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

SI

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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]:

[1] The list is not exclusive

- 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
- 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 SI

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:

All SI habitat reports could be compared between Article 17 and Natura 2000 database end_2018. Half of these reported an area in the Natura 2000 database as less than or equal to the Article 17 area (EU average 74.9%). The next largest proportion were reported in the category where the area in the Natura 2000 database is greater than 2 times that reported in Article 17 (26.7%, EU average 9%). 20% had a Natura 2000 habitat area of 1 to 1.5 times the Article 17 area (EU average 13.1%) while a small

proportion reported the Natura 2000 database area as 1.5 to 2 times greater than the Article 17 area (3.3%, EU average 3%).

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

As above, all habitat reports for Natura 2000 area were comparable between the Article 17 report and the Natura 2000 database.

The majority of habitats reported a Natura 2000 area from the Natura 2000 database in the 2 categories: as lower than the Natura 2000 area reported in the Article 17 report (45%, EU average 46.2%), or more than 2 times greater than the Natura 2000 area reported in Article 17 (35%, much greater than the EU average of 14%).

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 8.1 % of all species reported in SI 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 only 9.1% reported a species population value in Natura 2000 as smaller than or equal with that reported in Article 17, being the minimal value in EU, far distant from average of 80.5%. The remaining 91% of species reported a Natura 2000 population greater than the Article 17 population, 54% more than twice larger, again being the most different value among member states (EU average of 19.4%).

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

The comparison of Natura 2000 species populations reported in Article 17 and Natura 2000 database reveals the same proportion of comparable values : 8.1%.

Of this small comparable proportion, the majority 91% of species report a population in Natura 2000 greater than in Article 17, percentage high above the EU mean of 32.5%. The 9.1% of species report a population in Natura 2000 smaller than that in Article 17, below 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%). Also, there is the EU-highest proportion of more than twice higher values from SDF (63.6% comparing to the EU mean 12%).

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 59% 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, 23.5% report a larger population in Natura 2000 than the national population reported in Article 12, which is higher than the EU average of 20%. the majority of records reporting a higher population is reported with a population of >2 times that in Article 12 (13%, EU average 8.1%).

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, a lower proportion of species could be compared: 35.9%.

Of this comparable proportion, 9.6% of species reported an equal population in Natura 2000 and Art 12, higher than the EU average of 3.2%. 51.9% 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%. The majority of records reporting a higher population are reported as 1 to 1.5 times greater than the Article 12 population (30.8%, EU average 18.1%). 38.5% 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 largest proportion of missing mandatory information seen with SI habitats is with the freshwater habitat group (8.3%, EU average 12.3%).

Where expert opinion is reported the highest proportion is seen with rocky habitats (56%, EU average 26.2%) and the forest habitat group (51.5%, EU average 22.4%). The highest reporting of insufficient data is seen with freshwater habitats (11.5%, EU average 18.4%).

Non-bird species

The majority of missing mandatory information for any species group occurred with molluscs (34.9% of mandatory fields missing information, EU average 19.7%) and amphibians (30.7%, EU average 16.3%).

All species groups reported either the 'short-term population trend' or 'short-term population trend in the network' as the two fields with the highest proportion of missing/unknown information. For reptiles there is no information available on short-term trend inside the network (EU average 59.4%).

The species groups with the highest percentage of 'expert opinion' as used method while filling in the fields on main results of surveillance are reptiles (91%) and mammals (45.8%), which is higher than the relevant EU average (27.5% and 26.8%, respectively). Those indicated with 'insufficient data' are other molluscs (32.1%) and nonvascular plants (36.7%) breaking one third threshold, both values not far from EU average (26.3%, 30.1%).

Bird species

The bird groups falcons, passerines and pigeons & doves are those which report the highest proportion of missing information across all mandatory fields in the reporting format (28.6%, 27.3% and 26.5% of all fields, respectively). This is higher than the respective EU averages of 15.2%, 13.9% and 16.6%.

Two bird groups primarily missing mandatory information for wintering species (trend information) are the Hawks & Eagles (100% missing for both short and long-term trends), grebes (50% missing for short-term trends) and waders, gulls and auks (33.3% missing for short-term trend and 11.1% missing for long-term trend). No groups have missing information on hunting bags. A high proportion of missing information on the short-term trend within the SPA network (e.g. > 50% missing) is seen with species groups hawks & eagles and grebes, although also reported in smaller proportions with other groups. Several species groups reported the trends in breeding population as missing: >50% missing for one or other, cranes, rails, gallinules & coots, owls, falcons, herons, pelicans, ibises & spoonbills, owls, passerines, pigeons & doves, swifts & nightjars and woodpeckers.

Where expert opinion is reported as a method used, the highest proportion is seen with hawks and eagles (21%, EU average 26%). Insufficient data is reported for 50% of cuckoo species (EU average 73%).

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

For the area parameter, the highest reporting of expert opinion for SI habitats is seen with heath & scrub (50%, EU average 14.1%) and rocky habitats (27.3%, EU average 18.9%).

The structure and function parameter report a higher proportion of the methods partial estimate and absent data than area. Forests (76.5%, EU average 14.1%), rocky habitats (54.5%, EU average 22%) and heath and scrub (50%, EU average 19.6%) report the highest proportion of expert opinion. There is no information on the method used for 4 freshwater habitats (25%, EU average 19.7%), 2 bogs, mires & fens habitats (18.2%, EU average 15.3%) and 1 grassland habitat (5.6%, EU average 14.7%).

Non-bird species – methods used

The complete survey is used only scarcely for the population and habitat parameter; frequently (26,8%, EU average 19,1%) for mammal populations. Partial estimate is the most frequent method used for the population parameter and habitat of the species across all other species groups (maximum value population of amphibians 88,9%, EU average 62,4%). Expert opinion is most frequently used among reptiles (96,4% population, 92,9% habitat; EU average 29,5%, resp. 27,7%).

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 no issues seen with reporting the main reason for change with SI habitats.

Non-bird species

For all species groups, there are no issues regarding reasons of change, which is an exceptional flawless situation among member states.

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

In SI, all habitat groups, except sclerophyllous scrubs, identify conservation measures as needed but not yet taken. The highest proportion of reporting this status is freshwater habitats (68.6%, EU average 26.8%), coastal habitats (66.7%, EU average 28.2%) and heath & scrub (50%, EU average 17.2%). Freshwater habitats also report a small proportion of habitat reports where conservation measures are needed but cannot be identified (12.5%, EU average 2.3%).

All bog, mires & fens habitat reports (2) list restoration of structure and functions as the main purpose of the measures. Coastal habitats and freshwater habitats list the main purpose as to maintain the current range (4 and 1 habitat reports, respectively).

Non-bird species

Species where measures are needed but cannot be identified are only two species of vascular plants (5.6%, EU mean 6.5%). The groups with the highest percentage of measures needed but not yet taken are fish (89.4%, EU mean 40%), vascular plants (47.2%, EU mean 27.5%), and molluscs (41.7%, EU mean 34.8%).

The majority of measures intend to maintain the current status (in plants, reptiles and other invertebrates exceeding 80%). The restoration of the habitat for the species is reported mostly for fish, amphibian and mollusc species. Measures were taken also to expand the current range, often by vascular plants, mammals, amphibians, arthropods and fish (in total in 81 species).

Bird species

Breeding: For the majority of breeding species reported in SI measures were reported as needed and taken.

Wintering: For the majority of wintering species in SI it was reported that conservation measures were needed and taken.

Passage: For the majority of species reported in SI it was indicated that measures were needed and taken.

Restoration measures taken for the habitat of the species seem to concern only hawks & eagles, passerines and pheasants, partridges & grouse (12.5%, 42.9%, 20% and 25% respectively, of the total number of records on the main purpose of measures that have been applied, EU mean 2.3%, 15.2%, 11.4% and 1.9%), whereas measures to increase the population size or improve the dynamics as well as measures to expand the current range, were not taken for any of the species.

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

For the range parameter, all coastal habitats report the actual favourable reference and all remaining habitat groups report ≈. Where >> is reported, this is with freshwater habitats (25%) and rocky habitats (9.1%). Where > is used this is seen with bogs, mires & fens (18.2%) and forests (17.6%).

The operators > and >> are reported more frequently under the area parameter, especially for grasslands: more than 44.4%, much more than 22.2%, freshwater habitats: > 25%, >> 37.5% and bogs, mires & fens: > 27.3%, >> 36.4%. The actual favourable reference value is reported for 75% of coastal habitats.

Non-bird species

SI used operators, significant proportion of favourable reference range of mammals, molluscs, non-vascular plants and reptiles had been reported with the actual value (39%, 25%, 22%, 46%), nevertheless the operator ≈ (in fact also an actual favourable reference value) was the most frequently used.

Favourable reference population was set with actual value in most (46%) of the cases of vascular plants, and often (20,3%) of arthropods. The operator ≈ was frequently (57%) used among reptiles. Fish, mammals and vascular plants favourable reference population at ≈ level was used also in a high number of cases (35%, 37%, 40%).

Highest proportions of unknown values were reported in the population of non-vascular plants, amphibians and molluscs (67%, 56%, 50%, respectively).

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.

Overall, SI report a high proportion of equal habitat areas between habitat condition and the area covered by the habitat. The habitats within the groups: forests, grasslands, heath & scrub, rocky habitats and sclerophyllous scrubs, report 100% of habitats with the same habitat condition and area covered by the habitat. The remaining groups report an equal relationship: from 93.8% (freshwater habitats) to 83.3% (coastal habitats).

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.

45% of the Annex I habitat area reported by SI is covered by the Natura 2000 network. Almost 50% of the land area (minus the sealed area) is covered by Annex I habitat.

For further details see the online statistics here.