A Characterization of Timber Salvage Operations on Public Forests in Minnesota and Wisconsin

Matthew Russell
Michael Kilgore
Charles Blinn

Department of Forest Resources
University of Minnesota

2016 Council on Forest Engineering Annual Meeting

Outline

• Causes of salvage sales in Minnesota and Wisconsin

• Salvage vs. non-salvage sale characteristics

• Contributions of salvage wood to markets in Minnesota and Wisconsin
Forest disturbances in the Great Lakes

- Weather
- Fire
- Insects
- Diseases
- Animals

Greatest to least impact to stand structure

Weather

- Recent notable events
  - Boundary Waters blowdown (1999)
    - Northeastern MN
    - 180,000 hectares
  - St. Croix Valley windstorm blowdown (2011)
    - Central MN and western WI
    - 65,000 hectares

- Links with other forest health issues
  - e.g., aspen decline and drought
Recent notable events
- Germann Road Fire (2013)
  - Northwest WI
  - 3,000 hectares
- Pegami Creek Fire (2011)
  - Northeastern MN
  - 37,000 hectares

Menakis et al. 2000
Area of forest disturbance in Minnesota (2010-2014) by type of disturbance

<table>
<thead>
<tr>
<th>Type of disturbance</th>
<th>Forest area (hectares)</th>
<th>Percent of total forest area</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>1,413,553</td>
<td>90.8%</td>
</tr>
<tr>
<td>Disturbed</td>
<td>143,970</td>
<td>9.2%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,557,523</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Total forest area across these ownerships that had disturbance between 2010 - 2014

5-10%

Total forest area for Minnesota includes state land; total forest area for Wisconsin includes state, county, and municipal land.
Objectives

1. Characterize salvage operations on state and/or county-owned lands in Minnesota and Wisconsin from FY 2010 through 2014.

2. Quantify wood volume represented by non-salvage and salvage timber sales.

3. Characterize differences in tract size and price/unit between non-salvage and salvage timber sales.

Data: Timber sales (FY 2010 – 2014)

<table>
<thead>
<tr>
<th></th>
<th>Minnesota</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public lands</td>
<td>State-owned</td>
<td>State and county-owned</td>
</tr>
<tr>
<td>Number of timber sale permits</td>
<td>3,948</td>
<td>3,298</td>
</tr>
</tbody>
</table>

---

**TRACT B1**

County: Pine  
Area: Sandstone Area  
Acres: 6.0

- Permit Number: B013402
- Expiration Date: 03/13/2016

**Purchased By:**

SESE, SWSE of Section 4, NENE, NE NW, NW, SENE, SWNE of Section 9 - Township 4S, Range 16W

**SPECIES**  
- Trembling Aspen  
- Northern Hardwoods

**APPRaised**  
- VOLUME  
- UNIT  
- PRICE  
- $ VALUE

**BIID**  
- UNIT  
- $ VALUE

**APPRAISED TOTAL** = $12,376.60

**ADVANCE PAYMENT** = $1,850.51

---
Results

• 30 million m$^3$ of appraised wood from FY 2010 - 2014

• Salvage sales contributed nearly 10 percent of appraised wood from FY 2010 - 2014

• 11% of all timber sales in MN were salvage sales

• 8% of all timber sales in WI were salvage sales
In select regions, salvage sales were larger in size compared to non-salvage sales.

- Central MN
  - 29 ha larger than non-salvage sales on average

- Northwest WI
  - 12 ha larger than non-salvage sales on average
Per unit value

- Non-salvage timber sales generated a significantly higher per unit price sold compared to salvage sales.

- **Example:** For aspen-birch in Minnesota, non-salvage sales yielded a 71% increase in the price sold per m³ ($62.70) compared to wood sold in a salvage sale ($36.60).

![Graph showing price sold per m³ for aspen-birch and spruce-fir in Minnesota and Wisconsin.](image)

Use of timber sale information

- Timber sales data may be used as an indicator of the extent of forest disturbance.

- **Tips for improving timber sale record-keeping:**
  1. Differentiate salvage sales from non-salvage ones.
  2. Document type of disturbance (e.g., beetle damage, windstorm damage).
  3. Document “pre-disturbance” stand conditions.
Summary

• Salvaged wood represents about 10% of the total appraised volume of wood sold in MN and WI

• Salvage sales were larger in size and had a lower price per unit compared to non-salvage sales,
  – But only if a widespread forest disturbance was observed

• Timber sale records are one of the few data sources available to understand the economic impacts of forest disturbances and their role in the wood supply chain.

Acknowledgements

• Doug Tillma, MN DNR

• Teague Pritchard, Wisconsin DNR
Thank you!

Questions?