The Hardwood Forests in Changing Times - Adapting to New Realities

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Topic Areas

• The Hardwood Resource
• Market and Economic Conditions
• Thoughts on the Future
Hardwood Resource
Top Eastern U.S. Hardwood Forest Types

Total Eastern U.S. Forest Land - 443,823,672 Acres
Private Eastern U.S. Forest Land - 362,069,614 Acres

Forest Types:
- White oak / red oak / hickory
- Sugar maple / beech / yellow birch
- Lobolly pine / hardwood
- Post oak / blackjack oak
- Hard maple / basswood
- Sweetgum / swamp tupelo / red maple
- Sweetbay / swamp tupelo / red maple
- Yellow-poplar / white oak / northern
- Aspen
- White oak
- Elm / ash / black locust
- Cherry / white ash / yellow-poplar
- Chestnut oak / black oak / scarlet oak
- Red maple / oak
- Northern red oak
- Eastern white pine / northern red
- Sycamore / pecan / American elm
- Yellow-poplar
- Red maple / oak
- Eastern red cedar / hardwood
- Black ash / American elm
- Baldcypress / water tupelo
- Shortleaf pine / oak
- Red maple / lowland
- River birch / sycamore
- Virginia pine / southern red oak
- Paper birch
- Swamp chestnut oak / cherrybark oak
- Slash pine / hardwood
- Silver maple / American elm
- Black cherry
- Other pine / hardwood
- Overcup oak / water hickory
- Willow
Eastern U. S. Hardwood Regeneration

Species Group:
- Noncommercial hardwoods
- Other soft hardwoods
- Soft maple
- Sweetgum
- Other red oaks
- Other hard hardwoods
- Cottonwood and aspen
- Ash
- Hard maple
- Beech
- Hickory
- Yellow-poplar
- Select white oaks
- Other white oaks
- Select red oaks
- Select white oaks
- Yellow birch
- Basswood
Gypsy Moth

Projected Gypsy Moth Spread Over 30 Years With STS

Projected Gypsy Moth Spread Over 30 Years Without STS
Virginia Forest Cover

61.5 % Forested
15.9 Million Acres
80% Privately Owned
Trend & Projection of Timberland Area in Virginia*

*Southern Forest Futures Project & FIA
Since 1940, total volume has more than doubled from 15.5 to 36.1 billion cubic feet.

Forest Growth
(Volume of Live Trees on All Timberland)
Statewide Annual Net Growth &
Removals for Softwood & Hardwood
(MM Tons)

Source: USFS-FIA
Coastal Plain Net Growth and Removals

Coastal Plain Annual Net Growth & Removals for Softwood and Hardwood (MM Tons)

Source: USFS-FIA

- Hardwood Growth
- Hardwood Removals
**Ten Most Common Trees in VA**

### % of Total Volume

<table>
<thead>
<tr>
<th>Species</th>
<th>% of Total Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow-poplar</td>
<td>20%</td>
</tr>
<tr>
<td>White oak</td>
<td>10%</td>
</tr>
<tr>
<td>Chestnut oak</td>
<td>8%</td>
</tr>
<tr>
<td>Red maple</td>
<td>6%</td>
</tr>
<tr>
<td>Northern red oak</td>
<td>4%</td>
</tr>
<tr>
<td>Black gum</td>
<td>3%</td>
</tr>
<tr>
<td>Scarlet oak</td>
<td>3%</td>
</tr>
<tr>
<td>Loblolly pine</td>
<td>2%</td>
</tr>
<tr>
<td>Pignut hickory</td>
<td>1%</td>
</tr>
</tbody>
</table>

### % of Total Seedling Number*

*Advanced Regeneration - seedlings and saplings 1”-3” Diameter
Excludes Understory tree species
Why did oaks become so common?

- Frequent, moderate disturbance
- Abandoned marginal farmland
- Reduced wildlife (deer)
- Charcoal production
- Chestnut blight
- Fire
Invasive Species

- **Diseases** - Chestnut Blight, Dutch Elm Disease, Oak Wilt, Laurel Wilt, Thousand Canker Disease
- **Insects** - Gypsy Moth, Emerald Ash Borer, Asian Longhorn Beetle
- **Plants** – Ailanthus, Honeysuckle, Kudzu, Oriental Bittersweet, Autumn Olive, Stilt Grass, Paulownia
- “Deer”
Invasive Species

Oak Decline and Gypsy Moth in Virginia

Projected loss to basal area of white and red oak species:
- 0 - 5%
- 6 - 15%
- 16 - 25%
- 26 - 35%
- 36 - 70%

Source: 2013-2027 National Insect and Disease Risk Map, Forest Health Protection Mapping and Reporting, USDA Forest Service
L. Chamberlin: 2/11/2016
Non-Industrial Private Forest Ownership

- **405,000** Individuals and Family landowners own 10.6 million acres of forest in Virginia
- 95% own less than 100 acres
- Average forest landowner owns between 30 and 50 acres
- Landowners 55 and older own over 70% of forestland

So What Will the Forests of Tomorrow Look Like?

It Depends
Market & Economic Conditions
Present Conditions

- Low fuel prices are making it more economical to harvest and ship products
- Strong dollar makes our products more expensive overseas and imports cheaper
- Economic slowdowns in our major export markets are reducing demand
- U.S. housing and economy slowly improving
- European policy impacting bioenergy markets
- Virginia saw timber harvests at record levels
- Legal & sustainable wood criteria is increasing
New Users of Hardwood Forest Resources

- Enviva Pellet Mills (1 VA, 2 NC)
- 5 Dominion Biomass & Hybrid Power Plants
- Northern VA Electric Coop Power Plant
- MeadWestvaco Biomass Power Project
- Expansion of Grade & Industrial Hardwood Mills
- Some Expansion of Housing Products
Industry Trend

The chart shows the employment trends in different manufacturing sectors from 2000 to 2011:
- Furniture and Related Product Manufacturing
- Paper Manufacturing
- Wood Product Manufacturing
Imports

The graph illustrates the trend of imports from 1997 to 2009. The y-axis represents the percentage, while the x-axis shows the years. The lines represent different categories of wood products:

- **Wood Kitchen Cabinets**
- **Upholstered Wood Household Furniture**
- **Nonupholstered Wood Household Furniture**
- **Institutional Furniture**
- **Showcases, partitions, shelving**
- **Office Furniture**

The data shows a noticeable increase in imports over the years, particularly in Wood Kitchen Cabinets and Upholstered Wood Household Furniture.
Thoughts on the Future

• The forests we have today were shaped by conditions over the last century or more
• Future forests will be different due to several factors, many of them we can influence
• All users of our forests need to look at the younger stands to better understand what the future resource will look like and the impact it may have.
• Increasing markets for low-quality wood offers opportunities to improve forest health and quality.
• Improved harvesting and growing techniques, and forest management can help address forest health, quality and species concerns.
2005 White Oak Crop Tree Release Study

Average DBH (in) vs. Age

- Untreated
- Released
- Released and Fertilized
Thoughts on the Future

• Forestry & forest industries are a sizeable portion of many state’s economy and employment and will continue to be, particularly in some regions.

• Continued loss and fragmentation of forest land, along with other competing forest uses will affect future availability of wood resources.

• As the economy and industry improves, forests in some regions may see removals exceed growth.
Forest-Related Takeaways

• Hardwood forests are and will continue to be impacted by global markets through:
  • Demand for our forest products
  • International policies and competition
  • Forest health concerns – invasive species, insects & diseases, etc.
  • Changes in the global economy
Thoughts on the Future

• The 24/7 world expects immediate responses and answers to situations, however, we work with a resource that takes decades to develop and to make significant changes in its make up.

• Landowners should strive for healthy, diverse forests which will provide more options to adapt to future conditions.
Additional Information

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