High nature value forest areas: 
a proposal for Italy based on national forest inventory data

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What are “High Nature Value” forest areas?
Quercus frainetto high forest
Old-growth stages of coppices and chestnut woods
Natural forests and those semi-natural forests where the management (historical or present) supports a high diversity of native species and habitats and/or which support the presence of species of European, and/or national, and/or regional conservation concern (Beaufoy & Cooper 2008).

Criteria for the definition of HNV-forests:

a) Natural and semi-natural forests.

b) Management which supports high native species or habitat diversity.

c) Species of conservation concern.
Forest data sources and definitions

National forest inventory (INFC) - Data of sampling points selected on the basis of a three-phase sampling strategy (Tabacchi et al., 2007).

(a) Statistical sampling and homogeneous analysis throughout the Italian territory.

(b) Information consistent with international standards (FAO and MCPFE).

(c) Detailed forest classification.

(d) Possibility of repeating the inventory collecting updated information.

(e) The data referring to single points cannot be used to map HNV forests.
**Introduction**

**Methods**

**Results**

**Conclusions**

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**Phase 1**

- Raw Forest/NonForest discrimination (Forest+OWL)
- ~300,000 sampling points
- Tessellation stratified sampling

**Photointerpretation**

**1° Field Survey**

- Accurate Forest/NonForest discrimination (Forest+OWL)
- Forest category classification
- Qualitative assessment
- ~30,000 sampling points from Forest + OWL strata

**Phase 2**

**Phase 3**

**2° Field Survey**

- Quantitative measurements
- ~7,000 sampling points from Forest category strata
### MCPFE - SFM indicators
Sustainable Forest Management monitoring system

<table>
<thead>
<tr>
<th>MCPFE indicator</th>
<th>INFC attribute</th>
<th>Possible use for the estimation of the HNV forest area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naturalness (4.3)</td>
<td>Forest category</td>
<td>Makes it possible to distinguish natural and semi-natural forests from plantations.</td>
</tr>
<tr>
<td>Introduced tree species (4.4)</td>
<td>Forest sub-category</td>
<td>Makes it possible to distinguish forests made up prevalently of autochthonous species.</td>
</tr>
<tr>
<td>Regeneration (4.2)</td>
<td>Origin of the stocking</td>
<td>Makes it possible to distinguish natural or semi-natural forests from reforestation and forestation</td>
</tr>
<tr>
<td>Protected forests (4.9)</td>
<td>Protected areas</td>
<td>Meets the criterion of presence of species that are particularly valuable for the preservation of biodiversity</td>
</tr>
<tr>
<td>Dead-wood (4.5)</td>
<td>Stand development stage</td>
<td>The volume of dead-wood is one of the parameters advised by the EC. Information about this indicator have been drawn from the 2(^{nd}) phase INFC attribute “stand development stage”</td>
</tr>
<tr>
<td>Specific composition (4.1)</td>
<td>Forest sub-category</td>
<td>Tree diversity, though not a parameter advised by the EC, is deemed of considerable importance. Information about this indicator have been drawn from the 2(^{nd}) phase INFC attribute “forest sub-category”</td>
</tr>
</tbody>
</table>
Classification procedure of a INFC point

Possible HNV forest area according to qualitative indicators
Qualitative indicators for HNV forest area

Proposed qualitative indicators for HNV forest area

Indicator 1

Species/habitats of conservation interest?

Habitat of European interest (Habitat Directive) “rare” or of particular ecological, biogeographical or landscape value

NO

Indicator 2

Subject to nature protection measures?

YES

2a “Protected areas”: Natura 2000, national and regional parks

Structure of value for biodiversity?

YES

2b Uneven-aged, irregular, complex high forests, old-growth coppice forests
Some examples for HNV forests in Italy

Habitat of conservation concern

- Pioneer Larix-Picea woodland
- Sub-alpine Pinus cembra woodland

High diversity forest stand

- Old-growth alluvial plain forest
Some examples for HNV forests in Italy

Habitat of conservation concern

- Apennine beech forest with Abies alba
- High diversity forest stand
  - Old-growth Quercus cerris forest
- Forest habitat with vegetation of endemic character
  - Quercus trojana woodlands
HNV forests in Italy

<table>
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<tr>
<th>HNV forest area (hectars)</th>
<th>S.E. %</th>
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<tr>
<td>2,259,066</td>
<td>1,2</td>
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</tbody>
</table>

26% of the forest area
HNV forests in NFI forest types

Number of NFI plots

- Larch and Swiss stone pine
- Norway spruce
- Scots pine and Mountain pine
- Beech
- Black pines
- Chestnut
- Hornbeam and Hophornbeam
- Temperate deciduous oaks
- Other deciduous forests
- Mediterranean pines
- Holm oak
- Cork oak
- Hygrophilous forests
- Other forests

Giseppe Pignatti
Session 1
High Nature Value forestry in Italy

A procedure starting from indicators acknowledged at international level (MCPFE). Use of data collected according to homogeneous criteria for the whole national territory (INFC).

Classification criteria do not preclude a subsequent analysis on territorial distribution of HNV forests (i.e. through forestry planning data).

“High nature value forests” based not only on the presence of species or habitats of conservation concern, but also on elements of “low-intensity management”, as the case of close-to-nature sylvicultural systems.
Thank you for your attention!