Wood Zones Around Mills in the MFRC NE Landscape: FIA Data on Timberlands

DNR-MFI Quarterly Meeting
30 April 2013
Objectives of the Wood Zone analyses

• Provide estimates of growth, harvest, and volume to support economic modeling
• Describe wood zones with respect to volume, ownership, species composition, wood quality, season of harvest, other variables of interest to NE landscape plan revision committee

Wood zone – Timberland in the Northeast landscape within 50 miles of a mill

Mills include those at Cloquet, Duluth, Grand Marais, Grand Rapids, International Falls, Two Harbors
Mill wood zones: timberlands in the MN Forest Resources Council’s Northeast Landscape within 50 miles of 6 mills
Ownership patterns in NE Landscape wood zones (based on volume)

<table>
<thead>
<tr>
<th>Ownership Type</th>
<th>Low%</th>
<th>High%</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Forest</td>
<td>2</td>
<td>58</td>
</tr>
<tr>
<td>State</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>County</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>Private</td>
<td>24</td>
<td>51</td>
</tr>
</tbody>
</table>
Timberland in the NE Landscape within 50 miles of mills

Timberland (acres)

- National Forest
- State
- County
- Private

Cloquet
Duluth
Grand Marais
Grand Rapids
International Falls
Two Harbors
## Species composition patterns in NE Landscape wood zones (based on volume)

<table>
<thead>
<tr>
<th>Species</th>
<th>Low%</th>
<th>High%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspen-Birch-Balm</td>
<td>34</td>
<td>40</td>
</tr>
<tr>
<td>Lowland conifer</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>Pine</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Spruce-Fir</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Ash</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Maple</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Oak</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>
Volume in NE Landscape wood zones

- Cloquet
- Duluth
- Grand Marais
- Grand Rapids
- International Falls
- Two Harbors

Volume (cords)

- Oak
- Ash
- Maple
- Spruce-Fir
- Pine
- Lowland conifer
- Aspen-Birch-Balm
Sampling error (and uncertainty about the estimate) increases as the number of plots used to make the estimate decreases.

Volume sampling errors vs. number of FIA plots
Timberland acres sampling error vs. number of FIA plots

- All owners and covertypes
- Individual owners, all covertypes
- Individual owners, Aspen
- Individual owners, Balsam fir
- Individual owners, Red pine
Wood quality (as indicated by stand age) in NE Landscape wood zones

Example bar graphs follow; pdf and Excel files contain data for all species and additional graphs for selected species
Acres of **ASPEN** timberland in the MFRC NE Landscape within 50 miles of INTERNATIONAL FALLS

- **Age class**
  - 0 to 10
  - 11 to 20
  - 21 to 30
  - 31 to 40
  - 41 to 50
  - 51 to 60
  - 61 to 70
  - 71 to 80
  - 81 to 90
  - 91 to 100

- **Acres of timberland**
  - NF
  - State
  - County
  - Private
Volume of **ASPEN** species and **BALM OF GILEAD** in the NE Landscape within 50 miles of **INTERNATIONAL FALLS**. 2011 FIA data.
Acres of **RED PINE** timberland in the MFRC NE Landscape within 50 miles of **GRAND MARAIS**

**Age class**

- 0 to 10
- 11 to 20
- 21 to 30
- 31 to 40
- 41 to 50
- 51 to 60
- 61 to 70
- 71 to 80
- 81 to 90
- 91 to 100

<table>
<thead>
<tr>
<th>Acres of timberland</th>
<th>NF</th>
<th>State</th>
<th>County</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 to 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 to 30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 to 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41 to 50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51 to 60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61 to 70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>71 to 80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>81 to 90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91 to 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Acres of **ASPEN** timberland in the MFRC NE Landscape within 50 miles of TWO HARBORS

- **State**
- **County**
- **Private**
- **NF**

<table>
<thead>
<tr>
<th>Age class</th>
<th>0 to 10</th>
<th>11 to 20</th>
<th>21 to 30</th>
<th>31 to 40</th>
<th>41 to 50</th>
<th>51 to 60</th>
<th>61 to 70</th>
<th>71 to 80</th>
<th>81 to 90</th>
<th>91 to 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of timberland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Acres of **ASPEN** timberland in the MFRC NE Landscape within 50 miles of CLOQUET
Volume of **MAPLES** in the NE Landscape within 50 miles of **CLOQUET**.

2011 FIA data.
Acres of **BLACK SPRUCE** timberland in the MFRC NE Landscape within 50 miles of **DULUTH**

- **Acres of timberland**
- **Age class**
- **State**
- **County**
- **Private**

**Legend**:
- NF
- State
- County
- Private
Acres of **BLACK SPRUCE** timberland in the MFRC NE Landscape within 50 miles of GRAND RAPIDS
Acres of **ASPEN** timberland in the MFRC NE Landscape within 50 miles of GRAND RAPIDS
Questions?
Acres of ASPEN timberland in the MFRC NE Landscape within 50 miles of CLOQUET

Age class | NF | State | County | Private
---|---|---|---|---
0 to 10 | | | | 40,000
11 to 20 | | | 30,000 | 10,000
21 to 30 | 10,000 | 15,000 | | 5,000
31 to 40 | 5,000 | 10,000 | | 5,000
41 to 50 | 25,000 | 5,000 | 20,000 |
51 to 60 | 5,000 | 15,000 | | 5,000
61 to 70 | 10,000 | 10,000 | 15,000 |
71 to 80 | 5,000 | 5,000 | 15,000 |
81 to 90 | 5,000 | 5,000 | 5,000 |
91 to 100 | 5,000 | 5,000 | 5,000 |
Acres of ASPEN timberland in the MFRC NE Landscape within 50 miles of GRAND RAPIDS

Age class:
- 0 to 10
- 11 to 20
- 21 to 30
- 31 to 40
- 41 to 50
- 51 to 60
- 61 to 70
- 71 to 80
- 81 to 90
- 91 to 100

States:
- NF
- State
- County
- Private
Acres of ASPEN timberland in the MFRC NE Landscape within 50 miles of TWO HARBORS

Acres of timberland

Age class

0 to 10
11 to 20
21 to 30
31 to 40
41 to 50
51 to 60
61 to 70
71 to 80
81 to 90
91 to 100

NF
State
County
Private
DNR Aspen timberland by age class: estimates from 2011 FIA data vs. current CSA data from FIM

[Note that the scale on the vertical axis does not change.]
Acres of DNR ASPEN timberland in the MFRC NE Landscape within 50 miles of CLOQUET

2011 FIA data
DNR Aspen timberland in the Cloquet-NE landscape wood zone

Aspen timberland (acres)

Age classes

Cloquet FIA

Cloquet FIM
Acres of DNR ASPEN timberland in the MFRC NE Landscape within 50 miles of DULUTH
2011 FIA data

Acres of timberland

<table>
<thead>
<tr>
<th>Age class</th>
<th>Acres of timberland</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 10</td>
<td>16,000</td>
</tr>
<tr>
<td>11 to 20</td>
<td>15,000</td>
</tr>
<tr>
<td>21 to 30</td>
<td>13,000</td>
</tr>
<tr>
<td>31 to 40</td>
<td>11,000</td>
</tr>
<tr>
<td>41 to 50</td>
<td>9,000</td>
</tr>
<tr>
<td>51 to 60</td>
<td>4,000</td>
</tr>
<tr>
<td>61 to 70</td>
<td>8,000</td>
</tr>
<tr>
<td>71 to 80</td>
<td>1,000</td>
</tr>
<tr>
<td>81 to 90</td>
<td>500</td>
</tr>
<tr>
<td>91 to 100</td>
<td>0</td>
</tr>
</tbody>
</table>
DNR Aspen timberland in the Duluth-NE landscape wood zone

Aspen timberland (acres) vs. Age classes

- **Duluth FIA**
- **Duluth FIM**

Age classes:
- 0 to 10
- 11 to 20
- 21 to 30
- 31 to 40
- 41 to 50
- 51 to 60
- 61 to 70
- 71 to 80
- 81 to 90
- 91 to 100
- 101 to 110
- 111 to 120
- 121 to 130
- 131 to 140
- 141 to 150
Acres of DNR ASPEN timberland in the MFRC NE Landscape within 50 miles of GRAND MARAIS - 2011 FIA data
Acres of DNR ASPEN timberland in the MFRC NE Landscape within 50 miles of GRAND RAPIDS - 2011 FIA data
DNR Aspen timberland in the Grand Rapids-NE landscape wood zone

- Grand Rapids FIA
- Grand Rapids FIM

Aspen timberland (acres)

Age classes

0 to 10
11 to 20
21 to 30
31 to 40
41 to 50
51 to 60
61 to 70
71 to 80
81 to 90
91 to 100
101 to 110
111 to 120
121 to 130
131 to 140
141 to 150
Acres of ASPEN timberland in the MFRC NE Landscape within 50 miles of INTERNATIONAL FALLS - 2011 FIA data
DNR Aspen timberland in the International Falls-NE landscape wood zone
Acres of DNR ASPEN timberland in the MFRC NE Landscape within 50 miles of TWO HARBORS - 2011 FIA data
DNR Aspen timberland in the Two Harbors-NE landscape wood zone

- Aspen timberland (acres)
- Two Harbors FIA
- Two Harbors FIM

Age classes:
- 0 to 10
- 11 to 20
- 21 to 30
- 31 to 40
- 41 to 50
- 51 to 60
- 61 to 70
- 71 to 80
- 81 to 90
- 91 to 100
- 101 to 110
- 111 to 120
- 121 to 130
- 131 to 140
- 141 to 150