

THE EUROPEAN FOREST TYPES *for improved monitoring of forests in Europe*



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Content

- European Forest Types

1. WHY

2. WHAT

3. HOW



1. WHY?



UN ECONOMIC COMMISSION FOR EUROPE FOOD AND AGRICULTURE ORGANIZATION
MINISTERIAL CONFERENCE ON THE PROTECTION OF FORESTS IN EUROPE



Enquiry

State of Forests and Sustainable Forest Management in Europe 2011

**NATIONAL DATA REPORTING FORMS
on
PAN-EUROPEAN INDICATORS
FOR SUSTAINABLE FOREST MANAGEMENT**

*Quantitative indicators
collected and/or validated through UNECE/FAO, Geneva*

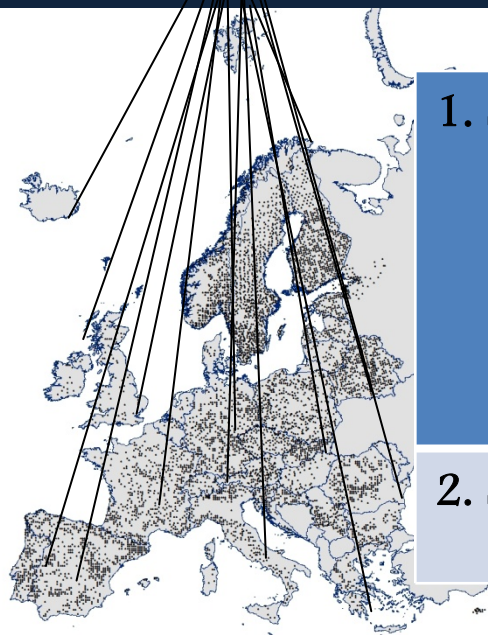
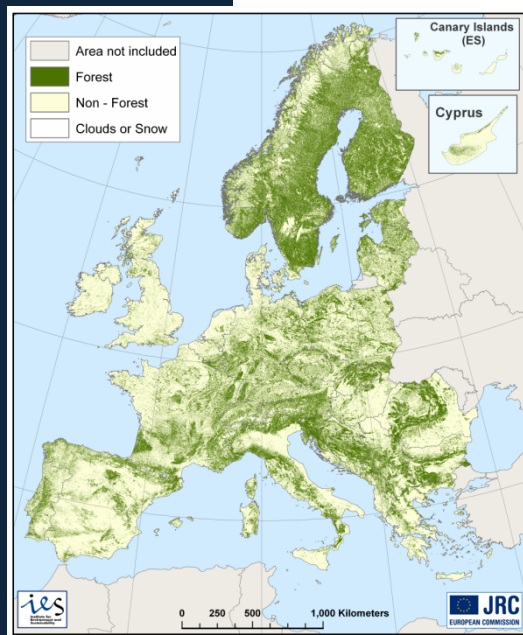
pan-European Indicators for SFM

3. Data evaluation/ reporting

Coniferous

Broadleaved

Mixed



1. Set of indicators

Forest area
Growing stock
Age structure and/or
diameter distribution
Tree species
Deadwood
...

2. Source of data

NFIs , FM plans,
Forest maps

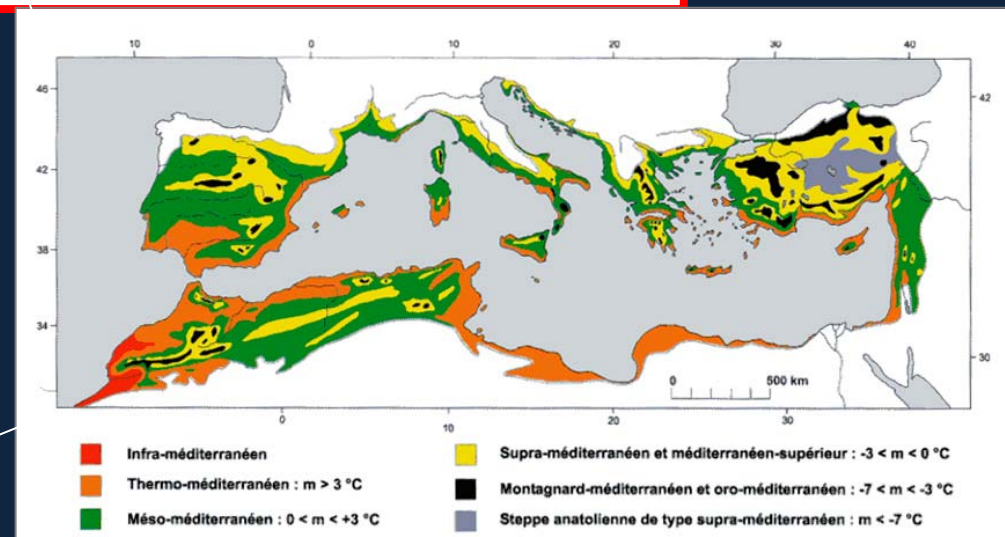
Large forest area (over 1 billion ha, MCPFE 2007), high spatial
variability of indicators values

Mediterranean coniferous forests



Alpine coniferous forests

1 (average) value for coniferous forests, does it make sense?



2. WHAT?

1. Forest classification system to report information in a meaningful way

2. Stratification based on ecological & anthropogenic boundaries



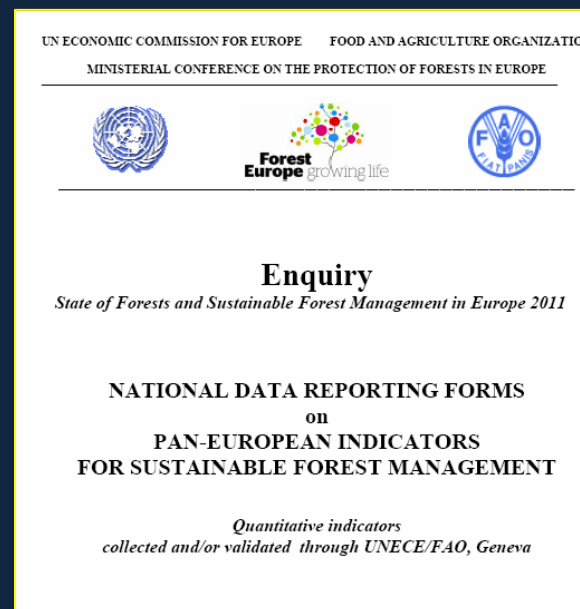
Developed by international experts
Coordinated by the ITALIAN
ACADEMY of FOREST SCIENCES



14 categories,
76 types

Testing,
feedbacks

FOREST EUROPE
UNECE/FAO Timber
section
2007~2009



EEA, 2006

2010

UPDATED
Classification

Sources: http://reports.eea.europa.eu/technical_report_2006_9/en
Barbati, Corona, Marchetti, *Plant biosystems*, 2007

14 CATEGORIES

1. Boreal forest
2. Hemiboreal and nemoral coniferous and mixed broadleaved-coniferous forest
3. Alpine coniferous forest
4. Acidophilous oak and oak-birch forest
5. Mesophytic deciduous forest
6. Beech forest
7. Mountainous beech forest
8. Thermophilous deciduous forest
9. Broadleaved evergreen forest
10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions
11. Mire and swamp forest
12. Floodplain forest
13. Non-riverine alder, birch or aspen forest

Cold/wet
climate

Warm/dry
climate

Azonal

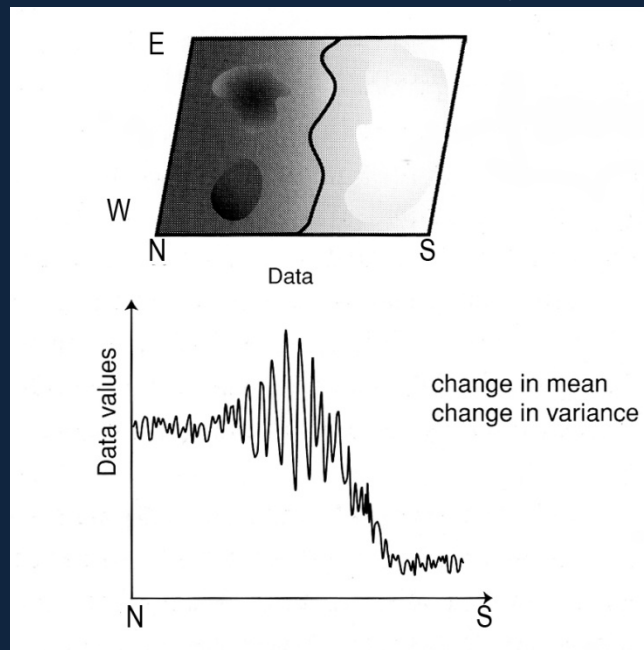
Pioneer

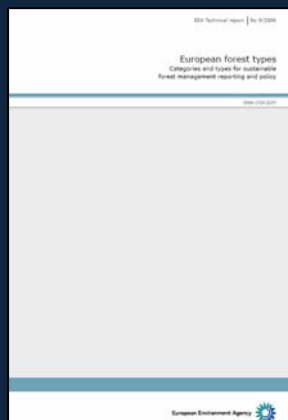
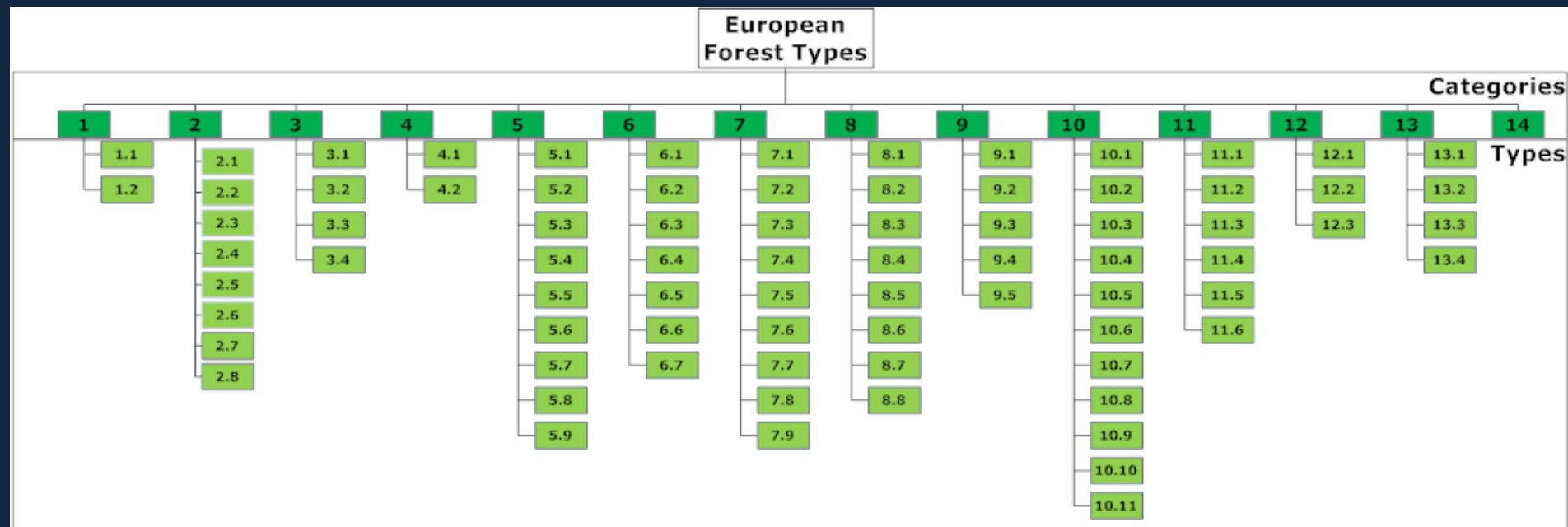
14. Introduced tree species forest

- ~ Tree species with a native range outside Europe
- ~ native to Europe, but not within the borders of individual countries

14 Categories ...

- enable a comparison of ecologically similar forests
- understandable and comprehensive units for analysing and reporting information (less variability, than 3 classes...)





TYPES (bottom-up classification)

Classification
keys



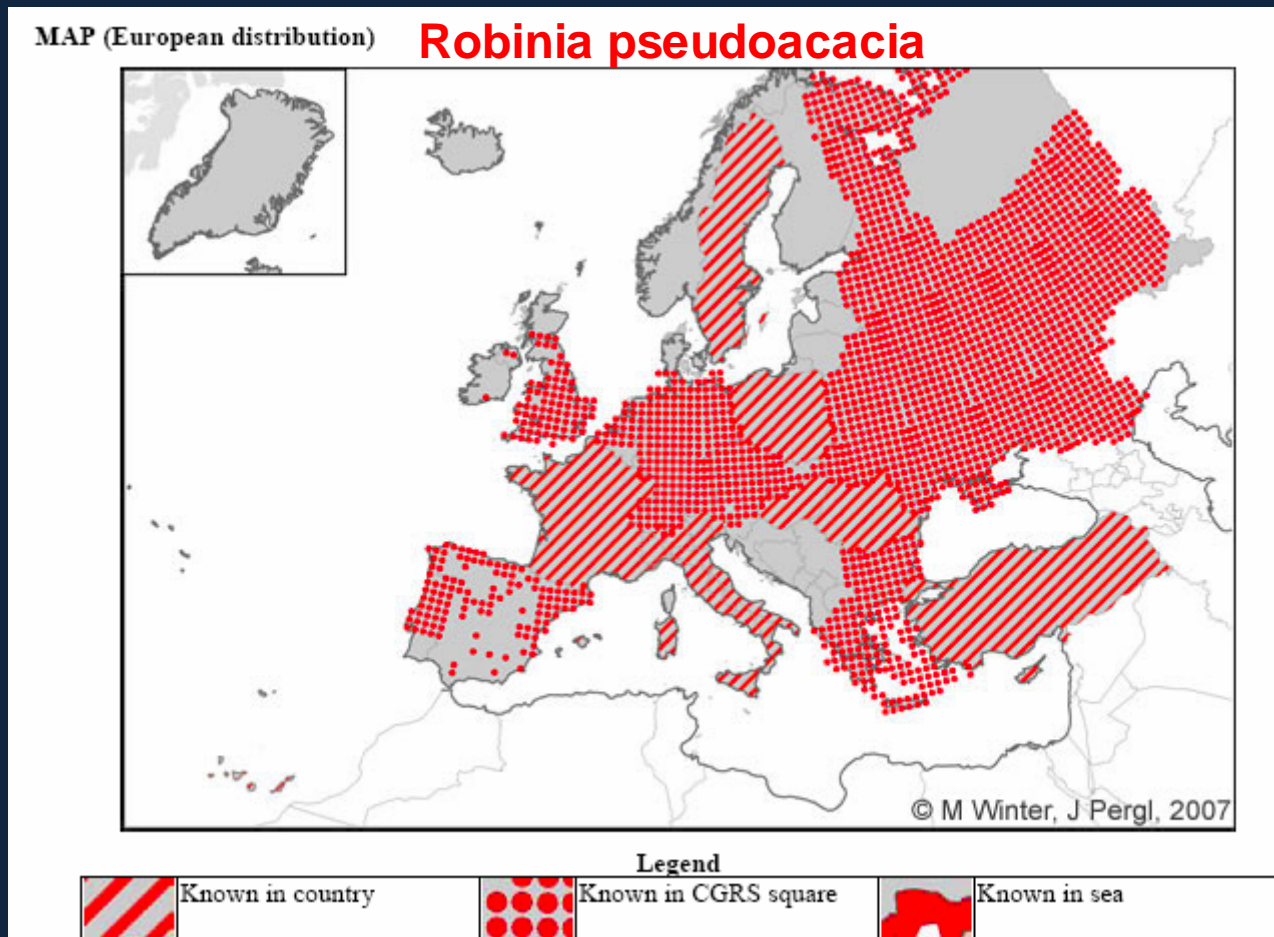
NFIs plots
ICP plots
National forest maps classes

Introduced tree species are defined as...

1. tree species with a native range outside Europe *[might become established, self-reproducing where introduced]*
1. tree species native to Europe, but not naturally occurring within the borders of individual MCPFE member states

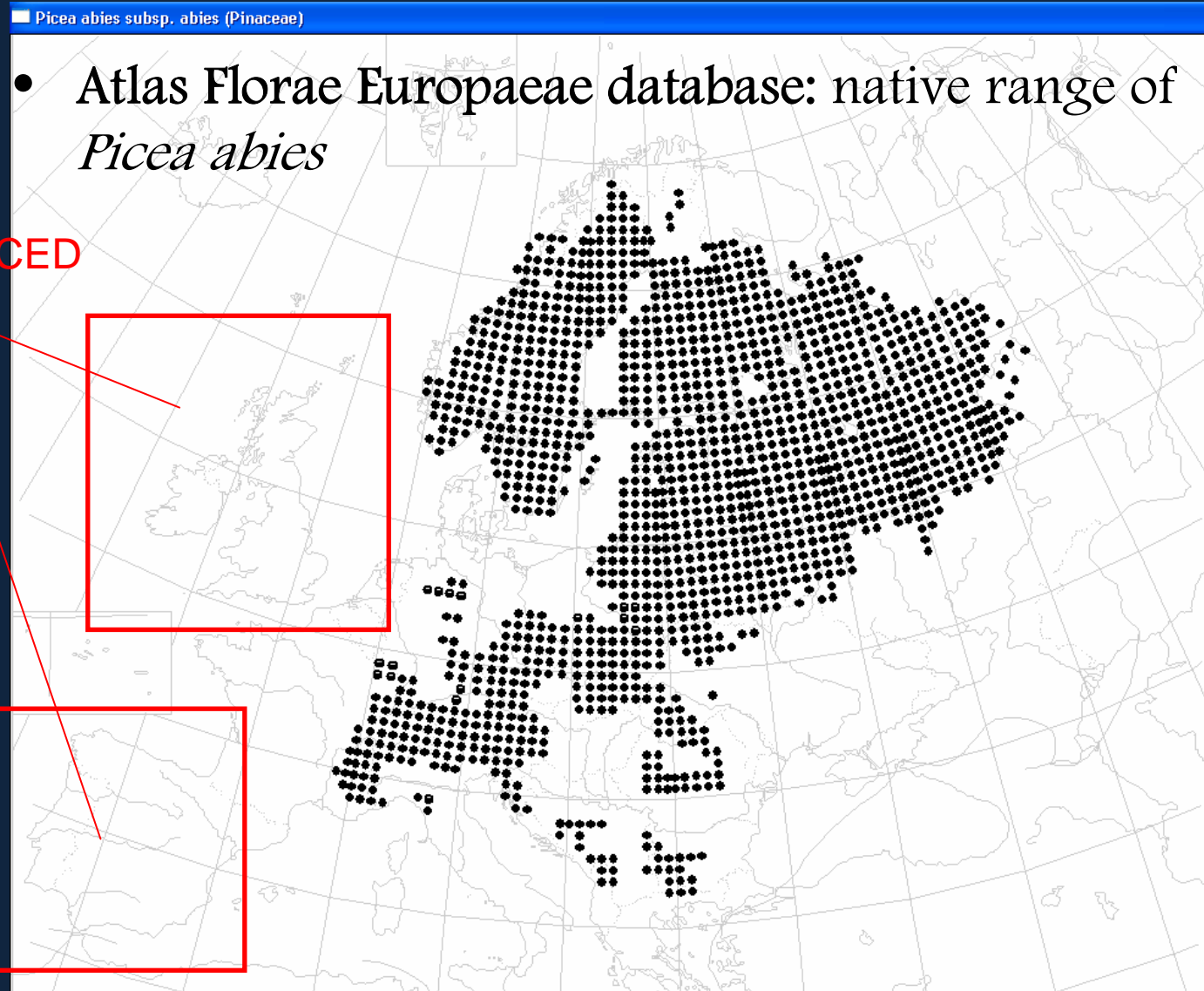
1. tree species with a native range outside Europe

[*Eucalyptus* spp., *Robinia pseudoacacia*, *Acacia dealbata*, *Ailanthus altissima*, *Prunus serotina*, *Quercus rubra*, *Fraxinus alba*, *Picea sitkensis*, *Pinus contorta*, *Pinus banksiana*, *Pseudotsuga menziesii*, *Tsuga heterophylla*]



Source: DAISIE European Invasive Alien Species Gateway, www.europe-aliens.org

2. tree species native to Europe, but not naturally occurring within the borders of individual MCPFE member state



www.fmnh.helsinki.fi/english/botany/afe/publishing/database.htm

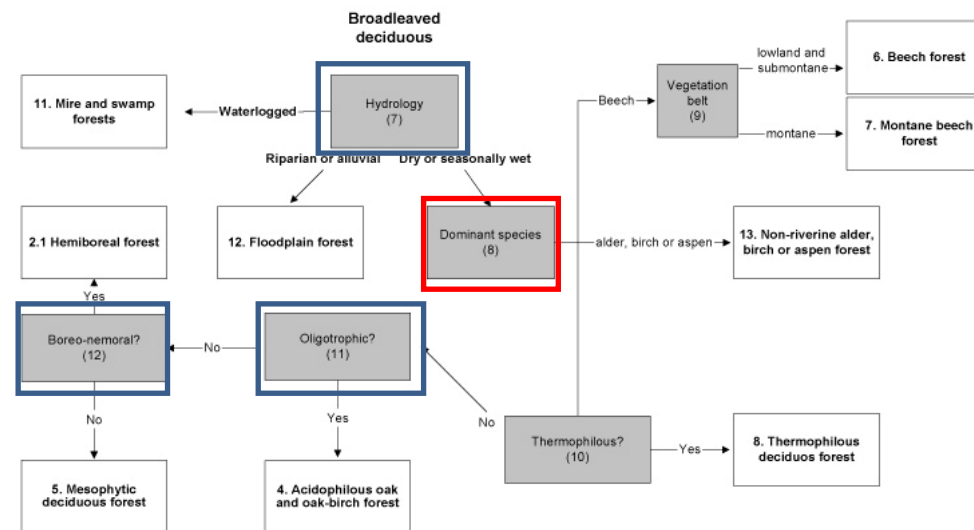
Classification keys

To cross-link national forest data (e.g. NFIs plots, classes of forest maps) to categories and types, based on:

- simple ecological information (biogeographic region, water regime, site edaphic condition)
- forest dominant tree species (one/group of species > 50% BASAL AREA)

Key 2. Criteria for broadleaved deciduous categories and forest types

(number) refers to explanatory notes (see following page).



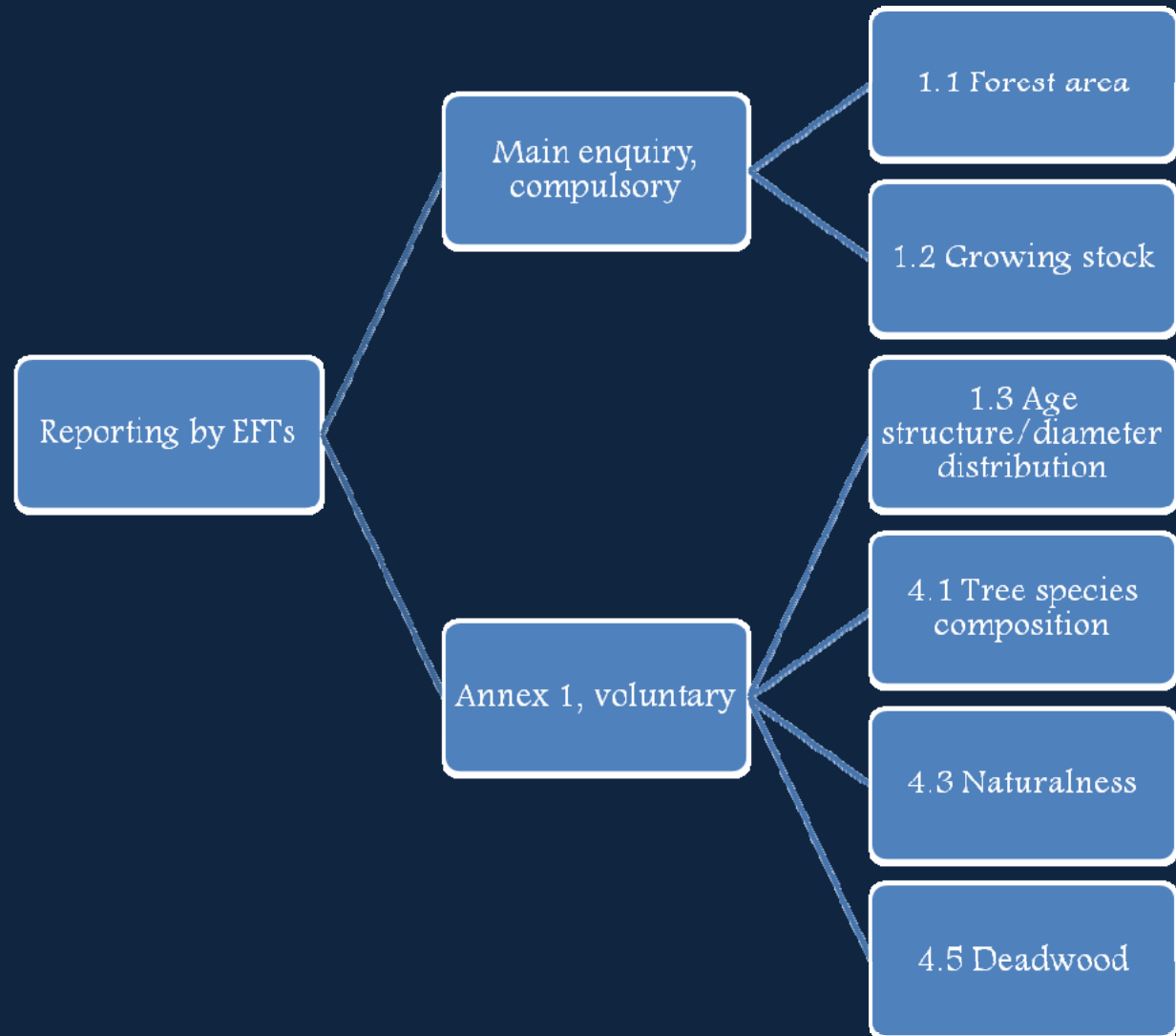
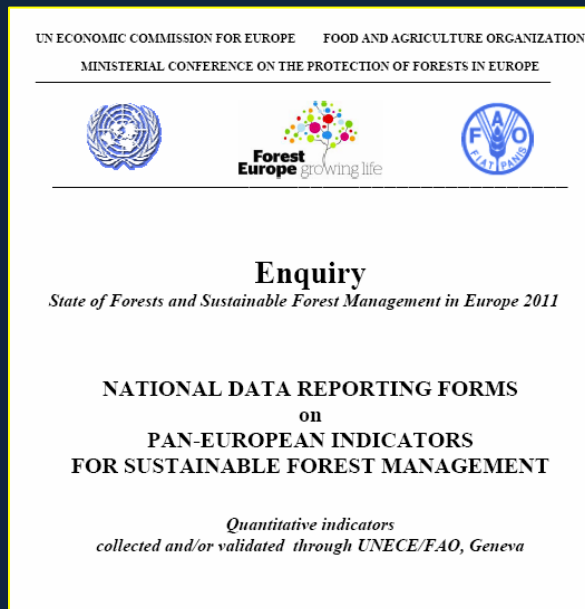
Category & types

Categories	Types
1. Boreal forest	1.1 Spruce and spruce-birch boreal forest 1.2 Pine and pine-birch boreal forest
2. Hemiboreal forest and nemoral coniferous and mixed broadleaved-coniferous forest	2.1 Hemiboreal forest 2.2 Nemoral Scots pine forest 2.3 Nemoral spruce forest 2.4 Nemoral Black pine forest 2.5 Mixed Scots pine-birch forest 2.6 Mixed Scots pine-pedunculate oak forest
3. Alpine coniferous forest	3.1 Subalpine larch-arolla pine and dwarf pine forest 3.2 Subalpine and mountainous spruce and mountainous mixed spruce-silver fir forest 3.3 Alpine Scots pine and Black pine forest
4. Acidophilous oak and oak-birch forest	4.1 Acidophilous oakwood 4.2 Oak-birch forest
5. Mesophytic deciduous forest	5.1 Pedunculate oak-hornbeam forest 5.2 Sessile oak-hornbeam forest 5.3 Ashwood and oak-ash forest 5.4 Maple-oak forest 5.5 Lime-oak forest 5.6 Maple-lime forest 5.7 Lime forest 5.8 Ravine and slope forest 5.9 Other mesophytic deciduous forests
6. Beech forest	6.1 Lowland beech forest of southern Scandinavia and north central Europe 6.2 Atlantic and subatlantic lowland beech forest 6.3 Subatlantic submountainous beech forest 6.4 Central European submountainous beech forest 6.5 Carpathian submountainous beech forest 6.6 Illyrian submountainous beech forest 6.7 Moesian submountainous beech forest
7. Mountainous beech forest	7.1 South western European mountainous beech forest (Cantabrians, Pyrenees, central Massif, south western Alps) 7.2 Central European mountainous beech forest 7.3 Apennine-Corsican mountainous beech forest 7.4 Illyrian mountainous beech forest 7.5 Carpathian mountainous beech forest 7.6 Moesian mountainous beech forest 7.7 Crimean mountainous beech forest 7.8 Oriental beech and hornbeam-oriental beech forest
8. Thermophilous deciduous forest	8.1 Downy oak forest 8.2 Turkey oak, Hungarian oak and Sessile oak forest 8.3 Pyrenean oak forest 8.4 Portuguese oak and Mirbeck's oak Iberian forest 8.5 Macedonian oak forest 8.6 Valonia oak forest 8.7 Chestnut forest 8.8 Other thermophilous deciduous forests
9. Broadleaved evergreen forest	9.1 Mediterranean evergreen oak forest 9.2 Olive-carob forest 9.3 Palm groves 9.4 Macaronesian laurisilva 9.5 Other sclerophyllous forests
10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions	10.1 Mediterranean pine forest 10.2 Mediterranean and Anatolian Black pine forest 10.3 Canarian pine forest 10.4 Mediterranean and Anatolian Scots pine forest 10.5 Alti-Mediterranean pine forest 10.6 Mediterranean and Anatolian fir forest 10.7 Juniper forest 10.8 Cypress forest 10.9 Cedar forest 10.10 <i>Tetraclinis articulata</i> stands 10.11 Mediterranean yew stands

Categories	Types
11. Mire and swamp forest	11.1 Conifer dominated or mixed mire forest 11.2 Alder swamp forest 11.3 Birch swamp forest 11.4 Pedunculate oak swamp forest 11.5 Aspen swamp forest
12. Floodplain forest	12.1 Riparian forest 12.2 Fluvial forest 12.3 Mediterranean and Macaronesian riparian forest
13. Non riverine alder, birch, or aspen forest	13.1 Alder forest 13.2 Italian alder forest 13.3 Boreal birch forest 13.4 Southern boreal birch forest 13.5 Aspen forest
14. Plantations and self sown exotic forest	14.1 Plantations of site-native species 14.2 Plantations of not-site-native species and self-sown exotic forest

TYPE
inner stratification of each category reflecting its *inner variability due to changes in forest building species, floristic region and/or structural types*

3. HOW? Pilot reporting for SoEF2011



Example : Pilot table 1.1b: Forest area by forest types

Category	area (1000 ha)			
	1990	2000	2005	2010
Types				
1. Boreal forest				
2. Hemiboreal and nemoral coniferous and mixed broadleaved-coniferous forest				
3. Alpine forest				
4. Acidophilous oak and oak-birch forest				
5. Mesophytic deciduous forest				
6. Beech forest				
7. Mountainous beech forest				
8. Thermophilous deciduous forest				
9. Broadleaved evergreen forest				
10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions				
11. Mire and swamp forest				
12. Floodplain forest				
13. Non-riverine alder, birch or aspen forest				
14. Introduced tree species forest				
Unclassified stocked forest				
TOTAL				
types as applied for SoEF 2007				
Predominantly coniferous forest				
Predominantly broadleaved forest				
Mixed forest				

Example of results

Category	Forest area (1000 ha)		
	Sweden	Belarus	UK
1. Boreal forest	16.240	51	
2. Hemiboreal and nemoral coniferous and mixed broadleaved-coniferous forest	6.241	5.101	227
3. Alpine forest			
4. Acidophilous oak and oak-birch forest	74	248	99
5. Mesophytic deciduous forest	19	78	331
6. Beech forest	72		83
7. Mountainous beech forest			
8. Thermophilous deciduous forest			376
9. Broadleaved evergreen forest			
10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions			
11. Mire and swamp forest	2.789	1.654	
12. Floodplain forest	41	32	
13. Non-riverine alder, birch or aspen forest	1.334	1.466	82
14. Introduced tree species forest	476	0	1.420
TOTAL	27.286	8.630	2.618

provisional data, from testing activities

Final remarks

PROS

- Improved quality of reporting on forest condition
- More targeted policy action and forest management

But realism is needed, implementation on a wide pan-European scale is expected to be jeopardized

(for some countries easy, for other too complex task)

The way ahead



1. to share experiences from the reporting according to EFTs
2. examine challenges
3. propose solutions for the implementation of the EFTs

THE EUROPEAN FOREST TYPES for improved monitoring of forests in Europe

THANK YOU!

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CONFERENCE ON FOREST PROTECTION, LA GRANJA – VALSAIN, APRIL 6-7
2010

THANK YOU!



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