



Data quality coherence check

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

Fact sheet

LU

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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 Article 17 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 purposes¹:

- assessing and enhancing completeness of the Natura 2000 network (Natura 2000 sufficiency assessments)

¹ The list is not exclusive

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 LU

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 habitat types reported by LU were comparable between the Article 17 report and the Natura 2000 database end_2018.

Of this comparable proportion, it was found that for 75% of the habitats, the habitat area reported within Natura 2000 was smaller than or equal with that reported in Article 17. This compares with an EU average of 74.9%.

For the remaining 25% of habitats, the reported habitat area in Natura 2000 was greater than that reported in Article 17, which is almost equal to the EU average of 25.1%. Of these records, approximately two thirds (14,3%) reported an area in Natura 2000 > 2 times the Article 17 area.

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

For the comparable proportion of habitats between the Natura 2000 database and the Natura 2000 area reported in Article 17, it is seen that the majority of habitats report a smaller area in the Natura 2000 database (53.6%, EU average 46.2%). The remaining report a Natura 2000 database area of 1 to 1.5 times the Article 17 habitat area (25%, EU average 32.7%) or more than 2 times greater than the Natura 2000 area reported in Article 17 (17.9%, EU average 14.2%).

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:

17.14% of all species reported in LU 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, 83.33% reported a species population value in Natura 2000 as smaller than or equal with that reported in Article 17, which is similar to the EU average of 80.5%. The remaining 16.67% of species reported a Natura 2000 population greater than the Article 17 population, which is slightly lower 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, only 17.14% of species records could be compared between the datasets based on the criteria noted above.

Of this small comparable proportion, 16.67% of species report a population in Natura 2000 greater than in Article 17, percentage that is lower than the EU mean of 32.5%. The remaining 83.33% of species report a population in Natura 2000 smaller than that in Article 17, which is higher 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 28% 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, 23.4% report a larger population in Natura 2000 than the national population reported in Article 12, which is lower than the EU average of 20%. 17% of records reporting a higher population are in the category of 1 to 1.5 times the Natura 2000 population.

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: 20.6%.

Of this comparable proportion, 48.8% 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%. There is an equal proportion of records reported with a population of 1 to 1.5 times the Article 12 population and >2 times the Article 12 population (20.9%). 56.1% report a lower population in Natura 2000 than in Article 12 report, which is similar 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

LU has a low reporting of missing mandatory information across all habitat groups: bogs, mires & fens (2.2%, EU average 9.7%), freshwater habitats (1.1%, EU average 12.3%), rocky habitats (2.9%, EU average 10.7%).

Both expert opinion and insufficient data as the method used are reported in low proportions: the highest seen for expert opinion is with sclerophyllous scrub (18.8%, EU average 29.7%), insufficient data is reported only for rocky habitats (2.9%, EU average 16.6%).

Extrapolation is the method reported in the highest proportion for all habitat groups.

Non-bird species

The majority of missing mandatory information for any species group occurred with reptiles (11.1% of mandatory fields missing information) and arthropods (8.3%). This is lower than the EU average for reptiles and arthropods (both 18.9%).

All species groups reported either the 'short-term population trend' or 'future prospects' as the two fields with the highest proportion of missing/unknown information. The groups which reported the highest percentages of missing/unknown information for both these fields are: arthropods, amphibians, fish, mammals and reptiles.

The species groups with the highest percentage of 'expert opinion' as used method while filling in the fields on main results of surveillance are mammals (48.6%) and fish (31.8%), which is higher than the

relevant EU average (26.8% and 22.4%, respectively). Those indicated with 'insufficient data' are mammals (10.1%) and arthropods (8.3%). The percentage is lower than the EU average (17.5% and 19.3%, respectively).

Bird species

The bird groups swifts & nightjars, owls and waders, gulls & auks are those which report the highest proportion of missing information across all mandatory fields in the reporting format (15%, 10.9% and 10.1% of all fields, respectively). This is higher than the respective EU averages of 16.5%, 16.3% and 15.4%.

Bird groups reporting missing mandatory information for wintering species (trend information) are owls, waders, gulls & auks, hawks & eagles, and cranes, rails, gallinules & coots (all 100% missing information). None of the groups have missing information on hunting bags. A high proportion of missing information on the short-term trend within the SPA network is seen with species groups falcons, pheasants, partridges & grouse (all >50%). Where the long-term trend in breeding population is reported as missing or unknown, this is seen mostly with pigeons & doves (60%), waders, gulls & auks (66.7%), but also with cranes, rails, gallinules & coots, owls, passerines, and woodpeckers (<50% missing information).

Where expert opinion is reported this is seen mostly with waders, gulls and auks (65%, EU average 21%). The highest reporting of insufficient data is with waders, gulls & auks (10.2%, EU average 23%).

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 majority of assessments for structure and functions are based on partial estimate, the exception being sclerophyllous scrub where complete survey was used for all habitats reported (100% 2 habitats, EU average 18.9%). Expert opinion was used only in 1 habitat report for this parameter for rocky habitats (16.7%, EU average 22%).

For the area parameter, partial estimate is the main method used for assessment: this is seen in 100% of reports for all habitat groups, except freshwater habitats (75%, EU average 56.3%) and sclerophyllous scrub (50%, EU average 57.4%). Where complete survey is used, this is with 1 freshwater habitat and 1 sclerophyllous habitat.

Non-bird species – methods used

The majority of the assessments for the species population are based on partial estimate followed by complete survey. The species group with the highest share of complete survey are vascular plants (100%, EU average 44.9%) and arthropods (40%, EU average 15.9%).

The majority of assessments on habitat of the species are based on partial estimate followed by expert opinion. The species group with the highest share of partial estimate are non-vascular plants (100%, EU average 7.5%) and other invertebrates (100%, EU average 28.6%).

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 for any parameter for any habitat report in LU.

Non-bird species

For all species groups, the population parameter showed the highest share of cases where no reason was filled in for the change and reason for change (80% of a total of 5 cases, EU average 15.7%).

The species groups where reason for change was not filled in for some parameters are identified are mammals, molluscs and vascular plants. There were no cases where more than one reason was filled in. There were no coherence issues with the selected reasons for change.

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

All habitat reports in LU report that the conservation measures needed have been taken.

Of these, all bog, mires & fens habitats (2 habitats) list the restoration of structure and functions as the main purpose of the measures (EU average 25.5%). A high proportion of forest habitats (57.1%, EU average 29.5%) and half of grasslands (EU average 11.4%), rocky habitats (EU average 12.3%) and sclerophyllous scrubs habitats (EU average 17.1%) also report restoration as the main purpose.

Non-bird species

The groups with the highest percentage of measures needed and taken are fish (100%, EU average 46.3%), molluscs (100%, EU average 40.5%) and both vascular and non-vascular plants (100%, EU average 49.4% and 44.2%). The groups with the highest percentage of measures not needed are reptiles (100%, EU average 57%) and amphibians (66.7%, EU average 54.1%).

Restoration measures taken for the habitat of the species seem to concern for example mammals (50% of the total number of records on the main purpose of measures that have been applied, EU average 7.4%), whereas measures to increase the population size or improve the dynamics concern mostly non-vascular plants (100%, EU average 4.4%) and mammals (12.5%, EU average 11.2%). Expand the current range measures concern mostly amphibians (50%, EU average 3.9%) and mammals (25%, EU average 2.8%).

Bird species

Breeding: For the majority of breeding species reported in LU measures were reported as needed and taken, the second most reported category was not needed.

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

Passage: For the majority of the species it was reported that measures were needed and taken, the second most reported case was as not needed.

Restoration measures taken for the habitat of the species seem to concern mostly pigeons & doves and swifts & nightjars (100% for each, of the total number of records on the main purpose of measures that have been applied, EU mean 50% and 15.4%), whereas measures to increase the population size or improve the dynamics concern mostly falcons and kingfishers, rollers, bee-eaters and hoopoe (100% for each, EU mean 33.9% and 37.5%, respectively). Measures to expand the current range concern passerines and waders, gulls & auks (10% and 12.5%, EU mean 3.9% and 1.4%).

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

For the range parameter, the >> operator is used for 1 habitat in each of the 4 habitat groups bogs, mires & fens, freshwater habitats, forests and sclerophyllous scrubs. The > operator is used only in the freshwater habitat group, grasslands and heath & scrub. The ≈ operator is more frequently used e.g. for all rocky habitats (6 habitats), 85.7% of forest habitats (6 habitats), 66.7% of grassland habitats (also reported for bogs, mires & fens, freshwater habitats and sclerophyllous scrubs).

For the area parameter, the >> operator is reported for 1 freshwater habitat (25%) and 1 forest habitat (14.3%). > is more frequently reported: 75% in freshwater habitats (3), 50% for bogs, mires & fens and sclerophyllous scrubs habitats (1 habitat each) and 16.7% of grassland habitats. Both ≈ and the actual favourable reference value are used for area: all rocky habitats (100%, 6 habitats) use ≈, the one sclerophyllous scrub habitat and 66.7% of grassland habitats report an actual value as well as 50% of both sclerophyllous scrub and bogs, mires & fens (1 habitat in each group).

Non-bird species

For the parameter range, the highest share of ≈ was reported for mammals (72.7% of the values for the species group), followed by fish and non-vascular plants (both 50%). The operator >> had a high share among fish (50%) – but also used with vascular and non-vascular plants, arthropods and mammals (for 1 species in each group).

For the favourable reference population, the only share of unknown values (x) was with mammals (9.1%). The operator >> had a high share among fish (50%) and molluscs (66.7%).

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.

LU does not report a high proportion of equal habitat areas for habitat condition and area covered by the habitat. Only the groups sclerophyllous scrub (50%, EU average 54.4%), freshwater habitats (25%, EU average 50.6%) and rocky habitats (16.7%, EU average 55%) report this.

In general, for LU, the habitat condition area is reported as lower than the total habitat area for most habitat groups. The exception to this is the forest habitat group where 85.7% of reports have a higher habitat condition area (EU average 15.7%).

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.

Just over 35% of Annex I habitat area reported by LU is covered by the Natura 2000 network. 18% of the land area (minus sealed area) is covered by Annex I habitat.

For further details see the online statistics [here](#).