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

ES

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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 ES

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:

92% of habitats reported by could be compared with information in the Natura 2000 database. Of this comparable proportion, the majority reported a Natura 2000 area as equal to or less than the Article 17 area (66.7%, EU average 74.9%). This is followed by 16.2% (EU average 13.1%) where the Natura 2000 habitat area is reported as 1 to 1.5 times the Article 17 area and 13.7% (EU average 9%) where the Natura 2000 area is >2 times the Article 17 area.

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

From the comparison of the Natura 2000 habitat area reported in Article 17 and that reported in the Natura 2000 database, the majority 41.9% (EU average 32.7%) report a higher area in the Natura 2000 database than in the Article 17 report (higher between 1 and 1.5). This is followed by 32.5% (EU average 46.2%) of habitats which report a Natura 2000 area less than the Natura 2000 area in Article 17. As above, the next largest proportion of habitats report a Natura 2000 area as >2 times the Natura 2000 area reported in Article 17 (20.5%, EU average 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 25.6% of all species reported in ES 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, 91.4% 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 8.6% 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, 25,6% of species records could be compared between the datasets based on the criteria noted above.

Of this comparable proportion, 20.3% of species report a population in Natura 2000 greater than in Article 17, percentage that is smaller than the EU mean of 32.5%. The remaining 72.7% of species report a population in Natura 2000 smaller than that in Article 17, which is higher than the EU mean of 64.5%. 7% 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 14% 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, 19.3% 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: 13.6%.

Of this comparable proportion, 0.7% of species reported an equal population in Natura 2000 and Art 12, similar to the EU average of 3.2%. 30% 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 69.3% report a lower population in Natura 2000 than in Article 12 report, which is higher 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 for habitat groups in ES is seen with rocky habitats (34.5%, EU average 10.7%), coastal habitats (34.5%, EU average 12%) and freshwater habitats (32.3%, EU average 12.3%). The highest proportion of missing information is seen for the parameter short-term trend inside the network for rocky habitats (81%, EU average 32.9%), future prospects of structure and functions for coastal habitats (80.6%, EU average 20.3%), also future prospects of structure and functions for freshwater habitats (74.2%, EU average 17.1%).

Expert opinion is reported most frequently as the method used for the habitat group forests (34.4%, EU average 22.4%). Insufficient data is reported most frequently for bogs, rocky habitats (34.8%. EU average 16.6%) and freshwater habitats (32.9%, EU average 18.4%).

Non-bird species

A high proportion of missing mandatory information was spotted in other invertebrates (36.2%) and non-vascular plants (27.7%). The highest proportion of missing mandatory information for other invertebrates is the status of habitat for the species (missing 87.5%, EU average 44.4%), sufficiency of occupied habitat (missing 75%, EU average 42.9%), short-term trend of habitat for the species (missing 75%, EU average 51.7%) and short-term population trend (missing 75%, EU average 65.1%). Arthropods, fish and molluscs had a very low proportion of missing obligatory values.

The highest reporting of expert opinion as the method used is seen with arthropods (42.4%) and insufficient data with non-vascular plants (27.7%).

Bird species

The bird groups petrels, storm-petrels & shearwaters, loons or divers, gannets & cormorants and passerines are those which report the highest proportion of missing information across all mandatory fields in the reporting format (24.6%, 20.8%, 14.5% and 12.9% of all fields, respectively). This is higher than the respective EU averages of 22.7%, 18.9%, 17.1% and 16.6%.

Three bird groups with primarily missing mandatory information for wintering species (trend information) are the loons or divers and the owls. The groups with the majority missing information

on hunting bags are ducks, geese & swans and waders, gulls & Auks (27.3% and 20%, respectively). A high proportion of missing information on the short-term trend within the SPA network is seen with species groups gannets & cormorants, kingfishers, rollers, bee-eaters & hoopoe, loons or divers, petrels, storm-petrels & shearwaters and waders, gulls & auks. Several species groups reported the long-term trend in breeding population as field largely missing or unknown (cranes, rails, gallinules & coots, ducks, geese & swans, falcons, gannets & cormorants, hawks & eagles, herons, pelicans, ibises & spoonbills, kingfishers, rollers, bee-eaters & Hoopoe, owls, passerines, petrels, storm-petrels & shearwaters, pheasants, partridges & grouse, pigeons & doves, waders, gulls & auks and woodpeckers).

Where expert opinion is reported, this is seen in the highest proportion with grebes (25%, EU average 29%). The highest proportion of insufficient data is seen with petrels, storm-petrels & shearwaters (41.7%, EU average 52%).

ESIC

In the case of ESIC, the bird groups owls, swifts & nightjars, pheasants, partridges & grouse are those which report the highest proportion of missing information (50%, 50% and 43.5% of all fields, respectively). This is higher than the respective EU averages of 16.3%, 16.5 and 14.6%.

A bird group with primarily missing mandatory information for wintering species (trend information) are the waders, gulls and auks. The groups with the majority missing information on hunting bags are, pheasants, partridges & grouse (100%, EU average 9%), pigeons & doves (100%, EU average 16.1%) .A high proportion of missing information (i.e. above 50%) on the short-term trend within the SPA network is seen with species groups petrels, storm petrels and shearwaters, waders, gulls and auks, pigeons & doves, woodpeckers, pheasants, partridges and grouse, passerines, and falcons. All species groups report a high proportion of missing information missing for both the long-term and short-term breeding population trend.

Where expert opinion is reported, this is seen in a high proportion with kingfishers, rollers, bee-eaters and hoopoes (83%, EU average 48%). Some of the groups indicated with 'insufficient data' in the methods field are the owls (83.3%, EU average 43%), swifts & nightjars (83.3%, EU average 41%).

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, ES reports mainly partial estimates as the method used for assessing for all habitat groups. Only dune habitats report a higher proportion of complete survey. Expert opinion is also seen in all habitat groups ranging from 3.1% in grasslands (EU average 11.7%) to 19% for rocky habitats (EU average 18.9%).

Insufficient/no data for the methodology for structure and functions is an issue for all habitat groups but especially for freshwater habitats, heath & scrub and rocky habitats (all >60% of habitats report this) and bogs, mires & fens, coastal habitats, dune habitats (all > 50%).

Data quality in the methods used for the parameters appears to be a bigger issue for the structure and function parameter than the area parameter for ES habitats.

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 9,8% (arthropods) to 54% (vascular plants) - EU average (15.9% for arthropods, 44.9% for vascular plants); partial estimate - from 25% (non-vascular plants) to 84.1% (amphibians) - EU average 40.1% for non-vascular plants and 62.4% for amphibians. Expert opinion is most frequently used among arthropods (52.5%). For teh habitat of the species expert opinion is the most used method.

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 completing the change and reason for change with regards to habitats reporting in ES in terms of determining a main reason for change. This field was completed as expected.

Non-bird species

There were 117 cases where no reason for change was filled in. These cases concerned mostly the overall CS (29.9%, EU average 32.1%), overall CS trend (37.6%, EU average 39.9%), population (18.8%, EU average 15.7%), range (13.7%, EU average 12.3%). There were no cases where more than one reason was filled in.

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

There is a high proportion of reporting measures needed but none yet taken for ES habitats (47.6% - 21.4%). The highest proportion of reports is seen with rocky habitats (47.6%, EU average 17.1%), freshwater habitats (45.2%, EU average 26.8%) and sclerophyllous scrub (26.8%, EU average 15.6%).

There was minimal reporting where measures were needed but could not be identified: just 1 habitat each for forests and freshwater habitats.

Where restoration of structure and functions was the main purpose of the measures, this is seen with the habitat groups freshwater habitats (60%, EU average 27.5%) and forests (54.1%, EU average 29.5%). For the remaining habitat groups, maintain the current range is the main purpose for the measures.

Non-bird species

Species where measures are needed but cannot be identified are mostly found with the groups: non-vascular plants (23.1%, EU average 4.4%), amphibians (13.9%, EU average 2.6%) and reptiles (11.3%, EU average 3.1%). The groups with the highest percentage of measures needed but not yet taken are arthropods (63.8%, EU average 20.2%), fish (47.6%, EU average 40%), mammals (42.3%, EU average

12.5%) and vascular plants (46.3%, EU average 27.5%). For most of the species groups, measures are needed and have been taken.

The vast majority of measures intend to maintain the current status. The restoration of the habitat for the species is reported primarily for amphibians (52.4%, EU average 14.8%), fish (38.1%, EU average 13.8%), molluscs (14.3%, EU average 17.8%) and reptiles (11,8%, EU average 3.3%).

Bird species

Breeding: For most of the breeding species reported in ES, measures were reported as needed and taken, the second most reported category was needed and not taken and the third was not needed. None of the breeding species were reported in the category of conservation measures needed but not identified.

Wintering: For the majority of wintering species in ES it was reported that conservation measures were needed and taken, the second most reported was needed and not taken and the third was not needed.

Passage: For most of the species in ES it was reported that measures were needed and taken and second, needed but not taken. The third most reported was needed but not identified and only four species were indicated with measures not needed.

Restoration measures taken for the habitat of the species seem to concern falcons, pheasants, partridges & grouse and waders, gulls & auks (14.3%, 33.3% and 23.6% of the total number of records on the main purpose of measures that have been applied, EU mean 1.8%, 11.4% and 11.1% respectively), whereas measures to increase the population size or improve the dynamics concern mostly gannets & cormorants, kingfishers, rollers, bee-eaters & hoopoe and petrels, storm-petrels & shearwaters (100% for each, EU mean 14.8%, 37.5% and 29.2% respectively). Measures to expand the current range concern woodpeckers (100%, EU mean 5.8%).

ESIC

Breeding: For most of the breeding species reported in ESIC, measures were reported as not needed. None of the breeding species were reported in the category of conservation measures needed but not identified. Where measures are needed but not yet taken, this is seen with herons, pelicans, ibises and spoonbills (33.3%), petrels, storm petrels and shearwaters (28.6%) and waders, gulls and auks (20%).

Wintering: None of the wintering species in ESIC were reported with conservation measures.

Passage: Only two groups of passage species in ESIC were reported, indicating conservation measures as not needed.

Restoration measures taken for the habitat of the species seem to concern only pigeons and doves (100% of the total number of records on the main purpose of measures that have been applied, EU mean 33.3%), whereas measures to increase the population size or improve the dynamics concern mostly bustards, hawks & eagles (100% for each, EU mean respectively). Measures to expand the current range concern woodpeckers (100%, EU mean 53.3% and 33.5% respectively).

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 a high proportion of reporting unknown (x) for the favourable reference range in ES across all habitat groups. The highest is seen with: freshwater habitats (48.4%), bogs, mires & fens (35.3%) and

sclerophyllous scrub reports (31.6%). > is also reported, the highest proportion seen with bogs, mires & fens (29.4%), coastal habitats (13.9%) and sclerophyllous scrub (10.5%).

Regarding the favourable reference area, the groups reporting the highest proportion of unknown (x) are: coastal habitats (58.3%), heath & scrub (46.7%), bogs, mires & fens (41.2%) and freshwater habitats (41.9%). >> is only seen for sclerophyllous scrubs (5,3%, 1 habitat) and the highest reporting of > is seen with forests (42.9%).

Freshwater habitats and bogs, mires & fens habitat are the 2 habitat groups with a high reporting of unknown (x) across both the range and area parameters for favourable reference values.

Non-bird species

For the parameter range, the highest share of unknown (x) was reported for non-vascular plants (38.5%) and other invertebrates (37.5%). The operator >> had a high share among molluscs (38.9%) and fish (22.6%).

For the favourable reference population, the highest share of unknown value was reported for non-vascular plants (50%) and mammals (17.7%). The operator >> had a high share among molluscs (5.6%) and non-vascular plants (7.7%). Most of the values were given as actual values.

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.

In ES, the proportion of habitat reports with an equal habitat condition area to the area covered by the habitat range from heath & scrubs (73%, EU average 59.8%) to forests (32.1%, EU average 56%).

Both the forest group (30.4%, EU average 15.7%) and the dune habitat group (30%, EU average 21.5%) report the highest proportion of habitat condition area as greater than the area covered by the habitat.

The bogs, mires & fens group (41.2%, EU average 28.5%) and the forest habitat group (37.5%, EU average 25.2%) report the highest proportion where the habitat condition area is lower than the area covered by the habitat.

The freshwater habitat group is the only group that does not provide all the information for this analysis (3.23%, EU average 4.8%).

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.

ES reports 49% of Annex I habitat area as being covered by the Natura 2000 network. Annex I habitat area reported by ES comprises 34% of land area (minus the sealed area).

For further details see the online statistics here.