



**Technical Workshop**  
**“Sharing experiences on pan-European forest classification”**  
Copenhagen, Denmark, 24-25 November, 2008

**Outcome and Recommendations**

*Introduction*

In the Vienna Living Forest Summit Declaration, signed at the Fourth Ministerial Conference on the Protection of Forests in Europe (2003), the Signatory States and the European Community committed themselves to endorse the use of the “Improved Pan-European Indicators for Sustainable Forest Management as adopted by the MCPFE Expert Level Meeting, 7-8 October 2002, Vienna, Austria”. Following this set of improved criteria and indicators, the reporting for 7 of in total 35 quantitative indicators are now required by forest type.

In this context was raised the need to improve the forest classification beyond the present 3 categories (predominantly conifers, predominantly broadleaved, mixed), i.e. to introduce a new system of forest types which should allow a better assessment of the conditions of the forests across Europe. Following the subsequent MCPFE Work Programmes and in response to the above commitments the MCPFE has organised to date two workshops, as explained below.

**First Workshop:**

Workshop on “*Pan-European understanding of forest classification*” held in Bled, Slovenia, on 13-15 November, 2006. The workshop was jointly organised by the MCPFE, the Ministry of Agriculture, Forestry and Food of the Republic of Slovenia, the European Environment Agency of the European Union, IUFRO, UNECE/FAO, with contributions from the European Forest Institute, Accademia Italiana di Scienze Forestali, Italy, and the Joint Research Center of the European Union.

**Second Workshop:**

Technical workshop “*Sharing experiences on pan-European forest classification*”, Copenhagen, Denmark, 24-25 November, 2008. The workshop was jointly organised by the MCPFE, the European Environmental Agency of the European Union, IUFRO, UNECE/FAO, the Joint Research Center of the European Union, with contributions from the European Forest Institute, Accademia Italiana di Scienze Forestali, Italy.

A European forest classification comprising 14 main categories has been proposed for MCPFE reporting, i.e. ‘The European Forest Types (EFTs)’<sup>1</sup>. The main objective of the first workshop (November, 2006), which gathered representatives of the MCPFE countries, was:

- To discuss the potentials of applying the European Forest Types as a forest type framework for future pan-European reporting on forests and SFM;
- To elaborate recommendations for further deliberation by the MCPFE Expert Level Meeting (ELM).

In short this workshop recommended MCPFE to adopt the system but also identified some problems as regards the implementation (see also under ‘Conclusions below’).

The second workshop was organized following the MCPFE Expert Level Meeting 5-6 June 2007 which required ‘more testing and further work before adopting the proposal’ while ‘ensuring that a Team of Specialists is involved in the work’.<sup>2</sup>

The objectives of the workshop on 24-25 November 2008 at the European Environment Agency were thus to present in detail, experiences of implementing a forest classification in accordance with the EFTs at national and pan-European level:

- Experiences of European-level projects classifying forest data according to EFTs (ICP Forests/Forest Focus pilot projects, EU forest mapping based on satellite data);
- Experiences of classifying National Forest Inventory data according to EFTs;
- Field tests of classifying plot data according to EFTs.

Based on gained experiences a revision of the EEA report presenting the EFTs is envisaged (cf. footnote).

**Table 1.** Presentations given at the Copenhagen workshop ‘Sharing experiences on pan-European forest classification’ 24-25 November, 2008 (for more details on individual experiences with the EFT classification see Annex 1).

Title	Presenter & Organisation
<i>Introduction</i>	
<i>Application of EFTs as forest type framework for future pan-European reporting on forests and SFM</i>	Roman Michalak (UNECE)
<i>The European Forest Type classification</i>	Anna Barbati, (University of Tuscia)
<i>European applications</i>	
<i>Extensive mapping of the forest types (including the classification of the level I and II plots)</i>	Lucia Reithmaier (EC DG JRC)
<i>Studies within ICP Forests/Forest Focus</i>	Pat Neville (Coillte)
<i>Country experiences (cf. note)</i>	
<i>Mapping of European Forest Types in Slovenia</i>	Dragan Matijašić (Slovenian Forest Service)

<sup>1</sup> The European Forest Type classification is the outcome of a ten-year activity involving a large number of European forest scientists and other experts; for details of the classification and its scientific basis see the report ‘European forest types. Categories and types for sustainable forest management reporting and policy’ elaborated by a consortium lead by the Italian Academy of Forest Sciences (EEA Technical report No 9/2006).

<sup>2</sup> This also involves the relevant UNECE/FAO Team of Specialists on Monitoring Sustainable Forest Management’.

<i>Classifying data from a 'plot-based' NFI to European forest types</i>	Stein Tomter (Norwegian Forest and Landscape Institute)
<i>Experiences from Sweden</i>	Jonas Dahlgren (SLU)
<i>Experiences from Denmark</i>	Annemarie Bastrup-Birk (University of Copenhagen)
<i>Experiences from Great Britain</i>	Mark Lawrence (Forest Research)
<i>Experiences from ICP Forests (Germany)</i>	Oliver Granke (von Thuenen Institute, Institute World Forestry)
<i>Experiences from Austria</i>	Elmar Hauk (Bundesamt und Forschungszentrum für Wald)
<i>Experiences from Italy</i>	Piermaria Corona (University of Tuscia)
<i>Experiences from Portugal</i>	Christina Santos (Ministry of Agriculture)
<i>Experiences from Finland</i>	Tiina Tonteri (Metla)

Note: The presentations are based upon different activities, including National Forest Inventories, but the 'country' in table should not be interpreted to refer to any 'official' country experience.

## General Conclusions

The general conclusions below are a combination of statements on benefits and proposed actions from the meeting in Bled, 2006 which in parts were re-emphasized in the Copenhagen workshop in 2008, and additional recommendations and proposals for action resulting from the latter meeting.

Based on the numerous cases studies conducted, the MCPFE ELM was recommended to ***adopt the proposed 14 main categories of the European Forest Types*** as the standard for the seven MCPFE indicators which require reporting 'by forest type' (1.1 Forest Area; 1.2 Growing Stock; 1.3 Age structure and diameter distribution; 2.4 Forest Damage; 4.1 Tree species composition; 4.3 Naturalness and 4.5 Deadwood).

The main benefits of the proposed EFT classification are:

- The application of the EFTs will allow the reporting of complex data into logical, understandable and ecologically relevant units. 14 main categories are suitable for the pan-European reporting on the 7 MCPFE indicators that require information by forest type.
- The scheme of the 14 EFT main categories has a potential for better integrating forest data in a wide range of policies (e.g. policies concerning land-use planning, environment – climate, biodiversity etc. -, agriculture or water).
- The EFT classification has potential to be used in assessing climate change effects on forest ecosystems, including biodiversity, and serve further harmonizing of European forest monitoring activities.
- The reporting burden are seen as moderate and may shift from 3 (predominantly conifers, predominantly broadleaved, mixed) to an average of about 6 to 7 EFT categories per country.
- National case-studies as presented in Copenhagen showed that classifying forest data according to the EFT categories is readily feasible in a number of countries. The classification is thus regarded as largely doable without collecting any more field data, i.e. not needing any extensive input of resources. It was noted that implementing the proposed system may be more straightforward in some countries compared to others.

In summary the experts participating in the Technical Workshop "*Sharing experiences on pan-European forest classification*", Copenhagen, Denmark, 24-25 November, 2008 endorsed the adoption of the European Forest Types but suggested a stepwise approach towards implementation, i.e. the MCPFE reporting on all 7 MCPFE indicators by EFT main categories. The exchange of experiences with the EFT classification showed to be extremely useful and this technical cooperation should

continue to assist countries in implementing the European Forest Type categories in the reporting of forest data.

### **Proposed actions before adopting the European Forest Types**

Preceding an official adoption of the EFTs as a basis for MCPFE reporting it is envisaged that the UNECE/FAO Team of Specialists on Monitoring Sustainable Forest Management will be in position to present a positive assessment of EFT long-term feasibility for the reporting countries<sup>3</sup>.

The presently proposed classification will be a significant improvement in presenting data on forests across Europe. It was concluded at the meeting that the 14 main categories are appropriate, i.e. no new main categories should be added. Although the precision of the classification might be increased – some categories are fairly broad – there is a need to limit the number of categories.

To ensure the operationality of the EFT classification a few inconsistencies should be addressed in the current documentation of the EFTs:

- Under the descriptions of the 14 main categories three additional subcategories included to the current 76 types:
  - An additional type ‘Fir forest’ (under EFT main-category 7 ‘Mountainous\_Beech forest’)
  - An additional type ‘Invasive alien tree species’ (under EFT main category 14 Plantations and self sown exotic forest)
  - Division of the type ‘Conifer dominated or mixed mire forest’ (EFT main category 11 ‘Mire and swamp forests’) into 2 types: ‘Spruce dominated mire forest’ and ‘Pine dominated mire forest’<sup>4</sup>
- The type 13.3 ‘Boreal birch forest’ is best suited to be reported under Category 3 ‘Alpine coniferous forest’. This category should then be renamed to ‘Alpine forest’.

The report presenting the EFTs (cf. footnote 1) will be updated in line with the above points.

It was noted that more clarification is required for the EFT main category 14 ‘Plantations and self sown exotic forest’ allowing e.g. to distinguish more clearly intensively managed plantations of non-native species and those of more ‘naturalized’ character potentially hosting more natural biodiversity. Furthermore, in spite of existing definitions the borderline between semi-natural and plantation forest was not always seen as obvious. Plantation forest is a concept not unique to forest type classification. The definition of plantation can be found in the MCPFE ‘State of Europe’s Forests 2007’ report and applied e.g. under the indicator 4.3 ‘naturalness’. MCPFE is thus recommended to initiate discussions to ensure a harmonised general approach to identifying forest plantations, taking into account current developments of management goals (with respect to e.g. protective vs. productive functions, pest resilience and restoration actions in forests dominated by invasive species).

Additionally a number of minor issues – in the context of adopting the proposed EFTs were noted:

- Operational approaches to reclassify to EFTs at national level should allow for embedment into

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<sup>3</sup> UNECE/FAO has distributed a questionnaire to investigate the feasibility of reporting on EFTs for the 7 selected indicators to all MCPFE reporting countries. This activity is ongoing (December 2008).

<sup>4</sup> It was noted that a more elaborate classification of mire and swamp forest may be needed for certain types of assessments.

existing reporting routines.

- The issue on how to deal with areas stocked with (a) pioneer species or natural succession in mountain regions, (b) burnt areas after forest fires or (c) unstocked forest areas was raised. For such forest areas it may not always be possible to assign an EFT main category. This fact should be accepted. The EFT classification should allow reporting not assignable forest areas. Explanations on reasons should be provided.
- A clear and commonly agreed definition of mire (or swamp) is required to adequately report to appropriate EFT main categories and sub-categories, cf. footnote 4.
- Species dominance and assignment to an EFT main category should be depicted through basal area (or its equivalents where information on basal area is not available) using single species or species groups as described in the nomenclature.

## Annex 1

Presentations given:

Title	Presenter & organisation	Main messages
<b>General</b>		
<b>Application of EFTs as forest type framework for future pan-European reporting on forests and SFM</b>	Roman Michalak (UNECE)	<ul style="list-style-type: none"> <li>• MCPFE Liaison Unit Oslo is planning to produce a SoFE based on the improved C&amp;I set</li> <li>• UNECE/FAO has distributed questionnaire to investigate of feasibility of reporting on EFTs for the 7 selected indicators (process ongoing)</li> <li>• Successive build up of EFTs reporting may be a feasible approach once they are endorsed by ELM</li> </ul>
<b>The European Forest Type classification</b>	Anna Barbati, (University of Tuscia and Italian Academy of Forest Sciences)	Applications of EFTs by: <ul style="list-style-type: none"> <li>• EC-JRC; ForestBiota and BioSoil; COSTE43; DG AGRI project: “Impacts of climate change on European forests and options for adaptation”; EEA Forest Ecosystem Report; LUCAS</li> </ul>
<b>European applications</b>		
<b>Extensive mapping of the forest types (including the classification of the level I and II plots)</b>	Lucia Reithmaier (EC DG JRC)	<ul style="list-style-type: none"> <li>• Forest/Non-Forest mapping: application of EFT classification (planned)</li> <li>• Mapping of habitat suitability of forest categories: application of EFT classification (ongoing)</li> </ul>
<b>Studies within ICP Forests/Forest Focus</b>	Pat Neville (Coillte)	Application of EFTs in BioSoil and ForestBiota projects using Level 1 and 2 plots. Outcomes: <ul style="list-style-type: none"> <li>• powerful tool when dealing with data from large scale surveys</li> <li>• Measured data in the field may be used to provide information to validate and improve forest type classification approaches</li> </ul> Note: option of testing EFTs in FutMon project (start January 2009)
<b>Country experiences</b>		
<b>Mapping of European Forest Types in Slovenia</b>	Dragan Matijašič (Slovenian Forest Service)	<ul style="list-style-type: none"> <li>• Existing InfoSystem in Slovenia compatible with EFT classification</li> <li>• 7 MCPFE indicators tested and feasible to report based on EFT classification</li> <li>• Maintenance of data/database is challenging due to size</li> <li>• Add ‘fir forest’ sub category under main category 7 ‘Mountainous beech forest’</li> <li>• Additional mapping on minority forest types needed in order to capture them in EFTs classification</li> </ul>
<b>Classifying data from a ‘plot-based’ NFI to European forest types</b>	Stein Tomter (Norwegian Forest and Landscape Institute)	<ul style="list-style-type: none"> <li>• NFI sample plots can be reclassified according to EFTs categories, based on existing data</li> <li>• Clarity in resolution/scale (minimum size of units) is important for classification result</li> <li>• Application of EFTs should be tested in neighboring countries with a similar forest situation for consistency</li> <li>• How to deal with temporarily unstocked forest areas</li> </ul>

<b>Experiences from Sweden</b>	Jonas Dahlgren (SLU)	<ul style="list-style-type: none"> <li>• Ecological definitions vs. forestry defined categorization</li> <li>• Definition on % of dominant tree species unclear</li> <li>• Where to place mountain birch in the classification</li> <li>• Parameters not always sufficient in NFI for explicit assignment to EFTs</li> <li>• Category 'plantation' not clear</li> </ul>
<b>Experiences from Denmark</b>	Annemarie Bastrup-Birk (University of Copenhagen)	<ul style="list-style-type: none"> <li>• Having a clear definition and typical stands allows to straightforward EFT classification</li> <li>• Uncertainties on definitions and interpretation of criteria for selection of plantation and semi-natural forests</li> </ul>
<b>Experiences from Great Britain</b>	Mark Lawrence (Forest Research)	<ul style="list-style-type: none"> <li>• Once final definitions for collection of forest types/indicators are fixed (e.g. basal area) they can be implemented to new field data collection 2009 – 2014</li> <li>• Clarification on 'dominant species'</li> </ul>
<b>Experiences from Germany</b>	Oliver Granke (vTI, Institute World Forestry)	<ul style="list-style-type: none"> <li>• Assignment from KeyA0 to A4 'mixed' category can cause difficulties. Example: no species % is &gt; 50% basal area (which EFT will it belong to); Issues of species which are dominant in stands but not in the tree key/list</li> <li>• Clarification of category 'Plantation': (1) suggestion to add 'rotation length', more clear definition of what is considered 'intensively managed' and where are the thresholds</li> <li>• Classification into EFTs can become rather subjective depending on the viewpoint.</li> <li>• Succession phases cause difficulty in assignment to a EFT (may be part of different categories and sub-categories)</li> </ul>
<b>Experiences from Austria</b>	Elmar Hauk (Bundesamt und Forschungszentrum für Wald)	<ul style="list-style-type: none"> <li>• &gt;50% of basal area should not be the determining factor for assignment to a EFT category, but should be done in the field</li> <li>• Missing tree species in stands: where to classify stands which are actually classified as oak dominated but oak is not present in stands</li> <li>• Natural succession in the mountains. Assignment difficult</li> </ul>
<b>Experiences from Italy</b>	Piermaria Corona (University of Tuscia)	<ul style="list-style-type: none"> <li>• The forest vegetation classes applied in the Italian NFI (INFC) to qualitatively classify ground plots at the second inventory phase are easily and directly comparable to EUFTs (1:1 relationship)</li> <li>• Quantitative data collected on INFC ground plots at the third inventory phase allow a straightforward assignment of the each plot to EUFTs</li> </ul>
<b>Experiences from Portugal</b>	Christina Santos (Ministry of Agriculture)	<ul style="list-style-type: none"> <li>• EFTs feasible in Portugal. Data collected from NFI can be used to implement this EFT classification with some adaptations</li> <li>• Issues: Forest plantations vs. invasive species</li> <li>• Add an 'invasive species' sub-category under main category 14 'Plantation'</li> <li>• How to handle burnt areas</li> <li>• Cooperation with neighboring countries with similar forest situations</li> </ul>

<p><b>Experiences from Finland</b></p>	<p>Tiina Tonteri (Metla)</p>	<ul style="list-style-type: none"> <li>• Difficulties in assigning mixed forests (example: 40 % <i>Betula pendula</i>, 30 % <i>Picea abies</i>, 30 % <i>Pinus sylvestris</i>). Rules for classifying mixed forests to be defined or add new types where appropriate</li> <li>• Boreal peatlands are ecologically very different from mires of other vegetation zones. Needs to be reflected within the EFTs classification</li> <li>• Type '11.1. Conifer dominated or mixed mire forest' should be divided into two sub-categories: 'Spruce dominated mire forest' and 'Pine dominated mire forest', since these two are very different ecosystems.</li> <li>• A clear definition for a mire (or a swamp, etc.) needs to be given</li> <li>• Ditched peatlands: Where to classify? Option: forests on mineral soils, since in late succession stages they have many characteristics typical of those.</li> <li>• The classification 'Mountain birch forest' unclear</li> <li>• More detailed description for the class 14.1. 'Plantations of site-native species' is seen necessary.</li> </ul>
<p><b>Experiences from France</b></p>	<p>Nicolas Robert (Inra)</p>	<ul style="list-style-type: none"> <li>• In most cases it is possible to reclassify NFI data in France to the 14 EFT main categories.</li> <li>• For some categories, the classification a posteriori has shown to be quite complicated and field decisions can differ from a posteriori classification.</li> <li>• Some difficulties were encountered during the classification process with the plantation category.</li> <li>• A decision support scheme for a posteriori classification to the main EFT categories could be useful</li> </ul>