Assessment and reporting under Article 17 of the Habitats Directive

Explanatory Notes & Guidelines for the period 2007-2012

Final Draft

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CONTENTS

Roman numbers are used for sections of guidelines while Arabic numbers are used for sections of the reporting format

GLOSSARY OF TERMS & ABBREVIATIONS

Term / Abbreviation	Meaning
Annex	The agreed reporting forms and assessment matrices given in the annexes of DocHab.
Appendix	Additional information to fill in the format available in the online Art.17 reference portal.
Conservation Status	The result of an evaluation of the status of a species or habitat type at the scale of a biogeographical or marine region using the assessment matrix based on 4 parameters.
Field	Section of the reporting format where information is entered, may be numeric or text.
FCS	Favourable Conservation Status
FRA	Favourable Reference Area
FRP	Favourable Reference Population
FRR	Favourable Reference Range
FRV	Favourable Reference Value
Habitat	Many different definitions exist; here it is used to mean the requirements of a species ('habitat for the species').
Habitat type	An area with uniform biological conditions (species composition, physical factors), synonymous with biotope type. In this document it is usually one of the habitat types listed on Annex I of the Habitats Directive.
MSFD	The EU Marine Strategy Framework Directive (see http://ec.europa.eu/environment/water/marine/index_en.htm).
Operator	An inequality (> or >>) to indicate that a FRV is unknown but greater than (or much greater than) the present day value.
Parameter	One of the 4 components of Conservation Status; - range, area, structure & function & future prospects (habitats); range, population, habitat for species & future prospects (species).
Pressure	Activity impacting a species/habitat type during the reporting cycle.
pSCI	Site proposed by a Member State as a Site of Community Importance but not yet included on a Community List.
Qualifier	'+' (plus), '=' (stable) or '-' (minus) added to an assessment of Conservation Status' (or parameter) to indicate 'but improving', 'stable' or 'but declining'. For example 'U1+' means 'Unfavourable-Inadequate but improving' while 'U2=' indicates 'Unfavourable-Bad but stable'.
Region	Biogeographical or marine region
SAC	Special Area of Conservation – site designated under the Habitats Directive.
SCI	Site of Community Importance – site accepted and published on a Community List.
SDF	Standard Data Form – used to describe each Natura 2000 site.
Threat	Activity expected to have an impact on a species/habitat type in the future.
WFD	The EU Water Framework Directive (see http://ec.europa.eu/environment/water/water-framework/index_en.html).

I INTRODUCTION

Article 17 section 1 of the Habitats Directive[1] states

> *"Every six years from the date of expiry of the period laid down in Article 23, Member States shall draw up a report on the implementation of the measures taken under this Directive. This report shall include in particular information concerning the conservation measures referred to in Article 6 (1) as well as evaluation of the impact of those measures on the conservation status of the natural habitat types of Annex I and the species in Annex II and the main results of the surveillance referred to in Article 11. The report, in accordance with the format established by the committee, shall be forwarded to the Commission and made accessible to the public."*

The Directive asks for reports every six years and demands that the European Commission then produce a consolidated EU report (The 'Composite report'[2]) based on the national reports. The reporting format aims to standardize the reports to allow the aggregation of national data to produce the EU report.

The first report in 2000 focused on implementation of the Directive but the second report in 2007 (covering the period 2001-2006) was focused on the conservation status of the species and habitat types listed by the Directive. A guidance document was published in 2006 to assist Member States and to try to ensure harmonised data where possible. During the compilation of the Commission 'Composite Report'[3] and assessments made by the ETC/BD for the Technical Report[4] it became clear that both the reporting format and the guidance published in 2006 needed to be improved and the Member States were asked to report on their experiences and difficulties.

This revised guidance for the reporting period 2007-2012 attempts to ensure a harmonised use of the reporting format by all Member States, which will enable a better compilation and analysis of the data received on EU-level. Examples are provided to guide those undertaking assessments, in some cases two or more differing approaches are given to allow for variation in data availability or differing national circumstances.

Further guidance may be necessary for specific topics at a later stage. This version revises the guidance published in 2006 and takes into account comments received from Member States following discussions by the Expert Group on Reporting and the Habitats Committee. As such, the document reflects the views of the Commission services and is not of a binding nature.

The guidance document is divided into 2 major sections:

- Explanatory notes: the first 5 chapters cover the concepts and methods which are used in the assessments of conservation status.

[1] Council Directive 92/43/EEC
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:01992L0043-20070101:EN:NOT
[2] The report for 2001-2006 can be found at
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009DC0358:EN:NOT
[3] http://ec.europa.eu/environment/nature/knowledge/rep_habitats/docs/com_2009_358_en.pdf
[4] http://biodiversity.eionet.europa.eu/article17

- Step-by-step guidance on how to complete the reports: chapter VI gives field by field advice.

The guidance ends with a series of appendices of additional information including examples and references.

An Article 17 Reference Portal[5] has been created where further information including tables of codes, checklist of species and habitat types etc. can be found that are needed for the filling of the formats. This will also be used for updates if necessary.

The ETC/BD is planning to establish a Frequently Asked Questions for Article 17 reporting on its website if a need becomes evident. This could help with practical questions which Member States may have after the guidelines are finalised.

[5] http://biodiversity.eionet.europa.eu/article17/reference_portal

II CONCEPTS, DEFINITIONS AND METHODS

II.a CONSERVATION STATUS

'Favourable Conservation Status' (FCS) is the overall objective to be reached for all habitat types and species of community interest and it is defined in Article 1 of the Habitats Directive. In simple words it can be described as a situation where a habitat type or species is prospering (in both quality and extent/population) and with good prospects to do so in future as well. The fact that a habitat or species is not threatened (*i.e.* not faced by any direct extinction risk) does not mean that it is in favourable conservation status. The target of the directive is defined in positive terms, oriented towards a favourable situation, which needs to be defined, reached and maintained. It is therefore more than avoiding extinctions. Favourable Conservation Status is assessed across all national territory (or by biogeographical or marine region within a country where 2 or more regions are present) and should consider the habitat or species both within the Natura 2000 network and in the wider countryside or sea. Favourable Conservation Status is defined in the Habitats Directive (Article 1e for habitats and Article 1i for species).

> *The conservation status of a natural habitat will be taken as 'favourable' when:*
> *—its natural range and areas it covers within that range are stable or increasing, and*
> *—the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and*
> *—the conservation status of its typical species is favourable as defined in (i);*
> *(Article 1e)*
>
> *The conservation status will be taken as 'favourable' when:*
> *—population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
> *—the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
> *—there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis;*
> *(Article 1i)*

The Habitats Directive requires periodic assessment of the species and habitat types to see if they are at FCS. For reporting under Article 17 a format with three classes of Conservation Status has been adopted; - Favourable (FV), Unfavourable-Inadequate (U1) and Unfavourable-Bad (U2). 'Favourable Conservation Status' is defined in the Directive and effectively describes the situation where the habitat or species can be expected to prosper without any change to existing management or policies. The unfavourable category has been split into two classes to allow improvements or deterioration to be reported: 'Unfavourable-Inadequate' for situations where a change in management or policy is required to return the habitat type or species to favourable status but there is no danger of extinction in the foreseeable future and 'Unfavourable-Bad' is for habitats or species in serious danger of becoming extinct (at least regionally). There is also an 'Unknown' class which can be used where there is insufficient information available to allow an assessment. For graphical representation, each class is colour coded, green for Favourable, amber for Unfavourable-Inadequate', red for Unfavourable-Bad and grey for unknown. Assessments should be qualified with a plus or minus to indicate a trend (improving or declining) as described below in section IId.

As habitat types and species were selected because they were thought to be threatened and or rare it should not be a surprise that most habitat types and species listed in the Annexes of the Directive are not at FCS. Given the time required to restore many habitat types and species to recover from unfavourable status this is likely to remain true for some time even if restoration measures are in place.

'Conservation Status' is a concept first developed in the context of Red Books or Red lists of threatened or endangered species, either at global, regional or national scale and in this context is understood as an assessment of the relative risk of extinction of a habitat type or species. The categories currently used by IUCN for their Red Lists are described in detail by the IUCN on their website[6]. So, while Red Lists assess the distance from extinction, the three conservation status categories under the Article 17 report aim at assessing the distance from a defined favourable situation.
However, while both Article 17 and Red Listing aim to assess conservation status of species and habitat types they use related but different criteria and consequently there will not always be a one to one relationship between an IUCN category and an Article 17 category although it would be expected a species considered 'Critically endangered' by the IUCN would normally be assessed as 'Unfavourable-Bad' for Article 17.

II.b DIFFERENCES BETWEEN ASSESSING CONSERVATION STATUS AT BIOGEOGRAPHICAL LEVEL AND ASSESSING NATURA 2000 SITES

It should be noted that the Standard Data Form is for assessments of the conservation of a habitat type or species on a particular site whereas the assessments for Article 17 concern the status across all of a biogeographical region within a Member State. The term "Conservation Status" is defined in Article 1(e) and 1(i) of the Habitats Directive as a term describing the overall status for a habitat type or species in a biogeographical region. This conservation status is now regularly assessed in the frame of the 6-yearly progress reports according to Art.17 of the Habitats Directive. The assessment of sites according to criteria in Annex III of the Habitats Directive includes an assessment of the 'degree of conservation' of a habitat type or species in a specific site.

The term conservation status was also used by the former Natura 2000 Standard Data Form for describing the condition of each habitat type and species present on an individual site, with 3 classes, A (excellent), B (good) and C (average or reduced) while for Article 17 'Conservation Status' is assessed across the whole of a biogeographical region within a Member State. Care should be taken when using the expression 'conservation status' to ensure that it is clear if the reference is to a Natura 2000 site or to an assessment for a biogeographical or marine region. In the revised SDF (adopted in 2011) the term 'conservation status' is replaced by "degree of conservation" in order to reduce confusion of the terms. It is recommended not to use the phrase 'Favourable Conservation Status' for a feature on a single site.

Some Member States (e.g. Austria, Germany, United Kingdom) have developed methods for the evaluation of features (habitat types or species) at a local (site) scale, often using an indicator-based assessment. When the majority of occurences of a habitat or species are covered by such methods, an aggregation of the results can directly give assessments of "area" and "structure and function" for habitat types and "population" and "habitat for the species" for species of the conservation status assessment on biogeographical level.

[6] http://www.iucnredlist.org/

II.c FCS AND OTHER BIODIVERSITY ASSESSMENTS

The EU Water Framework and Marine Strategy Framework Directives use the terms 'Good Ecological Status' and 'Good Environmental Status' which relate to 'Favourable Conservation Status' although the definitions are different and assess different aspects of biodiversity (see Cochrane *et al* (2010)[7] for further information). Clearly in many instances the same data will be used for reporting under two or more directives and Member States are encouraged to develop links between work for reporting under all three directives. Work is also ongoing at EU-level to ensure synergies in definition of the various concepts.

II.d QUALIFYING CONSERVATION STATUS

Overall assessments of conservation status that are unfavourable should be qualified to indicate if the status is improving, stable, declining or unknown by adding a plus, equal, minus sign or an 'x', i.e. U1+ would indicate an assessment as 'Unfavourable-Inadequate but improving', two examples are given in box 1. This is also strongly recommended for all individual parameters with unfavourable status.

The **qualifier** should be based on trends over the reporting period that are expected to continue into the future. This can help highlight where progress is being made or where particular attention is needed. Trends in conservation status will also be exploited in future policy analysis and used for a sub-target for the 2020 biodiversity target. Further details are given in sections, VI.b (2.9) for species and section VI.d (2.8) for habitat types.

Box 1: Using qualifiers - examples from the United Kingdom from 2001-2006

a *Felis silvestris*

Range	Favourable
Population	Unfavourable – Bad
Habitat	Unknown
Future Prospects	Unfavourable - Bad and known to be getting worse

The overall assessment is, therefore, Unfavourable - Bad and declining (U2-)

(from http://www.jncc.defra.gov.uk/pdf/Article17/FCS2007-S1363-audit-Final.pdf)

b 91C0 Caledonian forest in the United Kingdom

Range	Favourable
Area	Unfavourable- Inadequate but increasing (U1+),
Structure & Function	Unfavourable-Bad but improving (U2+)
Future Prospects	Unfavourable-Inadequate but expected to improve (U1+)

The overall assessment is therefore Unfavourable-Bad but improving (U2+).

(from http://www.jncc.defra.gov.uk/pdf/Article17/FCS2007-H91C0-audit-Final.pdf)

[7] Cochrane, S.K.J., Connor, D.W., Nilsson, P., Mitchell, I., Reker, J., Franco, J., Valavanis, V., Moncheva, S., Ekebom, J., Nygaard, K., Serrão Santos, R., Naberhaus, I., Packeiser, T., van de Bund, W. and Cardoso, A.C. (2010). *Marine Strategy Framework Directive. Task Group 1 report: Biological diversity*. Joint report of the European Commission's Joint Research Centre, Ispra, Italy and the International Council for the Exploration of the Sea, Copenhagen, Denmark. 120pp. http://www.ices.dk/projects/MSFD/TG1final.pdf

II.e SPATIAL DATA

Submission of maps of the distribution and range of all Annex I habitat types and Annexes II, IV & V species present in a Member State is a basic requirement of the Article 17 reporting. The distribution map should provide information about the actual occurrences of the habitat type or species, which should be based on the results of a comprehensive national mapping or inventory of the habitats and species wherever possible.

The distribution and range maps will consist of 10 x 10 km ETRS 89 grid cells in the ETRS LAEA 52 10 projection[8]. The gridded data sent will consist of the 10 km grid cells where the species or habitat type is recorded as occurring. The use of attribute data to indicate the presence or absence of a species or habitat types in a grid cell is not permitted. The period over which the distribution data was collected should be included in the metadata following the INSPIRE guidelines. Once the INSPIRE guidelines for these themes become available they should be used.

In some exceptional cases such as widely ranging but poorly known cetaceans it may be relevant to submit maps of 50 x 50 km. For small Member States such as Luxembourg, Malta and Cyprus 1 x 1 km grids (or 5 x 5 km) should be allowed, these will be then aggregated by ETC/BD to 10 x 10 km for visualisation at the European level.

The EEA will produce the grid cells to be used by each Member State in reporting. These grid cells will cover the entire extent of the Member State subject to the Article 17 reporting process and will be available from the Article 17 Reference Portal[9].

Geographical grids are an Annex I theme of the INSPIRE Directive[10]. The INSPIRE specifications on Geographical grid systems[11] define the ETRS 89 LAEA grid as the pan-European standard grid. For background information on why grids have been chosen in preference to polygons or points, see JRC-IES-LMU-ESDI (2004)[12].

Member States may also submit additional maps, for example giving more detailed distribution data (e.g. at higher resolution). Any additional maps must be accompanied by the relevant metadata and details of the projection used.

II.f SPECIES & HABITAT TYPES TO BE REPORTED

In general, all habitat types listed on Annex I and species listed on Annexes II, IV & V of the Habitats Directive should be reported for each biogeographical or marine region in which they occur by each Member State. A checklist of habitat types and species covered by the

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[8] European Terrestrial Reference System 1989 Lambert Azimuthal Equal Area Latitude of origin 52 N, Longitude of origin (central meridian) 10°E.
http://www.eionet.europa.eu/gis/geographicinformationstandards.html

[9] http://biodiversity.eionet.europa.eu/article17/reference_portal

[10] See http://inspire.jrc.ec.europa.eu/ for more information on this Directive.

11 D2.8.I.2 INSPIRE specifications on Geographical Grid Systems–Guidelines.
http://inspire.jrc.ec.europa.eu/documents/Data_Specifications/INSPIRE_Specification_GGS_v3.0.pdf

12 JRC-IES-LMU-ESDI (2004) Short Proceedings of the 1st European Workshop on Reference Grids.
http://eusoils.jrc.ec.europa.eu/projects/alpsis/Docs/ref_grid_sh_proc_draft.pdf

Habitats Directive and their occurrence per biogeographical region and Member State is available from the Article 17 Reference Portal[13] .

Since 1992 when the original Annexes of the Habitats Directive were published there have been taxonomic revisions of several of the taxa listed leading to some taxa listed as a species in the Directive now being considered to be 2 or more species. In general, wherever it is feasible (e.g. the species can be determined in the field) there should be one Article 17 report for each species currently recognised. For example, the Directive lists *Gobio uranoscopus* but following a taxonomic revision this is now considered to be 2 species, *G. uranoscopus* and *Romanogobio elimeius* and there should be a report for each of these taxa - as indicated in the checklist.

Where a habitat type or species is very nearly all in one region but with the distribution just extending across the boundaries of the region to a neighbouring region in the same country, (marginal occurrence) a single report could be submitted. For example, in France the aquatic mammal *Galemys pyrenaicus* is mostly found in the Alpine region but its distribution extends to adjacent parts of the Atlantic region (see Figure 1) and a single report covering both regions would be acceptable. However, in Spain where the species has a wider distribution across 3 regions this would not be appropriate.

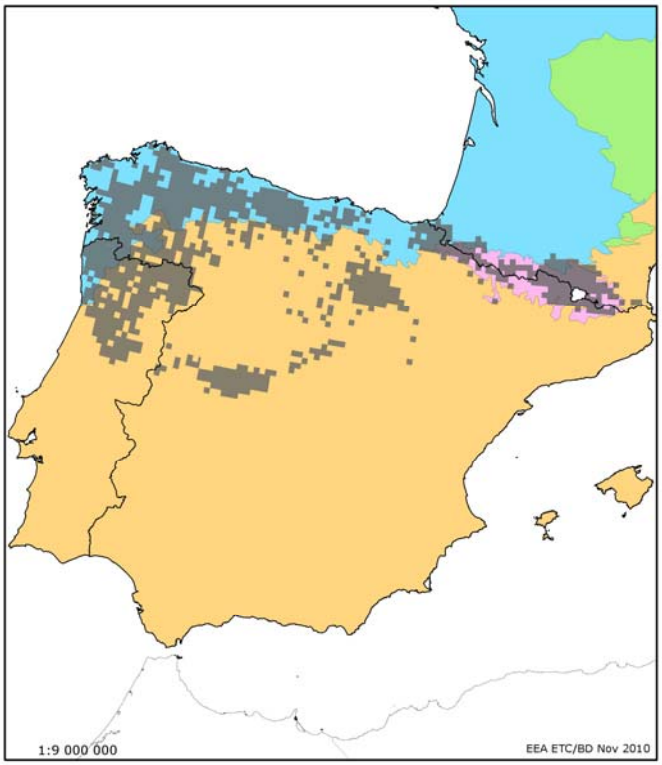

Figure 1: The distribution of *Galemys pyrenaicus,* colours indicate the biogeographical regions with the distribution in grey (based on Article 17 reports from France, Portugal & Spain).

For occasional species (species that are currently found only occasionally within the boundaries of a region and do not have stable and regular occurrence, sometimes referred to as 'vagrant') or newly arriving species, it is likely that little information will be available

[13] http://biodiversity.eionet.europa.eu/article17/reference_portal

and a full assessment is not possible. For these species a report should still be submitted although in many cases it will only contain the name and code of the species, together with the name of the region and Member State. However, this will ensure that the species is correctly entered into the Article 17 database.

Species which became locally extinct before the Directive came into force should not be reported unless there is a reintroduction project underway.

II.f.i Reporting for species groups

The annexes include several species groups, for example Annex II has '*Alosa* spp. while Annex IV has 'Microchiroptera – All species'. Except for *Cladonia* subgenus *Cladina, Lycopodium* and *Sphagnum* all species included in these groups should be reported separately. For example there should be separate reports per region for *Alosa agone A. alosa, A. fallax, A. killarnensis* etc. For Annex V '*Acipenserida* - All species not mentioned in Annex IV' reports should be produced for *Acipenser gueldenstaedtii, A ruthenus, Huso huso* etc. The species to be included under each group are shown on the 'Checklist for Article 17 reporting' available from the Article 17 Reporting Reference Portal[14].

For *Cladonia* subgenus *Cladina, Lycopodium* spp and *Sphagnum* spp Member States should submit a single report per group per region. It is also possible to report individual species in those groups (where it is thought that a species needs special attention), but in this case they should also be included in the report on the genus. For example if Germany considers that e.g. *Sphagnum pulchrum* in the Atlantic region is of special concern it can submit a report for that species but the overall assessment for *Sphagnum* spp for the region should also take that species into account.

For these three species groups a report giving only the overall assessment of conservation status (field 2.9.5 of annex B) is acceptable and no maps of range or distribution are required. As it may be difficult to conclude the overall assessment if there are species with different CS, Member State should explain the variation under field 2.8.2 Other relevant information.

Box 2: Species to be included in *Cladonia, Lycopodium* & *Sphagnum*

Cladonia subgenus *Cladina* – all European species in the subgenus according to Ahti (1961[15] and pers. com.): *Cladonia arbuscula* (incl, *Cl. mitis* and *Cl. squarrosa*), *Cl. ciliata* (incl. *Cl. tenuis*), *Cl. conspicua*, *Cl. portentosa* (*Cl. implexa*), *Cl. rangiferina*, *Cl. stellaris* (*Cl. alpestris*), *Cl. stygia*, *Cl. azorica*, *Cl. macaronesica* and *Cl. Mediterranea.*

Lycopodium – Listing on Annex V relates to commercial exploitation and commerce is not limited to the genus *Lycopodium*. For Article 17 reporting *Lycopodium* should be interpreted as all species in the family *Lycopodiaceae* (following Flora Europaea, see Appendix 2).

Sphagnum – All species in the genera *Sphagnum*[16] except *Sphagnum pylasii* (Annex II & IV).

[14] http://biodiversity.eionet.europa.eu/article17/reference_portal

[15] Ahti, T. 1961: Taxonomic studies on reindeer lichens (*Cladonia* subgenus *Cladina*). *Annales Botanici Societatis Zoologicae Botanicae Fennicae*. 32, No 1

[16] Séneca, A & Söderström, L. (2009) Sphagnophyta of Europe and Macaronesia: a checklist with distribution data. *Journal of Bryology* 31(4) pp. 243-254

II.g Reporting on Annex I habitat types and Annex II species within the Natura 2000 network

Workpackage 3 of the Expert Group on Reporting ('evaluation of the contribution of the Natura 2000 network to the conservation status of habitats and species') has identified three sets of data considered necessary to evaluate the contribution of the Sites of Community Importance (SCI) and Special Areas of Conservation (SAC) components of the Natura 2000 network:

(1) relevance of the network for different species and habitats (proportion of population (species) or area (habitat type) within the network);
(2) possible differences in trends within the network compared to the general trend;
(3) understanding what type of conservation/management measures the countries have implemented.

The contribution of the Natura 2000 network to the conservation status of habitat types and species is likely to vary according to the dependence of the habitat types/species on sites, coverage by the network and site management. Therefore, the habitat surface area of the population size included in the network for each given biogeographical region should be reported (fields 3.1.1 of Annexes B & D, see below).

Another element to be taken into consideration when evaluating the contribution of the network is the possible difference in trends within the network and globally (optional field). For species, this could be expressed by comparing the trend of the population size in the biogeographical region (field 2.4.6 of the reporting format) with the trend of the population size within the Natura 2000 network in that same biogeographical region (field 3.1.3).

For habitat types, a similar comparison can be made using the trend of the habitat surface area in the biogeographical region (field 2.4.5 of the reporting format) and the trend of the surface area within the Natura 2000 network (field 3.1.1).

In the Article 17 reporting format for the period 2001-2006 there was a free text field concerning "Conservation measures – Art. 6(1) – and evaluation of their impact on the conservation status – Art. 17(1)". Member States were asked to make a:

- "General description of the main conservation measures taken at national level: descriptions of measures taken should be brief and general and not detailed site-by-site accounts. If relevant give references to published reports and websites."
- "Impact of those measures on conservation status: provide a general overview at national level, indicating species or habitats affected by the measures, impact on conservation status and area concerned. Note that this is optional".

Experience from the last reporting showed that the format – a free text field – and the guidelines were too vague and that this information could not be used in any meaningful way.

The main purpose of the reporting under section 3.2 is to obtain information allowing for a 'broad-brush' overview of the conservation measures taken: their location – inside/outside the Natura 2000 network- , their importance and evaluation. The current format and codified list of conservation measures aims facilitating reporting in a more harmonised way and promoting further use of the data reported, namely as part of the process to evaluate the contribution of the Natura 2000 network to the conservation status of habitats and species.

III ASSESSING CONSERVATION STATUS

Favourable Conservation Status is defined in Article 1 of the Habitats Directive by four parameters for each habitat type and species. The agreed method for the evaluation of conservation status assesses each of the parameters separately, with the aid of an evaluation matrix, and then combines these assessments to give an overall assessment of conservation status. The parameters, which are discussed in more detail below, are

- Range
- Population (species only)
- Area (habitat types only)
- Habitat for the species (species only)
- Structure & function (habitat types only)
- Future Prospects

Range, population (species), and area (habitat types), all require the setting of threshold values to determine if the parameter is favourable or unfavourable. These are referred to as 'Favourable Reference Values' and are explained in the next section.

III.a FAVOURABLE REFERENCE VALUES

Favourable Reference Values (FRV) are key concepts in the evaluation of Conservation Status. The reporting format requires Member States to identify threshold values for range and area for the habitat types of Annex I and for range and population for the species of Annexes II, IV & V in order to evaluate whether the actual range, area, or population are sufficiently large to conclude the parameter is 'favourable' or 'unfavourable', and, if 'unfavourable', whether the status is 'inadequate' or 'bad'. Favourable Reference Values should be based purely on scientific grounds and may have to change between reporting cycles as our understanding of a habitat type or species changes. Where such changes are required this should be explained in the complementary information section of the reporting format (field 2.8).

Determining these values will not be easy. However the concepts are not new and are treated in many texts on conservation biology (e.g. Soule & Orians (eds) (2001) *Conservation Biology: Research Priorities for the Next Decade* or Primack (2008) *A Primer of Conservation Biology, Fourth Edition*). In many cases our understanding of the biology is not sufficient or data are not available, to make use of many of the approaches described in these texts and it is likely that for many poorly known species expert judgement will have to be used. This should be used as a starting point and improved upon in the future as better understanding and further data become available (e.g. as a result of Article 11 monitoring and surveillance).

For some species and habitat types 'Action plans' have been prepared, either at national or European scale, and although these plans do not use the term 'favourable reference value' they do sometimes consider related concepts and may be a source of ideas and information. For example the Council of Europe has published European action plans for large carnivores[17] and the United Kingdom has published national plans for many habitats and species[18].

[17] http://www.coe.int/t/dg4/cultureheritage/nature/Bern/LCarnivores/default_en.asp
[18] http://www.ukbap.org.uk/newprioritylist.aspx

III.a.i Favourable Reference Range

Range within which all significant ecological variations of the habitat/species are included for a given biogeographical region and which is sufficiently large to allow the long term survival of the habitat/species; favourable reference value must be at least the range (in size and configuration) when the Directive came into force[19]; if the range was insufficient to support a favourable status the reference for favourable range should take account of that and should be larger (in such a case information on historic distribution may be found useful when defining the favourable reference range); 'best expert judgement' may be used to define it in absence of other data.
[Definition from http://www.lcie.org/Docs/Legislation/DocHab-04-03-03%20rev3.pdf]

The following factors should be considered when estimating Favourable Reference Range (FRR) for both species and habitat types:

- Current range;
- Potential extent of range taking into account physical and ecological conditions (such as climate, geology, soil, altitude);
- Historic range and causes of change;
- Area required for viability of habitat type/species, including consideration of connectivity and migration issues.
- Variability including genetics[20].

For many species and habitat types we have sufficient understanding of their ecological requirements that we can model their potential range, for example many arctic-alpine plant species are limited by a maximum mean July temperature while Mediterranean species such as the Olive tree (*Olea europaea*, a key component of habitat type '9320 *Olea* and *Ceratonia* forests') are limited by minimum winter temperatures. Alterra have modelled several habitat types using various parameters including soil types, altitude, species distribution and existing land cover[21] [22].

It should be noted that FRR is not necessarily equal to 'potential range': normally, FFR is smaller. For some wide ranging species the FRR may be the entire biogeographic region within a country, as for the Annex V frog *Rana esculenta* (Edible frog)in several regions of many Member States (see Figure 3). Some species, such as *Lutra lutra* (Eurasian otter), have historically had much wider ranges than at present, in such cases it may not be necessary for all the historical range to be re-occupied to reach FRR if long term survival can be assured.

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[19] This means different years for different countries: 1994 for BE, DE, DK, ES, FR, GR, IE, IT, LU, NL, PT & UK , 1995 for AT, FI and SE, 2004 for CY, CZ, EE, HU, LV, LT, MT, PL, SI & SK and 2007 for BG & RO.

[20] See Laikre, Linda, Torbjörn Nilsson, Craig R. Primmer, Nils Ryman, & Fred W. Allendorf. 2009. Importance of Genetics in the Interpretation of Favourable Conservation Status. *Conservation Biology* 23, no. 6: 1378-1381.

[21] Mucher, C.A., Hennekens, S.M., Bunce, R.G.H., & Schaminée, J.H.J. (2004). *Mapping European habitats to support the design and implementation of a pan-European ecological network; the PEENHAB-project* Alterra-rapport No. 952. Alterra.

[22] Mücher, Caspar A., Stephan M. Hennekens, Robert G.H. Bunce, Joop H.J. Schaminée, and Michael E. Schaepman. (2009). Modelling the spatial distribution of Natura 2000 habitats across Europe. *Landscape and Urban Planning* 92, no. 2 (September 15): 148-159.

Many species, including some listed on the annexes of the Habitats Directive (e.g. The Marsh fritillary *Euphydryas aurinia*) are known to have a metapopulation structure with cyclical local extinction and recolonization (Warren 1994)[23]. In such cases the favourable reference range should take account of this and include enough range to assure long-term survival and variability, even though the species may have disappeared from major parts of that range.

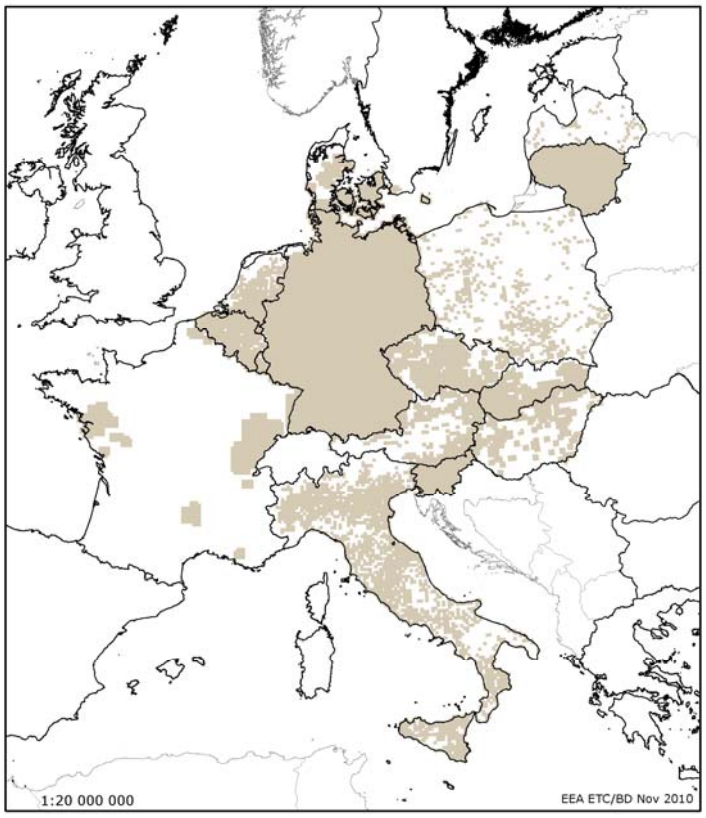

Figure 3: Distribution of *Rana esculenta*, a species where the FRR is equal to the area of the region within a country for a number of countries (e.g. Germany).

III.a.ii Favourable Reference Population (species only)

Population in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the species; favourable reference value must be at least the size of the population when the Directive came into force[24]; information on historic distribution/population may be found useful when defining the favourable reference population; 'best expert judgement' may be used to define it in absence of other data. [Definition in http://www.lcie.org/Docs/Legislation/DocHab-04-03-03%20rev3.pdf]

Favourable Reference Population (FRP), field 2.4.14 in Annex B, should be given in the same units as that used for 'population' (see IV.b.iii).

[23] Warren, M.S. (1994) The UK status and suspected metapopulation structure of a threatened European butterfly, the Marsh Fritillary, *Eurodryas aurinia*. *Biological Conservation* 67: 239-249.
[24] This means different years for different countries: 1994 for BE, DE, DK, ES, FR, GR, IE, IT, LU, NL, PT & UK , 1995 for AT, FI and SE, 2004 for CY, CZ, EE, HU, LV, LT, MT, PL, SI, SK and 2007 for BG & RO.

The following background information and parameters may be useful to set FRP:

- Historic distribution and abundances and causes of change
- Potential range
- Biological and ecological conditions
- Migration routes and dispersal ways
- Gene flow or genetic variation including clines
- Population should be sufficiently large to accommodate natural fluctuations and allow a healthy population structure

Favourable Reference Populations should be based on the ecology and genetics of the species. For a few species population viability assessments are available and can be used to help set a FRP (e.g. for *Bison bonasus* (European bison), Daleszczyk & Bunevich, 2009[25]) but for most species other approaches will need to be used. Even where such analyses are available they are often for the entire population of a species which may include more than one country or regions within a country. Viability analyses and their use in conservation are discussed in a recent paper by Traill *et al* (2010)[26]. Estimates of Minimum Viable Population (MPV) will, by definition, be lower than FRP.

Some countries have used the concept of carrying capacity together with estimates of the range or suitable habitat to estimate a FRP, an example for Poland is given in box 3 below.

If an operator is used to estimate a FRP it should be compared with the minimum population estimate (see section IV.b.iii). It is important to understand that the operator "less than" can only be used in exceptional circumstances, where a species might have developed - due to exceptional circumstances such as supplementary feeding - an exceptionally high population level far beyond that considered as favourable in normal circumstances and which is unlikely to be sustainable or which may even be detrimental to other species or habitats. A careful assessment of such situations needs to be undertaken and an explanation of the reasoning why this operator has been used should be given in the field Other relevant information (2.8.2).

Box 3: Favourable Reference Values for *Canis lupus* in the Continental region of Poland

The model was elaborated in the Mammal Research Institute in Bialowieża (Jędrzejewski et al 2008[27]). Data on distribution and numbers are fairly good (based on annual inventory). Application of GIS tools allowed spatial analyses using data on land use (from CORINE Land Cover 2000), density of ungulates, density of roads, and historical distribution of the wolf. The frequency of records of wolf in a given category of land use allowed one to select environments occupied by wolf most willingly and indicate areas which potentially meet the habitat requirements of the species (suitable habitat). In addition to large dense forests, certain marshy areas and areas in close vicinity to running and standing waters were also

[25] Daleszczyk, Katarzyna, & Aleksiei N. Bunevich. (2009). Population viability analysis of European bison populations in Polish and Belarusian parts of Bialowieza Forest with and without gene exchange. *Biological Conservation* 142, no. 12 (December): 3068-3075.

[26] Traill, Lochran W., Barry W. Brook, Richard R. Frankham, & Corey J.A. Bradshaw: (2010) Pragmatic population viability targets in a rapidly changing world, *Biological Conservation* 143 28–34.

[27] Jędrzejewski, W., B. Jędrzejewska, B. Zawadzka, T. Borowik, S. Nowak, and R. W. Mysłajek. 2008. Habitat suitability model for Polish wolves based on long-term national census. *Animal Conservation* 11, no. 5 (10): 377-390.

included. The area of selected habitats and size of the wolf population in eastern Poland was a basis for estimating the potential numbers of wolf in the remaining part of the country. The results were then verified, taking into account food availability (biomass of ungulates per area unit). The estimated FRR for the Continental region was 95 540 km^2 and FRP 1260-1335 individuals, while suitable habitat is 53 575 km^2. The present range in the Continental biogeographical region was estimated as 25 170 km^2 and population 310 – 420, while currently occupied habitat is 15 327 km^2.

(Example based on the 2001-2006 report from Poland).

III.a.iii Favourable Reference Area (habitat types only)

> *Total surface area in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the habitat type; this should include necessary areas for restoration or development for those habitat types for which the present coverage is not sufficient to ensure long-term viability; favourable reference value must be at least the surface area when the Directive came into force[28]; information on historic distribution may be found useful when defining the favourable reference area; 'best expert judgement' may be used to define it in absence of other data*.

[Definition in http://www.lcie.org/Docs/Legislation/DocHab-04-03-03%20rev3.pdf]

This is probably the most difficult of the three reference values to establish. There is some theoretical work on minimum area required for long term viability of some habitat types (mostly forests) but this is based on single sites rather than a network of sites. In some cases it may be possible to estimate the Favourable Reference Area (FRA), section 2.4.10 in Annex D, from a consideration of the conservation requirements of one or more 'key' species.

The following background information and parameters may be useful to set FRA:

- Historic distribution and causes of change
- Potential natural vegetation
- Natural variation
- Actual distribution and actual variation (including quality of habitat)
- Dynamics of the habitat type
- Requirements of typical species (including gene flow)

If there is no information showing that enlarged area of the habitat type is necessary for either

- typical species to reach favourable conservation status, or for
- the necessary structures or functions of the habitat type to exist,

then the FRA can be taken as the surface area of the habitat type when the directive came into force.

If available, Red Lists of habitat types, plant communities or biotopes which correspond to the habitat types of Annex I of the Directive should be taken into consideration to identify the favourable area of habitat types. For example, in cases where the habitat types are

[28] This means different years for different countries: 1994 for BE, DE, DK, ES, FR, GR, IE, IT, LU, NL, PT & UK , 1995 for AT, FI & SE, 2004 for CY, CZ, EE, HU, LV, LT, MT, PL, SI & SK and 2007 for BG & RO.

"threatened by extinction", "critically endangered" or similar, the present day area of the type is unlikely to be sufficient to be considered as favourable.
Two examples of setting FRA are given in boxes 4 and 5.

Box 4: Favourable Reference Area for 9010 Western Taiga in Sweden

A Swedish compilation of studies of 17 species which are habitat specialists (umbrella species) dependent on the Western Taiga show that the threshold value of how much habitat is needed vary from 10 % to 50 % with a mean value of 19 %. Thus, a value of 20 % has been chosen to be the threshold value of how much of the original area (i.e. before industrial forestry) of western taiga 9010 is needed to maintain its specialised species in viable populations.

The original forested land cover has been estimated as 250 000 km^2, of which 9010 western taiga has been estimated to be a little more than 205 420 km^2. Hence, the Favourable Reference Area is 20 % of the original area – 41 085 km^2 (reported value in 2007 was 18 975 km^2). This figure applies to the whole territory but has then been split up to three biogeographic regions.

(From Hans Gardfjell, Swedish University of Agricultural Sciences).

Box 5: Favourable Reference Area for 9160 Sub-Atlantic and medio-European oak or oak-hornbeam forests of the *Carpinion betuli* in Poland

In Poland habitat type 9160 only occurs in the Continental biogeographic region and the present area has been established at 300 km^2. The area is fairly stable (two opposing processes: regeneration of 9160 in 80-120 years old pine plantations and destruction of 9160 as the result of regeneration and promotion of beech).

The FRA has been estimated at 360 km^2. It has been assumed that conservation of the habitat type requires its restoration in places where it has been degraded by planted beech and pine, so as to recreate the ecological continuity of 9160 in certain river valleys. To achieve this requires the present area to be increased by about 20 %.

(Example from Paweł Pawlaczyk)

There will be cases where the area of a habitat type in a Member State or within a region of a Member State is small with no possibility of enlargement through restoration due to natural limitations (e.g. calcareous grasslands in regions with predominately acidic soils). It would be reasonable to conclude that this is the FRA.

Habitat type 7120 'Degraded raised bogs still capable of natural regeneration' is a special case as when restored it becomes '7110 Active raised bogs' and the favourable reference area will be less than the present day area and possibly be zero if all the habitat type could be restored. There may be other cases where the operator 'less than' (<) (see III.a.iv) can be justified for a habitat type, for example due to a restoration project which results in the change of a non-priority habitat type into a priority habitat type, the reasoning for such cases needs to be explained under field 2.8.2 Other relevant information.

III.a.iv Using operators

In many cases it is not possible to estimate a value for FRV but it is clear that the FRV is greater than the present day value. For example, the Annex II moss *Buxbaumia viridis* only has one locality in the Atlantic region of Denmark which is not considered a large enough population for the species to be at FCS. Although the FRP is not known, expert opinion is that it must be more than 1 locality and an assessment can be made.

Using operators 'greater than' (>) and 'much greater than' (>>) can be preferable to reporting a parameter as 'unknown'. There will also be habitat types and species where FRV = current value, especially for Favourable Reference Range. Figure 2 shows how this decision can be taken. Expert judgement will be required to determine if the operator should be '>' or '>>'. If the operator is '>>', the current value is very likely to be 'more than 10% below FRV and the parameter 'Unfavourable-Bad'.

The operator 'less than' (<) can be used only in limited cases, see above under section III.a.ii Favourable Reference Population and III.a.iii Favourable Reference Area. If used, an explanation must be provided in the 'Other relevant information' field (2.8.2 for species and 2.7.5 for habitat types).

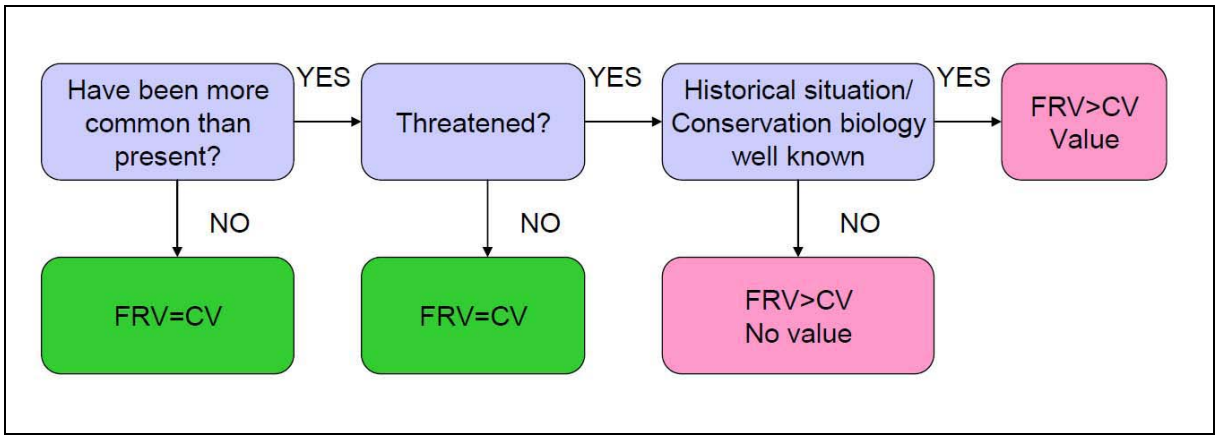

Figure 2: Flow chart to help decide if a Favourable Reference Value should be equal or larger than the present day value. A habitat or species is threatened if subject to significant pressures or threats. Note that in some rare cases the FRV may be less than the present day value (flow chart provided by Sweden).

If an operator is used, then there is no need to supply a value in the reference value field, or the value reported must be the same as that of the actual value reported (e.g. 2.3.8 for Favourable Reference Range for habitat types). If the value reported for a favourable reference value differs from the actual reported value no operator should be used. The use of operators should help to reduce the use of 'unknown' to a minimum.

The United Kingdom has produced a series of 'keys' to help estimate FRVs and to help distinguish between 'Unfavourable-Inadequate' and 'Unfavourable-Bad' and this approach may be useful elsewhere, see pages 33-38 in JNCC (2007)[29].

[29] Joint Nature Conservation Committee. (2007). *Assessing Conservation Status: The UK Approach*. JNCC, Peterborough. http://www.jncc.gov.uk/pdf/FCS2007_ukapproach.pdf

III.a.v Possible conflict between habitat types

There are many instances where two or more Annex I habitat types form an ecological succession and where estimates of favourable reference area will need to take into account the requirements of both habitat types; this takes into account the nature conservation priorities set by Member States within the legal framework of the Habitats Directive. For example, in much of Europe '6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*)' if not managed will tend to develop to '9150 Medio-European limestone beech forests of the *Cephalanthero-Fagion'*, possibly via '5130 *Juniperus communis* formations on heaths or calcareous grasslands'. In such cases the favourable reference range may be the same or very similar as it will be based on underlying geology, topography and climate but the reference areas will need to be assessed together and will be informed by national or regional conservation priorities.

III.b TRENDS

Trends are a component of the following parameters:

- Range (habitat types & species)
- Population (species)
- Area (habitat types)
- Habitat of the species (species)

The conservation status assessment stresses the importance of trend information: trends are decisive for the assessment of conservations status since usually only stable or increasing trends can result in a favourable conservation status. Trend is one of the most important components of several parameters so ideally, more attention should be paid on the methodology of the surveillance systems to improve the quality of trend information.

Trends are usually derived from modelling or existing monitoring schemes which are based on sampling as complete surveys are exceptional and usually only undertaken for very rare species. Sampling methods should be statistically robust wherever possible. In the absence of dedicated monitoring schemes, trends are usually a result of expert opinion and in that case should be reported only as directions (+/-/0), without absolute values. Unknown trends should be reported as 'x'.

Trend is a directed change of a parameter over time. Trends (especially of population) should ideally be the result of a regression of a time series. Fluctuation (or oscillation) is not a directed change of a parameter, and therefore fluctuation is not a trend. However, fluctuations can occur within a long-term trend and can affect measurement of short-term trends, because it is difficult to assess whether there is a real trend in the short-term, or whether there is simply a fluctuation or population cycling effect.

Fluctuation is an intrinsic character of all natural systems and can be observed for all directions of the trend (+, - , absolute value…). However, it is only detectable in regularly surveyed populations or habitat types. Fluctuations are only likely to be detected when the parameter is measured at least three times in any given time frame. Ideally, they will be based on more frequent sampling. In reality, this is unlikely to happen in short time frames (such as twelve year intervals) and setting short-term trends in a long-term context will help to identify where fluctuations are occurring. For the 2001-2006 report Member States were asked to report trends over the six year reporting period but trends over such a short time period are unlikely to be reliable as they will be based on few samples and it is now asked to base trends ion a 12 year period (see III.b.i). Fluctuations in range and area of habitat types are rarely detectable over a 12-year period and any fluctuation of these values is mostly long-term.

In summary: range, habitat for the species and area covered by habitat type are unlikely to fluctuate in a 12 year period. However, measurement of these parameters can be quite inexact and longer-term information may be required to detect any real changes, given the range of data availability, sample sizes and possible survey methods.

The trend of the 'habitat of a species' is the only trend parameter where only direction will be reported (the reporting format does not ask for trend magnitude for the habitat of a species).

An apparent directed change resulting from a change in monitoring methodology or improved knowledge generally about distribution and size of a habitat or species population should not be considered a trend and this should be indicated at the appropriate field 'Reason for change' (e.g. 2.3.10 for species range) and the trend reported as 'unknown', unless other information also clearly shows a trend (e.g. documented losses of habitat).

Use of the range tool (see section 'IV.a Range') may give apparent trends for range if range estimates for 2001-2006 are simply compared to 2006-2012, but this could simply be the result of a methodological change. In many cases this could be overcome by using the range tool with the 2001-2006 distribution data to produce a revised estimate of the former range. If this is done, it is suggested that the revised former range is reported in field 2.8.2 Other relevant information (species) or 2.7.5 Other relevant information (habitats) with a text explanation.

III.b.i Short & long term trends

The reporting period for the Habitats Directive is six years but estimates of trend are more likely to be statistically robust over longer time periods. It is therefore recommended to estimate trend over two reporting cycles, i.e. 12 years (or a period as close to this as possible), as this should give a more reliable and comparable estimate of the trend. Long-term trends, which are likely to be more statistically robust, can also be reported (in a series of optional fields). The recommended period for assessing longer term trends is four reporting cycles (24 years).

The trend information to be used in the evaluation matrix which is based on a 6 years reporting period, this is why the short trend information should be used in the assessment. Any large scale deviation from this should be explained under field 'Other relevant information' (2.8.2. for species and 2.7.5. for habitat types).

The trend magnitude reported should be the change over the relevant period (e.g. 12 years for short term trend). Where magnitude is derived from data covering a different time interval please estimate the change for the reporting period by simple proportion. For example a change of 150 km^2 over 15 years would be equivalent to 10 km^2 per year or 120 km^2 over the 12 year interval for short term trend magnitude.

III.c MAIN PRESSURES AND THREATS

Information on threats and pressures is required for the conservation status assessment, but in addition information on main threats and pressures is needed for policy assessments.

For Article 17 reporting pressures are considered to be factors which are acting now or have been acting during the reporting period, while threats are factors expected to be acting in

the future. It is possible for the same impact to be both a pressure and a threat if it is having an impact now and this impact is likely to continue.

For the 2001-2006 report a list of threats and pressures originally devised for completing the 'Standard Data Forms' was used but this led to a number of problems and a revised list has now been prepared which can be found at the Article 17 Reference Portal. This revised list will also be used for the SDFs and for reporting under Article 12 of the Birds Directive.

During this revision care was taken to make the list compatible with similar lists used for reporting under the Water and Marine Strategy Framework Directives and for the Ramsar Convention as well as the proposals of Salafsky et al. (2008)[30]. Special attention was paid to ensure potential marine threats and pressures were included.

Together with the new additions and changes this new version groups the threats and pressures under 17 headings (including "X" for no pressures and threats and "U" for unknown) and has 75 categories at the 2nd hierarchical level. For the purposes of the Art 17 reporting at least the 2nd hierarchical level of the list should be used e.g. A01 Cultivation. However, Member States or users who need more precision can use 3rd level and 4th level categories.

Headings (code with a letter only) are not meant to be used for data entry, but only for a structured analysis of results in the national and composite report (except headings X, XO, XE, and U). This is not a change to the previous system as headings were not used for data entry in the previous version.

Some species on Annexes II, IV and V of the Habitats Directive may be subject to serious threats and pressures from outside the Member State or even from beyond the EU. These pressures and threats can be highlighted by using "XO threats and pressures from outside the Member State" and "XE threats and pressures from outside the EU territory". Combined with the ranking of importance (see next section) a good indication for which species threats and pressures from outside MS play a major role will be given and will allow more detailed scientific studies to inform political decisions if necessary. At the same time MS who have more detailed knowledge can explain the nature of threats and pressures in the non-obligatory text field (2.8.2 for species and 2.7.5 for habitat types).

III.c.i Time span for Art 17 reporting for threats and pressures

It is recommended that the time span for pressure is the reporting period, i.e. 6 years. For threat the recommended time span is 2 reporting periods (i.e. 12 years) into the future. The threats should not include theoretical threats, but rather those issues judged to be reasonably likely to occur.

III.c.ii Relative importance of threats and pressures

The relative importance of a threat or pressure must be ranked in one of three categories:

[30] Salafsky, N., et al. 2008. A standard lexicon for biodiversity conservation: unified classifications of threats and actions. *Conservation Biology* 22: 897–911.

Code	Meaning	Comment
H	High importance/ impact	Important direct or immediate influence and/or acting over large areas.
M	Medium importance/ impact	Medium direct or immediate influence, mainly indirect influence and/or acting over moderate part of the area/acting only regionally.
L	Low importance/ impact	Low direct or immediate influence, indirect influence and/or acting over small part of the area/ acting only regionally.

As the intention is not to report every existing threat or pressure the total number of data entries is strictly limited to a **maximum of 20** (to avoid very long lists of threats and pressures of minor importance).

If there are no threats and pressures present, "X" should be used to indicate no pressures and threats. Unknown threat or pressure should be indicated by "U".

The number of entries with the **highest rank** is limited to a **maximum of 5** data entries. This will make it possible to identify the most important factors at a European scale.

It is recommended to use the lowest number of possible data entries to adequately describe the situation and it is recommended to use level 2 categories for "high importance" (for example J02 "human induced changes in hydraulic conditions").

III.c.iii Pollution qualifier (optional)

As pollution can have varying effects depending on the substances involved and have quite different sources, for example nitrogen or phosphate input in (mostly P-limited) aquatic ecosystems or atmospheric nitrogen input in terrestrial oligotrophic habitats, an additional qualifier for the specific kind of pollutants can be used. This qualifier can be applied to a number of different categories and subcategories present in the list, so it was decided not to add a large number of subcategories which would make the list more complex and difficult to use, but to allow a pollution qualifier to be added to threats and pressures.

This qualifier is optional, but can be used for the whole pollution section referring to the main ecologically important component of the pollution, and may also be applied for other categories which have an indirect pollution effect (see the examples in Appendix 3).

For practical reasons this qualifier is used for a minimum of necessary critical factors:

- N Nitrogen input
- P Phosphor/Phosphate input
- A Acid input/ acidification
- T toxic inorganic chemicals
- O toxic organic chemicals
- X Mixed pollutants

Eutrophication was noted as a cross-cutting issue of particular importance during data analysis following the 2001-2006 reports. Direct nutrient input is coded under different

threats and pressures as for example 'H03.02 air borne nitrogen input'. However, several other threats such as lowering of the groundwater table can have indirect effects resulting in eutrophication of the habitat.

Methods for assessing nitrogen deposition impacts on ecosystems are being developed by scientific groups established under the UNECE Convention on Long-Range Transboundary Air Pollution (CLRTAP). These methods, based on critical loads, are used to inform policy development under the Convention (e.g. the revision of the Gothenburg Protocol) and also support the assessments under the EU National Emission Ceilings Directive. Therefore, there are harmonised assessment methods already established across Europe which should be used where appropriate and the National Focal Centres (NFCs) for Critical Loads should be contacted for further information. Guidelines have been produced by the Coordination Centre for Effects[31] and more information can be found in Hettelingh et al (2009)[32] .

Four annotated examples are given in Appendix 3.

[31] http://biodiversity.eionet.europa.eu/activities/Natura_2000/Folder_Reference_Portal/Critical_loads_based_N_deposition_assessments.pdf

[32] Hettelingh JP, Posch M, Slootweg J (eds.) (2009) *Progress in the modelling of critical thresholds, impacts to plant species diversity and ecosystem services in Europe : CCE Status Report 2009*, Coordination Centre for Effects. http://www.pbl.nl/en/themasites/cce/publications/040/index.html

IV ASSESSING INDIVIDUAL PARAMETERS

IV.a PARAMETERS COMMON TO SPECIES & HABITAT ASSESSMENTS

IV.a.i Range

In order to evaluate the status of the range we need to look at two principal characteristics of the range, first at the size of the range in relation to the size of the favourable reference range and second at the range trend. However, it should be noted that range is rarely the only parameter responsible for an overall assessment not being Favourable as changes in range are invariably accompanied by changes in population size/ area of a habitat type.

Range was defined by DocHab 04-03/03-rev3 as

The natural range describes roughly the spatial limits within which the habitat or species occurs. It is not identical to the precise localities or territory where a habitat, species or sub-species permanently occurs. Such actual localities or territories might for many habitats and species be patchy or disjointed (i.e. habitats and species might not occur evenly spread) within their natural range. If the reason for disjunction proves to be natural i.e. caused by ecological factors, the isolated localities should not be interpreted as continuous natural range, for example for an alpine species the range may be the Alps and the Pyrenees, but not the lower area between. The natural range includes however, areas that are not permanently used: for example for migratory species "range" means all the areas of land or water that a migratory species inhabits, stays in temporarily, crosses or overflies at any time on its normal migration[33]. Vagrant or occasional occurrences (in the meaning of accidental, erratic, unpredictable) would not be part of the natural range.

Natural range as defined here is not static but dynamic: it can decrease and expand. Natural range can also be in an unfavourable condition for a habitat or a species ie. it might be insufficient to allow for the long-term existence of that habitat or species.

When a species or habitat spreads naturally (on its own) to a new area/territory or when a re-introduction of a species consistent with the procedures foreseen under art. 22[34] of the Habitats Directive has taken place of a species into its former natural range, this territory has to be considered a part of the natural range. Similarly restoration/recreation or management of habitat areas, as well as certain agricultural and forestry practices can contribute to the expansion of a habitat or a species and therefore its range. However, individuals or feral populations of an animal species introduced on purpose or accidentally by man to places where they have not occurred naturally in historical times or where they would not have spread to naturally in foreseeable future, should be considered as being outside their natural range and consequently not covered by the Directive.

[33] See also article 1 of the Bonn Convention.

[34] The term "native" as used in Article 22 should be interpreted so that a species or habitat is considered native, when it is within its natural range (as defined in this paper), or within the limits of any historical or potential (to where it spreads naturally) natural range.

Range is defined as 'the outer limits of the overall area in which a habitat type or species is found at present. It can be considered as an envelope within which areas actually occupied occur.

The range should represent a parameter suitable for assessing the spatial aspects of the conservation status. However for both habitat types and species the spatial component is also included in other parameters, namely 'area' for habitat types and 'area of habitat' for species. The 'range' should be able to describe and detect changes in the extent of the distribution.

Range is a technical parameter allowing for assessing the extent and the changes in the habitat type or species distribution. The range should be calculated based on the map of the actual distribution using a standardised algorithm. A standardised process is needed to ensure repeatability of the range calculation in different reporting rounds.

The standardised process consists of 2 steps:

1 Gap closure using a predefined set of rules specifying when two distribution points/grids will be joined together to form a single range polygon, and where an actual gap in the range will be left.

2 The polygons created by gap filling will be then fitted to environmental parameters to avoid the range covering areas which are not possible, for example the range of a terrestrial species including marine areas.

The ETC/BD and EEA will ensure that a Range Tool using the methodology described in the next section to facilitate an estimation of the range is made available. However, Member States can still use their own methods to calculate ranges if their distribution data uses a grid close to 10x10 km^2 (for this purpose field 1.1.4 Additional distribution map, is made available). The main requirements are repeatability of the estimation and sensitivity to the spatial changes of the distribution.

IV.a.i.a Calculation of range

Discontinuities in the range

Most of the basic principles for the range estimation, including the size of gaps which will represent a discontinuity in the range, were established so far during the 2000-2006 reporting round and will be still valid. Range should exclude major discontinuities that are natural i.e. caused by ecological factors. What is considered as a natural discontinuity is largely dependant on the ecological characteristic of the habitat type/species and the character of the surrounding landscape.

The choice of recommended gap distance (see Table 1) corresponds with the definition of range as an envelope generalising the distribution with major discontinuities excluded suitable to detect large scale changes in the distribution. A discontinuity of at least 40–50 km is suggested to be considered as a gap in the range. This value may be modified on the basis of an expert judgement, for example dependent on dispersal and migration potential of a species. A range calculated with larger gap distances (40–50 km) is more sensitive to changes at the margins of the distribution and large scale changes within the outer limit of the distribution. On the other hand range calculated with smaller gap distances (20 km) is sensitive to small scale changes (see figure 4 *Leucorrhinia caudalis*).

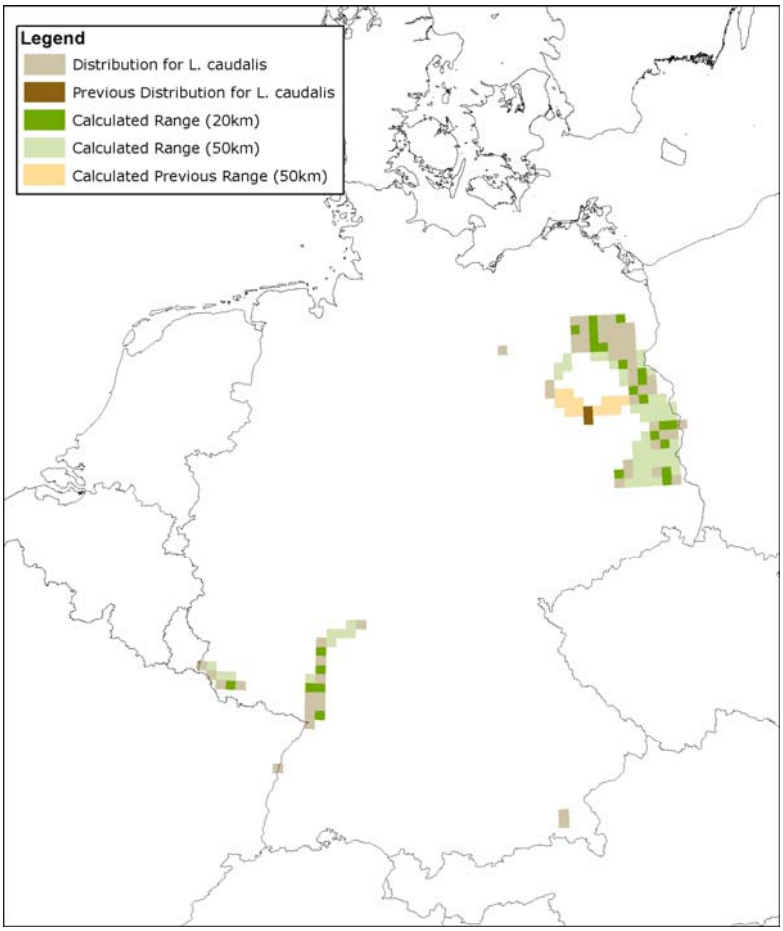

Figure 4: Image shows a difference between the range calculated with 20 km and 50 km gap distances. Where a single marginal population occupying two grids on the map is lost (dark brown grids) the range calculated with 50km gap distance will decrease by more than 15 % of its original area (orange grids). While if the gap distance of 20 km was used the decline in the range area will be around 3 %. With a 12 year reporting period the same situation would lead to different conclusions; 'unfavourable bad' for the range with 50km gap and 'unfavourable inadequate' for the range with 20 km gap.

The gap distance should reflect the ecological characteristic of the habitat types and species. This means that for mobile species the range will be calculated using larger gaps and conversely smaller gaps will be used for more sedentary species. Exact knowledge on the dispersal capacity of many species is still lacking and in addition the possible dispersal distance will be greatly influenced by the quality of the surrounding landscape matrix. Proposed gap distances are therefore rather broad and reflect major ecological differences between broad species groups. The recommended gap distances for each species group are outlined in Table 1 but other gap distances can be used if based on detailed knowledge of the species within the Member State.

Table 1: Recommended gap distance for major species groups

Species group	Gap distance
Lower plants	40 km
Higher plants	40 km
Invertebrates	40 km

Fish	50 km
Terrestrial mammals	40-90 km depending on dispersal ability
Amphibians	50 km
Terrestrial reptiles	50 km
Marine mammals and reptiles	90 km

For relatively localised habitat types a gap distance of 40 km is recommended, which is equal to the recommended gap distance for plant species which represent main structural components of the majority of the habitat types. However, for wide spread habitat types which are structurally similar to the surrounding landscape matrix the gap distance could be increased to 50 km.

For very rare and/or localised species and habitat types, occurring in particular environmental conditions (e.g. 1130 Estuaries, 8340 Glaciers) the range should be equal to the distribution.

Generally, distribution data will be provided as presence on a 10 x 10 km grid (ETRS LAEA 5210 10 km grid). However this method is not appropriate for highly mobile or migratory species. For these species distribution is mostly mapped on home-range basis, which is then converted into 10 x 10 km grid system. The range in this case will represent a spatial generalisation of the space that is used regularly by the population(s). If distribution is represented as relatively broad polygons the Range Tool may not be the most appropriate method for determining ranges and expert judgement might be more suitable.

Technically the range will be calculated by filling in unoccupied grids between cells of distribution. A gap distance should be understood as the distance between two distribution grids, that will not be joined together to form a single polygon, component of range.

The range calculated by the automated filling of gaps should be fitted to national boundaries, environmental and biogeographical constraints. The following types of unsuitable areas should be excluded from the calculated range:

- marine areas from the range of terrestrial species
- terrestrial areas from the range of marine species
- areas beyond national boundaries
- areas identified by the range tool as part of the range falling in adjacent biogeographical regions for which the species/habitat is not noted on the checklist
- areas more than 20 km from coastline for coastal habitat types
- areas that do not overlap with the limnic environment for freshwater habitat types and species.

Although the distinction between suitable and unsuitable areas is very coarse the purpose of fitting is to solve only most important contradictions resulting from automated calculation. The process of fitting should be simple and applicable across all Member States.

Grids that occur only in the unsuitable areas will be excluded from range. Grids will not be cut by the limits of the area with unsuitable conditions, or limits of biogeographical region.

IV.a.i.b The Range tool

The range tool generates a standardised grid based range using the rules given in this document. The tool uses two inputs to calculate the range. The first input is the distribution, which can be any spatial object (point, polygon, or grid). The second input is the reference grid system. Both inputs need to be in the same projection. The tool is based on calculating

the distances between the centroids of grid cells and then constructing a series of polylines and polygons to connect other centroids of grid cells based on the 'gap distance' specified. All cells that intersect these polyline and polygons, as well as all distribution cells, are used to create the range. A separate set of technical guidelines regarding the range tool will be developed in the near future.

IV.a.i.c Some issues related to assessing range

- Occasional occurrences, outlying occurrences

The range for Article 17 reporting is drawn as an external envelope around the habitat type/species distribution which excludes principal discontinuities. The size and shape of the range is therefore to a large extent determined by the occurrences on the outer limits of the distribution. Species are occasionally recorded beyond their usual area of distribution, and these occasional records should not influence the shape and size of the range. The map of range is based only on regular occurrences of the habitat type/species.

On the other hand, particularly on the boundaries of natural geographical range, habitat types/species may occur in limited numbers in atypical conditions. These outliers should be included in the distribution of the habitat type/species if they represent regular or stable occurrences.

- Metapopulations

Many species have a metapopulation structure, which is characterised by local extinctions and (re)-colonisations. Although the range is a spatial generalisation of the actual habitat type/species distribution, in this case the range should represent the space which is used by metapopulation(s). Those localities with repeatedly recorded absence of the species but where the suitable habitat is still present and recolonisation possible should be included in the distribution map, if they form part of the area used by the metapopulation.

- Incomplete distribution data.

Some of the gaps in the distribution, as well in the range maps, are likely to be due to gaps in the data. After automated calculation of range it is possible to correct the gaps resulting from incompleteness of data. The resulting range map will then be the output from of the automated procedure as modified by expert judgement.

Another option for common and widespread habitat types and species would be to increase the gap distance.

IV.a.i.d How the calculated area of range will be used

The range map created by the Member State will be used directly or indirectly to fill in information requested by the reporting form.

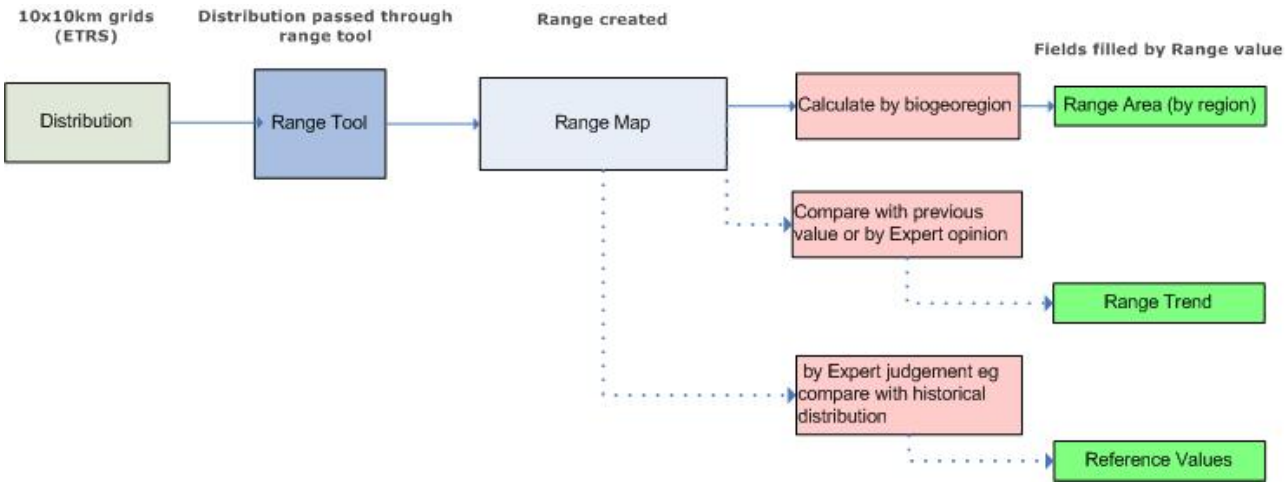

Figure 5: Estimation of range and use of the estimate

Range maps are created for entire Member State, but the range parameters are reported separately for each biogeographical region. The range in the biogeographical region is represented by all grids which occur or partly occur within the region.

IV.a.ii Future prospects

Article 1 (e):

The conservation status of a natural habitat will be taken as "favourable" when:
— its natural range and areas it covers within that range are stable or increasing, and
— the specific structure and functions which are necessary for its long- term maintenance exist and are likely to continue to exist for the foreseeable future, and
— the conservation status of its typical species is favourable

Article 1 (i):

The conservation status of a species will be taken as "favourable" when:
— population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
— the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
— there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long term basis

As shown by the extracts from the Habitats Directive the above definitions of the FCS for habitat types and species, assessments of CS must take into account the likely future prospects of habitat types and species. If they are not good (e.g. the population of a species is likely to decrease) then the habitat type or species cannot be at FCS. The concept of 'foreseeable future' is not defined in the Directive but should be interpreted to mean 2 reporting cycles, i.e. the next 12 years.

Future prospects could be evaluated using expert judgement and this was in fact the approach used most often for the 2001-2006 report. However, the absence of a standard approach meant it was difficult to aggregate data across biogeographic or marine regions.

It is recommended that future prospects should be evaluated by considering the future trends and likely future status of the 3 other parameters using the methodology described below and illustrated in Figure 6. However, only the result of the assessment should be reported in field 2.9.4. for species and 2.8.4 for habitat types. Nevertheless, it is recommended that documentation of the decision process is kept by the MS to aid reporting in the future.

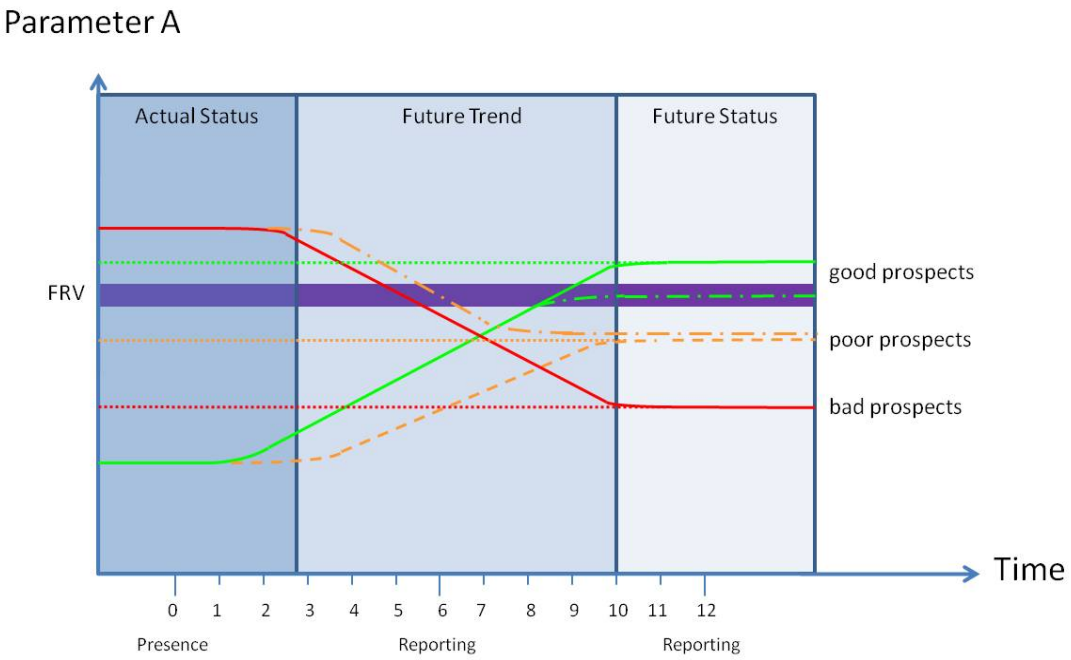

Figure 6: Assessment of the future prospects of a parameter based on its future trend and predicted future status.

Future trends

Future trends of habitats and species are dependent on threats which will have a negative influence, and on the other hand action plans, conservation measures and other provisions can have positive influence. For example climate change, land-use scenarios, trends in certain policies and regeneration potential of the habitat (type) are aspects that will influence future trends and thus the future status. In most cases positive (management actions, policy changes etc) and negative influences (threats) will simultaneously affect the habitat or the species. The assessment of future trends therefore has to take into account whether positive and negative influences (threats) will be in balance for the respective parameter of the habitat type or species under consideration or whether the one will exceed the other.

Future trends should be evaluated using the results under 'Main threats' (2.7 for species, 2.5 for habitat types). If this field indicates a number of threats of high or medium importance then the future trend of one or more parameter will very likely be decreasing (unless there are measures in place to avoid this). If there are only threats of low importance or even no threats indicated then the future trend can be evaluated as stable or even increasing. Either

prognosis models or expert judgements using the predicted threats will contribute to the assessment of future trends. Taking it as given that the actual status and its relation in respect of the favourable reference values is known, then the direction of future trends is decisive for the evaluation of the likely future status (see Fig. 6).

Future status

The future status of each parameter can be evaluated by calculation or estimation via expert judgements using available information. The favourable reference values (FRV) in the other parameters can be used as thresholds for the assessment of the long-term viability of the habitat or species. The other thresholds used in the general evaluation matrix for assessing Unfavourable-Inadequate (amber) and Unfavourable-Bad (red) can also be used to distinquish between poor and bad prospects.

Since it is hardly feasible to come to precise figures of the future status of the parameters, the future status should be assessed in relation to the FRVs and other thresholds by using operators (see Figure 6). FRVs are not reported for all parameters and an equivalent value is required.

For 'Structure & functions' (habitats only) it is recommended to use a percentage of the area in a favourable condition (for example 75 %) as the threshold for the FRV. For 'habitat for the species' (species only) the value reported as 'suitable habitat for the species´ could be used as a reference. Otherwise it is up to an expert judgement to assess whether the future area of the habitat will be sufficiently large (good prospects) or it will be clearly not sufficiently large (bad prospects) for the long-term survival of the species.

Further information on the evaluation of future prospects is given in the discussion paper used in the development of the recommended approach (on CIRCA http://circa.europa.eu/Public/irc/env/monnat/library?l=/expert_reporting/work-package_revision/sub-group_papers/future_prospects&vm=detailed&sb=Title)

IV.a.iii Evaluation matrix for future prospects

Following the recommended method, each parameter should be assessed in respect of its foreseeable future trends and the predicted future status (table 2).

Table 2. Evaluation matrix

Actual status of parameter	Future trend	Future status	Prospects (numbers refer to notes below)		
At/above FRV	+ (increasing)	> (above FRV)	Good		
At/above FRV	= (stable)	=/> (on/above FRV)	Good		
At FRV	- (decreasing)	</<< (under FRV)	Poor (1)	Bad (1)	
Above FRV	- (decreasing)	>/=/</<< (above/on/under FRV)	Good (2)	Poor (2)	Bad (2)
Below FRV	+ (increasing)	>/=/< (above/on/under FRV)	Good (3)	Poor (3)	Bad (3)
Below FRV	= (stable)	< (under FRV)	Poor (1)	Bad (1)	
Below FRV	- (decreasing)	< (under FRV)	Poor (1)	Bad (1)	
Unknown	+ (increasing)/ - (decreasing)/ = (stable)/ X (unknown)	X (unknown)	unknown		

under FRV on/above FRV	X (unknown)	X (unknown)	unknown

Notes
1 - Depending whether or not the future status is anticipated to be below the threshold for Unfavourable-Bad in two reporting cycles (12 years).
2 - Depending on whether the future status is anticipated to be on/above or under the FRVs or even below the threshold for Unfavourable-Bad in two reporting cycles (12 years)
3 - Depending whether the future status will exceed the FRV or the threshold for Unfavourable-Bad in two reporting cycles (12 years).

The tables presented below are designed to aid this evaluation.

Assessment table for future prospects of species

Parameter	Future Trend	Future Status	Prospects
Range			
Population			
Habitat			
Future Prospects			

Assessment table for future prospects of habitat types

Parameter	Future Trend	Future Status	Prospects
Range			
Area			
Structure & function			
Future Prospects			

Although the rate of decline of a parameter and its absolute deviation from FRV in the future is important, a sensible approach is to use only the direction of the future trend and the predicted future status (or equivalent) as more precise measurements will be difficult to obtain.

Clearly, once a parameter has been identified as having bad prospects, the assessment of future prospects will be 'Unfavourable-Bad' and there is no need to examine the other parameters but completing the process may help inform future needs for management.

Once the future prospects of the 3 parameters have been compiled the overall Future prospects can be assessed using the following rules:

	Favourable	Unfavourable-Inadequate	Unfavourable-Bad	*Unknown*
Future prospects	All parameters have good prospects OR prospects of one parameter unknown, the other prospects good	Other combination	One or more parameters have bad prospects	*Two or more x and no parameter with bad prospects*

Boxes 6 and 7 give examples of how this methodology can be used for a species and a habitat, note that a value equivalent to a favourable reference value has been estimated for 'habitat of the species' (Austrian approach).

Box 6: Future prospects for the plant *Ligularia sibirica* in the Alpine region of Austria

Range:
Actual range: 35 km^2
FRR: 35 km^2
Actual status: on FRV
Future trend: stable
Future status: on FRV
Future prospects: good

Population:
Actual population: app. 1.000 Individuals
FRP: 800 Individuals
Actual status: above FRV
Future trend: stable
Future status: above FRV
Future prospects: good

Habitat for the species:
Actual habitat: 5 ha
Suitable habitat (favourable habitat, Austrian approach): 5 ha
Actual status: on FRV
Future trend: stable
Future status: on FRV
Future prospects: good

Conclusion: All parameters have good future prospects so conclude 'Favourable'

Parameter	Future Trend	Future Status	Prospects
Range	Stable	On	Good
Population	Stable	Above	Good
Habitat	Stable	Above	Good
Future Prospects			FV

Box 7: Future Prospects of habitat type '8340 Permanent Glaciers' in the Alpine region of Austria

Range:
Actual range: 4755 km^2
FRR: more than 4755 km^2
Actual status: under FRV
Future trend: decreasing
Future status: under FRV

Future prospects: Bad

Area
Actual habitat type area: 455 km^2
FRA: 565 km^2
Actual status: under FRV
Future trend: decreasing
Future status: under FRV
Future prospects: bad

Structure and function
Actual status: unknown
Future trend: decreasing
Future status: unknown
Future prospects: unknown

Conclusion: Three parameters have bad future prospects so conclude 'Unfavourable-Bad'

Parameter	Future Trend	Future Status	Prospects
Range	Decreasing	Under	Bad
Area	Decreasing	Under	Bad
Structure & function	Decreasing	Unknown	Unknown
Future Prospects			U2

IV.b PARAMETERS ONLY USED FOR SPECIES ASSESSMENTS

IV.b.i Sources of information for species assessments

Member States are obliged by Art 11 to undertake surveys and inventories and these should be the basis of the Article 17 assessments.

For many species information is available from volunteer networks, often organised by NGOs or scientific societies (Bell *et al*, 2008)[35] and the EUMON project has compiled a list (incomplete) of monitoring schemes across Europe which can be found on the project website[36].

Guidance has been published by the European Commission for large carnivores[37] and this may be a source of information but that guidance was produced from a management

[35] Bell, Sandra, Mariella Marzano, Joanna Cent, Hanna Kobierska, Dan Podjed, Deivida Vandzinskaite, Hugo Reinert, Ausrine Armaitiene, Malgorzata Grodzińska-Jurczak, and Rajko Muršič. 2008. What counts? Volunteers and their organisations in the recording and monitoring of biodiversity. *Biodiversity and Conservation* 17, no. 14 (December 1): 3443-3454.
[36] http://eumon.ckff.si/monitoring/ (note that the database was updated in 2010 and is much more complete than before).
[37] See http://ec.europa.eu/environment/nature/conservation/species/carnivores/index_en.htm

perspective. For reporting under Article 17, in cases of conflicting advice, the guidance given in these guidelines takes priority.

In addition supporting information for the Article 17 assessments may be available in a European Atlas such as those published for the following groups of species:

- Amphibians & Reptiles (Gasc et al, 1997)
- Butterflies & Moths (Gomez de Aizpurua, 2004; Kudrna, 2002)
- Invertebrates (Helsdingen, Willemse & Speight, 1996 a,b,c)
- Mammals (Mitchell-Jones et al, 1999)
- Vascular Plants Atlas Flora Europaea[38]

Some of these are now old and in some cases only indicative while the Atlas Flora Europaea is incomplete; all should be used with caution.

Information may also be available from the Global Biodiversity Information Facility (GBIF)[39] while information on fish is given in Maitland (1994)[40] and on Fishbase[41]. For bryophytes some distribution data are available from the European Committee for Conservation of Bryophytes[42] while EMODnet Biology[43] has information for marine species.

IV.b.ii Transfrontier populations

In some cases species may have a population which is shared between two or more Member States, for example the Pyrenean population of brown bear (*Ursus arctos*) in France and Spain or the Tatra chamois (*Rupicaria rupicaria tatrica*) in Poland and Slovakia. In such instances Member States are encouraged to undertake a common assessment and to agree on data and assessments, but each Member State would report the results. In such cases this should be noted under new field 2.8.3 Transboundary assessment. This is particularly relevant for the parameters range, population and possibly habitat for the species, as the threats and pressures are likely to be different in each Member State. This means that reports may not be identical for all the concerned MS.

Joint assessments between two or more Member States should be done primarily in cases where there is a certain level of cooperation and common understanding of the management needs and approaches for that species (e.g. large carnivore populations). There may also be cases where it is biologically relevant to consider populations in a neighboring non-EU country. This should be clearly described under field 2.8.3 Transboundary assessment.

For some marine species, population estimates have been made by sea area and not by Member State, for example the SCANS surveys of small cetaceans in the European Atlantic and North Sea[44]. In such cases it may be appropriate for all Member States involved to produce a regional assessment for range and population. In addition, co-ordinated assessment for threats and pressures and future prospects should be undertaken if appropriate. As combined estimates may be based on diverse data sources it is important

[38] Atlas Flora Europaea
[39] http://www.gbif.org/
[40] Maitland, P.S. (1994). *Conservation of freshwater fish in Europe*. Nature and Environment 66 Council of Europe Press, Strasbourg.
[41] http://www.fishbase.org
[42] http://www.bio.ntnu.no/users/soder/ECCB/RDBTaxon.php
[43] European Marine Observation and Data Network http://bio.emodnet.eu/
[44] See http://biology.st-andrews.ac.uk/scans2/index.html

that the field 2.8.3 Transboundary assessment includes information on how the assessment (e.g. population estimation) was carried out.

An example of an assessment for a transboundary population is given in Appendix 6. Please notice that this example is not fully complete as all data is not yet available, but it aims to demonstrate how transboundary assessment can be done.

IV.b.iii Population units

It is difficult to make comparisons between Member States if different units are used. Population size is the preferred parameter for weighting national assessments of the non-quantitative parameters to produce supra-national assessments. In order to be able to aggregate data on population size of a species across the EU the same population unit should be used in all Member States in which it occurs.

However, at present, there is no agreement between the Member States on which population units should be used for each species. The reporting format offers therefore two alternatives: to report population size either using individuals and agreed exceptions (see below and the list of exceptions at the reference portal) at field 2.4.1; or to use another unit (see standard list in reference portal) and report at field 2.4.2. Where a Member State chooses to report using another unit (2.4.2), it is requested to convert this value to individuals or agreed exceptions if this is reasonable. In this case, both fields 2.4.1 and 2.4.2 should be completed.

Based on the results of the 2007-2012 reporting cycle the issue of harmonising population units will be re-assessed and further developed. The long term aim, which may take several reporting cycles to achieve, is to agree population units for each species.

The estimates of population size are complementary to distribution maps - the two figures together give a good overview of the status of the species in the different Member States, biogeographical regions or in the European Union.

IV.b.iv Recommended population units

For species occurring in only one Member State, there is no need to change the unit used for the 2001-2006 report as their report(s) cover 100% of the EU-population. The recommendation is to use mature individuals as a main population unit wherever meaningful. This does not mean that the Member States are being asked to put in place monitoring schemes to provide data on number of individuals. Monitoring units can be different to the population units reported under Article 17.

It is proposed to use a unit other than mature individuals for 68 species (see list on the reference portal). The recommended exceptions are mainly substrate units (trees, logs, stones) or surface area (square metres). The latter will then normally be the same as the occupied habitat for the species. If grids are used as a population unit they should, if possible, be at a finer scale than used for distribution.

The groups concerned are bryophytes, some arthropods, mainly coleoptera, and some small molluscs (e.g. *Vertigo* spp). For bryophytes they include species living on trees, logs and trunks and some ground-living species mainly in wetlands. The arthropods are species living inside trees while the molluscs are small species mostly living in wetlands.

IV.b.v Estimating population size

As many Member States will not have monitoring systems that collect data on individuals, for more common species it is important that it should be possible to report the population size estimate - as a number, a range (minimum & maximum) or as a class (see proposed classes below), with a free text commentary field to describe how the population number was calculated (field 2.4.3).

Although no strict definition of 'mature individual' is available, in general, adult individuals are included, i.e. those known or thought to be capable of reproducing; but for example frog larvae and seedlings are not. For most animal species individuals are quite easy to delineate and understand. For some invertebrates it is perhaps not practical but it is still easy to understand what an individual is. However, for some plants it is more problematic, for several species (e.g. clonal populations with vegetative reproduction) it is not possible to distinguish individuals from each other above ground while ferns (e.g. *Trichomanes speciosum*) may have both gametophyte and sporophyte generations. As a pragmatic solution it is recommended to treat shoots or tufts as individuals.

If the exact number of individuals is known, report the same value for minimum and for maximum. If only approximate population estimates are available it is possible to use classes, see Table 3.

Table 3: Classes for reporting population

Class	Population
1	0-50
2	50-100
3	100-500
4	500-1 000
5	1 000-5 000
6	5 000-10 000
7	10 000-50 000
8	50 000-100 000
9	100 000-500 000
10	500 000-1 000 000
11	1 000 000-5 000 000
12	5 000 000-10 000 000
13	10 000 000-50 000 000
14	50 000 000-100 000 000

The reporting format gives a possibility to report on problems encountered to provide population size estimation. This information will serve the future development of the use of population units.

IV.b.vi Using other population units and converting to individuals

If grids are used as a population unit they should be at a finer scale than used for distribution. Localities need to be defined. If Member States use a unit other than individuals it should be one of the units which have been agreed for use in the revised Standard Data Form. The standard list of units is available on the Reference Portal.

If localities or grids are reported in 2013, the Member States have the option to convert that data into individuals (with the possibility to use of classes). Box 8 shows a worked example for a plant species in the Boreal region of Sweden. Appendix 4 gives some further examples of how to carry out this conversion.

Box 8: Converting localities to individuals
Pulsatilla patens (a perennial vascular plant) is known from at least 35 actual localities (separated by at least 1 km). From most of them there is information from the last 10 years A few sites have been monitored at irregular intervals. One site has the main population. It has been surveyed once, ten years ago.

The largest locality has roughly 100 000–150 000 flowering individuals yearly. The other localities have less than 200 individuals. At only two of those localities have more than 100 individuals have been counted during the last 50 years. Most of the localities have less than 10 individuals yearly.

Approximation: one locality 100 000–150 000, 2 with 50–200, 12 10–50, with 20 with 5–10 individuals. Gives: 100 320–151 200 individuals or class 9 (100 000–500 000 individuals).

IV.b.vii Population structure and genetics

Although Annex B does not ask for information on population structure (age, classes, etc.) some knowledge of the population structure is needed for the assessment of population in Annex C.

In general, an absence of or unnaturally low recruitment would indicate an unfavourable population structure. Similarly, an unnaturally high mortality for all or certain age classes can lead to an unfavourable population structure. The lack of young individuals in many monitored local populations may also indicate an unfavourable population structure.

For example the population structure of the freshwater pearl mussel, *Margaritifera margaritifera*, in the Czech Republic is poor (reproduction and age structure deviates strongly from normal), so the population of the species has to be regarded as in unfavourable conservation status, even if the population was larger than the favourable reference value of pearl mussel population.

Similarly it may be relevant to consider the genetic structure of a species. In many cases little information is available, although some studies have been focused on particularly rare species such as the Annex II & IV plants *Borderea chouardii* [45] and *Dracocephalum austriacum* [46] . The importance of genetics in the evaluation of conservation status is discussed in more detail in Laikre et al (2009)[47].

[45] Segarra-Moragues, J. G., M. Palop-Esteban, F. González-Candelas, and P. Catalán. 2005. On the verge of extinction: genetics of the critically endangered Iberian plant species, *Borderea chouardii* (Dioscoreaceae) and implications for conservation management. *Molecular Ecology* 14, no. 4 (3): 969-982.
[46] Dostálek, Tomáš, Zuzana Münzbergová, and Ivana Plačková. 2009. Genetic diversity and its effect on fitness in an endangered plant species, *Dracocephalum austriacum* L. *Conservation Genetics* 11, no. 3 (3): 773-783.
[47] Laikre, L, T Nilsson, C R. Primmer, N Ryman, and F W. Allendorf. 2009. Importance of Genetics in the Interpretation of Favourable Conservation Status. *Conservation Biology* 23, no. 6: 1378-1381.

IV.b.viii Habitat for the species

The definition of favourable conservation status for a species given in Article 1 of the Habitats Directive includes

> *"- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long term basis" (Art1i)*

Art 1f defines habitat of a species as:

> *"an environment defined by specific abiotic or biotic factors, in which the species lives at any stage of its biological cycle"*

Accordingly, 'habitat for the species' is one of the four parameters used to assess conservation status. The reporting format asks for the habitat area, habitat quality and trend together with information on the data quality and reasons for any change (Annex B, section 2.5).

There is also an option to report the area of suitable habitat if appropriate – areas thought to be suitable for the species but from which it may be absent (field 2.5.9). This allows species where lack of suitable habitat is a major problem to be identified.

'Habitat for the species' uses habitat in its original meaning of the resources (biological and physical) used by a species during its life. Although a variety of definitions have been used (see for example Mitchell 2005[48]), this is sometimes referred to as the ecological niche of a species. Many species use different biotopes at different times of the year or at different parts of their life cycle, 'Habitat for the species' should include all of these, for example a butterfly may have different partial habitats as a larvae, pupae and adult and a bat may have different habitats in summer and winter.

This meaning should be contrasted with 'habitats' as used for Annex I and for habitat classifications where 'habitat' is more correctly biotope (or in many cases biotope complex). Turlure et al (2009)[49] show how 2 species of butterfly can use the same biotope but have different niches.

Generalists

For some species which use a wide range of habitats, often termed 'generalists', it is difficult to identify the area used with any precision. However, for these species it is less likely that the habitat is a limiting factor controlling their population size or reproduction than for a 'specialist' species dependent on one or a few habitats. For generalist species factors such as availability of prey is often more important than habitat area. In these cases it may be sensible to give area of habitat as the range within the country or biogeographical area within a country and to assume that if both 'range' and 'population' parameters are favourable, then the habitat for the species is also likely to be favourable (see figure 7 and point 3 of box 8), Field 2.5.4 b 'Explain how the quality was assessed' can be used for this purpose.

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[48] Mitchell, Sean C. 2005. How useful is the concept of habitat? - a critique. *Oikos* 110, no. 3 (9): 634-638.

[49] Turlure, Camille, Hans Van Dyck, Nicolas Schtickzelle, and Michel Baguette. 2009. Resource-based habitat definition, niche overlap and conservation of two sympatric glacial relict butterflies. *Oikos* 118, no. 6 (6): 950-960.

In some cases a species may be associated with a broad class of habitats, for example in Poland the range of *Cricetus cricetus* has been estimated from Corine Land Cover as it is restricted to agricultural land (although as the species cannot use all agricultural land this method is likely to overestimate the available habitat).

Specialists

Some species are known to be restricted to particular habitats, for example the Annex II beetle *Agathidium pulchellum* is dependent on the slimemold *Trichia decipiens* living on deadwood in Boreal forest (Laaksonen et al 2009[50]). Some species have well known requirements, for example saproxylic insects are dependent on old trees. But these may be features which can be found in many habitat types in the Annex I sense e.g. old trees can be found in woods, hedgerows and parks. Some species are usually found in the transitions between habitats, for example species inhabiting woodland margins.

Ideally both the area of habitat used by the species and its trend, plus the area of suitable habitat would be available, and if they are, should be reported. In rare cases the habitat may be an Annex I habitat type or group of Annex I habitat types and information collected for the habitat assessment can provide an estimate of the habitat for the species. It may be possible to model the habitat used by a species, for example Kuemmerle *et al* (in press)[51] show how the habitat for *Bison bonasus* can be modelled and is much larger than currently used.

In some cases the trend may be known but not the area. For example, in the United Kingdom the habitat used by the Annex II beetle *Limoniscus violaceus* is described as decaying cavities in old trees occurring in woods or wood-pasture but the actual area is unknown. However, it is known that the number of such trees is in decline so the trend in habitat area has been reported as 'declining' leading to an assessment as 'Unfavourable - Inadequate and deteriorating' (U1-) for this parameter[52].

Figure 7 shows a decision tree used by the United Kingdom to help assess this parameter in a structured manner even when data are limited while Box 9 describes the Belgian approach.

[50] Laaksonen, Mervi, Kaisa Murdoch, Juha Siitonen, and Gergely Várkonyi. 2009. Habitat associations of *Agathidium pulchellum*, an endangered old-growth forest beetle species living on slime moulds. *Journal of Insect Conservation* 14, no. 1 (5): 89-98.

[51] Kuemmerle, Tobias, Volker Radeloff, Kajetan Perzanowski, Piotr Kozlo, Taras Sipko, Pavlo Khoyetskyy, Andriy-Taras Bashta, et al. 2011. Predicting potential European bison habitat across its former range. *Ecological Applications* 21 (3): 830-843.

[52] Conservation status assessment for S1079: *Limoniscus violaceus* Violet click beetle http://jncc.defra.gov.uk/pdf/Article17/FCS2007-S1079-audit-Final.pdf

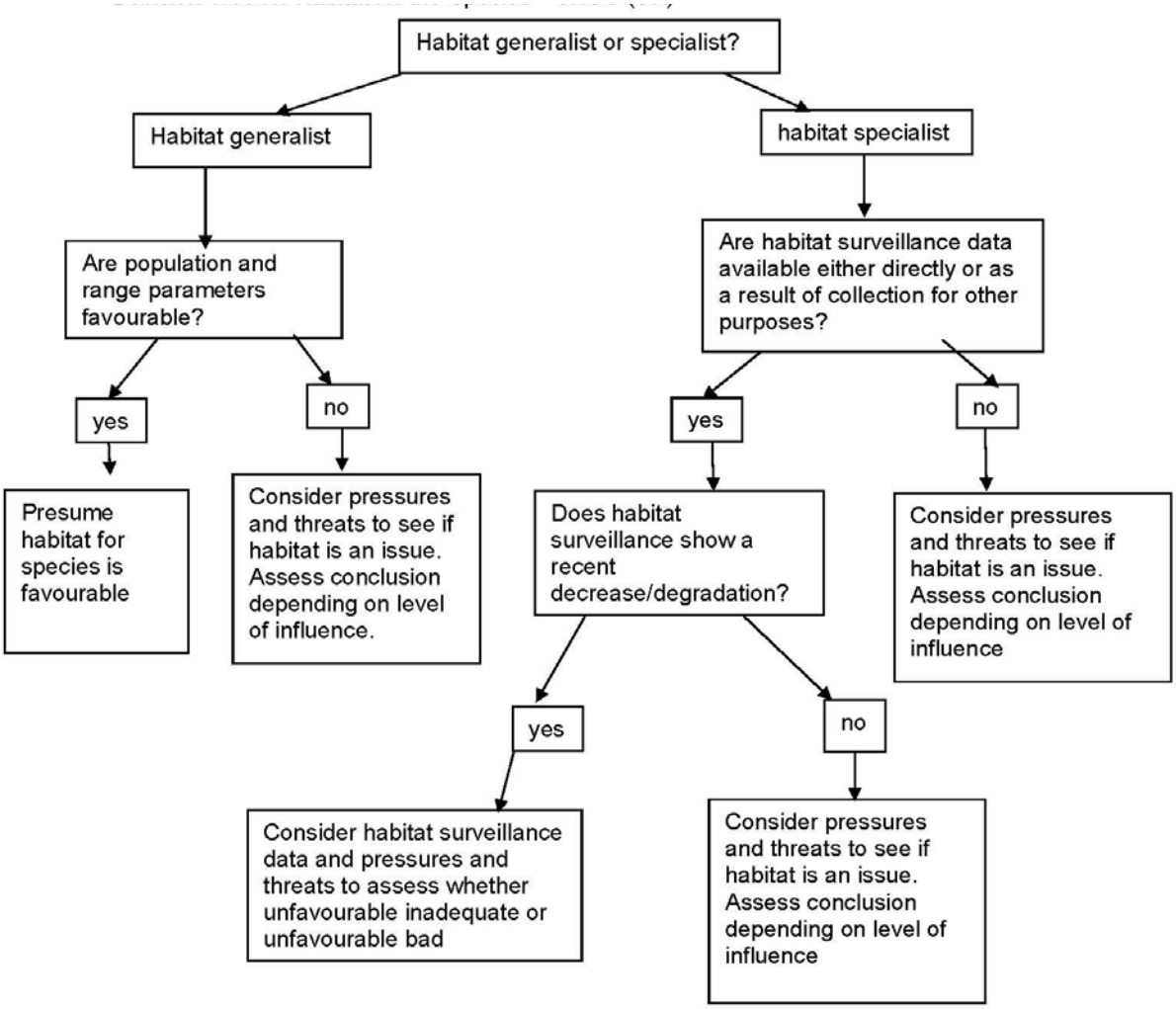

Figure 7: United Kingdom decision tree to aid assessment of the parameter 'habitat for the species' (from the JNCC).

Habitat quality should be reported at field 2.5.4 using one of 3 classes – good, moderate or bad. This should be based on the surveillance required by Article 11 of the Habitats Directive, complemented by expert opinion if necessary. 'Good' habitat quality implies that the species is not limited by its habitat, 'bad' implies that habitat quality is a major problem.

Box 9: The Belgian approach to 'Habitat for the species'

In Belgium four different approaches were used for the 2001-2006 report depending on the biology of the species and the data available;

1 - Where clear links exist between the habitat requirements of a species and the presence of particular habitat types (especially Annex I habitat types), a species (potential) habitat area was estimated by adding up the known areas of the habitat types. This approach was used for some vascular plants, bryophytes and lichens.

For *Vertigo moulinsiana* a comparable approach was used, but in this case it concerns also non annex I habitat types (large sedge vegetation = Magnocaricion + sedge rich subtype of 91E0) which also can be derived from the Belgian land cover map.

2 – There was only one species (*Lucanus cervus*) where the results of a research programme with extensive surveys of habitat requirements could be adopted. The habitat area of existing populations was calculated using GIS after modelling of the collected habitat data.

3 - For other species, especially those requiring very large habitat areas, (potential) habitat area was estimated using expert opinion. For most of these species (predominantly carnivores), current distribution and area use was very hard to assess.
For example
- for marine mammals the total Belgian marine area was considered as range = area = suitable habitat;
- carnivorous mammals require very large areas and are very mobile: it is very difficult to distinguish between areas really occupied by the species so suitable habitat and area were therefore considered the same.

4 - Habitat area of species with only a limited number of populations that are fully covered by existing monitoring programmes was estimated based on the results of the intensive monitoring.

As monitoring schemes are developed and implemented, it will be possible to make a clear distinction between the habitat that is effectively occupied by the species and the potential (i.e. suitable) habitat. For methodological reasons and because distribution data were lacking, it was not possible to make this distinction for some species during the conservation status assessment in the 2001-2006 report.

IV.c PARAMETERS ONLY USED FOR ASSESSMENT OF HABITAT TYPES

IV.c.i Sources of information for assessing habitat types

Like for species, Member states are obliged under Art.11 of the directive to monitor the status of habitats.
In many countries there are also existing inventories of certain habitat types (e.g. forests or grasslands) which have been produced for a variety of purposes. These may not use the same classification of habitats as the Directive but in many cases they can be reinterpreted, possibly with the aid of further information such as soil or geological maps. Many countries have published 'translations' between various habitat classifications and the typology used in Annex I (which is mostly based on CORINE (European Communities, 1991) & the Palaearctic classifications (Devillers & Devillers-Terschuren, 1996). The ETC/BD developed the EUNIS Habitat Classification that provides a tool for making correspondence between different land use, habitat and vegetation classification systems.

For example, the Czech biotope manual (Chytrý et al, 2010)[53] gives the equivalent unit(s) in the national classification for each Annex I habitat types present in the Czech Republic as well as the equivalent phytosociological syntaxa and the French Cahiers d'habitats[54] series lists the syntaxa for all Annex I habitat types present in France. The German Interpretation

[53] Chytrý, M. et al, M. (eds) (2010) *Katalog biotopů České republiky (Druhé vydání)*, AOPK, Prague
[54] http://natura2000.environnement.gouv.fr/habitats/cahiers.html

Manual gives references to the German national biotope classification, Red Data book of Biotopes and to phytosociological syntaxa (Ssymank et al. 1998)[55].

Where no map of habitat range exists it may be possible to model the range from other sources of data, such as maps of potential natural vegetation (e.g. Bohn et al, 2004)[56], distribution of key species, soil and geological maps, climate data or topographical maps.

Several countries have monitoring schemes based on stratified random sampling such as the Countryside Survey[57] in the United Kingdom or the Nationell Inventering av Landskapet i Sverige (NILS)[58] project in Sweden. Although these methods cannot give detailed information on distribution of detailed Annex I habitat types they can give good estimates of habitat type area and trends in area. There have been several seabed mapping projects such as Balance[59] and Mesh[60] and these are now being brought together and extended in the EUSeaMap project[61].

Remote sensing techniques continue to evolve and many projects have used them to both map and assess quality of habitat types, however such techniques are mostly still experimental and are not yet suitable for operational use for most Annex I habitats[62].

IV.c.ii Area covered by habitat

Habitat area should be given in km^2. See step-by-step guidance under section VI.d, 2.4.

IV.c.iii Structures and functions (including typical species)

> *"the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable as defined in (i)" (from Article I(e)).*

Structures are considered to be the physical components of a habitat type, these will often be formed by species (both living and dead), e.g. trees & shrubs in a woodland, corals in some forms of reef but can also include structures such as gravel used for spawning. Functions are the ecological processes occurring at a number of temporal and spatial scales and vary greatly between habitat types. For example tree regeneration and nutrient cycling

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[55] Ssymank, A., Hauke, U., Rückriem, C. & Schröder, E. unter Mitarbeit von Messer, D. (1998): Das europäische Schutzgebietssystem NATURA 2000 - BfN-Handbuch zur Umsetzung der Fauna-Flora-Habitat-Richtlinie (92/43/EWG) und der Vogelschutz-Richtlinie (79/409/EWG). - SchrR. f. Landschaftspfl. u. Natursch. 53, 560 S.

[56] Bohn, U.; Gollub, G.; Hettwer, C.; Neuhäuslová, Z.; Raus, Th.; Schlüter, H. & Weber, H. (Eds) 2004. *Interaktive/Interactive CD-ROM zur Karte der natürlichen Vegetation Europas/to the Map of the Natural Vegetation of Europe. Maßstab/Scale 1:2.500.000. - Erläuterungstext, Legende, Karten/Explanatory Text, Legend, Maps*. – Münster (Landwirtschaftsverlag).

[57] http://www.countrysidesurvey.org.uk/

[58] http://nils.slu.se/

[59] http://www.balance-eu.org/

[60] http://www.searchmesh.net/

[61] http://www.jncc.gov.uk/page-5020

[62] For a recent review see
Vanden Borre, Jeroen, Desiré Paelinckx, Caspar A. Mücher, Lammert Kooistra, Birgen Haest, Geert De Blust, and Anne M. Schmidt. (2011). Integrating remote sensing in Natura 2000 habitat monitoring: Prospects on the way forward. *Journal for Nature Conservation* 19 (2): 116-125.

are important functions in woodland habitats. Functions are often linked to ecosystem services. Although fragmentation is not mentioned in the directive it is clear that fragmentation can disrupt habitat function and is a factor that should be taken into account when assessing structure & function.

For a habitat type to be considered to have a Favourable Conservation Status the directive requires its structure and functions to be favourable and its 'typical species' to be at Favourable Conservation Status. Given the wide range of habitat types listed on Annex I and their inherent variability it is not possible to give detailed guidance for each individual habitat type but clearly the various ecological processes essential for a habitat type have to be present and functioning for the habitat type to be considered to be at FCS.

Although the Directive uses the term 'typical species' it does not give a definition, either for use in reporting or for use in impact assessments. As it would be a considerable increase in the necessary work to undertake an assessment of the conservation status of each typical species using the methodology used for species of Annexes II, IV & V, the assessment of typical species is included as part of the assessment of the structure & function parameter. The species considered as 'typical' should be reported at section 2.7.1 of Annex D.

The assessment of structure & function is carried out for a biogeographical or marine region and it is not necessary for all components of structure or functions to be present on all sites where a habitat occurs. For example, although all age classes of a woodland type need to be present at a regional scale, together with sufficient regeneration, the stages need not be present on the same site at the same time.

The assessment for a region will be based, at least in part, on measurements made on individual sites and some Member States have developed methods to aggregate site based assessments to give the regional assessment. For example, Box 10 describes a method developed in Austria. Box 11 outlines a possible method to link site evaluations to assessments for a biogeographical or marine region developed by Belgium. This method is to guide assessments and the detail should not be reported.

Box 10: Assessing Structure & function for forest habitats in Austria

The Austrian assessment of structures and functions for woodland habitat types in the 2001-2006 Article 17 report was based on the Austrian Forest Inventory which provides a vast set of parameters on more than 11 000 permanent plots. Data for the tree-layer composition, age structure of the stand, dead wood and utilisation were used to assess the local (site) conservation status ('degree of conservation' in the revised SDF) for structure and functions using the system of the Standard Data Forms for conservation status (A, B, C). Thresholds for the assessment of the parameter were set as follows:

	FV	U1	U2
Structure & function	>30 % A	Other combination	>70 % C

Habitat type 9130 *Asperulo Fagetum* Beech forests in the alpine region of Austria is represented by 944 permanent plots of the Forest Inventory. The proportion of the local conservation status is 33 % C, 59 % B and 8 % A. The parameter therefore was evaluated as Unfavourable-Inadequate (U1).

Box 11: Relating site evaluations to biogeographical and marine regional assessments – the Belgium approach

1 Structures and functions of the the majority of the habitat area (e.g. ≥ 90 %) has a favourable status at the site level **AND** no pressures are ranked in the category 'high importance' (or those reported as such do not affect the specific structures and functions). (Result: FV);
2 Structures and functions of the the largest part of the area (e.g. ≥ 90 %) has a favourable status at the site level **BUT** pressures are reported in the category 'high importance' which affect the specific structures and functions. (Result: U1);
3 ≥ 75 %, but not the largest part (e.g. < 90 %) of the area has a favourable status at the site level concerning their specific structures and functions (Result: U1);
4 Around 25 % of the area has an unfavourable status for structures and functions, but it is not sure (i.e. not statistically significant) whether or not it is more or less than the threshold value of 25 % as stated in the evaluation matrix. Expert opinion can be used to take the decision between U1 and U2;
5 It is sure that more than 25 % of the area has an unfavourable local status concerning their specific structures and functions. (Result: U2)

Note – 'site' may include sites other than SCI/SAC

Typical species for Article 17 reporting should be selected to reflect favourable structure and functions of the habitat type, although it will not be possible to associate species with all aspects of structure and function. Given the variability of the Annex I habitats it is not realistic to have recommended lists of typical species, even for a biogeographical or marine region, indeed even within one country different species may be needed in different parts of the range of a habitat or for different subtypes as shown in Table 4.

Given the variability of habitat types across their range it is very unlikely that all typical species will be present on all examples of a given habitat type. The sum of sites and occurrences of each habitat type should however support viable populations of the typical species on a long term basis to be in Favourable Conservation Status. It is only natural that there will be a turn-over in the species pool, so that local loss and recolonization of distinct species out of the selected group of typical species will occur. As long as these processes balance over the long term for each typical species the structure and function of the habitat type should be regarded as favourable. Appendix 5 gives examples of structures and functions per habitat group and links them to suggestions for typical species.

When choosing "typical species" for reporting under Article 17 the following considerations should be taken into account:

- "Typical species" should be good indicators for favourable habitat quality, e.g. by indicating presence of a wider group of species with specific habitat requirements. They should be species only found in the habitat or which are present over a large part of the habitat's range. They should be sensitive to changes in the condition of the habitat ("early warning indicator species").

- It should be possible to detect "typical species" by non-destructive and inexpensive means.

- The list of "typical species" chosen for the purpose of assessing conservation status should ideally remain stable over the middle-to long-term.

- Characteristic species of the Interpretation Manual may be used as typical species if they meet the criteria in the above points.

Table 4: Typical species proposed for 4 subtypes (associations) of habitat type '9130 Asperulo-Fagetum beech forests' in France. All these subtypes occur in north-east France. (from Maciejewski, 2010)[63].

Poa chaixii-Fagetum sylvaticae	*Galio odorati-Fagetum sylvaticae*	*Tilio platyphylli-Fagetum sylvaticae*	*Cardamino heptaphyllae-Abietetum albae*
Quercus petraea	*Fagus sylvatica*	*Tilia platyphyllos*	*Fagus sylvatica*
Fagus sylvatica	*Quercus petraea*	*Fagus sylvatica*	*Picea abies*
Hedera helix	*Crataegus laevigata*	*Sambucus nigra*	*Abies alba*
Anemone nemorosa	*Hedera helix*	*Corylus avellana*	*Galium odoratum*
Lamiastrum galeobdolon	*Anemone nemorosa*	*Lonicera xylosteum*	*Hedera helix*
Milium effusum	*Galium odoratum*	*Hedera helix*	*Vaccinium myrtillus*
Galium odoratum	*Melica uniflora*	*Allium ursinum*	*Lamiastrum galeobdolon*
Convallaria majalis	*Ornithogalum pyrenaicum*	*Mercurialis perennis*	*Fragaria vesca*
Lonicera periclymenum	*Ligustrum vulgare*	*Lamiastrum galeobdolon*	*Ribes alpinum*
Luzula luzuloides			*Mercurialis perennis*
Deschampsia cespitosa			*Rosa pendulina*

Typical species may be drawn from any species group and although most species noted in 2001-2006 were vascular plants, consideration should be given to lichens, mosses, fungi and animal groups (including birds). The choice of species should not be restricted to the species listed on Annexes II, IV & V.

A full assessment of the conservation status of each typical species is not required and the reporting format only asks for a list of species which have been considered and a brief description of the method used to assess their conservation status as part of the overall assessment of structure and functions which may be based on expert judgement, Red Data books or general surveys. It is not expected that typical species will be monitored closely.

Invasive species, either alien or not normally occurring in the habitat, are often very good indicators of poor conservation status, for example the invasive plants *Paspalum distichum*, *Ludwigia peploides* and *L. grandiflora* are considered as negative indicators for '3170

[63] Maciejewski L., (2010) Méthodologie d'élaboration des listes d'« espèces typiques » pour des habitats forestiers d'intérêt communautaire en vue de l'évaluation de leur état de conservation. Rapport SPN 2010-12 / MNHN-SPN, Paris, 48 p. + annexes. http://inpn.mnhn.fr/docs/Especes_typiques_Maciejewski2010.pdf

Mediterranean temporary ponds' in France. However, these species cannot be considered as 'typical species'. Where appropriate they should be reported under 'threats & pressures'.

IV.c.iv Overlapping habitats

Annex I contains both biotopes and biotope complexes and sometimes an Annex I biotope is a component of an Annex I biotope complex or landscape with the result that in some cases Annex I habitats can overlap with areas of one habitat occurring within another.

For example;

- '1160 Large shallow inlets and bays' could include areas of
  - '1110 Sandbanks which are slightly covered by sea water all the time'
  - '1170 Reefs'

- '7110 Active raised bogs' often have small areas of
  - '3160 Natural dystrophic lakes and ponds'
  - '7150 Depressions on peat substrates of the *Rhynchosporion*'.

Where this happens each habitat should be reported in its entirety although some areas may have contributed to 2 or more assessments as shown by Figure 8. This will allow an estimate of the total area of the habitat types for each Member State and region.

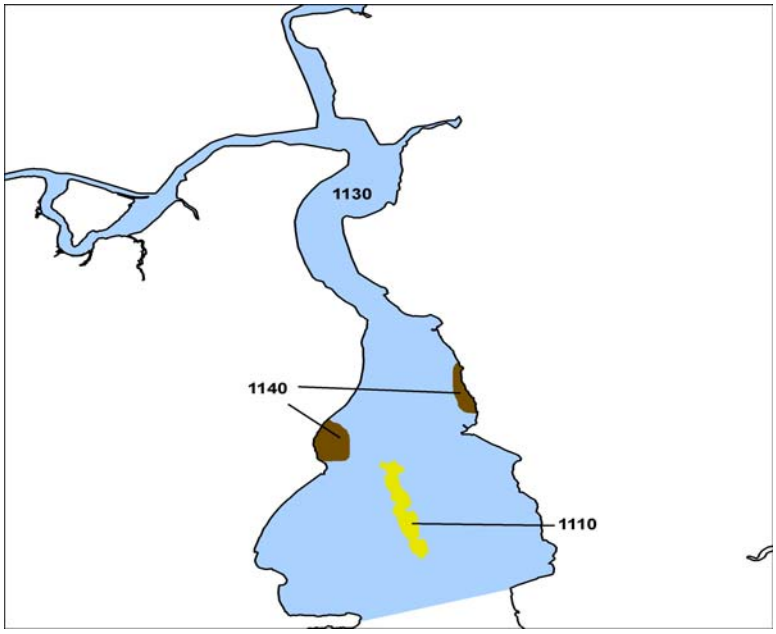

Figure 8: How to treat overlapping habitats. The area to be reported for '1130 Estuaries' (blue) will also include areas of '1110 Sandbanks which are slightly covered by sea water all the time' (yellow) and '1140 Mudflats and sandflats not covered by seawater at low tide'.

V MARINE HABITAT TYPES & SPECIES

V.a MARINE REGIONS

The map of biogeographical regions was prepared from terrestrial data and it is not appropriate for reporting on non-coastal marine habitat types and species.

For marine habitat types and species (see V.b below) Member States should report conservation status using the following marine regions (see Figure 9):

- Atlantic: Northern and Western Atlantic, from the Punta de Tarifa to the Kattegat, including the North Sea;
- Baltic: east of the Kattegat, including the Gulf of Finland and the Gulf of Bothnia;
- Black Sea: north of Capes Kelagra and Dalyan
- Mediterranean: east of Punta de Tarifa
- Macaronesian: Economic Exclusive Zones of the Azores, Madeira and Canary Archipelagos.

Please notice that the exact boundaries are being discussed under the MSFD and once a solution is agreed ETC/BD will modify the maps accordingly and consult with those Member States who are affected (Spain, Sweden and Denmark).

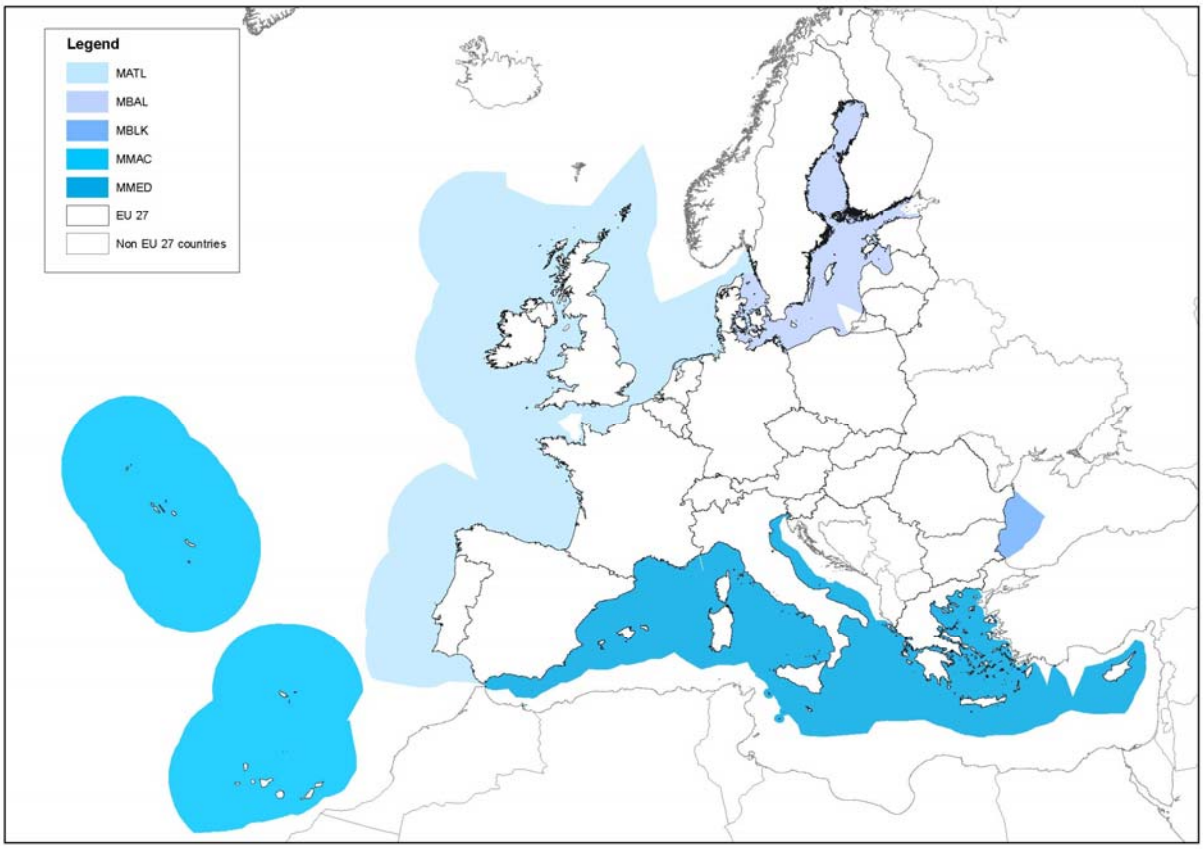

Figure 9: The Marine regions for Article 17 reporting

These marine regions largely coincide with the boundaries of the marine conventions except for Macaronesia which is partly covered by OSPAR (Azores) and partly outwith any marine

convention. Note that both the OSPAR and HELCOM conventions cover the Kattegat while OSPAR and the Barcelona Convention both cover an area west of the Strait of Gibraltar. The boundary used here between the Atlantic and Mediterranean is that from the OSPAR Convention while the boundary between the Atlantic and the Baltic is from HELCOM. These regions have also been used for the Natura 2000 marine seminars held in 2009 and 2010.

A digital version of the map of the marine regions can be downloaded from the Article 17 Reference Portal[64].

V.b MARINE HABITAT TYPES & SPECIES

The following habitat types and species should only be reported for the appropriate marine region even though some of them also occur, at times, on land. For example, *Halichoerus grypus* (Grey seal) should only be reported for marine regions even though it occurs on beaches and rocks.

Species which are predominately terrestrial, but which can occur in the sea, such as *Lutra lutra* (Otter) should only be reported under the appropriate terrestrial region. All anadromous fish except for *Acipenser sturio* should be reported for terrestrial regions.

In both cases the assessment should take into account the use of the other region, i.e. an assessment of *Halichoerus grypus* will include the beaches, rocks, etc as well as the seal's use of marine habitats.

The following list of marine habitat types and species has been prepared for Art 17 reporting. Please notice also that listing of the habitat types as "marine" does not have any effect on the definition of these habitat types.

Some habitat types could be considered as either marine or terrestrial (e.g. Estuaries), here we have classified habitat types always open to the sea as marine, so coastal lagoons which have no permanent opening to the sea are considered to be terrestrial.

Habitat types
1110 Sandbanks which are slightly covered by sea water all the time
1120 *Posidonia beds (*Posidonion oceanicae*)
1130 Estuaries
1140 Mudflats and sandflats not covered by seawater at low tide
1160 Large shallow inlets and bays
1170 Reefs
1180 Submarine structures made by leaking gases
1650 Boreal Baltic narrow inlets
8330 Submerged or partially submerged sea caves

Species
Mammals
all species of Phocidae except 1913 *Phoca hispida saimensis* (Boreal)
all species of Cetacea

Reptiles
all species of Cheloniidae and Dermochelyidae

[64] http://biodiversity.eionet.europa.eu/article17/reference_portal

Molluscs
2578 *Gibbula nivosa*
1012 *Patella ferruginea*
1027 *Lithophaga lithophaga*
1028 *Pinna nobilis*

Echinoderms
1008 *Centrostephanus longispinus*

Algae
1376 *Lithothamnium coralloides*
1377 *Phymatholithon calcareum*

Cnidarians
1001 *Corallium rubrum*

Crustaceans
1090 *Scyllarides latus*

Fish
All of the fish species listed on the annexes which occur in the sea are anadromous and should only be reported under their terrestrial region except for *Acipenser sturio*. In most cases very little information is available for these species from the marine part of their life-cycle.

Please note that this list includes several Annex I habitat types and Annex II species which were not discussed at the Marine Natura 2000 seminars held in 2009 and 2010; this is because the marine seminars were held to discuss those species and habitats subject to a 'marine reserve' from earlier seminars rather than discussing all the species and habitats which can be considered as 'marine'.

V.c SUBTYPES FOR MARINE HABITAT TYPES

The marine habitat types '1110 Sandbanks which are slightly covered by sea water all the time' and '1170 Reefs' both include many subtypes, many of which are similar in inherent variability to a typical terrestrial habitat. These broadly defined habitats are treated as a series of related biotopes by the marine conventions.

The Marine Framework Strategy Directive uses a series of 'predominant habitat types' (see a draft list on the Art 17 Reference Portal) for assessments of the biodiversity element of environmental status while the criteria for assessments, although different to those of Article 17, will clearly require similar data (e.g. distribution, area, structure).

If Member States wish to report on the conservation status of subtypes as well as the conservation of the Annex I habitat type they can use the field 'Other relevant information' (2.7.5). It is also possible to submit a full assessment of a marine subtype but this must be in addition to an assessment of the Annex I habitat type.

VI THE REPORTING FORMAT FOR 2007-2012

The third Article 17 report under the Habitats Directive continues to focus on the assessment of conservation status of all habitat types and species of Community interest using a similar approach to that used for the first assessment of conservation status (CS) in 2001-2006.

The reporting format has been revised with the view to improve the quality of data received based upon the experiences from the reporting period of 2001-2006. In addition, the requirement to assess the impact of the Natura 2000 network on the conservation status and efficiency of the network has revealed a need to obtain more targeted information regarding the network.

The Article 17 reporting format consists of an introduction followed by five annexes A – E:

Annex A – Is the format for the general report for the period 2007-2012. The General Report gives information mainly for the interested public but also the Commission on measures taken under the Habitats Directive and should be completed for each Member State.

Annex B – Is the reporting format for the main results of the surveillance under Article 11 for Annex II, IV and V species.

Annex D – Is the reporting format for the main results of the surveillance under Article 11 for Annex I habitat types.

The information reported in Annexes B & D includes data used to undertake the assessment of conservation status and will be essential for the later assessment of conservation status across each biogeographical region and/or across the EU. Therefore, the species and habitat reporting formats both have a short 'national' section to be completed for each habitat type or species of community interest present in the Member State followed by a biogeographical region section. This should be completed for each biogeographical region in the Member States where the species or habitats is present.

Annex C – Is an evaluation matrix which is used to assess conservation status of a species using the information in Annex B.

Annex E – Is an evaluation matrix which is used to assess conservation status of a habitat type using the information in Annex D.

VI.a ANNEX A: GENERAL REPORTING FORMAT

Field-by-field guidance to completing Annex A

The first part of the reporting format, **the general report**, is mainly targeted at the interested public, but also at informing the Commission. Its content is restructured from the previous format to better serve this purpose.

The general report includes obligatory information about several provisions of the Habitats Directive. In addition, the main achievements under the implementation of the Habitats Directive and main measures taken to ensure coherence of the network are briefly described in this report. Some fields have been removed (compared to the previous general report) simply because the information is available through other sources for example concerning financing (Art 8). The report should give information of relevance for the period 2007-2012.

Each Member State is expected to prepare one general report. Please notice that information given (e.g. number of management plans etc) should be the figures on 31st December 2012 i.e. at the end of the reporting cycle unless otherwise stated.

Language – any EU official language can be used. The reporting format tries to minimize the difficulties of using different languages by requesting numerical information wherever possible. The use of English is recommended if possible as this gives the widest readership.

If you include internet addresses in the reporting fields, please give in full including the initial http:// if applicable.

0 Member State

Use the two-digit codes from ISO 3166, except that UK should be used instead of GB for the United Kingdom. A table giving the codes can be found on the Reference Portal[65].

1 Main achievements under the Habitats Directive

This section aims to inform interested public on the main achievements under the Habitats Directive and the Natura 2000 network in the respective Member State during the reporting period. It is requested to provide a translation of this information into English as this information is likely to be of interest to readers in other Member States (field 1.2 of Annex A).

Describe briefly the main achievements under the Habitats Directive during the reporting period with a special emphasis on the Natura 2000 network. This can include for example demonstrated benefits for different species and habitat types, experiences of new or improved management techniques, positive changes in public acceptance towards biodiversity protection, improved co-operation between authorities, nature conservationists and other interest groups and initiatives to combine establishment of Natura 2000 sites and the local economy.

[65] http://biodiversity.eionet.europa.eu/article17/reference_portal

The text should be a maximum of 2 pages (Reportnet limits the length of the text automatically). If a Member State wishes to add further documentation to that requested in this format, please note these Annexes and their file-names at the end of this free text section and upload the relevant files to Reportnet together with the rest of the report.

2 General information sources on the implementation of the Habitats Directive – links to information sources of the Member States

This section aims to inform interested public on where to find information relating to the Habitats Directive and the Natura 2000 network in the respective Member State. In general, only links to internet addresses are required. However, free text can also be used where there is a need to explain how to access the information source (e.g. multiple sources of information).

3 Natura 2000 – site designation

Provide information on SCIs and SACs at national level.

Which sites are included under the term 'Sites of Community Importance' ?

For the purpose of this section of the report the term 'Sites of Community Importance' should include sites officially proposed by the Member State, but not yet included in a biogeographical Community list (pSCIs). The number and area of sites classified as 'Special Areas of Conservation (SAC) should also be given. As SAC are also SCI they will be included under both headings.

The following information should be provided:

- Under the field 3.1. '**All sites'** give first the number of pSCI, SCIs and SACs and total surface area of pSCIs, SCIs and SACs and then number of sites designated as SAC and total surface area of SACs. Surface areas should be given in km^2,
- Terrestrial surface area (km^2) of all sites (field 3.1.1),
- Number and total marine surface area (km^2) of all marine sites (field 3.1.2).

Marine sites are any of those which include an area of sea.

Marine area of sites (field 3.1.2) is the area being below the coastline. The definition of the coastline used to define the marine boundary should follow international[66] or national[67] legislation. This approach is the same as adopted for the revised Standard Data Forms (SDFs) for individual Natura 2000 sites. Thus, a site located at the coastline and stretching out into the sea should be counted as a 'marine site', although it might include a terrestrial component.

Terrestrial area of sites (field 3.1.1) is any area of a site which is not marine (as defined above). In the reporting format the terrestrial area of sites in km^2 (3.1.1) and the area of marine sites in km^2 (3.1.2) together should give the total area of all sites in km^2 (3.1).

See figure 10 for clarification between terrestrial and marine sites.

Date of data (3.2) should be the date of the latest update of the Natura 2000 database submitted to the Commission.

[66] UN Convention on the Law of Sea (UNCLOS).
[67] See Natura 2000 reference portal, http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal.

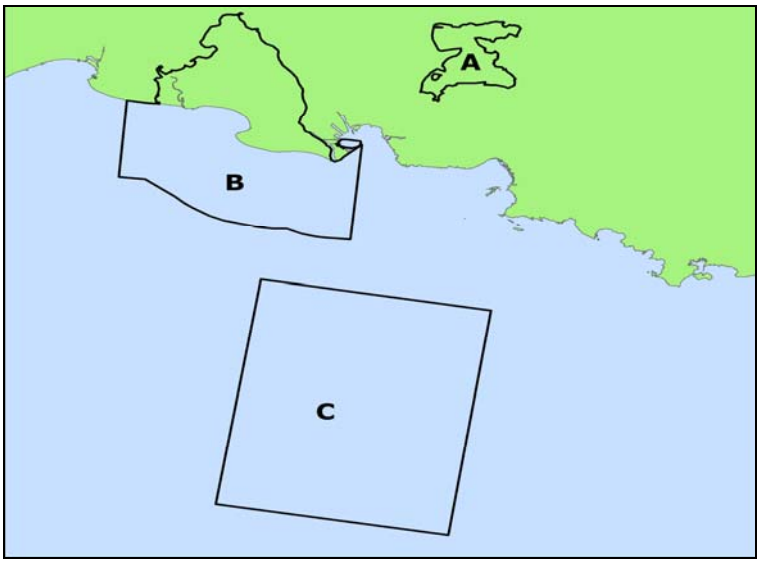

Figure 10: Site A is completely terrestrial, site B includes both terrestrial and marine areas, but is a marine site and site C is completely marine. The marine area of the site B should be reported under field 3.1.2 and its terrestrial area under field 3.1.1.

4 Comprehensive Management plans for the Natura 2000 sites (Art. 6(1))

While it is acknowledged that management plans are not a requirement under the Directive, this information is of special interest in order to understand the instruments the Member States use to manage their network and also to find more specific information if required.

This section asks for both the overall number of comprehensive management plans (4.1) and the percentage of the network area covered by the comprehensive management plans (4.2), plus the number of comprehensive management plans in preparation (4.3). Although the SDF will include information on management plans (with "yes/no/in preparation" information), it is important to inform the general public on the overall number of comprehensive management plans. In order to put this number into context, a new field "% of the network area covered by plans" is included.

In this context management plans are considered as operational instruments that set practical measures to achieve the conservation objectives for the sites in the network. For reporting purposes, only comprehensive management plans covering an entire Natura 2000 site (or sites) and fulfilling the following minimum requirements should be reported:

A comprehensive management plan should:

- indicate the habitat types and/or species and their localities for which conservation measures are planned;
- identify the actual status of the habitat types and species and the desired status which should be reached through the conservation measures;
- define clear and achievable conservation objectives and
- identify the necessary measures together with the means and a time schedule which can contribute to meeting those objectives.

5 Measures taken in relation to approval of plans & projects (Art. 6.4)

This section reports on the number of projects/plans for which compensation measures were necessary. The form requests a list of the sites affected by projects/plans for which compensation measures were necessary. For each such site the following information is requested:

- site code (field 5.1.1), site name (5.1.2), title (5.1.3) and year of the project/plan (5.1.4), and whether a Commission opinion was requested (yes/no in the field 5.1.5).

In addition an optional field (5.1.6) is available for information on impact of projects in need of compensation measures on conservation status. The free text field is limited to 250 characters.

Further guidance on Article 6 may be found at DG Environment's website (e.g. the document 'Managing NATURA 2000 sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' published by DG Environment in 12 EU languages)
http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm#art6

6 Measures taken to ensure coherence of the Network (Art. 10)

This section is for a general description of the main measures taken to ensure the coherence of the Natura 2000 network according to Article 10. Give an overview at national level, activities taken (including legal measures), or systematic studies (detailed site by site descriptions are not required). If relevant, give references to published reports, scientific papers or websites.

7 Reintroduction of Annex IV species (Art 22.a)

Provide information on the following:

- a) species name (Latin name) and b) a code (as in the Checklist) (field 7.1.0),
- reintroduction period (period when the species was reintroduced or year with a qualifier "=" in the year or "<" before the given year)(field 7.1.1),
- reintroduction place and number of individuals introduced (7.1.2) and
- whether the reintroduction has been successful (coded as "yes"/ "no"/" too early to say"). A successful reintroduction implies natural reproduction has already taken place and the population is growing (7.1.3).

If the species is considered "sensitive" (see 1.1.1 in section VI.b), the information on the location can be adjusted accordingly. Additional information on the reintroduction can be given in the optional free text field (7.1.4).

VI.b ANNEX B: REPORTING FORMAT FOR SPECIES

To be completed for each Annex II, IV & V species present[68].

Field-by-field guidance to completing Annex B

It is recommended that the free text information in different fields is written in English to facilitate the further use of information in the EU analysis and to allow a wider readership.

How to report 'occasional' and 'newly arriving species'

Several Member States have indicated that it is important to report species that are not established in their territory, but that occur either occasionally or have started to appear recently – due to climate, land use or other changes. Member States should report such species even if it is not appropriate or possible to assess their conservation status at this stage. Therefore, where possible, it is recommended to provide information on the:

- maps of their actual distribution, if this information is available
- actual range – surface area (2.3.1),
- population – size estimation (2.4.1 or 2.4.2), date (2.4.4), method used (2.4.5).

If none of the above information exists, please indicate the species name and the biogeographical region(s) in which it occur(s).

If an occasional or newly arriving species is not listed in the Checklist for Art 17 reporting for the Member State, due to an oversight when preparing the list, the Member State should still report it.

See also section II.f Species & habitat types to be reported and II.f.i Reporting for species groups.

0.1 Member State

Use the two-digit codes from ISO 3166, except that UK should be used instead of GB for the United Kingdom. A table giving the codes can be found on the Reference Portal.

0.2 Species

Species code (0.2.1) and species scientific name (0.2.2)

Use codes (four character sequential code) and names given in the Checklist for Art 17 reporting. This applies also for species from groups (e.g. *Alosa* spp, all species of Microchiroptera).

Other species names (0.2.3 and 0.2.4)

If a MS wishes, it is possible to report an alternative scientific name used at national level if it differs from the name under field 0.2.2. There is also an optional field for a vernacular name (name in national language).

[68] A check list of species thought to be present in each Member State for which a report is expected is available at http://biodiversity.eionet.europa.eu/article17/reference_portal

1. NATIONAL LEVEL

1.1 Maps – distribution and range

1.1.1 Distribution map

The standard for submitting a distribution map is:

10 x 10 km ETRS grid, projection ETRS LAEA 5210

Please submit together with relevant metadata (projection, datum, scale).

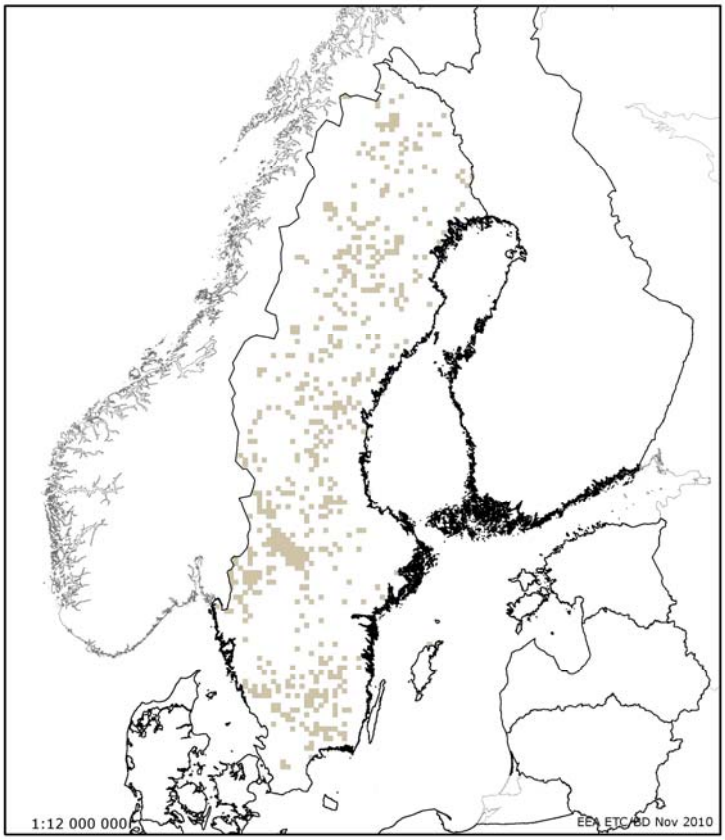

Figure 11: A distribution map for *Coregonus lavaretus* using the ETRS LAEA 5210 10 km grid.

Sensitive species

Some species are particularly subject to for example, illegal collecting and making information on its distribution widely available may be detrimental to its conservation. Where information on distribution is considered 'sensitive', this can be indicated by entering "yes" in the given field.

If a species is marked as sensitive, the distribution of the species will not be disclosed to the public by the Commission (for instance, by means of posting this information on a publicly available database or internet-based site).

1.1.1. Method used – map

Provide information on the method used of the map. Use one of the following categories:

3 = Complete survey
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

1.1.2. Year or period

Provide year or period when the actual distribution data was collected.

1.1.4. Additional distribution map - optional

Please note that this field is an optional field and does not replace the need to provide a map under 1.1.1. This is for those cases only where a Member State wishes to submit an additional map different from the standard submission map under field 1.1.1.

Maps at a resolution other than 10 x 10 km² may be reported here.

Where grid based distribution data cannot be transformed into distribution maps on a 10 x 10 km² ETRS grid without introducing significant errors Member States should use a grid close to the 10 x 10 km² grid. In this case all relevant data fields in the national report should be consistent, that means data field 2.3.1 (surface area for range) will be based on the real distribution/area of the additional distribution map. The range map should be calculated on this basis as well.

1.1.5. Range map

As a commonly agreed methodology (gap distances, fitting, no manual intervention) was not fully accepted among Member States, range maps should be submitted as in the previous reporting round, using the same standard as for the distribution map under the field 1.1.1 or 1.1.4 and following the methodology described in section IV. These maps are complementary information for the assessment.

Please submit together with relevant metadata (projection, datum, scale). The map should be prepared using a standardized method.

2 BIOGEOGRAPHICAL OR MARINE REGIONAL LEVEL

This section should be completed for each biogeographical or marine region in which the species occurs. So, for example, if a species occurs in three biogeographical regions within a Member State, three separate reports are required.

2.1 Biogeographical region or marine region

Biogeographical region or marine region concerned within the MS

Use the following abbreviations for Biogeographical Regions:

Biogeographical Regions	
Alpine	ALP
Atlantic	ATL
Black Sea	BLS
Boreal	BOR
Continental	CON

Mediterranean	MED
Macaronesian	MAC
Pannonian	PAN
Steppic	STE

Use the following abbreviations for Marine Regions

Marine regions	
Atlantic	MATL
Macaronesian/Atlantic	MMAC
Black Sea	MBLS
Baltic	MBAL
Mediterranean	MMED

The indication of the marine regions is due to practical/technical reasons; it has no other implications.

2.2 Published sources

If the information given in section 2 is from published sources please give bibliographic references or link to internet site(s). Please use the order: author, year, title of publication, volume, number of pages, web address. If you include internet addresses in the reporting fields, please give in full including the initial 'http://'.

2.3 Range

Range within the biogeographical region or marine region concerned. See the background for the approach in section IV.a.i. Favourable Reference Range. Date and quality of data for range are no longer needed as the map is linked to the distribution map.

2.3.1 Surface area - range

Total surface area of the current range within the biogeographical region concerned in km^2, decimals are allowed as the range of some species can be very small.
For the estimation of surface area the method described in section IV.a.i is recommended.

2.3.2 Method used - surface area of range

Use one of the following categories:

3 = Complete survey
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

If range has been calculated using the method described in section IV.a.i the reply to this question will be the same as for 1.1.2.

2.3.3 Short-term trend period

The period for short-term trend is 12 years (2 reporting cycles). For the 2013 reports this means a period of 2001-2012 or a period as close as possible to this.

Please indicate the period in this field. Give dates of beginning and end of the period for which the trend has been reported.

The short term trend should be used for the assessment. Any large scale deviation from this should be explained under field 2.8.2 'Other relevant information'.
Further guidance is given in section III.b Trends.

2.3.4 Short term trend direction

Indicate if range is (use one of the following categories):

0 = stable
+ = increasing
- = decreasing
x = unknown

2.3.5 Short-term trend magnitude - optional

If possible, quantify the change by providing its magnitude in % (with range at the beginning of the reporting period as 100 %) over a period indicated in the field 2.3.3. It can be given as a precise figure (e.g. 27 %) or a banded range (e.g. 20-30 %). If it is a precise figure give same value under 'minimum' and 'maximum'.

2.3.6 Long-term trend – optional

The long-term trend is recommened to be evaluated over a period of 24 years (4 reporting cycles). Indicate the period in this field. For the 2013 reports this information is optional. Thus the fields 2.3.6 - 2.3.8 are optional as well. For further guidance see section III.b.i Short & long term trends.

See guidance for filling in the fields 'long term trend direction' (2.3.7) and 'long term trend magnitude' (2.3.8) under short-term trend.

2.3.9 Favourable reference range

This information is needed to evaluate conservation status according to Annex C.

The favourable reference range is the range required for the species to be at favourable conservation status. The following information is requested under field 2.3.9:

- a) Area in km² and attach a GIS map if available;
- b) If operators (≈, >, >>) were used for the assessment, please indicate here with the relevant symbol (≈ "approximately equal to", > "more than", >> "much more than");
- c) Where there is no data on range, use "x";
- d) Indicate also the method used to set reference value (free text field).

Favourable Reference Values are discussed in more detail in section III.a.

2.3.10 Reason for change

The following questions are asked in order to avoid misinterpretation when processing EU analysis and to clarify potential differences on the range surfaces between reporting rounds. Please answer all three questions, if relevant.

Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to

a) genuine change? YES/NO or
b) improved knowledge/more accurate data? YES/NO or
c) use of different method (e.g."Range tool") YES/NO

If a Member State wishes to explain further (e.g. cases when range surface does not change, but its borders are moving, fragmentation of range etc), this can be done under the field 2.8.2 'Other relevant information'.

2.4 Population

For 2007-2012 reporting there are two alternatives for reporting the population estimate - depending on the population units used. Member States can report the population size in individuals, or, in other units. However, there is a recommendation that where units other than individuals are used, the data should be converted to individuals (except those species listed in the list of exceptions - see Reference portal). Population units are discussed in more detail in section IV.b.iii Population.

2.4.1 Population size estimation – using individuals/agreed exceptions

Total population in biogeographical region or marine region of the country concerned (data or best estimate). Please provide as number of individuals or in the units in the list of agreed exceptions given (see Reference portal).

If data at field 2.4.2 is converted to individuals, the converted data should be reported here.

The size estimation should be given using minimum and maximum numbers (preferred option). Where a precise value is known report the same figure for both minimum and maximum. If it is not possible to provide minimum and maximum, but only an approximate population estimate, classes can be used (See Table 2 in section IV.b.v. Estimating population size). Where classes are used please report the lower limit of the class as the 'minimum and the upper limit as the 'maximum'. Please indicate the unit used (list of units and their abbreviations are given in the Reference Portal).

2.4.2 Population size estimation – using other units

This field is for those cases where a Member State wishes to report population size using other units than individuals or the agreed exceptions. Thus, the field 2.4.2 is optional if field 2.4.1 is used. The guidance on reporting the numbers is the same as for 2.4.1.

It is recommended that the data given at 2.4.2 is converted by Member State to individuals wherever this is possible and the converted data are reported at 2.4.1. See section IV.b.vi 'Using other population units and converting to individuals' and further examples in Appendix 5.

2.4.3 Additional information on population estimates/conversion

Where the population size is reported at 2.4.2, further details are requested to be given here

- **a) Definition of "locality":** if locality is used as a population unit, this term should be defined.
- **b) Method used to convert data:** provide information on how units were converted.
- **c) Problems encountered to provide population size estimation:** all Member States are encouraged to report on problems encountered in the population estimation. The information on the definition of "locality" and problems encountered can be used after 2013 to consider how to further harmonize the use of population units. It is requested that the information given in this field is in English to help future use of this information.

2.4.4 Year or period of estimation

Year or period when actual population size was recorded. Use the following formats for date MM/YYYY (month/year) and for period YYYY-YYYY (year-year).

2.4.5 Method used – population size

Use one of the following categories:

3 = Complete survey or a statistically robust estimate
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

Where data has been compiled from a variety of sources indicate the category for the most important source of data.

2.4.6 Short-term trend period

The period for short-term trend is recommended to be 12 years (2 reporting cycles). For the 2013 reports this means a period of 2001-2012 or a period as close as possible to this.

Please indicate the period actually used in this field. Give dates of beginning and end of the period for which the trend has been reported. Further guidance is given in section III.b trends' of chapter 1.

The short term trend should be used for the assessment. Any large scale deviation from this should be explained under field 2.8.2 Other relevant information.

2.4.7 Short-term trend direction

Indicate if the population trend is (use one of the following categories):

0 = stable
+ = increasing
- = decreasing
x = unknown

2.4.8 Short-term trend magnitude - optional

If possible quantify the percentage change over the period reported in the field 2.4.6. It can be given as a precise figure (e.g. 27 %) or a banded range (e.g. 20-30 %). If it is a precise figure give same value under 'minimum' and 'maximum' (2.4.8 a and b).

Confidence interval (2.4.8.c): If data for trend comes from a statistically reliable sampling scheme (this means statistically reliable sampling scheme under category 3 'Method used'), the confidence interval used should be reported (e.g. 95 %).

2.4.9 Method used – short-term trend for population

Use one of the following categories:

3 = Complete survey or a statistically robust estimate
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

2.4.10 Long-term trend period - optional

The long-term trend is recommended to be evaluated over a period of 24 years (4 reporting cycles). For the 2013 reports this information is optional. Thus, the fields 2.4.11 - 2.4.13 are optional as well if data in field 2.4.10 is not reported. For further guidance see section III.b.i.

Period, 'long term trend direction' and 'long term trend magnitude' should be reported as for short term trend.

2.4.14 Favourable reference population (FRP)

This information is needed to undertake the evaluation of conservation status according to Annex C.
The favourable reference population is the population required for the species to be at favourable conservation status. The following information is requested under field 2.4.14:

- a) Give the population in number of individuals or agreed exceptions or other units. Please use the same unit for the whole conservation status assessment;
- b) If operators (≈, >, >>, <) were used for the assessment, please indicate here with the relevant symbol (≈ "approximately equal to", > "more than", >> "much more than", < "less than"). When using an operator, it should be compared with the minimum population estimate;
- c) If the favourable reference population is unknown use "x" for the reference population;
- d) Indicate also the method used to set the reference value (free text field).

Please see the further guidance on section III.a.ii Favourable Reference Population and III.a.iv Using operators.

2.4.15 Reason for change

To avoid potential misinterpretation and to clarify potential differences in population between reporting rounds please answer all three questions (if relevant):

Is the difference between the reported value in 2.4.1 or 2.4.2 and the previous reporting round mainly due to

a) genuine change? YES/NO or
b) improved knowledge/more accurate data? YES/NO or
c) use of different method (e.g."Range tool") YES/NO

If a Member State wishes to give further information, this can be done under the field 2.8.2 Other relevant information.

2.5 Habitat for the species

2.5.1 Area estimation

Provide an estimate of the area of the habitat the species currently occupies in km^2. See guidance on the generalist species under section IV.b.vii Habitat for the species.

2.5.2 Year or period of estimation

Year or period when data for habitat area was recorded. Use the following formats for date MM/YYYY (month/year) and for period YYYY-YYYY (year-year).

2.5.3 Method used – habitat for the species

Use one of the following categories:

3 = Complete survey or a statistically robust estimate

2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

2.5.4 Quality of the habitat

The evaluation matrix also asks about the quality of the habitat which is an important part of the overall assessment of the "Habitat for the Species".

- a) Please provide information on whether the quality is considered good/moderate/bad/unknown for the long term survival of the species including its full genetic variability.
- b) Please also explain how the quality was assessed (free text field).

2.5.5 Short-term trend period

The period for short-term trend is recommended to be 12 years (2 reporting cycles). For the 2013 reports this means a period of 2001-2012 or a period as close as possible to this. Please indicate the period actually used in this field. Give dates of beginning and end of the period for which the trend has been reported. Further guidance is given in the section III.b 'Trends' of chapter 1.

The short term trend should be used for the assessment. Any large scale deviation from this should be explained under field 2.8.2 Other relevant information.

2.5.6 Short-term trend direction

The assessment of habitat for the species considers both quality and area. It is recommended that assessment is done using the combinations below (area/quality)

Trend to be reported in field 2.5.6	Area/quality combinations
0 = stable	0/0
+ = increasing	+/0 or +/+ or 0/+
- = decreasing	-/0 or -/- or 0/-
x = unknown	Any ? or +/- and -/+ if no better data available

2.5.7 Long-term trend period - optional

The long-term trend is recommened to be evaluated over a period of 24 years (4 reporting cycles). For the 2013 reports this information is optional. Thus the field 2.5.8 is optional as well if data in field 2.5.7 are not reported. For further guidance see section III.b.i. Short and long term trends.

For guidance on 'period', 'long term trend direction' and 'long term trend magnitude' please see the 'short term trend' above.

2.5.9 Area of suitable habitat for the species

Provide area of suitable habitat in km^2 (field 2.5.9 a). This is the area thought to be suitable for the species – including both the area currently occupied, and that from which it may at present be absent. See section IV.b.viii. Habitat for the species, for further guidance.

The evaluation matrix requires a judgement as to whether this area is sufficiently large and of suitable quality for the long term survival of the species but no favourable reference value is requested. Absence of data can be indicated as "0" under field 2.5.9 b.

2.5.10 Reason for change – short-term trend

The following questions are asked in order to avoid misinterpretation and to avoid misinterpretation of any changes between reporting rounds. Please answer all three questions (if relevant).

Is the difference between the reported value in 2.5.1 and the previous reporting round mainly due to

a) genuine change? YES/NO or
b) improved knowledge/more accurate data? YES/NO or
c) use of different method (e.g."Range tool") YES/NO

If a Member State wishes to explain further, this can be done under the field 2.8.2 Other relevant information.

2.6 Main pressures

Pressure = acting now or during the reporting period.

List the main pressures according to the guidance given in section III.c – past and present impacts – threatening the long term viability of the species or its habitat(s). Please use the codes in the list of threats and pressures to at least the 2nd level. The list of threats and pressures is available at the Reference Portal (http://biodiversity.eionet.europa.eu/article17/reference_portal)

Where a Member State wishes to give more precise information on the nature of a certain pressure this can be written under the field 2.8.2 Other relevant information.

a) Pressure	b) Ranking	c) Pollution qualifier
List max 20 pressures. Use codes from the list to at least 2nd level.	• H = high importance (max 5 entries) • M = medium importance • L = low importance	This field is optional

2.6.1 Method used – pressures

Indicate if the method used is (use one of the following categories):

3 = based exclusively or to a larger extent on real data from sites/occurrences or other data sources
2 = mainly based on expert judgement and other data
1 = based only on expert judgements

2.7 Main threats

Threat = acting in the near future (recommended time period is 2 future reporting periods, i.e. 12 years into the future).

List the threats according to the guidance given in section III.c Main pressures and threats – future/foreseeable impacts – affecting the long term viability of the species and/or its

habitat(s). Please use the codes in the list of threats and pressures to at least the 2nd level. The list of threats and pressures is available on the Reference Portal.

Where a Member State wishes to give more precise information on the nature of a certain threat this can be written under the field 2.8.2 Other relevant information.

The threats should not cover theoretical threats, but rather those issues judged to be reasonably likely. This may include continuation of pressures reported under section 2.6.

a) Threat	b) Ranking	c) Pollution qualifier
List max 20 threats. Use codes from the list to at least 2nd level.	• H = high importance (max 5 entries) • M = medium importance • L = low importance	This field is optional

2.7.1 Method used – threats

Indicate if the method used is (use one of the following categories):

2 = based on modelling and other data
1 = based on expert judgements

2.8 Complementary information

This section includes information required to correctly understand the reported data.

2.8.1 Justification of % thresholds for trends

The indicative suggested threshold for a large decline in Annex C is 1% per year, if another threshold has been used for the assessment please give details, including an explanation of why. This approach follows that developed by Birdlife International for assessing the conservation status of birds (Birdlife International, 2004).

2.8.2 Other relevant information

Include any other information thought relevant to the species report and to assessing favourable conservation status.

2.8.3 Transboundary assessment

Where two or more Member States have made a joint conservation status assessment for a transboundary population of a (usually wide-ranging) species, this should be noted here. Note clearly the Member States involved, how the assessment was carried out and any joint initiatives taken to ensure a common management of the species (e.g. population management plan). Please see also guidance in section IV.b.ii and an example given in Appendice 6.

The following data should be reported at field 2.8.3:

- Member States involved (use Code list of the Reference Portal)
- Parameters assessed on transboundary area (usually range and population/ area for habitats)
- List joint management measures
- Give references/links if available
- If any non-EU countries were involved in the assessment

2.9 Conclusions

This section includes the assessment of conservation status at end of reporting period in the concerned biogeographical region or marine region. It is derived from the Annex C matrix. See Chapter VI.c Annex C, Evaluation matrix for assessing conservation status for aspecies, for further information.

Give the result of the assessment for each parameter of conservation status using the four categories available: 'Favourable', 'Unfavourable-Inadequate', 'Unfavourable-Bad' and 'Unknown'**.**

The following must be evaluated and reported:

2.9.1 Range
2.9.2 Population
2.9.3 Habitat for the species
2.9.4 Future prospects
2.9.5 Overall assessment of conservation status

Use of qualifiers

The use of qualifiers (U1+, U2- etc) when CS is either 'Unfavourable - Inadequate' or 'Unfavourable – bad' is obligatory for the overall assessment of conservation status (to be reported at field 2.9.6) and recommended for all parameters (fields 2.9.1b – 2.9.4.b).

Please note that the indication of a change of direction is potentially a very useful way to detect positive developments and will be exploited in future policy analysis and for a sub-target for the 2020 biodiversity target.

If conservation status is 'Unfavourable-Inadequate' or 'Unfavourable-Bad', Member States should indicate if trends are likely to be improving, declining, stable or trend not known using + - = and x respectively for each parameter. See section II.d above on qualifying conservation status.

2.9.4 Future prospects

The reporting format does not request details on the assessment of future prospects. However, in order to harmonise the assessment of this parameter, the Member States are encouraged to follow the assessment steps for future prospects described in section IV.a.ii Future prospects. The conclusion should be reported here under field 2.9.4.

3 NATURA 2000 COVERAGE & CONSERVATION MEASURES - ANNEX II SPECIES

See background information in the section II.g Reporting on Annex I habitat types and Annex II species within the Natura 2000 network. The guidance in the section below concerns only Annex II species. The requested information should cover the contribution of the Sites of Community Importance (SCI) and Special Areas of Conservation (SAC) components of the Natura 2000 network.

The following information is required for Annex II species:

3.1 Population

3.1.1 Population size of the Annex II species in the Natura 2000 network

- Estimation of population size covered by the network in the biogeographical region concerned
- Use the same definitions as for 2.4 Population
- Give minimum-maximum of the total population; in case of an exact figure repeat it in minimum and maximum fields
- For marine wide ranging species (e.g. whales, dolphins, turtles): use population estimations from regional marine agreements such as ASCOBANS or any other estimations made in co-operation between countries sharing the same population.

3.1.2 Method used: use one of the following categories:

3 = Complete survey or a statistically robust estimate
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

3.1.3 Trend within the Natura 2000 network (optional)

Indicate whether the trend of population size is increasing, stable, decreasing or unknown. Use same definitions as for 2.4, short-term trend.

3.2 Conservation measures taken by the Member State

3.2.1 Measure List up to 20 measures taken during the the reporting period (i.e. already being implemented). Use codes from the list of conservation measures on the Reference Portal, field 3.2.2-3.2.5 to be filled in for each reported measure.

3.2.2 Type Tick the relevant type or types of the conservation measure:

a) Legal/statutory
b) Administrative
c) Contractual
d) Recurrent
e) One-off

3.2.3 Ranking Select and highlight (use an 'H') up to five measures that are considered the most important. The importance of the measure should be assessed in terms of the proportion of the population target by the measure - the larger the population benefiting from the measure the higher the importance.

3.2.4 Location

If a given measure primarily concerns or is primarily being implemented in Natura 2000 sites, tick the case labelled 'inside the network'. On the contrary, if the measure is primarily applicable outside Natura 2000 sites, tick the case labelled 'outside the network'. If the measure is taken on approximately equal level, with reference to proportion of species population, both inside and outside Natura 2000 sites, tick the case labelled 'both inside and outside'.

3.2.5 Broad evaluation of the measure

This field is used to indicate in an approximate way the effectiveness of each measure in maintaining, enhancing or reaching favourable conservation status (FCS). This is a proxy to address Article 17(1) information on the 'impact of measures on conservation status'. The following categories should be used (tick the most relevant case(s)):

a) Maintain – when the conservation measure is required to maintain FCS; use this code when the species or the habitat has a FCS and the favourable status would not be maintained if the measure would not be implemented
b) Enhance – when the conservation measure is required to enhance conservation status or reach FCS; use this code when species has an unfavourable conservation status and the measure – alone or in conjunction with others – is needed to improve it:

- from Unfavourable-Bad to Unfavourable-Inadequate
- from Unfavourable to Favourable
- within the same conservation status even if not enough to trigger a change on the conservation status

c) Long-term – measure without short term effect – one reporting cycle or less – but long term positive effect expected
d) No effect – measure without effect, or that needs adaptation and that is not delivering any conservation benefit; measure failed in achieving its objectives or had adverse effects
e) Unknown effect
f) Not evaluated - if the effect of the measure not evaluated.

VI.c ANNEX C: EVALUATION MATRIX FOR ASSESSING CONSERVATION STATUS OF A SPECIES

The matrix is an aid to assessing the conservation status of a species. It shall be used for each biogeographical region (and marine region) in which the species is present. The results of using the matrix have to be provided in section 2.9 Conclusions of Annex B.

Each of the four headings is assessed (using information reported in Annex B) and classed as either 'Green', 'Amber', 'Red' or 'Unknown'. The later category is for when no or insufficient information is available to allow an 'expert judgement'.

The use of qualifiers (U1+, U2- etc; see II.d) is obligatory for the overall assessment of conservation status and recommended for all individual parameters.

VI.d ANNEX D: REPORTING FORMAT FOR HABITAT TYPES

To be completed for each Annex I habitat type present[69].

Field-by-field guidance to completing Annex D

It is recommened that the free text information in different fields is written in English to facilitate the further use of information in the EU analysis and to allow a wider readership.

0.1 Member State

Use the two-digit codes from ISO 3166, except that UK should be used instead of GB for the United Kingdom. A table giving the codes can be found on the Reference Portal[70].

0.2 Habitat Code

Use the code given in the checklist for reporting (see the Reference Portal, these are the same codes as given in the 2007 edition of the Interpretation Manual[71]). Do not use any other coding systems.

Reports are expected for each biogeographic region for which the habitat type is listed in the check list for reporting under the Nature directives (see section II.f 'Species & habitat types to be reported' for marginal occurence).

1 NATIONAL LEVEL

1.1 Maps – distribution and range

The difference between distribution and range is discussed in section IV.a.i 'Range'.

1.1.1 Distribution map

The standard for submitting a distribution map is:

10 x 10 km ETRS grid, projection ETRS89 LAEA 5210

Please submit together with relevant metadata (projection, datum, scale).

[69] A checklist of habitat types thought to be present in each Member State for which a report is expected is available on the Article 17 Reporting Reference Portal.
http://biodiversity.eionet.europa.eu/article17/reference_portal
[70] http://biodiversity.eionet.europa.eu/article17/reference_portal
[71] *Interpretation manual of European Union habitats - EUR 27*. DG Environment - Nature and Biodiversity.
http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/2007_07_im.pdf

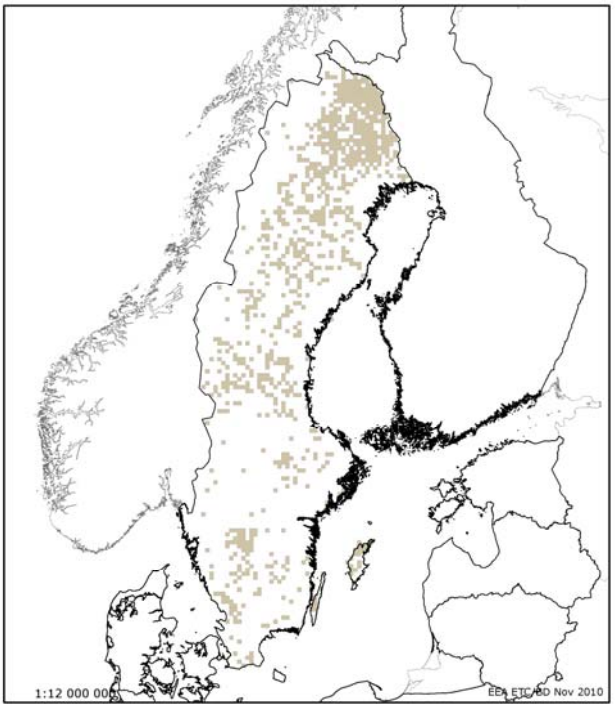

Figure 12: A distribution map for habitat type 7160 Fennoscandian mineral-rich springs and springfens using the ETRS LAEA 5210 10 km grid.

1.1.2 Method used – distribution map

Provide information on the method used for the map (use one of the following categories):

3 = Complete survey
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

1.1.3 Year or period

Provide year or period when the actual distribution data was collected in the field. Use the following formats for year MM/YYYY (month/year) and for period YYYY-YYYY (year-year).

1.1.4 Additional distribution map - optional

Please note that this field is an optional field and does not replace the need to provide a map under 1.1.1. This is for those cases only where a Member State wishes to submit an additional map deviating from the standard submission map under field 1.1.1. Please notice that this is an optional field and does not remove the need to provide a map under 1.1.1.

Maps at a resolution other than 10 x 10 km² or with grids other than the ETRS89+ LAEA5210 grid, close to the 10 x 10 km² may be reported here.

Where grid based distribution data cannot be transformed into distribution maps on a 10 x 10 km² ETRS grid without introducing significant errors, Member States should use a grid close to the 10 x 10 km² grid. In this case, all relevant data fields in the national report should be consistent, that means data field 2.3.1 will be based on the real distribution/ area of the additional distribution map. Also, the range map will then be calculated on this basis.

1.1.5 Range map

As a commonly agreed methodology (gap distances, fitting, no manual intervention) was not fully accepted among Member States. Range maps should be submitted as in the previous

reporting round, using the same standard as for the distribution maps under the field 1.1.1 or 1.1.4. and following the methodology described in section IV.a.i Range. These maps are complementary information for the assessment.

Please submit together with relevant metadata (projection, datum, scale). The map should be prepared using a standardised method.

2 BIOGEOGRAPHICAL OR MARINE LEVEL

This section should be completed for each biogeographical or marine region in which the habitat type occurs.

2.1 Biogeographical region or marine region concerned within the MS

Use the following abbreviations for biogeographical regions

Biogeographical Regions	
Alpine	ALP
Atlantic	ATL
Black Sea	BLS
Boreal	BOR
Continental	CON
Mediterranean	MED
Macaronesian	MAC
Pannonian	PAN
Steppic	STE

Use the following abbreviations for marine regions

Marine Regions	
Atlantic	MATL
Macaronesian/Atlantic	MMAC
Black Sea	MBLS
Baltic	MBAL
Mediterranean	MMED

The indication of the marine regions is due to practical/technical reasons; it has no other implications.

2.2 Published sources

If the information given in the rest of this section is from published sources please give bibliographic references or link to Internet site(s). Please use the order: author, year, title of publication, volume, number of pages, web address. If you include internet addresses in the reporting fields, please give the full address starting with http://.

2.3 Range

Range of the habitat within the biogeographical or marine region. See section IV.a.i 'Range'. Date and quality of data for range are no longer needed as the map is linked to the distribution map.

2.3.1 Surface area - range

This section is for the total surface area of the current range within the biogeographical or marine region concerned in km^2. Decimals are allowed as some habitat types can have a very small surface area.

The method described in section IV.a.i is recommended for the estimation of surface area.

2.3.2 Method used - Surface area of range

Use one of the following categories:

3 = Complete survey
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

If the range has been calculated using the method described in section IV.a.i, the reply to this question will be the same as for 1.1.2.

2.3.3 Short-term trend period

The recommended period for short-term trend is 12 years (2 reporting cycles). For the 2013 reports this means the period 2001-2012 or a period as close as possible to this.
Please indicate the actual period in this field. Give dates of beginning and end of the period for which the trend has been reported.Further guidance is given in section III.b 'Trends'.

The short term trend should be used for the assessment. Any large scale deviation from this should be explained under field 2.7.5 Other relevant information.

2.3.4 Short-term trend direction

Indicate if the range is (use one of the following categories):

0 = stable
\+ = increasing
\- = decreasing
x = unknown

2.3.5 Short-term trend magnitude - optional

If possible quantify the percentage change over period indicated in the field 2.3.3.

2.3.6 Long-term trend - optional

The long-term trend should be evaluated over a period of 24 years (4 reporting cycles). For the 2013 reports this information is optional. Thus the fields 2.3.6 - 2.3.8 are optional as well if no data reported in the field 2.3.6. For further guidance see section III.b.i. Short and long-term trends.

In reporting period, 'long term trend direction' (2.3.7) and 'long term trend magnitude' (2.3.8) please use the guidance given for short term trend.

2.3.9 Favourable reference range

This information is needed to undertake the evaluation of conservation status according to Annex E. The following information is requested:

- a) Range required for the habitat type to be at Favourable Conservation Status: give area in km² and attach a GIS map if available;

- b) If operators (≈, >, >>) were used for the assessment, please indicate it here with the relevant symbol (≈ "approximately equal to", > "more than", >> "much more than");
- c) If there is no data on range, use an "X" for the favourable reference range;
- d) Please also indicate the method used to set the reference value (free text field).

See section III.a. Favourable Reference Values for more detail.

2.3.10 Reason for change

The following questions aim to clarify potential differences and to avoid misinterpretation of changes in the range between reporting rounds. Please answer all three questions (if relevant):

Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to

a) genuine change? YES/NO or
b) improved knowledge/more accurate data? YES/NO or
c) use of different method (e.g."Range tool") YES/NO

If a Member State wishes to explain in more detail (e.g. cases when range surface does not change, but its borders are moving, fragmentation of range etc), this can be provided using the field 2.7.4 Other relevant information.

2.4 Area covered by habitat

Area covered by the habitat type within the range in the biogeographical or marine region concerned.

2.4.1 Surface area - distribution

Area (in km^2) currently occupied by the habitat within the biogeographical area or marine region. For overlapping habitats see section IV.c.iv. Overlapping habitats.

2.4.2 Year or period of estimation

Year or period when for which the surface area of habitat is valid, which should be as close as possible to the end of the reporting period. Use the following formats for year MM/YYYY (month/year) and for period YYYY-YYYY (year-year).

2.4.3 Method used

Indicate the method used to estimate the habitat surface area (use one of the following categories):

3 = Complete survey or a statistically robust estimate
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

If more than one method used, indicate that used for the largest proportion.

2.4.4 Short-term trend period

The recommended period for short-term trend is 12 years (2 reporting cycles). For the 2013 reports this means the period 2001-2012 or a period as close as possible to this.

Please indicate the period in this field. Give dates of beginning and end of the period for which the trend has been reported. Further guidance is given in the section III.b 'Trends' of chapter 1.

The short term trend should be used for the assessment. Any large scale deviation from this should be explained under field 2.7.5 Other relevant information.

2.4.5 Short-term trend direction

Indicate if population trend is (use one of the following categories):

0 = stable
+ = increasing
- = decreasing
x = unknown

2.4.6 Short-term trend magnitude - optional

If possible quantify the percentage change over the period indicated in the field 2.4.4. It can be given as a precise figure (e.g. 27 %) or a banded range (e.g. 20-30 %). If it is a precise figure give the same value under 'minimum' and 'maximum' (field 2.4.6 a and b).

Confidence interval: If data for the trend comes from statistically reliable sampling scheme, the confidence interval is requested (field 2.4.6.c).

2.4.7 Method used – short-term trend

Use one of the following categories:

3 = Complete survey or a statistically robust estimate
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

2.4.8 Long-term trend - optional

The recommended long-term trend is 24 years (4 reporting cycles). For the 2013 reports this information is optional. Thus the fields 2.4.9 - 2.4.11 are also optional if no data is given in field 2.4.8. For further guidance see section III.b.i Short and long-term trends.

Please use the same guidance for period, 'long term trend direction' and 'long term trend magnitude' as for short term trend**.**

2.4.12 Favourable reference area

This information is needed to undertake the evaluation of favourable conservation status according to Annex E.
Favourable reference area is the area required for the area of habitat to be at favourable conservation status. The following information is requested.

- a) Provide area in km² and attach a vector or grid map if available;
- b) If operators (≈, >, >>) were used for the assessment, please indicate it here with the relevant symbol (≈ "approximately equal to", > "more than", >> "much more than");
- c) If there are no data on the area covered by the habitat, use "x" for the reference area;
- d) Indicate method used to set the reference value (free text field).

Favourable Reference Area is discussed in more detail in section III.a.iii Favourable Reference Area.

2.4.13 Reason for change

The following questions are asked to clarify potential differences and to avoid misinterpretation of changes in areas between reporting rounds. Please answer all three questions (if relevant):
Is the difference between the reported value in 2.4.1 and the previous reporting round mainly due to

a) genuine change? YES/NO or
b) improved knowledge/more accurate data? YES/NO or
c) use of different method (e.g."Range tool") YES/NO

If a Member State wishes to explain further, this can be done under the field 2.7.4 Other relevant information'

2.5 Main pressures

Pressure = acting now or during the reporting period.

This means main pressures – past and present impacts – threatening the long term viability of the habitat types. Please use the codes in the list of threats and pressures to at least the 2nd level (threats and pressures are listed in the same list). The list is available on the Art 17 Reference Portal http://biodiversity.eionet.europa.eu/article17/reference_portal.

Where a Member State wishes to give more detail on the nature of a certain pressure this can be given using field 2.7.4 Other relevant information.

a) Pressure	b) Ranking	c) Pollution qualifier
List max 20 pressures. Use codes from the list to at least 2nd level.	• H = high importance (max 5 entries) • M = medium importance • L = low importance	This field is optional

2.5.1 Method used - pressures

Indicate if the method used is (use one of the following categories):

3 = based exclusively or to a larger extent on real data from sites/occurrences or other method used
2 = mainly based on expert judgement and other data
1 = based only on expert judgements

2.6 Threats

Threat = acting in the near future (recommended time period to be considered is 2 future reporting periods, i.e. 12 years into the future).

List the threats according to the guidance given in section III.c Main pressures and threats – future/foreseeable impacts – affecting the long term viability of the habitat. Please use the codes in the list of threats and pressures to at least the 2nd level. The list of threats and pressures is available on the Reference Portal.

Where a Member State wishes to give more detail on the nature of a certain threat this can be given using field 2.7.4 Other relevant information.

For threat, the recommended time span is two reporting periods (12 years). The threats should not cover theoretical threats, but rather those issues judged to be reasonably likely. This may include continuation of pressures reported under section 2.5.

a) Threat	b) Ranking	c) Pollution qualifier
List max 20 threats. Use codes from the list to at least 2nd level.	• H = high importance (max 5 entries) • M = medium importance • L = low importance	This field is optional

2.6.1 Method used – threats

Indicate if the method used is (use one of the following categories);

2 = based on modelling and other data
1 = based on expert judgement

2.7 Complementary information

This section includes information needed for background information to correctly understand the reported data.

2.7.1 & 2.7.2 Typical species

List the typical species considered during the assessment and describe the method used to assess their status (e.g. by using expert judgement, general surveys). Typical species are discussed in more detail in section IV.c.iii Structures and functions (including typical species). Please use Latin names and it is recommended to use names from the Pan-European Species directories Infrastructure (PESI)[72] where appropriate.

2.7.3 Justification of % thresholds for trends

The indicative suggested threshold for a large decline in Annex E is 1% per year. If another threshold has been used for the assessment please give details, including an explanation of why. For most (if not all) Annex I habitat types it is not possible to measure a change of 1% over the six years between reports, but this rate of change is suggested to allow Member States to calculate trends when the available data do not coincide with the 'reporting period'. This approach follows that developed by Birdlife International for assessing the conservation status of birds (Birdlife International, 2004).

2.7.4 Structure and functions – method used

This field asks for the method used for the assessment. This information is needed to help interpret the conclusion for the structures and functions. Use one of the following categories:

3 = Complete survey or a statistically robust estimate
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling.

2.7.5 Other relevant information

Include any other information thought relevant to the habitat report and to assessing conservation status.

[72] http://www.eu-nomen.eu/

2.8 Conclusions

This section includes the assessment of conservation status at the end of the reporting period in the concerned biogeographical region or marine region. It is derived from the Annex E matrix.

Give the result of the assessment for each parameter of conservation status using one of the four categories: 'Favourable', 'Inadequate', 'Bad' and 'Unknown'.

The following items must be evaluated:

2.8.1 Range
2.8.2 Area
2.8.3 Specific structures and functions (incl. typical species)
2.8.4 Future prospects
2.8.5 Overall assessment of conservation status

Use of qualifiers

The use of qualifiers (U1+, U2- etc) when CS is either 'Unfavourable - Inadequate' or 'Unfavourable - Bad' is obligatory for the overall assessment of conservation status (to be reported at field 2.8.6) and strongly recommended for all parameters (fields 2.8.1.b – 2.8.4.b).
Please note that the indication of a change of direction is potentially a very useful way to detect positive developments and will be exploited in future policy analysis and for a sub-target for the 2020 biodiversity target.

If conservation status is 'Unfavourable - Inadequate' or 'Unfavourable - Bad', Member States should indicate if the trend is improving, declining, stable or trend not known, using + - = and x respectively for each parameter. See section II.d on qualifying conservation status.

2.8.4 Future prospects

The reporting format does not request details on the assessment of future prospects. However in order to harmonise the assessment of this parameter, Member States are encouraged to follow the assessment steps for future prospects described in section IV.a.ii. Future prospects. The conclusion should be reported here under field 2.9.4.

3 NATURA 2000 COVERAGE & CONSERVATION MEASURES - ANNEX I HABITAT TYPES

See background information in the section II.g. Reporting on Annex I habitat types and Annex II species witin the Natura 2000 network. The requested information should cover the contribution of the Sites of Community Importance (SCI) and Special Areas of Conservation (SAC) components of the Natura 2000 network.

The following information is required for Annex I habitat types:

3.1 Area covered by the habitat type

3.1.1 Surface area of the Annex I habitat type in the Natura 2000 network

- Estimation of the habitat type surface area covered by the network in the concerned biogeographical region.
- Give minimum-maximum of the total surface area; in case of an exact figure, repeat it in minimum and maximum fields.

3.1.2 Method used: use one of the following categories:

3 = Complete survey or a statistically robust estimate
2 = Estimate based on partial data with some extrapolation and/or modelling
1 = Estimate based on expert opinion with no or minimal sampling
0 = Absent data

3.1.3 Trend within the Natura 2000 network - optional

Indicate whether the trend of habitat surface area is increasing, stable, decreasing or unknown. Use same definitions as for 2.4.

3.2 Conservation measures taken by the Member State

3.2.1 Measure. List up to 20 measures taken during the reporting period (i.e. already being implemented). Use codes from the list of conservation measures on the Reference Portal. Field 3.2.2 to 3.2.5 to be filled in for each reported measure.

3.2.2 Type Tick the relevant type or types of the conservation measure:

a) Legal/statutory
b) Administrative
c) Contractual
d) Recurrent
e) One-off

3.2.3 Ranking Select and highlight (use an 'H') up to five measures that are considered the most important; the importance of the measure should be assessed in terms of the proportion of the habitat surface area target by the measure; the larger the surface area benefiting from the measure the higher the importance.

3.2.4 Location

If a given measure primarily concerns or is primarily being implemented in Natura 2000 sites, tick the case labelled 'inside the network'. On the contrary, if the measure is primarily applied outside Natura 2000 sites, tick the case labelled 'outside the network'. If the measure is taken on approximately equal level, with reference to proportion of habitat surface area, both inside and outside Natura 2000 sites, tick the case labelled 'both inside and outside'.

3.2.5 Broad evaluation of the measure

This field is used to indicate in an approximate way the effectiveness of each measure in maintaining, enhancing or reaching favourable conservation status (FCS). This is a proxy to address Article 17(1) information on the 'impact of measures on conservation status'. The following categories should be used (tick the most relevant case(s)):

a) Maintain – when the conservation measure is required to maintain FCS; use this code when the habitat type has a FCS and the Favourable status could not be maintained if the measure would not be implemented
b) Enhance – when the conservation measure is required to enhance conservation status or reach FCS; use this code when the habitat type has an unfavourable

conservation status and the measure – alone or in conjunction with others – is needed to improve it:

- from Unfavourable-Bad to Unfavourable-Inadequate
- from Unfavourable to Favourable
- within the same conservation status even if not enough to trigger a change on the conservation status

c) Long-term – measure without short term effect – one reporting cycle or less – but long term positive effect expected

d) No effect – measure without effect or that needs adaptation and that is not delivering any conservation benefit; measure failed in achieving its objectives or had adverse effects.

e) Unknown effect

f) Not evaluated - if the effect of the measure has not been evaluated.

VI.e ANNEX E: EVALUATION MATRIX FOR ASSESSING CONSERVATION STATUS OF A HABITAT TYPE

The matrix is an aid to assessing the conservation status of the habitat. It shall be used for each biogeographical region (and marine region) in which the habitat type is present. The results of using the matrix have to be provided in section 2.8 Conclusions of Annex D.

Each of the four headings is assessed (using information reported in Annex D) and classed as either 'Green', 'Amber', 'Red' or 'Unknown'. The later category is for when no or insufficient information is available.

The use of qualifiers (U1+, U2- etc; see II.d) is obligatory for the overall assessment of conservation status and recommended for individual parameters.

The discussion papers used in the compilation of these guidelines can be found on CIRCA, see
http://circa.europa.eu/Public/irc/env/monnat/library?l=/expert_reporting/work-package_revision&vm=detailed&sb=Title

QUICK REMINDERS

Absence of data
Fields not completed will be treated as meaning no data available (the QA/QC will indicate this).

Format for numbers

- the decimal sign is either a point or a comma on the line
- Numbers consisting of long sequences of digits can be made more readable by separating them into groups, preferably groups of three, separated by a small space (e.g. 10 000). For this reason, ISO 31-0 specifies that such groups of digits should never be separated by a comma or point, as these are reserved for use as the decimal sign. No figure should contain both a point and a comma.
- For numbers whose magnitude is less than 1, the decimal sign should be preceded by a zero. e.g. 0.25
- If a value is zero, please enter '0'.

Based on ISO 31 on quantities and units (http://en.wikipedia.org/wiki/ISO_31-0).

Codings

The checklist of species & habitats per region/Member State, the codings to be used for threats & pressures and other codings can be found at the Reference Portal.
http://biodiversity.eionet.europa.eu/article17/reference_portal

Which species to report
There should be a separate report for each species (or subspecies where noted in annexes II or IV) except for *Sphagnum* (except *S pylasii)*, *Cladonia* and *Lycopodium*. See species checklist in the reference portal and section II.f.i 'Reporting for Species groups' for further information.

URL addresses
All URL should start with http:// if appropriate.

File names

Do not include spaces, hyphens, punctuation marks (e.g. full stops, commas) in file names.

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As well as the references cited in these guidelines, several Member States have published reports based on their 2001-2006 reports. A list has been compiled by the ETC/BD and is available on the Article 17 website[73].

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APPENDICES

APPENDIX 1: DOCUMENTS AVAILABLE ON THE ARTICLE 17 REFERENCE PORTAL

Documentation

1) Reporting Format 2007-2012
2) Explanatory Notes & Guidelines
3) Guidelines for submitting Article 17 data

Reference material

1) Country ISO-codes
2) Checklists of species and habitat types for Art 17 reporting
3) Biogeographic Regions and their Borders
4) Marine regions and their Borders
5) List of Exceptions and list of Population units and codes (in accordance with SDF)
6) Draft list of pre-dominant marine habitat types (MSFD)
7) List of Threats and Pressures
8) List of Conservation measures
9) The ETRS grids

Further documents may be added if required

APPENDIX 2: *LYCOPODIUM* SPECIES IN EUROPE

Taken from Flora Europeae, some national floras maintain *Diphasiastrum zeilleri* (Rouy) Holub (included in *Diphasiastrum complanatum* by Flora Europeae) as a valid species.

Flora Europaea name	comments
Diphasiastrum alpinum (L.) Holub	Syn *Diphasium alpinum* (L.) Rothm.) *Lycopodium alpinum* L.
Diphasiastrum complanatum (L.) Holub	Syn *Diphasium complanatum* (L.) Rothm.) *Lycopodium complanatum* L. *Lycopodium anceps* Wallr. Incl *Diphasiastrum complanatum* (L.) Holub subsp. *complanatum* *Diphasiastrum complanatum* (L.) Holub subsp. *issleri* (Rouy) Jermy [syn *Diphasiastrum x issleri*

	(Rouy) Holub)] *Diphasiastrum complanatum* (L.) Holub subsp. *montellii* (Kukkonen) Kukkonen *Diphasiastrum complanatum* (L.) Holub subsp. *zeilleri* (Rouy) Kukkonen [syn *Diphasiastrum complanatum* (L.) Holub subsp. *x zeilleri* (Rouy) Holub].
Diphasiastrum madeirense (J.H.Wilce) Holub	Syn *Lycopodium madeirense* J.H.Wilce *Diphasium madeirense* (J.H.Wilce) Rothm.
Diphasiastrum tristachyum (Pursh) Holub	Syn *Diphasium tristachyum* (Pursh) Rothm.) *Lycopodium chamaecyparissus* A.Braun ex Mutel *Diphasium complanatum* (L.) Rothm. subsp. *chamaecyparissus* (A.Braun ex Mutel) C$Kelak.
Diphasium issleri (Rouy) Holub Syn	*Lycopodium issleri* (Rouy) Lawalrée.
Huperzia dentata (Herter) Holub	
Huperzia selago (L.) Bernh. ex Schrank & Mart.	Syn *Lycopodium selago* L.
Lycopodiella cernua (L.) Pic.Serm.	Syn *Lepidotis cernua* (L.) P.Beauv. *Lycopodium cernuum* L.
Lycopodiella inundata (L.) Holub	Syn *Lepidotis inundata* (L.) Opiz *Lycopodium inundatum* L.
Lycopodium annotinum L.	Inc *Lycopodium dubium* Zoega *Lycopodium pungens* (La Pylaie) Iljin.
Lycopodium clavatum L.	Syn *Lycopodium clavatum* L. subsp. *monostachyum* (Grev. & Hook.) Selin.

APPENDIX 3: EXAMPLES OF REPORTING THREATS & PRESSURES

A *Hyla arborea* (European tree frog) in the Atlantic Biogeographic region of the Netherlands

2.6 Main pressures			
code	**Pressure**	**Ranking**	**Pollution qualifier**
A10	Restructuring agricultural land holding	H	
A10.01	Removal of hedges, copses or scrubs	H	
F03.02.01	Collection of animals	H	
J02.05	Modification of hydrographic functioning	H	
K02.01	Species composition change (succession)	H	N, P
A02.03	Grassland removal for arable land	M	
A03.01	Intensive mowing or intensification	M	
D01.02	Roads, motorways	M	
E01.02	Discontinuous urbanisation	M	
E01.03	Dispersed habitation	M	
E04	Agricultural structures, buildings in the landscape	M	
G01	Outdoor sports and leisure activities, recreational activities	M	
G05.05	Missing or wrongly directed conservation measures	M	
H04.02	Nitrogen input	M	N, A
I03.01	Genetic pollution (animals)	M	
J02.01.03	Infilling of ditches, ponds, pools, …	M	
K02	Biocenotic evolution, succession	M	
K03.05	Antagonism arising from introduction of species	M	
A07	Use of biocides, hormones and chemicals	L	
2.6.1 Data source – pressures		3 = based exclusively or to a larger extent on real data from sites/occurrences or other data sources	
2.7 Threats			
Code	**Threat**	**Ranking**	**Pollution qualifier**

A10.01	Removal of hedges, copses or scrubs	H	
F03.02.01	Collection of animals	H	
J02.05	Modification of hydrographic functioning	H	
K02.01	Species composition change (succession)	H	N, P
D01.02	Roads, motorways	M	
E01.02	Discontinuous urbanisation	M	
E01.03	Dispersed habitation	M	
H04.02	Nitrogen input	M	N, A
K03.05	Antagonism arising from introduction of species	M	
2.7.1 Data source –threats		1 = expert opinion	

Rationale behind filling in the data in the example:

Description of problem	**Code**	**Reason for ranking**	**T or P?**
Land allocation: large scale intensive agricultural land (loss of habitat, habitat fragmentation).	A10	**High:** This is the reason why grassland, shrubs, ponds are removed, why water levels are changed, why there are new (agricultural) buildings and why the amount of roads is increased.	Only P: trend in places were species occurs is turned.
Grassland removal for arable land (loss of habitat, habitat fragmentation).	A02.03		Only P: trend in places were species occurs is turned.
Intensive mowing or intensification (loss of habitat, habitat fragmentation).	A03.01		Only P: trend in places were species occurs is turned.
Breeding habitat: removal of scrub (habitat fragmentation).	A10.01	**High:** Direct habitat loss in both breeding and summer habitat and causing great risks of isolation, leading to extinction.	T+P: on small scale this still keeps happening.
Summer habitat: land allocation: removal of structure rich fringes and wooded banks (habitat loss).	A10.01		Only P: trend in places were species occurs is turned.
Removal of pools (in land allocation) (loss of habitat).	J02.01.03		Only P: trend in places were species occurs is turned.
Drying out of pools early in season as a result of infilling of ditches (breeding success).	J02.01.03		Only P: trend in places were species occurs is turned.
Drying out of pools early in season as a result of management of water levels (breeding success).	J02.05	**High:** This also influences the ponds outside agricultural areas.	T+P: it will take more time before all water levels are OK.

Improper management (pools too deep --> fish, allowing succession to land).	G05.05		Only P: trend in places were species occurs is turned.
Habitat fragmentation and isolation: roads.	D01.02		T+P: no reason to suspect this will change.
Habitat fragmentation and isolation: expanding of villages.	E01.02		T+P: no reason to suspect this will change.
Habitat fragmentation and isolation: building of houses in the country.	E01.03		T+P: no reason to suspect this will change.
Habitat fragmentation and isolation: building of agricultural buildings in the country.	E04		Included in E01.03.
Habitat fragmentation and isolation: building of recreational buildings and infrastructure.	G01		Included in E01.03.
Acidification of the water as a result of N and S deposition (quality of habitat).	H04.02		T+P: it will take more time before all deposition levels are OK.
Succession: growing trees increasing shade (quality of habitat).	K02		Only P: trend in places were species occurs is turned.
Succession: water vegetation to land (loss of habitat, quality of habitat).	K02.01	**High:** Is a result of eutrophication, which is a widespread problem.	T+P: it will take more time before all deposition levels are OK.
Use of pool by ducks: (quality of habitat).	K03.05		T+P: no reason to suspect this will change.
Introducing of fish (breeding success).	K03.05		T+P: no reason to suspect this will change.
Genetic pollution as a result of release of non-native related (sub)species.	I03.01		Hopefully more legislation and surveillance will stop this.
Removal of frogs for collections.	F03.02.01	**High:** The populations are small, so removal has a high impact on the population.	T+P: no reason to suspect this will stop.
Use of biocides (food availability).	A07	**Low:** direct impacts are not yet known.	

B 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels in the Atlantic Biogeographic region of the Netherlands

2.6 Main pressures

Code	Pressure	Ranking	Pollution qualifier
A10.01	Removal of hedges, copses or scrub	H	

H04.02	Nitrogen input	H	N
J02.05	Modification of hydrographic functioning	H	
J02.11.01	Sea defence or coast protection works	H	
A02.01	Agricultural intensification	M	
G05.05	Missing or wrongly directed conservation measures	M	
H01.05	Diffuse pollution to surface waters due to agricultural and forestry	M	N, P
J02.03.02	Canalisation	M	
J02.05.02	Modifying structures of inland water courses	M	
K01	Abiotic (slow) natural processes	L	
2.6.1 Data source – pressures	3 = based exclusively or to a larger extent on real data from sites/occurrences or other data sources		

2.7 Threats			
Code	**Threat**	**Ranking**	**Pollution qualifier**
A10.01	Removal of hedges, copses or scrub	H	
H04.02	Nitrogen input	H	N
J02.05	Modification of hydrographic functioning	H	
J02.11.01	Sea defence or coast protection works	H	
H01.05	Diffuse pollution to surface waters due to agricultural and forestry	M	N, P
2.7.1 Data source –threats	1 = expert opinion		

Rationale behind filling in the data in the example:

Description of problem	**Code**	**Reason for ranking**	**T or P?**
Lack of management (neglecting)→ encroachment → trees and scrubs.	G05.05		Only P: trend in places were habitat type occurs is turned.
Too intensive management → low vegetation → habitat loss.	A02.01		Only P: trend in places were habitat type occurs is turned.
Intensive agricultural use: disappearance of unused terrains, shrubs and fringes.	A10.01	**High:** most important reason for loss of habitat in all regions.	T+P still ongoing for fringes of forests.
Drying out as a result of lowering of water tables for agricultural purposes (mostly in peat area).	J02.05		T+P: no reason to suspect this will change.

Drying out as a result of intensification of agriculture --> modifying and filling of ditches and channels (mostly in peat area).	J02.05.02		Only P: trend in places were habitat type occurs is turned.
Eutrophication as a result of N and P polluted water from nearby agricultural land. (fringe of woods vegetations).	H01.05		T+P: it will take more time before all deposition levels are OK.
Eutrophication as a result of N-deposition is a great risk for fringe habitats.	H04.02	**High:** most important in the sand areas (fringe habitats)	T+P: it will take more time before all deposition levels are OK.
Desalination of the large brackish marshes in the peat areas as a result of inpoldering (historic: J02.01.02, but the impact process is still ongoing: K01).	K01	**Low:** cause lies mainly in the past (but: see J02.05).	Only P: from the past.
Also: increase of desalination as a result of active input of fresh water for agricultural improvement.	J02.05	**High:** brackish type in NL is important within Europe because of rare vegetation types. The brackish type has declined strongly in the past, mostly in this area, which still may have high potential if the salinity is preserved.	T+P: salinity will not change on the short term.
Desalination as a result of the closing of see arms in the Delta areas, where now the main distribution remain of the brackish type.	J02.11.01	**High:** brackish type in NL is important within Europe because of rare vegetation types. The brackish type has declined a lot in the past and this is the most important remaining refuge, where it is also declining.	Only P: no change in closing of see arms, no increase in threat, salinity problem in J02.05.
Loss of tidal dynamics as a result of closing see arms in the Delta area. Inundation is necessary for dispersion of seeds and nutrient supplies (brackish tall herb vegetations).	J02.11.01		Only P: no change in tidal dynamics, no increase in threat.
Loss of natural habitat as a result of canalisation of (small) rivers and brooks.	J02.03.02		Only P: trend is turned.

C Sideritis serrata (Annex II & IV plant) in the Mediterranean Biogeographic region of Spain

2.6 Main pressures			
Code	**Pressure**	**Ranking**	**Pollution qualifier**

B01.01	Forest planting on open ground (native trees)	H	
A06.01.02	Non-intensive annual crops for food production	H	
A06.02.02	Non-intensive perennial non-timber crops	H	
D01.01	Paths, tracks, cycling tracks	L	
2.6.1 Data source – pressures	3 = based exclusively or to a larger extent on real data from sites/occurrences or other data sources		
2.7 Threats			
Code	**Threat**	**Ranking**	**Pollution qualifier**
B01.01	Forest planting on open ground (native trees)	H	
A06.01.02	Non-intensive annual crops for food production	H	
A06.02.02	Non-intensive perennial non-timber crops	H	
C01.04.01	Open cast mining	M	
D01.01	Paths, tracks, cycling tracks	L	
C03.03	Wind energy production	L	
K05.02	reduced fecundity/ genetic depression in plants (incl. endogamy)	L	
2.7.1 Data source –threats **NEW**		1 = expert opinion	

Rationale behind filling in the data in the example:

Description of problem	**Code**	**Reason for ranking**
Decrease in individuals and/or habitat loss and/or fragmentation due to forest planting with Pinus halepensis.	B01.01	Direct impact that has already reduced the habitat and population of the species.
Decrease in individuals and/or habitat loss and/or fragmentation due to enlargement of nearby annual crops.	A06.01.02	
Decrease in individuals and/or habitat loss and/or fragmentation due to enlargement of nearby almond tree crops.	A06.02.02	
Decrease in individuals and/or habitat loss and/or fragmentation due to new open cast mining.	C01.04.01	Potential impact that could have a great influence on the only population of the species.
Decrease in individuals and/or habitat loss due to tracks.	D01.01	Low direct influence.
Decrease in individuals and/or habitat loss and/or fragmentation due to new stands of wind energy production.	C03.03	Potential impact that would be detrimental to the only population of the species.
Genetic depression by endogamy, and genetic erosion by hybridization with *S. leucantha* subsp. *Bourgaeana.*	K05.02	Foreseeable risks given the reduced area of the population and the documented hybridization events.

D 6430 * Iberian gypsum vegetation (*Gypsophiletalia*) in the Mediterranean Biogeographic region of Spain

2.6 Main pressures			
Code	**Pressure**	**Ranking**	**Pollution qualifier**
B01.01	Forest planting on open ground (native trees)	H	
A06.01	Annual crops for food production	H	
A06.02	Perennial non-timber crops	H	
C01.04.01	Open cast mining	H	
E01	Urbanised areas, human habitation	M	
E02	Industrial or commercial areas	M	
G01.03	Motorised vehicles	L	
C03.03	Wind energy production	L	
2.6.1 Data source – pressures	3 = based exclusively or to a larger extent on real data from sites/occurrences or other data sources		
2.7 Threats			
Code	**Threat**	**Ranking**	**Pollution qualifier**
B01.01	Forest planting on open ground (native trees)	H	
A06.01	Annual crops for food production	H	
A06.02	Perennial non-timber crops	H	
C01.04.01	Open cast mining	H	
E01	Urbanised areas, human habitation	M	
E02	Industrial or commercial areas	M	
G01.03	Motorised vehicles	L	
C03.03	Wind energy production	L	
M01.03	Flooding and rising precipitations	L	
2.7.1 Data source –threats		1 = expert opinion	

Rationale behind filling in the data in the example:

Description of problem	**Code**	**Reason for ranking**
Decrease in quality (species composition,	B01.01	Forest planting related to hydrologic

damage and loss of the biological crust of lichens and mosses, soil degradation) and/or extent due to forest planting mainly with *Pinus halepensis* and *Quercus ilex* subsp*. rotundifolia*.		management and to the recovery of marginal agricultural lands are the most important factors currently affecting the habitat. The latter is done under the protection of legislation and helped by a subsidy policy. Affect all its distributional area, reducing both quality and extension.
Decrease in extent and/or fragmentation due to agricultural practices.	A06.01 A06.02	The enlargement of crops favoured by a policy of land concentration and affecting marginal lands for agriculture is being detrimental for the extension of this habitat.
Decrease in extent and/or fragmentation due to open cast mining. Regeneration difficult for some stenocious species and for the biological crust of lichens and mosses.	C01.04.01	Direct impact currently affecting important areas with narrow endemics.
Decrease in extent and/or fragmentation due to urban and/or industrial development.	E01 E02	Direct and regional impact currently affecting the habitat (Madrid, Zaragoza, Alicante, Toledo).
Decrease in quality and/or extent due to recreational activities with motorised vehicles.	G01.03	Direct and local impact currently affecting the habitat.
Decrease in quality and/or extent due to new stands of wind energy production.	C03.03	Direct and local impact currently affecting the habitat.
Changes in quality (species composition) and extent due to global change.	M01.03	The incidence of global change is expected to be high, since this habitat functions as an insular system and most of gypsophytes have limited dispersal ability. However, flooding and rising precipitations would likely affect to a small portion of the area.

APPENDIX 4: CONVERTING POPULATION DATA TO INDIVIDUALS

The 3 examples described are all from the Boreal region of Sweden.

Rana temporaria (European common frog)
The species is distributed over most of the country; it is considered to be rather common and has been classified as LC (Least Concern) in all editions of the Swedish Red List.

1) After exclusion of some small unsuitable areas the species was estimated to occur in 352 481 km^2 in the boreal region (nearly all of the terrestrial part of the region).

2) The Swedish experts on amphibians were consulted and they were asked to make as good a guess as possible of how many frogs typically occur in one km^2 in different parts of Sweden and some mean value for a normal square kilometre. The outcome from this consultation gives an approximation of 100 to 200 mature frogs per km^2.

3) Converted into population of the Boreal region gives 35 000 000 – 75 000 000 individuals or class 12 (more than 5 000 000 individuals).

Vertigo geyeri (Geyer's whorl snail)
This snail occurs in rich fens of a certain type and quality. It normally has a patchy distribution within the fens where it occurs. The species is known from 300 fens, most of them less than 1 ha. Thirty are larger than 1 km^2, but the species is only known from the "best" parts of the fens. For approximately half of the sites only records older than 30 years are available for the species, but most of the fens have been surveyed in the last 25 years and at least 250 are still suitable for the *Vertigo* species.

About 20 sites have been surveyed in detail in the last 25 years for the species. In small fens it was found in the suitable parts to occupy an area of 10 to 200 m^2, depending on the amount of suitable habitat and the conservation status of the fen. Only one larger fen (5 km^2) was surveyed with a stratified sub-sampling method. Of 200 samples the species was present in 45.

Approximation: According to the size and status of the fens, the small fens (some 90 % of sites) will have a population between 15 and 50 m^2. The population of the large fens was calculated from an estimation of suitable habitat at each site and roughly 25 % of the suitable habitat was estimated to be occupied by the species. Small fens will have between 3 300 and 11 000 m^2 and large fens between 10 000 and 30 000 m^2). This gives an overall figure between 13 000 and 41 000 m^2 and class 7 (10 000–50 000).

Osmoderma eremita (Hermit beetle)
This species is recorded from 350 localities (separated by at least 2 km) over the last 15 years. The number of suitable trees per locality varies between 5 to 500, most localities (approximately 90%) are known to have between 10 to 50 suitable trees.

A rough estimation gives between 3 500 and 17 500 trees that could be inhabited by *Osmoderma eremita.* This could be given as Min-Max or approximated to class 6 (5 000–10 000).

APPENDIX 5: STRUCTURE & FUNCTION AND SELECTING TYPICAL SPECIES

a General guidelines

The following table indicates factors of structure & function which should be considered during the assessment of each habitat group and when selecting typical species.

Habitat group	Structures & functions to be considered when assessing this parameter.
Coastal & halophytic habitats (1***)	This group includes a wide variety of habitat types, some of which cover an extremely wide range of inherent variability (eg 1170 Reefs). As such it is not possible to give meaningful guidance for the group as a whole. It should be noted that many of these habitats are related to their physical environment and that geomorphological processes such as sediment transport and deposition are important components of function. More detailed guidance is given for a small number of habitats in part b.
Coastal dunes (21**, 22**)	Structure Species composition (plant) (esp of dominant species, eg *Ammophila arenaria* in 2120, *Empetrum nigrum* in 2140)) Age/height classes (Proportion of old trees for forested dunes 2180, 2270) patch size/distance between patches completeness of dunal zonation, habitat heterogeneity. % open ground Fragmentation Dynamics of dune system (varies with dune type, esp important for e.g. 2110, 2120) Natural vegetation dynamics Fire (esp. for Mediterranean dunes) (signs of fire, frequency of fire) (linked to regeneration of many species) Hydrology (especially for 2190 Humid dune slacks (natural, disturbed). Species (animal) small mammals, ground beetles, Hymenoptera and other psammophytic invertebrates, reptiles, amphibians, birds. Notes Effects of grazing and eutrophication can be seen via other parameters (e.g. species composition, dune dynamics) Extreme climatic events (drought, etc) considered as threat /pressures Negative indicators may be useful such as alien species

	(eg *Rosa rugosa* in FI), or species which are not natural to the habitat (eg rabbits).
Inland dunes (23**)	Structure Species composition (plant) (esp. of dominant species) Age/height classes patch size/distance between patches Dynamics (% open ground) Fragmentation Fire (signs of fire, frequency of fire) (link to other spp regeneration). Species (animal) –small mammals, ground beetles, , Hymenoptera and other psammophytic invertebrates reptiles, amphibians, birds Notes Effects of grazing and eutrophication can be seen via other parameters (e.g. species composition, dune dynamics) Extreme climatic events (drought, etc) considered as threat /pressures Negative indicators may be useful such as alien species or species not normally found in the habitat.
Lakes (31**)	Structure species composition (plant) (esp of dominant species) % open ground/proportion of small vascular plants – reed or woody plants (for 3110/3130) Naturalness of zonation Water quality (including eutrophication (link to critical loads) Hydrology (natural, disturbed) (note for temporary lakes & associated vegetation). Species (animal) –small mammals, dragonflies, fish, reptiles, amphibians, birds , macroinvertebrates/ invertebrates groups with larvae living in the waterbody and at its margins (lakes naturally without fish have specific animal communities). Notes Extreme climatic events (drought, etc) considered as threat /pressures Negative indicators may be useful such as alien species or species not normally found in the habitat.
Rivers (32**)	Structure

	species composition (plant) (esp of dominant species) Hydrology (natural, disturbed) (water flow, sediment erosion/movement/deposition) (eg can fish migrate, dams) Hydromorphology (lining, canalisation) Water quality (including eutrophication (link to critical loads) deadwood & other organic input oxygen regime (especially for lowland, slow flowing rivers). Species (animal) – small mammals, dragonflies, fish, reptiles, amphibians, birds. Summer grazing in seasonal rivers Notes Extreme climatic events (drought, etc) considered as threat /pressures Negative indicators may be useful such as alien species or species not normally found in the habitat.
Heaths & scrub (4***, 51**)	Structure species composition (plant) Age/height classes Proportion of life forms (chamaephyts, shrubs, trees) Cover of tree layer (maximum %) soils (natural, worked, ploughed, etc) patch size/distance between patches Hydrology (natural, disturbed) Fragmentation Fire (signs of fire, frequency of fire) (link to other spp regeneration) mowing, turf cutting, etc) Species (animal) –small mammals, ground beetles (tenebrionids)) pollinators (Hymenoptera, Syrphidae u.a.), xer- and psammophytic insect groups, Fungi (saprotrophic, mycorhizal) Birds. Notes Effects of grazing and eutrophication can be seen via other parameters (eg species composition, dune dynamics) Extreme climatic events (drought, etc) considered as threat /pressures Negative indicators may be useful such as alien species (eg *Rosa rugosa* in FI), or species which are not natural to the habitat (eg rabbits).

Matorral, scrub, etc (52**, 53**, 54**)	Structure species composition (plant) (esp of dominant species) Age/height classes patch size/distance between patches % open ground Fragmentation Hydrology (natural, disturbed) Fire (signs of fire, frequency of fire) (link to other spp regeneration). Species (animal) –small mammals, ground beetles (tenebrionids), pollinators and indicators of habitat mosaic (e.g. Hymenoptera, Syrphidae, Lepidoptera), spiders, reptiles, birds. Notes Effects of grazing and eutrophication can be seen via other parameters (e.g. species composition, dune dynamics) Extreme climatic events (drought, etc) considered as threat /pressures Negative indicators may be useful such as alien species or species which are not natural to the habitat.
Grasslands (6***)	Structure (often structure is related to one or few spp for a given habitat –eg *Brachypodium pinnatum* for 6210, *Nardus sticta* for 6230) species composition (plant) soils (natural, worked, ploughed, etc) patch size/distance between patches Fragmentation Fire (signs of fire, frequency of fire) (esp Boreal & Med) (link to other spp regeneration) Hydrology (natural, disturbed). Shrub (often present, at low cover may be considered as a natural component of the habitat but at high cover is a sign of habitat degradation) spp composition Proportion of grass/herb/clover/shrub. Species (animal) –small mammals (eg sisliks), ground beetles (e.g.teneobrionids), pollinators and indicators of habitat mosaic (e.g. Hymenoptera, Syrphidae, Lepidoptera), Fungi (saprotrophic, mycorhizal) Birds. Notes Effects of grazing and eutrophication can be seen via

	other parameters (eg species composition, dune dynamics) Extreme climatic events (drought, etc) considered as threat /pressures Negative indicators may be useful such as alien species or species which are not natural to the habitat.
Bogs, mires, etc (7***)	Structure species composition (plant) (esp of dominant species) morphology (hummock, ridge, pool, lawn) peat body (disturbance) (ice for Palsa mires) proportion of life forms (bryophyts, herbs, shrubs) Hydrology (natural, disturbed) Water quality Species (animal) – small mammals, butterflies, amphibians, birds Notes Effects of drainage, eutrophication and changes due to lack of management (cutting, grazing) can be seen via other parameters (e.g. species composition,) Extreme climatic events (drought, etc) considered as threat /pressures Negative indicators may be useful such as alien species or species which are not natural to the habitat.
Rocks, etc (8***)	Structure species composition (plant) (esp of dominant species) (linked to exposition & substrate) Species (animal) – small mammals, reptiles, Birds,) pollinators and indicators of habitat mosaic (e.g. Hymenoptera, Syrphidae, Lepidoptera) Dynamics (especially for screes) pavements, etc (8230, 8240) need to be kept open (butterflies) % cover of vegetation Glaciers & caves, etc need to be treated individually Notes Effects of drainage, eutrophication and changes due to lack of management (cutting, grazing) can be seen via other parameters (e.g. species composition,) Extreme climatic events (drought, etc) considered as threat /pressures Negative indicators may be useful such as alien species or species which are not natural to the habitat.

Forest (9***)	Structure Species composition (naturalness of tree species: presence and proportion) Canopy (height –esp for Mediterranean) Shrub spp composition Epiphytes & lianes/creepers Age classes Dead wood (standing & fallen) quantity quality (diversity, etc age, origin, size) holes in living trees soils (natural, worked, ploughed, etc) Fragmentation (patch size/distance between patches) Fire (signs of fire, frequency of fire) (esp for Boreal & Mediterranean types) (link to other spp & tree regeneration). Other species Saproxylic groups (e.g. beetles, ants, hoverflies) pollinators and indicators of habitat mosaic (e.g. Hymenoptera, Syrphidae, Lepidoptera) Fungi (saprotrophic, mycorhizal) Birds Hydrology (natural, disturbed) (especially for riparian forests such as 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) or mire woodlands (eg 91D0 Bog woodland). Notes Effects of eutrophication can be seen via other parameters (e.g. species composition,) Extreme climatic events (drought, etc) considered as threat /pressures Negative indicators may be useful such as alien species or species which are not natural to the habitat.

b Structure, function and typical species for a selection of marine habitat types

1110 Sandbanks which are slightly covered by seawater all the time	*Structural aspects:* • Elevation and topographic contour of the habitat feature • Species composition animal and vegetal: density of dominant species, general biodiversity index *Typical species:* Fish: *Ammodytes sp., Callionymus spp., Pomatoschistus*

	spp, birds (e.g. seaducks, gannets, puffins) and marine mammals, invertebrates: polychaetes, bivalves, crustaceans, Macrophytes: free living Corallinacea, *Zostera* spp *Functional aspects:* • Spawning and nursery area for fish • Sediment movement *Notes:* Negative interaction resulting from the effects of trawling on the habitat can be seen from habitat survey results indicating physical alterations to the seabottom communities and lower biodiversity index values
1120 Posidonia beds (*Posidonion oceanicae*)	*Structural aspects:* • Typology of meadow lower limit: progressive (meadow lower limit distribution is influenced only by decreasing light levels), sharp, erosive, regressive. • Conservation index % live Posidonia: dead matter) • Conservation status (defined on the basis of leaf density according to depth. Note: taking into account variations known to occur in subregions) • Rhizome growth (orthotropic and plagiotropic) *Typical species: Posidonia oceanica* *Functional aspects:* • Protection from coastal erosion processes • Source of primary productivity to the benefit of species living within the habitat as well as distal from it. Spawning and nursery area for fish • Biodiversity hotspot • Maintenance of water quality and transparency to the benefit of tourist activities • Source of water oxygenation *Notes:* Negative interaction resulting from the effects of human activities on the habitat can be seen from habitat survey results indicating the presence of sharp lower limits or of meadow lower limit change from progressive to sharp. Negative effects from illegal trawling can be detected collecting data on the presence of traces of these gears on the meadow (i.e. sidescan sonar). Negative interaction resulting from the effects of anchoring can be seen from habitat fragmentation and patchiness, or in extreme cases the presence of sharp lower limits. Negative interaction resulting from the presence of invasive species can be determined by the evaluation on

	the presence of Caulerpa spp. Negative interaction resulting from the effects of altered sedimentary regimes can be determined by the presence of erosive and regressive lower limits and conspicuous quantity of dead matter.
1170 Reefs	*Structural aspects:* • Conservation evaluation based on vitality of the platforms (percentage of dead organisms), • Erosion / abrasion /damage signs, • Ppatchiness (patch size/distance between patches) • Density of specimens (stratified at selected sampling stations). *Typical species:* • Dendropoma, vermetid & Lythophyllum rims: *Dendropoma petraeum, Neogoniolithon brassica – florida, Lithophyllum byssoides, Corallina elongata, Lithophyllum papillosum, Rissoella verruculosa, Nemalion helminthoides* • Structuring algal infralittoral associations: *Cystoseira amentacea, C. tamariscifolia, C. brachycarpa, C. crinita, C. crinitophylla, C. sauvageauana, C. spinosa, C. compressa, Sargassum vulgare* • Coralligenous communities: *Lithophyllum stictaeforme, Peyssonnelia rosa – marina, Mesophyllum lichenoides,* Gorgonians, Briozoans and sponges • Corals: *Lophelia pertusa, Dendrophyllia* spp., *Madrepora oculata* • Mussel beds: *Ostrea edulis, Modiolus modiolus, Mytilus edulis* • Encrusting communities: *Sabellaria spinosula.* *Functional aspects:* • Biodiversity hotspot (often to the benefit of landscape value and tourism activities). *Notes:* Negative interaction resulting from the effects of trampling, abrasion from mechanical damage due to recreative and non recreative activities can be measured from habitat survey results indicating the presence of broken thalli, split branches of arborescent forms, broken shells etc. Negative interaction resulting from the effects of temperature variations due to climate change are noticed by the presence of mucilage over the communities or of dead vegetal/animal specimens.

c Typical species proposed for habitat '3170 Mediterranean temporary ponds' in France
(adapted from Grillas et al 2004)[74].

Structure	Aspect		Suggested 'typical species'
	Plant species	Temporary ponds on sandy soils	*(*Alliance*: Preslion cervinae)* *Mentha cervina, Artemisia molinieri, Oenanthe globulosa*
		Mediterranean temporary ponds with Isoetes	*(*Alliance*: Isoetion)* *Isoetes sp., Marsilea strigosa, Pilularia minuta, Litorella uniflora, Crassula vaillanti*
		Periodically flooded muddy, nutrient rich and saline banks	*(*Alliance*: Heleochloion ;* syn *Verbenion supinae)* *Heliotropium supinum, Crypsis schoenoides, Cressa cretica*
		Pioneer ephermeral vegetation on periodically flooded soils	*(*Order*: Nanocyperetalia)* *Damasonium polyspermum, Lythrum tribracteatum, Cyperus flavescens, Cyperus fuscus*
	Animal species	Amphibians	*Triturus cristatus, speleomentes ambrosii, Discoglossus sardus, Pelobates* sp*., Rana* sp*.*
		Larger crustaceans	Anostraca, Notostraca, Spinicaudata, Laevicaudata
		Insects	Ephemeroptera, Odonata (*Coenagrion, Lest, Ischnura*), Heteroptera, Coleoptera, Diptera
	Vegetation zonation		Moist grassland, amphibious vegetation, aquatic communities
Function	Hydrology	Fluctuations in water level	
		Period of flooding	
		Period of drought	
		Water table	
		Disturbance	

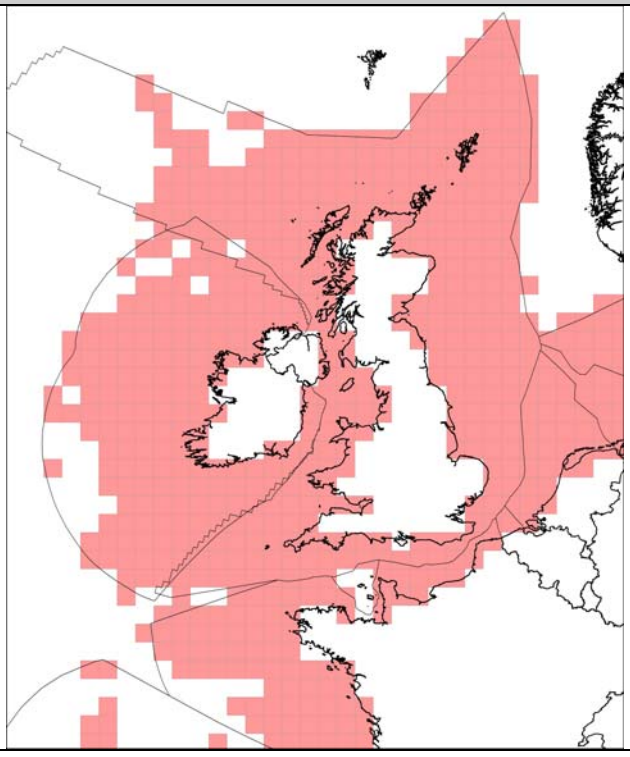
[74] Grillas P., P. Gauthier, N. Yavercovski et C. Perennou 2004. Les mares temporaries méditerranéennes. Enjeux de conservation, fonctionnement et gestion. Volume 1. Tour du Valat. pp 119.

	Seed bank		
	Seed dispersal		Birds
	Water quality, eutrophisation		

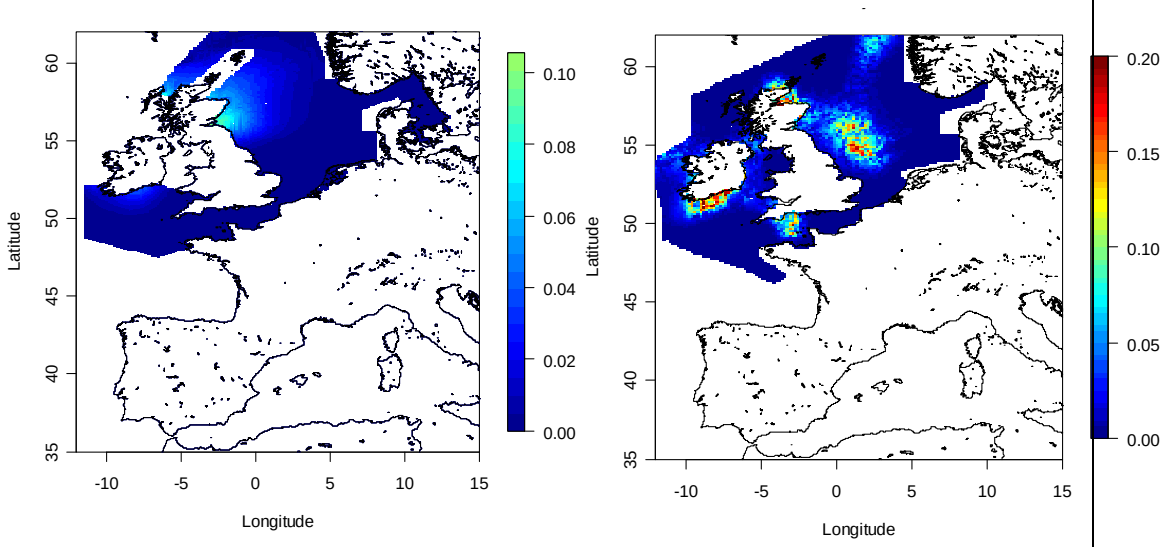
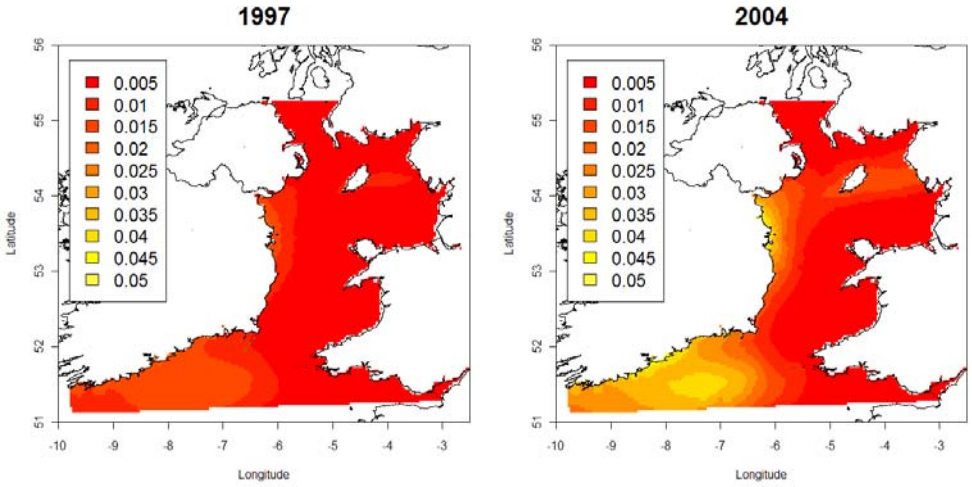
APPENDIX 6: TRANSBOUNDARY ASSESSMENTS - AN ANNOTATED EXAMPLE

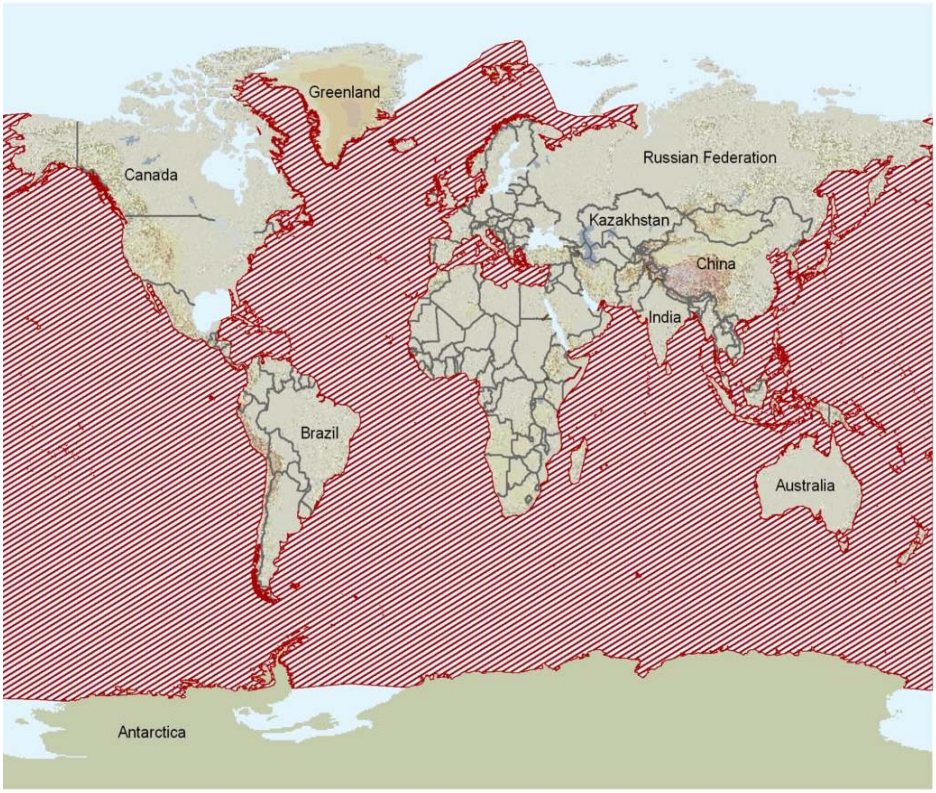
The following example was developed by Eunice Pinn (JNCC), annotations are given in square brackets.

Field name	***Brief explanations***	
0.1 Member State	UK	
0.2 Species	**0.2.1 Species code**	8355
	0.2.2 Species scientific name	*Balaenoptera acutorostrata*
	0.2.3 Alternative species scientific name Optional	
	0.2.4 Common name Optional	Minke whale

1 National Level		
1.1 Maps	Distribution and range within the MS concerned	
1.1.1 Distribution map		Indicate if species is considered to be 'sensitive'[75] ☐

[75] See the definition of a sensitive species in section 1.1.1 of the Guidelines

1.1.2 Method used - map	~~E~~stimate based on partial data with some extrapolation and/or modelling using 50 x 50 km grids. The effort-related sightings data were obtained from SCANS, the European Seabirds at Sea (ESAS) and Seawatch Foundation to produce the Atlas of Cetacean Distribution in North-West European Waters (Reid *et al.* 2003). It should be noted that an updated distribution map will become available in 2012.
1.1.3 Year or period	1973-1999
1.1.4 Additional distribution map - optional	Density surface plots derived from the SCANS I survey in 1994 (left) and SCANS II in 2005 (right). No surface density plot was produced for the minke whale sightings during CODA (2007).  Example of the Joint Cetacean Protocol output - distributional change of minke whale in the Irish Sea (Paxman & Thomas, 2010). Units are animals/km^2. 

1.1.5 Range map	IUCN 2008 assessment range map 

2 Biogeographical level Complete for each biogeographical region or marine region concerned	
2.1 Biogeographical region & marine regions	Marine Atlantic (MATL)

2.2 Published sources	Aguilar, A., Grau, E., Sanpera, C., Jover, L. and Donovan, G. 1983. Report of the 'Balaena 1' whale marking and sighting cruise in the waters off western Spain. *Reports of the International Whaling Commission* 33: 649-655. CODA 2009. The Cetacean Offshore Distribution and Abundance in the European Atlantic (CODA) project final report. Available from: http://biology.st-andrews.ac.uk/coda/ Deaville, R. & Jepson, P.D., 2010. Annual report for the period 1st January – 31st December 2009. Contract number CRO346. Available at: http://www.defra.gov.uk/wildlife-countryside/resprog/findings/ukcsip-ar2009.pdf Hammond, P. S., Berggren, P., Benke, H., Borchers, D. L., Collet, A., Heide-Jorgensen, M. P., Heimlich, S., Hiby, A. R., Leopold, M. F. and Øien, N. 2002 Abundance of harbour porpoise and other cetaceans in the North Sea and adjacent waters. Journal of Applied Ecology, 39, pp. 361-376. ICES. 2010. Report of the Working Group on Marine Mammal Ecology (WGMME), 12-15 April 2010, Horta, The Azores. ICES CM 2010/ACOM:24. 212 pp. Macleod, K., Fairbairns, R., Gill, A., Fairbairns, B., Gordon, J., Blair-Myers, C. and Parsons, E.C.M. 2004. Seasonal distribution of minke whales Balaenoptera acutorostrata in relation to physiography and prey off the Isle of Mull, Scotland. Marine Ecology Progress Series, 277: 263-274. Naud M-J, B. Long, J-C Brêthes & R. Sears. 2003. Influences of underwater bottom topography and geomorphology on minke whale (*Balaenoptera acutorostrata*) distribution in the Mingan Islands (Canada). Journal of the Marine Biological Association of the UK, 83: 889-896. Paxman CGM, Thomas L. 2010. Phase One Data Analysis of Joint Cetacean Protocol Data. Report to Joint Nature Conservation Committee on JNCC Contract No: C09-0207-0216. Centre for Research into Ecological and Environmental Modelling, University of St Andrews. Reid, J.B., Evans, P.G.H. & Northridge, S.P., 2003. Atlas of cetacean distribution in north-west European waters. Joint Nature Conservation Committee, Peterborough. Available at: http://www.jncc.defra. gov.uk/page-2713 Reilly, S.B., Bannister, J.L., Best, P.B., Brown, M., Brownell Jr., R.L., Butterworth, D.S., Clapham, P.J., Cooke, J., Donovan, G.P., Urbán, J. & Zerbini, A.N. 2008. *Balaenoptera acutorostrata*. In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4. Available at: http://www.iucnredlist.org/apps/redlist/details/2474/0. Sigurjónsson J., Gunnlaugsson Th., Ensor P., Newcomer M. and Víkingsson G. 1991. North Atlantic sightings survey 1989 (NASS-89): shipboard surveys in Icelandic and adjacent waters July-August 1989. *Reports of the International Whaling Commission* 41: 559-572. SCANS II, 2008. Small Cetaceans in the European Atlantic and North Sea. Final Report submitted to the European Commission under project LIFE04NAT/GB/000245. Available from http://biology.st-andrews.ac.uk/scans2/inner-finalReport.html. Van Waerebeek, K., Andre, M., Sequeira, M., Martin, V., Robineau, D., Collet, A., Papastavrou, V. and Ndiyaye, E. 1999. Spatial and temporal distribution of the minke whale, *Balaenoptera acutorostrata* (Lacepede, 1804), in the southern northeast Atlantic Ocean and the Mediterranean Sea, with reference to stock identity. *Journal of Cetacean Research and Management* 1(3): 223-238.

2.3 Range	Range within the biogeographical region concerned
2.3.1 Surface area	2 337 826 km^2 for European NE Atlantic waters [Note: *B. acutorostrata* has been recorded throughout the marine Atlantic biogeographic region, although usually on the continental shelf (Reid et al., 2003).]
2.3.2 Method used	2 = Estimate based on partial data with some extrapolation and/or modelling
2.3.3 Short-term trend period	1979 – 2005
2.3.4 Short term trend Trend direction	0 = stable [A comparison of SCANS II survey results with the map in the Atlas of cetacean distribution in north-west European waters (see section 1.1.1; Reid et al., 2003) reveals no evidence of a decline in range. This encompasses data from 1979 to 2005. Assessments by IUCN and the IWC also consider the population to be stable in the long term.]
2.3.5 Short-term trend magnitude Optional	
2.3.6 Long-term trend period Optional	
2.3.7 Long-term trend Trend direction Optional	0 = stable (It is considered likely that the population is stable in the long term (Reilly et al, 2010). The Joint Cetacean Protocol is currently collating data from across European Atlantic waters (see http://jncc.defra.gov.uk/page-5657 for further information). By March 2012, it is expected that density surface plots including trends over time will become available for all cetacean species for which there is sufficient data.]
2.3.8 Long-term trend magnitude Optional	a) Minimum
	b) Maximum
2.3.9 Favourable reference range	a) 2 337 826 km^2 for European NE Atlantic waters. [Note: *B. acutorostrata* has been recorded throughout the marine Atlantic biogeographic region, although usually on the continental shelf (Reid et al., 2003).]
	b)
	c)

	d) In summer, minke whales are common throughout the northern North Atlantic as far north as Baffin Bay, Greenland Sea, Svalbard (Norway), Franz Josef Land and Novaya Zemlya (Russian Federation), and as far south as 40°N (New Jersey) on the US east coast, and as far south as the Hebrides (northwest British Isles) and the central North Sea in the east (Reilly et al., 2010). In the mid-Atlantic summer concentrations of minke whales occur to at least as far south as 50°N (Sigurjónsson *et al*. 1991). It is likely that at least a part of the minke whale population over-winters in the summer range, but there has been very little observation effort in winter to confirm this. Minke whales also occur south of this range in the southeastern North Atlantic, although they are not common. The exceptions to this are the Canary Islands, where they appear to be frequent year-round (Van Waerebeek *et al*. 1999). There have been occassional sightings (Aguilar *et al*. 1983) and strandings (Van Waerebeek *et al*. 1999) off Spain and Portugal, Western Sahara, Mauritania and Senegal. Minke whales are rare in the Azores and not recorded from Madeira.	
2.3.10 Reason for change Is the difference between the reported value in 2.3.1. and the previous reporting round mainly due to…	a) genuine change? *YES/NO* [no change recorded. See section 2.8.1 for further information on the trend that can be detected.]	
	b) improved knowledge/more accurate data? *YES/NO* [no change recorded]	
	c) use of different method (e.g. "Range tool")? *YES/NO* [no change recorded]	
2.4 Population		
2.4.1 Population size estimation (using individuals or agreed exceptions)	**a) Unit**	individuals
	b) Minimum	11 700 [10 500 for the European continental shelf and 1200 for European waters off the continental shelf.]
	c) Maximum	70 100 [33 200 for European continental shelf and 36 900 for European waters off the continental shelf.]
2.4.2 Population size estimation (using population unit other than individuals)	**a) Unit**[76]	
	b) Minimum	
	c) Maximum	
2.4.3 Additional information on population estimates / conversion Optional	**a) Definition of "locality"**	
	b) Method to convert data	

[76] If a population unit is used other than individuals or the unit of the list of exceptions this data, is recommended to be converted to individuals. The converted data should be reported in the field 2.4.1.

	c) Problems encountered to provide population size estimation	The figures presented above represent the 95% confidence intervals obtained from the population estimates of SCANS II (2005) and CODA (2007). During 2011 these data are being combined with those of the Faroes part of the T-NASS survey (undertaken in 2007) to provide abundance estimates for the NE Atlantic.
2.4.4 Year or period	2005 for continental shelf and 2007 off the continental shelf	
2.4.5 Method used	2 = Estimate based on partial data with some extrapolation and/or modelling	
2.4.6 Short-term trend period	1994-2005 [for continental shelf only]	
2.4.7 Short-term trend Trend direction	0 = stable [Although two data points do not indicate a trend, there was no evidence of a change in abundance between the SCANS surveys. See section 2.8.1 for further information on power to detect change.]	
2.4.8 Short-term trend magnitude Optional	a) Minimum	
	b) Maximum	
	c) Confidence interval	
2.4.9 Short-term trend method used	2 = partial data (e.g. less accurate sampling) with some extrapolation	
2.4.10 Long-term trend period Optional		
2.4.11 Long-term trend Trend direction Optional	x = unknown [The 2008 IUCN assessment noted that whilst declines had been detected or inferred in some areas, there is no indication that the global population had declined to an extent that would qualify for a threatened category (Reilly et al., 2010). Common minke whales are taken in parts of the North Atlantic but these stocks are considered to be in a healthy state (IWC assessment). Outputs from the Joint Cetacean Protocol (http://jncc.defra.gov.uk/page-5657), expected March 2012, will provide an updated assessment of this species in European North Atlantic waters.]	
2.4.12 Long-term trend magnitude Optional	a) Minimum	
	b) Maximum	
	c) Confidence interval	
2.4.13 Long term trend method used Optional	0 = absent data (in cases trend is unknown)	
2.4.14 Favourable reference population	a) 80487 [(95% confidence interval 60083-107820) for NE Atlantic (Reilly et al., 2010).]	
	b) (using symbols ≈, >, >>, <)	
	c)	
	d) Indicate method used to set reference value if other than operators Note: These figures include Norwegian waters and relates to the period 1997-2001.	
2.4.15 Reason for change	a) genuine change? *YES/NO* [no change recorded]	

Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:	b) improved knowledge/more accurate data? *YES/NO* [no change recorded]	
	c) use of different method (e.g. "Range tool")? *YES/NO* [no change recorded]	
2.5 Habitat for the species		
2.5.1 Area estimation	Unknown, but this is not appropriate for wide ranging mobile marine species.	
2.5.2 Year or period		
2.5.3 Method used	0 = absent data	
2.5.4 Quality of the habitat	a) unknown	
	b) Cetacean habitats (e.g. feeding and breeding areas) vary temporally and spatially and are influenced by natural and anthropogenic factors. It is often difficult to determine what features characterise cetacean habitats and in quantifying their extent. This species has been observed mainly on the continental shelf in water depths of 200m or less (Reid et al. 2003), with prey distribution and abundance considered to be the most likely factors governing habitat use (Naud et al. 2003; Macleod et al. 2004). This species presents the most varied diet of all rorqual species.	
2.5.5 Short-term trend period	2001-2012 (rolling 12-year time window) or period as close as possible to it. Indicate the used period here. The short-term trend is to be used for the assessment.	
2.5.6 Short-term trend Trend direction	x = unknown	
2.5.7 Long-term trend period Optional	This means a trend of circa 24 years and for 2013 reports it is optional (fields 2.5.7-2.5.8). Further guidance will be given in the guidelines.	
2.5.8 Long-term trend direction Optional	x = unknown	
2.5.9 Area of suitable habitat for the species	a) Give area of suitable habitat in km² if appropriate. Not appropriate.	
	b) Absence of data can be indicated as '0'	
2.5.10 Reason for change Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	a) genuine change? *YES/NO*	
	b) improved knowledge/more accurate data? *YES/NO*	
	c) use of different method (e.g. "Range tool")? *YES/NO*	
2.6 Main pressures		
a) Pressure	**b) Ranking**	**c) Pollution qualifier**

See ranking column. Pressures are listed in order of importance.	**H** = high importance (max 5 entries) : F02 Fishing and harvesting aquatic resources particularly F02.01.01 potting G05.11 death or injury by collision **M** = medium importance: XE Threats and pressures from outside the EU territory (hunting). G02.09 wildlife watching H06.01 Noise nuisance, noise pollution **L** = low importance: C02 Exploration and extraction of oil or gas M01 Changes in abiotic conditions particularly M01.01 temperature changes (e.g. rise of temperature & extremes)	*optional*
2.6.1 Method used – pressures	3 = based exclusively or to a larger extent on real data from sites/occurrences or other data sources	
2.7 Threats		
a) Threat	**b) Ranking**	**c) Pollution qualifier**
See ranking column. Threats are listed in order of importance.	**H** = high importance (max 5 entries) F02 Fishing and harvesting aquatic resources particularly F02.01.01 potting G05.11 death or injury by collision **M** = medium importance XE Threats and pressures from outside the EU territory (hunting). G02.09 wildlife watching H06.01 Noise nuisance, noise pollution **L** = low importance C02 Exploration and extraction of oil or gas M01 Changes in abiotic conditions particularly M01.01 temperature changes (e.g. rise of temperature & extremes)	*optional*
2.7.1 Method used – threats	1 = expert opinion	

2.8 Complementary information

2.8.1 Justification of % thresholds for trends	The SCANS and CODA decadal surveys which produce the absolute abundance estimates used in this report only have a power of 15 % to detect a 5 % decline ($p<0.05$) in the species, increasing to 45 % if the level of significance is reduced to 0.2 (ICES, 2010). This is because of the high coefficients of variance associated with the abundance estimates. However, work ongoing in the UK at present that will combine the data from these large decadal surveys with that of more frequent and localised surveys such as the ESAS observations and those undertaken by NGOs. Initial analysis based on the Irish Sea has indicated that there is an increase in the power to detect population changes over a 6 year period, but it is only very large changes could be detected for minke whales (Paxton and Thomas, 2010). These analyses are being extended to encompass the European NE Atlantic, with results expected in 2012.
2.8.2 Other relevant information	
2.8.3 Trans-boundary assessment	This is a transboundary assessment covering the majority of the Marine Atlantic biogeographic region. Member States included Belgium, Denmark, France, Germany, Ireland, the Netherlands, Portugal, Spain, Sweden, and UK. It should be noted that the SCANS and CODA surveys did not cover Spanish and Portuguese waters. However, although minke whales occur in these waters their numbers are considered to be much lower than in other European waters (see section 2.3.8). At the International Whaling Commission, Member States of Europe have been supporting the moratorium on commercial whaling, working towards placing the issue of environmental threats to cetaceans permanently on the IWC agenda and to ensure that international trade in whale products is prohibited. *B. acutorostrata* from the northeast Atlantic stock are taken by Norwegian whalers. International efforts are needed to ensure that any such take does not impact the NE Atlantic population and its favourable conservation status.

2.9 Conclusions *(assessment of conservation status at end of reporting period)*	
2.9.1 Range	Favourable (FV) [no evidence of a decline in range]
	If CS is U1 or U2, use of qualifiers is recommended[77]
2.9.2 Population	Favourable (FV) [no evidence of a decline in abundance]
	If CS is U1 or U2, use of qualifiers is recommended
2.9.3 Habitat for the species	Favourable (FV) [wide ranging species whose distribution is related to prey rather than particular habitat types. With no decline in range or abundance it is assumed that the habitat must be suitable .]
	If CS is U1 or U2, use of qualifiers is recommended
2.9.4 Future prospects	Favourable (FV) [the pressures and threats are not considered significant; the species is expected to remain viable over the next 12 years.]
	If CS is U1 or U2, use of qualifiers is recommended
2.9.5 Overall assessment of conservation status	Favourable (FV)
2.9.6 Overall trend in conservation status	If overall CS is U1 or U2, use qualifier '+' (improving), '-' (declining), '=' (stable) or 'x' (unknown)

[77] If conservation status is Inadequate or Bad, it is recommended to indicate whether the status is '+' (improving) or '-' (declining), '=' (stable) or 'x' (unknown).