller than or equal with that reported in Article 17, which is higher to the EU average of 80.5%. The remaining 8.3% of species reported a Natura 2000 population greater than the Article 17 population, which is smaller than the EU average of 19.4%.

Natura 2000 population reported in Article 17 and Natura 2000 population from the Natura 2000 database:

Regarding the Natura 2000 population reported in the Article 17 national report, 20.3% of species records could be compared between the datasets based on the criteria noted above.

Of this comparable proportion, 8.3% of species report a population in Natura 2000 greater than in Article 17, percentage that is significantly smaller than the EU mean of 32.5%. The remaining 91.7% of species report a population in Natura 2000 smaller than that in Article 17, which is significantly smaller than the EU mean of 64.5%. For no species with comparable records the population within the Natura 2000 was equal to the population reported under Art. 17 (EU average is 3%).

For further details see the online statistics here.

1.3 Bird species: comparison of Article 12 and Natura 2000 species population

There should be coherence in data between the Natura 2000 database and the information provided in the Article 12 report e.g. for a given bird species, the combined population reported in Natura 2000 sites in the Member State's Natura 2000 database should not exceed the national population reported in the Article 12 report. Additionally, the combined Natura 2000 population reported in the Natura 2000 database should be the same (or similar) to the Natura 2000 population submitted in the Article 12 report. However, it must be noted that for Art. 12 reporting agreed population units are used which is not the case for Natura 2000. This is an added complication for comparing records between the two reporting flows.

Article 12 population and Natura 2000 population from the Natura 2000 database:

For Article 12 bird species, it was found that only 16% of bird records reported in the Natura 2000 database were comparable with an equivalent record in the Article 12 national report. The highest comparable proportion among Member States does not exceed 65%.

Of this proportion of comparable records, 5.3% report a larger population in Natura 2000 than the national population reported in Article 12, which is lower than the EU average of 20%.

Natura 2000 population reported in Article 12 and Natura 2000 population from the Natura 2000 database:

Regarding the comparison of Natura 2000 populations reported in Article 12 and Natura 2000 database, an even lower proportion of species could be compared: 13.2%.

Of this comparable proportion, none of the species reported an equal population in Natura 2000 and Art 12, higher than the EU average of 3.2%. 64.51% of species reported a larger population in Natura 2000 compared with the Natura 2000 population in the Article 12 report, which is above the EU average of 40.5%, whereas 35.5% report a lower population in Natura 2000 than in Article 12 report, which is lower than the EU average of 56.2%.

For further details see the online statistics here.

2. Analysis of specific fields in Article 12 & 17 reporting formats

2.1 Data quality and completeness

Several fields in the Article 17 and 12 reports are highlighted as 'mandatory' and are essential to assessing the status of a habitat or species at both national and EU level. When such fields have been completed with 'unknown' or the values are simply missing, this presents a data quality issue. Moreover, when 'expert opinion' or 'insufficient data' is indicated as method used, this highlight a need for further monitoring effort. This analysis complements the relevant analysis already included in the national summaries of Article 12 and Article 17.

Habitats

The highest proportion of missing mandatory information is seen with the habitat group bogs, mires and fens (5.8%, EU average 9.7%). The parameter short-term trend inside the network is reported consistently across all habitat groups (except rocky habitats and heaths & scrub, where no missing information is reported for any parameter).

The habitat group bogs, mires & fens shows the highest proportion of parameters with missing information out of all habitat groups (information missing for 14 parameters). The highest proportion of missing information seen with a single parameter is for pressures in the freshwater habitat group.

There are no missing mandatory fields for the habitat groups rocky habitats and heath & scrubs.

The highest proportion of reporting expert opinion as the method used is seen with heath & scrubs habitat (47.4%, EU average 25.1%), followed by dune habitats (42.9%, EU average 28.2%). The highest rerouting of insufficient information is seen with the habitat group bogs, mires & fens (12.3%).

Non-bird species

A high proportion of missing mandatory information was spotted in other invertebrates (52.4%) and molluscs (34.9%). The missing fields for the former are addressed below, for molluscs, the highest reporting of missing mandatory information is seen with 75% missing information: short-term population trend (EU average 39.1%), pressures & threats (EU average 6.9%, short-term trend inside the network (EU average 43%).

Where 100% of mandatory information is missing for a parameter, this is seen with: amphibians (short-term trend inside the network (EU average 47.1%) and short-term population trend (EU average 33.9%), and with other invertebrates, sufficiency of occupied habitat, (EU average 42.9%), status of population (EU average 46%), status of habitat for the species (EU average 44.4%), status of future prospects (EU average 39.7%), short-term trend of habitat for the species (EU average 57.1%), short-term population trend (EU average 65.1%), pressures and threats (EU average 14.3%), overall conservation status (EU average 34.9%), future prospects of population (EU average 50.8%), future prospects of habitat for the species (EU average 41.3%) and favourable reference population (EU average 36.5%). In the case of reptiles, all compulsory data are available.

The extrapolation and expert opinion are the most frequent methods used. Complete survey is used primarily among mammals, reptiles, fish, and vascular plants. Where expert opinion was used, this is seen mostly with arthropods. Where insufficient data are used this is seen in the highest proportion with other invertebrates (50%, EU average 46.8%), molluscs (36.1%, EU average 26.3%) and non-vascular plants (28.4%, EU average 30.1%).

Bird species

The bird groups gannets & cormorants, grebes, kingfishers, rollers, bee-eaters & hoopoe are those which report the highest proportion of missing information across all mandatory fields in the reporting format (25%, 25% and 25% of all fields, respectively). This is higher than the respective EU averages of 9.1%, 14.1% and 14.1%.

A bird group with missing mandatory information for wintering species (trend information) is waders, gulls and auks (50% for the long-term trend). The groups with majority missing information on hunting bags are waders, gulls & auks and pigeons & doves (33.3% and 50%, respectively). A high proportion of missing information on the short-term trend within the SPA network (i.e. >50% missing) is seen with species groups cranes, rails, gallinules & coots, , grebes, kingfishers, rollers, bee-eaters & hoopoe, loons or divers, owls, passerines and swifts & nightjars. Several species groups reported the long-term trend in breeding population as field largely missing or unknown (i.e. >50% missing): herons, pelicans, ibises & spoonbills, kingfishers, rollers, bee-eaters & hoopoe and pheasants, partridges & grouse.

The highest proportion of reporting expert opinion for any group is seen with hawks and eagles (23%, EU average 26%). indicated with 'insufficient data' in the methods field are grebes and kingfishers, rollers, beeaters and hoopoe (both 25%, EU average 57% and 49%, respectively).

For further details see the online statistics here.

2.2 Quality of conclusion of the parameters for assessing conservation status

The 'method used' field can be an indicator of the quality of data used to conclude on the parameters of the habitats and species. A complete survey indicates the best quality information, followed by partial estimate. Expert opinion indicates a lack of data and a reliance on opinion rather than empirical data. This analysis complements the assessments of conservation status delivered from the Member State, which is part of the National Summary and can be found here.

Habitats – methods used

The area parameter for FI habitats uses mostly partial estimate or complete survey as the method used. Where expert opinion is used the highest proportion of reporting is seen with grasslands (33.3%, EU average 11.7%) and bogs, mires & fens habitats (31.3%, EU average 11.7%). Absent data for the method was reported in a small proportion for freshwater habitats and forests (1 habitat each).

Regarding the structure and function parameter, expert opinion is reported more frequently than either partial estimate or complete survey for bogs, mires & fens (31.3%, EU average 24%), grasslands (58.3%, expert opinion 16.1%) and rocky habitats (57.1%, EU average 22%). There is also a higher frequency of reporting insufficient/no data than for the area parameter: bogs, mires & fens (25%, EU average 15.3%), forests (17.6%, EU average 12.7%) and also reported for freshwater habitats and coastal habitats.

For both parameters, no methodology was provided for 1 bogs, mires and fens habitat.

Non-bird species – methods used

Partial estimate and complete surveys are the most frequent methods used for the population parameter across all species groups: complete survey - from 25.8% (mammals) to 100% (reptiles) - EU average (44.9%); partial estimate - from 25% (molluscs) to 100% (amphibians) - EU average 51%. Expert opinion is most frequently used among other invertebrates (100%). The mest frequently used paramter for habitat of the species is expert opinion.

For further details see the online statistics here.

2.3 Use of the 'change & reason for change' field

The 'change and reason for change' field as reported in Article 17 is an important field that shows whether a change in conservation status or trend is a genuine change (i.e. an improvement or deterioration) or a non-genuine change (change of methodology, knowledge etc). Species and habitats which report genuine changes in status and trends are used to assess improvement.

Habitats

There are 3 cases where no reason was filled in. These discrepancies are seen with freshwater habitats and bogs, mires & fens habitats in FI when reporting the main reason for change. For the area covered by the habitat and the range parameters, no main reason for change was completed for the habitat 7120. The same is seen with the area covered by the habitat parameter for freshwater habitat 3130.

No issues were seen where the main reason reported was incoherent with the reasons selected.

Non-bird species

The higher proportion of missing the main reason for change of all parameters concerns: overall CS (17.6% of the total of 34 cases, EU average 32.1%), overall CS trend (17.6%, EU average 39.9%), population (32.4%, EU average 12.3%), range (32.4%, EU average 12.3%). The species groups where reason for change was not filled in for some parameters are identified are mammals, vascular and non-vascular plants. Only in one species group (molluscs) were more than one reason indicated (for the population parameter).

For further details see the online statistics here.

2.4 Conservation measures

Where habitats and species are in an unfavourable conservation status or with a deteriorating trend it is necessary to understand if there are conservation measures in place to improve their status or if conservation measures have been identified but are not yet in place. Where conservation measures are needed but have neither been implemented nor identified, this can give an indication of a critical gap. This analysis complements the relevant analysis already included in the national summaries of Article 12 *and* Article 17*.*

Habitats

Where measures are needed but none yet taken for FI habitats this is mostly seen with heath & scrub (40%, EU average 17.2%) and forests (35.3%, EU average 22.6%). It is also seen with bogs, mires & fens (18.8%, EU average 21.7%) and grasslands (16.7%, EU average 22%).

The restoration of structure and functions is reported for all freshwater habitats and heath & scrub, where measures were needed and taken. There is also a high proportion of coastal habitats for which this is the main purpose identified (66.7%, EU average 34%). Where maintain the current range is reported as the main purpose, that is seen with all sclerophyllous scrub habitats (1 habitats), 71% of bogs, mires & fens (EU average 68.5%), 66.7% of forests (EU average 67.5%) and 57.1% of dune habitats (EU average 68.5%).

Non-bird species

Species where measures are needed but not yet taken are found with the groups: non-vascular plants (22.2%, EU average 33%) and vascular plants (5.6%, EU average 27.5%). For most of the species groups, measures are needed and have been taken or measures are not needed.

The vast majority of measures intend to maintain the current status. The restoration of the habitat for the species is reported for arthropods (11.8%, EU average 8.5%), non-vascular plants (8.3%, EU average 6.6%) and vascular plants (13.8%, EU average 5.5%).

Bird species

Breeding: For the majority of breeding species reported in FI measures were reported as needed and taken, the second most reported category was not needed. Only 1 breeding species was reported in the category of conservation measures needed but cannot be identified, belonging to the group hawks & eagles.

Wintering: For the majority of wintering species in FI it was reported that conservation measures were needed and taken. One species was reported with measures not needed.

Passage: Most of the species were indicated with measures either as needed and taken or as not needed. Only one species was reported that conservation measures were needed and not taken.

Restoration measures taken for the habitat of the species seem to concern only passerines and waders, gulls & auks (50% and 26.3% of the total number of records on the main purpose of measures that have been applied, EU means 15.2% and 11.1% respectively), whereas measures to increase the population size or improve the dynamics concern mostly passerines and loons or divers (50% for each, EU mean 17.4% and 5.6%, respectively) and ducks, geese & swans and waders, gulls & auks (42.1% and 31.6% respectively, EU means 16.2% and 21%). Measures to expand the current range concern mostly falcons (100%, EU mean 5.4%).

For further details see the online statistics here.

2.5 Favourable reference values

The operators are used for reporting on favourable reference values when information on actual values is limited or missing completely. Operators are used as a rough estimation and highlight an issue with data gathering and monitoring. Apart from the 'unknown' the operator 'much bigger than (>>)' is particularly problematic as there is no indication of its upper values.

Habitats

There is no reporting of unknown (x) or >> for the range parameter. > is reported for dune habitats (28.6%), grasslands (25%), bogs, mires & fens (18.8%) and for 1 forest habitat (5.9%).

The favourable reference area is also not reported as unknown (x) for any habitat group. There is a high proportion of reporting > for dune habitats (71.4%), grasslands (58.3%), forests (52.9% and bogs, mires & fens (50%). >> is reported for 1 dune and 1 forest habitat.

There is 1 bogs, mires & fens habitat where the favourable reference area if reported as < the area but the conservation status is reported as XX. This is an error in the data.

Non-bird species

For the parameter range, the highest share of unknown (x) was reported for molluscs (50%). The operator >> had a high share among non-vascular plants (13%).

For the favourable reference population, the highest share of unknown (x) was reported for amphibians (25%), mammals (25.8%), molluscs (62.5%) and other invertebrates (100%). The operator >> had a high share among molluscs (25%) and non-vascular plants (17.4%).

For further details see the online statistics here.

2.6 Comparison of habitat condition area with total habitat area

For the coherence of areas reported it is expected that the combined habitat condition area (as reported under structure and functions) and the total habitat area would be the same.

All of the rocky habitats reported by FI show an equal area between the habitat condition and the area covered by the habitat. All habitat groups show a high percentage of reports with the same equality

(grasslands 91.7%, EU average 51.8%, to freshwater habitats 64.5%, EU average 50.6%) with lowest being heath & scrub (40%, EU average 59.8%).

Coastal habitats have the highest reporting of habitat condition area higher than area covered by the habitat (30.8%, EU average 18.4%). Heath & scrub have the highest reporting of habitat condition area (40%, EU average 22.6%).

There were some habitats within the forest group (8.3%, EU average 3.1%) and the freshwater habitat group (7.7%, EU average 4.8%) which did not have enough information to undertake this analysis (either the habitat condition or the area covered by the habitat was missing).

For further details see the online statistics here.

3 Further gaps in habitats

3.1 Analysis of Land area, sealed area, Article 17 Annex I terrestrial habitat type area and Natura 2000 habitat area

The combined Natura 2000 habitat area should not exceed the total Annex I habitat area. None of them should be bigger than the land area or land sealed area.

32% of Annex I habitat area reported in FI is covered by the Natura 2000 network. Overall, Annex I habitat area reported is just over 37% of the land area (minus the sealed area).

For further details see the online statistics here.