Assessment, monitoring and reporting under Article 17 of the Habitats Directive:

Explanatory Notes & Guidelines

FINAL DRAFT

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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 based on the national reports. The reporting format aims to standardise the reports to allow the aggregation of national data to produce the EU report.

The requirements of the Directive for monitoring & reporting are outlined in Appendix 1.

In most, maybe all, Member States the Article 17 report will make use of many sources of data which will have often have been collected for other reasons. Although data gathered from monitoring of Natura 2000 sites will be an important source of information the assessment of conservation status is across the whole national territory and thus for habitats and species which also occur outside the SACs information from outside the designated areas will also be required.

The monitoring and reporting obligations described in this document should not be seen in isolation, much of the information required may also be required for other purposes, some closely linked to nature conservation such as information needed for site management or other reporting obligations (e.g. CBD, Ramsar) but also reporting for other EU directives such as the Water Framework Directive.

The Habitats Committee adopted a reporting format in 2005 (DocHab-04-03/03 rev.3[2]) but during the preparation of the format by the Scientific Working Group of the Habitats Committee it was agreed that further guidance was necessary both to aid completion of the forms and to clarify some of the terms used in order to harmonise reports across the EU.

The reporting format consists of an introduction followed by six sections (annexes A - F): one on general information, two on information for the assessment of conservation status of habitats and species, two on the assessment criteria and one on natural range. These annexes are provided in a separate document (Appendix 1).

Annex A – General reporting format for the 2001-2006 report

Annex B – Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV and V species

Annex C – Assessing conservation status of a species

Annex D – Reporting format on the 'main results of the surveillance under Article 11' for Annex I habitat types

[1] Council Directive 92/43/EEC

[2] Assessment, monitoring and reporting of conservation status – Preparing the 2001-2006 report under Article 17 of the Habitats Directive. Note to the Habitats Committee, DG Environment, Brussels, 15 March 2005

Annex E – Assessing conservation status of a habitat type

Annex F – The natural range of species and habitats under the Habitats Directive

The General Report (Annex A) gives information on measures taken under the Habitats Directive and should be completed for each Biogeographical region present. The species & habitat reporting formats (Annexes B & D) both have a short 'national' section to be completed for each habitat of species of community interest present in the Member State followed by a biogeographical region section. This should be completed for each region where the species or habitats are present.

The information reported in Annexes B & D includes that used to undertake the assessment of conservation status using the matrices of Annexes C & E. This information will be essential for the later assessment of conservation status across each biogeographical region and/or across the EU. Each section is described below.

To avoid confusion with the 'annexes' of DocHab-04-03/03 rev.3, any attachments at the end of this guidance document are referred to as 'Appendices'

This guidance has been prepared by the European Environment Agency's Topic Centre on Biological Diversity (ETC/BD) with contributions from members of the Scientific Working Group. It is intended that this guidance will evolve, with the addition of further examples as expertise develops over the next few years or new issues arise.

This guidance document follows the structure and contents of the reporting framework as adopted by the Habitats Committee. We have used 'real' examples to illustrate and clarify the issues in the different sections of the Article 17 report wherever possible.

The status of this document

This document is intended to be bound by and faithful to the text of the Habitats Directive and the wider principles underpinning Community environmental law. It is not legislative in character (not making new rules but providing guidance on the application of those that exist). As such, the document reflects only the views of the Commission services and is not of a binding nature.

It should be stressed that it rests with the EU Court of Justice to provide definitive interpretation of Community law. Therefore, the guidance provided will need to evolve in line with any emerging jurisprudence on this subject.

The guide intends to fully respect the existing case law of the Court. This determines aspects of the guide, especially where clear positions have already been established by the Court.

Further guidance may be necessary for specific topics at a later stage.

This version – October 2006 – takes into account comments received from Member States following discussions at the Habitat Committee meeting of 25 April 2006, SWG of 25 September 2006 and Habitat Committee of 17 October 2006.

CHAPTER 1 – DEFINITIONS AND METHODS

The numbers between brackets given in some headings below indicate the relevant field of the reporting format in Annex B (species) and in Annex D (habitats).

MARINE SPECIES & HABITATS

Compared to the terrestrial environment, there is a general lack of information concerning the marine environment. Judgements and assessments are likely to have low confidence levels and any conclusions must take into account these limitations in our knowledge.

Therefore, this section on marine issues should be regarded as preliminary; substantial additional guidance will only be incorporated after the 2007 reporting period.

The Marine Working Group set by the Habitats Committee is developing specific guidance for the marine environment, particularly for offshore waters where the Habitats Directive applies (see *'Guidelines for the establishment of the Natura 2000 network in the marine environment. Application of the Habitats and Birds Directives'* available from DG Environment.

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

For habitat types and species typically from the marine environment, Member States should report about their conservation status using the following marine regions:

- Atlantic: Northern and Western Atlantic, from the Straits of Gibraltar to the Kattegat, including the North Sea;
- Baltic: east of the Kattegat, including the Gulf of Finland and the Gulf of Bothnia;
- Mediterranean: east of the Straits of Gibraltar
- Macaronesian: Economic Exclusive Zones of the Azores, Madeira and Canary Archipelagos.

The above marine regions only include areas permanently covered by seawater. Their delimitation towards the terrestrial adjacent areas is defined typologically.

Reporting by marine region is recommended for the following habitat types and species of Community interest occurring in marine, including offshore, waters as identified by DG Environment's Marine Working Group:

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1170 Reefs
- 1180 Submarine structures made by leaking gases
- 8330 Submerged or partially submerged sea caves

- all species of *Phocidae*
- all species of *Cetacea*
- all species of *Cheloniidae* and *Dermochelyidae*
- 1095 *Petromyzon marinus*
- 1099 *Lampetra fluviatilis*
- 1101 *Acipenser sturio*
- 1102 *Alosa alosa*
- 1103 *Alosa fallax*
- 1113 *Coregonus oxyrhinchus*
- 1152 *Aphanius fasciatus*

Information on most marine species and habitats is relatively poor compared to that available for terrestrial habitats and species and the suggested methods for describing parameters such as range may need to be adapted. Where data is insufficient to use a 10 x 10 km grid to determine range an alternative would be to use larger grids (e.g. 50 x 50 km).

Collection of information related to mobile marine species should be shared between neighbouring Member States to avoid potential double counting of populations and provide better judgements on range.

For many marine species (e.g. mammals and turtles) the only information available on populations and key locations are derived from sightings or for seals, at haul out areas. Although this information addresses only part of the species life cycle it could be used for representing range and/or estimating population size pending the securing of better information.

All these issues should be further reviewed in the light of the results of DG Environment's Marine Working Group.

RANGE (2.3): HOW TO ESTIMATE RANGE OF HABITATS AND SPECIES?

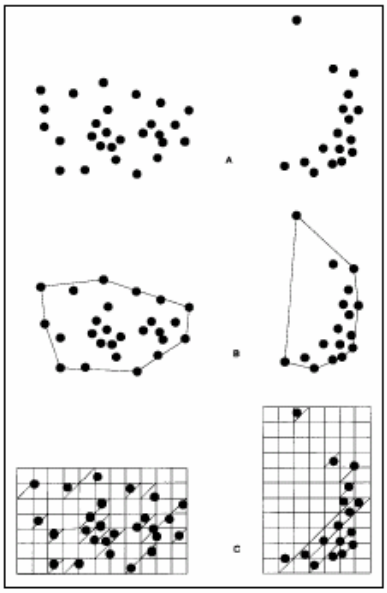
Range is the area over which a species or habitat is usually to be found; it can be shown on a map or given as a surface area. Several types of range can be described such as present day, historical, potential, etc as discussed by Peterken (1996). The definition agreed upon to be used in the frame of the Habitats Directive can be found in Annex F of DocHab-04-03/03 rev.3, produced by the Scientific Working Group under the Habitats Committee, based on a version dealing with animal species from the Article 12 working group.

The range referred to in section 2.3 of Annex B (species) and Annex D (habitats) is the actual range, i.e. the range of the species/habitat at the end – or at the closest possible date – of the reporting period.

Here range is taken to be the outer limits of the overall area in which a habitat or species is found at present. It can be considered as an envelope within which areas actually occupied occur as in many cases not all the range will actually be occupied by the species or habitat. For the purpose of reporting under Article 17, the estimate of range is for detecting possible changes from one reporting period to another. Therefore, range cannot be taken as a too broad 'envelop' of actual species distribution.

The IUCN definition of 'Extent of occurrence' largely corresponds to the notion of range as described above.

> *"Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of present occurrence of a taxon, excluding cases of vagrancy (see Figure 2[below]). This measure may exclude discontinuities or disjunctions within the overall distributions of taxa (e.g. large areas of obviously unsuitable habitat) (but see 'area of occupancy', point 10 below). Extent of occurrence can often be measured by a minimum convex polygon (the smallest polygon in which no internal angle exceeds 180 degrees and which contains all the sites of occurrence)."*



Two examples of the distinction between extent of occurrence and area of occupancy.

(A) is the spatial distribution of known, inferred or projected sites of present occurrence.

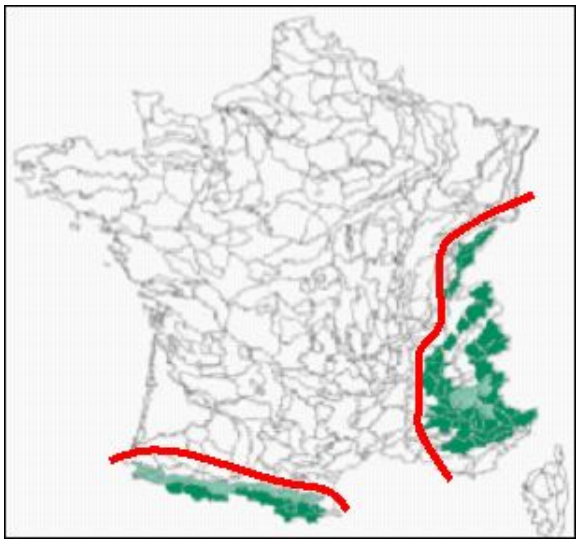
(B) shows one possible boundary to the extent of occurrence, which is the measured area within this boundary.

(C) shows one measure of area of occupancy which can be achieved by the sum of the occupied grid squares

(From IUCN, 2000)

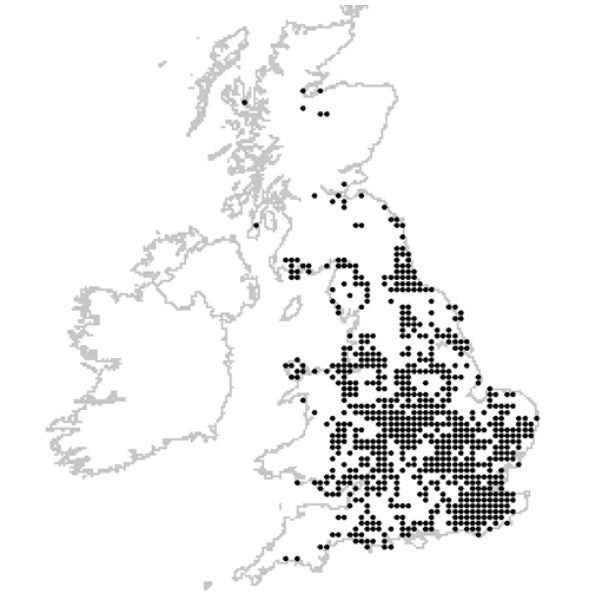
The area occupied is a subset of the range showing the area actually occupied. The actual range includes also areas that are not permanently used: for example for migratory species "range" means all the areas of land or water that a migratory species inhabits, stays in temporarily, crosses or overflies at any time on its normal migration.

Range may be discontinuous, for example a habitat restricted to high mountains will not be found on the low ground between two mountainous areas as shown by the range of habitat '9430 Subalpine and montane *Pinus uncinata* forests' in France (see below).



Distribution of habitat '9430 Subalpine and montane *Pinus uncinata* forests' in France showing a naturally discontinuous range (from the Cahiers d'Habitats series)

Range will be estimated from data on the actual distribution of the species/habitat, in many cases together with expert judgement where data sets are incomplete. For most species and many habitats distribution data is available as presence/absence on a grid, usually at 10 x10 km or 50 x 50 km.

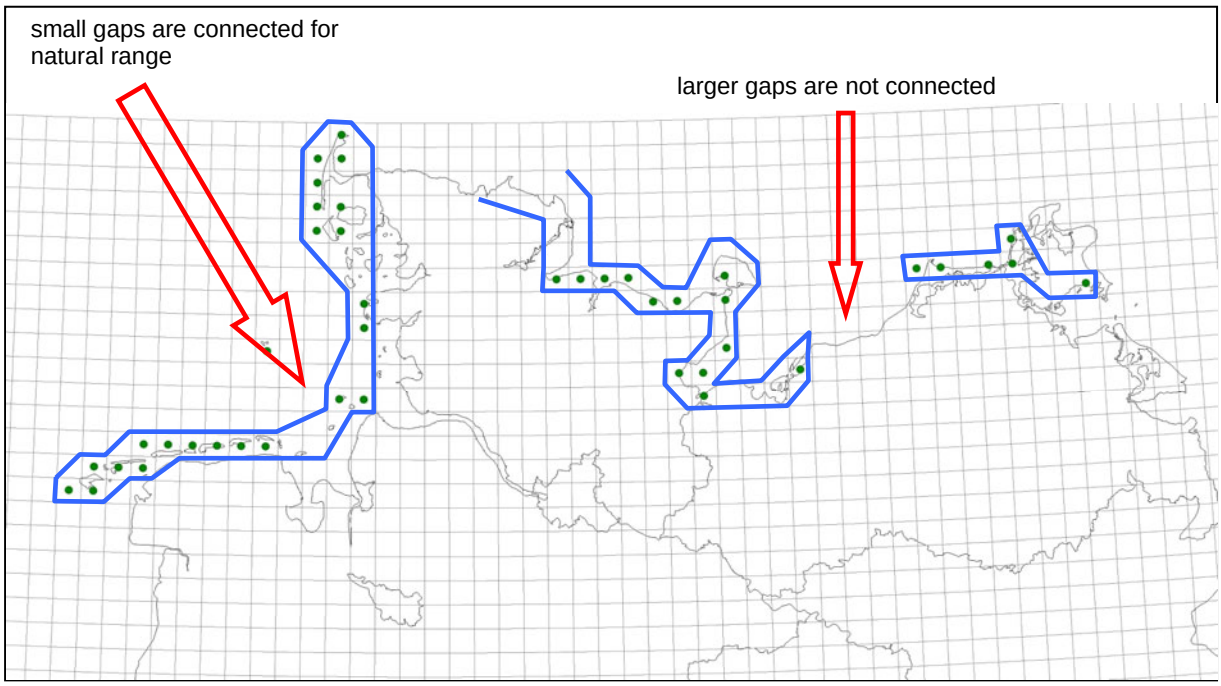


UK Distribution of Annex II species 1166 *Triturus cristatus* (JNCC)

However for poorly known species and habitats range may be largely based on expert judgement, based on knowledge of the species/habitats ecology (e.g. using data on soil, relief & climate).

Distribution of habitat '9110 *Luzulo-Fagetum* beech forests' in Poland
(Poradniki ochrony siedlisk i gatunków Natura 2000)

The recommended method for estimating range (minimum convex polygon) from a grid map[3] is shown below in the example of habitat '2110: embryonic shifting dunes' in Germany with a polygon drawn around the occupied cells (note: this is a provisional, map needs updating). Small gaps in the distribution are considered as part of the range but larger gaps in the distribution are considered as breaks in the range. There should be at least 4 or 5 non-occupied grids (about 40 – 50 km distance) to justify a break 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, but has to be fixed for each habitat and species once for future reporting. Significant areas ecologically not suitable should be excluded from the habitat/species range.

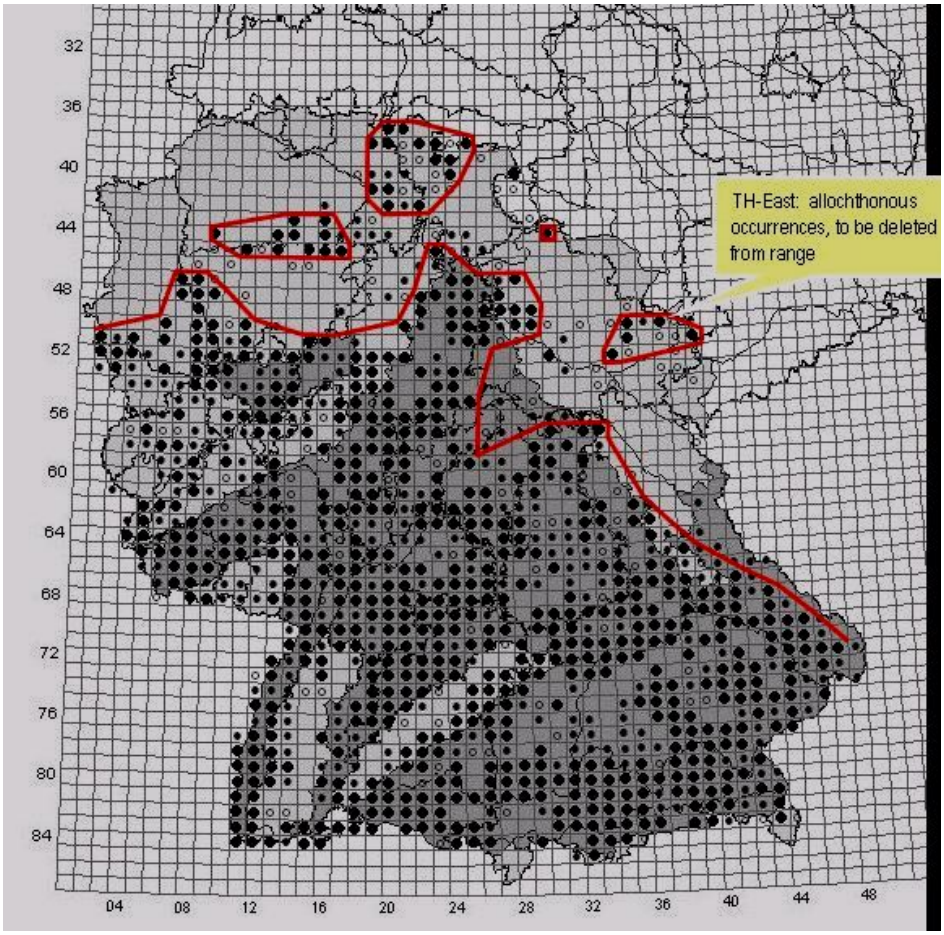


The range of habitat '2110 Embryonic shifting dunes' in Germany
(from Axel Ssymank & Eckhard Schröder, BfN, DE)

[3] It is recommended to use a grid based on the UTM grid system of 10 x 10 km² or of an approximate size if used as a standard in the country; could be smaller for small countries.

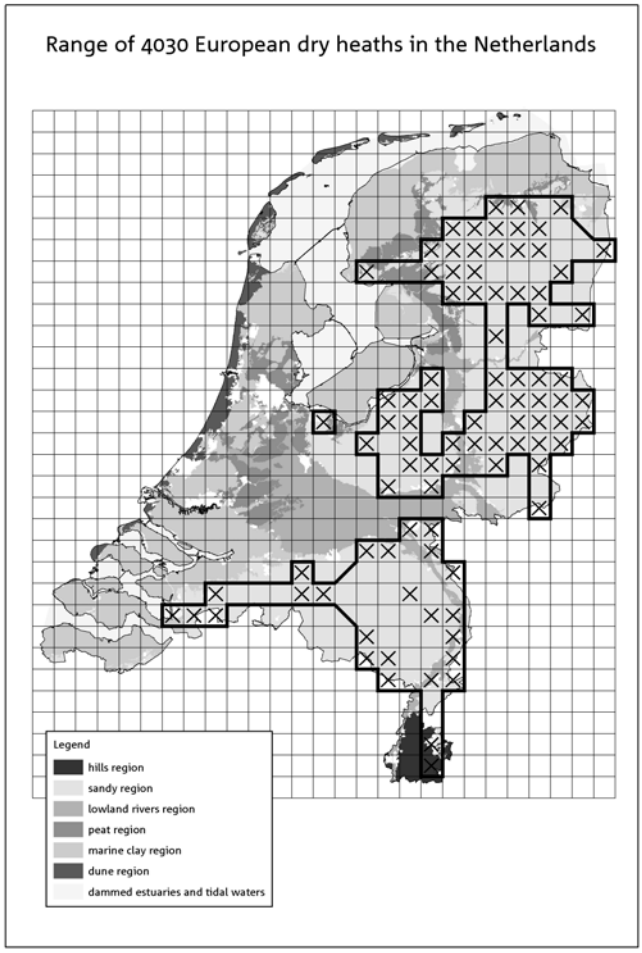
Grid based distribution maps very often show discontinuous distributions or have small gaps in the distribution. In many cases this is due to incomplete data but may also be due to real discontinuities. For example many of the gaps in the distribution map of *Triturus cristatus* in the United Kingdom in SE England (see above) are likely to due to the absence of information whereas the large gap between the few sites in Northern Scotland & those in Central Scotland is almost certainly due to a genuine absence of the species. Even if the small gaps in the mapped distribution were genuine they would still be included in the 'range' as defined here.

In many cases a judgement will be needed to determine whether a 'gap' is a real break in the distribution or just an absence of information, for instance in the map below for *Bombina variegata* in Germany the areas with no records in the SW correspond to high ground which is unsuitable for the species. However, expert judgement decided to maintain these areas within the range.



Distribution of *Bombina variegata* in Germany (from Axel Ssymank, BfN, DE)

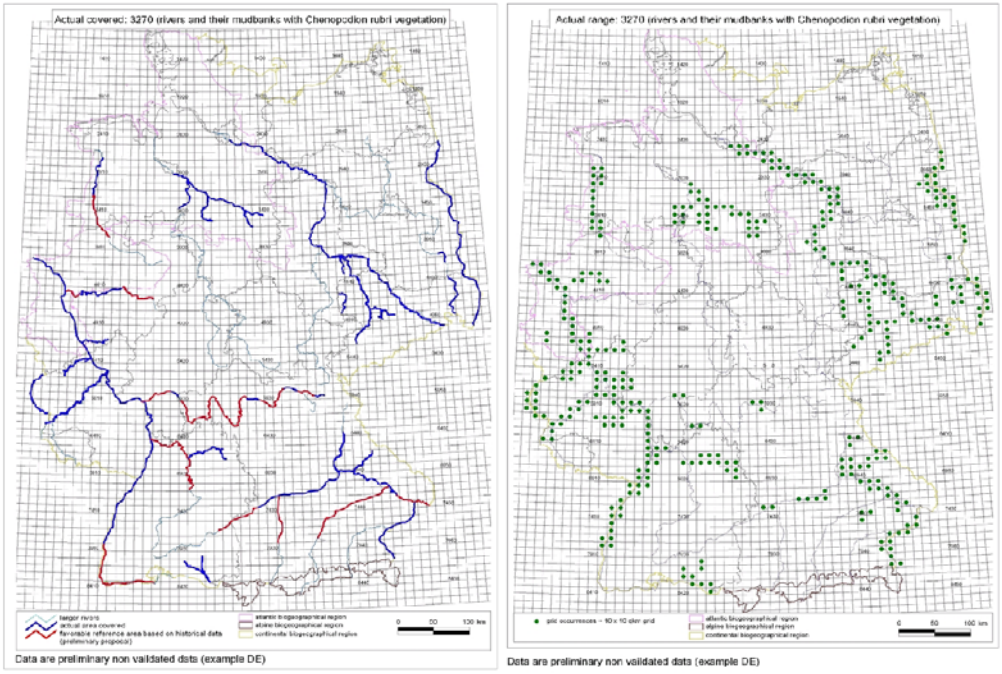
Some countries have produced maps of 'eco-districts' or 'eco-regions' and in cases where a habitat/species is clearly linked to certain 'regions' these could be used to help apply the method described above. The example below illustrates the use of eco-regions for establishing the range of habitat '4030 European dry heaths' in the Netherlands[4].



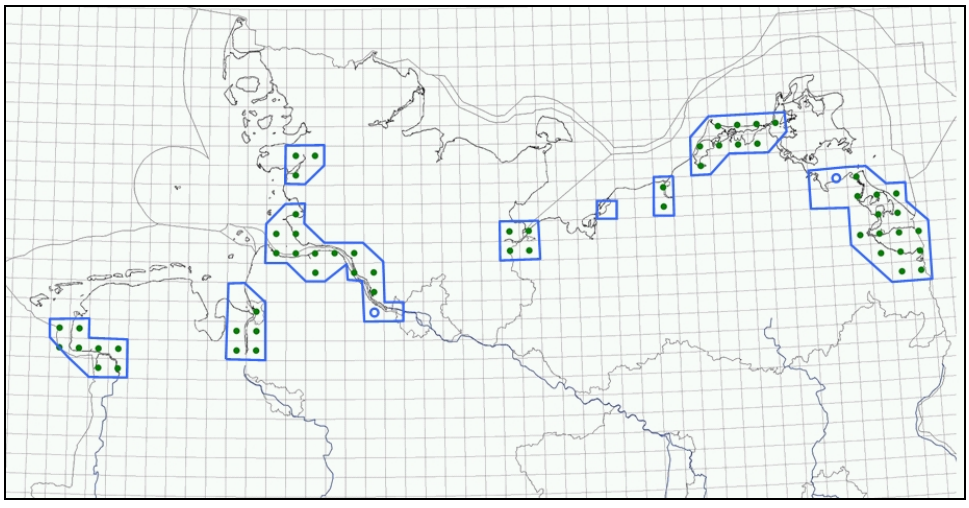
[4] The Netherlands is no longer using 'eco-regions' in this context, but the example is still useful to indicate the possible use of this kind of eco-zoning to estimate favourable ranges.

This method (minimum convex polygon) can also be used to calculate the range of habitats and species having a linear occurrence (*e.g.* riverine habitats, fish species). For example habitat 3270 Rivers with muddy banks with *Chenopodion rubri* p.p. and *Bidention* p.p. vegetation could be considered to be linear but can be also treated as an area (see below example from Germany).

The above method of calculating the range may not be appropriate for habitats and species having a discrete natural distribution. For example Estuaries (1130) in most of the countries occur as a series of discrete localities (see below example from Germany).



Range of '3270 Rivers with muddy banks with *Chenopodion rubri* p.p. and *Bidention* p.p. vegetation' in Germany (from Axel Ssymank, BfN)



The range of habitat '1130 Estuaries' in Germany
(from Axel Ssymank & Eckhard Schröder, BfN)

Due to the large differences in both ecology and available information a case by case examination of the most appropriate method for determining range will be necessary for each habitat and species.

MAIN PRESSURES (2.4.10) AND THREATS (2.4.11)

The list of main pressures and threats is given in Appendix E of the Explanatory Notes of the Natura 2000 Standard Data Form. Some experts would like to include additional pressures and threats into that list. For the time being only Germany has proposed additional categories as shown below.

New categories proposed for Appendix E	
Category	**To be integrated under Code group**
Abandonment of traditional cultivation practices	100
Abandonment of management practices of waters	200
Loam and clay pit	300
Intensive maintenance of public parks	400
Tree surgery measures	500
Road casualties	500
Closure of caves and galleries	700
Missing or wrongly directed nature conservation measurements	700
Abandonment of military use	730

A consolidated list will be prepared when additional proposals are made. Deadline for additional proposals is 30 November 2006.

CONSERVATION STATUS

The concept of 'favourable conservation status' (FCS) constitutes the overall objective to be reached for all habitat types and species of community interest. 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 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.

'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 is an assessment of the long term viability of a habitat or species. The categories currently used by IUCN for their Red Lists are described in detail by the IUCN on their website. The IUCN categories and the three classes used for assessing Favourable Conservation Status are clearly related and are based on interpretations of similar data, however it is not possible to give an exact correspondance in all cases. A species judged as 'Critically endangered' using the IUCN methodology will almost certainly be assessed as 'Unfavourable-Bad' (red), however a species judged 'Vulnerable' may be assessed as any of the FCS classes depending on the situation. Species which have always had very localised distributions or small populations may be considered to be in 'Favourable Conservation Status' ('Good') even though an IUCN assessment would probably consider them threatened.

The concept used here is in relation to Favourable Conservation Status as defined in the directive (Article 1e for habitats and Article 1i for species).

In the reporting format three classes of Conservation Status are used, 'Good' (green) where the species or habitat is at FCS as defined in the Directive and the habitat or species can be expected to prosper without any change to existing management or policies. Two classes of 'Unfavourable' are recognised: one 'Unfavourable-Bad' (red) where the habitat or species is in serious danger of becoming extinct (at least locally) and 'Unfavourable-Inadequate' (amber) for situations where a change in management or policy is required but the danger of extinction is not so high. The unfavourable category has been split into two classes to allow improvements or deterioration to be reported.

FAVOURABLE REFERENCE VALUES

Favourable Reference Values (FRV) are key concepts in the evaluation of Conservation Status as described in DocHab-04-03/03 rev.3. The reporting format requires member states to identify the appropriate reference range and area for the habitats of Annex I and the appropriate reference range and population for the species of Annexes II, IV & V in order to establish the reference values required.

Assessing these values will not be easy although 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 (2004) *A Primer of Conservation Biology, Third Edition*). However in many cases our understanding of the biology is not sufficient or data is not available, to make use of many of the approaches described and it is likely that for some poorly known species expert judgement will have to be used, but 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 habitats 'Action plans' have been prepared, either at national or European scale, and although none of these plans use the term 'favourable reference value' they do sometimes consider related concepts and may be a source of ideas and information. A list of action plans prepared for the Council of Europe is available at http://www.coe.int/T/E/Cultural_Cooperation/Environment/Nature_and_biological_diversity/Publications/02_SN_E.asp.

For all four Favourable Reference Values it is possible to carry out the assessment of Conservation Status (following annexes C or E) by setting the FRV 'greater than present day value' and this is preferable to using 'unknown' in cases where it is clear that the present day range, area or population is not sufficient but where it is not possible to estimate what the correct value should be. In some cases the present day value may be 'favourable'; this is most likely to occur in the newer Member States for species or habitats which are rare and/or endangered in the former EU12 but maybe of less conservation concern elsewhere.

For non-coastal marine species it is probably more sensible to set FRV for the whole marine region by the concerned Member States.

Favourable reference range (species – 2.7.1 – and habitats – 2.5.1)

> *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[5]; 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 in DocHab-04-03/03 rev.3]

The following background information and parameters may be useful to set Favourable Reference Range (FRR) for both species (section 2.7.1 in Annex B) and habitats (section 2.5.1 in Annex D):

- 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/species, including consideration of connectivity and migration issues.

Even if the FRR is not necessarily equal to the potential range, the data and information used to estimate the later may be of use to establish the FRR. For many species and habitats 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 (a key component of habitat '9320 *Olea* and *Ceratonia* forests') are limited by minimum winter temperatures (see Mücher, et al, 2004 & 2005).) and this can help define FRR. An example of this approach is shown below where the potential range of *Rhinolophus ferrumequinum* (Natura 2000 code 1304) in the United Kingdom has been estimated from data on suitable habitat, suitable roosting sites and climate. It should be noted that FRR is not necessarily equal to 'potential range': normally, FFR is smaller.

[5] This means different years for different countries: 1994 for EU12, 1995 for AT, FI and SE, and 2004 for the 10 new Member States.

The limits of suitable ecological and climatic range for *Rhinolophus ferrumequinum* (Natura 2000 code 1304) (from Wynn Jones, JNCC, UK)

Alterra have modelled several habitats using various parameters including soil types, altitude, species distribution and existing land cover (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.) The results for 28 habitats are available on a CD ROM available from Alterra.

As with 'range' (see above) FRR may be in two or more distinct parts, for example many alpine habitats in France will have a disjunct range with an 'Alpine' and a 'Pyrenean' component while alpine habitats & species in Italy may have an 'Alpine' and an 'Apennine' component.

For some wide ranging species the potential range may be very large, especially if they can occupy a variety of habitats. For example species such as the Otter (*Lutra lutra*, Natura code 1355) has in the recent past occupied much of Western Europe although its present day range is much less. In such cases it may not be necessary for all the historic range to be re-occupied to reach FRR, if long-term survival and variability can be assured with less.

An example of a method to calculate the FFR of a habitat type (4010 – Northern Atlantic wet heaths with *Erica tetralix*) in Flanders (BE) is given in Appendix 2. This example is illustrative of the different parameters used as well as of the practical constraints in determining FRR.

Metapopulations

Many species, including some listed on the annexes of the Habitats Directive (e.g. The Marsh fritillary *Euphydryas aurinia*, Natura 2000 code 1065) are known to have a metapopulation structure with cyclical local extinction and recolonization [see Warren (1994). *The UK status and suspected metapopulation structure of a threatened European butterfly, the Marsh Fritillary, Eurodryas aurinia*. Biological Conservation 67: 239-249)]. 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 extinction may have occurred in major parts of that range.

Favourable reference population (species only – 2.7.2)

> *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[6]; 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 DocHab-04-03/03 rev.3]*

Favourable reference population (FRP), section 2.7.2 in Annex B, should be given in the same units as that used for 'population' (see below).

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

Even if the FRP is not necessarily equal to the potential population – if the long-term survival and variability can be assured with less –, the data and information used to estimate the later may be of use to establish the FRP.

Several biological concepts linked to population dynamics may be of use in fixing Favourable Reference Population. For example, many studies have been published estimating minimum viable populations and a general discussion can be found in Gilpin. & Soulé (1986) Minimum viable populations: the processes of species extinctions. in *Conservation biology: The science of scarcity and diversity*, by M. E. Soulé (ed). Often these have been carried out as part of reintroduction projects, as for Beaver (*Castor fiber*) in the Netherlands (Nolet, B. A. and Baveco, J. M. 1996. Development and viability of a translocated beaver *Castor fiber* population in the Netherlands. Biological Conservation 75(2):125-137. see http://www.behav.org/Student_essay/library/Beaver_NL.pdf) and the Pool frog in the United Kingdom [A population viability analysis for the reintroduction of the pool frog (*Rana lessonae*) in Britain English Nature Research Reports. Report Number. 585 http://www.english-nature.org.uk/pubs/publication/PDF/585.pdf].

Often the very rare &/or endangered species have been subject to such an analysis, thus Europe's most endangered carnivore, the Iberian Lynx (*Lynx pardinus,* Natura 2000 code 1362), has been the subject of many studies and plans such as Gaona, P., Ferreras, P. & Delibes, M. (1998) Dynamics and viability of a metapopulation of the endangered Iberian Lynx (*Lynx pardinus*). *Ecological Monographs*, 68, 349-370. However, as concepts to estimate MVP are rather used to evaluate the risk of extinction they can only provide a proxy for the lowest tolerable population size. MVP is by definition different – and in practice lower – from the population level considered at favourable conservation status.

An approach to estimate the potential population when there is less understanding of the factors controlling the population is to estimate the population when the potential range is fully

[6] This means different years for different countries: 1994 for EU12, 1995 for AT, FI and SE, and 2004 for the 10 new Member States.

occupied at an optimum population density. This approach has been used by the JNCC to estimate the FRP for *Rhinolophus ferrumequinum* (Natura 2000 code 1304) at some 400 000 individuals (based on a population density of 590 per 10 km2 square & the range shown above). This method evaluates the maximum population density: FRP will be often below this maximum.

Favourable reference area (habitat only – 2.5.2)

> *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[7]; 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* DocHab-04-03/03 rev.3*]*

This is probably the most difficult of the three reference values to establish. There is some theoretical work on minimum area of habitat required for long term viability of some habitats (mostly forests) but this is based on single sites rather than for a network of sites. In some cases in may be possible to estimate the Favourable Reference Area (FRA), section 2.5.2 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
- Actual distribution and actual variation
- Dynamics of the habitat type
- Natural variation should be fully covered (subtypes, syntaxa, ecological variants, etc.)
- Distribution pattern should allow exchange/gene flow in typical species

If there is no information showing that enlarged area of the habitat is necessary for either
- typical species to reach favourable conservation status, or for
- the necessary structures or functions of the habitat to exist,
than the FRA can be taken as the surface area of the habitat when the directive came into force.

If available, Red Lists of habitat types which correspond to the habitat types of Annex I of the Directive should be taken into consideration to check the favourable area of habitat types. In cases where the habitat types are "threatened by extinction", "critically endangered" or similar the present day area of the type cannot be defined as favourable.

Possible conflict between habitats

There are many instances where two or more Annex I habitats form an ecological succession and where estimation of favourable reference area will need to take into account the requirements of both habitats; 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

[7] This means different years for different countries: 1994 for EU12, 1995 for AT, FI and SE, and 2004 for the 10 new Member States.

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 conservation priorities. Thus in countries such as Ireland with little remaining natural woodland the woodland habitat is likely to be given priority over the grassland.

Habitat 7120 'Degraded raised bogs still capable of natural regeneration' – *a special case:* this habitat is a special case as if 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 was restored.

SPECIES

Sources of information

Where national inventories or atlases do not exist there may be a European Atlas, these have been produced for the following groups of species:

- Amphibians & Reptiles (Gasc et al, 1997)
- Butterflies & Moths (Gomez de Aizpurua, 2004; Kudrna, 2002)
- Invertebrates (Helsdingen, Willemse & Speight, 1996a,b,c)
- Mammals (Mitchell-Jones et al, 1999)
- Vascular Plants Atlas Flora Europaea (incomplete) (Jalas & Suominen, 1972-)

Some information on fish is given in Maitland (1994) and Fishbase.

For bryophytes some distribution data is available at European Committee for Conservation of Bryophytes.

Member States are strongly encouraged to undertake surveys, inventories, etc where there is currently an absence of information on population or distribution.

Population size (2.4.1)

Population is used in the sense of how many plants or animals of a given species, although depending on the type of species different measurements may be appropriate.

Many techniques have been developed to measure populations of species, the EU funded EUMON project will be examining methods and making recommendations.

The population size should be provided as exactly as possible. The following information will be needed for each species:

- estimate of the population size given by a minimum and maximum
- unit used to express population size

Examples of units commonly used are given below:

- number of individuals (normally adult individuals)
- number of pairs or of breeding males
- number of flowering stems, tufts or shoots
- number of colonies or localities

In this context, an individual is generally understood to mean only certain life stage(s) of a particular species. For example, eggs or seeds are never included, for some species only adult and/or sub-adult individuals are included (either due to the impossibility to do otherwise, or in order to avoid seasonal variations due to the annual reproduction cycle, e.g. some fishes), while for some species (e.g. of dragonflies), the number of larvae will be monitored, as the number of adults observed is less informative of the population size). As for vascular plant species, it is possible to count/estimate the number of flowering plants only (e.g. *Crambe tatarica*) and/or to exclude seedlings. For vegetatively reproducing plants, either tufts/clumps or individual shoots or rosettes may be regarded as 'individuals'.

A 'locality' is a geographical area inhabited by a set of individuals which are able to reproduce or occur on a long-term basis and cover continuous space in a given period. 'Continuous space' means a portion of the territory with suitable biotic and abiotic conditions for the long-term occurrence of the species delimited by natural or artificially made ecological barriers, possibly also by social relationships or by some length of distance.

The terms 'continuous space', 'ecological barriers' etc., may need to be defined for particular taxonomic or ecological/functional groups, possibly also for individual species. Meanwhile, a few examples are given below:

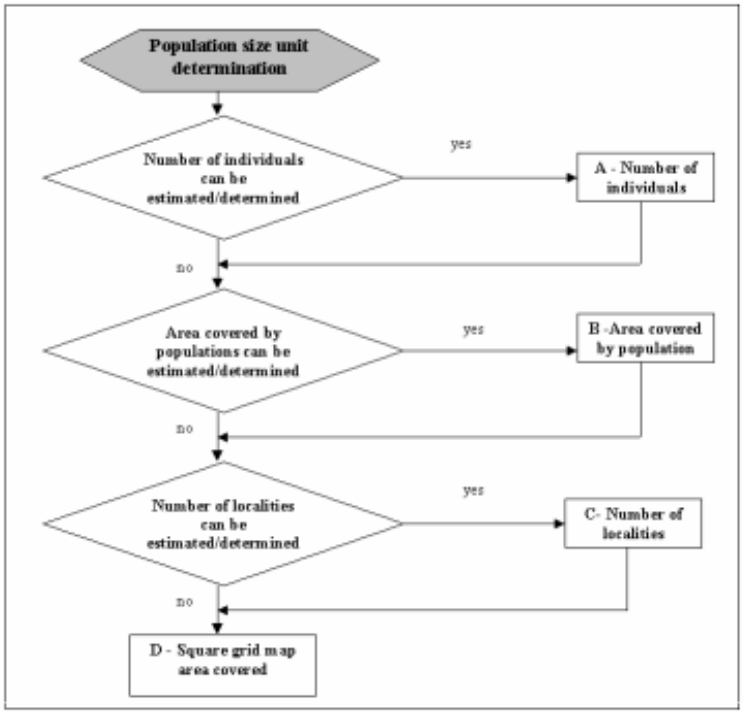
1) Some bat species *(e.g. Myotis myotis, Rhinolophus hipposideros).* Locality means a summer or winter roost.

2*) Vertigo angustior, Vertigo geyeri, Vertigo moulinsiana*. Locality is the continuous space represented by a single wet alluvial meadow, a bank of standing water, a wetland or a petrifying spring.

3) Freshwater species (e.g. *Margaritifera margaritifera, Unio crassus, Astacus astacus, Austropotamobius torrentium, Hirudo medicinalis, Anisus vorticulus*). Locality means a continuous space (watercourse, fish-pond, oxbow, pool, water reservoir, etc.) delimited by natural barriers (riparian vegetation, vegetation on banks along standing water, other natural barriers limiting migration like areas of insufficient depth of water, etc.).

4) *Salmo salar* – freshwater locality is each particular catchment area to which fish migrate to reproduce from main migration routes and where juvenile individuals develop in adults before migrating to the sea – this is referred to as a *reproduction locality*. Main migration routes are big watercourses, where the natural reproduction and the development of juveniles within their life time usually do not occur – this is referred to as a *migration locality*. If used, both number of reproduction and migration localities should be given in the report.

Artificial migration barriers – horizontal obstacle on watercourses (like dams or weirs) – without fish bypasses are considered locality borders only if the species does pass through it. If the species occurs on both sides of an artificial barrier and there is at least migration in one direction, it is considered as a single locality.



Scheme made by AOPK CR[8] to illustrate the selection of population units

- **A: number of individuals** or estimation thereof – an individual is generally understood to mean only certain life stage(s) of a particular species. For example, eggs or seeds are never included, for some species only adult and/or sub-adult individuals are included (either due to the impossibility to do otherwise, or in order to avoid seasonal variations due to the annual reproduction cycle, e.g. some fishes), while for some species (e.g. of dragonflies), the number of larvae will be monitored, as the number of adults observed is less informative of the population size). As for vascular plant species, it is possible to count/estimate the number of flowering plants only (e.g. *Crambe tatarica*) and/or to exclude seedlings. For vegetatively reproducing plants, either tufts/clumps or individual shoots or rosettes may be regarded as 'individuals'.;
- **B: area covered by populations** - estimation of the total area covered by the species, expressed in hectares; to be used for bryophytes and some vascular plants, e.g *Dicranum viride*, *Trichomanes speciosum* gametophyte; to be only used for sessile organisms;
- **C: number of localities** – a 'locality' is a geographical area inhabited by a set of individuals which are able to reproduce or occur on a long-term basis and cover continuous space in a given period. 'Continuous space' means a portion of the territory with suitable biotic and abiotic conditions for the long-term occurrence of the species delimited by natural or artificially made ecological barriers, possibly also by social relationships or by some length of distance. This unit is most useful for organisms that form distinct populations that can be observed as such - e.g. colonies (bats) or populations confined to a particular distinctive habitat (certain butterfly species); it has to be defined, with respect to the species ecology and mobility, what the minimum distance between two sites is, e.g. occurrences recorded within a specific distance apart are considered a single locality. However, for cryptic organisms, whose distribution is only partially recorded and the site delimitations may not be obvious, e.g. certain

[8] Agency for Nature Conservation and Landscape Protection of the Czech Republic

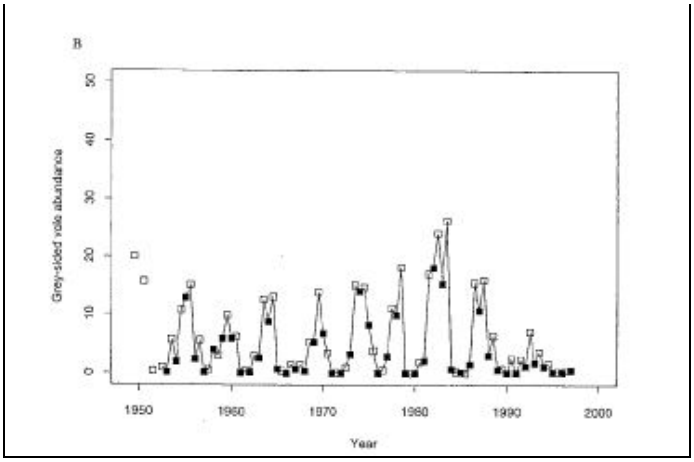
invertebrates (*Anthrenochernes stellae, Osmoderma eremita*) or Bryophytes such as *Buxbaumia viridis*, the number of localities may reflect rather a number of finding records, not actual separate populations. And if there is more extensive data gathering, the localities may eventually merge. Similar inaccuracy would arise for more commonly occurring species (a number of reptile and amphibian species, e.g. *Bombina bombina* in several countries) and for species that can travel large distances (otter, large mammals) where it is impossible to identify and delineate individual localities or estimate their number and this approach would be rather difficult to apply. Therefore in such cases the grid square method would produce less inaccuracy.

- **D: square grid map area covered** by recorded occurrence of species (using 10x10 km – or equivalent – species distribution map); although the number of squares of a grid map are not relative to the number of individual or populations or localities, if data on populations or individuals are not available at all or if localities/populations cannot be individually distinguished for various reasons, or where the localities are of very different size, this approach is more useful.

In order to allow compilation of data across the EU, it would have been desirable that all Member States use the same units for the same species, but this was not accepted by the SWG. This issue should at least be revisited for the third reporting period (2007-2012).

Trends vs. natural fluctuations (2.4.5)

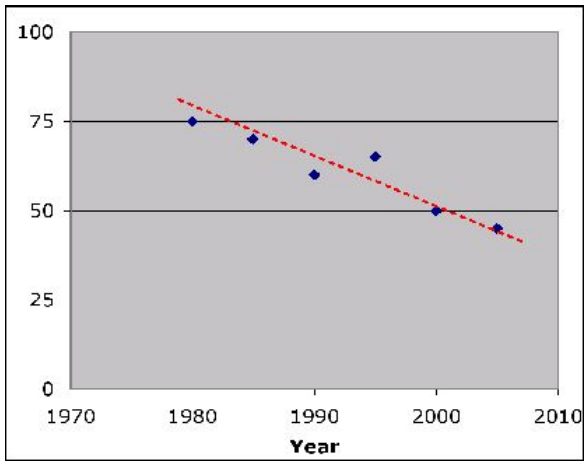
Natural populations vary in size over time and there are many well known examples where populations appear to undergo cyclical fluctuations. The most well known are probably small mammal populations in northern latitudes, many of which have been studied for many years

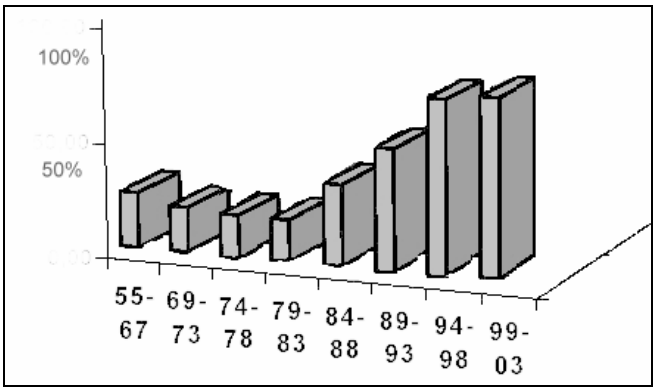


Fluctuations of Grey-sided vole (Clethrionomys rufocanus) population, Kilpisjärvi, N. Finland (from Hansen, Stenseth & Henttonen (1999)

The assessment of Conservation Status depends, in part, in detecting trends in populations and this can be very difficult, especially if data is sparse. Natural fluctuations of populations should be taken into account when determining trends.

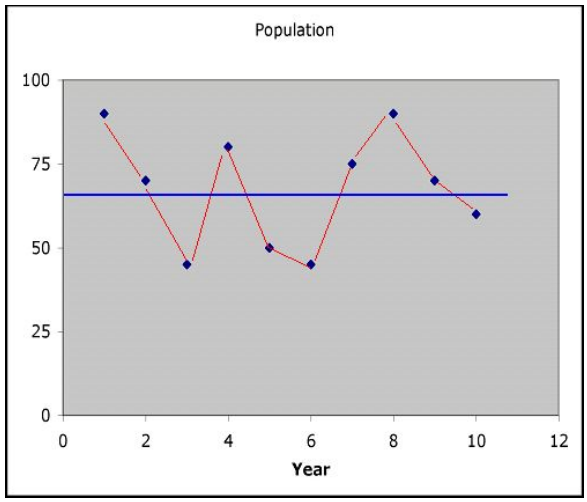
In some cases a clear trend can be seen as illustrated below





The population of *Myotis myotis*, the greater mouse-eared bat, in the Czech Republic has undergone decrease over 1960s-1980s. At the end of the last century, the population size trend was markedly positive due to active conservation measures and less use of agro chemicals. The current trend in the *Myotis myotis* population can be described as stable.

However in many cases detecting a trend from year to year fluctuations is more difficult



In cases such as this the trend will depend on the interval chosen. The interval chosen should depend on the biology of the species although in many cases data availability will be limiting. Whenever possible and if meaningful, the interval chosen should be six years, corresponding to the reporting period.

Time series analysis is treated in many standard texts such Legendre & Legendre (1998).

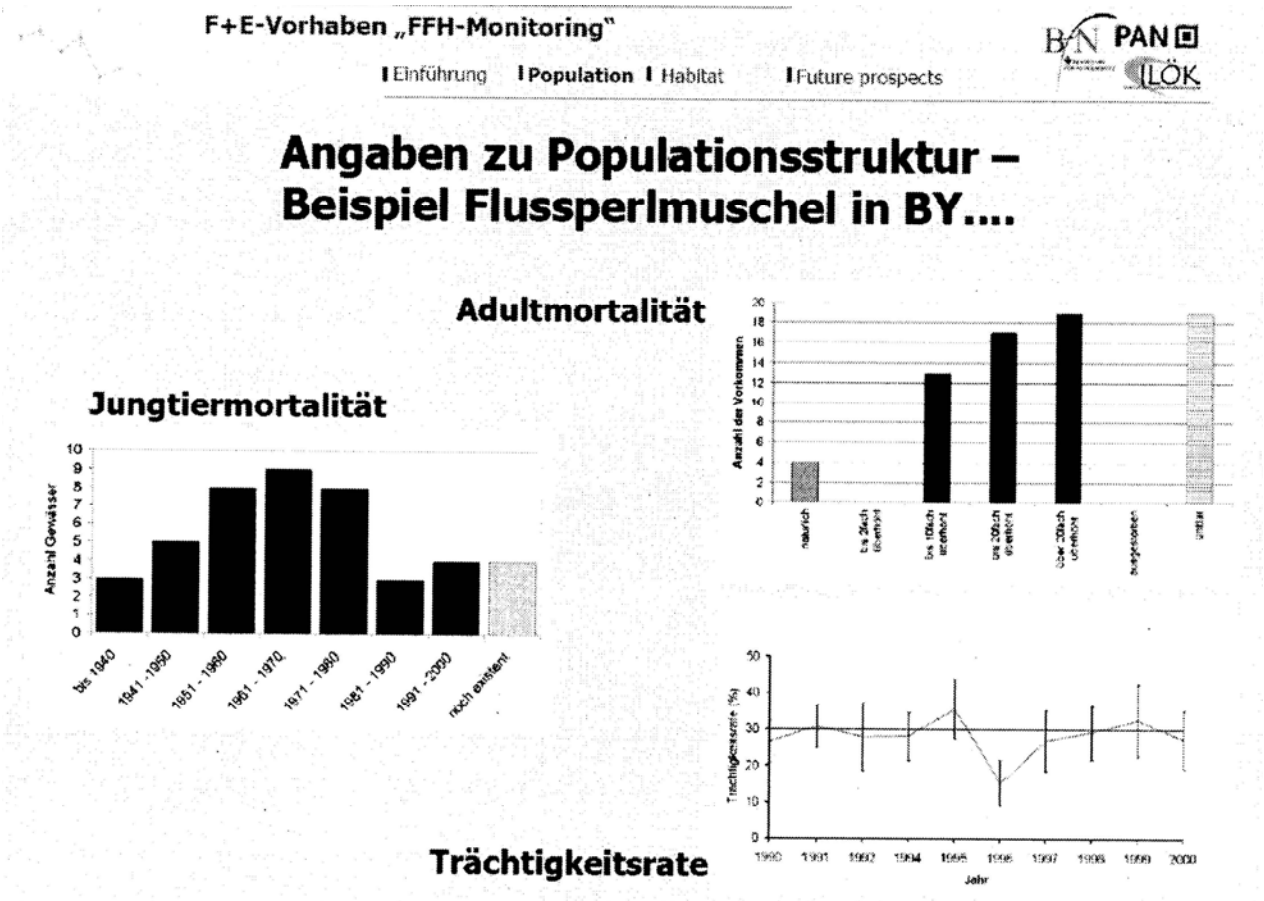
Population structure

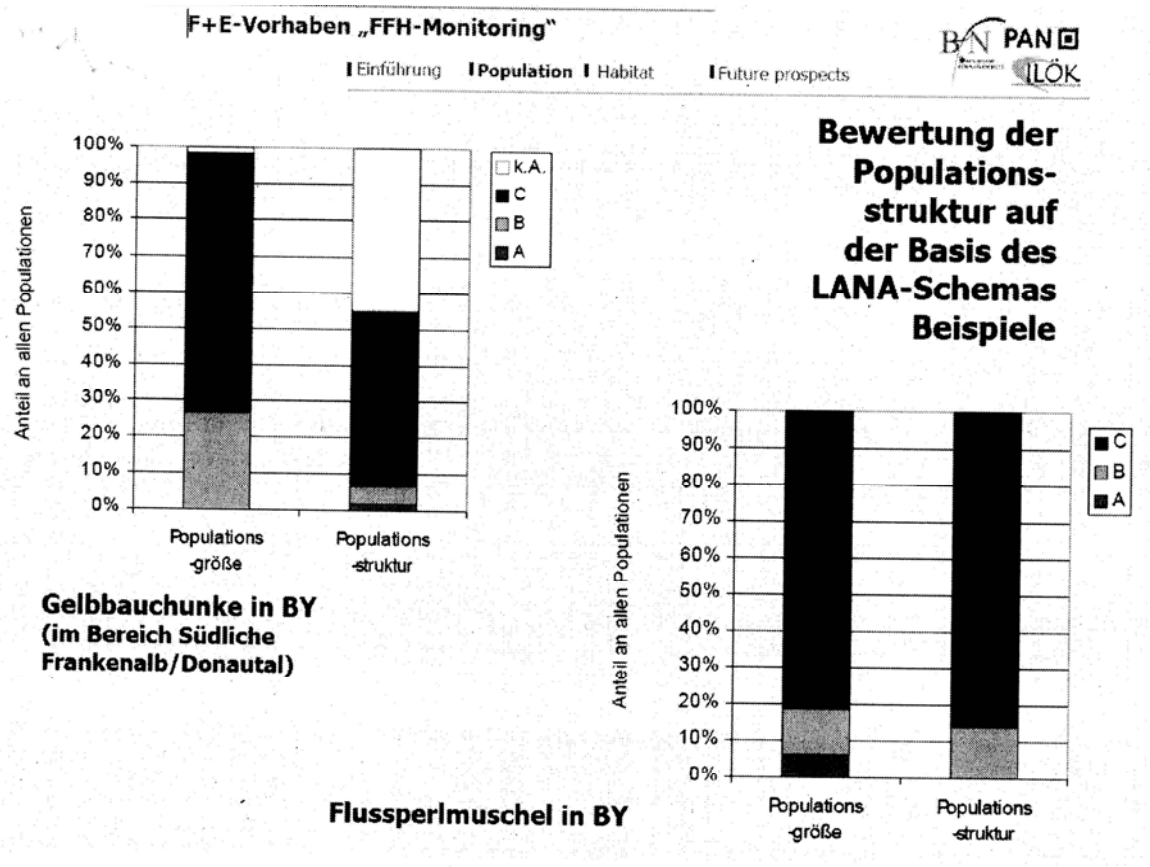
Although Annex B does not ask for information on population structure (age classes, etc) some knowledge of the population structure is needed for the assessment of population on Annex C.

In general, lacking 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.

The following example was provided by AOPK CR: the population structure of the Pearl mussel, *Margaritifera margaritifera*, in the Czech Republic is poor (reproduction and age structure strongly deviating from normal), so the population of the species has to be regarded as in poor conservation status, irrespective of what the favourable reference value of pearl mussel population is and whether the species has reached it or not.

Another example, more elaborated, of how the population structure was evaluated in one German Länder for the Pearl Mussel (from: Dr Jens Sachteleben, PAN – Planungsbüro für angewandten Naturschutz, Munich, Februry 2006) is given below.





Transfrontier populations

In many cases a species may have a population which is in two or more Member States, for example the Pyrenean Brown bear (*Ursus arctos*) population in France and Spain or the Tatra Chamois (*Rupicapra rupicapra tatrica*) in Slovakia and Poland. In such instances Member States are encouraged to undertake a common assessment but to report separately. In such cases the 'complementary information' heading of Annexes B & D can be used to indicate that a transfrontier approach has been adopted.

In some cases it may be necessary to take into account populations shared with non EU countries, e.g. for *Lynx lynx* in Austria and Switzerland.

Species vs. genus

Annex V of the Habitats Directive includes a few genera (and subgenera) without listing individual species. This is the case for:

- Cladonia *subgenus* Cladina
- Sphagnum spp (except *S. pylasii* Brid.)
- Lycopodium spp

For each of these groups, Member States may report on Conservation Status at the genus/subgenus level without detailing information for each individual species. In this case, Member States may choose to only provide information about the assessment of conservation status, i.e. information under section 'Conclusions'.

In cases where species from the above groups deserve a particular attention (e.g. due to its exploitation regime, conservation status or particular ecological function), Member States should prepare detailed individual information for those species.

Lycopodium species

Annex V of the Habitats Directive includes all *Lycopodium* species and we recommend this should be taken as *Lycopodium sensu lato*. Thus, for example, *Diphasiastrum alpinum, Huperzia selago, Lycopodiella cernua* and *L. inundata* are considered to be Lycopodium species as well as *Lycopodium annotinum, Lycopodium dubium* and *Lycopodium clavatum*.

HABITATS

Sources of information

In many countries there are 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 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 EEA-ETC on Biological Diversity 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, Kučera & Kočí, 2001) give the equivalent unit(s) in the national classification for each Annex I habitat present in the Czech Republic as well as the equivalent phytosociological syntaxa while the French Cahiers d'habitats series lists the syntaxa for all Annex I habitats present in France.

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), distribution of key species, soil and geological maps, climate data or topographical maps.

Typical Species (2.5.3)

(Based on a paper from Eric Buchwald, DK & Axel Ssymank, DE; complemented with examples provided by Member States)

The Habitats Directive defines conservation status of a habitat in its article 1.e. One of the three parameters necessary for the conservation status of a habitat to be favourable, is that the conservation status of *typical species* of the habitat is favourable.

The directive does not provide a definition of "typical species". But because typical species directly influence the conservation status of a habitat, it is essential for the implementation of the directive to know which species are typical species, both in impact assessments, for management purposes and in order to fill out the adopted article 17 reporting format.

With the adoption of the reporting format in 2005 by the Habitats Committee it became clear that monitoring can be at different intensities, and that typical species do not need to be monitored intensively. Reporting on typical species only includes a list of them for each habitat type, and a description of the method used to assess their conservation status. Methods for this assessment can be e.g. best expert opinion, general national surveys, site-based sampling or re-use of information from red data book work.

Assessments based on presence/ absence of a number of species out of a defined species group of typical species may be sufficient.

The adopted reporting framework included the task of further elaboration of definitions of typical species for habitats. In this task major focus should be on developing definitions which will benefit the objectives of the directive as much as possible, without using excessive resources. Subsidiary and flexibility are important here in order to make best use of the large work on typical species already done in many member states.

A major benefit for reaching the objectives of the directive can be expected by systematically incorporating typical species of habitats in article 6.3 impact assessments and article 6.1. management. Many impacts and management decisions can easily be related to identifiable typical species, while the same measures may be more difficult or expensive to assess without using species.

As species distribution, abundance and function within a habitat vary geographically, the "typical species" of a specific habitat type are often not constant throughout the natural range of that habitat type in the EU, or even in any one country. The "typical species" are therefore better defined at regional or national level for the purpose of assessing conservation status.

When choosing "typical species" 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 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.

- The degree of flexibility in choosing species is somewhat restrained by the need for consistency across nations and consistency with the use of characteristic species of the Interpretation Manual in the site-selection process. Characteristic species of the Interpretation Manual may be used as typical species if they meet the criteria in the above bullets.

It is not a precondition for Favourable Conservation Status that a specific habitat occurrence has most or all of the selected typical species. But the sum of sites and occurrences of each habitat type must 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 extinction and recolonization of distinct species out of the selected group of typical species will occur. As long as these processes balance (long term) for each typical species the habitat is favourable according to this facet of conservation status.

Typical species may include all species groups, for example plants, lichens, mosses as well as all animal groups including birds and species (groups) not listed in the annexes of the Habitats Directive.

The choice of "typical species" made is communicated by member states to the Commission in the article 17 report (Annex D). Member states are encouraged to co-ordinate their work on this point in order to ensure similar/compatible standards across the EU.

Definitions of some words relating to typical species and similar terms. The definitions are from Ellenberg´s Vegetation Ecology of Central Europe (1988), which is cited in the original background document to annex I of the habitats directive as a fundamental work regarding definitions and key species (Corine Biotopes Manual 1991, p. 8):

"Character species" "These are the species which appear almost exclusively, or at least preferentially, in a particular unit." (p. 69)

"Differential species" "… groups of differential species (separating species) are recognized which, within the total amount of recorded material, are absent from larger or smaller sections of it. If they never or very rarely are to be found outside their usual vegetation unit, then they may be described as character species, that is they can be looked upon as definite recognition features." (p. 70)

"Characteristic species" Used as the sum of character species for the alliance, order and class levels. (e.g. tab. 11, p. 75)

"Characteristic species" "…. socio-ecological groups …." (p. 72)

"Socio-ecological groups" "… i.e. of species which often appear together and whose behaviour under various conditions of soil, relief, altitude etc. has been revealed by comparable observations in the field. …. With socio-ecological grouping it is possible to do justice to the edaphic, oreographic and climatic variability of an association at the same time over its total range of distribution, that is to express its change with soil conditions, altitude and the general climate." (p. 71)

"Typical species" is not used or defined in Ellenberg or in Corine.

Sweden has produced lists of typical species for all the Annex I habitats found in Sweden (see http://smp.naturvardsverket.se:8080/~uppfoljning_natura2000/login , login as 'guest'). For habitats '4010 Northern Atlantic wet heaths with *Erica tetralix*' & '4030 European dry heaths' the typical species are shown in the table below, some of these species are only listed for one of the 3 biogeographical regions present in Sweden.

Typical Species for 4010	Typical Species for 4030
Dactylorhiza maculata	*Aira praecox*
Drosera sp.	*Antennaria dioica*
Erica tetralix	*Arnica montana*
Gentiana pneumonanthe	*Artemisia campestris*
Juncus squarrosus	*Botrychium multifidum*
Lycopodiella inundata	*Carex* spp.
Narthecium ossifragum	*Danthonia decumbens*
Pedicularis sylvatica	*Dianthus deltoides*
Platanthera bifolia	*Euphrasia micrantha*
Succisa pratensis	*Genista pilosa*
Trichophorum cespitosum ssp. *Germanicum*	*Helianthemum nummularium*
	Hypochoeris radicata
	Nardus stricta
	Pulsatilla vulgaris
	Succisa pratensis
	Taraxacum sect. *Erythrosperma*
	Thymus serphyllum

Examples of typical species for each Annex I habitat in the Czech Republic are given in the national habitat classification manual: Chytrý, Kučera Kočí (2001) Katalog biotopu Ceske republiky 263pp, and for Germany in the national habitat classification manual (Ssymank et al. 1998).

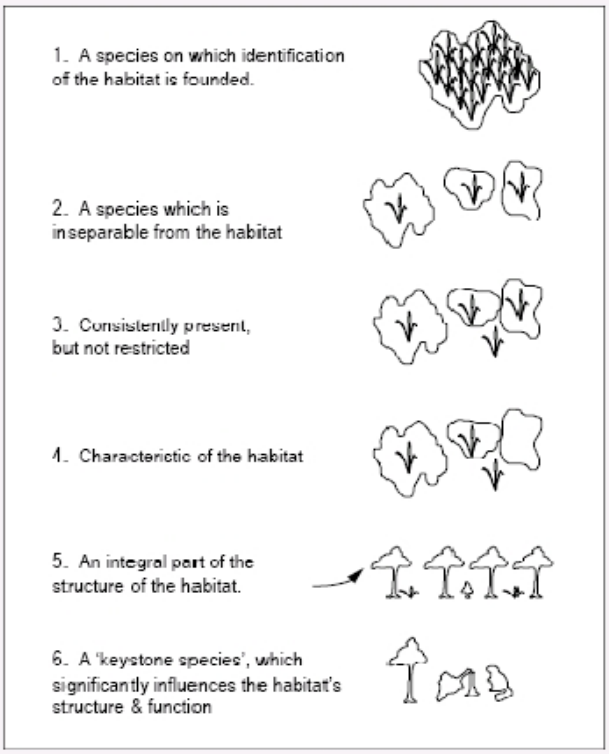
The figure below gives possible approaches to selecting 'typical species' as proposed by Shaw, P & Wind, P (1997) Monitoring the condition and biodiversity status of European conservation sites - a discussion paper (report to the European Environment Agency on behalf of the European Topic Centre on Nature Conservation, Paris http://biodiversity.eionet.eu.int/publications/SNH_NERI_1997.pdf).

Box 3.2 ***Options for selecting 'typical species' on sites***

The following guidelines may be used for selecting 'typical species' of Annex I habitats. Two general approaches are envisaged.

- A simplistic approach, in which species deemed 'typical' are those largely restricted to the habitat in question.
- A more considered approach in which typical species are largely restricted to the habitat in question, and also function as indicators of its condition (see Section 6). They may be 'keystone' species (Jermy *et al.* 1996), or may, for example, require specific conditions essential to the maintenance of the habitat (e.g. occurrence of fire), or may themselves have a significant role to play in maintaining the structure and function of the habitat.

Candidate typical species may include one or more of the following.



Assuming that the habitat's area, structure and function are already being monitored, it is unlikely that options 1 & 5 would provide any useful additional information. Similarly, the effects of keystone species would be revealed through monitoring habitat structure directly. Monitoring of 'typical species' selected under options 2-4 would be more likely to yield meaningful information, with option 2 representing the ideal: species whose ecological requirements are met only by the habitat in question. Accordingly, the following working definition of 'typical species' is proposed:

Species which are inseparable from the habitat,
- other than those on which the habitat is defined

Whichever option is selected, a pool of 'candidate' typical species should be identified for each habitat, by each Member State, and an appropriate subset selected for each site. The subset would obviously be restricted to those candidate species whose range includes the site in question, but need not exclude species previously lost from the site as a result of poor management.

CHAPTER 2 - GENERAL REPORTING FORMAT (Annex A)

This section of the report includes both obligatory and optional information about most of the Habitats Directive provisions: legal framework, state of designation of Natura 2000, management issues, conservation and mitigation measures, financing, species protection.

If your country is in more than one Biogeographical region please complete this section for each region. Information given (e.g. number of Special Areas of Conservation, number of management plans, etc) should be the figures on December 31 at the end of the reporting cycle (2006, 2012, etc).

Further guidance on Article 6 may be found in document 'MANAGING NATURA 2000 SITES - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' published by DG Environment in 11 EU languages at
http://europa.eu.int/comm/environment/nature/nature_conservation/eu_nature_legislation/specific_articles/art6/index_en.htm

Language – any EU official language can be used. The Commission will develop a reporting media that will minimise the difficulties of using different languages: e.g. tabular formats with coded information.

1. Legal framework

Legal texts: list of the legal texts that transpose the Directive at national and/or regional level; can be replaced by an Internet address where this information is available, if that is the case. Please do not send the legal texts.

2. State of designation of Natura 2000

Provide separate information for each biogeographical region.

Site designation: number of sites of Community importance (SCIs), total area of sites of Community importance, number of sites designated as special areas of conservation (SACs) and total area of special areas of conservation.

Where appropriate give figures for both marine & terrestrial sites separately.

Surface areas should be given in km².

3. Management tools - Art. 6(1)

3.1 Management plans: provide
i) number and list of sites (with Natura 2000 site code and site name) for which comprehensive management plans (i.e. plans covering the management of the whole site including all habitats & species of Community Interest that are present) have been adopted,
ii) (optional) number of sites for which comprehensive management plans are in preparation.

3.1 Management bodies: number and list of sites (with Natura 2000 site code, site name and type of management) for which management bodies have been created.

3.2 Other planning instruments: number and list of sites which do not have a dedicated management plan but for which nature conservation objectives have been included in the relevant territorial planning instruments; these may include land-use plans, forestry or agricultural plans, general territorial plans, etc; the list of sites should include the Natura 2000 site code, site name and type of planning instruments used. In some Member States Nature Reserves will be under this heading.

3.3 Non-planning instruments: number of sites for which nature conservation objectives are not defined in a territorial planning instrument (dedicated management plan or other) but where

other management instruments have been put in place e.g. management agreements; the list of sites should include the Natura 2000 site code, the site name and the types of instruments used; include also a description of the 'types of instruments' included under this category.

NB: Each site should not be counted in more than one category but only in the first possible category starting at the top of the list. Thus a site which has its own management plan but is also covered by more general measures should only be counted in the management plan category. For sites covered by two or more management tools (e.g. management plan for part of the site and non-planning measures elsewhere) both can be reported by listing the site under each heading and including the percentage of the site covered.

4. Conservation measures - Art. 6(1) - and evaluation of their impact on the conservation status - Art. 17(1)

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 or 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.

5. Measures to avoid deterioration of habitats /habitats of species & disturbance of species - Art. 6(2)

General description of the main 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 or websites.

6. Measures taken in relation to approval of plans & projects - Art. 6(3, 4)

Give the number of projects/plans for which compensation measures were necessary; provide a list of sites (site code and site name) and types of projects concerned.

Give the number of projects/plans for which a Commission opinion was requested; provide a list of sites (site code and site name) and types of projects concerned.

Describe the impact of projects in need of compensation measures on conservation status (general overview at national level indicating species or habitats affected by the projects, impact of the projects and of the compensations measures, separately if possible, area concerned and whether a follow-up of the compensation measures was carried out). This last section is optional.

7. Financing - Art. 8 (optional)

Give an estimate of the total annual costs for managing Natura 2000 sites.

Describe the measures essential for the maintenance or re-establishment at a favourable conservation status of the priority natural habitat types and priority species (overview at national level) according to Article 8(2).

Give an estimate of the annual costs for measures covered by Article 8(2).

Indicate the co-financing provided by the EU for measures covered by Article 8(2). If appropriate, give list per habitat and species.

All items in this section are optional; if completed give a general description, not a site by site account. Costs should be given in national currency although a conversion to Euro may be given where relevant. If relevant give references to published reports or websites.

8. Measures taken to ensure coherence of the Network - Art. 10 (optional)

General description of the main measures taken to ensure the coherence of the Natura 2000 network according to Article 10. This section is optional; if completed give a general description, not a site by site account. If relevant give references to published reports or websites.

9. Measures taken to establish a surveillance system - Art.11

Describe what are the main measures undertaken to establish a system to monitor the conservation status of natural habitats and species referred to in Article 2 of the Directive. Explain the main measures such as national programmes, etc but not site-by-site measures. If relevant give references to reports or websites.

A Sixth Framework Project on 'EU-wide monitoring methods and systems of surveillance for species and habitats of Community interest' (the EUMON project, see http://eumon.ckff.si) will host a database of monitoring schemes and methods.

10. Measures taken to ensure the protection of species - Arts. 12 to 16

Measures taken for the strict protection of species - Articles 12, 13

What are the requisite measures taken to establish a system of strict protection of Annex IV species? List them by group of species (e.g. cetaceans, bats, vascular plants) or by species if appropriate. List measures, do not give detailed accounts, and if relevant give references to published reports or websites.

Explain if and what control system exist for the incidental capture and killing of species - Article 12(4), which species are concerned and how is it ensured that there will not be a significant negative impact on those species.

Takings/exploitation - Articles 14, 15

What are the general main measures established to deal with the taking/exploitation in the wild of specimens of wild species of Annex V? Which species are concerned (please list them)? List measures, do not give detailed accounts, and if relevant give references to published reports or websites.

What type of control exists to ensure that indiscriminate means (see Article 15) of capture and killing of the species of Annex IVa) and Va) are not used?

11. Supporting Measures and additional provisions (optional)

Research - Article 18: general description of the main efforts and results obtained; identify major projects and fields of research.

(Re) introduction of species - Article 22.a: provide species name (Latin name), code, yes/no concerning successful reintroduction – indicating if natural reproduction has already taken place and/or population is growing -, yes/no concerning favourable conservation status (FCS) – indicating if reintroduced species is already at FCS.

Deliberate introduction of non-native species - Article 22.b: provide species name (Latin name), list of Annex I habitats and/or Annex II or IV concerned (affected) and regulation measures taken to avoid threats/damages.

Education & information - Article 22.c: general description of the main measures taken.

All items in this section are optional, if completed give general descriptions rather than detailed accounts. If relevant give references to published reports or websites.

CHAPTER 3 - REPORTING FORMAT FOR ANNEX II, IV AND V SPECIES (Annex B)

To be completed for each Annex II, IV & V species present[9].

Member State

Use the following two-digit ISO codes:

National name	English name	Code
Belgique/België	Belgium	BE
Česká republika	Czech Republic	CZ
Danmark	Denmark	DK
Deutschland	Germany	DE
Eesti	Estonia	EE
Ελλάδα (Elláda)	Greece	EL
España	Spain	ES
France	France	FR
Ireland	Ireland	IE
Italia	Italy	IT
Κύπρος (Kypros)/Kıbrıs	Cyprus	CY
Latvija	Latvia	LV
Lietuva	Lithuania	LT
Luxembourg	Luxembourg	LU
Magyarország	Hungary	HU
Malta	Malta	MT
Nederland	Netherlands	NL
Österreich	Austria	AT
Polska	Poland	PL
Portugal	Portugal	PT
Slovenija	Slovenia	SI
Slovensko	Slovakia	SK
Suomi/Finland	Finland	FI
Sverige	Sweden	SE
United Kingdom	United Kingdom	UK

(from http://publications.eu.int/code/pdf/370000en.htm)

[9] The ETC-BD will produce a list of species thought to be present in each Member State and requiring a report

Species code

Code used for the NATURA 2000 standard data form; a full list of codes will be produced for species only in Annex IV or V.

Biogeographic region (or marine region) concerned within the MS

Use the following abbreviations for Biogeographical Regions

Biogeographical Regions

Alpine	ALP
Atlantic	ATL
Boreal	BOR
Continental	CON
Mediterranean	MED
Macaronesian	MAC
Pannonian	PAN

Use the following abbreviations for marine regions

Marine regions

Atlantic	MATL
Macaronesian/Atlantic	MMAC
Baltic	MBAL
Mediterranean	MMED

1. NATIONAL LEVEL

1.1 Species range map

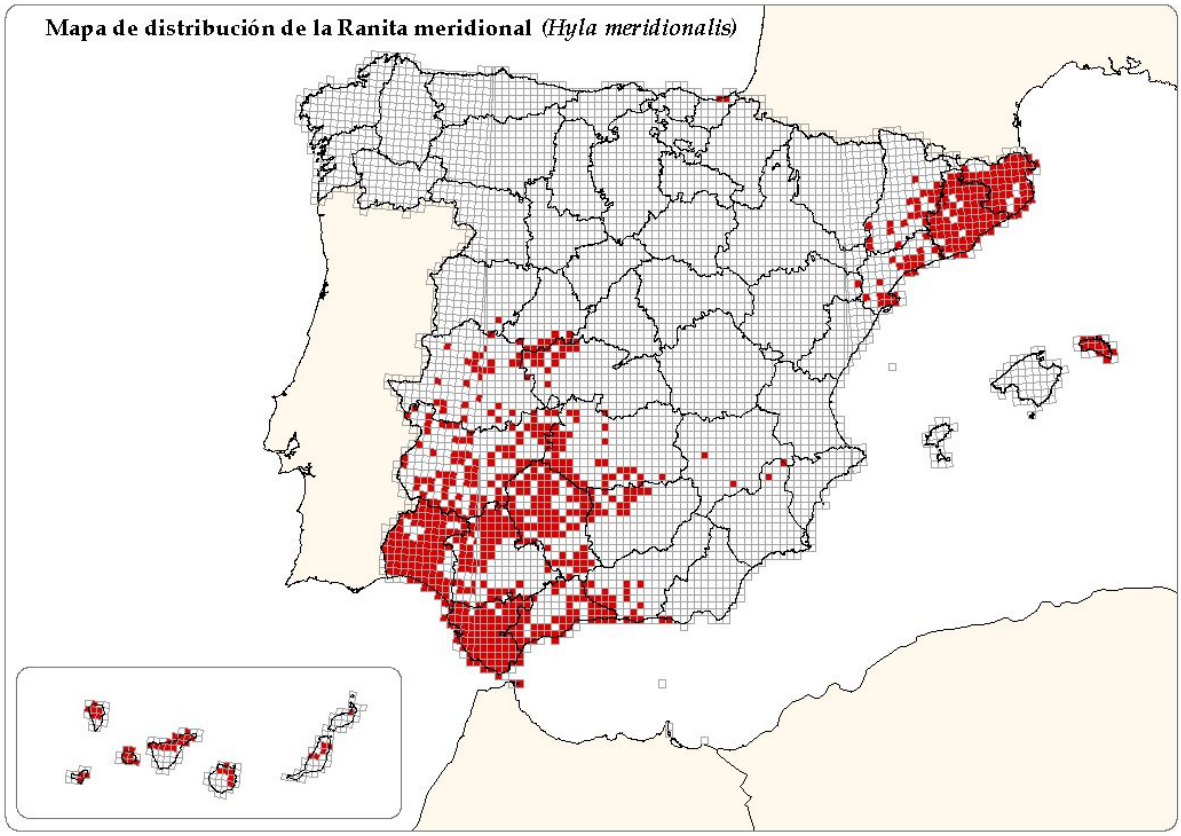
See section 'Range: how to estimate range of habitats and species?' for detailed information.

Map of range – at national level – should be in a standard GIS format – vector format; please give relevant metadata (projection, datum, scale).

1.2 Species distribution map

Map of distribution of the species should be in a standard GIS format – vector format or grid map; please give relevant metadata (projection, datum, scale).

See below example of grid map provided by Spain (*Dirección General para la Biodiversidad*, Ministry of Environment).



2. BIOGEOGRAPHIC (OR MARINE) LEVEL

This section should be completed for each biogeographical region in which the species occurs, i.e. one report per region in which the species occurs.

2.1 Biogeographic region (or marine region)

See codes above.

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).

2.3 Range

Range within the biogeographical region or marine region concerned. See above.

2.3.1 Surface area

Total surface area of the current range within the biogeographical region concerned in km^2.

2.3.2 Date

Date (or period) when surface area of range was determined; use the following formats for date MM/YYYY (month/year) and for period YYYY-YYYY (year-year).

2.3.3 Quality of data

Provide information about the quality of data used to calculate the actual range:

'Good' e.g. based on extensive surveys
'Moderate' e.g. based on partial data with some extrapolation
'Poor' e.g. based on very incomplete data or on expert judgement

2.3.4 Trend

Indicate if range is stable (=), increasing (+), decreasing (-), or 'unknown'.

2.3.5 Trend magnitude

If possible quantify the change in trend providing magnitude in Km^2.

2.3.6 Trend-Period

The period over which the trend has been reported should be given: beginning & end of period, e.g. 1998-2004 (use of different periods for different species will allow the best use of existing data).

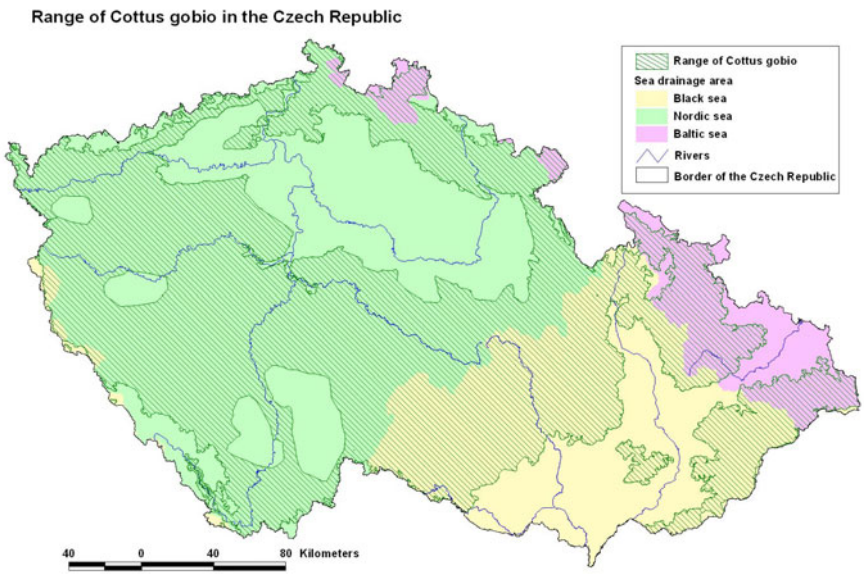
2.3.7 Reasons for reported trend

If known, indicate major reason(s) for any reported trend:

0 = unknown
1 = improved knowledge/more accurate data
2 = climate change
3 = direct human influence (restoration, deterioration, destruction)
4 = indirect anthropo(zoo)genic influence
5 = natural processes
6 = other (specify)

Actual range of the species within the Member State in km^2.

Example (*Cottus gobio*) modified from AOPK CR:

National Level	
Species code	1163
Member State	CZ
Biogeographic region concerned within the MS	CON
Range	50 539 km^2
Map	 (Image from the shape file)

2.4 Population

2.4.1 Population size estimation

Total actual population size in the biogeographical region (or marine region) of the country concerned (data or best estimate).

2.4.2 Date of estimation

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

2.4.3 Method used

Use one of the following categories:

3 = from comprehensive inventory
2 = extrapolation from surveys of part of the population or from sampling
1 = only or mostly based on expert opinion

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

2.4.4 Quality of data

Provide information about the quality of population data:

'Good' e.g. based on extensive surveys
'Moderate' e.g. based on partial data with some extrapolation
'Poor' e.g. based on very incomplete data or on expert judgement

2.4.5 Trend

Indicate if population is stable (=), increasing (+), decreasing (-) or 'unknown'.

2.4.6 Trend magnitude

If possible quantify the change providing its magnitude in number of individuals or other appropriate surrogate (same unit as used for population size).

2.4.7 Trend period

The period over which the trend has been reported should be given: beginning & end of period, e.g. 1994-2000 (use of different periods for different species will allow the best use of existing data).

2.4.8 Reasons for reported trend

If known, indicate major reason(s) for any reported trend:

0 = unknown
1 = improved knowledge/more accurate data
2 = climate change
3 = direct human influence (restoration, deterioration, destruction)
4 = indirect anthropo(zoo)genic influence
5 = natural processes
6 = other (specify)

2.4.9 Justification of % thresholds for trends

The indicative suggested threshold for trends in Annex C is 1% per year, if another threshold has been used please give details, including an explanation of why. For most (if not all) the species of annexes II, IV & V it is not possible to measure a change of 1% over such a short period 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).

2.4.10 Main pressures

List the major pressures – past and present impacts – threatening the long term viability of the species or its habitat(s) using the codes in Appendix E of the Explanatory notes for the Natura 2000 Standard Data Forms to 2nd or 3rd level.

2.4.11 Threats

List the threats – future/foreseeable impacts – affecting the long term viability of the species and/or its habitat(s) using the codes in Appendix E of the Explanatory notes for the Natura 2000 Standard Data Forms to 2nd or 3rd level.

2.5 Habitat for the species

2.5.1 Habitat (optional)

Although not asked for in the reporting format, the reporting IT-tool will allow the choice of multiple habitats, including those from Annex I of the Habitats Directive and from the EUNIS Habitat Classification.

2.5.2 Area estimation

Provide an estimate of the area of the habitat or habitats suitable for the species and currently occupied in Km^2.

2.5.3 Date of estimation

Date (or period) when habitat area surface was obtained/determined; use the following formats for date MM/YYYY (month/year) and for period YYYY-YYYY (year-year).

2.5.4 Quality of data

Provide information about the quality of population data:

'Good' e.g. based on extensive surveys
'Moderate' e.g. based on partial data with some extrapolation
'Poor' e.g. based on very incomplete data or on expert judgement

2.5.5 Trend

Indicate if surface area of habitat is stable (=), increasing/net increase (+), decreasing/net loss (-) or 'unknown'.

2.5.6 Trend-Period

The period over which the trend has been reported should be given: beginning & end of period, e.g. 1998-2004.

2.5.7 Reasons for reported trend

If known indicate major reason(s) for reported trend:

0 = unknown
1 = improved knowledge/more accurate data
2 = climate change
3 = direct human influence (restoration, deterioration, destruction)
4 = indirect anthropo(zoo)genic influence
5 = natural processes
6 = other (specify)

2.6 Future prospects

Information provided here corresponds to the answer to the question 'Is the species viable in the long term in the biogeographical region?':

1 = good prospects – species expected to survive and prosper
2 = poor prospects – species likely to struggle unless conditions change
3 = bad prospects – long-term viability at risk; species likely to become extinct.

This section integrates information on pressures, threats, population trends and population structure. For example if the population(s) are all non reproducing mature individuals with no young or reproducing adults (as is the case for *Margaritifera margaritifera* (Natura code 1029) in many countries) the 'future prospects' will be poor or bad.

Example (*Dianthus rupicola*) modified from Ministero dell'Ambiente (IT):

Biogeographic level	
2.1 Biogeographic region	MED
2.2 Published sources	"L'analisi floristica a scala nazionale" – modulo A della convenzione "Completamento delle conoscenze naturalistiche di base". Ministero dell'Ambiente e della Tutela del Territorio (2000)
2.3 Range	
2.3.1 Surface area	31664.52 Km^2
2.3.2 Date	2000
2.3.3 Quality of data	3 = good
2.3.4 Trend	stable
2.3.6 Trend-Period	1963 to 2000
2.3.7 Reasons for reported trend	1 = improved knowledge/more accurate data
2.4 Population	
1.2 Distribution map	 (Image from shape file)
2.4.1 Population size estimation	61 localities each with few specimens

2.4.2 Date of estimation	2000
2.4.3 Method used	2 = extrapolation from surveys of part of the population, sampling
2.4.4 Quality of data	3 = good
2.4.5 Trend	stable
2.4.7 Trend-Period	1963 to 2000
2.4.8 Reasons for reported trend	1 = improved knowledge/more accurate data
2.4.9 Justification of % thresholds for trends	In case a MS is not using the indicative suggested value of 1% per year when assessing trends, this should be duly justified in this free text field
2.4.10 Main pressures	301 quarries; touristic development
2.4.11 Threats	301 quarries; touristic development
2.5 Habitat for the species	Coastal calcareous cliffs up to 800 m
2.5.2 Area estimation	Data not available
2.5.3 Date of estimation	
2.5.4 Quality of data	
2.5.5 Trend	stable
2.5.6 Trend-Period	1963 to 2000
2.5.7 Reasons for reported trend	5 = natural processes
2.6 Future prospects	1 = good prospects

Practical examples for 14 Annex II, IV and V species in different countries and Biogeographical regions are given in the report published in 2006 by the European Habitats Forum (http://www.iucn.org/places/europe/rofe/documents/EHF%20Monitoring%20Report.pdf).

2.7 COMPLEMENTARY INFORMATION

This section includes information needed to undertake the evaluation of FCS according to Annex C. Favourable Reference values are discussed in more detail in section 'Conservation Status' above.

2.7.1 Favourable reference range

Range required for the species to be at FCS: give area in km² and attach a GIS map if available.

2.7.2 Favourable reference population

Population required for the species to be at FCS: give number of individuals or other relevant surrogate (use same unit as for population size).

2.7.3 Suitable Habitat for the species

Area thought suitable for the species, both currently occupied and currently unoccupied but suitable (km²).

2.7.4 Other relevant information

Include any other information thought relevant to the species report and to assessing FCS.

2.8 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 next section for further information.

Give the result of the assessment for each parameter of FCS using the four categories available: 'favourable', 'inadequate', 'bad' and 'unknown'.

If required – use '+' or '-' to indicate improving or deterioration status: e.g. 'U1+' = inadequate but improving, 'U1-' = inadequate and deteriorating.

The following items must be evaluated:

- Range
- Population
- Habitat for the species
- Future prospects
- Overall assessment

2.8.1 Conclusions within Natura 2000 sites (optional)

In addition to the above information, Member States may provide information about the overall conservation status from their Natura 2000 network for the following items:

- Population
- Habitat for the species
- Future prospects
- Overall assessment

CHAPTER 4 - ASSESSING CONSERVATION STATUS OF A SPECIES (Annex C)

General evaluation matrix ***(per biogeographic region – or marine region – within a MS)***

The matrix is an aid to assessing the Conservation Status of a species. It should be completed for each biogeographical region (and marine region) in which the species is present but it shall not be sent to the Commission as part of Article 17 report. However, the results of using the matrix have to be provided in section 2.8 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 judgment'.

Article 1g of the Habitats Directive defines 'Species of Community Interest' as being endangered, vulnerable, rare or endemic, thus it is likely that many, possibly most, species of Annexes II, IV & V will be assessed as not being in favourable conservation status.

Range

Favourable Range of the species is stable (loss and expansion in balance) or increasing
AND
not smaller than the 'favourable reference range'.

Unfavourable – Inadequate
Any combination other than those described under 'Green' or 'Red'.

Unfavourable – Bad Large decline in range (equivalent to a loss of more than 1% per year within period specified by MS; other thresholds can be used but must be explained on Annex B)
OR
range more than 10% below 'favourable reference range'.

Unknown No or insufficient reliable information available.

Population

Favourable Population of the species above 'favourable reference population
AND
reproduction, mortality and age structure not deviating from normal (if data available)

Unfavourable – Inadequate
Any combination other than those described under 'Green' or 'Red'.

Unfavourable – Bad Large decline in population (equivalent to a loss of more than 1% per year within the period specified by MS; other thresholds can be used but must be explained on Annex B)
AND
below 'favourable reference population'
OR
population more than 25% below 'favourable reference population'
OR
reproduction, mortality and age structure strongly deviating from normal (if data available)

Unknown No or insufficient reliable information available.

Habitat for the species

Favourable Area of habitat(s) of the species is sufficiently large (and stable or increasing)
AND
habitat quality is suitable for the long term survival of the species.

Unfavourable – Inadequate
Any combination other than those described under 'Green' or 'Red'.

Unfavourable – Bad Area of habitat(s) is clearly not sufficiently large to ensure the long term survival of the species
OR
habitat quality is bad, clearly not allowing long term survival of the species.

Unknown No or insufficient reliable information available.

Future prospects

(as regards to population, range and habitat availability)

Favourable Main pressures and threats to the species not significant; species will remain viable on the long term.

Unfavourable – Inadequate
Any combination other than those described under 'Green' or 'Red'.

Unfavourable – Bad Severe influence of pressures and threats to the species; very bad prospects for its future, long-term viability at risk.

Unknown No or insufficient reliable information available.

Overall assessment of CS

Favourable All 'Green'
OR
three 'Green' and one 'Unknown'

Unfavourable – Inadequate
One or more 'Amber' but no 'Red'

Unfavourable – Bad One or more 'Red'

Unknown Two or more 'Unknown' combined with 'Green'
OR
all "Unknown"

For the two categories of unfavourable – 'inadequate' and 'bad' – one may use '+' or '-' to indicate improving or deterioration status: e.g. 'U1+' = inadequate but improving, 'U1-' = inadequate and deteriorating.

CHAPTER 5 - REPORTING FORMAT FOR ANNEX I HABITAT TYPES (Annex D)

To be completed for each Annex I habitat type present.

Member State

Use the following two-digit ISO codes:

National name	English name	Code
Belgique/België	Belgium	BE
Česká republika	Czech Republic	CZ
Danmark	Denmark	DK
Deutschland	Germany	DE
Eesti	Estonia	EE
Ελλάδα (Elláda)	Greece	EL
España	Spain	ES
France	France	FR
Ireland	Ireland	IE
Italia	Italy	IT
Κύπρος (Kypros)/Kıbrıs	Cyprus	CY
Latvija	Latvia	LV
Lietuva	Lithuania	LT
Luxembourg	Luxembourg	LU
Magyarország	Hungary	HU
Malta	Malta	MT
Nederland	Netherlands	NL
Österreich	Austria	AT
Polska	Poland	PL
Portugal	Portugal	PT
Slovenija	Slovenia	SI
Slovensko	Slovakia	SK
Suomi/Finland	Finland	FI
Sverige	Sweden	SE
United Kingdom	United Kingdom	UK

(from http://publications.eu.int/code/pdf/370000en.htm)

Habitat Code

Use Natura 2000 code as given in the Interpretation Manual; do not use any other coding systems.

Biogeographic region (or marine region) concerned within the MS

Use the following abbreviations for Biogeographical Regions

Biogeographical Regions

Alpine	ALP
Atlantic	ATL
Boreal	BOR
Continental	CON
Mediterranean	MED
Macaronesian	MAC
Pannonian	PAN

Use the following abbreviations for marine regions

Marine regions

Atlantic	MATL
Macaronesian Atlantic	MMAC
Baltic	MBAL
Mediterranean	MMED

1. NATIONAL LEVEL

1.1 Habitat range map

Map of actual range should be in a standard GIS format – vector format; please give relevant metadata (projection, datum, scale).

1.2 Habitat distribution map

Map of distribution (presence/absence) should be in a standard GIS format – vector format or grid map; please give relevant metadata (projection, datum, scale). The difference between distribution and range is discussed in section 'Range' above.

2. BIOGEOGRAPHIC (OR MARINE) LEVEL

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

2.1 Biogeographic region

See codes above

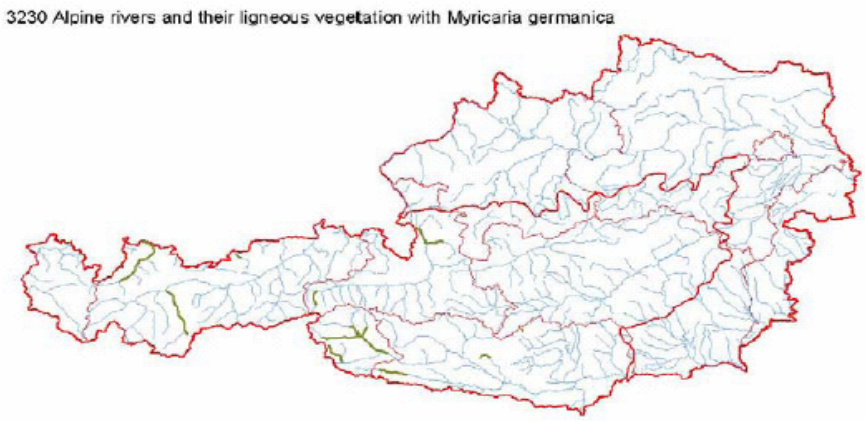
2.2 Published sources

If the information given in the rest of this section is from published sources please give bibliographic references or link to Internet site(s).

2.3 Range

Range of the habitat within the Biogeographic or marine region in km^2, see above section on 'Range'.

Example for '3230 Alpine rivers and their ligneous vegetation with *Myricaria germanica' a*dapted from T. Ellmauer, AT

National level	
Habitat Code	3230
Member State	AT
Biogeographic region concerned within the MS	ALP
Range	250 km *(to be converted in km² - using a 10x10 km grid, for example)*
Map	 Method: The natural range for the river-habitat type is considered as the stretches of river sections, where the habitat type occurs as well as the stretches (in between the occurrences and downstream) where the habitat type has the potential to occur.

2.3.1 Surface area

Total surface area of the range within the biogeographical region (or marine region) in km^2.

2.3.2 Date

Date (or period) when surface area of range was obtained/determined; use the following formats for date MM/YYYY (month/year) and for period YYYY-YYYY (year-year).

2.3.3 Quality of data

Provide information about the quality of range data:

'Good' e.g. based on extensive surveys
'Moderate' e.g. based on partial data with some extrapolation
'Poor' e.g. based on very incomplete data or on expert judgement

2.3.4 Trend

Indicate if range is stable (=), increasing (+), decreasing (-) or 'unknown'.

2.3.5 Trend magnitude

If possible quantify the change in range providing a magnitude in Km^2.

2.3.6 Trend-Period

Give dates of beginning and end of the period for which the trend has been reported (e.g. 1981 to 1991).

2.3.7 Reasons for reported trend

If known indicate major reason(s) for reported trend:

0 = unknown
1 = improved knowledge/more accurate data
2 = climate change
3 = direct human influence (restoration, deterioration, destruction)
4 = indirect anthropo(zoo)genic influence
5 = natural processes
6 = other (specify)

2.4 Area covered by habitat

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

2.4.1 Surface area

Area (in km^2) currently occupied by the habitat within the biogeographical area.

2.4.2 Date of estimation

Date (or period) when surface area of area covered by habitat was obtained/determined, which should be as close as possible to the end of the reporting period; use the following formats for date 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:

3 = ground based survey (based on field mapping, possibly using stratified random sampling);
2 = based on remote sensing data (possibly including an element of 'ground truthing');
1 = only or mostly based on expert opinion

Give one class only, if more than one method used, indicate the most relevant.

2.4.4 Quality of data

Provide information about the quality of habitat surface area data:

'Good' e.g. based on extensive surveys
'Moderate' e.g. based on partial data with some extrapolation
'Poor' e.g. based on very incomplete data or on expert judgement

2.4.5 Trend

Indicate if surface area is stable (=), increasing (+), decreasing (-) or 'unknown'.

2.4.6 Trend magnitude

If possible quantify the change in surface area providing a magnitude in Km^2.

2.4.7 Trend-Period

Give dates of beginning and end of the period for which the trend has been reported (e.g. 1981 to 1991).

2.4.8 Reasons for reported trend

If known indicate major reason(s) for reported trend:

0 = unknown
1 = improved knowledge/more accurate data
2 = climate change
3 = direct human influence (restoration, deterioration, destruction)
4 = indirect anthropo(zoo)genic influence
5 = natural processes
6 = other (specify)

2.4.9 Justification of % thresholds for trends

The indicative suggested threshold for trends in Annex E is 1% per year, if another threshold has been used please give details, including an explanation of why. For most (if not all the habitats) of Annex I it is not possible to measure a change of 1% over such a short period 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).

2.4.10 Main pressures

List the major pressures – past and present – impacting on the habitat using the codes in Appendix E of the Explanatory notes for the Natura 2000 Standard Data Forms to 2nd or 3rd level.

2.4.11 Threats

List the threats – future/foreseeable impacts – affecting the long term viability of the habitat using the codes in Appendix E of the Explanatory notes for the Natura 2000 Standard Data Forms to 2nd or 3rd level.

2.5 COMPLEMENTARY INFORMATION

This section includes information needed to undertake the evaluation of FCS according to Annex E. Favourable Reference values are discussed in more detail in section 'Conservation status' above.

2.5.1 Favourable reference range

Range required for the range of the habitat to be at FCS; provide area in km² and attach a map – vector or grid map – if available.

2.5.2 Favourable reference area

Area required for the area of habitat to be at FCS; provide area in km² and attach a map – vector or grid map – if available.

2.5.3 Typical species

List the typical species considered during the assessment. Typical species are discussed in more detail above.

2.5.4 Typical species assessment

Describe shortly the method(s) used for the assessment of the conservation status of the typical species.

2.5.5 Other relevant information

Include any other information thought relevant to the habitat report.

2.6 CONCLUSIONS

This section includes the assessment of conservation status at end of reporting period in the concerned biogeographical region. It is derived from the Annex E matrix, see next section for further information.

Give the result of the assessment for each parameter of FCS using the four categories available: 'favourable', 'inadequate', 'bad' and 'unknown'.

If required use '+' or '-' to indicate improving or deterioration status: e.g. 'U1+' = inadequate but improving, 'U1-' = inadequate and deteriorating.

The following items must be evaluated:

- Range
- Area
- Structure and functions, including typical species
- Future prospects
- Overall assessment

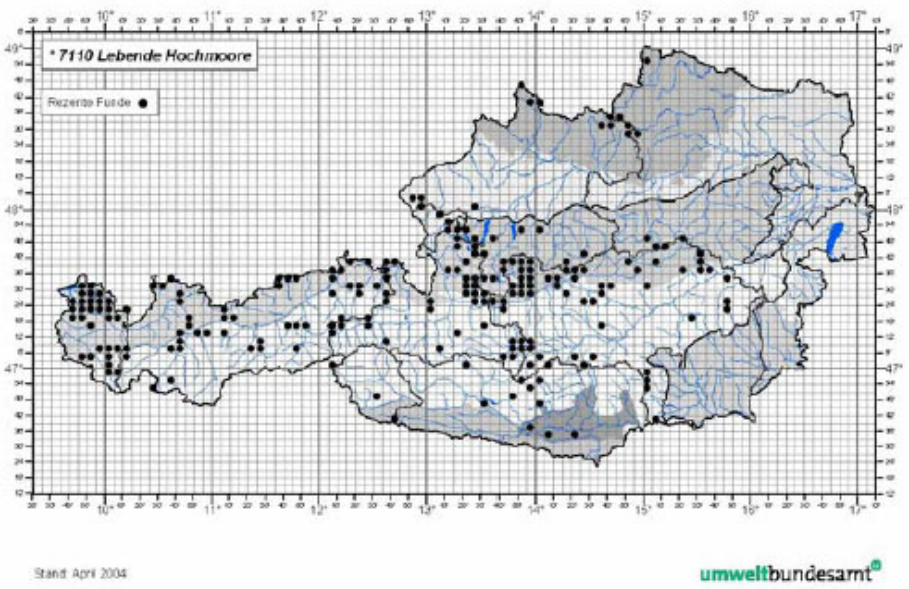
2.6.1 Conclusions within Natura 2000 sites (optional)

In addition to the above information, Member States may provide information about the overall conservation status from their Natura 2000 network for the following items:

- Area
- Structure and functions, including typical species
- Future prospects
- Overall assessment

Example of the Biogeographical section of Annex D for '7110 Active raised bogs', adapted from T. Ellmauer, AT

Biogeographic level	
2.1 Biogeographic region	ALP
2.2 Published sources	Steiner, G.M. 1992: Österreichischer Moorschutzkatalog. Bundesministerium f. Umwelt, Jugend u. Familie, Grüne Reihe 1: 509 pp. Ellmauer, T. (Ed.) 2005: Entwicklung von Kriterien, Indikatoren und Schwellenwerten zur Beurteilung des Erhaltungszustandes der Natura 2000-Schutzgüter. Band 3: Lebensraumtypen des Anhangs I der Fauna-Flora-Habitat-Richtlinie. Im Auftrag der neun österreichischen Bundesländer, des Bundesministerium f. Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft und der Umweltbundesamt GmbH, 616 pp. (http://www.umweltbundesamt.at/umweltschutz/naturschutz/natura_2000/gez/)
2.3 Range	
2.3.1 Surface area	8 000 km^2
2.3.2 Date	1980-1990

2.3.3 Quality of data	3 = good
2.3.4 Trend	Negative; magnitude unknown (2.3.5)
2.3.6 Trend-Period	1945-2005
2.3.7 Reasons for reported trend	3 = direct human influence (restoration, deterioration, destruction) 5 = indirect anthropo(zoo)genic influence
2.4 Area covered by habitat	
1.2 Distribution map	
2.4.1 Surface area	10 km^2
2.4.2 Date	1980-1990
2.4.3 Method used	3 = ground based survey
2.4.4 Quality of data	3 = good
2.4.5 Trend	unknown
2.4.6 Trend-Period	1945-2005
2.4.7 Reasons for reported trend	3 = direct human influence (restoration, deterioration, destruction) 5 = indirect anthropo(zoo)genic influence
2.4.8 Justification of % thresholds for trends	
2.4.10 Main pressures	**161 Planting** **311 Hand cutting of peat** **312 Mechanical removal of peat** **702 Air pollution** **810 Drainage** **850 Modification of hydrographic functioning general**

2.4.11 Threats	**161 Planting** **310 Peat extraction** **702 Air pollution** **810 Drainage** **850 Modification of hydrographic functioning general**
Complementary information	
2.5.1 Favourable reference range	8 190 km2
2.5.2 Favourable reference area	20 km2
2.5.3 Typical species	Presence/absence of *Sphagnum* species, which indicate raised bogs (such as *S magellanicum, S fuscum*, …)
2.5.5 Other relevant information	
2.6 Conclusions ***(assessment of conservation status at end of reporting period)***	
Range	Favourable (FV)
Area	Bad (U2)
Specific structures and functions (incl. typical species)	Unknown (XX)
Future prospects	Bad (U2)
Overall assessment of CS	**Bad (U2)**

Practical examples for eight Annex I habitat types in different countries and Biogeographical regions are given in the report published in 2006 by the European Habitats Forum (http://www.iucn.org/places/europe/rofe/documents/EHF%20Monitoring%20Report.pdf).

CHAPTER 6 - ASSESSING CONSERVATION STATUS OF A HABITAT TYPE (Annex E)

General evaluation matrix ***(per biogeographic region – or marine region – within a MS)***

The criteria below are an aid to assessing the Conservation Status of a habitat. It should be completed for each biogeographical region (and marine region) in which the habitat type is present but it shall not be sent to the Commission as part of Article 17 report. However, the results of using the matrix have to be provided in section 2.6 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.

Article 1c of the Habitats Directive defines 'natural habitat types of Community Interest' as being in danger of disappearance, having a small range or being typical of a biogeographical region, thus it is likely that many, possibly most, habitats of Annexes I will be assessed as not being in favourable conservation status.

Range

Favourable Range of the habitat is stable (loss and expansion in balance) or increasing
AND
not smaller than the 'favourable reference range'.

Unfavourable – Inadequate
Any combination other than those described under 'Green' or 'Red'.

Unfavourable – Bad Large decrease in range (equivalent to a loss of more than 1% per year within the period specified by the MS; other thresholds can be used but must be explained on Annex D)
OR
range more than 10% below the 'favourable reference range'.

Unknown No or insufficient reliable information available.

Area covered by habitat type within range[10]

Favourable Area occupied by the habitat is stable (loss and expansion in balance) or increasing
AND
not smaller than the 'favourable reference area'
AND
without significant changes in the pattern of distribution within the overall range (if data available to assess)

Unfavourable – Inadequate Any combination other than those described under 'Green' or 'Red'.

Unfavourable – Bad Large decrease in surface area (equivalent to a loss of more than 1% per year within period specified by MS; other thresholds can be used but must be explained on Annex D)
OR
with major losses (negative changes) in the pattern of distribution within the range
OR
current area more than 10% below the 'favourable reference area'.

Unknown No or insufficient reliable information available.

[10] There may be situations where the habitat area, although above the 'Favourable reference area', has decreased as a result of management measures to restore another Annex I habitat type or habitat of an Annex II species; the habitat could still be considered to be at 'Favourable conservation status' but in such cases please give details in the 'Complementary Information' section of Annex D.

Specific structures and functions

(including typical species)

According to Art 1(e) for the conservation status of a habitat to be favourable, *"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"*. Habitat structure and habitat function varies widely between different habitats but it is clear that the various ecological processes essential for a habitat have to be present and functioning for the habitat to be considered to be at FCS. Thus for a woodland habitat such processes would include regeneration and nutrient cycling and structure would include elements such as the age class structure and presence of dead wood. It may not be necessary for all elements to be present on all sites. Similarly for mires the eco-hydrological regime can be essential, so that disruptions to it by *e.g.* drainage can be unfavourable. 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. See Abenius et al. (2004) for suggested structures and functions for all habitats occurring in the northern countries.

Favourable Structures and functions (including typical species) in good condition and no significant deteriorations/pressures[11].

Unfavourable – Inadequate
Any combination other than those described under 'Green' or 'Red'.

Unfavourable – Bad More than 25% of the area of the habitat is unfavourable as regards its specific structures and functions (including typical species)[12].

Unknown No or insufficient reliable information available.

Future prospects

(as regards range, area covered and specific structures and functions)

Favourable The habitat prospects for its future are excellent/good, no significant impact from threats expected; long-term[13] viability assured.

Unfavourable – Inadequate
Any combination other than those described under 'Green' or 'Red'.

Unfavourable – Bad The habitats prospects are bad, severe impact from threats expected; long-term viability not assured.

Unknown No or insufficient reliable information available.

[11] Habitat structure in good condition (e.g. all canopy layers present, forests with dead wood) and functioning normally. The habitat hosts the species typical for the region and there is no significant deterioration in habitat quality or pressures threatening the habitat. Typical species are discussed in more detail above.

[12] E.g. by discontinuation of former management, or is under pressure from significant adverse influences, e.g. critical loads of pollution exceeded.

[13] Long-term could be interpreted as equivalent to 3 or 4 reporting periods, i.e. ca. 20 years

Overall assessment of CS

Favourable All 'Green'
OR
three 'Green' and one 'Unknown'

Unfavourable – Inadequate
One or more 'Amber' but no 'Red'

Unfavourable – Bad One or more 'Red'

Unknown Two or more 'Unknown' combined with 'Green'
OR
all "Unknown"

For the two categories of unfavourable – 'inadequate' and 'bad' – one may use '+' or '-' to indicate improving or deterioration status: e.g. 'U1+' = inadequate but improving, 'U1-' = inadequate and deteriorating.

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APPENDIX 1 – Annexes A to F of DocHab-04-03/03 rev.3

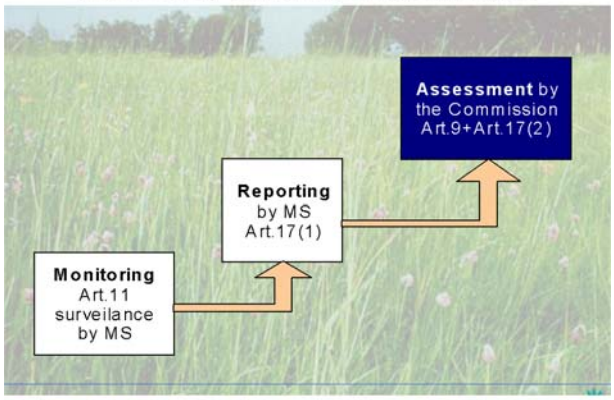
Given as a separate document (Notes&Guidelines_report_art17_Appendix_1.pdf)

APPENDIX 2 – Example for habitat 4010 in Flanders (BE)

Given as a separate document (Notes&Guidelines_report_art17_Appendix_2.pdf)

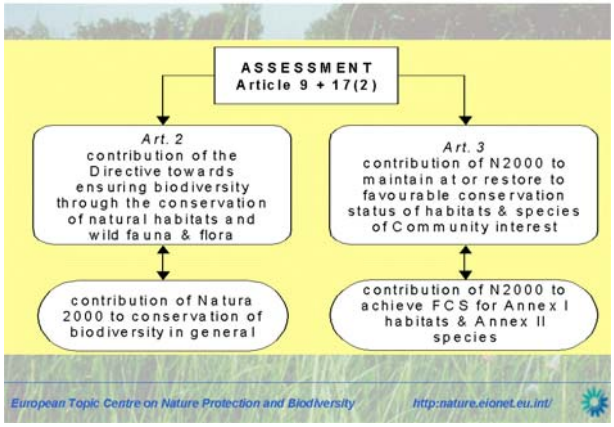
APPENDIX 3 – The background to monitoring and reporting

The monitoring to assessment legal framework.

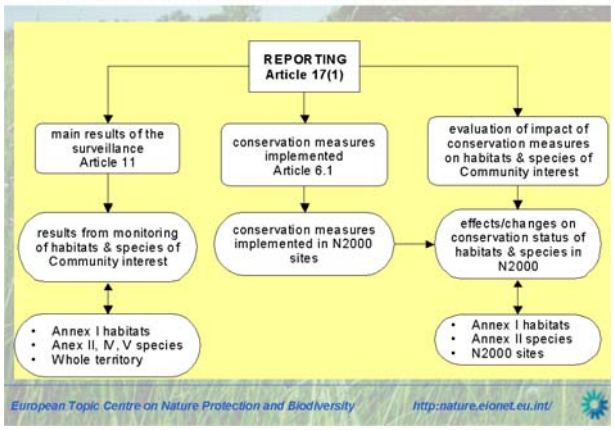


Three articles give the framework

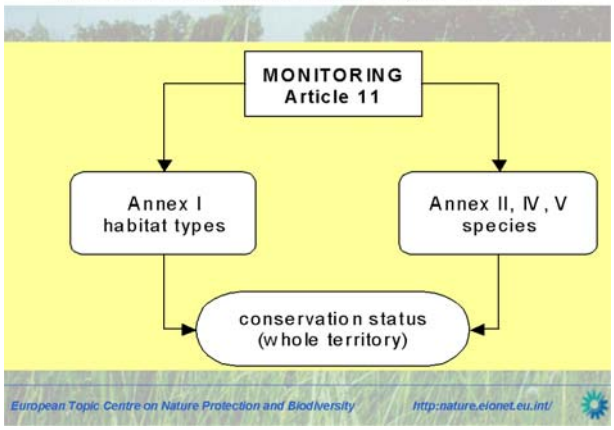
What should be assessed according to Article 9

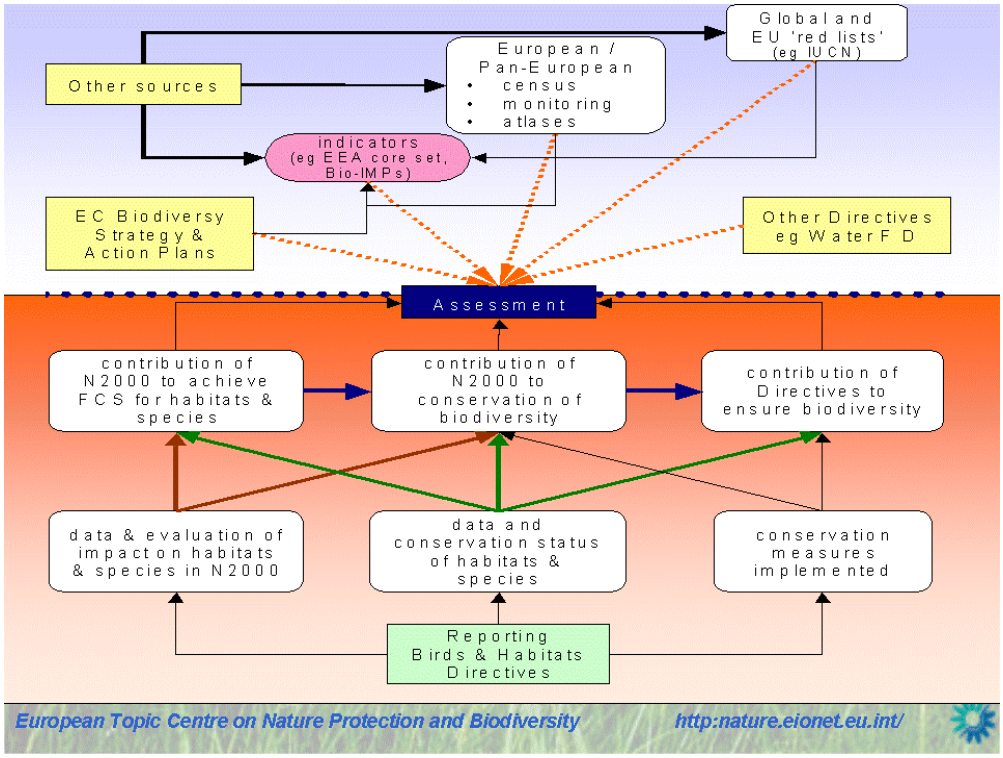


What should be reported according to Article 17(1)



What should be monitored according to Article 11





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