

Minnesota's Forests

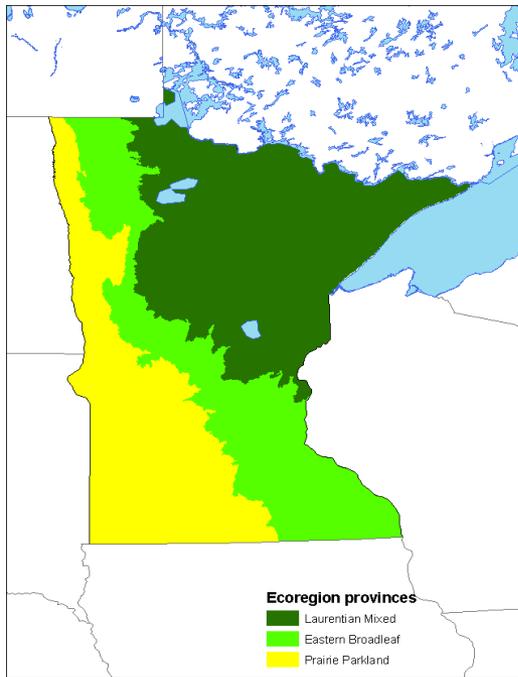


Dave Zumeta and
Calder Hibbard

March 7th, 2011



Minnesota's Biomes



■ Coniferous

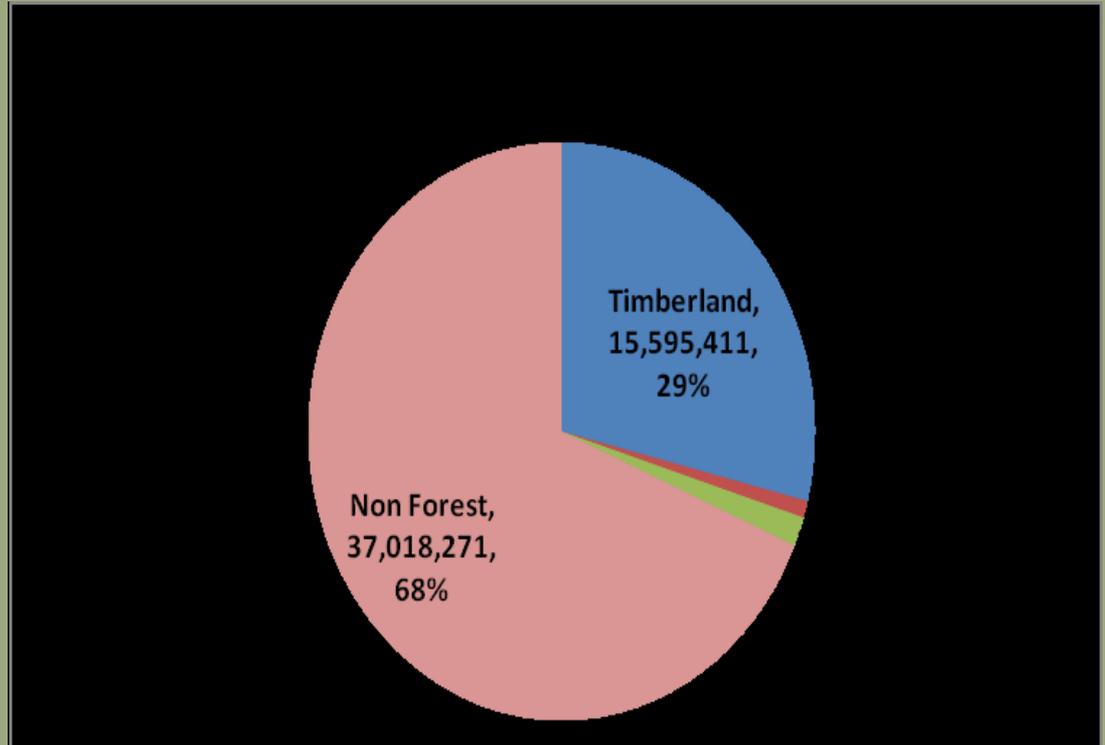
■ Deciduous

■ Prairie

Minnesota's Forests: Extent

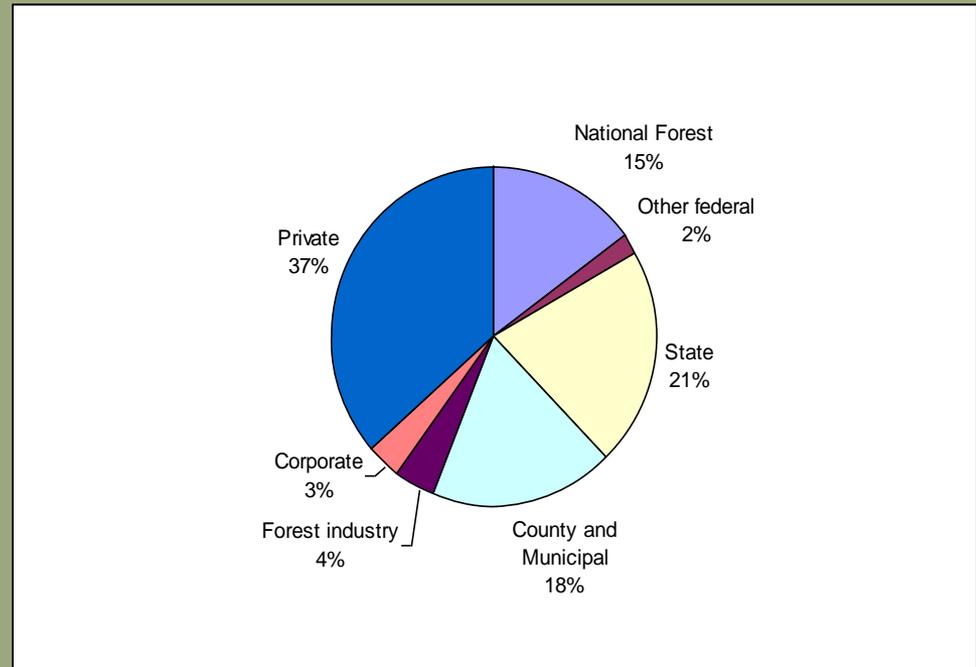
- 6.6 million hectares of forestland in MN
- 6.3 million hectares of viable commercial forestland

Geographic area	Percent forest land
World (FAO, 2006)	30
North America (FAO, 2006)	33
United States (Smith et al., 2009)	33
Lake States (MN, MI, WI)	43
Minnesota	33



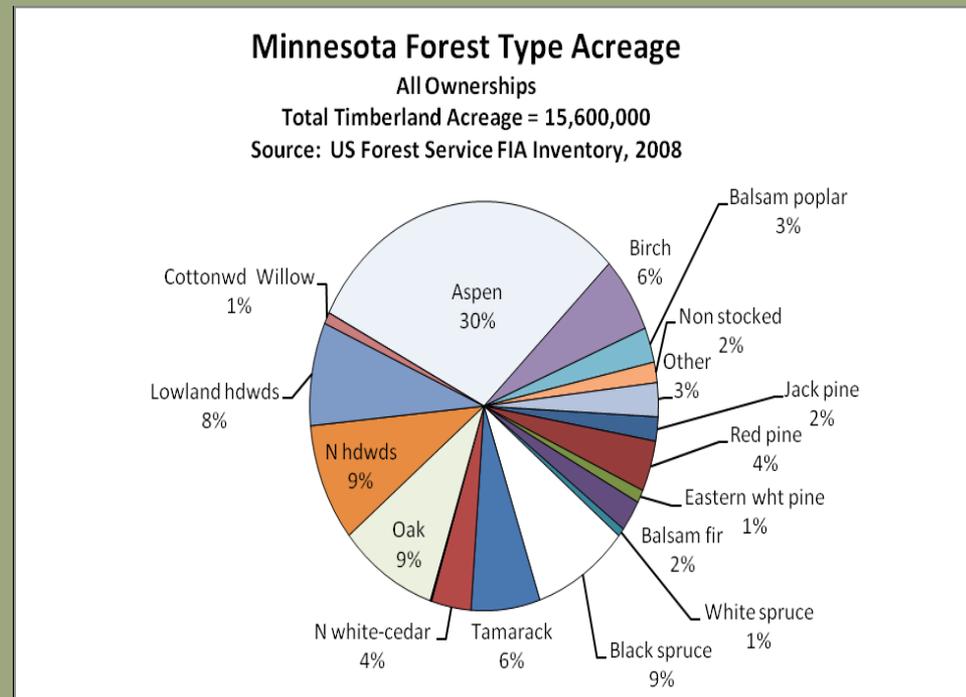
Minnesota's Forests: Ownership

- Public (56%)
 - State of MN (21%)
 - County and Local Gov'ts (18%)
 - Federal (17%)
- Private (44%)
 - Individuals (37%)
 - Corporations and Industry (7%)



Minnesota's Forests: Species

- Aspen (1.9 million hectares)
- Northern Hardwoods (0.6 million hectares)
- Oak (0.6 million hectares)
- Black Spruce (0.6 million hectares)
- Lowland Hardwoods (0.5 million hectares)



Minnesota's Forests: Characteristics and Facts

- 13.1 billion trees (>82% saplings)
- 64% are hardwoods, 36% softwoods
- Stocking varies
 - 52% well or over stocked
 - 33% medium stocked
 - 15% poorly or non-stocked
- Annual Growth = 2.4% of total live volume
- Annual Mortality = 1.9% of total live volume

Minnesota's Forests: Outputs and Benefits

- Wood fiber
- Recreation
- Ecosystem Services
 - Wildlife Habitat
 - Water quality
 - Prevention of soil erosion
 - Carbon sequestration



Forest Agencies



Forest Agencies: Department of Natural Resources

- Ecological & water resources
- Enforcement
- Fish and wildlife
- Forestry
- Land and minerals
- Parks and trails



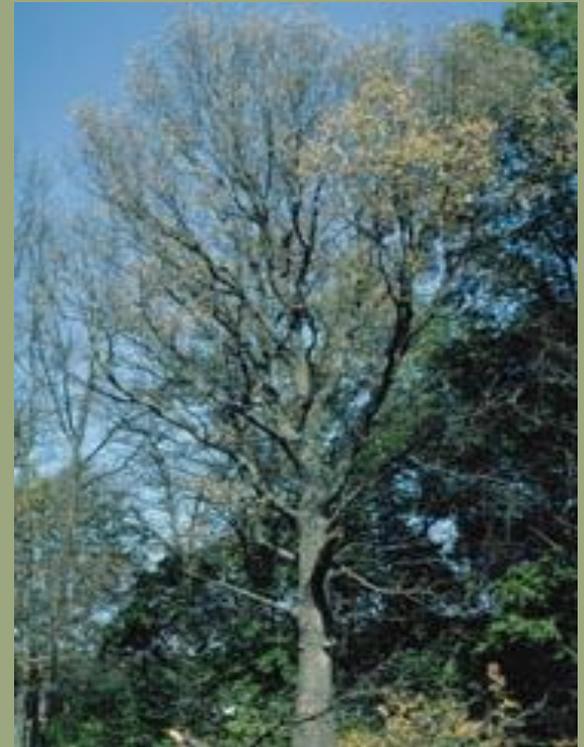
Forest Agencies: DNR-Division of Forestry

- Managing lands (1.8 million hectares)
- Fire fighting (>30,000 acres burned per year)
- Timber sales
- Private forest management assistance
- Community and urban forestry
- Education and outreach



Forest Agencies: Counties and Local Governments

- The 'lands no one wanted'
- 2.9 million acres
- 38% of public wood supply
- Different goals and priorities



Forest Agencies: Federal Agencies

- 2 National Forests
 - Superior
 - Boundary Waters Canoe Area Wilderness
 - Chippewa
- Voyageurs National Park
- Fish and Wildlife Refuges

Forest Agencies: Tribal Lands

- 11 tribes
 - 7 Reservations and 4 communities
- 468,000 acres of forestlands



Forest Agencies: MN Forest Resources Council

Representing:

- Conservation Orgs.
- County Land Depts.
- Environmental Orgs.
- Forest Industry
- Game Species Orgs.
- Labor
- Loggers
- MN DNR
- MN Indian Affairs Council
- Private Forest Owners
- Research/Higher Ed
- Resort and Tourism
- Secondary Manufacturers
- US Forest Service

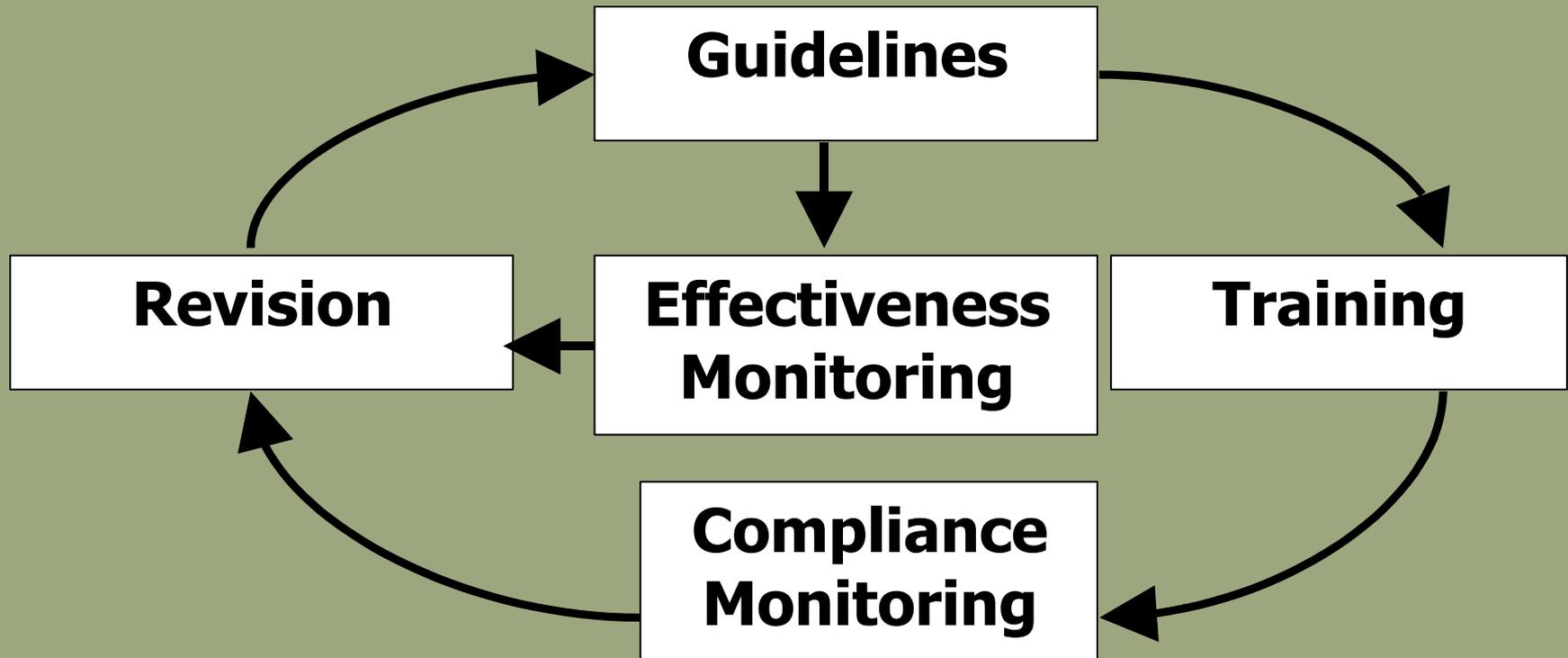


MN Forest Resources Council: Site-Level Program

- Sustainable forest management guidelines
- Monitoring programs

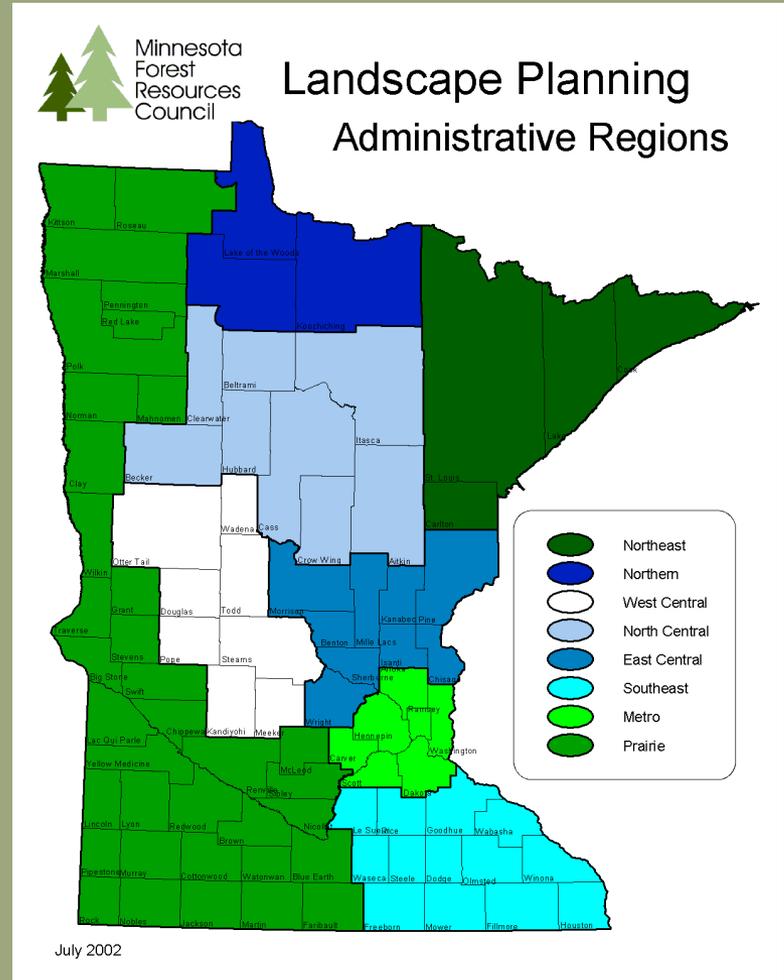


MN Forest Resources Council: Site-Level Program



MN Forest Resources Council: Landscape Management

- Plan creation
- Implementation
 - Develop and implement projects
- Coordination
- Monitoring



MN Forest Resources Council: Policy Program

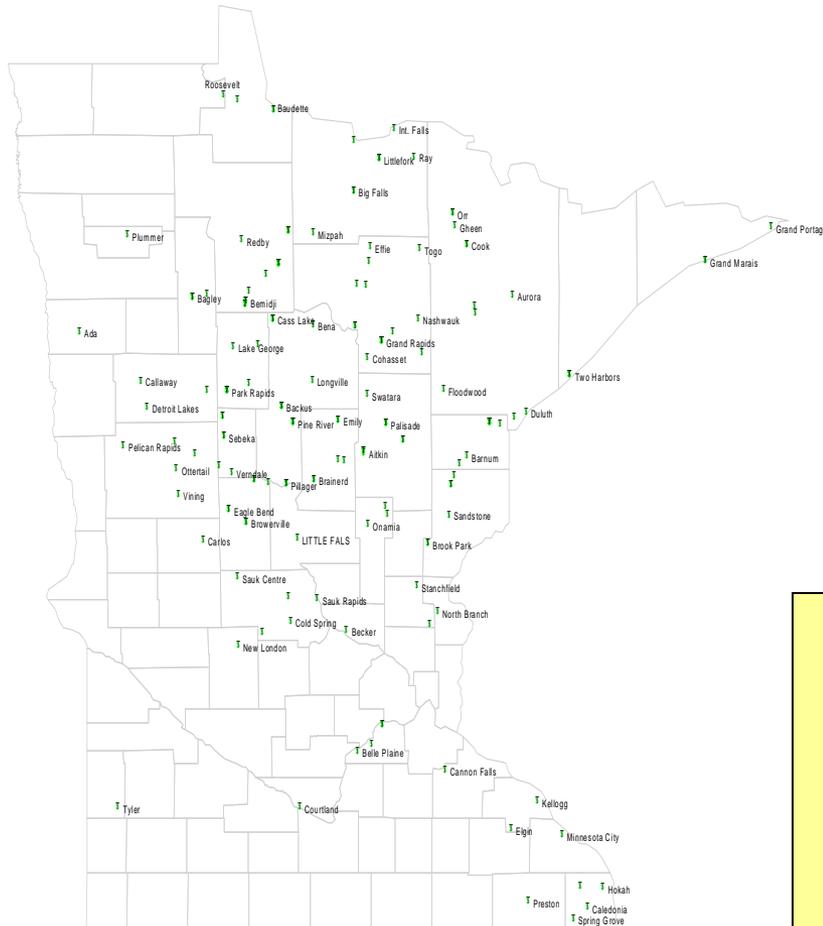
Recommendations to decision-makers:

- Federal policies
 - Road less areas
 - Fire funding
- State policies
 - Health of the forest products industry, land use change, forest health, climate change.

Minnesota's Forest Industry



Forest Industry: Primary Mill Locations

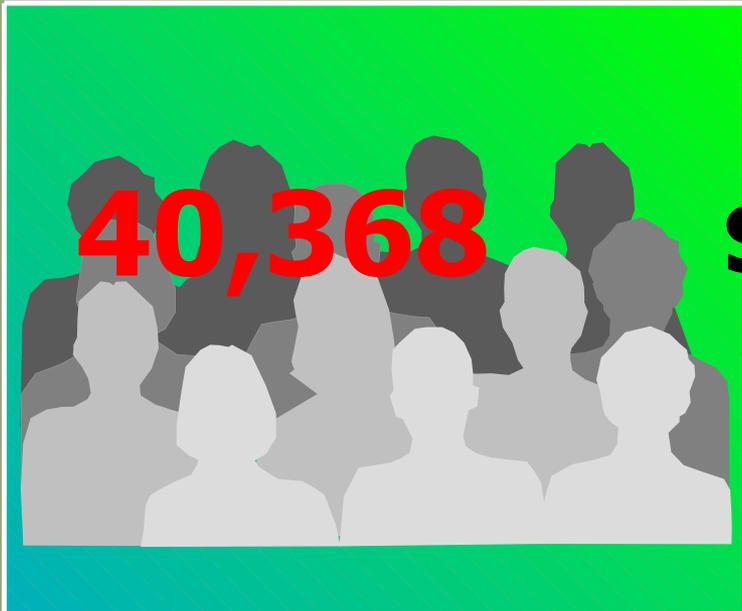


Industry

- *5 Pulp and Paper Mills*
- *3 Recycled Pulp & Paper*
- *4 Engineered Wood Products*
- *500+ Sawmills*
- *150 Associated Specialty Businesses*
- *Over 800 Secondary Manufacturers*

Forest Industry: Economic Impact

Employment



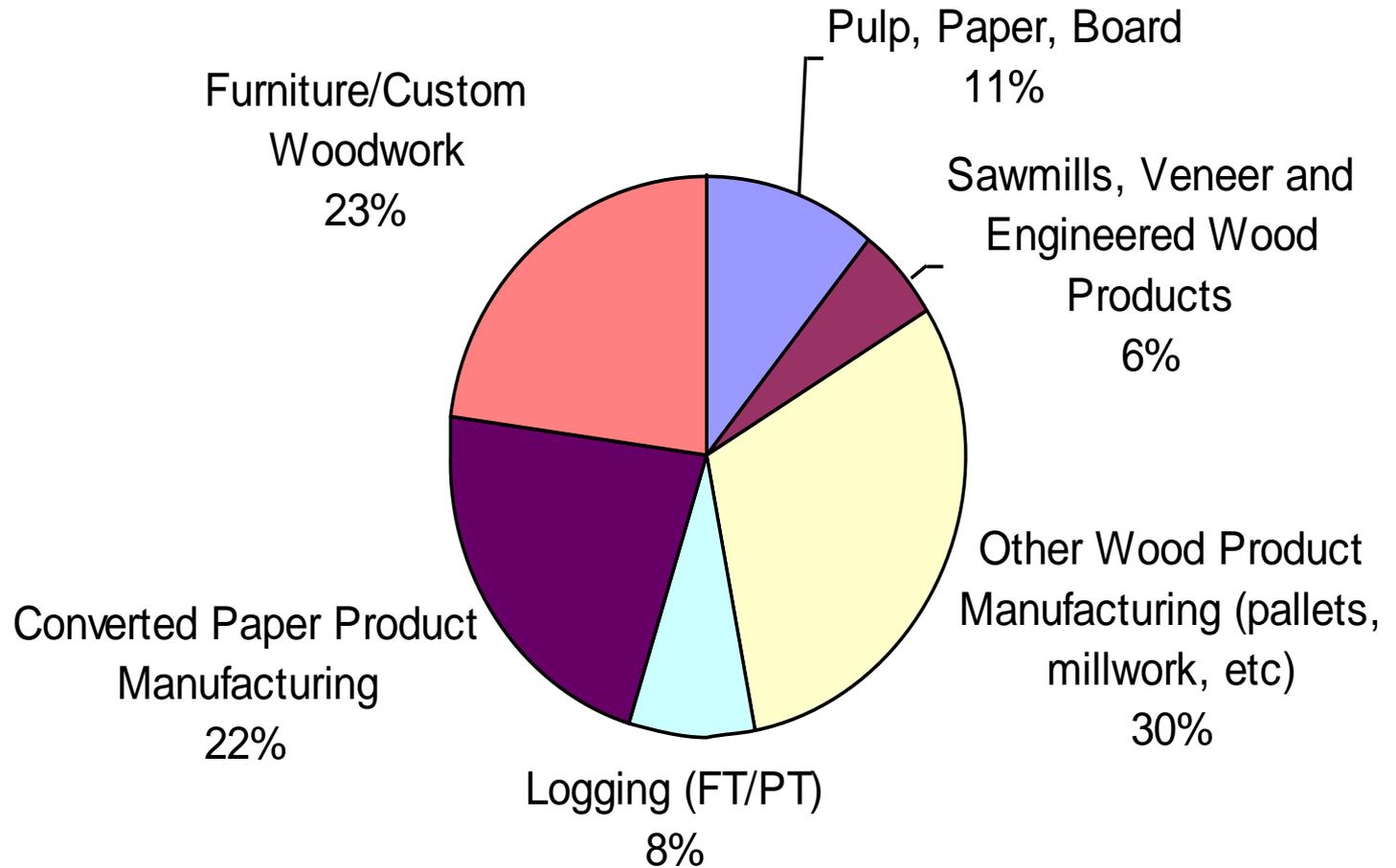
Value of Forest Products

\$10.4 Billion



- Wages Paid Exceed 1.6 Billion Annually
- 4th Largest Manufacturing Industry (employment)
- Value added impact \$41.60 per dollar of timber sold

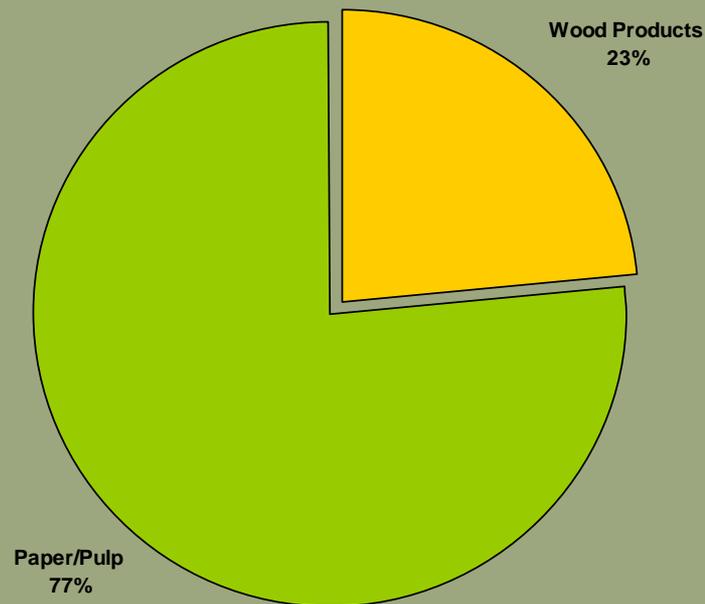
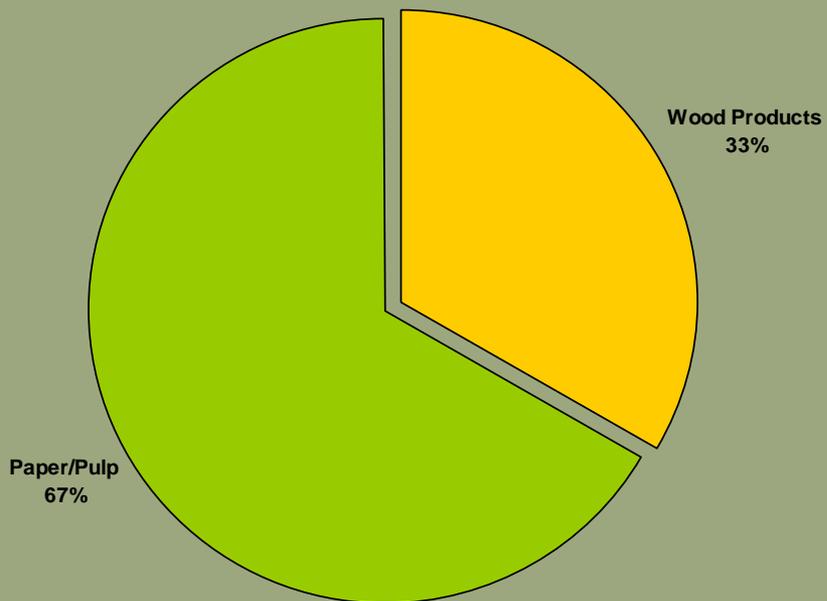
Forest Industry: Diverse Products



Forest Industry: Value of Products

2005

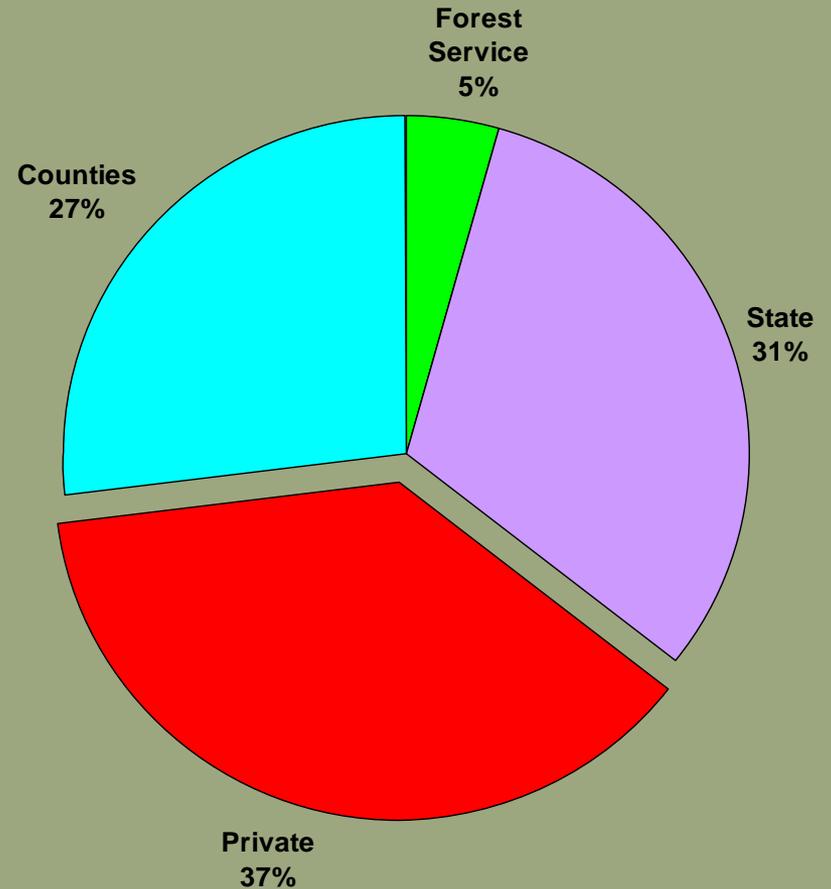
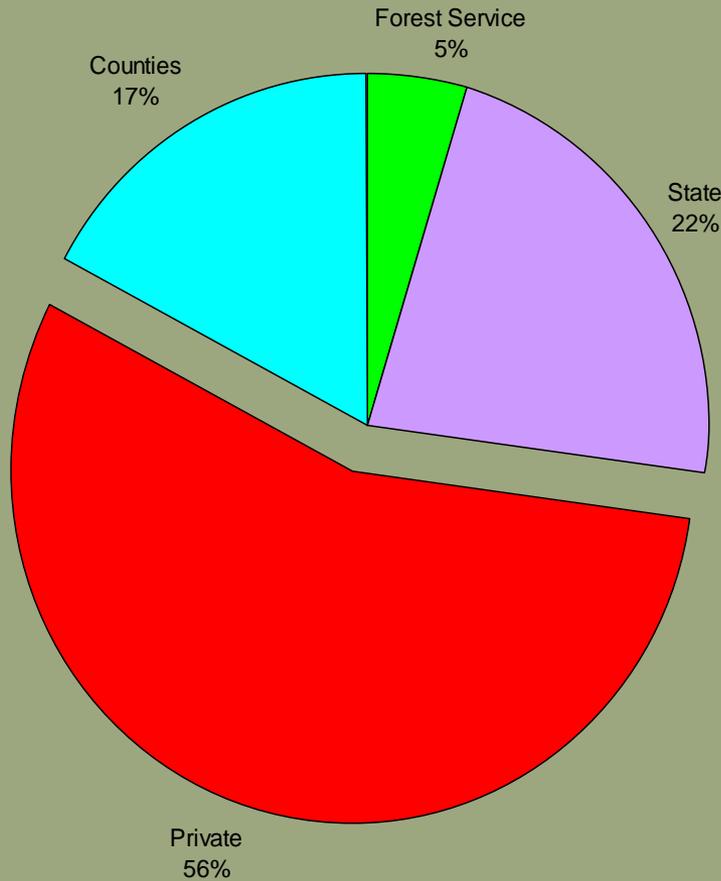
2008



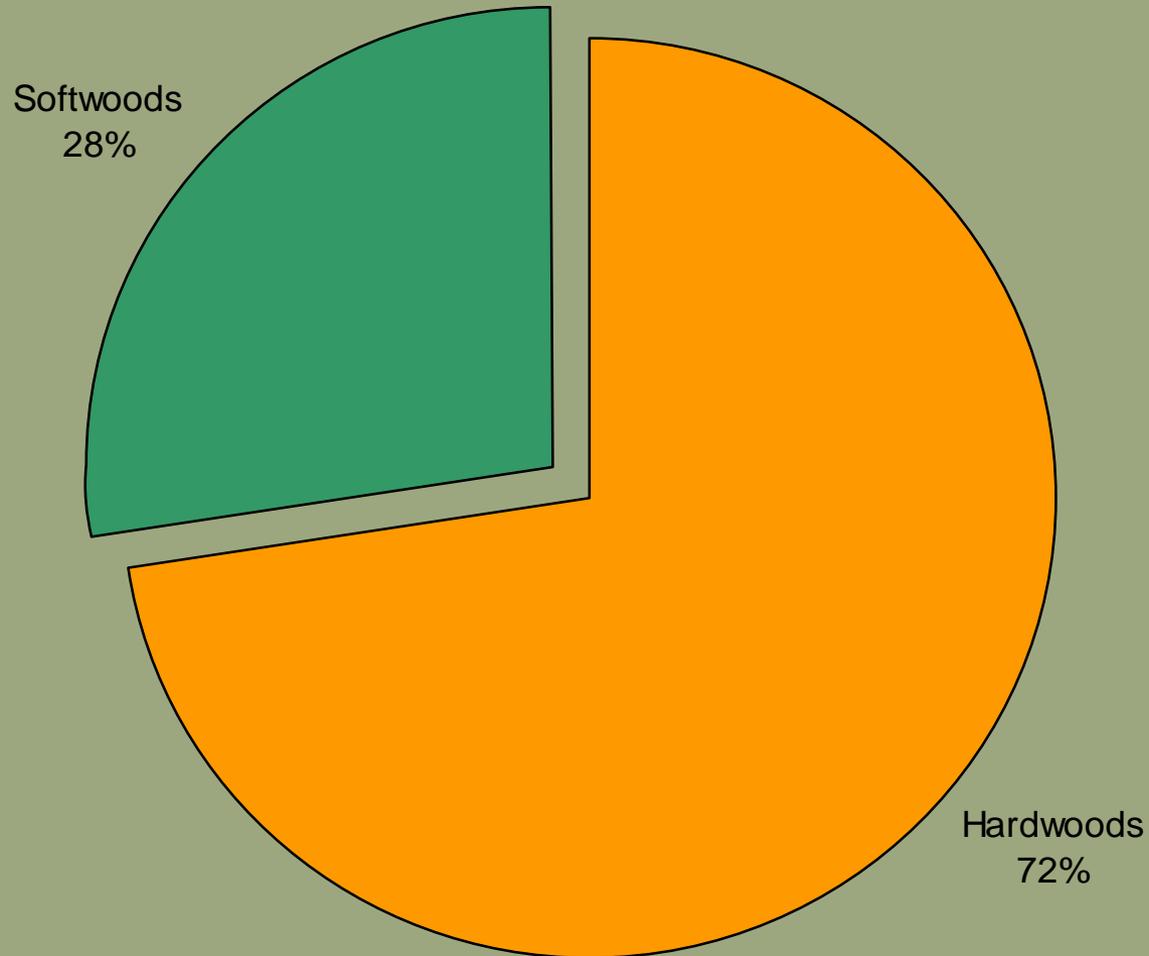
Forest industry: Who supplies the timber

2005

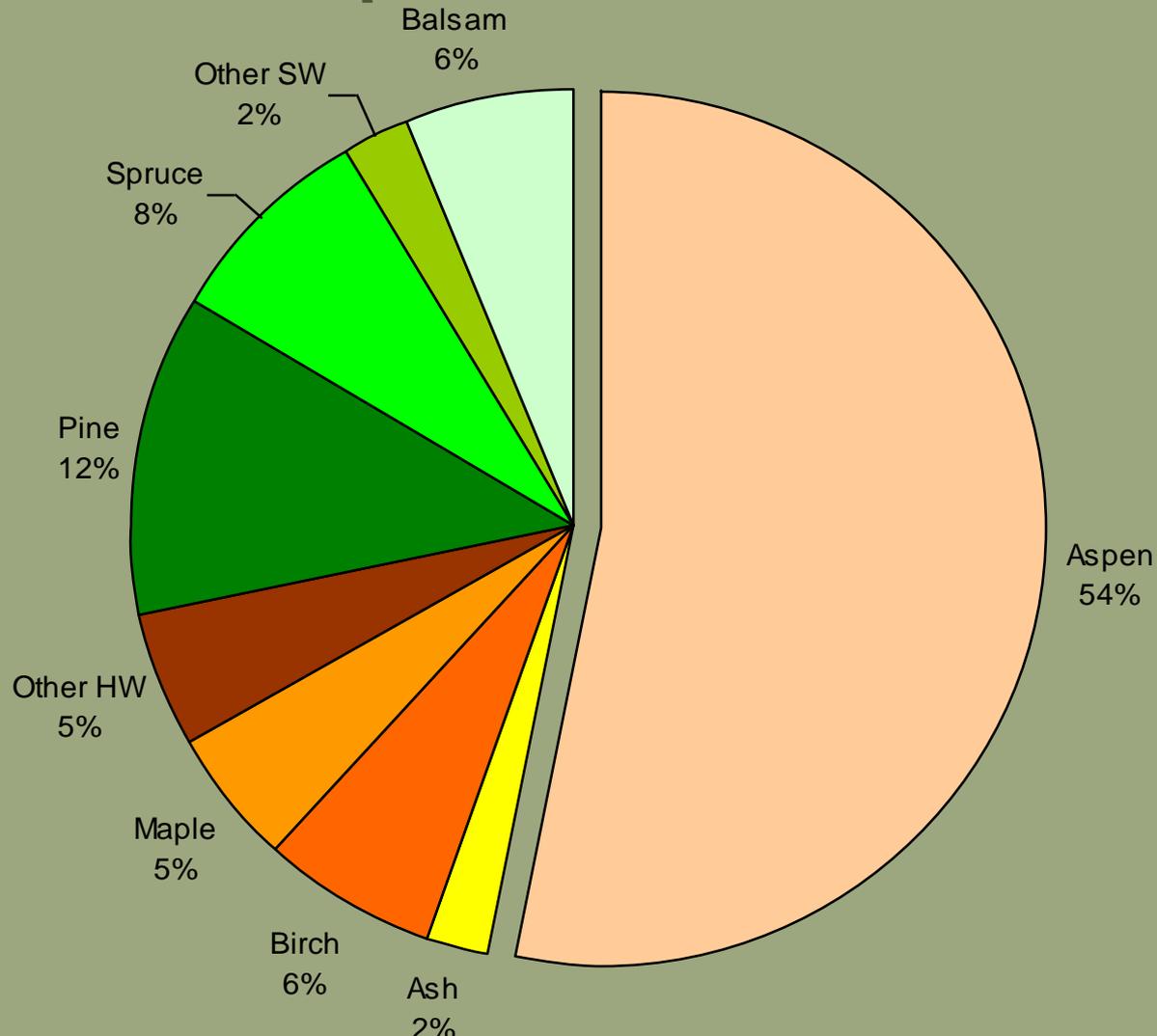
2009



Forest Industry: Major Species Groups Utilized



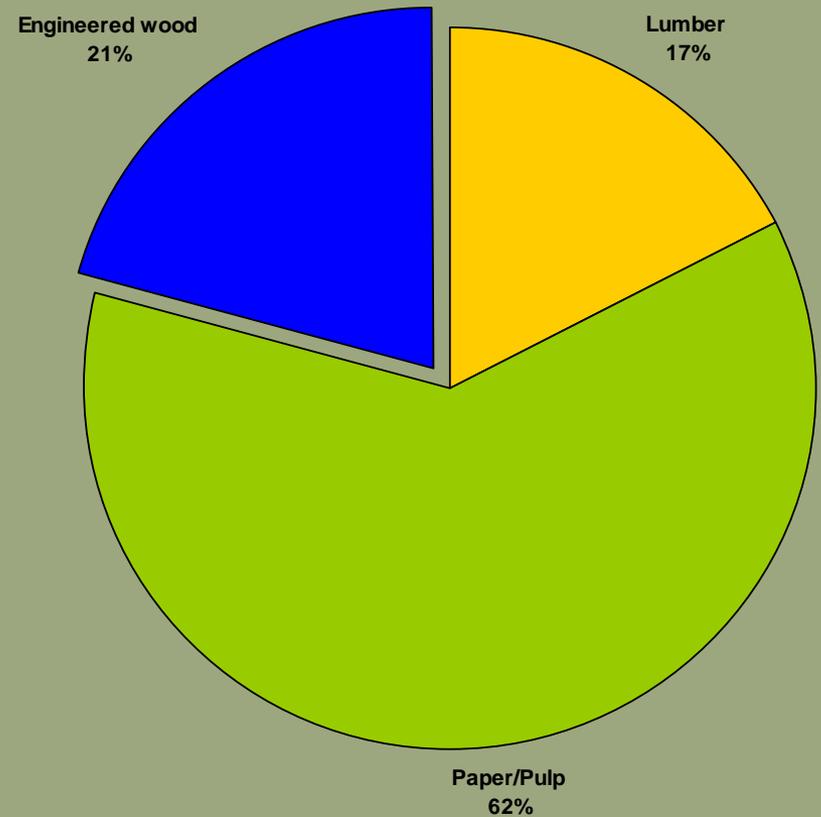
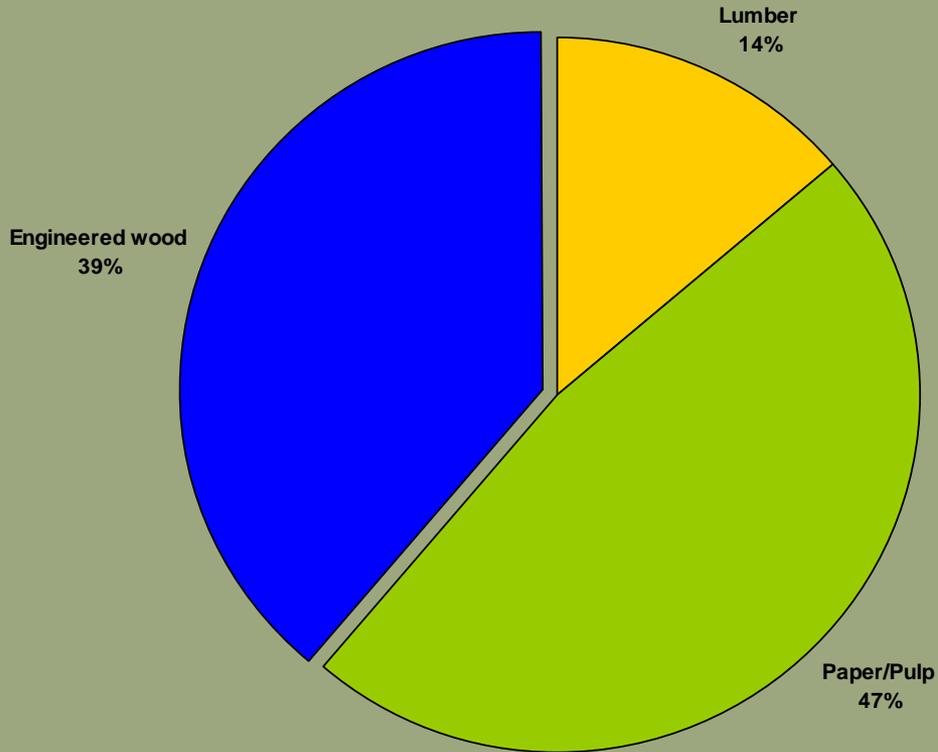
Forest industry: Species Utilized



Forest Industry: Wood Use by Sector

2006

2009



Forest Issues

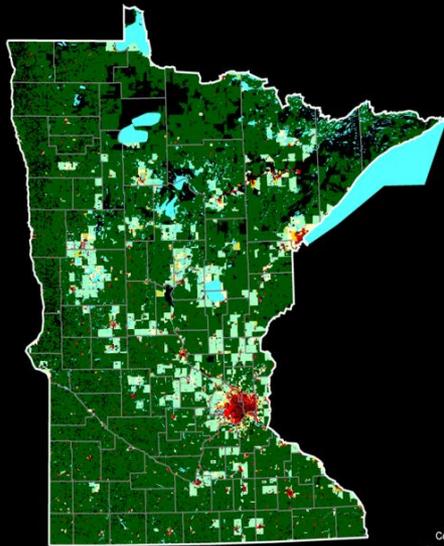


Photograph by David Bleil



Forest Issues: Land Use

Minnesota
1940 Housing density
Census partial block groups

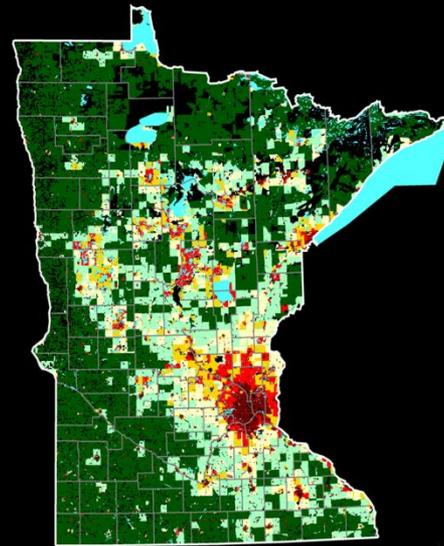


Housing units / km²

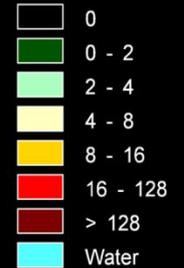


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With support from the USDA Forest Service Northern Research Station

Minnesota
2010 Housing density
Census partial block groups



Housing units / km²



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Forest Issues: Land Use

Decreasing size of forest holdings:

- Significance
- Driving Factors
- Impacts



Forest Issues: Land Use

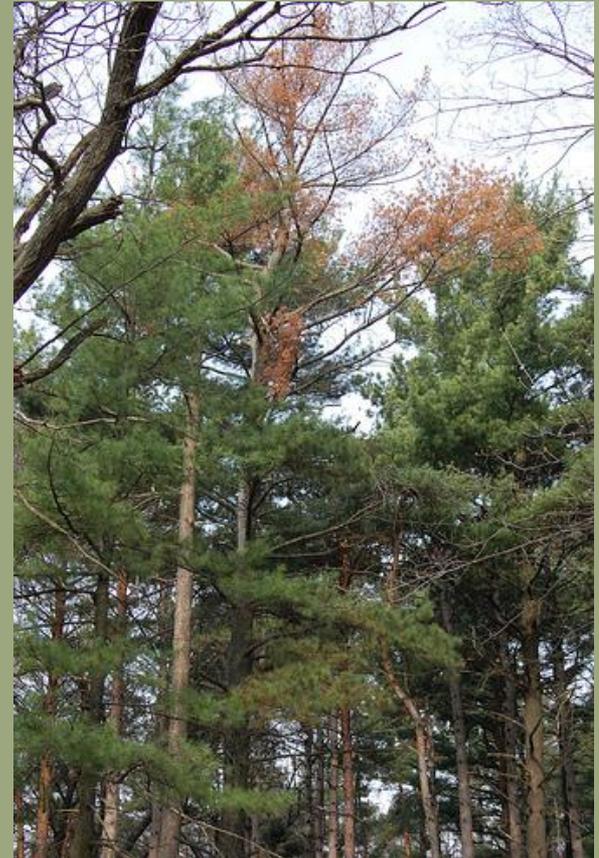
Policy responses:

- Conservation easements
- Tax policy
- Planning
- Acquisition



Forest Issues: Forest Health

- Global conditions
(temperature,
precipitation)
- Fire
- Management
- Pests, Pathogens
and Plants



Forest Issues: Forest Health

Since 1860 to 2006

- 455 tree-loving insects
- 16 tree diseases
- 2 new invaders per year



Forest Issues: Forest Health

Impacts of invasive species

- Biodiversity
- Threats to native species
- \$137 billion in losses and costs per year

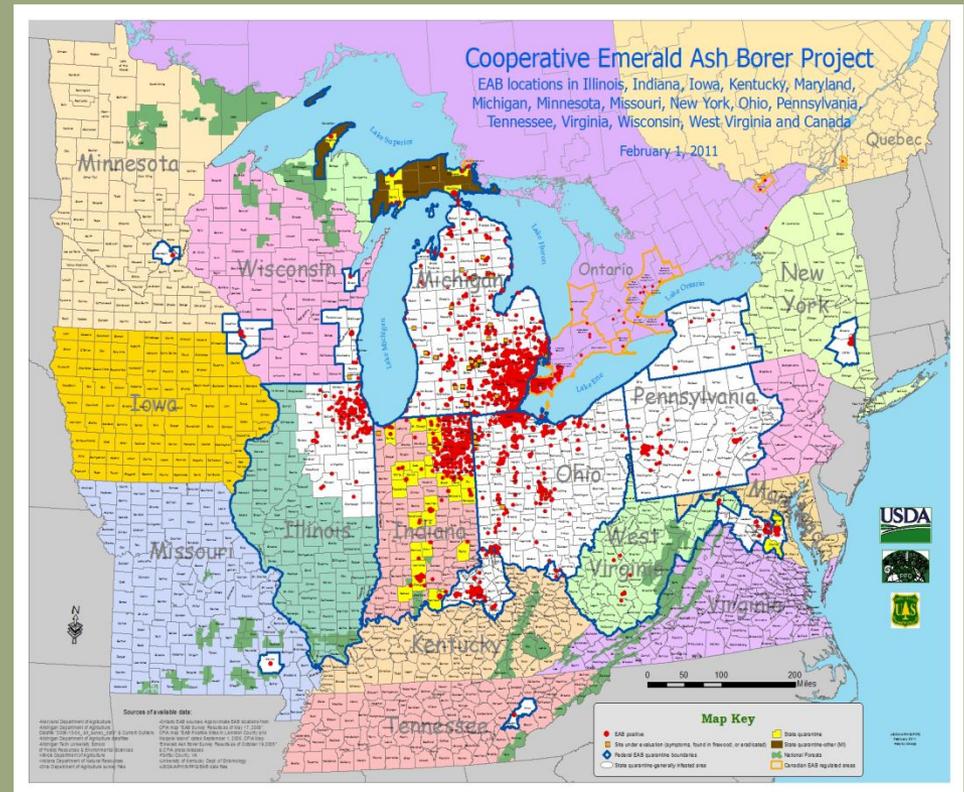
Industry impacts

- Forest products industry
- Tourism industry
- Nursery and landscape industry

Forest Issues: Forest Health

Emerald Ash Borer

- Native to Asia
- Killed millions of trees
- Currently in 3 Minnesota counties
- MN has over 900 million ash trees



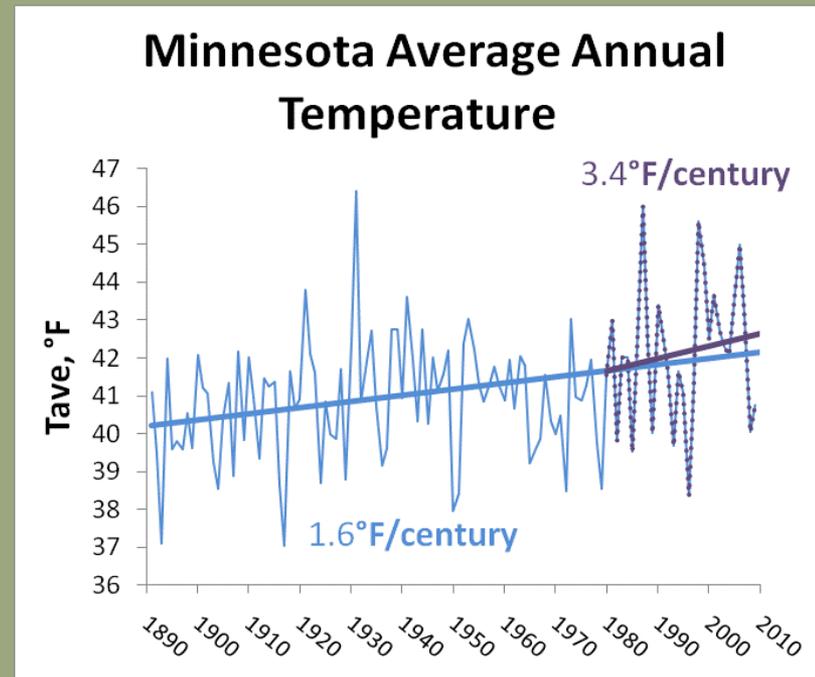
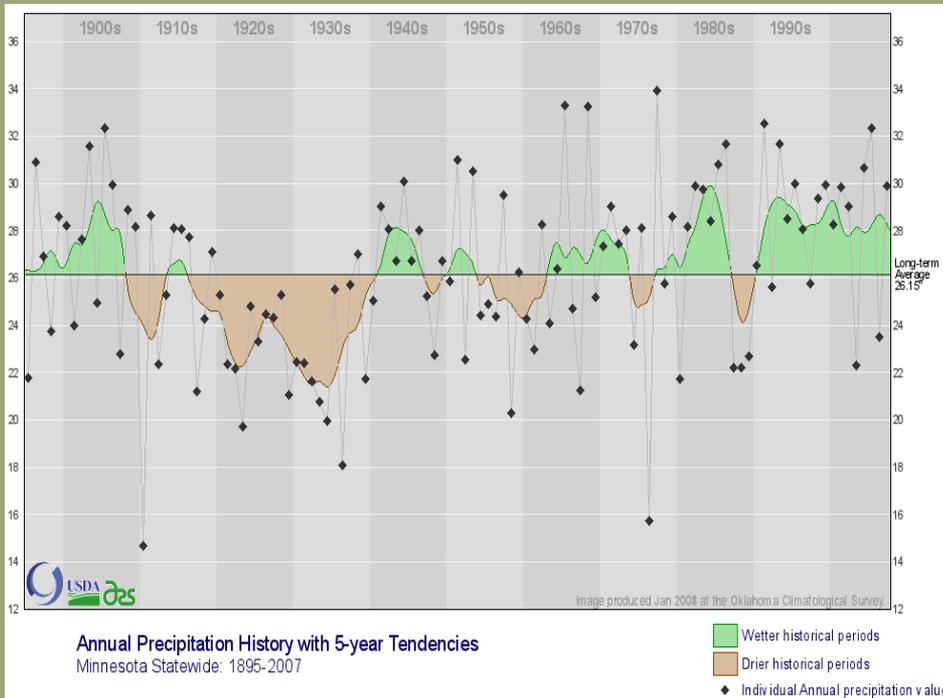
Forest Issues: Forest Health

Gypsy Moth

- Native to Europe
- Defoliated 32 million hectares
- Detected in MN in 1969



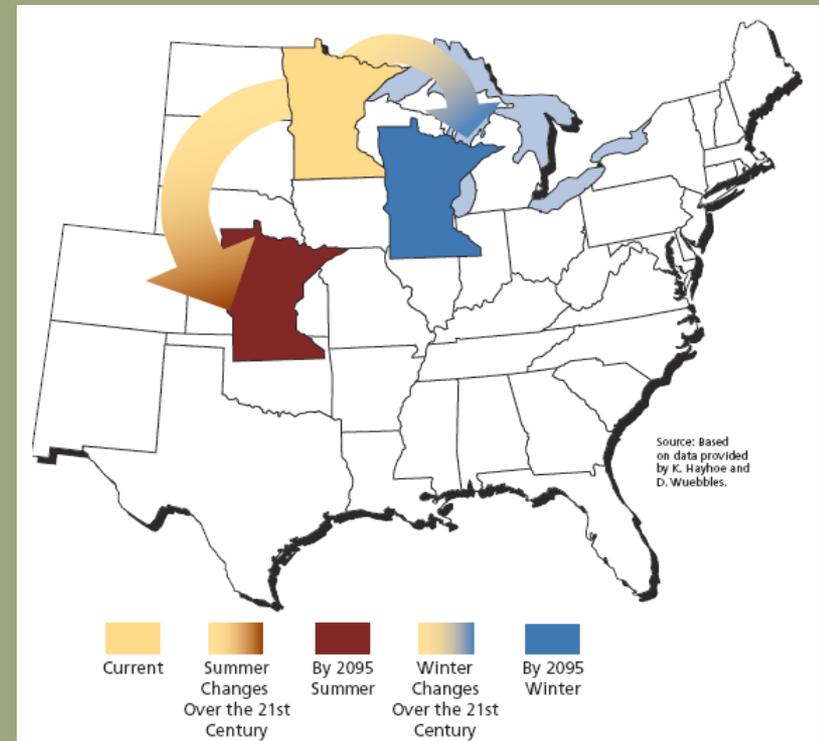
Forest Issues: Climate Change



Forest Issues: Climate Change

Impacts on
Minnesota's forests

- Species shifts
- Invasive species
- Insects and Diseases



Forest Issues: Climate Change

Consider adaptation
and mitigation
actions

- Plan for uncertainty
- Promote resilience
- Monitor changes
- Reduce greenhouse gases



Forest Issues: Woody Biomass

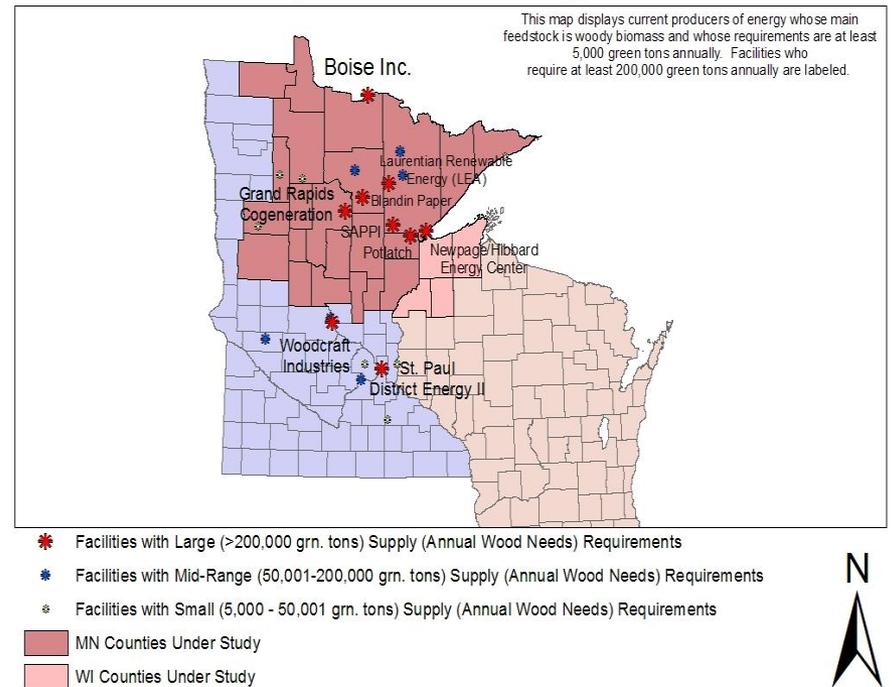


Forest Issues: Woody Biomass

Supply constraints:

- Physical amount
- Economic
- Ecological
- Social

Current Woody Biomass Energy Facilities, MN



Forest Issues: Woody Biomass

Guiding principles

- Maintain or improve forestland
- Target use for economic goals
- Contribute to state environmental goals



Forest Issues: Forest Certification

55% of Minnesota's
forests are certified
65% of timber sold is
managed through
certification systems

