

# SCOPING DOCUMENT ON FORESTS AND NATURA 2000

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*THE N2K GROUP*

European Economic Interest Group

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## ***Purpose of the document***

*Forests are an important part of the Natura 2000 network. Now that the network is almost complete, all attention is being directed towards ensuring the effective management of the Natura 2000 sites within the network, in line with Article 6 of the Habitats Directive.*

*This has however raised a number of practical management issues. The European Commission therefore intends to develop a guidance document on the implementation of the EU Habitats and Birds Directive in relation to forests and other wooded land. The objective is to offer clarification on the provisions of the Directives as regards forests and to identify ways to encourage a more integrated management of this important multifunctional resource within Natura 2000 sites.*

*The present scoping document has been drafted to provide a summary overview of the key issues related to forests in Natura 2000. It is not intended to be exhaustive or comprehensive but rather to help identify elements for inclusion in the guidance document.*

*In this context we would appreciate your comments and feedback on the document:*

- *have the key issues and challenges been correctly identified?*
- *are there other issues you consider should be addressed or taken into account?*
- *are there any specific background documents, good practice experiences, or other material that you recommend to be analysed further, if so which ones, ? (doesn't matter which language they are in)*

*Please send your comments back to:*

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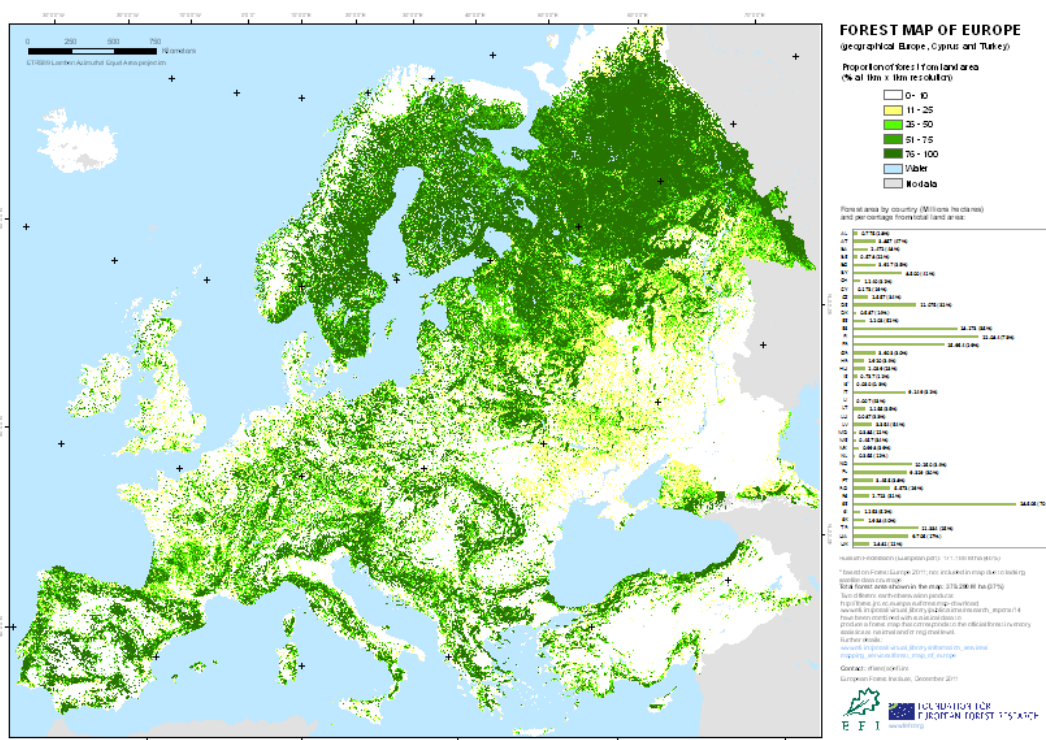
***Deadline: 15 September 2012***

# SCOPING DOCUMENT ON FORESTS AND NATURA 2000

## 1 BACKGROUND AND CONTEXT

In 2010 forest and other wooded land covered around 40 % the total EU area<sup>1</sup> and therefore represents a major land use in Europe similar in proportion to that used for agricultural purposes.

Figure 1: Proportion of total forest from total land area (JRC, 2006)



EU27, AL, BA, CH, HR, ME, MK, NO, RS, TR: Forest/non-forest map 2006 (beta version) prepared by the EC Joint Research Centre, aggregated to 1 km resolution. Based on IRS-P6 LISS-III, SPOT4 (HRVIR) and SPOT5 HRG satellite data of 2006 (Figure 1, [Kempeneers et al. 2011](#))

Forests are an important component of European nature. They are home to the largest number of species on the continent. The distinctive nature of European forest ecosystems is characterised by the fact that numerous species of trees, other plants or animals restricted to Europe.

The Birds and Habitats Directives are the cornerstones of the EU's biodiversity policy. They enable all 27 EU Member States to work together, within a common legislative framework, to conserve Europe's most valuable species and habitats across their entire natural range within the EU, and to conserve their core areas through the designation and management of sites under the Natura 2000 Network.

The Natura 2000 Network is not a system of nature reserves where human activities are systematically excluded. Instead, it is based on the principle of sustainable development,

<sup>1</sup> Eurostat news release 85/2011 15.06.2011: Forests are defined as land with a tree canopy cover of more than 10% and an area of more than 0.5 hectares. Other wooded land is land of more than 0.5 hectares with a tree canopy over of 5-10% which is not classified as forests.

ensuring that human activities, within Natura 2000, are undertaken in a way that safeguards the species and habitat types for which the site has been designated. Forest and other wooded land represent ca 50% of the surface of Natura 2000 sites and around 23% of the total forest resource within Europe is in Natura 2000 (see section 4).

According to the findings of a recent assessment of the conservation status of habitats and species of Community interest<sup>2</sup>, habitat types associated with forest have in general a better conservation status than non-forest habitats.<sup>3</sup> Nevertheless, several forest habitat types and forest species remain in an unfavourable conservation status in some parts of the EU. There is also evidence of a small decline in the populations of bird species associated to forest since 1980 but the decline appears to have eased in recent years (see chapter 4.2).

The European Commission published a first guidance document on Natura 2000 and Forests in 2003<sup>4</sup>. This document aimed to clarify the role of forests and forestry for the conservation of Europe's natural heritage within the Natura 2000 network. The objectives were to:

- Facilitate the understanding of the mechanics of the Habitats Directive among various stakeholders,
- Propose general guidelines and recommendations for dealing with forest areas within Natura 2000.
- Initiate and facilitate communication between different stakeholders.
- Provide a framework of non-mandatory guidelines for the management of Natura 2000 forest sites.

Several parts of this 2003 EU guide are no longer up to date. This applies in particular to chapter 7 on financial instruments. Similarly, the best practices presented in chapter 8 relate only to 12 Member States. Other Member States that have since joined the EU in 2004 and 2007 are not considered. Some of the other chapters also require a substantial update in light of the expansion of the EU from 12 to 27 countries, e.g. chapter 3 presenting Natura 2000, as well as its biogeographical regions and main forest habitats, chapter 4 on facts about EU forests, forestry and the environment, etc.

On the other hand, there are parts of the guide that are still relevant today e.g. general requirements and operational-level guidelines for (sustainable) forest management on Natura 2000 sites, recommendations for biodiversity conscious forestry on protected areas, etc. The new guidelines can build upon those principles, as they're embedded in the resolutions of the Ministerial Conferences on the Protection of Forests in Europe (Forest Europe as it is called today) and have therefore a high level of acceptance among stakeholders as well as political endorsement.

Since then, DG ENV has undertaken several other initiatives for Natura 2000 forests including;

- The "Greenforce Network" (2005-2009) which encourages informal and voluntary exchanges between Member States on implementation of Nature conservation and Forestry legislation
- The Wildlife and Sustainable Farming Initiative with the publication in 2007 of the

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<sup>2</sup> Monitoring reports under Art. 17 of the Habitats Directive:

[http://ec.europa.eu/environment/nature/knowledge/rep\\_habitats/index\\_en.htm](http://ec.europa.eu/environment/nature/knowledge/rep_habitats/index_en.htm).

<sup>3</sup> EEA Report 4/2009. <http://www.eea.europa.eu/publications/progress-towards-the-european-2010-biodiversitytarget/>

<sup>4</sup> European Commission – 2003 - Natura 2000 and forests 'Challenges and opportunities' - Interpretation guide – Office for Official Publications of the European Communities, Luxembourg, 101 pp.

report “*Handbook of Best Practices for conservation of forest wildlife through forestry*”<sup>5</sup>

- The publication in 2008 of “management models”<sup>6</sup> for selected habitats (including 4 forest habitat types) protected under the Habitats Directive. These contain detailed descriptions of best practice techniques for the management of each habitat type. They are designed to be used by site managers and in the preparation of site-specific management plans.

Last year, DG Environment launched a new biogeographic process to exchange experiences and best practices, identify common objectives and priorities, and enhance cooperation and synergies in managing Natura 2000 sites within each of the nine biogeographical regions (or group of regions). Each seminar cycle aims to capture the latest information on the threats and priority conservation needs, as well as good management practices, for certain key habitat types (including forests) within and between countries of that region.

However, there are still some questions or issues raised by the various stakeholders concerning the implementation of the Birds and Habitats Directives with regard to forests. In the light of this, DG ENV is developing a new guidance document on Natura 2000 and forestry, based on a bottom up process with stakeholders and relevant Member State authorities<sup>7</sup>.

## 2 OBJECTIVE

With the objective of assisting Member States and key economic sectors representing major land uses in Natura 2000, the European Commission (DG ENV and DG AGRI) has launched an initiative to develop new **guidance on Natura 2000 and Forests**.

The work will be carried out in close collaboration with the Standing Forestry Committee, the Advisory Group Forests and Cork and the Expert Group Natura 2000 management, all of which involve key stakeholder groups, and relevant Member State authorities.

The objectives of this initiative are:

- ⇒ To clarify the implementation of the provisions of the Birds and Habitats Directives as regards the management and conservation of forests in Natura 2000 sites;
- ⇒ To promote, where appropriate, the integrated management of forests in Natura 2000 areas, by strengthening the partnership approach through the involvement of all stakeholders and the forest sector in particular in the proactive and participatory management of the Natura 2000 Network.
- ⇒ To contribute to the improvement of the conservation status of the habitats and species sensitive to, or dependent on, forest management in line with the targets set under the EU Biodiversity Strategy to 2020.

The guidance document should build on, and take account of, the experience from good management practices, case studies and previous projects, including relevant LIFE projects and related publications, as well as other relevant scientific literature.

However, it will remain bound by the provisions of the Birds and Habitats Directives. It

<sup>5</sup> [http://circa.europa.eu/Public/irc/env/swfi/library?l=/workshops/france\\_2007&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/swfi/library?l=/workshops/france_2007&vm=detailed&sb=Title)

<sup>6</sup> [http://ec.europa.eu/environment/nature/natura2000/management/habitats/models\\_en](http://ec.europa.eu/environment/nature/natura2000/management/habitats/models_en)

<sup>7</sup> Similar guidance documents have been drafted, or are being drafted for other sectors as well such as wind energy, non energy extractive mining, inland waterway development, aquaculture and farming.

cannot make new rules or legal interpretations; instead it will provide further guidance on the application of those that already exist. As such, the document will be not be prescriptive in nature but will focus instead on offering useful advice, ideas and suggestions based on an extensive review of existing experiences and good practices across the EU.

### **3 SCOPE**

The guidance document will present and analyse available information on the habitat types and the species of Community interest which are associated with forests and other wooded land.

Having regard to the results of the assessment on the conservation status carried out under Art. 17 of the Habitats Directive, as well as other relevant data on forest related species and habitats of the Birds and Habitats Directives, it is proposed that the guidance document examines, using a biogeographic perspective, the major threats and management requirements in different forest systems and identifies suitable management approaches based on good management practices for forests in Natura 2000 sites giving special attention to integrated management that recognises the multi-functionality of forest areas, where appropriate.

The guidance document will cover sites designated under both the Birds Directive and the Habitats Directive (SPAs, SCIs/SACs). Particular attention will be given to explaining the links between site designation, the establishment of conservation objectives, the elaboration of conservation measures and the integration of Natura 2000 interests into other wider sectoral policies where relevant (e.g. in relation to rural development or as regards the implementation of the Water Framework Directive).

The most relevant species and habitats shall be considered. These concern habitats and species of Community interest that are significantly associated with forests or other wooded land systems and practices.

### **4 RELEVANT ISSUES**

The most relevant issues that should be considered in the preparation of this guidance document are introduced below.

#### **4.1 Basic facts on Natura 2000 sites and forests**

It has been estimated<sup>8</sup> that there are approximately 380,000 km<sup>2</sup> of forests within Natura 2000 sites. This includes areas designated as Annex I forest habitats (ca 150.000 km<sup>2</sup>) as well as forests which have been designated because they are core habitats for species listed in Annex II of the Habitats Directive or Annex I of the Birds Directive. It also includes forests which are included in Natura 2000 for the sake of the site's ecological coherence.

The motivation for inclusion of a forest in a Natura 2000 will influence the type of conservation measures that may be required. For instance, forests that are included in

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<sup>8</sup> Based on figures in the State of Europe's forests report 2011, table 32, page 97, plus own calculations using the Natura 2000 database and Eurostat data from report STAT/11/85  
[http://www.foresteurope.org/filestore/foresteurope/Publications/pdf/State\\_of\\_Europes\\_Forests\\_2011\\_Report\\_Revised\\_November\\_2011.pdf](http://www.foresteurope.org/filestore/foresteurope/Publications/pdf/State_of_Europes_Forests_2011_Report_Revised_November_2011.pdf)

Natura 2000 sites for the sake of the site's ecological coherence and not because they harbour specific species or habitats of Community interest are, on the whole, unlikely to require any changes to existing management practices.

Overall, it is estimated that forest ecosystems cover around 46-50% of the surface of the Natura 2000 Network. This in turn **represents around 22-23% of the total forest resource within the EU27.**

Table 1: total Natura 2000 forest area and total forest within Natura 2000

Member State	Total Natura 2000 (km <sup>2</sup> )	Total Natura 2000 Forest* Area (km <sup>2</sup> )	% Natura 2000 which is Forest*	EUROSTAT Forest & OWL in 2010	Total Forest* within Natura 2000 (%)
AT	12 317	4 790	38,40%	40 060	12,64%
BE	3 858	2 130	55,00%	7 060	33,79%
BG	37 648	22 220	58,84%	39 270	52,53%
CY	1 626	88	79,17%	3 870	36,63%
CZ	11 073	7 510	68,00%	26 570	27,11%
DE	55 113	26 684	48,42%	110 760	25,09%
DK	3 858	7600	19,89%	5 910	16,33%
EE	8 035	4 683	58,28%	23 500	18,73%
ES	137 224	79 503	57,94%	277 470	41,83%
FI	48 731	28 823	59,15%	232 690	11,81%
FR	68 770	30 380	44,18%	175 720	18,86%
GR	35 793	20 155	56,31%	65 390	33,95%
HU	19 937	8 330	41,78%	20 290	41,06%
IE	9 155	1 211	13,22%	7 890	17,22%
IT	57 705	29 912	51,84%	109 160	30,11%
LT	7 864	5 067	64,43%	22 400	24,14%
LU	474	294	62,01%	880	31,22%
LV	7 303	4 033	55,22%	34 670	12,39%
MT	40	10	24,38%		25,19%
NL	5 724	1 199	20,94%	3 650	37,91%
PL	60 796	34 049	56,00%	93 370	35,09%
PT	19 204	7 775	40,48%	36 110	21,39%
RO	42 639	22 472	52,70%	67 330	29,63%
SE	57 425	22 808	39,72%	312 470	7,69%
SI	7 201	4 998	69,41%	12 740	42,28%
SK	14 132	9 701	68,64%	19 330	44,55%
UK	17 711	1 334	7,53%	29 010	6,14%
<b>Total</b>	<b>751 368</b>	<b>382 009</b>	<b>50,84%</b>	<b>1 777 570</b>	<b>23,10%</b>

Note: Calculations performed with data from end 2010 Natura 2000 database and Corine Land Cover 2006 and Corine Land Cover 2000 for UK and GR

\*CLC classes grouped as forests: 311 Broad-leaf forests; 312 Coniferous forests; 313 Mixed forests; 323 Sclerophyllous vegetation; 324 Transitional woodland-shrub

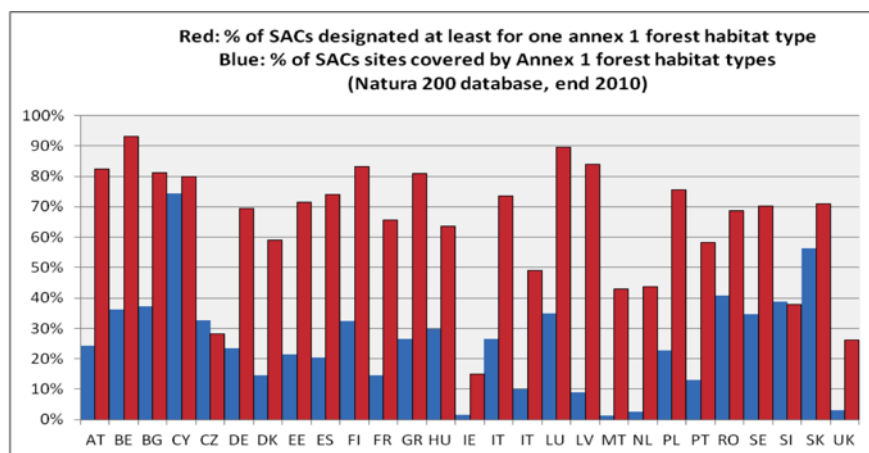
The following figures relate specifically to the Annex I forest habitats included in Natura 2000 sites. It shows that a great majority of Natura 2000 sites<sup>9</sup> harbour Annex I forest

<sup>9</sup> SCIs or SACs only, except wooded dunes



types but they tend to cover “only” 25 % of SACs/SCIs total area with huge differences across the Member States (from 1,54 % in Ireland to 74,43 % in Cyprus).

Figure 2: Annex 1 forest habitat types and SACs or SCIs



As stated above some species and habitats of Community interest are of particular importance in terms of their relationship with forest land and/or forestry practices. A description of the relationship between those habitats and species and forest management is essential to assess the main pressures and threats, and the specific management requirements. This is a necessary basis for the elaboration of the guidance document on the management of forest in Natura 2000 areas.

A preliminary list of forest species and forest habitats of Community interest was prepared in the framework of this scoping document using data from the EEA’s 2010 Biodiversity baseline report (see below). These are hereafter referred to as “key forest species” and “key forest habitats”. They will be completed, if needed, during the guidance exercise. For instance it may be appropriate to also include protected species that are typically associated with other wooded land (OWLs).

Key forest habitats and species are considered to be those that are of Community interest and are particularly influenced by forestry and its associated practices within the Natura 2000 Network. The question of key forest habitats and species linked to other wooded land could also be addressed.

#### 4.1.1 Key forest habitat types and forest areas protected under the Habitats Directive and their conservation status

Annex I of the Habitats Directive provides a definition of the forest habitat types (category 9\* and two from category 2\*) included in the Directive: *(Sub)natural woodland vegetation comprising native species forming forests of tall trees, with typical undergrowth, and meeting the following criteria: rare or residual, and/or hosting species of Community interest.*

The importance of key forest habitats, in terms of management measures in Natura 2000 sites, may be assessed against the following three criteria and datasets:

1. Priority status as indicated in Annex I of the Habitats Directive.

2. Total proportion of habitat area included in the Natura 2000 Network, as assessed by the ETC/BD<sup>10</sup>.
3. Proportion of the habitat area (with a known status) reported as having an unfavourable conservation status according to the Habitats Directive and Member States' Article 17 reports.

Following the EU biodiversity baseline (EEA 2010), 83 Forest Habitat Types<sup>11</sup>, listed on Annex I of the Habitats Directive are considered to be key forest habitats, including 28 that are priority habitats. They are classified in several categories: forests of Boreal Europe and temperate Europe, Mediterranean deciduous and sclerophyllous forests, temperate, Mediterranean and Macaronesian mountainous coniferous forests and wooded dunes.

According to the Habitats Directive, Annex 1 priority habitats types are those which:

- ⇒ are in danger of disappearance in their natural range; or
- ⇒ have a small natural range following their regression or by reason of their intrinsically restricted area; or
- ⇒ present outstanding examples of typical characteristics of one or more of the nine EU biogeographical regions

In total, we can estimate therefore that more than half of the Annex 1 forest habitat types have a very restricted range in the EU because the number of sites designated for their conservation within Natura 2000 is less than 100 or their total area is less than 100 km<sup>2</sup>. The relationship with the forestry practices should be closer analysed for these particularly rare and restricted habitats. This could be one of the objectives of the guidance document.

- less than 11 sites	9	10.8 %	- less than 10 km <sup>2</sup>	17	20.5 %
- less than 101 sites	28	33.8 %	- less than 100 km <sup>2</sup>	34	41 %
- less than 1001 sites	36	43.4 %	- less than 1000 km <sup>2</sup>	28	33.7 %
- more than 1000 sites	10	12 %	- more than 10,000 km <sup>2</sup>	4	4.8 %

On the other hand, the Habitats Directive also includes some of the more widespread forest habitat types. At least 10 habitat types occur on more than 1.000 sites, including 4 with more than 8,000 km<sup>2</sup>: 9010 Western Taïga, 9130 Asperulo-Fagetum, 9110 Luzulo-Fagetum beech forests, and 9340 Quercus ilex & Quercus rotundifolia forests.

Nevertheless, it should be noted that only a proportion (20-60%) of the total forest resource in the EU for these habitats are actually included in the Natura 2000 Network and that these sites were selected in function of a number of additional criteria which were adopted by the Scientific Working Group (21-22 June 1993).

In particular, it was agreed that when selecting sites for inclusion in the Natura 2000 Network, the Member States should focus in particular on the following:

<sup>10</sup> ETC/BD (2008)

[http://eea.eionet.europa.eu/Public/irc/eionet-circle/habitats-art17report/library?l=/papers\\_technical/appendix\\_networkpdf/ EN\\_1.0\\_&a=d](http://eea.eionet.europa.eu/Public/irc/eionet-circle/habitats-art17report/library?l=/papers_technical/appendix_networkpdf/ EN_1.0_&a=d)

<sup>11</sup> EU 2010 Biodiversity Baseline. EEA Technical report n° 12/2010, <http://www.eea.europa.eu/publications/eu-2010-biodiversity-baseline> however this figure does not include RO and BG The same exercise has not been prepared for Other Wooded Areas (OWL) and EEA decided in the EU 2010 biodiversity baseline not to consider agro-forestry. Dehesas (6310) should certainly be considered within these categories.

- ⇒ forests of native species, forests with a high degree of naturalness,
- ⇒ forests with trees of singular characteristics
- ⇒ presence of old and dead trees,
- ⇒ forests with a substantial area, and
- ⇒ forests having benefited from continuous sustainable management over a significant period.

Thus the forests designated as Natura 2000 sites are not so much 'typical' examples of the forest habitat types mentioned above but rather examples that are of particularly high ecological value in view of their age, structural diversity and naturalness. This is another aspect that deserves further analysis and clarification in the guidance document as it will have an influence on the type of management measures that can be implemented in Natura 2000 sites that harbour these more common forest habitat types.

Challenges will also vary in function of the conservation status of key forest habitats and species both at EU level and at individual site level. Member States have prepared reports in 2008 on the conservation status of species and habitat types targeted by the Habitats Directive<sup>12</sup>.

Habitat types associated with forest have in general a better conservation status than non-forest habitats (see figure 3). However there are still a significant number of forest habitat types with an unfavourable conservation status (only 21 % of assessments are favourable) and the situation is worse in Macaronesian and Pannonian biogeographical regions.

It should also be noted that this conservation status is assessed across the entire range of the habitat types or species, i.e. covering areas that are both within Natura 2000 and outside. In order to be able to assess the conservation status of these forest habitat types and species specifically within Natura 2000 it would be necessary to go back to the standard data forms for each site.

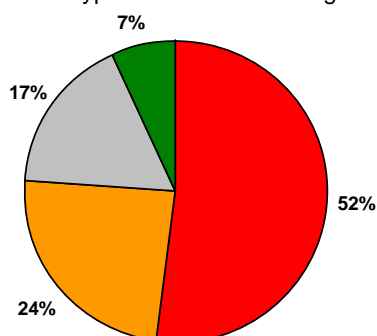
Figure 3: Conservation status of habitat types listed under Annex I of the Habitats Directive associated with agriculture and forest (Source: European Environment Agency, 2009,<sup>13</sup> percentages relate to the total number of assessments made).

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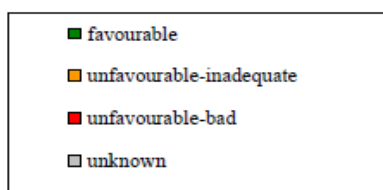
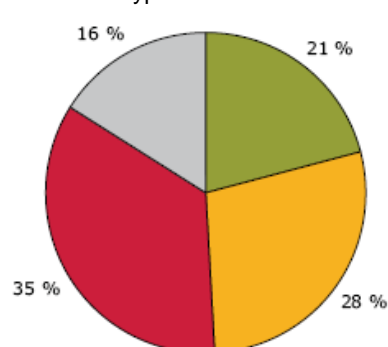
<sup>12</sup> According to the provisions of Article 17 of the Habitat Directive, the EU 25 Member States (i.e. excluding Romania and Bulgaria) reported, in 2008, on the conservation status of all the species and habitats listed in the Annexes of the Habitats Directive which occur on their territory. On the basis of this, the Commission produced a consolidated report on the conservation status of each species and habitat type at a biogeographical and EU level. These reports provide useful contextual information and are available at: <http://biodiversity.eionet.europa.eu/article17>.

<sup>13</sup> See report for the methodology used for this assessment: <http://www.eea.europa.eu/publications/eu-2010-biodiversity-baseline>

Habitats types associated with agriculture



Habitats types associated with forest



NOTE-"disclaimer": This report can be seen as the first ever comprehensive 'health check' of the EU's protected habitats and species. However it has to be noted that there was a wide difference in the amount of information provided by countries and its quality.

#### 4.1.2 Key forest species of Community interest that are of particular importance with respect to forest management in Natura 2000 and their conservation status

The definition for forest habitat types in Annex 1 of the Habitats Directive makes special reference to forests hosting species of Community interest. This means that both Annex II<sup>14</sup> and Annex IV<sup>15</sup> species have also to be considered in the conservation objectives of Natura 2000 forests. The conservation needs of species may differ from one species to another (nest protection, old wood needed for birds and insects, maintenance of ponds and clearings, resting areas....) and in relation to the habitat type's requirements.

The development of the list of 'key forest species' builds on previous work carried out by the European Environment Agency for the elaboration of the EU biodiversity baseline (EEA 2010<sup>16</sup>). Key forest species are defined as:

- ⇒ All species listed in Annex II and IV of the Habitats Directive for which forest is a preferred or a suitable habitat for individuals breeding, foraging, resting or wintering.
- ⇒ All bird species listed in Annex I of the Birds Directive that have more than 10% of their European population in one or more forest habitat types according to Tucker and Evans (1997).

Species for which forests are only occasionally used will not be considered in this work even if they were identified in the Biodiversity Baseline Report. Furthermore, to define the conservation status of Annex 1 Forest Habitat Types, typical species are proposed by

<sup>14</sup> Annex II: animals and plant species of Community interest whose conservation requires the designation of special areas of conservation

<sup>15</sup> Annex IV: animals and plant species of Community interest in need of strict protection

<sup>16</sup> List provided by ETC/BD

Member States in their Article 17 report, including numerous forests lichens, fungi and mosses.

In total **389 species listed in the Habitats Directive are considered to be key forest species** of which just over a third (151) are plants. Of the 389 species, 72 are priority species according to the Habitats Directive and more than half of these are plants.

Amphibians, Reptiles and Mammals are not particularly species-rich groups in Europe; it is therefore noteworthy that a very large proportion of amphibians have been identified as at least foraging within forests. A sizeable proportion of the key forest species are invertebrates even if saproxylic species are not well covered by the Habitat Directive annexes.

Table 3: Summary of key forest species

Group	Species listed on Annex II	Complementary species listed in Annex IV	Species of Community interest	Forest preferred or suitable habitat		Priority key forest species
Mosses	32	1	33	18	54.5 %	4
Ferns	19	1	20	9	45 %	2
Plants	536	60	596	151	25.3 %	41
Invertebrates	136	28	164	69	42.1 %	9
Amphibians	24	26	50	46	92 %	3
Reptiles	24	63	87	35	40.2 %	1
Mammals	54	63	117	61	52 %	12
<b>Total</b>	<b>825</b>	<b>242</b>	<b>1067</b>	<b>389</b>	<b>36,5 %</b>	<b>72</b>

More detailed information on the use of forest habitats is currently available for birds than for other species of Community interest. Birds may be assessed in relation to the following four criteria and datasets:

- ⇒ Proportions of populations using forest habitats as assessed by Birdlife International (Tucker and Evans, 1997 with adaptations).
- ⇒ Priority status as assessed by the Ornithological Committee.
- ⇒ Degree of dispersion in the wider environment.
- ⇒ Latest assessment of conservation status of the whole EU population by BirdLife International (BirdLife International, 2004).

**In total 91 out of the 195 birds listed in Annex I of the Birds Directive are considered to be key forest species**, including 22 that are considered to be priority species according to the Ornithological Committee, and therefore in need of special measures.

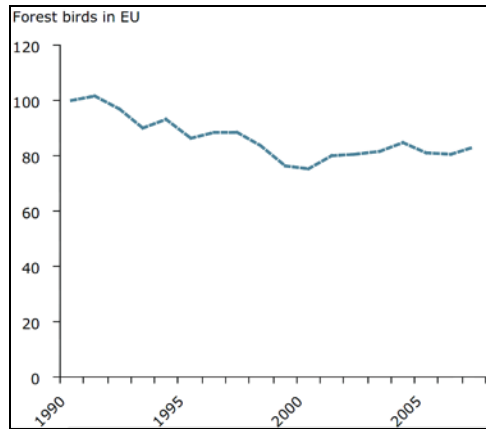
The analysis indicates that Mediterranean forest, shrub land and rocky habitats are particularly important for key forest birds because forest and other wooded land are frequently in mosaic in this area: several species are more related to wood rather than to forests. Also it should be noted that there is a particular level of threatened priority species in the different Macaronesian forests.

Concerning bird species in general, there is evidence of a small decline in the populations of bird species associated to forest since 1990 even if the decline appears to have eased in recent years<sup>17</sup>. It also has to be noted that some challenges to forest biodiversity can

<sup>17</sup> EEA Report No 4/2009.

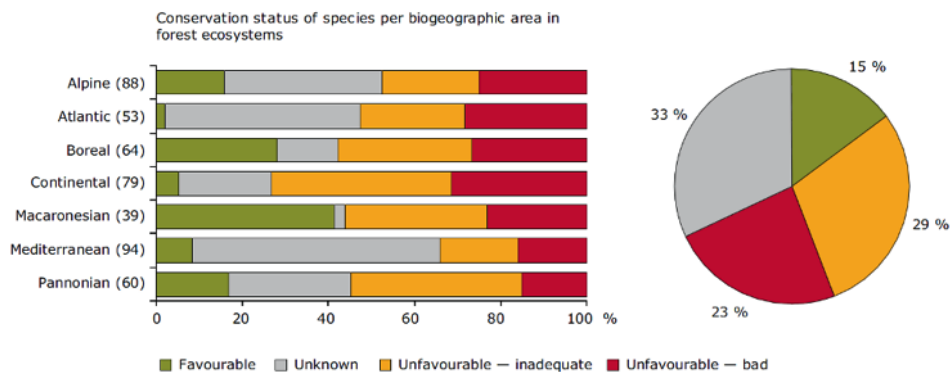
originate outside the forest sector<sup>18</sup>.

Figure 4: Trends in the common bird indicators for the European Union, base = 1990 (EEA, 2010)



The EU 2010 biodiversity baseline (EEA, 2010) has considered the conservation status of species of European interest in forest ecosystems (based on a list of 170 species from the Habitats Directive which are associated with forest ecosystems). The figure below shows that the situation is still unknown for numerous species (a third): in such cases the improvement of knowledge seems to be a key issue. Furthermore 52 % of the species have an unfavourable conservation status.

Figure 5: Conservation status of species of Community interest in forest ecosystems (statistics by region on the left, overall statistics on the right)



- Only 15 % of the assessments of forest species are favourable.
- Some 52 % of the assessments of forest species are unfavourable.
- Thirty-three of the assessments are unknown.
- The percentage of unknown assessments differs significantly among the different biogeographical regions.
- The Macaronesian and Boreal regions have the highest percentage of favourable assessments (respectively 30 % and more than 40 %).

**Note:** Geographical coverage: EU except Bulgaria and Romania; number of assessments in brackets.

**Source:** ETC/BD, 2008.

<http://www.eea.europa.eu/publications/progress-towards-the-european-2010-biodiversitytarget/>

<sup>18</sup> Green Paper on Forest Protection and Information COM(2010)66

#### *4.1.3 Overview of key forest habitat types and forest areas by biogeographical region, and most significant uses relevant to Natura 2000*

In the following text we provide an overview of the main forest habitat types and forestry areas included in Natura 2000 according to biogeographical region, We look at their conservation status in each region as reported in the Art. 17 reports and at the most significant forest uses.

##### ***Boreal biogeographical region***

The Boreal biogeographical region contains two sub-categories of forests – Boreal forests and Hemiboreal forests—with different characteristics and different types of prevailing use.

Boreal forests extend over large areas of Northern Finland and Sweden but also occur in small fragmented areas in Estonia, Latvia, Lithuania and in the Southern part of Sweden and Finland where they are represented by habitat types 9010, 9050 and 9060. Prevailing forest types are poor spruce forests with low productivity and mixed pine-spruce forests and boreal pine forests.

Fire caused by lightning strikes is the most important natural disturbance factor for boreal forests. It not only controls forest age structure, species composition and physiognomy but also shapes landscape diversity and influences energy flows and biogeochemical cycles within these forests (Goldammer et Furyaev 1996, Angelstam et Kuuluvainen 2004, Gromtsev 2002).

Most of the untouched or old-growth forests of Northern Europe are made up of these habitat types. This group of pine forests is highly sensitive to anthropogenic disturbances. A secondary mixed birch-pine forest replaces pine stands after clear cutting when fire is absent, whereas pine regeneration appears if clear-cut area is burned.

Hemiboreal forests (habitat types: 9020, 9030, 9040, 9070 and 9080) cover the transitional forest zone between the boreal coniferous and temperate deciduous forests. They occur in the southern part of Fenno-Scandinavia and in the eastern part of the Baltic States (Estonia, Latvia and Lithuania). An important characteristic of the hemiboreal forest is that its structural and compositional diversity is shaped by a complicated mixture of natural (fires, windbreaks) and cultural disturbances (grazing, pollarding), that maintain a continuous presence of large old trees and deadwood.

Some forest habitats consist of deciduous trees such as birch, aspen or contain mire and swamp forests. They are transitional habitats to other forest types, but in natural conditions such a transitional phase can be very long.

10 habitats out of 17 forest habitat types present in the Boreal region were evaluated as having an unfavourable-bad conservation status at the biogeographical level. All remaining habitat types were evaluated as unfavourable-inadequate. The following table shows results of the conservation status evaluation for the main boreal habitat types mentioned above:

Habitats	Coverage by Natura 2000 in region in km <sup>2</sup> (%)	Conservation status
9010* Western taiga	394657 (47%)	U2
9020* Fennoscandian old broad-leaved deciduous forests	66500 (25%)	U2
9030* Natural forests of primary succession of landupheaval coast	20400 (37%)	U1
9040 Nordic subalp/subarctic forests <i>Betula pub. czerepavoni</i>	14568 (68%)	U1
9050 Fennoscandian herb-rich forests with <i>Picea abies</i>	175442 (31%)	U2
9060 Coniferous forests on, or connected to, glaciofluvial eskers	55645 (15%)	U2
9070 Fennoscandian wooded pastures	77747 (18%)	U2
9080* Fennoscandian deciduous swamp woods	134223 (24%)	U2

U1: Unfavourable-inadequate U2: unfavourable-bad

The prevailing functions of the Boreal forests are socio-economic ones: recreation and conservation of biodiversity. On the southern part of the region the habitats' distribution is fragmented. Due to better productivity as well as more favourable growing conditions these forests are used for the production of wood. Only a small portion has a natural structure and is mainly used for soil protection.

In hemiboreal forests the prevailing forest function is wood production while integrating environmental and social benefits. Harvesting of non-wood forest products (e.g. mushroom and berry picking) is also important in forests in the hemiboreal zone.

### ***Atlantic biogeographical region***

Beech forests represent the prevailing forest habitat type with the most characteristic forest habitat type being Atlantic acidophilous beech forests with *Ilex* – 9120. Other widely distributed forest habitats in SCIs of the Atlantic biogeographical region are 91E0, 9230, 9130, 9340. Wooded dunes can mainly be found in this biogeographical region.

Out of the 24 forest habitat types present in the Atlantic region none had been evaluated as having a favourable conservation status. Altogether 11 habitats were evaluated as having an unfavourable-bad conservation status at the biogeographical level and another 4 had an unfavourable-inadequate status. All remaining habitat types were evaluated as unknown or 'unknown, but not favourable'.

There are extensive areas with a long well-documented forest history thanks to the fact that forest management plans have been in place for centuries. Oak and beech are the main and most widespread deciduous species in managed forests. Natural regeneration has increased with recent forest management practices. This will consolidate local provenances, where they still exist. Most deciduous forests are managed as even-aged forest, although other traditional management practices such as wood pastures or coppice still exist, especially in rural areas.



Coniferous plantations for timber production are quite widespread in the Atlantic region and they contain both native domestic tree species as well as exotic species. Natural coniferous or mixed forests are relatively speaking rarer.

Forest distribution is very diverse and uneven. Afforestation has been performed in a variety of areas, for instance, near urban areas where they are used for recreation, or on land abandoned by agriculture, on remote grazing areas or low yielding arable land such as on sandy or peaty soils.

The following table shows the results of the conservation status evaluation for the main habitat types in Atlantic region as mentioned above:

Habitats	Coverage by Natura 2000 in region in km <sup>2</sup> (%)	Conservation status
9120 Atlantic acidophilous beech forests with Ilex	67122 (40%)	U2
9130 Asperulo-Fagetum beech forests	80515 (38%)	U1
9230 Galicio-Portuguese oak woods Quercus robur & Quercus pyrenaica	49295 (37%)	XU
9340 Quercus ilex ad Quercus rotundifolia forests	22948 (39%)	XX
91E0* Alluvial forests with Alnus glutinosa & Fraxinus excelsior	268434 (47%)	U2

XU: Unknown but not favourable    XX: unknown

### ***Continental biogeographical region***

The climatic conditions and the soils of this region are best suited for deciduous forest. Different species are predominant depending on geographical location. However, coniferous forests can also often dominate in this region (e.g. Poland), especially when they have replaced local deciduous species in managed forests. In most Member States, there is a long tradition of drafting forest management plans for the management of deciduous forests.

*Luzulo-fagetum* beech forest (9110) represents the climax vegetation on the acidic soils of collinear and mountainous regions of central Europe and mountainous regions in Southern Europe. Beech (*Fagus sylvatica*) dominates the tree layer, together with Spruce (*Picea abies*) and European Silver Fir (*Abies alba*) in mountains. More than 72% of the total area of this Annex 1 habitat type within Natura 2000 is encountered in the Continental biogeographical region.

Rivers of continental Europe are naturally bordered by riverine forests. The forest belt at the river banks is often referred to as riparian forest. All over the region, vast stretches of riverine forests were first converted to grasslands and used for grazing and/or hay-making. A significant part of these forests has also disappeared along the major river banks, due to river regulation as well as conversion into agriculture or urban areas.

Many floodplain areas are also intensively used for plantations of hybrid poplar and other (also non-native) tree species with short rotation periods. When these activities are abandoned, riverine forests sometimes recover naturally. This process may take 50–100 years and will rarely result in the same species composition. The success of restoration normally depends on access to dynamic fluvial processes such as flooding.

Conifers become naturally more abundant towards the East and are also in many areas favoured by forestry, especially on sandy soils or at higher altitude. This is the case, for example, in Poland with Scots pine (*Pinus sylvestris*) and on the eastern slopes of the Vosges in France together with the Black Forest in Germany with Norway spruce (*Picea abies*), both species being also generally present in the limited sub-alpine belts of the continental mountains. There are very few natural forests remaining. In the eastern part of the region there are large extensively managed forests. The largest area of old lowland continental forests in Europe - Bialowieza – is situated on the border between Poland and Belarus.

Altogether 35 forest habitat types are present in the Continental region, out of which only 6 were evaluated as being in a favourable conservation status at biogeographical level. On the other hand 15 were evaluated as having unfavourable-bad status and another 13 as an unfavourable-inadequate conservation status. The evaluations for the most important habitat types are summarized in the following table:

Habitats	Coverage by Natura 2000 in region in km <sup>2</sup> (%)	Conservation status
9110 Luzulo-Fagetum beech forests	282142 (55%)	U2
9130 Asperulo-Fagetum beech forests	300270 (56%)	U1
9180* Tilio-Acerion forests of slopes, screes and ravines	205548 (59%)	U1
91E0* Alluvial forests with <i>Alnus glutinosa</i> & <i>Fraxinus excelsior</i>	519678 (49%)	U2

Forestry in the Continental biogeographical region largely relies on a few timber species (pine, spruce, fir, larch, oak and beech). As seeds originating from a limited set of local collection sites (provenances) are widely used for forest regeneration, the genetic origin of the commercially used species has been narrowed down. However, there is a trend towards natural regeneration with local provenances. Programmes for managing tree genetic resources are also being developed. Game management is also very relevant for the forests in this region.

### ***Alpine biogeographical region***

The Alpine biogeographical region is composed of several European mountain ranges and more than half of the region is covered by forests. Forest habitats are quite diverse in this biogeographical region as mountain ranges are in contact with many other biogeographical regions. Most characteristic forest habitats are alpine coniferous forests (Acidophilous *Picea* forests of the montane to alpine levels, 9410), but a relatively large proportion of the forests in SCIs of Alpine biogeographical region also consist of Western Taiga habitat (9010, Scandes) and Asperulo-Fagetum beech forests (Carpathians, Rhodopes, Dinarides, Alps, Apennines and Pyrenees).

Of the 37 forest habitat types present in the region 11 were evaluated as having a favourable conservation status at the biogeographical level, 7 have an unfavourable-bad conservation status and another 14 have an unfavourable-inadequate conservation status. The evaluation of FCS on biogeographical level for the most significant habitat types is summarized in the table below:

Habitats	Coverage by Natura 2000 in region in km <sup>2</sup> (%)	Conservation status
9410 Acidophilous Picea forests of the montane to alpine levels	66245 (54%)	U1
9010* Western taiga	42788 (78%)	U2
9110 Luzulo-Fagetum beech forests	44030 (45%)	U1
9130 Asperulo-Fagetum beech forests	69590 (55%)	U1
9150 Medio-European limestone beech forests Cephalanthero-Fagion	53113 (59%)	U1
9180* Tilio-Acerion forests of slopes, screes and ravines	77083 (59%)	U1
91E0* Alluvial forests with Alnus glutinosa & Fraxinus excelsior	115547 (56%)	U2

Alpine forests generally have important ecological and socio-economic functions such as recreation, conservation and water retention. They also play an important role in preventing soil erosion, avalanches and landslides. Timber production is also relevant except for the forests in high altitudes, which are usually maintained as protective forests.

They are also used for hunting and breeding/managing game. Forests in medium altitudes often differ in structure from the natural forests because of the introduction of productive species as spruce or pines. This may reduce their ecological stability and make them more vulnerable to natural disturbances.

Even-aged stands predominate in the Alpine region even if uneven-aged stands may be locally traditional or more widespread at higher altitudes. Selective harvesting is practised only on small areas of productive forests (mainly mixed spruce-fir and beech forest composition). Beech forests in subalpine altitudes are managed by under storey method of harvesting to allow natural regeneration. Clear cutting is also widely applied (Slovakia, Romania).

Traditional pastoral farming practices, the mainstay of the mountain economy for centuries, have modified the natural distribution of subalpine forests. However, pasturing is now rapidly disappearing due to land abandonment.

Some parts of Carpathians, Alps, Pyrenees and Rhodopes are covered in forest habitats which are dominated by oak (but also Pinus and Abies). These habitats are often coppice forests or other semi-natural forests. Traditional management in some of these forests has been abandoned with the result that they are turning into dense beech, hornbeam or ash forests.

### ***Pannonian biogeographical region***

The Pannonian region is characterized by other habitat types than forests. Today, only around one sixth of the region is forested. Whilst oak forests, floodplain forests as well as steppe forests represent the natural forest vegetation of the region, most of the forested areas today are secondary forests dominated by the non-native Black Locust species (*Robinia pseudoacacia*).

The Black Locust was introduced in around 1600 from North America and has since been extensively planted on mesic to dry, sunny and often disturbed mineral rich soils in the lowlands. The proportion of Black Pine has slowly decreased in last years.

From the 16 forest habitat types present in the Pannonian biogeographical region 14 were evaluated as having an unfavourable-bad conservation status, 1 as having unfavourable-inadequate status and 1 as having favourable conservation status. The table below summarizes the results of conservation status evaluation at the biogeographical level for most significant habitat types:

Habitats	Coverage by Natura 2000 in region in km <sup>2</sup> (%)	Conservation status
91E0* Alluvial forests with <i>Alnus glutinosa</i> & <i>Fraxinus excelsior</i>	64378 (59%)	U2
91F0 Riparian mixed forests of <i>Quercus robur</i> , <i>Ulmus laevis</i> , <i>Fraxinus excelsior</i> ...	37415 (53%)	U2
91G0* Pannonic woods with <i>Quercus petraea</i> and <i>Carpinus betulus</i>	31165 (51%)	U2
91M0 Pannonian-Balkan Turkey Oak-sessile Oak forests	27960 (52%)	U2

Grazing in forests has played an important role in forming the oak forest habitats and the steppe forests. However, grazing has declined over the last 50 years. Recovery of oak forests as a response to this management change is very slow, but steppe forests are more rapidly affected by succession and are as a result changing their structure.

Prevailing and typical management of oak woods was coppicing. It was largely abandoned during the last century and the change in preferred forest management as well as intensive forest cultivation has led to changes in the structure and tree species composition of the forests. Due to these circumstances valuable oak and oak-hornbeam forests have been transformed into mono-dominant forests of hornbeam, ash, lime, beech and introduced species.

Wood demand is increasing in this region due to biomass energy development and paper industry needs. The harvesting period is shorter due to this demand. A high portion of wood is also used as fuelwood (in Hungary more than 50 %).

### ***Steppic biogeographical region***

In the EU27, the Steppic region is present only in Romania. The term "steppe" denotes areas in a temperate climate dominated by drought-resistant herbaceous plants, dominated by grasses, whereas trees are usually absent. Steppe vegetation is dominant in the region, though woodlands – naturally occurring in humid areas in river valleys and landscape depressions – are by no means completely absent.

The high permeability of the soil is an important factor. In some places the wooded steppe has probably regressed because of overgrazing by herds of wild and domestic animals, as well as fires linked to pastoral activities.

The total number of Annex I forest habitat types in the Steppic region is only 8. The most common are Dacian oak (91Y0) and hornbeam forests and willow and poplar galleries near the Danube river (92A0). Typical floodplain forests, gallery woods, marshes and sand banks appear both on the banks of the river and on the many small islands of the Danube river.

As the Steppic region was not covered by the 2007 Art. 17 reports, an evaluation of the forest habitat types' conservation status at biogeographical level is not yet available.

Fragmentation of forests seems to be the main problem in this region. Fire management of grasslands leads to the destruction of the last remnants of oak and oak-hornbeam forests. Other main problems are the intensification of forestry and agriculture and the associated use of pesticides, which changes the vegetation around the agricultural land and in the degraded forests

Another problem is the expansion of exotic and invasive species near the rivers and floodplain forests. The degradation of wetlands, including floodplain forests, has been caused, among other factors, by the change in weather conditions that have become drier since the 1850s. Floodplain forest near the Danube River, except for the areas which are flooded or islands are otherwise managed for production of poplar wood.

### ***Black sea biogeographical region***

This biogeographical region is only present in Bulgaria and Romania within the EU27. Oak woods cover more than two thirds of the total forest area in Natura 2000 sites of this region. Other important forest habitats are the floodplain forests and rare Eastern Beech forests (with *Fagus orientalis*). Because there were no glaciers here during the last periods of the Ice Age, very interesting species are present.

As the Black Sea region was not covered by the 2007 Article 17 report an evaluation of the forest habitat types' conservation status at biogeographical level is not yet available.

In this area, forests were very intensively damaged over the last 10 years. In Bulgaria intensive urban developments on the coast occurred. Another problem has been the intensification of forestry in combination with illegal harvesting in the Strandzha forests. This has led to the destruction of habitats and species populations that are unique for the EU27.

Important functions of forests in Natura 2000 sites of this region are the regulation of rivers flowing from the floodplains into the Black Sea, the prevention of soil erosion and the protection of shifting of dunes around the sea coast. Grazing inside the forests is still a traditional management practice although it is declining. For the last 5-10 years, recreation and tourism have played an increasingly important role in Natura 2000 sites.

### ***Mediterranean biogeographical region***

Climate determines the forest physiognomy of thermo- and meso-Mediterranean vegetation. It is characterised by the dominance of broadleaved sclerophyllous or lauriphyllous evergreen trees + Pinus (i.e. *Pinus halepensis*). Water availability is one of the key limiting climatic factors for tree-growth.

The five most extensive forest habitat types in Natura 2000 sites of the Mediterranean biogeographical region are: 9340, 9540, 9230, 9530 and 9330. Together they cover around 2 million hectares. Of the 45 habitat types present in the region, 3 were evaluated as having an unfavourable-bad conservation status, 8 as an unfavourable-inadequate status, 20 as a favourable conservation status. The status of the remained is either unknown or 'unknown, but not favourable'. The table below summarizes the results of the conservation status evaluation at a biogeographical level for the most significant habitat types:

Habitats	Coverage by Natura 2000 in region km <sup>2</sup> (%)	Conservation status
9230 Galicio-Portuguese oak woods <i>Quercus robur</i> & <i>Quercus pyrenaica</i>	70456 (67%)	XX
9330 <i>Quercus suber</i> forests	57212 (74%)	XU
9340 <i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests	266335 (67%)	XX
9530* (Sub-)Mediterranean pine forests with endemic black pine	41030 (75%)	U1
9540 Mediterranean pine forests with endemic Mesogean pines	74387 (58%)	XU

In the Mediterranean, the structure of broadleaved evergreen forests has been profoundly shaped by the long tradition in agro-forestry and coppice silvicultural systems (dehesas, montados). Forest degradation is a very common phenomenon, due to the complex interaction of harsh environmental conditions (drought, aridity, soils prone to erosion) and anthropogenic influences (fire, grazing, urban and agricultural land expansion, inadequate forest exploitation). Oak and pine forests of the Mediterranean region are adapted to fire and natural regeneration is widely promoted in order to increase the extent of the forested areas.

Forests in the Mediterranean region have key environmental functions, mainly to prevent soil erosion and regulate water cycles. Wood production is mainly oriented towards round wood and in some rural regions also to fuel wood. In the Mediterranean region agricultural and forestry uses take place in the same areas e.g. grazing in the forests. In Balkan countries, fire is still used as a tool in traditional management systems (e.g. shepherds fires).

### ***Macaronesian biogeographical region***

The largest forests in the Macaronesian region are situated on the Canary Islands, and are composed of endemic pine forests (*Pinus canariensis*) and forests of sclerophyllous or lauriphylous evergreen trees. These forest types are related to the warm-temperate humid zones of Macaronesia. They are very rich in terms of flora. A small proportion of forests in the Canary Islands are also composed of endemic natural palm groves.

All together 7 forest habitat types are present in the region, 5 were evaluated as having unfavourable-bad conservation status the other 2 have an unfavourable-inadequate conservation status. The table below summarizes the conservation status evaluation at a biogeographical level for most important forest habitat types:

Habitats	Coverage by Natura 2000 in region in km <sup>2</sup> (%)	Conservation status
9550 Canarian endemic pines forests	4400 (94%)	U1
9370* Palm groves of Phoenix	3300 (72%)	U2
92D0 Southern riparian galleries & thickets Nerio-Tamaric...	2500 (48%)	U2
9320 <i>Olea</i> and <i>Ceratonia</i> forests	1700 (35%)	U2

The main use of forests and other natural habitats in Macaronesia is related to recreation, tourism and soil protection. Management to prevent wildfires and to reduce pressure

caused by tourism are important issues in the Macaronesian region. Invasive species is also a key issue for the management of Natura 2000 sites with forest habitats.

#### 4.1.4 Potential contribution of forest management in Natura 2000 areas to wider EU biodiversity strategy

Even if the establishment of the Natura 2000 Network was considered as a significant success, the 2010 biodiversity target was not met for various reasons<sup>19</sup>. A new biodiversity strategy was endorsed with a vision for 2050 and a 2020 headline target<sup>20</sup>:

At least three targets<sup>21</sup> are directly relevant for forests within Natura 2000 areas:

- ⇒ **Target 1** focuses on ensuring the full and timely implementation of the Birds and Habitats Directives and on improving the conservation status of species and habitats of Community interest. The target is to achieve a significant and measurable improvement in their conservation status by 2020. This will require significant additional efforts to improve the effective management of Natura 2000 sites and establish the necessary conservation measures for the habitats and species concerned;
- ⇒ **Target 2** focuses on ecosystem services and green infrastructure. This will be a key point also for forests because of their dominant area in the EU and the many ecosystem services they offer, and because of the impact of climate change and fragmentation.
- ⇒ **Target 3B** focuses on increasing the contribution of forestry to maintaining and enhancing biodiversity. It sets as a target to have forest management plans or equivalent instruments, in line with Sustainable Forest Management, in place for all forests that are publicly owned and for forest holdings above a certain size (to be defined) that receive funding under the EU Rural Development Policy so as to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by forestry and in the provision of related ecosystem services as compared to the EU 2010 Baseline.

These have, in turn been translated into a series of 20 specific action points. Target 3B for instance identifies the following actions to be undertaken between now and 2020:

- ⇒ **Action 11: Encourage forest holders to protect and enhance forest biodiversity**
  - 11a) Member States and the Commission will encourage the adoption of Management Plans, *inter alia* through use of rural development measures and the LIFE+ programme.
  - 11b) Member States and the Commission will foster innovative mechanisms (e.g. Payments for Ecosystem Services) to finance the maintenance and restoration of ecosystem services provided by multifunctional forests.
- ⇒ **Action 12: Integrate biodiversity measures in forest management plans**
  - 12) Member States will ensure that forest management plans or equivalent instruments include as many of the following measures as possible
    - a) Maintain optimal levels of deadwood, taking into account regional variations such as fire risk or potential insect outbreaks
    - b) Preserve wilderness areas;

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<sup>19</sup> The 2010 assessment of implementing the EU biodiversity Action Plan, Com 2010 548 final of 8.10.2010

<sup>20</sup> *Our life insurance, our natural capital - an EU biodiversity strategy to 2020* COM(2011) 244 of 3.5.2011

<sup>21</sup> Other targets, e.g. target 2 with the green infrastructure, will also serve the purpose of this guidance document.

- c) Ecosystem-based measures to increase the resilience of forests against fires as part of forest fire prevention schemes, in line with activities carried out in the European Forest Fire Information System (EFFIS);
- d) Specific measures developed for Natura 2000 forest sites;
- e) Ensuring that afforestation is carried out in accordance with the Pan-European Operational Level Guidelines for SFM, in particular as regards the diversity of species, and climate change adaptation needs.

Apart of promoting integrated management plans for Natura 2000 forests, the guidance document could also address issues such as: exploring how the three first measures (deadwood, wilderness, fires) can be implemented within Natura 2000 (where and how) and defining which kind of other specific measures for Natura 2000 could be implemented.

In conclusion, ensuring the appropriate conservation protection and management of forests within Natura 2000 sites will be an important element of achieving the objectives and targets set out in the EU Biodiversity Strategy to 2020.

#### **4.2 Pressures and threats to forests in Natura 2000**

The reporting exercise under Article 17 (Habitats Directive) performed in 2007 included the identification of the major pressures and potential future threats to the habitats and species of Community interest. The data provided by the Member States is, however, difficult to analyse as the list of threats, pressures and activities is not sufficiently detailed and moreover the approach to the analysis differed considerably across the Member States.

For example the reported threats and pressures were not ranked in order of importance and the majority of habitats and species were reported as subject to most groups of threats and pressures. This prevents a more in-depth analysis. However, on the whole 'Agriculture and forestry' and 'Natural processes' have been reported as the most important pressures and threats. The high profile of 'Agriculture and forestry' is not surprising as the habitats of potential agricultural or forestry interest represent a very high proportion of the habitats of Community interest.

For species, 'Agriculture and forestry', 'Natural processes' and 'Pollution and other human impacts/activities' represent the major pressures and threats. Many species are associated with forests or semi-natural agricultural habitats or are affected by changes in this component of the landscape. Unsustainable forest management, abandonment of the pastures, modification of the cultivation practices, removal of dead trees, removal of hedges, inappropriate fertilisation and use of pesticides are the most frequent pressures and threats from the category 'Agriculture and forestry' (EEA, 2010). At the same time the State of Europe's Forests 2011<sup>22</sup> indicates positive development in EU's forests. According to this report, EU's forest area and the area of protected forests are expanding and forest management practices increasingly promote conservation and sustainable use of biodiversity.

The major challenges for forest habitats and species in Natura 2000 are in certain cases related to unsustainable forest management, but also to activities or processes reported under 'Natural processes' and 'Pollution and other human impacts/activities'. This also includes global environmental concerns such as fragmentation and climate change. The

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<sup>22</sup> UNECE/FAO/Forest Europe report State of Europe's Forests 2011- Status and trends in Sustainable Forest Management in Europe



question of forest fires is more ambiguous but fires have a significant impact on the management of Natura 2000 sites. Other environmental factors must also be considered, such as pollution, pathogens, alien species, storms...

The challenge to improve the conservation status of Natura 2000 forests will differ between biogeographical regions depending on their characteristics. More specific pressures and threats must therefore be identified during the preparation of the new guidance document.

For the purpose of the Article 17 reporting, the Habitats Committee has adopted a new list of threats, pressures and activities related to forestry. This new list is more complex, more structured and clearer in the meaning and description. It provides preliminary information on particular issues related to forest practices that need to be addressed. *Planting, replanting, clearance and use of biocides, hormones, chemicals, removal of dead and dying trees* are some of the main factors appearing in this list. However, other categories such as *removal of forest undergrowth* or *grazing in forest* may have also positive effects on forest habitats and species.<sup>23</sup>

#### 4.2.1 Global environmental concerns for forest habitats and specie

##### Climate change

Climate change may have several impacts on forests: it could modify the range of habitats and species and on-going, ecosystem processes, it could also lead to an increase in accidental events (storm, fire, flood...) and alter the role of forest ecosystems in carbon storage.

The effects of climate change on beech forest illustrate the type of current and future impacts one might expect to see: a longer growing season, an increase in forest productivity, a northward shift of species' ranges and a change in the interactions between trees and pathogens are all expected in the next decades (Legay 2006<sup>24</sup>). The modification of rainfall regimes could also be a key parameter.

A recent simulation exercise carried out by two French research institutes (Badeau et al. 2004<sup>25</sup>) reveals the potential change in beech distribution area due to global warming. It predicts that beech occurrence will decrease significantly and Luzulo-Fagetum beech forests (9110) will be degraded or disappear within the next hundred years in the Atlantic region or in the lowlands. This habitat type could become restricted to mountainous and continental regions.

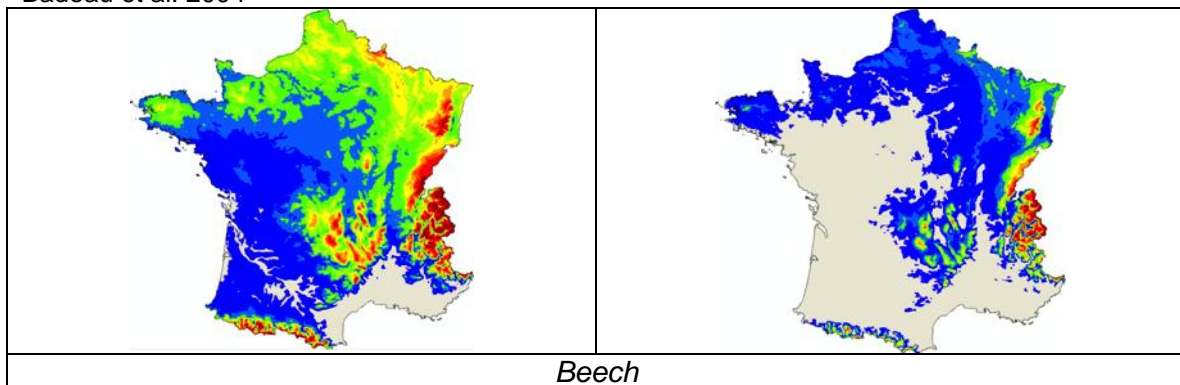
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<sup>23</sup> see Reporting under article 17 of the Habitats Directive reference portal [http://bd.eionet.europa.eu/article17/reference\\_portal](http://bd.eionet.europa.eu/article17/reference_portal)

<sup>24</sup> Legay M. & Mortier F., 2006. *La forêt face au changement climatique. Adapter la gestion forestière. Synthèse de l'atelier ONF/INRA du 20.10 2005. Les dossiers forestiers N°16, 2<sup>e</sup> édition, ONF INRA39 p*

<sup>25</sup> Badeau V., Dupouey J-L., Cluzeau C., Drapier J. & Le Bas C. 2004. *Projet Carbofor. Séquestration de carbone dans les grands écosystèmes forestiers en France. Tâche D1. Modélisation et cartographie de l'aire climatique potentielle des grandes essences forestières françaises. INRA/IFN. Ecofor GIP. Institut National de la Recherche Agronomique. 49 p. + annexes*

Figure 7: Climatic area in 2000 (left) and at the end of the 21th century (right) - Source: INRA, Badeau et al. 2004



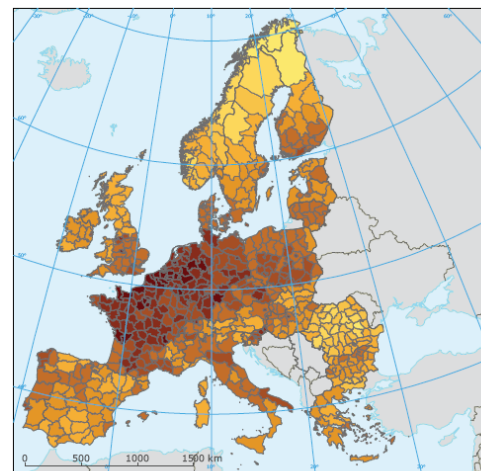
*Legend: blue represents low occurrence probability, red high occurrence probability*

The rapid rate of human-induced climate change seems to overcome the natural ability of ecosystems to adapt. The challenge today is to find ways to adapt forest management techniques to take account of this inevitable trend: It will also be important to strengthen the resilience of forest ecosystems in order to mitigate the effects of climate change.

### Fragmentation

European ecosystems are fragmented by urban sprawl and a rapidly expanding transport network (EEA, 2009). But fragmentation can also occur as a result of changes inland use e.g. from forests to agricultural land. The map on the right was published by EEA (2011) in a study on landscape fragmentation in Europe. Brown areas show the most fragmented NUTS 2 / NUTS 3 regions.

Infrastructure development reduces the opportunities for organisms to disperse and affects their ecological needs. Road infrastructure development includes not only highways, but also secondary roads, which can have an impact on forests habitats and species in their vicinity.



### Forest fires

Forest fires may be detrimental for most habitats and species, and also pose a risk to human safety. They also have significant socio-economic consequences. For these reasons they are considered to be an important threat. On the other hand forest fires can be considered as part of the natural disturbances necessary for the dynamics of some forest habitats and species, leading to natural regeneration of the forest ecosystem (e.g. in Boreal or Mediterranean forests). Depending on forest ecosystem health and intensity of fire, forest fires regularly damage the fundamental functionality of forest ecosystems. This then requires particular forest management measures.

An average of 500,000 ha of forest is burnt in the EU annually. Over 50,000 forest fires are ignited each year in the most affected Member States (Portugal, Italy, France, Spain and Greece). As well as causing human casualties, damaging property and reducing soil fertility through loss of organic matter, large fires hamper biodiversity conservation. In

2009, a burned area of 73,625.85 ha was recorded within Natura 2000 sites<sup>26</sup>. This figure corresponds to 30.6% of the area burned in the countries in which Natura 2000 sites were affected, i.e. Bulgaria, France, Greece, Italy, Portugal, Spain and Sweden. Seriously affected forests in Natura 2000 sites face a major challenge to recover pre-fire condition particularly for biodiversity.

#### *4.2.2 Other environmental threats to forest habitats and species*

The threats and pressures to forest ecosystems in relation to Natura 2000 include also a number of other environmental factors frequently mentioned by authorities and stakeholders. Some of the factors mentioned below represent a prevailing ecological issue that influences the status and development of the forest ecosystem. In some cases these occur as a consequence of human activities / society development.

The following text lists the most commonly mentioned issues:

- ⇒ Pollution (acidification) and eutrophication of forest soils leading to soil and forest habitat degradation. Increased use of agro-chemicals, including fertilisation and pesticides.
- ⇒ Insects and pathogenic outbreaks are undesired in production forests but can be considered as part of natural dynamic (allowing natural regeneration) at least in strictly protected areas;
- ⇒ Invasive plant species can significantly reduce natural forest diversity;
- ⇒ Game and livestock can increase diversity in forests (e.g. by selective grazing) but if kept in densities above the carrying capacity of habitats they are likely to alter forest ecosystems in a way that reduces biodiversity.
- ⇒ Storms (windfalls) represent a natural disturbance that increases forest diversity and dead wood alike, but it is undesired in economic forests.

#### *4.2.3 Forestry practices*

(see also chapter 4.3)

Member States apply a whole range of forest management practices in Natura 2000 areas. Forestry practices can have either positive or negative impacts on forest ecosystems but the situation varies very much from one forest area to another and must therefore be assessed on a site by site basis. Some practices may have a positive effect in one forest but be inappropriate in another.

It will therefore be important during the elaboration of the guidance on Natura 2000 and forestry to develop a greater understanding of the conservation needs of key forest species and habitats of Community interest as they relate to different forest systems and conditions and identify best practices wherever possible based on practical management experiences. . .

The type of forest management and use will also be heavily influenced by the motivation behind the forest's designation: was it designated because it is an Annex I forest habitat types, or because it is a core habitat for one or more of the key forest species, or has it been included in the site in order to contribute to the overall spatial and ecological coherence of the site. The type of practices that is beneficial or detrimental to the overall

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<sup>26</sup> *EFFIS newsletter September 2009*

conservation objectives of Natura 2000 is likely to be different in each case and will influence what is considered a threat or benefit for Natura 2000.

Practices may also vary on the biogeographical scale (as the needs of the prevailing habitat types varies) and will be influenced by whether the forest is in public or private ownership. The overall objective of contributing to improving the conservation status of the key forest species and habitats of Community interest remains the same but how it is achieved needs to be examined in greater detail in order to gain a better understanding of the process. .

The concept of non-intervention management in particular should be explored further. In certain cases, it can represent an important management approach for particularly rare and vulnerable forest habitats or specialized forest species within Natura 2000 sites (wilderness areas, protected areas).

The specific requirements for the conservation management of certain habitats and species of Community interest have been analysed in several projects and studies at EU level, such as the Wildlife and Farming Initiative, the Management Models for Natura 2000 habitats, and also at the national level in different EU countries. This can provide some valuable pointers for the elaboration of the guidance document. It will also be useful to examine and showcase different case studies from across the EU in order to help illustrate best forestry practices.

### **4.3 Nature legislation requirements for Natura 2000 forests**

#### *4.3.1 Summary of the EU nature legislation*

The Birds and Habitats Directives are the cornerstones of the EU's biodiversity policy. Both Directives enable Member States to work together, within a common legislative framework, to conserve Europe's most valuable species and habitats across their entire natural range within the EU, irrespective of political or administrative boundaries. The Directives have two main purposes:

- ⇒ To protect rare and endangered species across their entire natural range within the EU through a series of species protection provisions;
- ⇒ To establish a coherent ecological network of Special Areas of Conservation and Special Protection Areas (collectively known as Natura 2000 sites) to enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range.

This Natura 2000 Network is the largest ecological network in the world. It comprises sites designated under both the Habitats Directive and the Birds Directive. By December 2011, more than 26,000 sites were included in the Natura 2000 Network. Together, they cover around 18% of the land area in the EU27 with significant additional marine areas. With the Natura 2000 Network on land now almost complete, the main focus now is on the management of the Network.

The Natura 2000 Network is central to ensuring that the natural habitat types and the species protected by the two nature directives are maintained or, where appropriate, restored at a favourable conservation status in their natural range (Art. 3 of the Habitats Directive).

The two Directives require that Member States do more than simply protect the listed species and habitat types from further degradation. They must also undertake positive management measures, where required, to ensure their populations are maintained and restored. The ultimate objective is for them to reach a favourable conservation status<sup>27</sup> throughout their natural range within the EU.

#### 4.3.2 *Design and implementation of suitable measures for the management of forest in Natura 2000*

The guidance document will analyse and provide recommendations on relevant issues concerning the design and implementation of forest management measures in Natura 2000 sites, which contributes to achieving the sites' conservation objectives and to improving the conservation state of those species and habitats of Community interest for which the site has been designated.

Within Natura 2000 sites, Member States must:

- ⇒ Take the necessary conservation measures involving appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites. (Article 6.1)<sup>28</sup> In accordance with the principle of subsidiarity, it is left up to Member States to decide which option to follow.
- ⇒ Take appropriate steps to avoid the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of the Directive. (Article 6.2).

Member States have up to 6 years after the inclusion of the site on the Community list of Sites of Community Importance under the Habitats Directive (or in the case of Special Protection Areas under the Birds Directive immediately upon classification) to designate the site as a Special Area of Conservation (Article 6.1). They must then also identify and apply the necessary conservation measures. To help decide which conservation measures should be undertaken on individual Natura 2000 sites, the Habitats Directive encourages the development of management plans. These may be specifically designed for the site in question or integrated into other plans, such as forest management plans.

Considering the scale, scope and diversity of over 26,000 Natura 2000 sites within the Network and the large number of land uses, stakeholders and economic activities that are either directly or indirectly concerned by Natura 2000, the correct and effective implementation of management measures can pose a real challenge. There is rarely a standard formula for implementation; instead the application of the management measures often needs to be tailor-made while considering the site's characteristics, its socio-economic context, and the needs of the protected species and habitats present.

For this to work effectively though, it is essential that the competent authorities and interested parties have a common and clear understanding of the legal provisions under the Directives and how to best apply them in practice. Hence the importance of

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<sup>27</sup> *The concept of Favourable Conservation Status is not mentioned in the Birds Directive but there are analogous requirements, i.e. all SPAs must still be subject to special habitat conservation measures in order to ensure the survival and reproduction of the Annex I birds in their area of distribution.*

<sup>28</sup> *Analogous provisions foreseen under the Birds Directive for SPAs*

stakeholder dialogue and information, guidance documents and examples of best practice.

The development of integrated approaches is also critical to the management of Natura 2000 sites. **Integrated management of Natura 2000 sites** requires a concerted action by all relevant stakeholders involved in the implementation of socio-economic activities and land use in the site.

The European Commission (DG ENV/B3) has established an *Expert Group on Natura 2000 management*, composed of representatives of Member States and stakeholders. The current focus is on the development of a common understanding as regards SAC designation and the setting of conservation objectives and measures.

The new guidance document on Natura 2000 and forestry will be developed with the help, expertise and experience of this Expert Group and of the Standing Forestry Committee and the Advisory Group on Forest and Cork who will all invited to participate or to nominate experts. This approach will ensure the close involvement all stakeholder groups and proceed following a bottom-up approach.

In carrying out this work, experience can be drawn from LIFE-Nature projects that have dealt with the conservation of key forest species and habitat types. These projects offer an important window onto practical management issues under a range of different socio-economic circumstances. They will also be very useful in helping to identify case studies for the new guidance. The same is true for existing management plans that have been established for Natura 2000 sites. Although not mandatory these are a very effective tool for agreeing on the conservation objectives of the sites in close collaboration with local stakeholders and ensuring the practical long term management of the site.

Some Member States have developed standard management prescriptions and models for certain habitats and species (including in forest areas) which may also give a useful insight into a wide range of management issues in different parts of the EU (e.g. Marhouli et Turoňová, 2008, Bensettiti et al. 2001).

Whereas Article 6(1) and 6(2) of the Habitats Directive concern the day-to-day management and conservation of Natura 2000 sites, Articles 6(3) and 6(4) lay down the procedure to be followed when planning new developments that might affect a Natura 2000 site. In essence, it requires that a plan or project that is likely to have significant negative effect on a Natura 2000 site undergoes an '*Appropriate Assessment*' to study the impacts in detail in relation to the site's conservation objectives.

Depending on the findings of the Appropriate Assessment, the competent authority can only agree to the plan or project as it stands if it has ascertained that it will not adversely affect the integrity of a Natura 2000 site.

If that is not the case, one or more of the following is required:

- ⇒ the plan or project is redesigned to prevent adverse effects on the Natura 2000 site;
- ⇒ mitigation measures are introduced to remove the negative effects;
- ⇒ conditions are set to remove the likelihood of negative effects or to reduce them to an insignificant level where they no longer affect the integrity of the site;
- ⇒ alternative less damaging solutions are explored instead.

There are many similarities between the procedures for EIA, and the Appropriate Assessments carried out for plans or projects affecting Natura 2000 sites under the Habitats Directive. But this does not mean they are one and the same, there are some important distinctions too (see table). Therefore **EIA cannot replace, or be a substitute for, an Appropriate Assessment as neither procedure overrides the other.**

They may of course run alongside each other or the Appropriate Assessment may form part of the EIA assessment<sup>29</sup> but, in such cases, the Appropriate Assessment should be clearly distinguishable and identifiable in the EIA's Environmental documentation, or should be reported on separately so that its findings can be differentiated from those of the general EIA<sup>30</sup>.

One of the key distinctions between EIAs and Habitats Directive's Appropriate Assessments, apart from the fact that they measure different aspects of the natural environment and have different criteria for determining 'significance', is how the outcome of the Assessment is followed. In this regard, the assessments under the EIA lay down essentially procedural requirements and do not establish obligatory environmental standards. On the contrary, the assessment under the Habitats Directive lays down obligations of substance, mainly because it introduces an environmental standard, i.e. the conservation objectives of a Natura 2000 site and the need to preserve its integrity.

In other words, if the Appropriate Assessment determines that the plan or project will adversely affect the integrity of a Natura 2000 site, the authority cannot agree to the plan or project as it stands unless, in exceptional cases, they invoke special procedures for projects which are deemed to be of overriding public interest. The EIAs, on the other hand, are designed to make the planning authorities fully aware of the environmental implications of the proposed plan or project so that these *are taken into account* in their final decision.

A plan or project may still be allowed to go ahead under certain conditions, in spite of being assessed as having negative effects on the site provided the procedural safeguards laid down in Article 6.4 of the Habitats Directive are respected. This includes that the plan or project must be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, and no alternative solutions may exist. In such cases, compensation measures will need to be implemented to ensure that the overall coherence of Natura 2000 is protected.

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<sup>29</sup> *Doing an Appropriate Assessment at the level of a plan also does not remove the need to apply the Article 6(3)-(4) procedure to individual projects as well. Of course if the Appropriate Assessment of a plan results in a development being zoned into areas of low or no potential conflicts with Natura 2000 sites then it is likely that fewer projects resulting from the plan will require an Appropriate Assessment at a project level.*

<sup>30</sup> *"Assessments of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC".*

Table 4: Comparison of procedures under AA and EIA

	AA	EIA
Which type of developments are targeted ?	Any <b>plan</b> or <b>project</b> which - either individually or in combination with other plans/projects - is likely to have an adverse effect on a Natura 2000 site (excluding plans or projects directly connected to the management of the site)	All <b>projects</b> listed in Annex I.  For projects listed in Annex II the need for an EIA shall be determined on a case by case basis and depending on thresholds or criteria set by Member states (taking into account criteria in Annex III)
What impacts need to be assessed relevant to nature?	The Assessment should be made in view of the site's conservation objectives (which are set in function of the species/ habitat types for which the site was designated.) The impacts (direct, indirect, cumulative..) should be assessed to determine whether or not they will adversely affect the integrity of the site concerned.	Direct and indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative significant effects on ...'fauna and flora'
Who carries out the Assessment?	It is the responsibility of the competent authority to ensure that the AA is carried out. In that context the developer may be required to carry out all necessary studies and to provide all necessary information to the competent authority in order to enable the latter to take a fully informed decision. In so doing the competent authority may also collect relevant information from other sources as appropriate.	The developer
Are the public/ other authorities consulted?	Not obligatory but encouraged 'if appropriate'	Compulsory –consultation to be done before adoption of the development proposal  Member States shall take the measures necessary to ensure that the authorities likely to be concerned by the project by reason of their specific environmental responsibilities are given an opportunity to express their opinion on the request for development consent. Ditto for the public.



How binding are the outcomes ?	Binding. The competent authorities <b>can agree to the plan or project only after having ascertained that it will not</b> adversely affect the integrity of the site.	The results of consultations and the information gathered as part of the EIA <b>must be taken into consideration</b> in the development consent procedure.
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There are no specific rules for forest areas in EU nature legislation. However, the question is often asked whether a particular forest management activity, -has to be subject to an Appropriate Assessment under Article 6. It will be useful to explore this issue in greater detail when preparing the guidance document.

The European Court of Justice Ruling (Court case n°C-241/0831) is worth considering further in this respect. The Court examined whether the works or developments provided for in French Natura 2000 contracts are directly connected with or necessary for the management of the site. The Court considered that it *“cannot be ruled out that, while they may have as their objective the conservation or restoration of a site, the works or developments provided for in those contracts may, nevertheless, not be directly connected with or necessary for the management of that site”*.

For the Court, determining the conservation and restoration objectives in the context of Natura 2000 may require the *“reconciliation of various conflicting objectives”*. For the Court, it *“follows that the mere fact that the Natura 2000 contracts comply with the conservation objectives of sites cannot be regarded as sufficient, in the light of Article 6(3) of the Habitats Directive, to allow the works and developments provided for in those contracts to be **systematically** exempt from the assessment of their implications for the sites.”*

Opinions are also sometimes diverging on the question of whether Forest Management Plans are required undergo an Appropriate Assessment under Article 6.3 of the Habitats Directive.

In **Slovenia** forest management plans are made at regional and management unit level for all forests, regardless of ownership. Decisions in the plans are based on an evaluation of forest functions and on balanced multifunctional goals, including biodiversity. Close-to-nature forest management is required by Law. Therefore forest management plans were recognized as management plans into which the requirements of Article 6 of the Habitats Directive are integrated. The conservation measures are established by the competent Nature Conservation Institute in the form of guidelines. The guidelines usually do not require essential changes in management goals and practices.

In the **Slovak Republic** nature conservation, including the designation and management of Natura 2000 sites falls under the competence of the Ministry of the Environment, while practical aspects of forest management, including forests inside Natura 2000 fall under the responsibility of the Ministry of Agriculture and Rural Development.

Forest management within protected areas (including Natura 2000 sites) is not facilitated through a single integrated management plan. There are two separate types of management plans running in parallel – management plan for protected areas and forest management plans. Each of those is based on a different legislative background and are therefore not always in concordance, sometimes even antagonistic although featuring the same set of principal objectives.

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<sup>31</sup> Judgment of 4 March 2010

The practical management of Natura 2000 is a matter of Member States' competence, they are free to decide *how* the conservation measures should be carried out and how the sites should be managed provided that this is in line with the provisions of the Habitats Directive. Better understanding of the differences at regional and/or national level is of major importance. As it has been described above the share between the public and private ownership in forests, but also the share of competencies in forest management vary from country to country. Such differences have a great influence on the proportion of forests under a management plan or an equivalent instrument.

In several countries, a large proportion of forest area is currently not covered by management plans. This is particularly the case for UK (42 %), France (39 %), Germany (32 %), Estonia (31 % with a large proportion of undisturbed forests) and Belgium (26 %) <sup>32</sup>

Possible conflicts can be addressed during the process of management planning. This can be facilitated if clear conservation objectives and measures are established for each site, based notably on assessment of the conservation status of targeted habitats and species, while taking into account threats and pressures, as well as the socio-economic context and local characteristics.

#### **4.4 Nature conservation and forestry – key challenges for the future**

##### *4.4.1 Policy issues and management options*

##### **▪ Objectives, instruments and approaches in different forest-related policies**

Different approaches to forest management result from different objectives, purposes and measures of different policies (environmental policy, forestry policy, agriculture and rural development policy, water policy, nature protection policy, renewable energy policy, etc.). The EU Forestry Strategy from 1998 highlights the challenges facing the EU forests, the policy and legal framework for forests and forestry in the EU as well as common objectives and guiding principles for the roles of the EU and the Member States in forest policy <sup>33</sup>. The strategy was the basis for the 2006 Forest Action Plan, that has as one of its four objectives "improving and protecting the environment". Key Action 9 explicitly refers to Natura 2000 <sup>34</sup>. The 1998 strategy is currently under review.

On a more global scale, initiatives or instruments such as the Forest Europe process, the UNFF, the UNFCCC, the CBD, etc. are also addressing sustainable forest management (SFM) practices. Whereas applying the principles of SFM should be the rule also for Natura 2000 sites, it may not be sufficient to always meet the conservation objectives set for Natura 2000 sites.

It will be important to examine how these different objectives, instruments and approaches can best be reconciled with the requirements of the EU nature legislation and what specific guidance and recommendations can be drawn from existing experiences to

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<sup>32</sup> *State of Europe's Forests 2011 - Status & Trends in Sustainable Forest Management in Europe forest Europe 2011 page 305*

<sup>33</sup> *Council Resolution of 15 December 1998 on a forestry strategy for the European Union (OJ C56, 26.2.1999)*

<sup>34</sup> *European Union Forest Action Plan (FAP) Com (2006) 302 final*

help bring about more integrated and where possible mutually supportive strategies for forests within Natura 2000 sites.

- **Non-intervention management and wilderness areas in Natura 2000**

Current approaches to sustainable forest management frequently do not consider non-intervention management in forests as a management measure. In particular cases for the restoration of particular habitat types or the maintenance of species, such non-intervention management may represent an adequate conservation measure. It should be noted that the Commission has recently produced a draft guidance document on managing wilderness in Natura 2000<sup>35</sup>.

Again it will be useful in the elaboration of the guidance document to consider to what extent non-intervention management is appropriate and necessary within the Natura 2000 Network. Much will depend on the reasons why a particular forest was designated under Natura 2000 and on the state of that forest or the species which depend on it.

Whilst some forests may be actively managed and used, there might also be a proportion of forests in Natura 2000 where a non-intervention policy should be applied - whether for nature conservation reasons, or because it is considered a protection forest e.g. to prevent avalanches, soil erosion, water capture etc...

- **Distinguish between different management options for forests in Natura 2000 taking into consideration the primary function (purpose) of the different forests**

The concept of Natura 2000 is based on ensuring favourable conservation status of habitats and species listed in the Annexes of the Habitats Directive, but the decision on how this has to be achieved remains with the individual Member States. To reach the target of favourable conservation status it is necessary not only to halt/prevent any deterioration of the sites but also to take appropriate conservation measures to improve the status of protected species and habitat types where necessary.

Therefore any practices that actually result in the deterioration of the conservation status of protected habitats and species will need to be avoided. On the other hand measures which bring mutual benefits for forestry and nature conservation in Natura 2000 sites should be maintained and encouraged (e.g. coppicing, appropriate forest grazing or other agro-forestry systems in specific habitats – dehesas, wooded pastures, forest firebreaks etc.).

As conflicts between forestry and nature conservation are often connected to management decisions it is particularly important that both the conservation objectives and the socio-economic objectives of the individual sites are well described and known to all stakeholders. Management decisions and instruments should then address both kinds of objectives in an integrated manner while also dealing with possible unexpected events such as storms, fires and insect outbreaks.

#### 4.4.2 *Land use changes*

This includes changes of the land use from forests to agricultural land, urbanisation, and fragmentation of forests due to infrastructure development (e.g. roads, railways). Land use changes may represent problems that have various impacts on forests in Natura

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<sup>35</sup> "Draft Guidelines for the management of wilderness and wild areas in Natura 2000". [http://ec.europa.eu/environment/nature/natura2000/wilderness/index\\_en.htm](http://ec.europa.eu/environment/nature/natura2000/wilderness/index_en.htm)

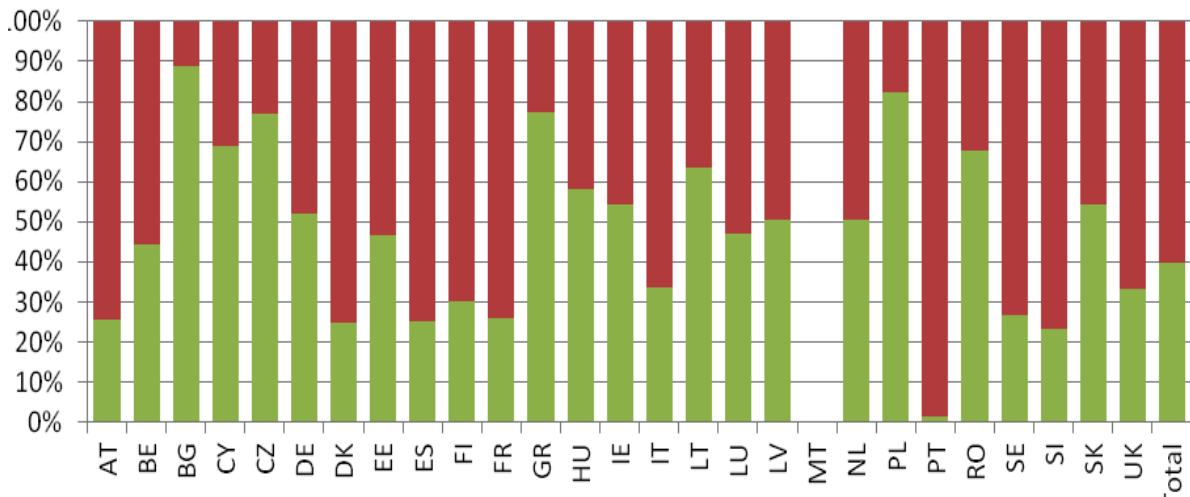
2000. Decline of traditional land use and practices may result in a changed status of Natura 2000 forests and endanger some special habitats types and related species (e.g. those of agro-forestry systems).

They sometimes impact on forests independently, but very often in combination with other factors. Some regions with rapid and intensive developments may be highly threatened by land-use changes (lowland regions or regions near the sea coast –). In order to address land use changes the assessment of impacts on Natura 2000 has to become part of the land use planning.

#### 4.4.3 Property rights and financing issues

Conflicts related to property rights in Natura 2000 may occur. This is not the case only in countries where private ownership of forests prevails. Overall estimated share of forests in the EU according to ownership is nearly 40% for public forests<sup>36</sup> and more than 60% for private forests. Ownership of forests varies from country to country, with dominant public forest (>70 %) in BG, CZ, GR or PL and dominant private forest (>70 %) in AT, ES, FR, PT, SE or SI. Forest ownership pattern within Natura 2000 may differ from the ownership pattern for all forests within the EU as within Natura 2000 sites the public forests prevail.

Figure 8: forest ownership (from Forest Europe, 2011)



The situation of private forests is very complex with many forest areas owned by many owners possessing very small pieces of land. In France, more than 1 million owners possess less than 1 ha. In Slovakia part of the forest owners are unknown (more than 7%). On the contrary, in Finland the number of private forest owners is 440.000, and the average area of a forest holding is 20–30 ha. In total 22% of forest owners in this country are farmers and they own 33% of the private forest area (Karppinen et al., 2002). Farms have 50 ha of forest on average (Farm Register, 2004).

Conflicts with the forest owners in Natura 2000 sites related to property rights often originates from a general lack of communication from both nature conservation and forest authorities. Also, the fact of being under Natura 2000 can be a problem for forest owners if they need to change the management practices and are not compensated for the additional costs associated with these changes.

<sup>36</sup> National, regional, local authorities...

**It will be important therefore to be able to ensure adequate financial support for conservation measures in Natura 2000 forests through the use of effective financial tools.** Compensations and financial incentives (subsidies) for Natura 2000 forests should be provided (preferably) to private forest owners. They should be linked to specific conservation objectives of Natura 2000. Compensations and incentives not related to specific conservation objectives of Natura 2000 have to be subject to appropriate evaluation of their possible benefit for Natura 2000.

Due consideration should also be given to the establishment of principles for such payments. Payments for costs incurred in relation to active nature conservation management implemented by the forest owner (active approach) should be preferred to payments for foregone income (passive approach) with the exception of non-intervention regimes.

Financial support for nature conservation in Natura 2000 forests should be increased and streamlined. This is in line with the recent Commission Staff Working paper on financing Natura 2000<sup>37</sup> and is also requested by the forestry sector itself.

In relation to the EU funding instruments a series of additional considerations can be considered:

- **Increased allocations for forest-related measures** – It will be positive if Natura 2000 payments for forests and forest-environment payments under the rural development policy are more accessible. Support to agro-forestry systems as an eligible action for preserving some specific habitats and related species which can be maintained only through such traditional agro-forestry activities is also relevant.
- **Strengthen opportunities for the support of conservation projects from LIFE+ Programmes** – LIFE+ projects can be effectively used to address the conservation needs of key forest habitat types and species. E.g. establishment of specific management regimes such as protection of nest trees for Annex I birds, support for coppicing or head-cutting of trees to support cavity-dependent species. It will become essential that LIFE+ measures are identified in the future rolling work programmes foreseen in the LIFE+ proposal currently under discussion.
- **Share of private owners on the forest-related measures should be encouraged** – Active involvement of private forest owners in the Natura 2000 sites management can be done through encouraging their participation in available funding instruments.

#### **4.5 Links to the Forest Europe process**

Founded in 1990, Forest Europe<sup>38</sup> is the pan-European process for the sustainable management of the continent's forests. This process is based on Ministerial Conferences, at which resolutions are adopted to develop common strategies on how to protect and sustainably manage forests. Forest Europe focuses on several environmental objectives (protection, ecological services...) including biodiversity protection. A key resolution was

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<sup>37</sup> Commission Staff Working Paper: *Financing Natura 2000: investing in Natura 2000 – delivering benefits for nature and people*, Sec (2011) 1573 final – 12.12.2011

[http://ec.europa.eu/environment/nature/natura2000/financing/index\\_en.htm](http://ec.europa.eu/environment/nature/natura2000/financing/index_en.htm)

<sup>38</sup> Formerly Ministerial Conference on the Protection of Forests in Europe (MCPFE)

adopted in 1993 on “*General guidelines for the conservation of the biodiversity of European forests*” and the definition of sustainable forest management (SFM)<sup>39</sup> .

"Pan-European Criteria and Indicators for SFM" have been adopted, including the criterion “*Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems*”. This criterion is divided into 9 indicators. Results from the 2011 assessment<sup>40</sup> made by Forest Europe have been published. Several criteria have a great interest for Natura 2000.

The Interpretation manual for the criteria addresses issues like: tree species composition, regeneration, naturalness (undisturbed by man, semi-natural and plantation), introduced tree species, deadwood, genetic resources, landscape pattern, threatened forest species and protected forest.

The resolution on “*Conserving and enhancing forest biological diversity in Europe*”, aims at conserving forest biological diversity by (inter alia) further developing protected forest area networks, restoring biological diversity in degraded forests, promoting native tree species, preventing negative impacts of invasive alien species and monitoring the development of forest biological diversity. European 2020 Targets for forests have been adopted (Oslo, 2011) including the following; “*The rate of loss of forest biodiversity at habitat level is at least halved and where feasible brought close to zero, and measures are taken to significantly reduce forest fragmentation and degradation and to restore degraded forests*”

The Sustainable Forest Management concept and the biodiversity policies under the Forest Europe process are fully adapted for most of the forest habitats types and forest species focused by the Habitats Directive, and this not only within Natura 2000 areas but also elsewhere. .

However, whilst applying the principles of SFM should be the rule also for Natura 2000 sites, it has to be recognised, that in some cases, this may not be sufficient in itself to always meet the conservation objectives set for Natura 2000 sites. The relationship between the Sustainable Forest Management principles and Natura 2000 requirements should be studied further during the elaboration of the guidance document.

## **5 WORKING METHODOLOGY, TARGET AUDIENCE AND WORKPLAN**

It is proposed that the new guidance document on forests and Natura 2000 aims in particular to:

- ⇒ Clarify the provisions of the Birds and Habitats Directives as regards the practical management and conservation of forests in Natura 2000 sites;
- ⇒ promote, where appropriate, a more integrated management of forests in Natura 2000 areas, by strengthening the partnership approach through the involvement of all stakeholders - and the forest sector in particular - in the proactive and participatory management of the Natura 2000 Network.

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<sup>39</sup> “*The stewardship and use of forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national and global levels, and that does not cause damage to other ecosystems*”.

<sup>40</sup> Forest Europe – 2011 - State of Europe’s Forests - Status & Trends in Sustainable Forest Management in Europe - Ministerial Conference on the Protection of Forests in Europe. Liaison Unit Oslo, 344 p.

The guidance document will be set in the context of the wider EU 2020 Biodiversity Strategy, the EU Forestry Strategy (as revised) and the possible new EU Forest Action Plan (FAP) as well as the broader Forest Europe process. It will build on, and take account of, the experience from good management practices, case studies and previous projects, including relevant LIFE projects and related publications, as well as other relevant scientific literature.

It will however remain bound by the provisions of the Birds and Habitats Directives. It cannot make new rules or offer new legal interpretations that go beyond the existing jurisprudence. Instead it will aim to provide further guidance on the practical application and implementation of existing EU laws on nature protection.

The document is not intended to be prescriptive in nature but will focus instead on offering useful non mandatory advice, ideas and suggestions based on an extensive review of existing experiences and good practices across the EU, whilst fully respecting the principle of subsidiarity which leaves the final responsibility for the management of Natura 2000 sites, and the managing of national forestry resources, with the Member States.

The guidance document will be developed using a bottom up process involving all key stakeholders and experts from Member States in order to take appropriate account of their concerns and expertise and to ensure that the guidance addresses their needs. In particular the document will be developed in close collaboration with the Standing Forestry Committee, the Advisory Group on Forests and Cork and the Expert Group on Natura 2000 management.

As a first step a series of technical workshops could be organised to hear directly from the stakeholders about their issues, concerns and good practice solutions. It will also provide an opportunity to decide together on the structure, contents and scope of the document and the key issues to be addressed.

Possible themes for these technical workshops could include:

- Managing forests in Natura 2000 sites in accordance with the provisions of Article 6 of the Habitats Directive: how to reconcile the two and create potential win-win solutions; where do the key main challenges lie?
- Forest management plans and the Article 6.3 procedure – key principles and approaches in different Member States
- Communication and cooperation between the forest owners, forest managers and the nature conservation community
- Natura 2000 and its relations with wider forestry policies and initiatives: references in EU Forestry Strategy and Forest Action Plan and links with Forest Europe process links with the SFM process, relations between Natura 2000 forests and other forests concerns (e.g. fragmentation, pest control, overgrazing by wildlife, ecosystem services....)

The feedback and information from the technical workshops can then be used to make a draft of the guidance document which can then be further discussed with the stakeholders and Member State authorities (for instance by setting up a dedicated ad hoc working group on forests in Natura 2000).

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## 7 ANNEXES

## Annex 1- Key forest habitats of Community importance

### Key / sources

**Natura 2000 database** (end 2010 database release, full version), **Priority** = Priority status according to Habitats Directive Annex I., **Nbr:** number of sites, **area:** total estimated area within Natura 2000 (ha)

Nota bene: at least Dehesas with evergreen *Quercus* spp (6310) could be considered within Other Wooded areas (209 sites for 631,810 ha)

code	Habitat	priority	nbr. of sites	area
2180	Wooded dunes of the Atlantic, Continental and Boreal region		196	65 069
2270	Wooded dunes with <i>Pinus pinea</i> and/or <i>Pinus pinaster</i>	Yes	128	63 542
9010	Western Taiga	Yes	2848	1 937 781
9020	Fennoscandian hemiboreal natural old broad-leaved deciduous forests ( <i>Quercus</i> , <i>Tilia</i> , <i>Acer</i> , <i>Fraxinus</i> or <i>Ulmus</i> ) rich in epiphytes	Yes	584	20 124
9030	Natural forests of primary succession stages of landupheaval coast	Yes	137	11 986
9040	Nordic subalpine/subarctic forests with <i>Betula pubescens</i> ssp. <i>czerepanovii</i>		89	1 105 537
9050	Fennoscandian herb-rich forests with <i>Picea abies</i>		1088	55 962
9060	Coniferous forests on, or connected to, glaciofluvial eskers		253	48 271
9070	Fennoscandian wooded pastures		764	15 979
9080	Fennoscandian deciduous swamp woods	Yes	911	56 165
9110	Luzulo-Fagetum beech forests		2286	805 998
9120	Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer ( <i>Quercion roburi-petraeae</i> or <i>Ilici-Fagenion</i> )		358	219 340
9130	Asperulo-Fagetum beech forests		2504	1 394 956
9140	Medio-European subalpine beech woods with <i>Acer</i> and <i>Rumex arifolius</i>		130	30 041
9150	Medio-European limestone beech forests of the <i>Cephalanthero-Fagion</i>		966	330 293
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the <i>Carpinion betuli</i>		1558	147 052
9170	Galio-Carpinetum oak-hornbeam forests		1120	416 339
9180	Tilio-Acerion forests of slopes, scree and ravines	Yes	1944	138 500
9190	Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains		949	100 519
91A0	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles		115	26 592
91AA	Eastern white oak woods	Yes	127	83 221
91B0	Thermophilous <i>Fraxinus angustifolia</i> woods		171	61 713
91BA	Moesian silver fir forests		18	21 380
91C0	Caledonian forest	Yes	12	15 117
91CA	Rhodopide and Balkan Range Scots pine forests		15	102 206
91D0	Bog woodland	Yes	3305	453 682
91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	Yes	4962	479 227
91F0	Riparian mixed forests of <i>Quercus robur</i> , <i>Ulmus laevis</i> and <i>Ulmus minor</i> , <i>Fraxinus excelsior</i> or <i>Fraxinus angustifolia</i> , along the great rivers ( <i>Ulmion minoris</i> )		741	172 415
91G0	Pannonic woods with <i>Quercus petraea</i> and <i>Carpinus betulus</i>	Yes	247	128 551
91H0	Pannonian woods with <i>Quercus pubescens</i>	Yes	302	54 756
91I0	Euro-Siberian steppic woods with <i>Quercus</i> spp.	Yes	244	57 901
91J0	<i>Taxus baccata</i> woods of the British Isles	Yes	18	1 658
91K0	Illyrian <i>Fagus sylvatica</i> forests ( <i>Aremonio-Fagion</i> )		132	315 120
91L0	Illyrian oak-hornbeam forests ( <i>Erythronio-Carpinion</i> )		139	101 050
91M0	Pannonian-Balkan turkey oak –sessile oak forests		347	557 825
91N0	Pannonic inland sand dune thicket ( <i>Junipero-Populetum albae</i> )	Yes	18	4 837

code	Habitat	priority	nbr. of sites	area
91P0	Holy Cross fir forest ( <i>Abietetum polonicum</i> )		27	12 571
91Q0	Western Carpathian calcicolous <i>Pinus sylvestris</i> forests		31	2 936
91R0	Dinaric dolomite Scots pine forests ( <i>Genisto januensis</i> - <i>Pinetum</i> )		13	989
91S0	Western Pontic beech forests	Yes	11	35 754
91T0	Central European lichen Scots pine forests		54	7 253
91U0	Sarmatic steppe pine forest		31	197
91V0	Dacian Beech forests ( <i>Symphyto-Fagion</i> )		47	367 185
91W0	Moesian beech forests		43	72 876
91X0	Dobrogean beech forests	Yes	2	12
91Y0	Dacian oak & hornbeam forests		33	58 460
91Z0	Moesian silver lime woods		53	14 346
9210	Apennine beech forests with <i>Taxus</i> and <i>Ilex</i>	Yes	216	171 594
9220	Apennine beech forests with <i>Abies alba</i> and beech forests with <i>Abies nebrodensis</i>	Yes	71	27 496
9230	Galicio-Portuguese oak woods with <i>Quercus robur</i> and <i>Quercus pyrenaica</i>		236	363 892
9240	<i>Quercus faginea</i> and <i>Quercus canariensis</i> Iberian woods		255	154 570
9250	<i>Quercus trojana</i> woods		13	46 476
9260	<i>Castanea sativa</i> woods		454	219 891
9270	Hellenic beech forests with <i>Abies borisii-regis</i>		30	54 686
9280	<i>Quercus frainetto</i> woods		29	18 958
9290	Cupressus forests ( <i>Acero-Cupression</i> )		20	22 633
92A0	<i>Salix alba</i> and <i>Populus alba</i> galleries		950	216 697
92B0	Riparian formations on intermittent Mediterranean water courses with <i>Rhododendron ponticum</i> , <i>Salix</i> and others		10	7 185
92C0	<i>Platanus orientalis</i> and <i>Liquidambar orientalis</i> woods ( <i>Platanion orientalis</i> )		129	14 558
92D0	Southern riparian galleries and thickets ( <i>Nerio-Tamaricetea</i> and <i>Securinegion tinctoriae</i> )		551	97 555
9310	Aegean <i>Quercus brachyphylla</i> woods		7	698
9320	<i>Olea</i> and <i>Ceratonia</i> forests		237	101 269
9330	<i>Quercus suber</i> forests		189	260 256
9340	<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests		1163	1 035 702
9350	<i>Quercus macrolepis</i> forests		16	5 797
9360	Macaronesian laurel forests ( <i>Laurus</i> , <i>Ocotea</i> )	Yes	61	23 118
9370	Palm groves of <i>Phoenix</i>	Yes	53	1 272
9380	Forests of <i>Ilex aquifolium</i>		60	23 288
9390	Scrub and low forest vegetation with <i>Quercus alnifolia</i>	Yes	9	4 768
93A0	Woodlands with <i>Quercus infectoria</i> ( <i>Anagyro foetidae</i> - <i>Quercetum infectoriae</i> )		10	205
9410	Acidophilous <i>Picea</i> forests of the montane to alpine levels ( <i>Vaccinio-Piceetea</i> )		516	575 226
9420	Alpine <i>Larix decidua</i> and/or <i>Pinus cembra</i> forests		198	102 944
9430	Subalpine and montane <i>Pinus uncinata</i> forests (* if on gypsum or limestone)		132	92 773
9510	Southern Apennine <i>Abies alba</i> forests	Yes	14	3 874
9520	<i>Abies pinsapo</i> forests		5	1 598
9530	(Sub-) Mediterranean pine forests with endemic black pines	Yes	205	305 529
9540	Mediterranean pine forests with endemic Mesogean pines		367	461 090
9550	Canarian endemic pine forests		52	38 408
9560	Endemic forests with <i>Juniperus</i> spp.	Yes	196	145 679
9570	<i>Tetraclinis articulata</i> forests	Yes	5	108
9580	Mediterranean <i>Taxus baccata</i> woods	Yes	62	19 793
9590	<i>Cedrus brevifolia</i> forests ( <i>Cedrosetum brevifoliae</i> )	Yes	1	183
95A0	High oro-Mediterranean pine forests		9	15 731



## Annex 2 - Key forest species (other than birds) of Community importance

Sources: ETC/BD, species only occasional in forest habitat have not been considered

Species code	Species name	Annex II	priority	Annex IV
<b>PLANTS</b>				
2291	<i>Bryhnia novae-angliae</i>	x		x
2292	<i>Bryoerythrophyllum campylocarpum</i>	x	x	x
2318	<i>Buxbaumia viridis</i>	x		x
2600	<i>Cephalozia macounii</i>	x		x
2856	<i>Cynodontium suecicum</i>	x		x
2995	<i>Dicranum viride</i>	x		x
2994	<i>Dichelyma capillaceum</i>	x		x
3029	<i>Distichophyllum carinatum</i>	x		x
3076	<i>Echinodium spinosum</i>	x	x	x
3645	<i>Herzogiella turfacea</i>	x		x
3998	<i>Leucobryum glaucum</i>			x
4273	<i>Mannia triandra</i>	x		x
4283	<i>Marsupella profunda</i>	x	x	x
4725	<i>Orthotrichum rogeri</i>	x		x
4925	<i>Plagiomnium drummondii</i>	x		x
5561	<i>Scapania massalongi</i>	x		x
5968	<i>Tayloria rudolphiana</i>	x		x
6012	<i>Thamnobryum fernandesii</i>	x	x	x
150141	<i>Asplenium hemionitis</i>			x
150279	<i>Botrychium simplex</i>	x		x
150196	<i>Culcita macrocarpa</i>	x		x
194503	<i>Diplazium sibiricum</i>	x		x
194548	<i>Dryopteris corleyi</i>	x	x	x
3728	<i>Hymenophyllum maderensis</i>	x		x
5047	<i>Polystichum drepanum</i>	x	x	x
150208	<i>Trichomanes speciosum</i>	x		x
150164	<i>Woodwardia radicans</i>	x		x
150638	<i>Abies nebrodensis</i>	x	x	x
196480	<i>Aconitum firmum</i> ssp. <i>moravicum</i>	x		x
165316	<i>Adenophora lilifolia</i>	x		x
1654	<i>Aeonium gomeraense</i>	x		x
179947	<i>Agrimonia pilosa</i>	x		x
1801	<i>Anagyris latifolia</i>	x	x	x
188244	<i>Androcymbium rechingeri</i>	x	x	x
177258	<i>Aquilegia bertolonii</i>	x		x
9118	<i>Arabis kennedyae</i>	x	x	x
194679	<i>Arceuthobium azoricum</i>	x		x
1950	<i>Argyranthemum lidii</i>	x	x	x
15746	<i>Argyranthemum winterii</i>	x		x
178699	<i>Armeria neglecta</i>	x		x
188668	<i>Asphodelus bento-rainhae</i>	x	x	x
171197	<i>Astragalus centralpinus</i>	x		x
171287	<i>Astragalus maritimus</i>	x	x	x
185085	<i>Atropa baetica</i>	x	x	x
2210	<i>Bencomia brachystachya</i>	x	x	x
2211	<i>Bencomia sphaerocarpa</i>	x		x

Species code	Species name	Annex II	priority	Annex IV
2312	Bupleurum handiense	x		x
191475	Calamagrostis chalybaea	x		x
189456	Calypso bulbosa	x		x
2443	Carex malato-belizii	x		x
154886	Centaurea attica ssp. Megarensis	x	x	x
189458	Cephalanthera cucullata	x	x	x
167197	Cerastium alsinifolium	x	x	x
191699	Cinna latifolia	x		x
2708	Cirsium latifolium	x		x
15775	Convolvulus lopez-socasii	x	x	x
2765	Convolvulus massonii	x	x	x
9282	Crocus cypricus	x		x
186421	Crocus etruscus			x
9283	Crocus hartmannianus	x		x
196478	Cyclamen fatrense	x	x	x
189484	Cypripedium calceolus	x		x
2948	Dendriopoterium pulidoi	x		x
167192	Dianthus arenarius ssp. Arenarius	x		x
167427	Dianthus nitidus	x	x	x
3043	Dorycnium spectabile	x	x	x
3052	Dracaena draco			x
175120	Dracocephalum austriacum	x		x
162467	Echium candicans	x		x
169562	Erica scoparia ssp. azorica	x		x
170035	Euphorbia transtagana	x		x
3265	Ferula latipinna	x		x
151265	Ferula sadleriana	x	x	x
3274	Festuca duriotagana	x		x
191810	Festuca elegans	x		x
178035	Frangula azorica	x		x
189108	Fritillaria conica			x
189117	Fritillaria gussichiae			x
189126	Fritillaria obliqua			x
188624	Fritillaria rhodocanakis			x
191862	Gaudinia hispanica	x		x
172945	Gentiana ligustica	x		x
186576	Gladiolus palustris	x		x
3521	Globularia ascanii	x	x	x
3526	Globularia sarcophylla	x	x	x
3543	Goodyera macrophylla	x		x
9302	Gymnigritella runei	x		x
3569	Helianthemum bystropogophyllum	x	x	x
168638	Helianthemum caput-felis	x		x
196470	Himantoglossum adriaticum	x		x
189938	Himantoglossum caprinum	x		x
158363	Hymenostemma pseudanthemis	x		x
2654	Chamaemeles coriacea	x	x	x
9260	Chionodoxa lochiaie	x	x	x
196447	Iris aphylla ssp. hungarica	x		x
186824	Iris humilis ssp. Arenaria	x		x
3791	Isoplexis chalcantha	x	x	x



Species code	Species name	Annex II	priority	Annex IV
3792	<i>Isoplexis isabelliana</i>	x		x
172706	<i>Jankaea heldreichii</i>			x
156414	<i>Jurinea cyanoides</i>	x	x	x
152142	<i>Laserpitium longiradium</i>	x	x	x
185671	<i>Leucojum nicaeense</i>	x		x
159920	<i>Ligularia sibirica</i>	x		x
4017	<i>Limonium arborescens</i>	x	x	x
183577	<i>Linaria algarviana</i>	x		x
184965	<i>Mandragora officinarum</i>			x
4275	<i>Marcetella maderensis</i>	x		x
4294	<i>Maytenus umbellata</i>	x		x
151651	<i>Melanoselinum decipiens</i>	x		x
194963	<i>Minuartia smejkalii</i>	x	x	x
166555	<i>Moehringia lateriflora</i>	x		x
4463	<i>Musschia wollastonii</i>	x	x	x
185527	<i>Narcissus asturiensis</i>	x		x
185509	<i>Narcissus cyclamineus</i>	x		x
185677	<i>Narcissus pseudonarcissus ssp. nobilis</i>	x		x
185738	<i>Narcissus scaberulus</i>	x		x
185760	<i>Narcissus triandrus</i>			x
183816	<i>Odontites granatensis</i>	x		x
4571	<i>Oenanthe divaricata</i>	x		x
162289	<i>Onosma tornensis</i>	x	x	x
189676	<i>Ophrys argolica</i>			x
9305	<i>Ophrys kotschyi</i>	x	x	x
188505	<i>Ornithogalum reverchonii</i>			x
4748	<i>Paeonia clusii ssp. Rhodia</i>	x		x
175412	<i>Paeonia officinalis ssp. Banatica</i>	x		x
195509	<i>Paeonia parnassica</i>	x		x
9201	<i>Phlomis brevibracteata</i>	x		x
9202	<i>Phlomis cypria</i>	x		x
185813	<i>Phoenix theophrasti</i>	x		x
176373	<i>Picconia azorica</i>	x		x
4921	<i>Pittosporum coriaceum</i>	x	x	x
4929	<i>Plantago algarbiensis</i>	x		x
5031	<i>Polygonum praelongum</i>	x		x
180593	<i>Prunus lusitanica ssp. Azorica</i>	x		x
192924	<i>Pseudarrhenatherum pallens</i>	x		x
177071	<i>Pulsatilla grandis</i>	x		x
177045	<i>Pulsatilla patens</i>	x		x
176925	<i>Pulsatilla slavica</i>	x	x	x
196481	<i>Pulsatilla subslavica</i>	x	x	x
177069	<i>Pulsatilla vulgaris ssp. gotlandica</i>	x		x
180265	<i>Pyrus magyarica</i>	x	x	x
9111	<i>Ranunculus kykkoensis</i>	x		x
176740	<i>Ranunculus lapponicus</i>	x		x
169518	<i>Rhododendron luteum</i>	x		x
152101	<i>Rouya polygama</i>	x		x
16159	<i>Salix salvifolia ssp. australis</i>	x		x
196449	<i>Salvia veneris</i>	x		x
5459	<i>Sambucus palmensis</i>	x	x	x

Species code	Species name	Annex II	priority	Annex IV
151605	Sanicula azorica	x		x
5477	Santolina impressa	x		x
5569	Scilla maderensis	x		x
9273	Scilla morrisii	x	x	x
188943	Scilla odorata			x
5650	Semele maderensis	x		x
15811	Senecio jacobea ssp. gotlandicus	x		x
5682	Senecio lagascanus ssp. Lusitanicus			x
151041	Seseli intricatum	x	x	x
184161	Sibthorpia peregrina	x		x
5733	Sideritis discolor	x	x	x
174816	Sideritis javalambrensis	x		x
5744	Sideroxylon marmulano			x
166304	Silene hifacensis	x		x
167609	Silene longicilia	x		x
5794	Sinapidendron rupestre	x		x
179001	Soldanella villosa	x		x
180157	Sorbus teodorii	x		x
176376	Syringa josikaea	x		x
196440	Tephroses longifolia ssp. moravica	x		x
5977	Teucrium abutiloides	x		x
5982	Teucrium betonicum	x		x
182461	Thesium ebracteatum	x		x
184626	Thymelaea broterana			x
173461	Thymus camphoratus	x	x	x
173463	Thymus capitellatus			x
184258	Tozzia carpathica	x		x
168519	Tuberaria major	x	x	x
183775	Verbascum litigiosum	x		x
183320	Veronica micrantha	x		x
<b>INVERTEBRATES</b>				
11	Agathidium pulchellum	x		
196422	Bolbelasmus unicornis	x		x
49	Boros schneideri	x		
51	Buprestis splendens	x		x
196423	Carabus hampei	x		x
59	Carabus menetriesi pacholei	x	x	
61	Carabus olympiae	x	x	x
196425	Carabus variolosus	x		x
196426	Carabus zawadzskii	x		x
69	Cerambyx cerdo	x		x
103	Corticaria planula	x		
106	Cucujus cinnaberinus	x		x
212	Limoniscus violaceus	x		
221	Lucanus cervus	x		
256	Mesosa myops	x		
258	Morimus funereus	x		
268	Osmoderma eremita	x	x	x
9520	Oxyporus mannerheimii	x		
196431	Phryganophilus ruficollis	x	x	x
196434	Propomacrus cypriacus	x		x

Species code	Species name	Annex II	priority	Annex IV
196435	Pseudogaurotina excellens	x	x	x
310	Pytho kolwensis	x		x
196436	Rhysodes sulcatus	x		
313	Rosalia alpina	x	x	x
341	Stephanopachys linearis	x		
342	Stephanopachys substriatus	x		
377	Xyletinus tremulicola	x		
36	Aradus angularis	x		
32	Apatura metis			x
196450	Arytrura musculus	x		x
54	Callimorpha quadripunctaria	x	x	
94	Coenonympha hero			x
196455	Dioszeghyana schmidtii	x		x
196456	Erannis ankeraria	x		x
126	Erebia medusa polaris	x		
143	Fabriciana elisa			x
16141	Graellsia isabellae	x		
15679	Hesperia comma catena	x		
191	Hyles hippophaes			x
193	Hypodryas maturna	x		x
196459	Leptidea morsei	x		x
218	Lopinga achine			x
196462	Nymphalis vaualbum	x	x	x
285	Parnassius mnemosyne			x
305	Proserpinus proserpina			x
375	Xestia borealis	x		
376	Xestia brunneopicta	x		
196467	Xylomoia strix	x	x	x
196469	Cordulegaster heros	x		x
102	Cordulegaster trinacriae	x		x
205	Leucorrhinia albifrons			x
207	Leucorrhinia pectoralis	x		
215	Lindenia tetraphylla	x		x
229	Macromia splendens	x		x
265	Ophiogomphus cecilia	x		x
271	Oxygastra curtisii	x		x
351	Sympecma braueri			x
17188	Odontopodisma rubripes	x		x
196477	Pholidoptera transsylvanica	x		x
232	Macrothele calpeiana			x
30	Anthrenochernes stellae	x		x
66	Caseolus sphaerula	x		x
196443	Chilostoma banaticum	x		x
116	Discus guerinianus	x		x
147	Geomalacus maculosus	x		x
196444	Hygromia kovacsi	x		x
199	Leiostyla cassida	x		x
367	Vertigo angustior	x		
373	Vertigo moulinsiana	x		
<b>AMPHIBIANS</b>				
697	Hydromantes ambrosii	x		x

Species code	Species name	Annex II	priority	Annex IV
698	Hydromantes flavus	x		x
699	Hydromantes genei	x		x
700	Hydromantes imperialis	x		x
701	Hydromantes italicus			x
702	Hydromantes strinatii	x		x
703	Hydromantes supramontis	x		x
710	Hyla arborea			x
711	Hyla meridionalis			x
10897	Hyla sarda			x
650	Chioglossa lusitanica	x		x
681	Euproctus asper			x
682	Euproctus montanus			x
683	Euproctus platycephalus			x
744	Mertensiella luschani	x		x
788	Salamandra atra			x
791	Salamandra lanzai			x
794	Salamandrina terdigitata	x		x
814	Triturus cristatus	x		x
820	Triturus italicus			x
813	Triturus carnifex	x		x
819	Triturus dobrogicus	x		
822	Triturus karelinii			x
823	Triturus marmoratus			x
8630	Triturus montandoni	x		x
17205	Triturus vulgaris ampelensis	x		x
639	Bufo calamita			x
634	Alytes cisternasii			x
635	Alytes muletensis	x	x	x
636	Alytes obstetricans			x
637	Bombina bombina	x		x
638	Bombina variegata	x		x
668	Discoglossus jeanneae	x		
669	Discoglossus montalentii	x		x
670	Discoglossus pictus			x
671	Discoglossus sardus	x		x
752	Pelobates cultripes			x
753	Pelobates fuscus			x
754	Pelobates fuscus insubricus	x	x	
755	Pelobates syriacus			x
777	Rana arvalis			x
778	Rana dalmatina			x
780	Rana graeca			x
782	Rana italica			x
783	Rana latastei	x		x
784	Rana lessonae			x
<b>REPTILES</b>				
812	Testudo marginata	x		x
648	Chamaeleo chamaeleon			x
756	Phyllodactylus europaeus	x		x
805	Tarentola boettgeri			x
806	Tarentola delalandii			x

Species code	Species name	Annex II	priority	Annex IV
630	Algyroides fitzingeri			X
631	Algyroides marchi			X
632	Algyroides moreoticus			X
633	Algyroides nigropunctatus			X
684	Gallotia atlantica			X
713	Lacerta agilis			X
719	Lacerta danfordi			X
726	Lacerta monticola	X		X
730	Lacerta schreiberi	X		X
735	Lacerta viridis			X
736	Lacerta vivipara pannonica			X
763	Podarcis lilfordi	X		X
764	Podarcis melisellensis			X
766	Podarcis muralis			X
768	Podarcis pityusensis	X		X
769	Podarcis sicula			X
773	Podarcis tiliguerta			X
774	Podarcis wagleriana			X
628	Ablepharus kitaibelii			X
644	Chalcides ocellatus			X
645	Chalcides sexlineatus			X
12272	Chalcides viridianus			X
8640	Coluber cypriensis	X	X	X
655	Coluber hippocrepis			X
663	Coronella austriaca			X
672	Eirenis modestus			X
674	Elaphe longissima			X
676	Elaphe quatuorlineata	X		X
826	Vipera ammodytes			X
829	Vipera seoanei			X
<b>MAMMALS</b>				
11241	Bison bonasus	X	X	X
1368	Capra aegagrus	X		X
1374	Capra pyrenaica pyrenaica	X	X	X
15726	Ovis gmelini musimon	X		X
17277	Ovis orientalis ophion	X		X
1553	Rupicapra pyrenaica ornata	X	X	X
1555	Rupicapra rupicapra balcanica	X		X
17283	Rupicapra rupicapra tatrica	X	X	X
1379	Cervus elaphus corsicanus	X	X	X
1534	Rangifer tarandus fennicus	X		
1353	Alopex lagopus	X	X	X
1367	Canis lupus	X	X	X
1403	Felis silvestris			X
1438	Lynx lynx	X		X
1442	Lynx pardinus	X	X	X
1418	Gulo gulo	X	X	
1462	Mustela lutreola	X	X	X
1568	Ursus arctos	X	X	X
1566	Tadarida teniotis			X
1539	Rhinolophus blasii	X		X

Species code	Species name	Annex II	priority	Annex IV
1542	Rhinolophus euryale	x		x
1544	Rhinolophus ferrumequinum	x		x
1545	Rhinolophus hipposideros	x		x
1547	Rhinolophus mehelyi	x		x
1363	Barbastella barbastellus	x		x
1393	Eptesicus nilssonii			x
1395	Eptesicus serotinus			x
1452	Miniopterus schreibersii	x		x
1473	Myotis bechsteinii	x		x
1475	Myotis blythii	x		x
1477	Myotis brandtii			x
1479	Myotis capaccinii	x		x
1480	Myotis dasycneme	x		x
1482	Myotis daubentonii			x
1483	Myotis emarginatus	x		x
1486	Myotis myotis	x		x
1488	Myotis mystacinus			x
1490	Myotis nattereri			x
1495	Nyctalus azoreum			x
1496	Nyctalus lasiopterus			x
1497	Nyctalus leisleri			x
1499	Nyctalus noctula			x
1513	Pipistrellus kuhlii			x
1514	Pipistrellus maderensis			x
1517	Pipistrellus nathusii			x
1518	Pipistrellus pipistrellus			x
196416	Pipistrellus pygmaeus			x
1519	Pipistrellus savii			x
1522	Plecotus auritus			x
1523	Plecotus austriacus			x
1524	Plecotus teneriffae			x
1580	Vespertilio murinus			x
1377	Castor fiber	x		x
1389	Dryomys nitedula			x
1457	Muscardinus avellanarius			x
8353	Myomimus roachi	x		x
8350	Microtus tatricus	x		x
1525	Pteromys volans	x	x	x
1558	Sciurus anomalus			x
1562	Sicista betulina			x
314959	Rousettus aegyptiacus	x		x

### Annex 3 - Key birds species of Community importance

Key : **Bor.** = boreal forest; **LT** = lowland temperate forest; **MF** = montane forest; **Riv.** = riverine forest; **Mac.** = Macaronesian forest; **Med.** = Mediterranean forest, shrubland and rocky habitat

Sources: Tucker, G.M. & Evans, M. (1997) completed by Ecosphère. Sub-species included in the Birds Directive Annex 1 have been considered with an Unfavourable conservation status. Other data extracted from Birdlife 2004.

Species code	Species name	Bor.	LT	MF	Riv.	Mac	Med.	Priority Status	EU Conservation Status
A402	<i>Accipiter brevipes</i>		x		x		x		Unfavourable
A400	<i>Accipiter gentilis arrigonii</i>						x	x	Unfavourable
A401	<i>Accipiter nisus granti</i>					x		x	Unfavourable
A223	<i>Aegolius funereus</i>	x							Favourable
A079	<i>Aegypius monachus</i>						x	x	Unfavourable
A111	<i>Alectoris barbara</i>						x		Unfavourable
A465	<i>Alectoris graeca graeca</i>						x		Unfavourable
A412	<i>Alectoris graeca saxatilis</i>						x		Unfavourable
A413	<i>Alectoris graeca whitakeri</i>						x	x	Unfavourable
A255	<i>Anthus campestris</i>						x		Unfavourable
A424	<i>Apus caffer</i>						x		Favourable
A091	<i>Aquila chrysaetos</i>	x	x	x			x		Unfavourable
A090	<i>Aquila clanga</i>	x	x		x			x	Unfavourable
A404	<i>Aquila heliaca</i>		x	x			x	x	Unfavourable
A405	<i>Aquila heliaca adalberti</i>						x	x	Unfavourable
A089	<i>Aquila pomarina</i>		x		x		x	x	Unfavourable
A029	<i>Ardea purpurea</i>				x				Unfavourable
A024	<i>Ardeola ralloides</i>				x				Unfavourable
A104	<i>Bonasa bonasia</i>		x						Unfavourable
A215	<i>Bubo bubo</i>	x	x	x			x		Favourable
A403	<i>Buteo rufinus</i>						x		Favourable
A243	<i>Calandrella brachydactyla</i>						x		Unfavourable
A224	<i>Caprimulgus europaeus</i>	x	x	x			x		Unfavourable
A469	<i>Certhia brachydactyla dorotheae</i>						x		Unfavourable
A030	<i>Ciconia nigra</i>		x	x	x		x		Unfavourable
A080	<i>Circaetus gallicus</i>		x	x	x		x		Favourable
A082	<i>Circus cyaneus</i>	x							Unfavourable
A421	<i>Columba palumbus azorica</i>					x		x	Unfavourable
A231	<i>Coracias garrulus</i>		x		x		x		Unfavourable
A239	<i>Dendrocopos leucotos</i>	x	x	x					Favourable
A427	<i>Dendrocopos major canariensis</i>					x		x	Unfavourable
A428	<i>Dendrocopos major thanneri</i>					x		x	Unfavourable
A238	<i>Dendrocopos medius</i>		x	x	x				Favourable
A429	<i>Dendrocopos syriacus</i>						x		Favourable
A236	<i>Dryocopus martius</i>	x	x	x	x				Favourable
A447	<i>Emberiza caesia</i>						x		Favourable
A446	<i>Emberiza cineracea</i>						x		Unfavourable
A379	<i>Emberiza hortulana</i>	x					x		Unfavourable
A101	<i>Falco biarmicus</i>						x	x	Unfavourable
A511	<i>Falco cherrug</i>		x					x	Unfavourable
A100	<i>Falco eleonora</i>						x	x	Unfavourable
A103	<i>Falco peregrinus</i>	x	x				x		Favourable
A097	<i>Falco vespertinus</i>	x	x		x			x	Unfavourable

Species code	Species name	Bor.	LT	MF	Riv.	Mac	Med.	Priority Status	EU Conservation Status
A321	Ficedula albicollis		x	x	x				Favourable
A320	Ficedula parva		x						Favourable
A442	Ficedula semitorquata		x	x	x		x		Unfavourable
A448	Fringilla coelebs ombriosa					x			Unfavourable
A449	Fringilla teydea					x		x	Unfavourable
A245	Galerida theklae						x		Unfavourable
A217	Glaucidium passerinum	x							Favourable
A127	Grus grus	x			x				Unfavourable
A076	Gypaetus barbatus						x	x	Unfavourable
A078	Gyps fulvus						x		Favourable
A075	Haliaeetus albicilla	x	x		x				Unfavourable
A093	Hieraaetus fasciatus						x	x	Unfavourable
A092	Hieraaetus pennatus		x	x			x		Unfavourable
A439	Hippolais olivetorum						x		Unfavourable
A338	Lanius collurio	x	x	x			x		Unfavourable
A433	Lanius nubicus						x		Unfavourable
A451	Loxia scotica	x						x	Unfavourable
A246	Lullula arborea	x	x	x			x		Unfavourable
A073	Milvus migrans		x	x	x		x		Favourable
A074	Milvus milvus		x	x	x		x		Unfavourable
A077	Neophron percnopterus						x		Unfavourable
A023	Nycticorax nycticorax				x				Favourable
A467	Oenanthe cyprica						x		Favourable
A279	Oenanthe leucura						x		Unfavourable
A071	Oxyura leucocephala	x	x	x				x	Unfavourable
A094	Pandion haliaetus	x	x		x				Favourable
A470	Parus ater cypristes						x		Unfavourable
A072	Pernis apivorus	x	x	x					Favourable
A393	Phalacrocorax pygmeus				x			x	Unfavourable
A241	Picoides tridactylus	x	x	x					Unfavourable
A234	Picus canus	x	x	x	x				Unfavourable
A034	Platalea leucorodia				x				Unfavourable
A032	Plegadis falcinellus				x				Unfavourable
A346	Pyrrhocorax pyrrhocorax						x		Unfavourable
A453	Pyrrhula murina					x		x	Unfavourable
A444	Sitta krueperi						x		Unfavourable
A331	Sitta whiteheadi						x		Unfavourable
A457	Strix nebulosa	x							Favourable
A220	Strix uralensis	x							Favourable
A456	Surnia ulula	x							Favourable
A468	Sylvia melanothorax						x		Favourable
A440	Sylvia rueppelli						x		Unfavourable
A301	Sylvia sarda						x		Favourable
A302	Sylvia undata						x		Unfavourable
A409	Tetrao tetrix tetrix	x	x	x					Unfavourable
A108	Tetrao urogallus	x							Unfavourable
A166	Tringa glareola	x							Unfavourable
A117	Turnix sylvatica						x		Unfavourable