



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



TIMBERVILLE	2
FORESTVILLE	8
WOODSTOCK	30

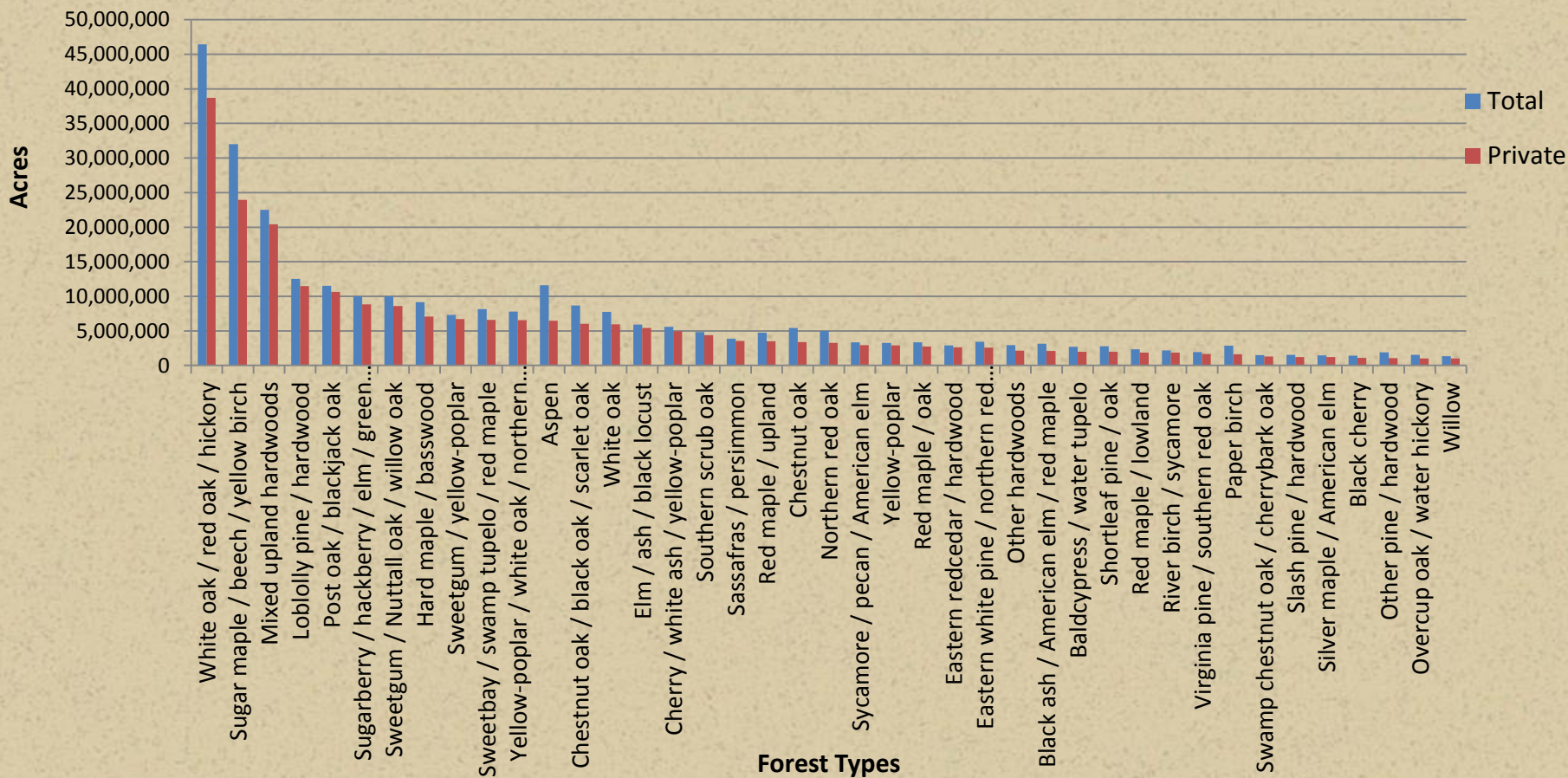




Top Eastern U.S. Hardwood Forest Types

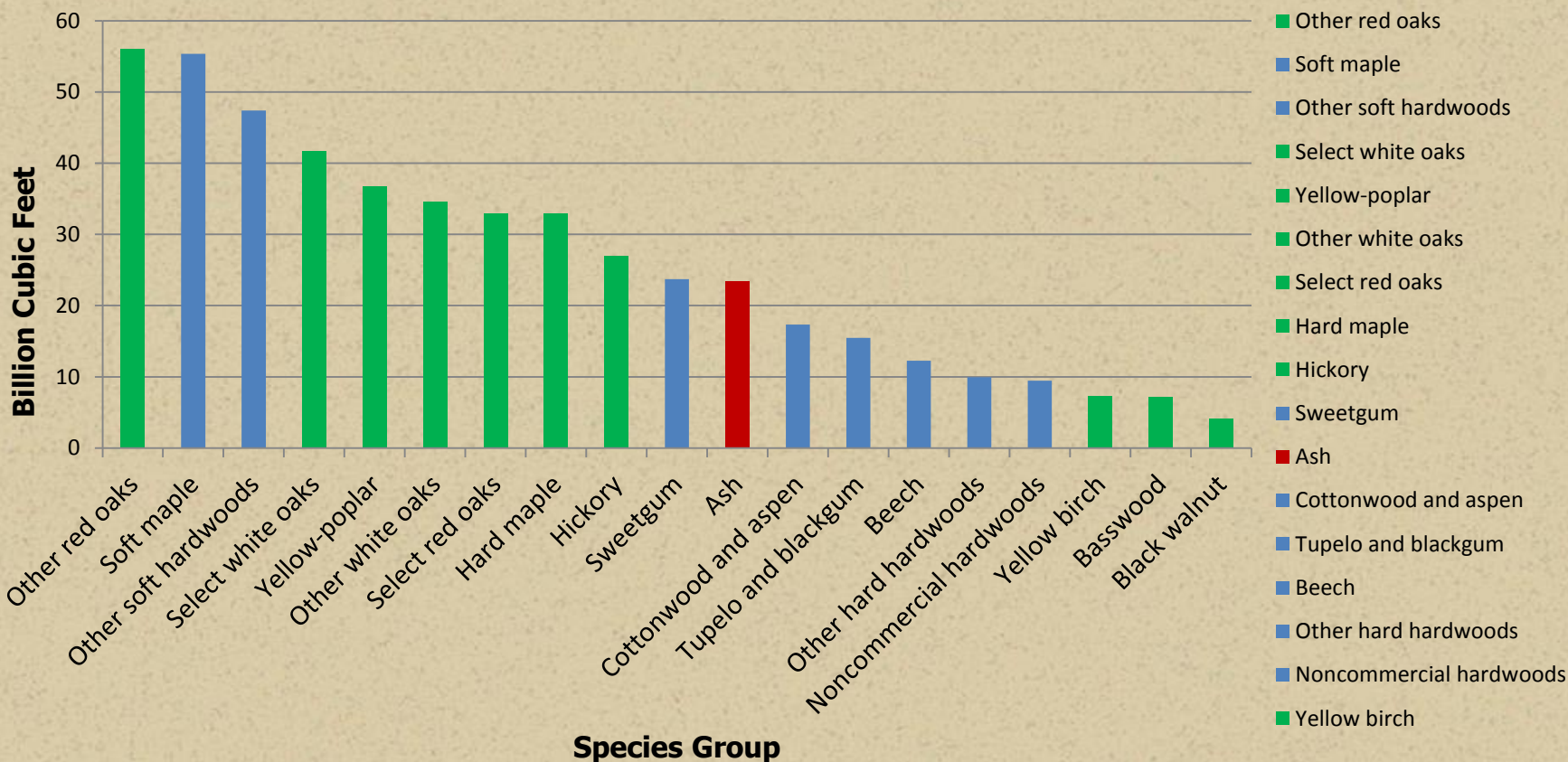
Total Eastern U.S. Forest Land - 443,823,672 Acres

Private Eastern U.S. Forest Land - 362,069,614 Acres



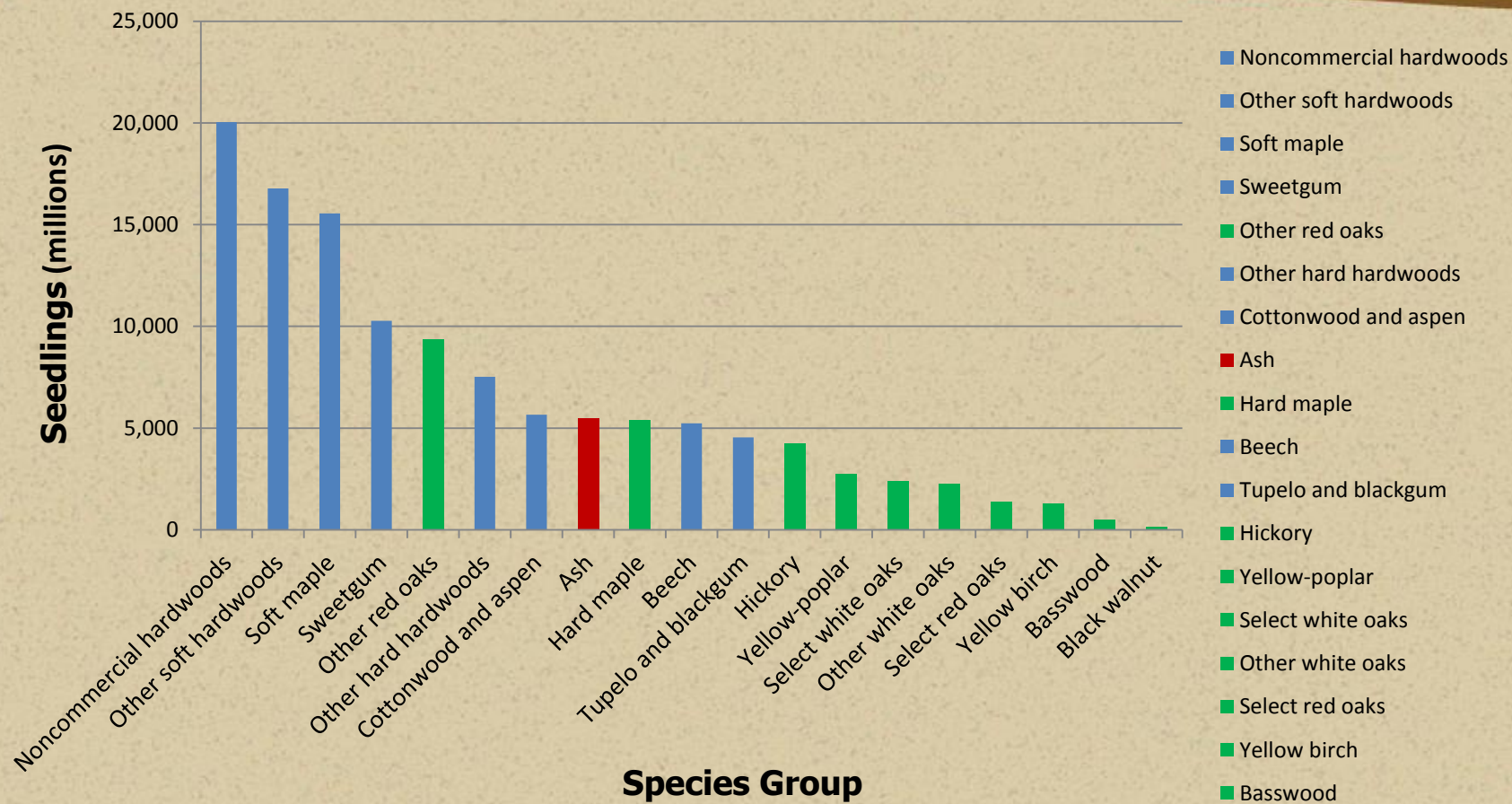


Eastern U.S. Hardwood Forestland Net Volume





Eastern U. S. Hardwood Regeneration





Emerald Ash Borer

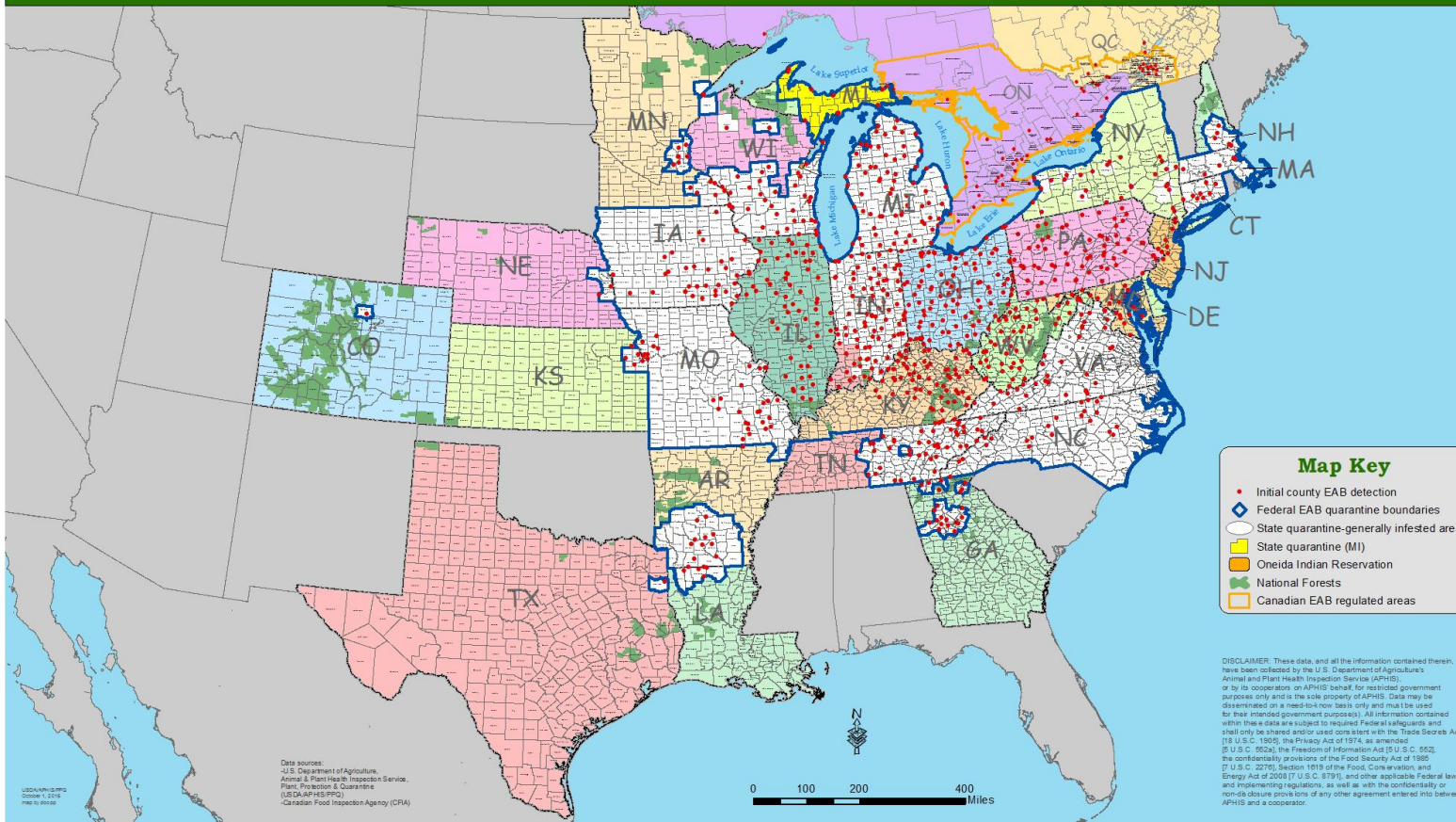


United States
Department of
Agriculture

Cooperative Emerald Ash Borer Project

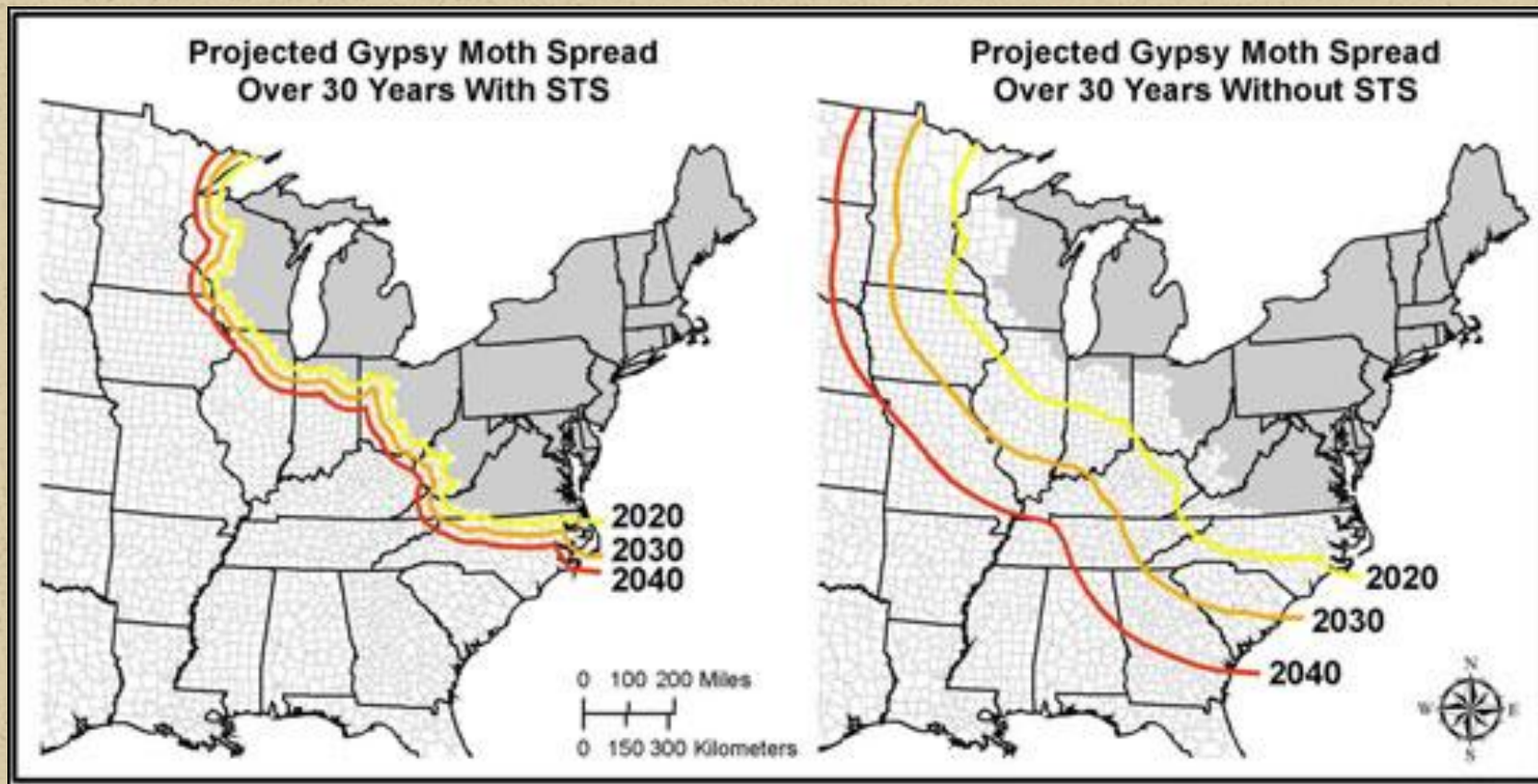
Initial county EAB detections in North America

October 1, 2016





Gypsy Moth



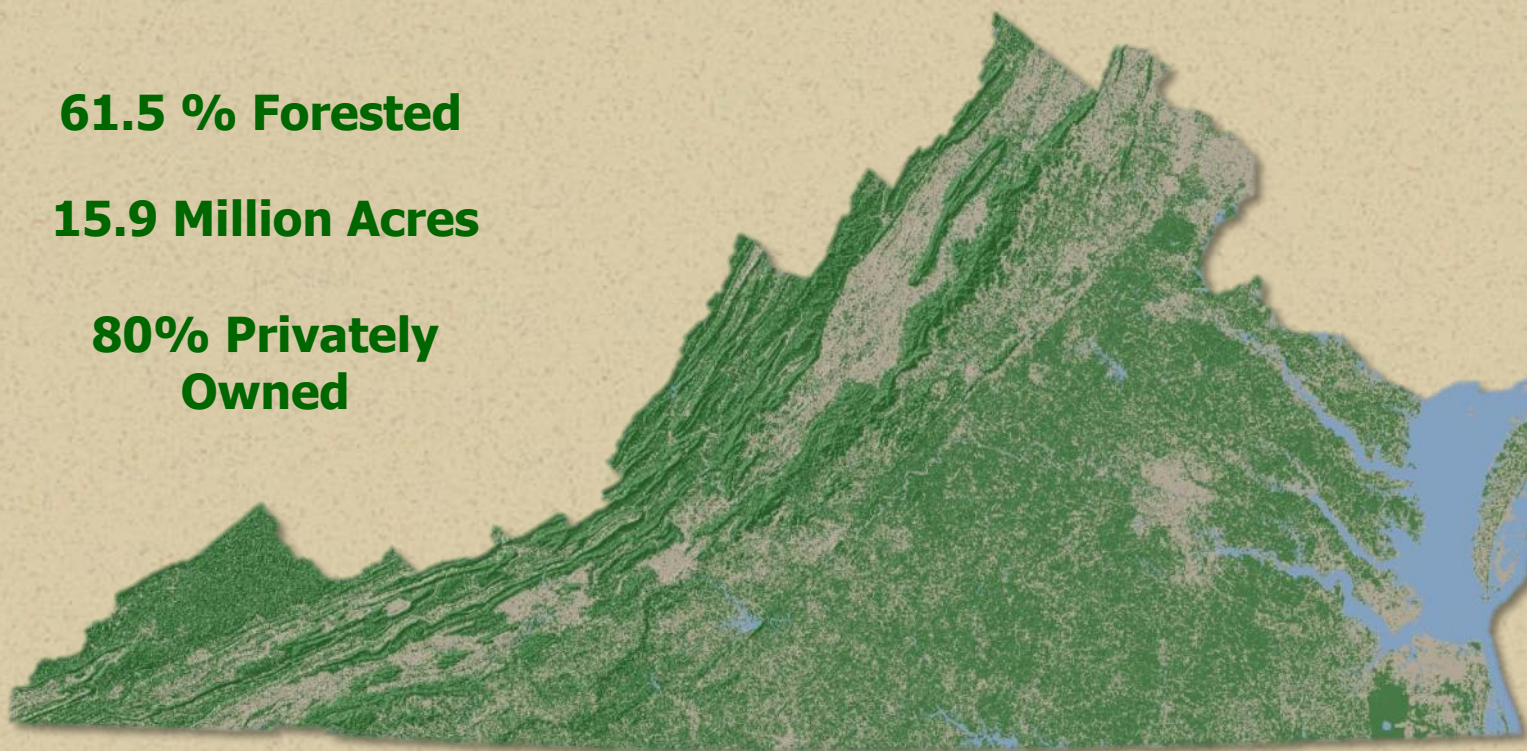


Virginia Forest Cover

61.5 % Forested

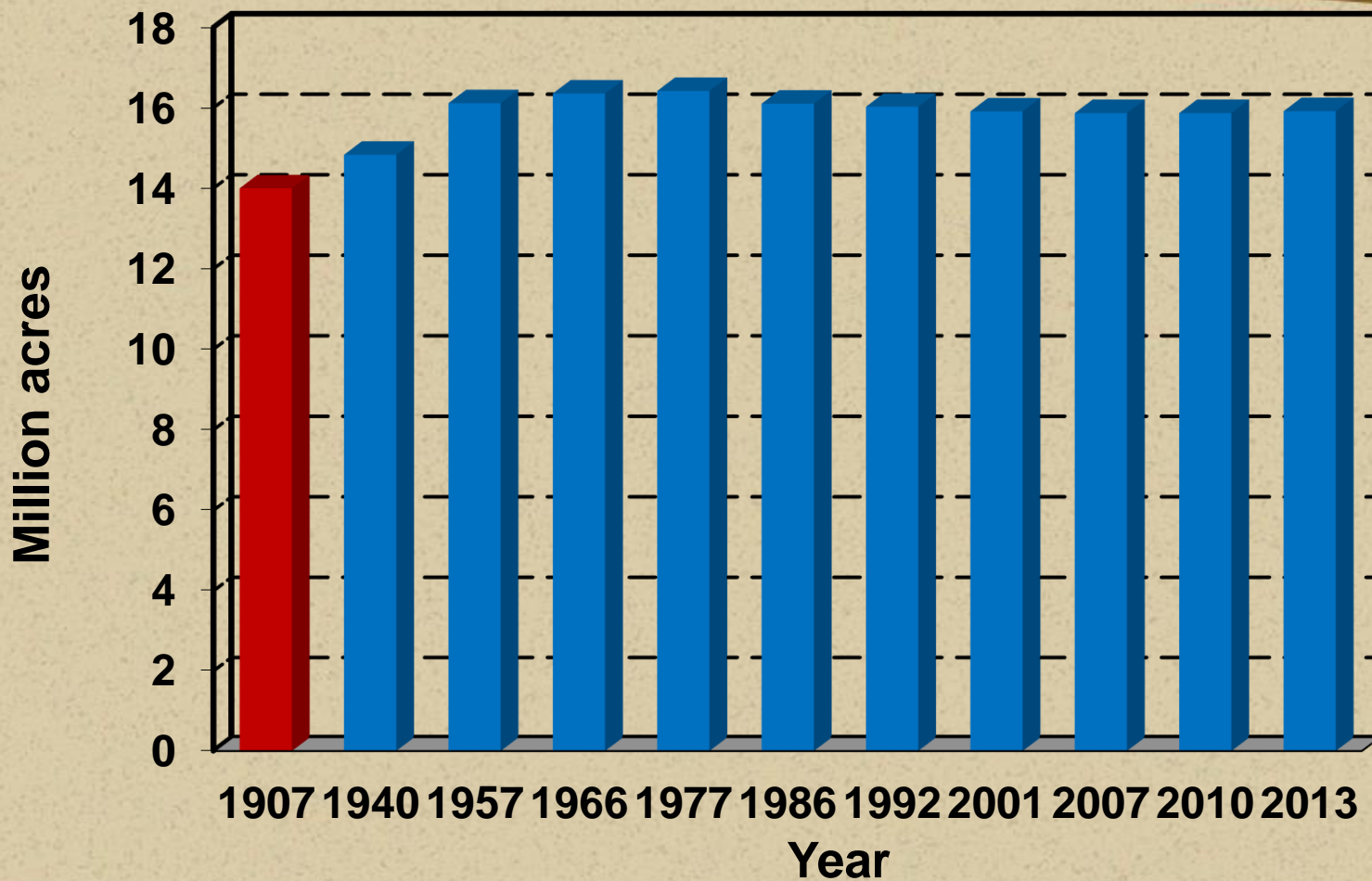
15.9 Million Acres

**80% Privately
Owned**



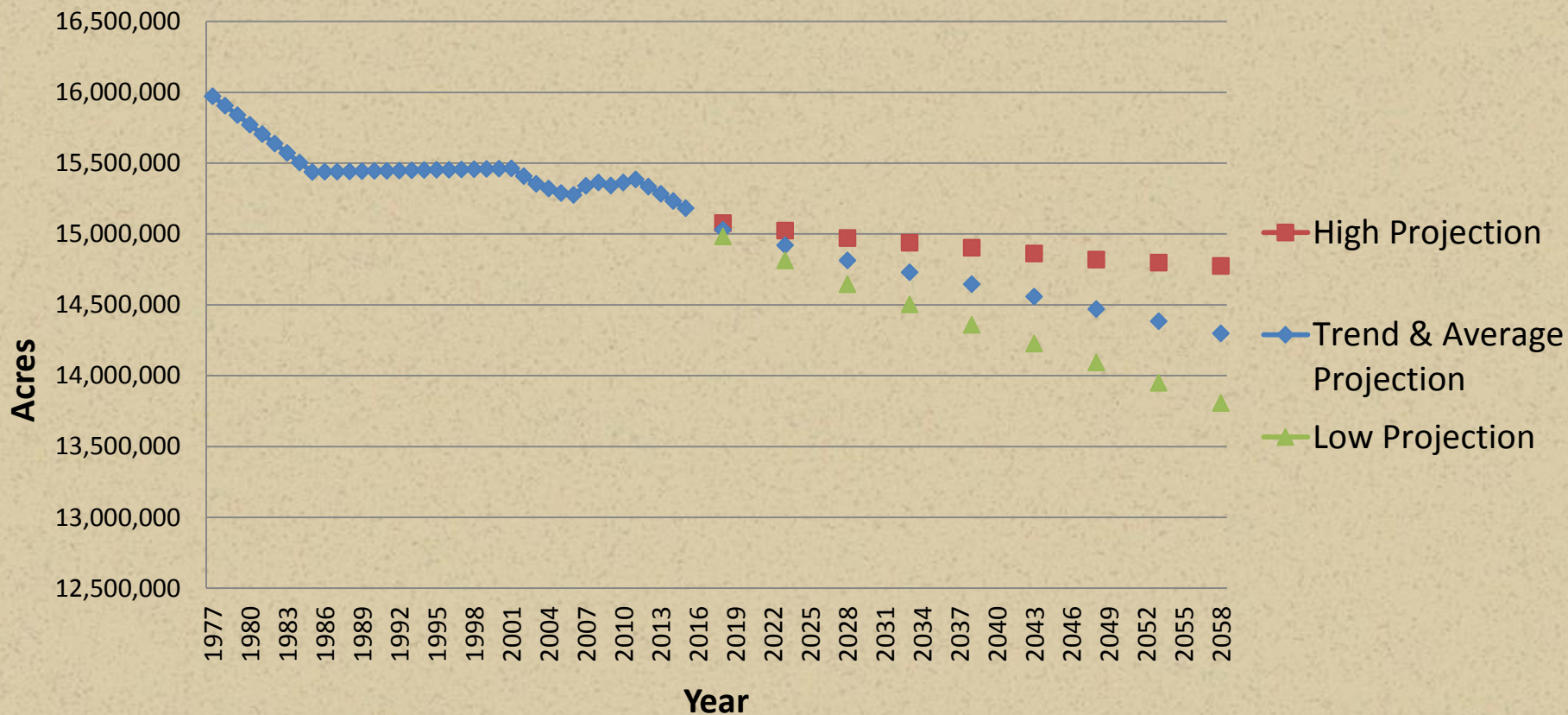


Virginia Forestland Acres





Trend & Projection of Timberland Area in Virginia*



*Southern Forest Futures Project & FIA

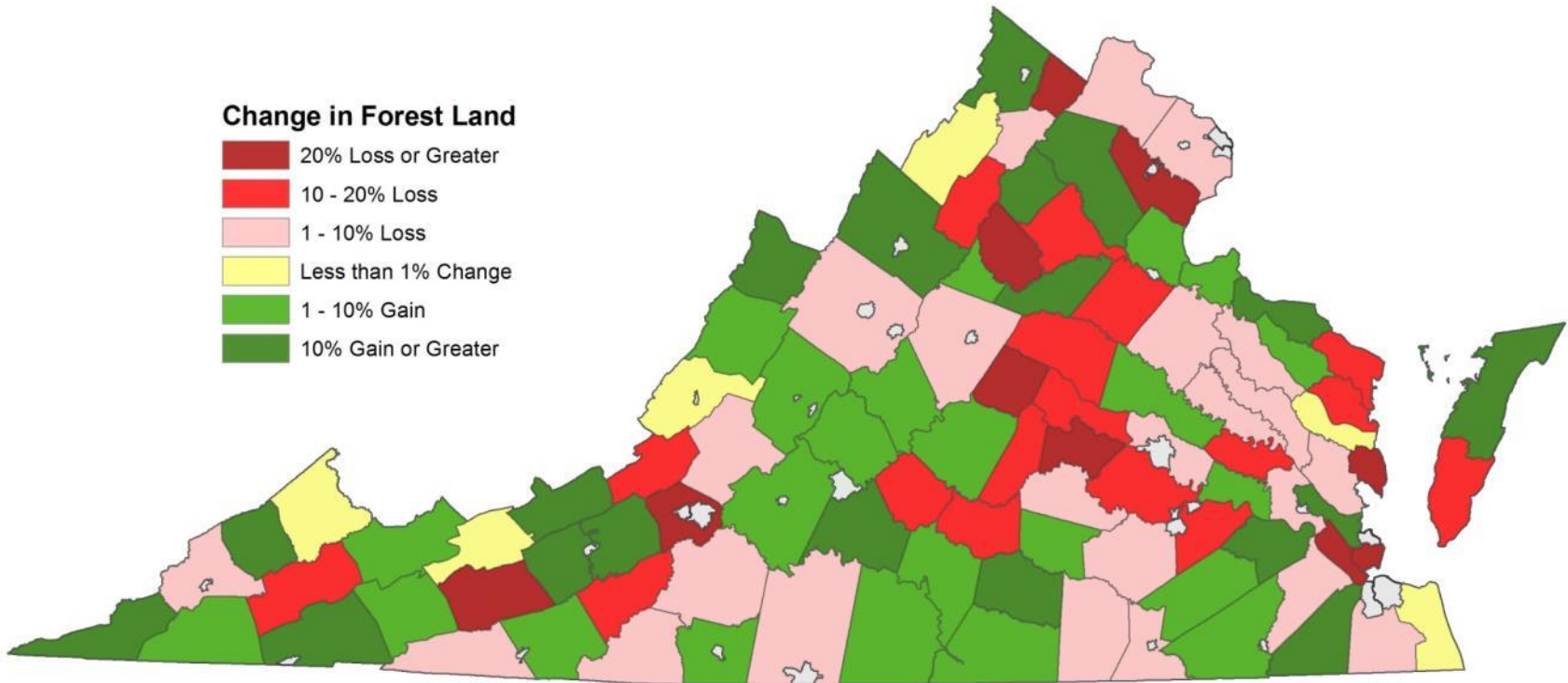


Loss and Gain of Forestland in Virginia, 1992 - 2011



Change in Forest Land

- 20% Loss or Greater
- 10 - 20% Loss
- 1 - 10% Loss
- Less than 1% Change
- 1 - 10% Gain
- 10% Gain or Greater



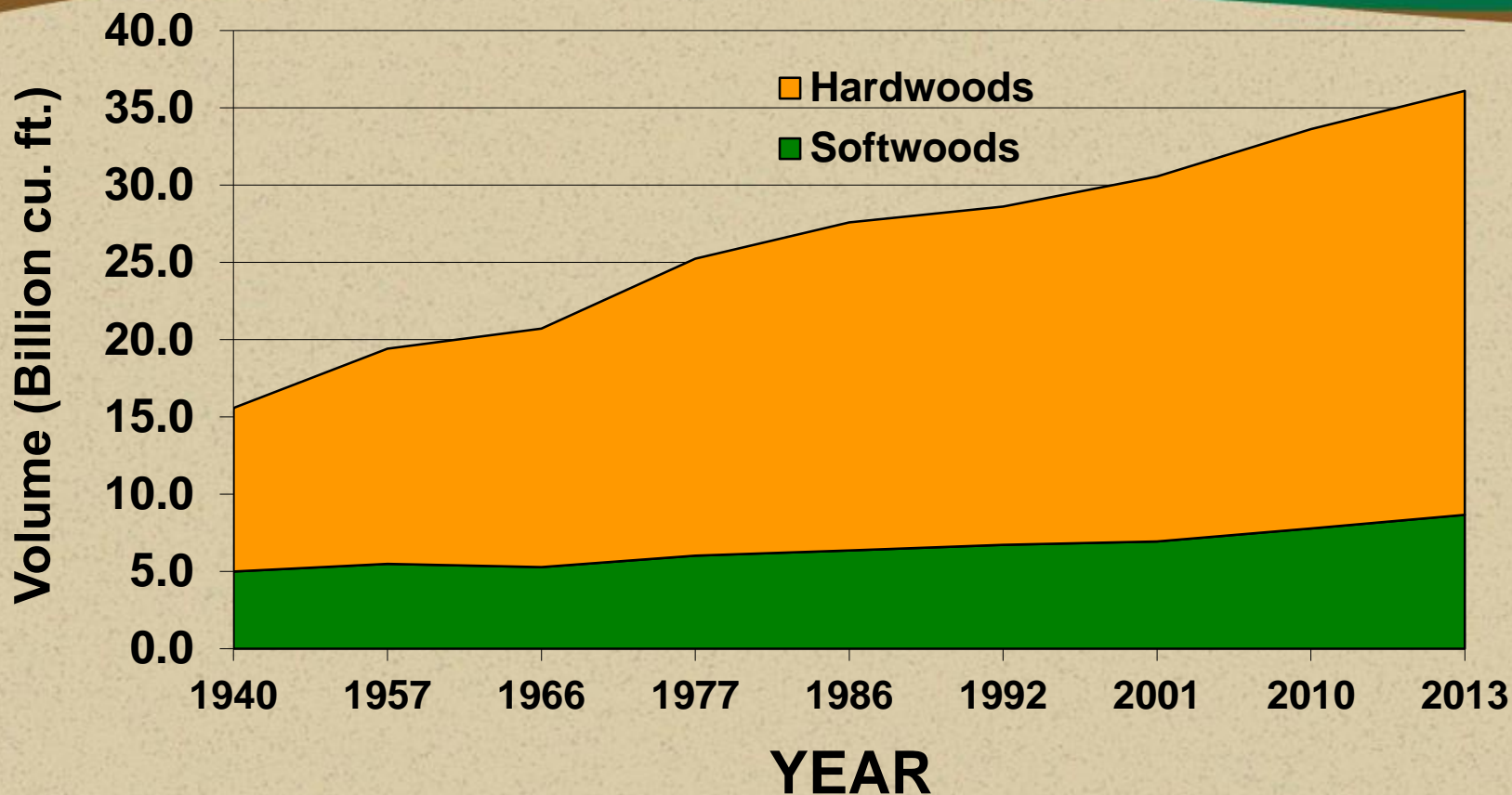
Source: USFS - FIA





Forest Growth

(Volume of Live Trees on All Timberland)

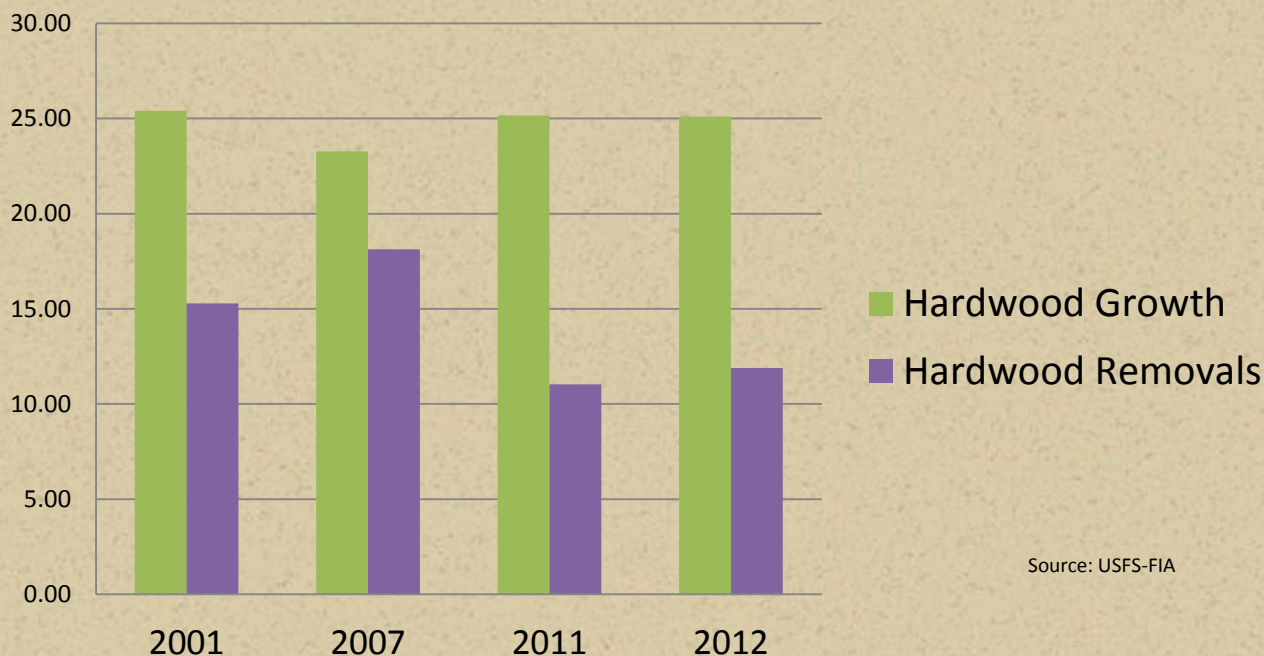


Since 1940, total volume has more than doubled from 15.5 to 36.1 billion cubic feet.



Annual Net Growth and Removals

Statewide Annual Net Growth & Removals for Softwood & Hardwood (MM Tons)

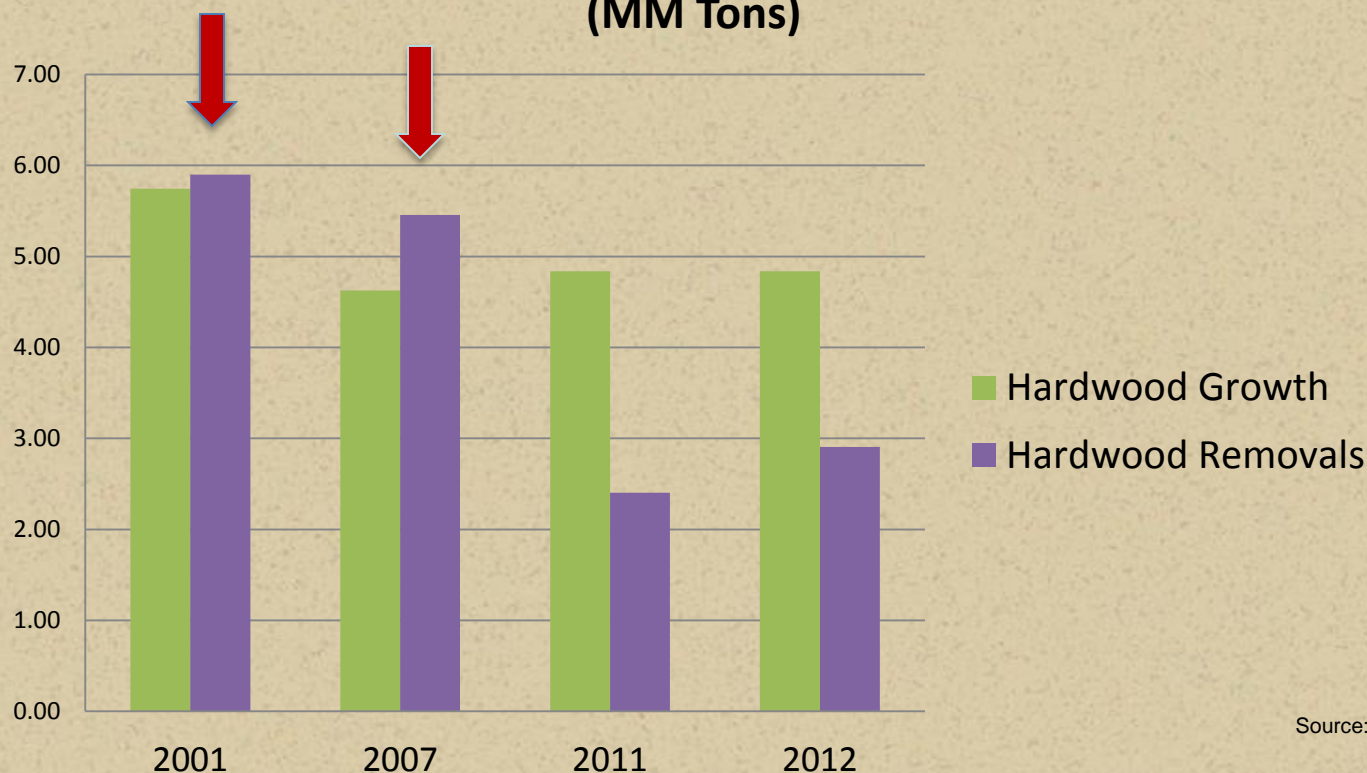


Source: USFS-FIA



Coastal Plain Net Growth and Removals

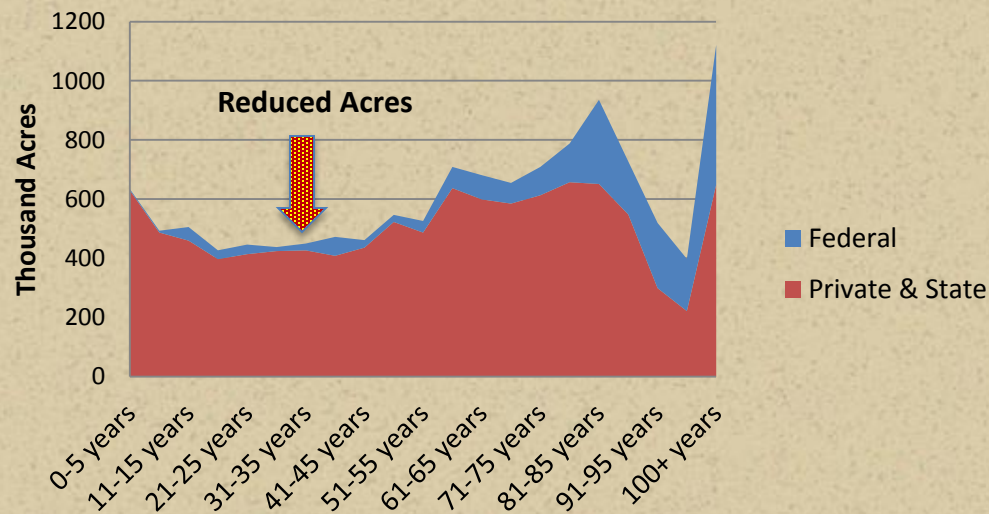
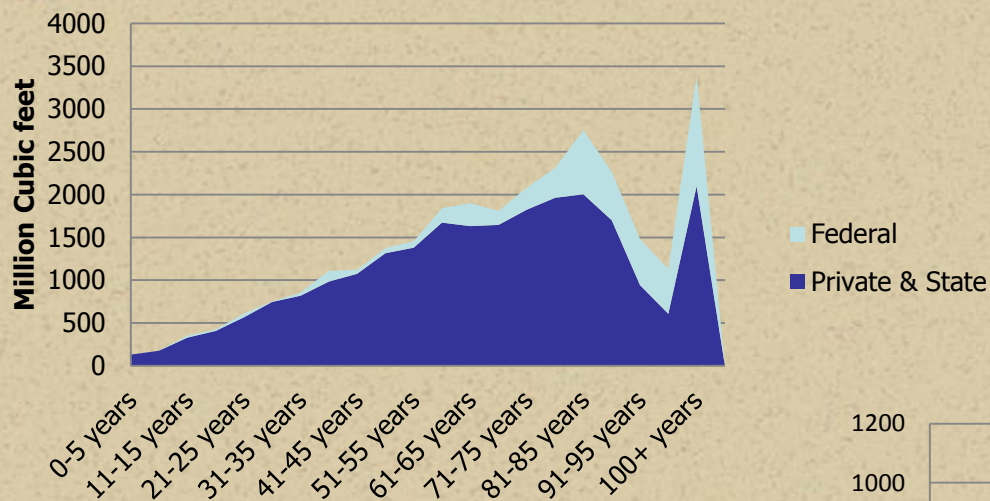
Coastal Plain Annual Net Growth & Removals for Softwood and Hardwood (MM Tons)



Source: USFS-FIA



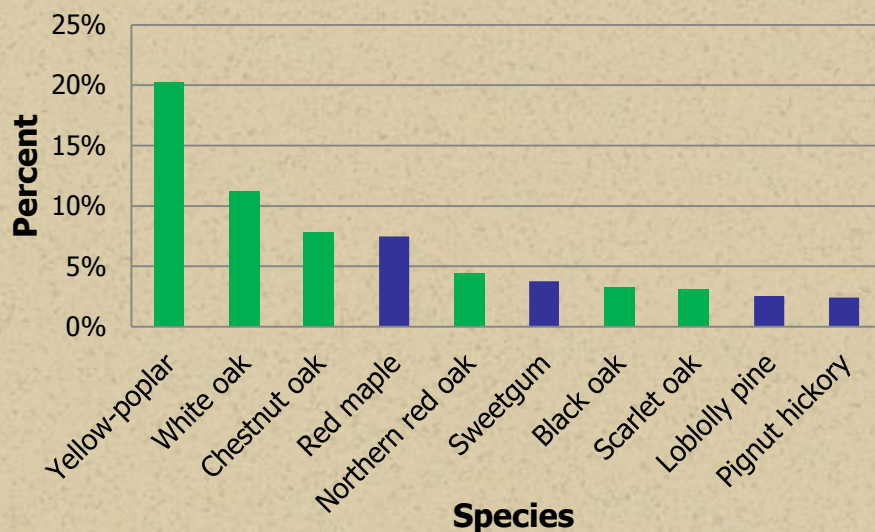
Volume & Area of Hardwood, 2013



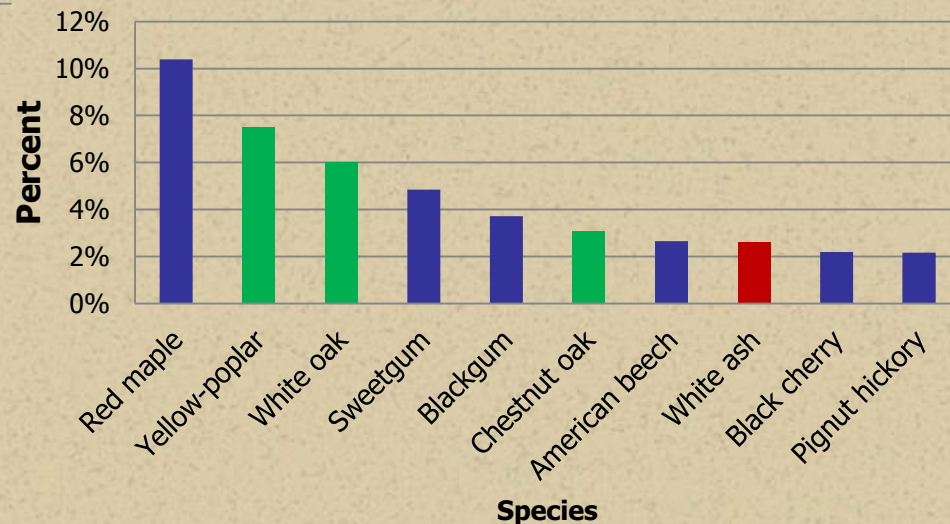


Ten Most Common Trees in VA

% of Total Volume



% 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

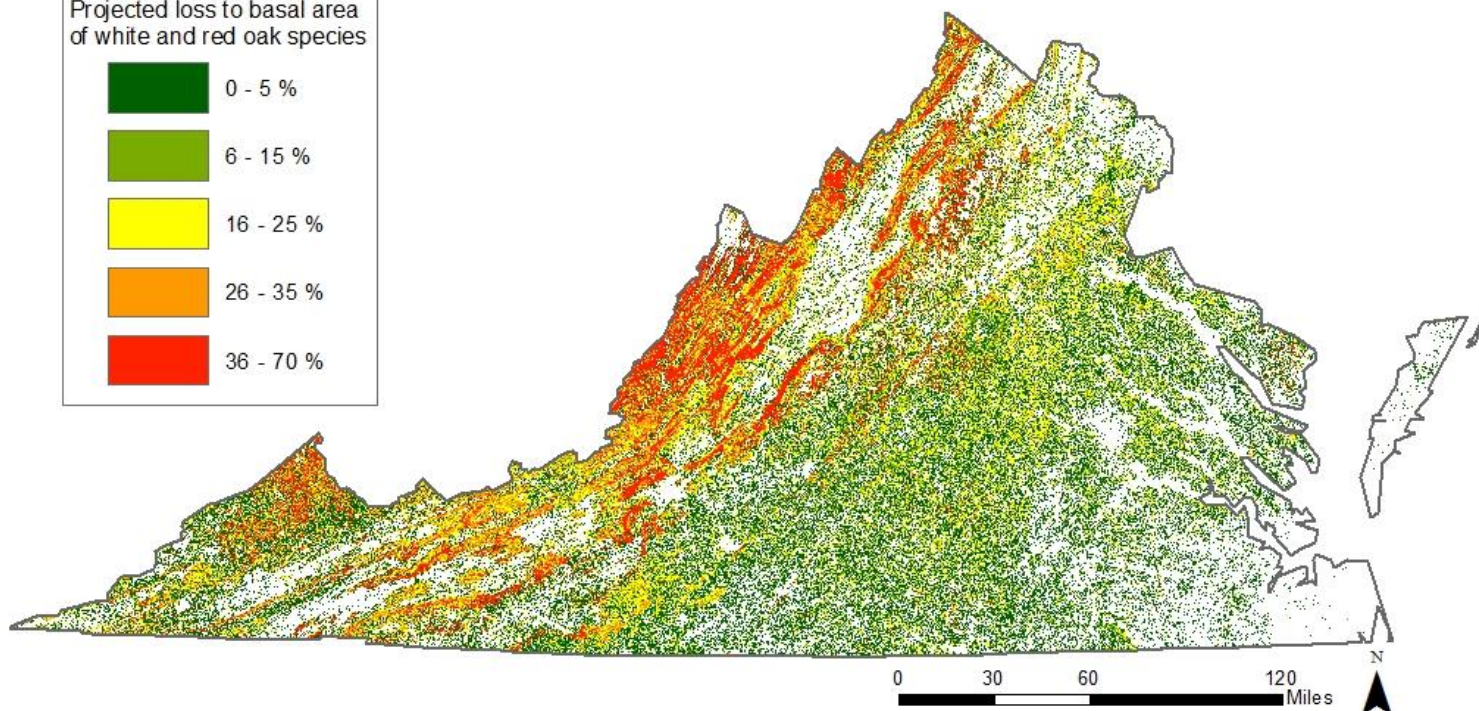
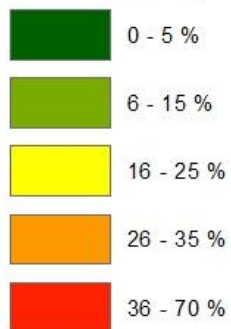
- **Diseases** - Chestnut Blight, Dutch Elm Disease, Oak Wilt, Laurel Wilt, Thousand Canker Disease
- **Insects** - Gypsy Moth, Emerald Ash Borer, Asian Longhorn Beetle
- **Plants** – Ailanthus, Honeysuckle, Kudzu, Oriental Bittersweet, Autumn Olive, Stilt Grass, Paulownia
- **“Deer”**



Invasive Species

Oak Decline and Gypsy Moth in Virginia

Projected loss to basal area
of white and red oak species



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

2010 Population Density and Forest Lands

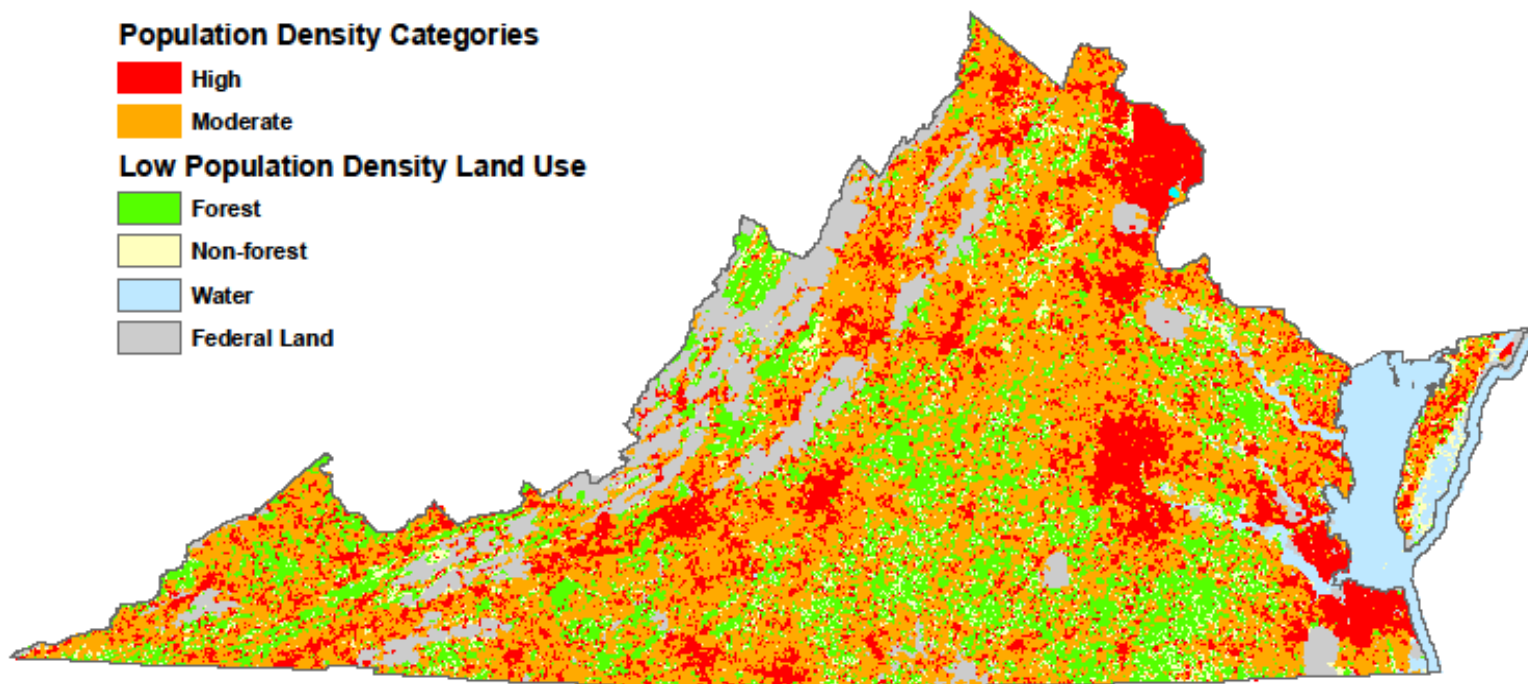
Legend

Population Density Categories

- High
- Moderate

Low Population Density Land Use

- Forest
- Non-forest
- Water
- Federal Land



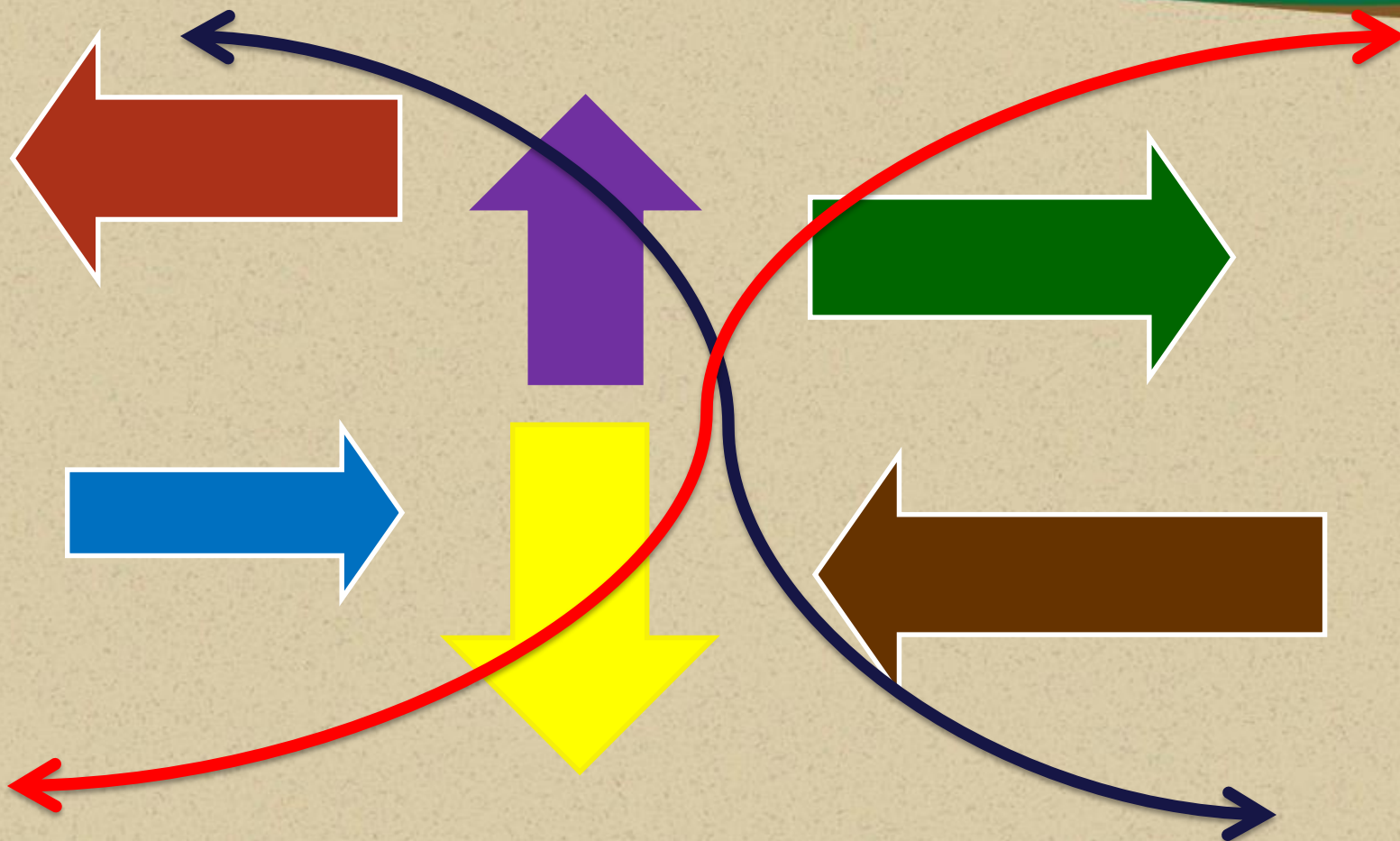


So What Will the Forests of Tomorrow Look Like?

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

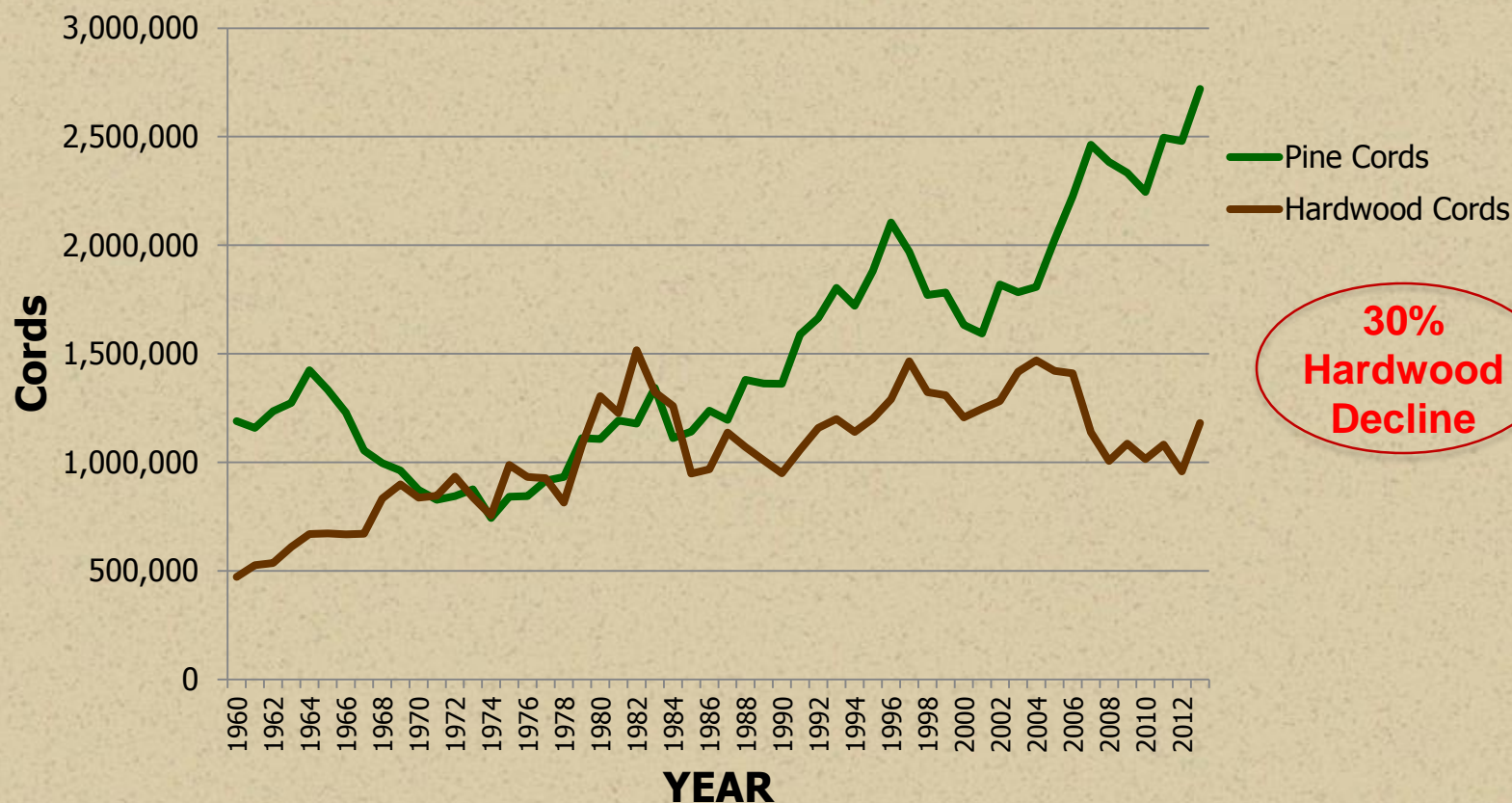


New Users of Hardwood Forest Resources

- 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

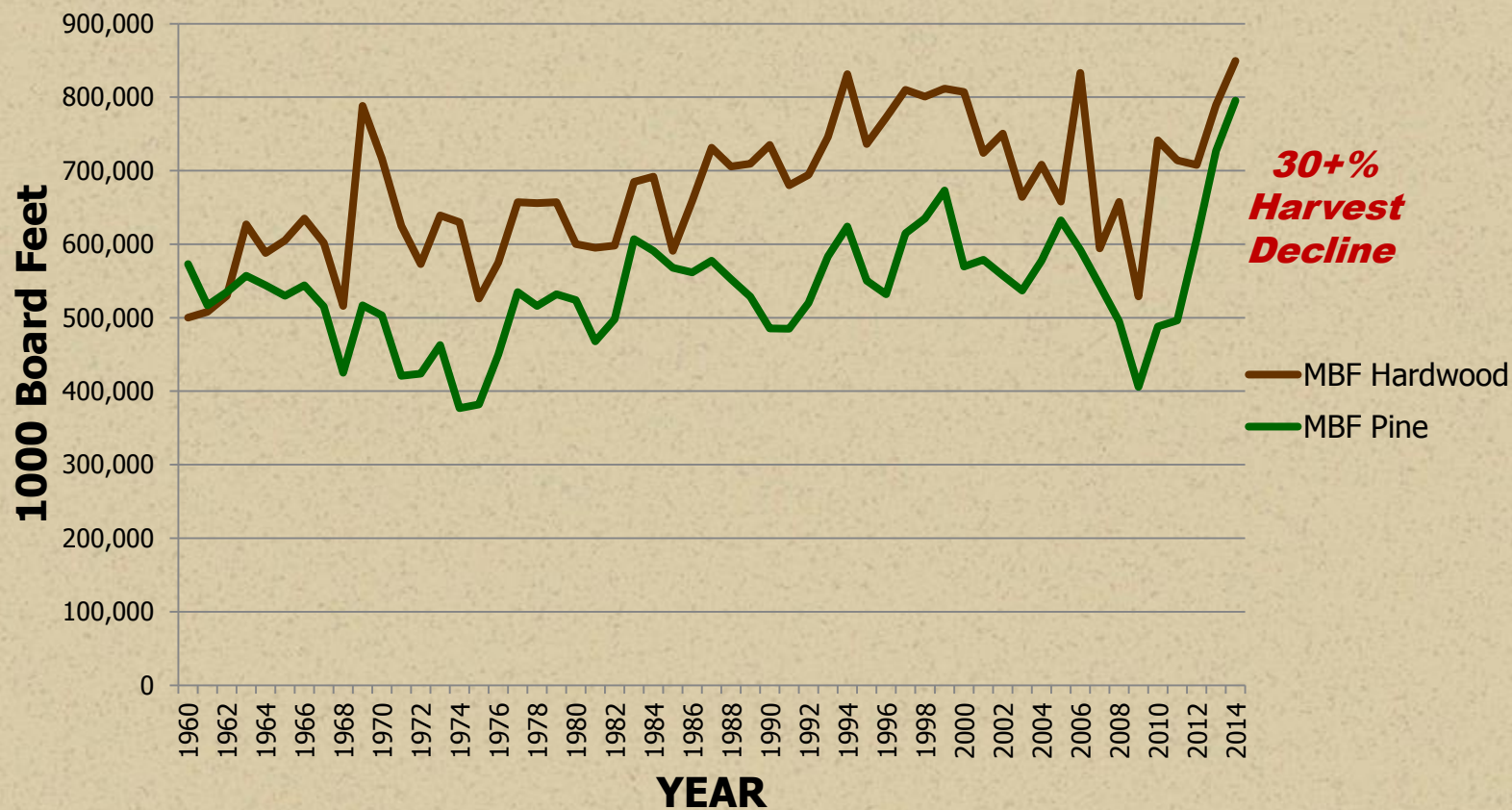


Pulpwood Harvest



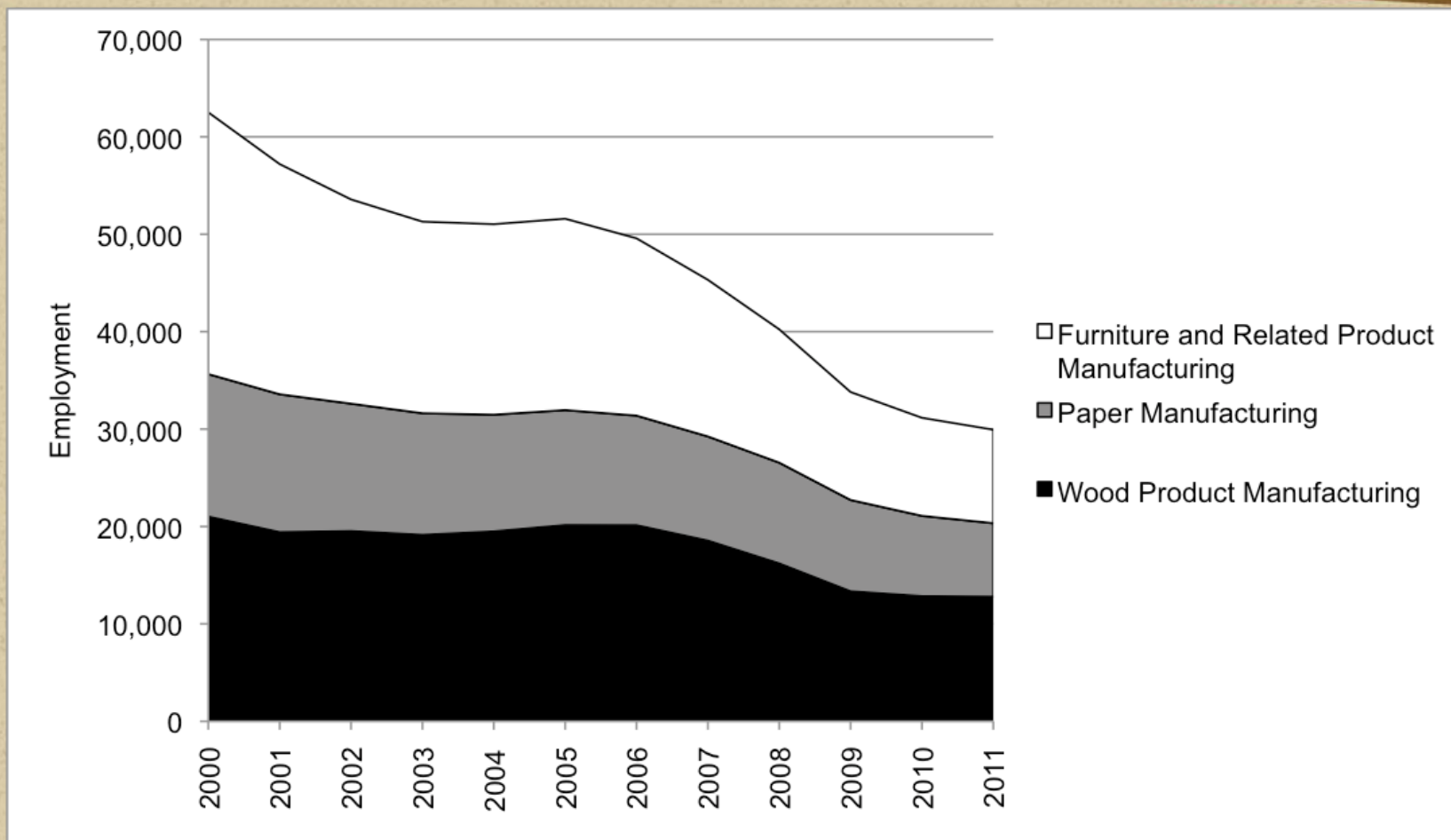


Sawtimber Harvest



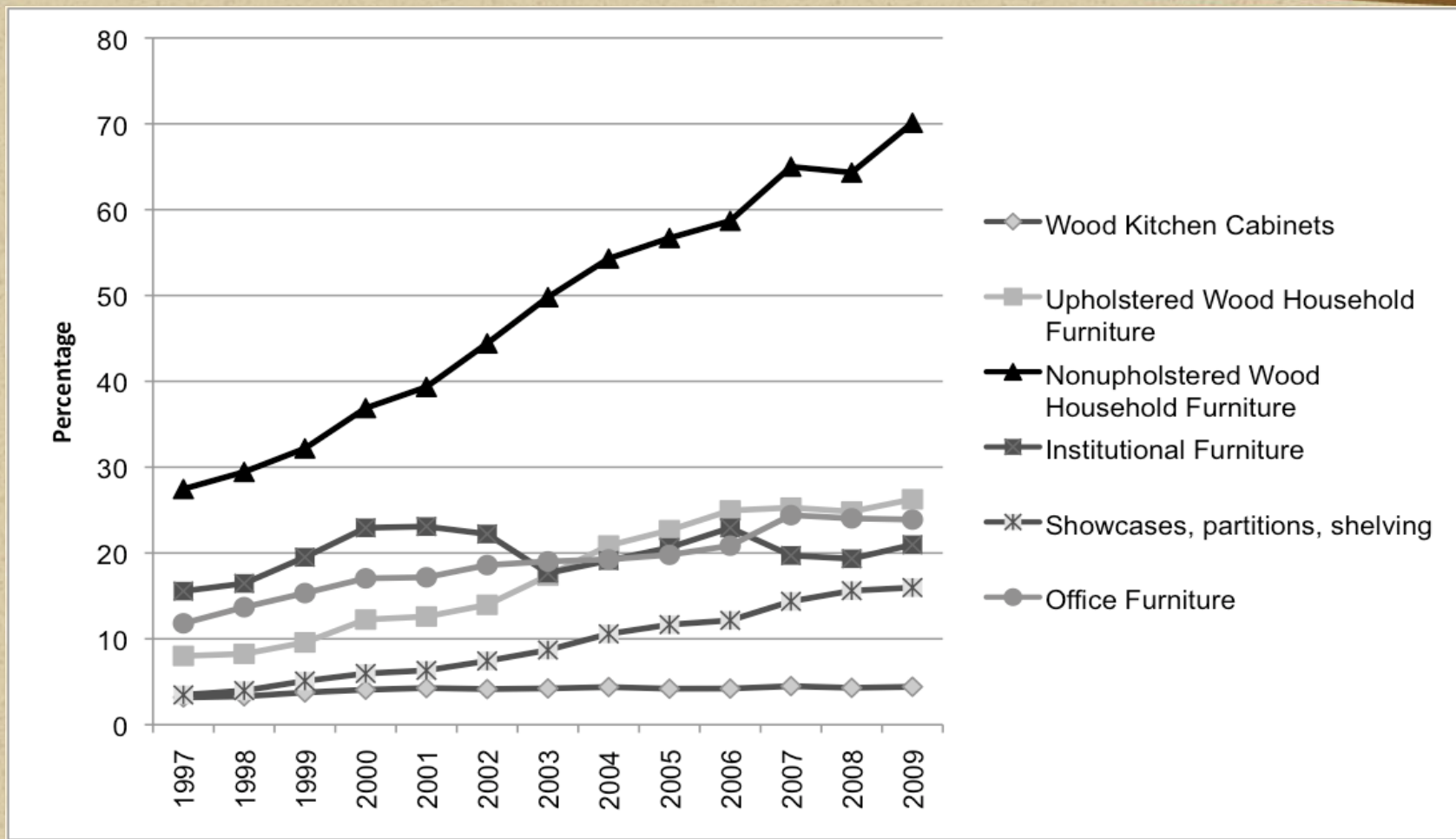


Industry Trend





Imports



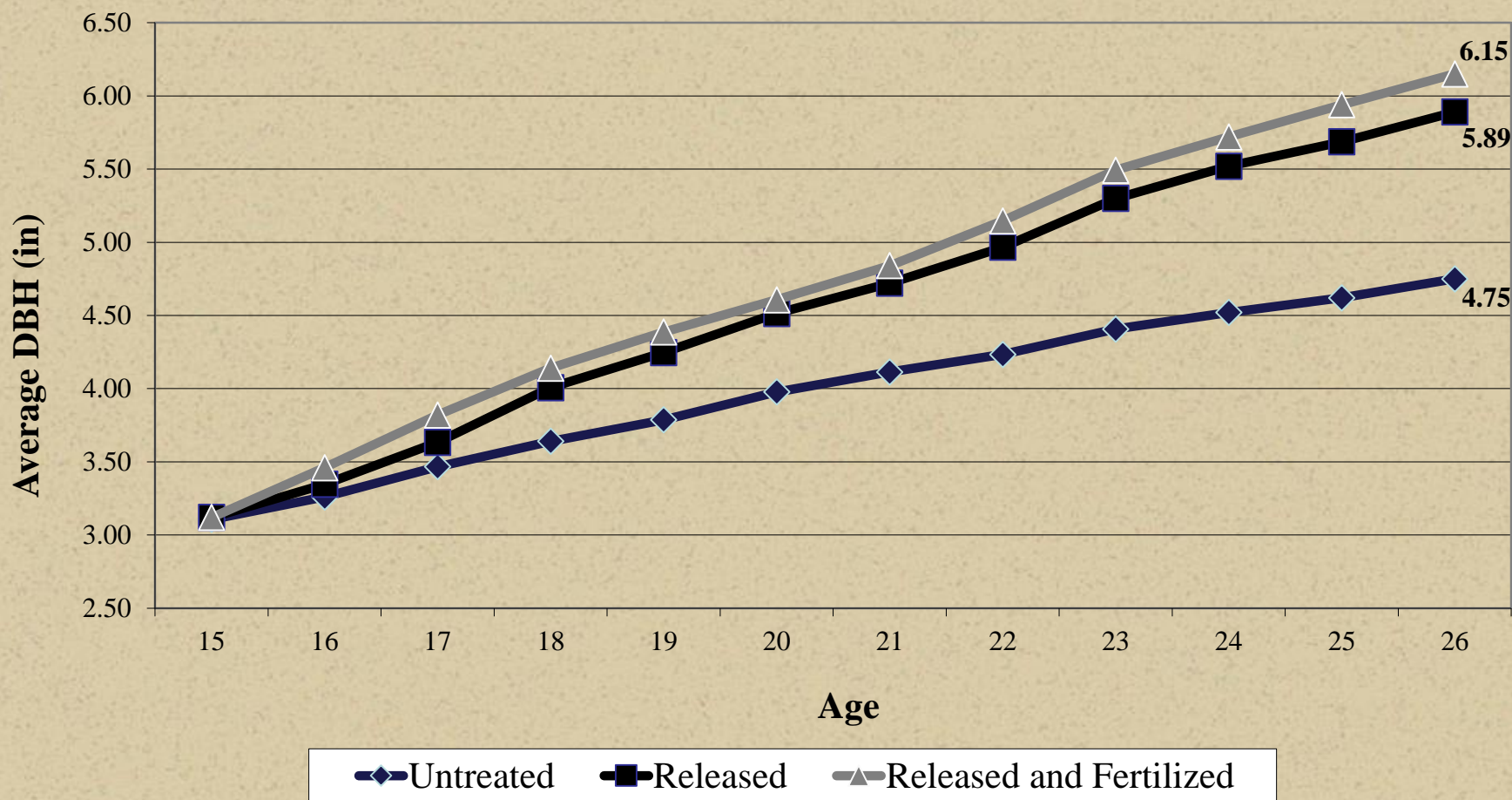


Thoughts on the Future

- 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





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 it's 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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