Regional Forest Information Week
State of forests and forest management in the UNECE region in the context of current needs and challenges

Productive functions of forest resources – main trends and findings (pan-European region, Canada and USA)

Marco Marchetti and Annemarie Bastrup-Birk
Framing the presentation

• Productive functions= wood production including roundwood (industrial roundwood and woodfuel) and non-wood forest products (NWFPs)
• Pan-European region, Canada and United States
• Global Forest Ressource Assessment and Forest Europe
• “…The productive function of forest resources indicates the economic and social utility of forest resources to national economies and forest-dependent local communities and reflects the wish to maintain an ample and valuable supply of primary forest products, while at the same time ensuring that production and harvesting are sustainable and do not compromise the management options of future generations for productive or other functions of forests.”
Productive functions of forests

• Many products are extracted from forests, ranging from timber, wood fuel to food (berries, mushrooms, edible plants, bushmeat), fodder and other NWFPs.
• By quantity, industrial roundwood and woodfuel are the most important products;
• Among NWFPs, food and fodder are the most significant
Importance of Criterion 3 (GFRA, 2010)

- Forests, other wooded land and trees outside forests provide a wide range of wood and non-wood forest products.
- The productive function of forest resources indicates the economic and social utility of forest resources to national economies and forest-dependent local communities.
- Reflects the wish to maintain an ample and valuable supply of primary forest products, while at the same time ensuring that production and harvesting are sustainable.
GFRA2010

• GFRA2010
  – Area of forest designated for production
  – Removals of wood products
  – Removals of non-wood products
  – Forest under management plans

• Forest Europe
  – 5 indicators under criterion 3
The 5 indicators of Criterion 3

1. Balance between net annual increment and annual fellings of wood on FAWS
2. Value and quantity of marketed roundwood
3. Value and quantity of marketed non-wood goods from forest and other wooded land
4. Value of marketed services on forest and other wooded land
5. Proportion of forest and other wooded under a management plan or equivalent
Area of forest primarily designated for production

• Area of forest primarily for production:
  – Worldwide 1,2 bio ha
  – Europe has highest share 52 % (57%)
  – 30 % in USA

• Canada reported most of its forest area for multiple use: 86%
## Area of forest primarily for production

<table>
<thead>
<tr>
<th>(1000 ha)</th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Russian Federation</strong></td>
<td>446 679</td>
<td>411 437</td>
<td>415 791</td>
</tr>
<tr>
<td><strong>Europe</strong></td>
<td>111 363</td>
<td>111 229</td>
<td>108 829</td>
</tr>
<tr>
<td><strong>Pan Europe</strong></td>
<td>558 042</td>
<td>522 666</td>
<td>524 620</td>
</tr>
<tr>
<td><strong>Canada</strong></td>
<td>15 284</td>
<td>15 284</td>
<td>15 284</td>
</tr>
<tr>
<td><strong>USA</strong></td>
<td>69 980</td>
<td>72 878</td>
<td>75 227</td>
</tr>
<tr>
<td><strong>Pan Europe, US, CA</strong></td>
<td>643 306</td>
<td>610 828</td>
<td>615 131</td>
</tr>
<tr>
<td><strong>World</strong></td>
<td>1 181 576</td>
<td>1 160 325</td>
<td>1 131 210</td>
</tr>
</tbody>
</table>
**Trends**

- Worldwide a decrease in the area of forest with primary production purposes, 2,5 mio ha yr⁻¹ (-0.25 % per yr)
- In pan Europe a decrease of 3,5 mio ha from 1990-2000 followed by a slight increase
- In North America: a steady increase since 1990 due to large scale establishments of planted forests
## Trends in FAdP

<table>
<thead>
<tr>
<th></th>
<th>Annual change (10^3 ha)</th>
<th>Annual change rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russian Federation</td>
<td>-3 524</td>
<td>435</td>
</tr>
<tr>
<td>Europe</td>
<td>-13</td>
<td>-240</td>
</tr>
<tr>
<td>Pan Europe</td>
<td>-3 538</td>
<td>195</td>
</tr>
<tr>
<td>USA</td>
<td>290</td>
<td>240</td>
</tr>
<tr>
<td>World</td>
<td>-2 125</td>
<td>-2 911</td>
</tr>
</tbody>
</table>
## Status: Balance between net annual increment and annual fellings of wood on FAWS

<table>
<thead>
<tr>
<th>Region</th>
<th>Net annual increment</th>
<th>Fellings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$10^6$ m$^3$</td>
<td>m$^3$/ha</td>
</tr>
<tr>
<td>Central-East Europe</td>
<td>98.3</td>
<td>5.6</td>
</tr>
<tr>
<td>Central-West Europe</td>
<td>261.0</td>
<td>7.8</td>
</tr>
<tr>
<td>North Europe</td>
<td>237.2</td>
<td>4.6</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>852.9</td>
<td>1.3</td>
</tr>
<tr>
<td>South-East Europe</td>
<td>23.9</td>
<td>5.9</td>
</tr>
<tr>
<td>South-West Europe</td>
<td>78.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Forest Europe</td>
<td>1551.6</td>
<td>1.8</td>
</tr>
<tr>
<td>EU-27</td>
<td>619.7</td>
<td>4.7</td>
</tr>
<tr>
<td>Europe without Russian Federation</td>
<td>698.7</td>
<td>4.2</td>
</tr>
</tbody>
</table>
Trends in Forest Europe (23 countries)

- Net annual increment: increasing 4,2 mio m³ yr⁻¹; however, loss of 4,8 mio m³ yr⁻¹ between 2005-2010 due to windfalls in DE and FR

- Fellings:
  - 1990-2000: -12,3 mio m³ yr⁻¹
  - 2000-2005: 10,9 mio m³ yr⁻¹
  - 2005-2010: -7,5 mio m³ yr⁻¹
Trends: Fellings and net annual increment

Forest Europe region
Removals of wood products (GFRA, 2010)

- Worldwide 3,4 bio m$^3$ in 2005; 50/50 industrial roundwood and wood fuel; OWL ~299 mio m$^3$
- In Europe mainly industrial roundwood 78% (FE), in US 16%, RF 6%

<table>
<thead>
<tr>
<th>mio m$^3$</th>
<th>1990</th>
<th>2000</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pan Europe</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>736</td>
<td>631</td>
<td>723</td>
</tr>
<tr>
<td><strong>Canada, US</strong></td>
<td>825</td>
<td>796</td>
<td>781</td>
</tr>
</tbody>
</table>
Trends: removals of wood products (GFRA, 2010)

• Global level: increasing total removals from 2000-2005 after fall in 1990
• In Russian Federation, sharp decline in early 1990 contributing to an overall decline in pan Europe of 8% for 1990-2000, then back to levels
• Total removals have steadily increased in Europe-RF in 1990-2005 by 1,5% per year
• North America stable trend with decreasing total removals from 825 mio m³ in 1990 to 781 mio m³ in 2005
Roundwood (industrial and wood fuel)

- Forest Europe (29 countries)
  - 595 mio m³ in 2010
- Total value of marketed roundwood
  - 22 countries: ~17 bio. € (~ 90 % industrial roundwood)
  - 75% of the total value of forest products removal is from 5 countries: DE, SE, FI, FR, PL
Value of marketed roundwood in 2010: 16570 mio. €
## Trends in volume of total marketed roundwood

<table>
<thead>
<tr>
<th>Year</th>
<th>Marketed Volume [10^6 m³]</th>
<th>Annual Change [10^6 m³/year]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest Europe</td>
<td>307.5</td>
<td>361.0</td>
</tr>
</tbody>
</table>

- Total marketed removals increased 6 mio m³/yr from 1990-2005; reduction of 3.9 mio m³ from 2005-2010 (reduced industrial roundwood) – steady increase in wood fuel since 1990
Non-wood forest products removals

- GFRA2010: 31 European countries info on NWFP removals.
  - Food > honey > ornamental plants > wild meat > medicinals.
  - Nuts, mushrooms, berries and honey; Christmas trees (in Northern Europe), hunting, game meat, skins and trophies, and cork (by the Southwestern Mediterranean countries).
- North America maple products, Christmas trees, resins, berries, furs, boughs and mushrooms
- Total value of NWFP: ~ 2,53 bio. € (Forest Europe region)
NON-WOOD GOODS

Pan Europe (27 countries)

- Christmas trees: 34% (+6%)
- Decorative foliage, incl. ornamental plants, mosses, etc...: 4% (-4%)
- Cork: 13% (+12%)
- Fruits, berries and edible nuts: 17% (-1%)
- Game meat: 11% (+2%)
- Wild honey and bee wax: 10% (+5%)
- Mushrooms and truffles: 8% (-12%)
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Mushrooms and truffles: 8% (-12%)

Wild honey and bee wax: 10% (+5%)

Game meat: 11% (+2%)

Cork: 13% (+12%)

Fruits, berries and edible nuts: 17% (-1%)

Decorative foliage, incl. ornamental plants, mosses, etc...: 4% (-4%)
Comments from GFRA2010

• Information on NWFPs is important and can be further improved.

• Based on the information supplied for FRA 2010, food is the largest category of NWFPs globally. Other important categories include exudates, other plant products, wild honey and beeswax, and ornamental plants.

• Europe has the highest reported level of animal based NWFP removals.
Non-wood forest services (marketed)

- Marketed services have been gaining more and more focus in recent years
- Very limited data on the value of marketed services: only 15 countries
- The total value for marketed services: ~ 892 mio. €
Non-wood forest services (marketed)

• Marketed ecological protective services
• Marketed biological (environmental services)
• Marketed social (recreational) services
• Other marketed services (multiple!)
Marketed services in Forest Europe (15 countries)

- Social services: 49%
- Biospheric services: 20%
- Other services: 28%
- Ecological services: 4%

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Marco Marchetti, University of Molise, Italy
Forest under management plans

• In 2010: Europe 75% (71% min RF), North America 68%
• Forest Europe 29 countries → 150 mio. ha (~15% of European forest area) slight increase since 1990
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Thanks for your attention