

Mass Timber Construction Management: Design through Project Close Out

Sustainability of North American Wood Products

Presented by Tiffanie Starr



Disclaimer: This presentation was developed by a third party and is not funded by WoodWorks or the Softwood Lumber Board.

“The Wood Products Council” is a Registered Provider with The American Institute of Architects Continuing Education Systems (AIA/CES), Provider #G516.

Credit(s) earned on completion of this course will be reported to AIA CES for AIA members. Certificates of Completion for both AIA members and non-AIA members are available upon request.

This course is registered with AIA CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.



Course Description

Sustainability of North American Wood Products

Responsibly sourced wood is the only renewable building material available; it is naturally grown and removes CO₂ from the atmosphere. Wood products then store the carbon that the growing trees have removed from the air. Certified forests and plantations are replanted to provide a wide range of other benefits such as water filtration, oxygen generation and forest habitat. Additionally, after decades or even centuries of use, wood buildings can be easily adapted or deconstructed and reused, which means they can continue to store carbon indefinitely. The production and processing of wood uses much less energy than most other building materials. Wood can be used to substitute for materials that require larger amounts of fossil fuels to be produced. Research has identified that the increased use of wood has measurable physiological and psychological health benefits. Wood is a natural insulator due to the air pockets within its cellular structure. As an insulator wood is 15 times better than masonry and concrete, 400 times better than steel, and 1,770 times better than aluminum. This helps to reduce the cost of heating and cooling a building. Wood is the only renewable construction material available.

Learning Objectives

1. Understand the difference in global forests vs. timberland
2. Understand forest management and wood supply
3. Recognize the sustainability of U.S. forests
4. Role of forests in the climate solution
5. Carbon and the built environment: Benefits of building with wood
6. How wood markets *help not hurt* the sustainability of U.S. forests

TO **SUSTAIN** PRIVATE FOREST.

WE MUST **SUPPORT** THE
ECONOMICS TO SUSTAIN
THEM.



OUR UNIQUE POSITION



We are a landowner organization.

◆◆◆

To protect the forests, you must promote the interests of those who own, manage and make a livelihood from their natural resources.

Only then will the ultimate goal of conservation of America's private forests be achieved.

The US Forest Narrative

What's being said about US forests and their owners?

- ✓ MARKETS ARE NOT A CONCERN.
- ✓ PRIVATE FOREST LANDOWNERS LACK MANAGEMENT PLANS.
- ✓ PRIVATE LANDOWNERS DO NOT PRACTICE SUSTAINABLE FORESTRY.
- ✓ FORESTS ARE DISAPPEARING.



JUNE 2017
04-07-2017

TRUTH PAPER

Hug a tree while you still can: U.S. forests are disappearing

Share on Facebook

Retweet on Twitter

+



Bertha Spruce Mill - Cherokee Woodland, NC - May 1986. © Diagonal Alliance.

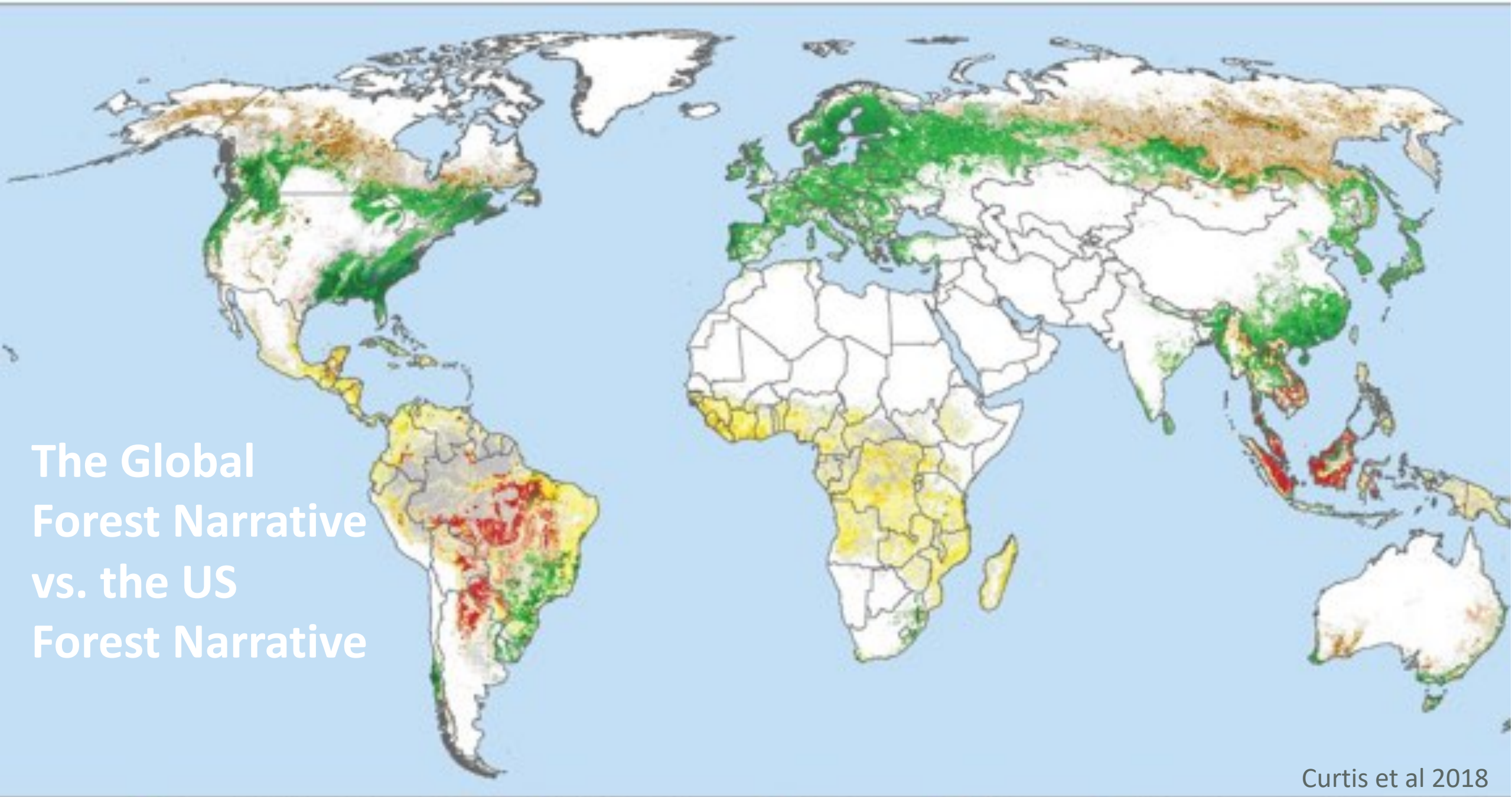
Timberland vs. Forest

The US 2.2 billion acres of land area is 37% forested, but only 24% of that total area is categorized as Timberland.

Timberland is land

- 1) with at least 10 percent canopy cover by live trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated,
- 2) not withdrawn by statute or administrative regulation prohibiting the management for production of wood products, and
- 3) capable of growing at least 20 cubic feet per acre per year.

The Global Forest Narrative vs. the US Forest Narrative



Curtis et al 2018



Commodity Driven Deforestation



Shifting Agriculture



Forestry



Wildfire



Urbanization



Zero or Minor Loss

Myth

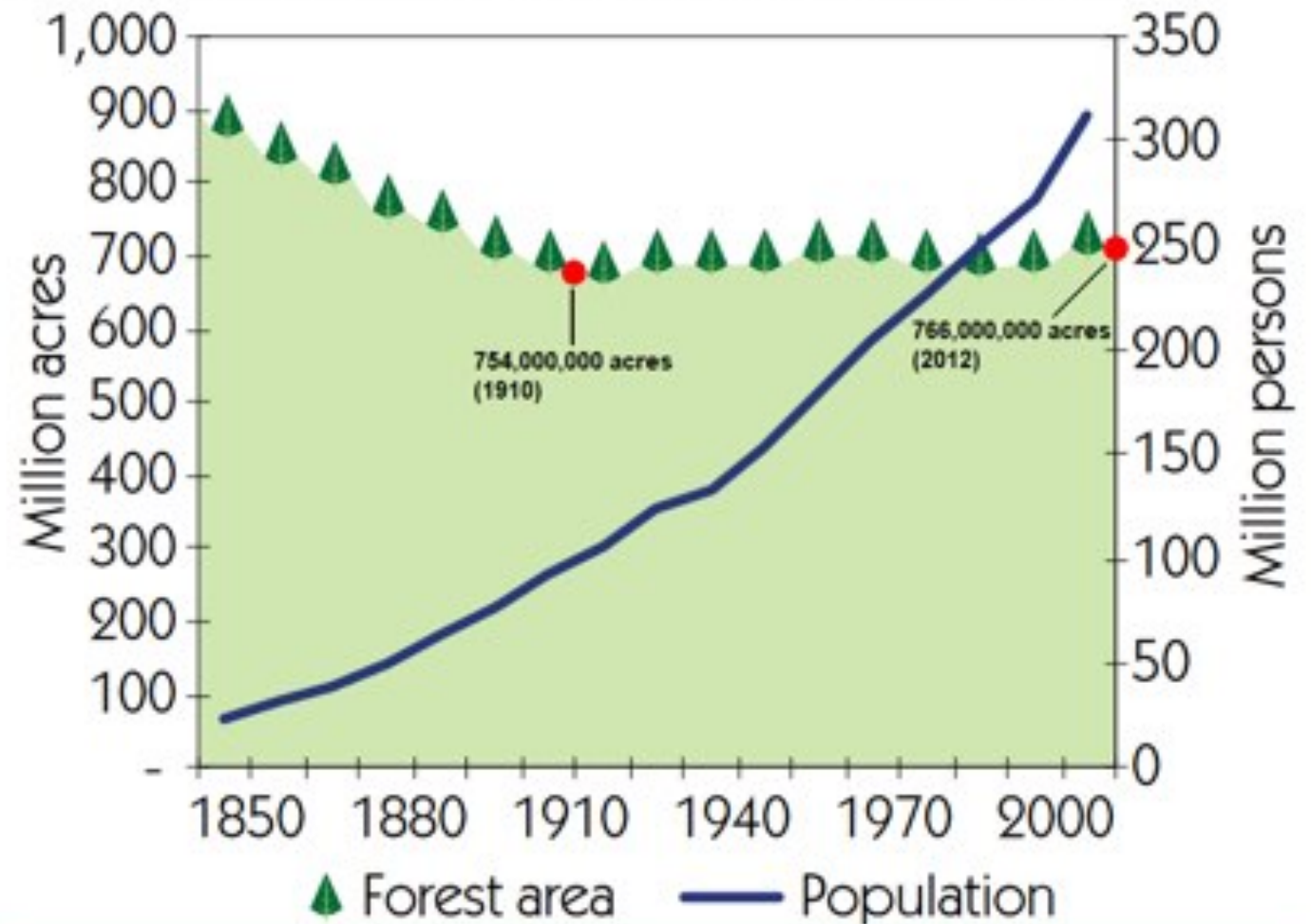
US Forests Are Disappearing

1/27/20

"U.S. Forest Resource Facts and Historical Trends"

United States Department of Agriculture (USDA) Brochure, August 2014

https://www.fia.fs.fed.us/library/brochures/docs/2012/ForestFacts_1952-2012_English.pdf



Forest area and population trends in the United States, 1850–2010.

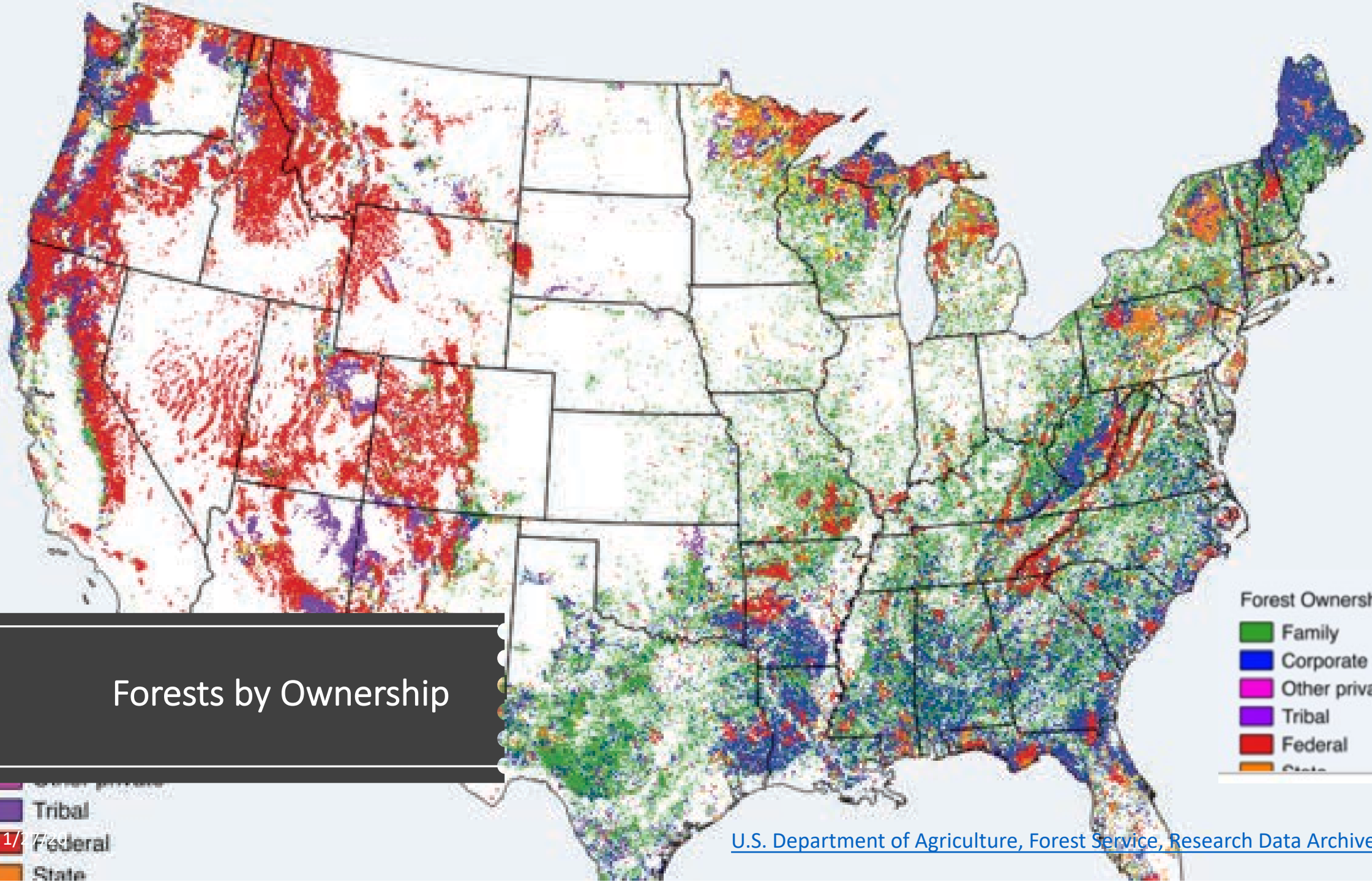
Who Owns the Timberland

**Federal and State
Owners**
165,000,000 acres

Industrial/Institutional
80,000,000 acres

Non-industrial Private
290,000,000 acres





Forests by Ownership

Forest Ownership

- Family
- Corporate
- Other private
- Tribal
- Federal
- State

- Other private
- Tribal
- Federal
- State

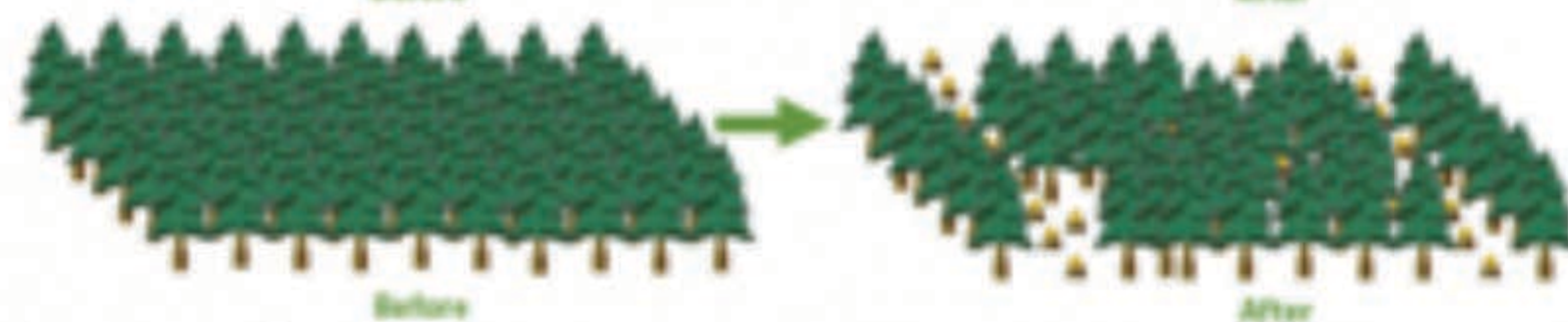
CLEAR CUTTING



PATCHWORK HARVESTING



THINNING & SELECTION HARVESTING

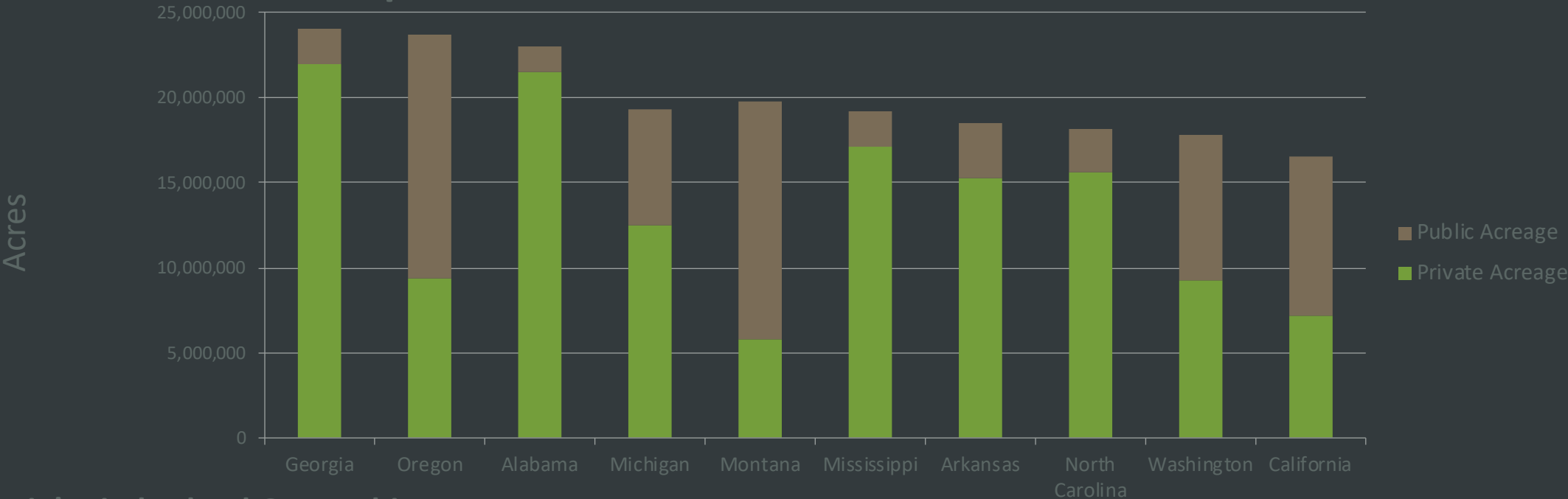


SHELTERWOOD HARVESTING

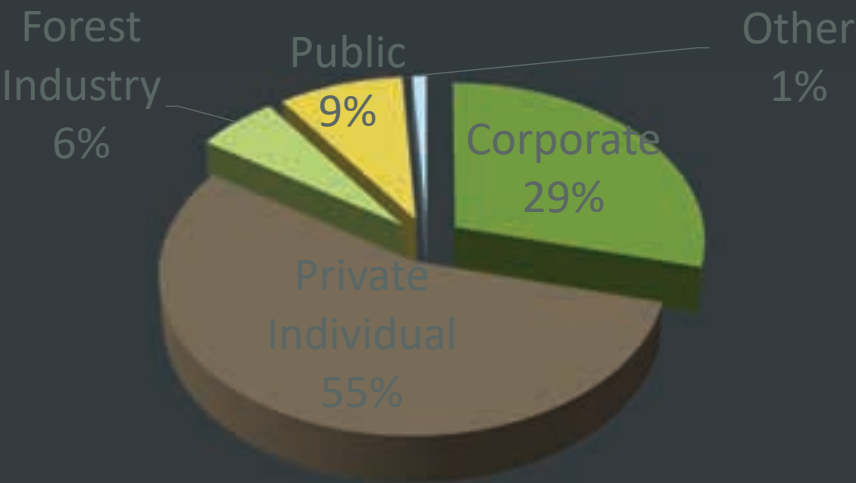




Top Ten U.S. States in Total Timberland



Georgia's Timberland Ownership

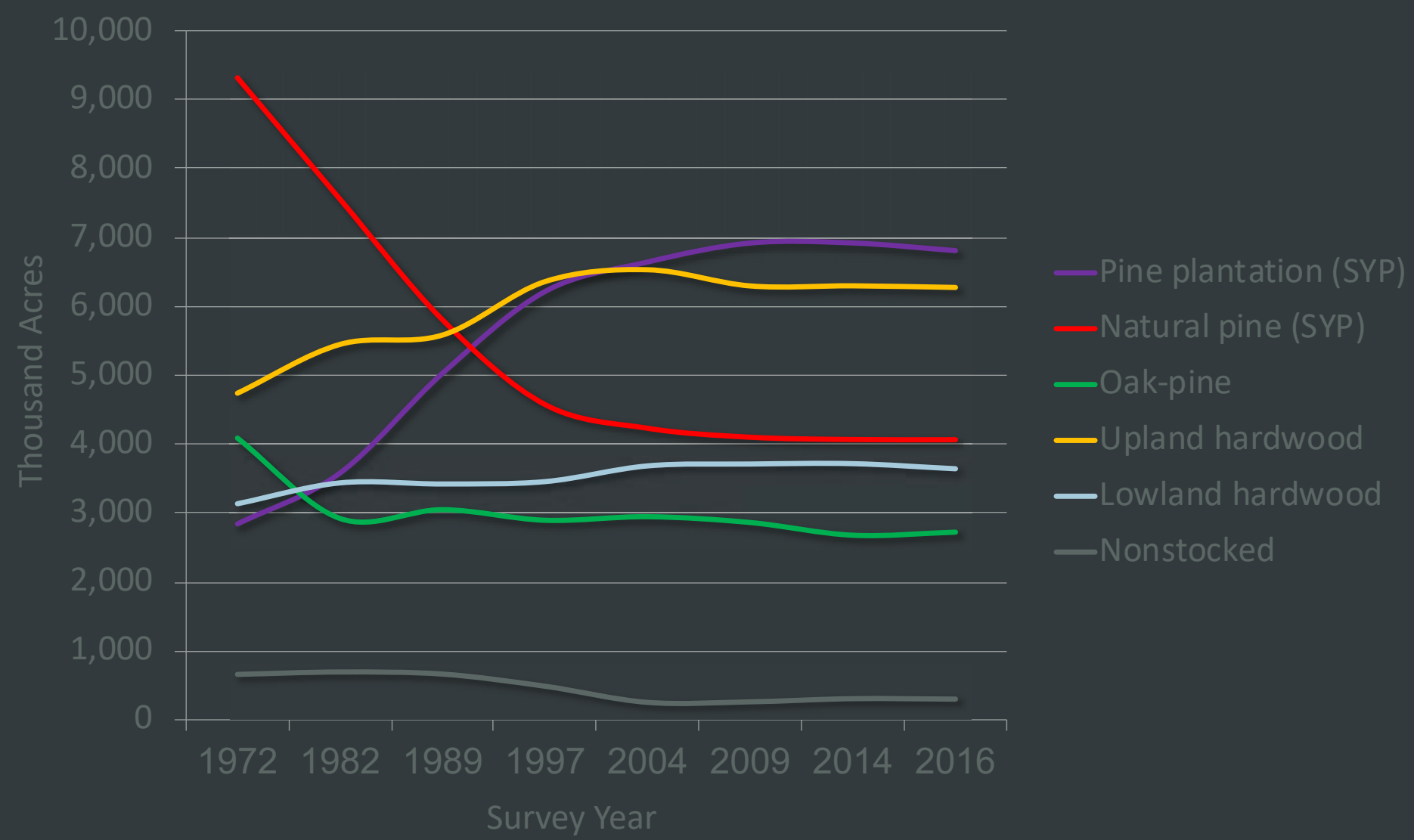


Georgia Timberland Ownership – 24.16 mil

Georgia is #1 in timberland acreage and privately owned timberland acreage in the U. S. While some western states have more forestland acreage, much of it is public land and unavailable for most forest products (reserved from harvest by law – such as Wilderness Areas).



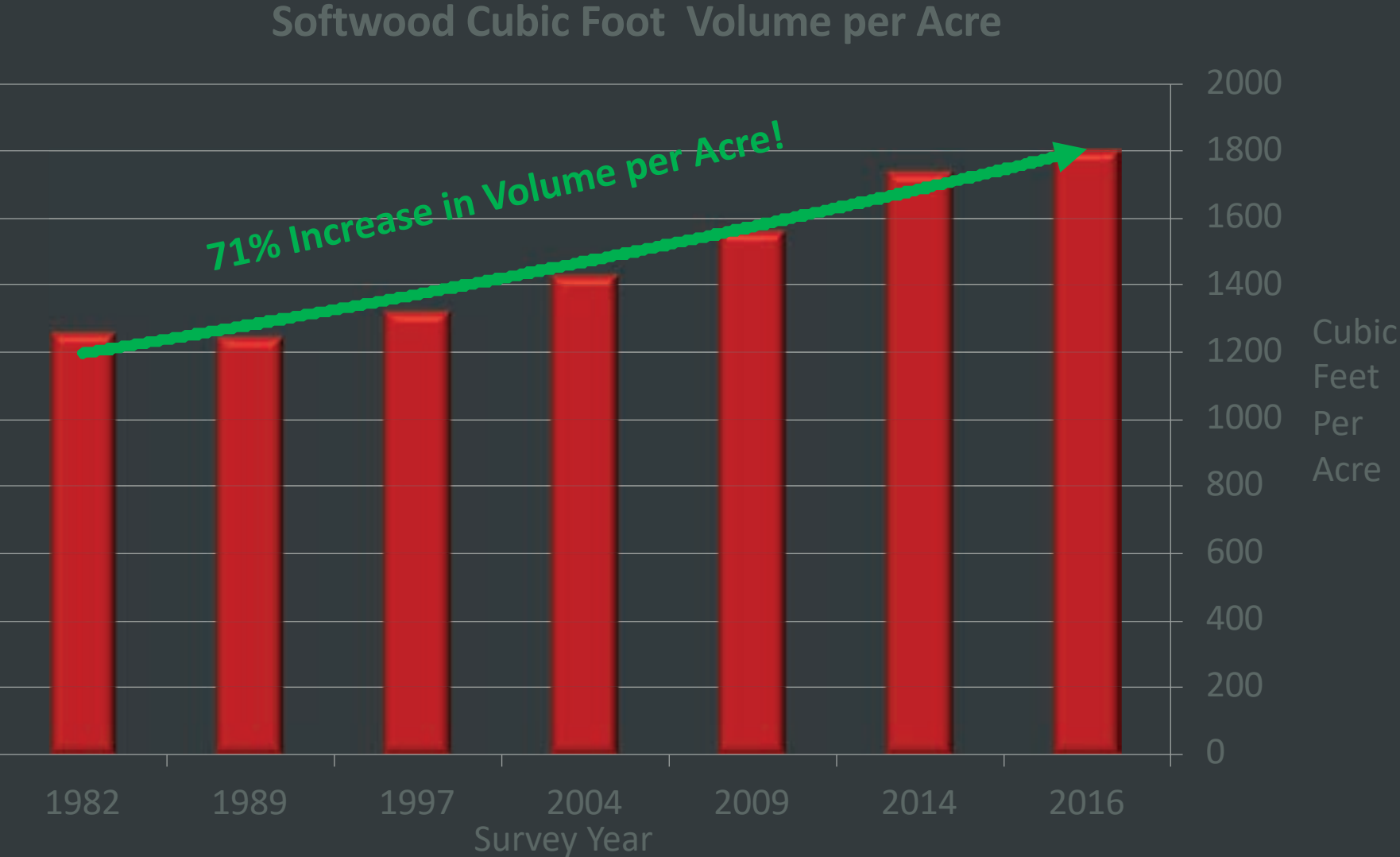
Georgia Timberland Acreage by Forest Type



Source: US Forest Service FIA Data 2016 and The Georgia Forestry Commission



Softwood Volume per Acre by Survey Year

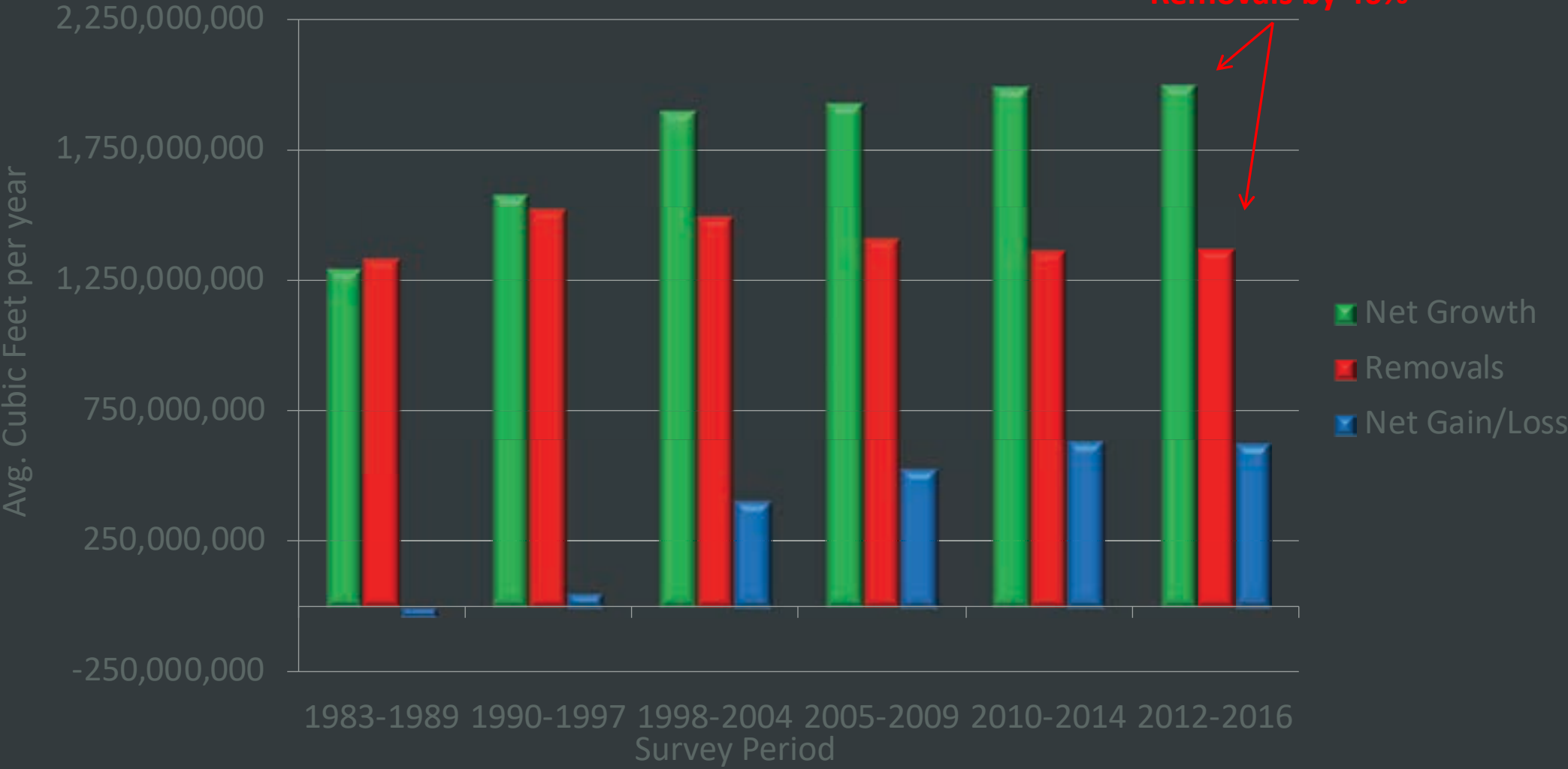


Source: US Forest Service FIA Data 2016 and The Georgia Forestry Commission



Net Growth versus Removals for All Tree Species

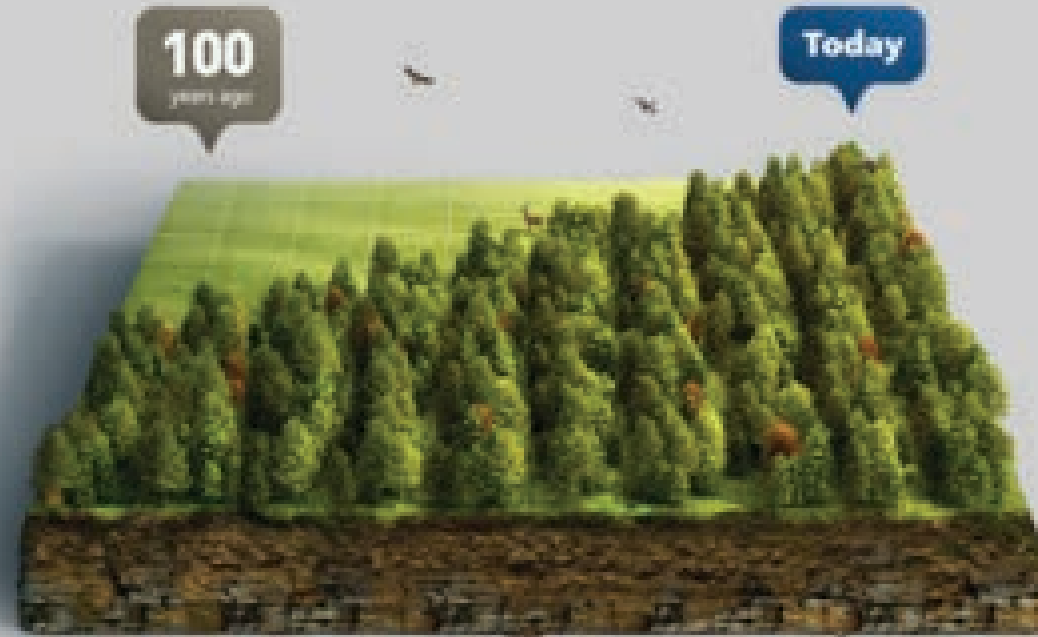
Net Growth Exceeds
Removals by 46%





MYTH

We do not practice sustainable forestry



Sustainable Forestry in the United States



US Forests Are Sustainably Managed

Federal and State Laws



Opt-in Certification Programs



Best Mgmt. Practices

- › State Forestry Divisions
- › Began in 1970s
- › 91% Compliance



Timber Assurance



Sustainable Forestry + Markets = Keeping Forests as Forests



Wood Markets Underpin Everything

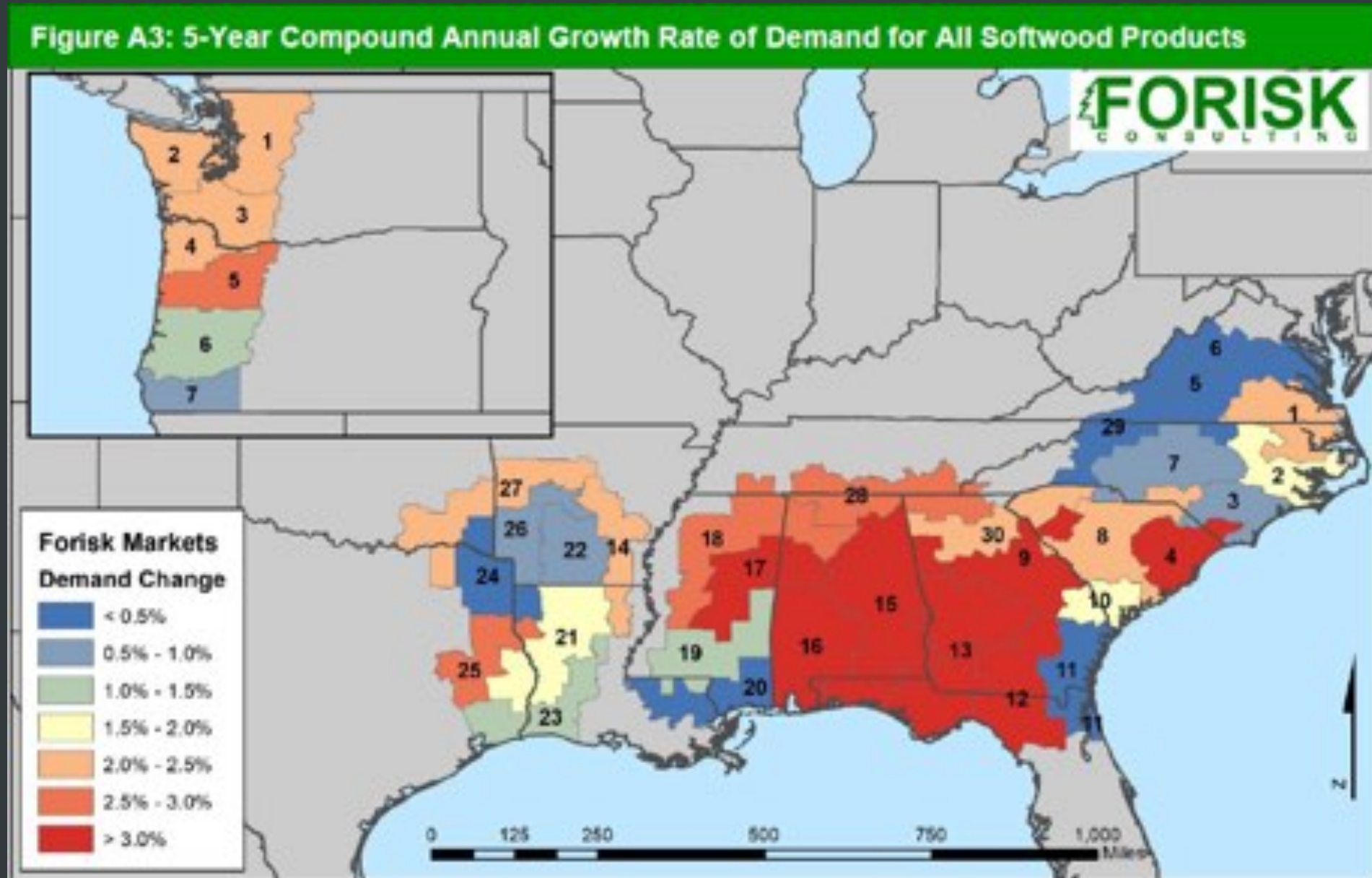


TOP 5 REASONS FOR OWNING FORESTLAND

- 1 Timber
- 2 Land Investment
- 3 Wildlife
- 4 Legacy
- 5 Beauty

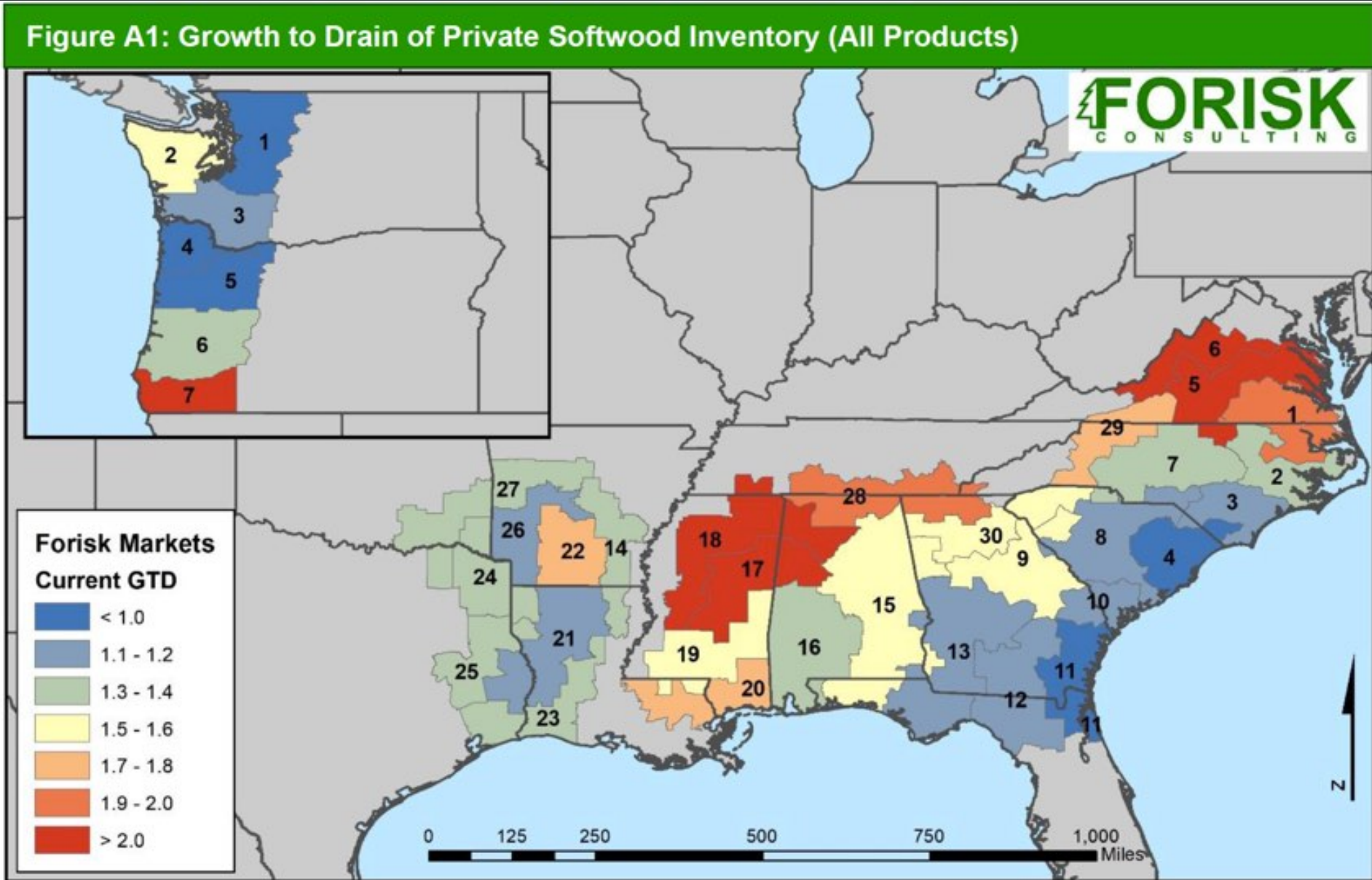
5-Year Compound Annual Growth Rate of Demand for All Softwood Products

"North American Forest
Market & Industry Rankings",
Forisk Consulting 2019



Current Growth to Drain of Private Softwood Inventory

"North American Forest Market & Industry Rankings",
Forisk Consulting 2019

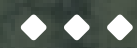




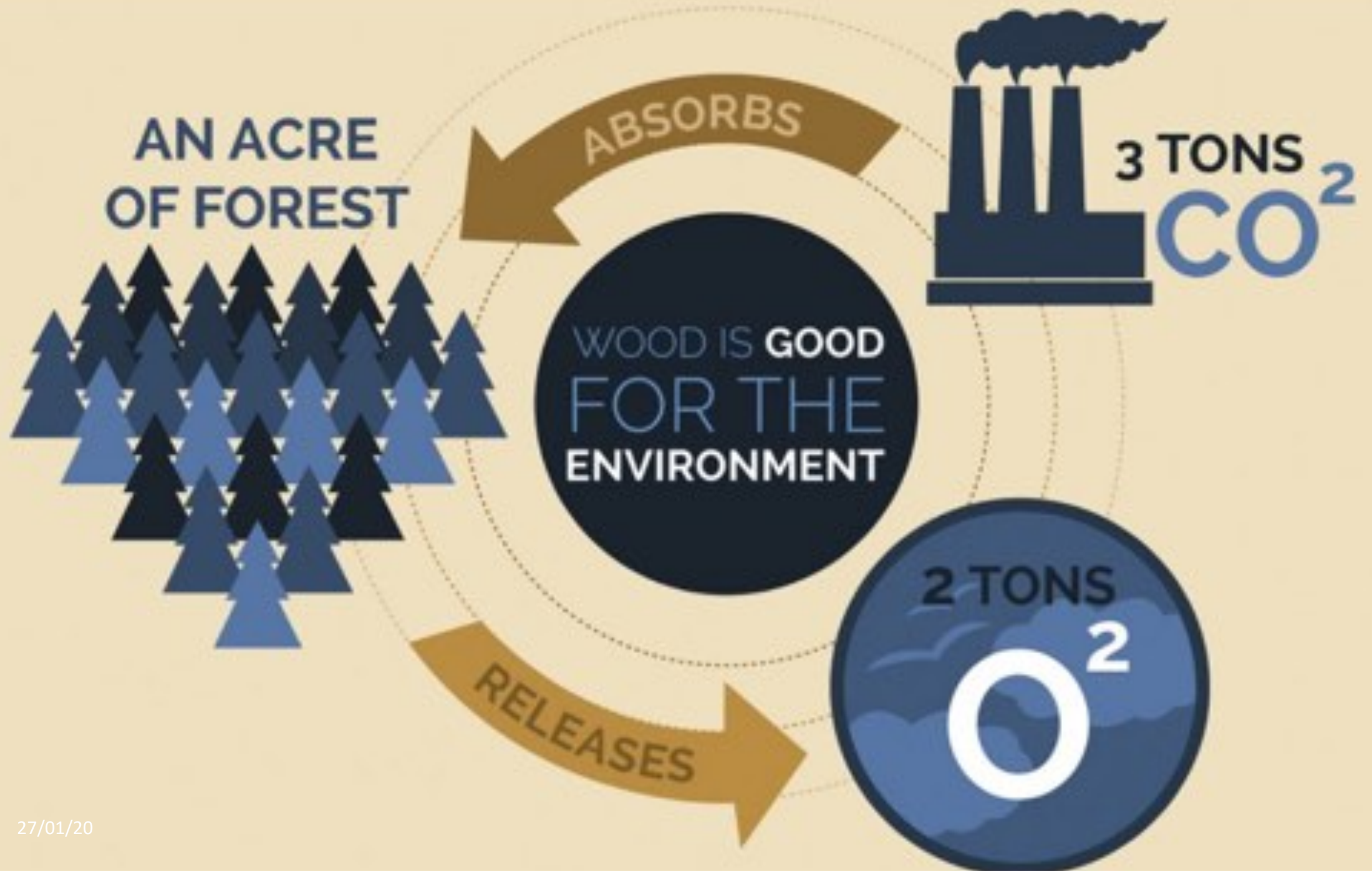
1/27/20



All farmers need markets



The Role of Forests in the Climate Solution



SEQUESTRATION

834

Tg CO₂/year
FOREST NET SEQUESTRATION

FOREST GROWTH
& EXPANSION

DECAY

FOREST
FIRES

LIVE TREES
& ROOTS

DEAD WOOD & PRODUCTS

SOIL

LATERAL TRANSFER

164,659 Tg CO₂
CURRENT FOREST STOCKS

STOCKS

EMISSIONS

5,608 Tg CO₂/year
FOSSIL FUEL EMISSIONS

INDUSTRY

ELECTRICITY

OTHER

TRANSPORTATION

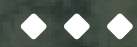
COAL, OIL & NATURAL GAS

565,880 Tg CO₂
CURRENT FOSSIL FUEL STOCKS

The US Forest Carbon Accounting Framework: Stocks and Stock change 1990-2016. Gen. Tech. Rep. NRS-154. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 49 pp.

US FORESTS ARE A CARBON SINK

Source: Global Carbon Project: [OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/](https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions/) • CC BY



Carbon and the Built Environment

Built Environment Statistics



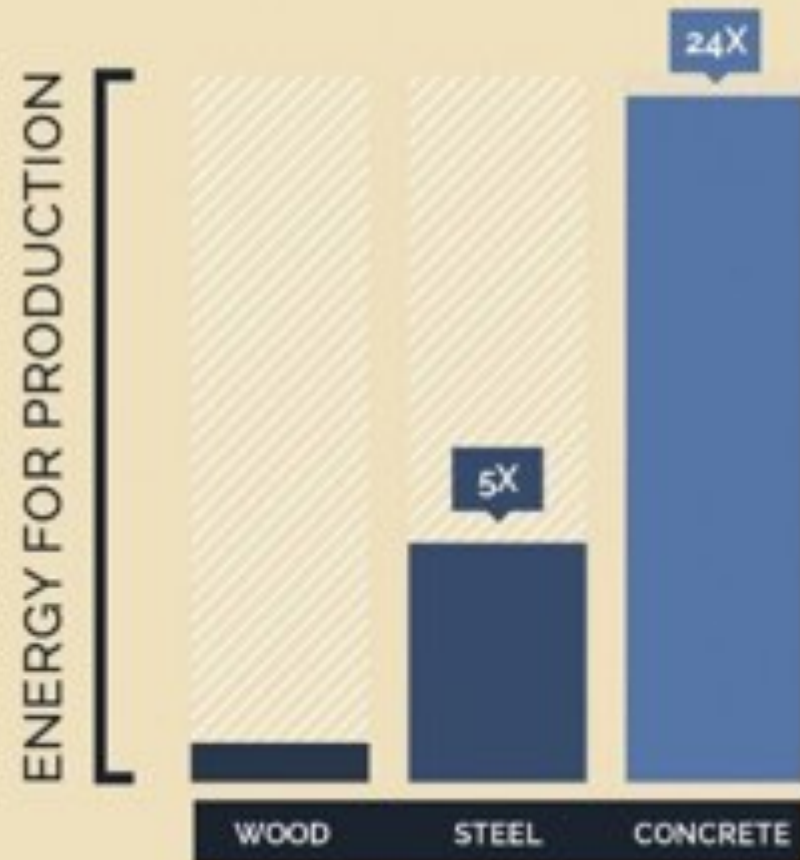
Buildings represent
28% of global
energy-related CO2
emissions

Building construction
represents another
11% of energy-related
CO2 emissions

Global building stock
is expected to double
before 2050

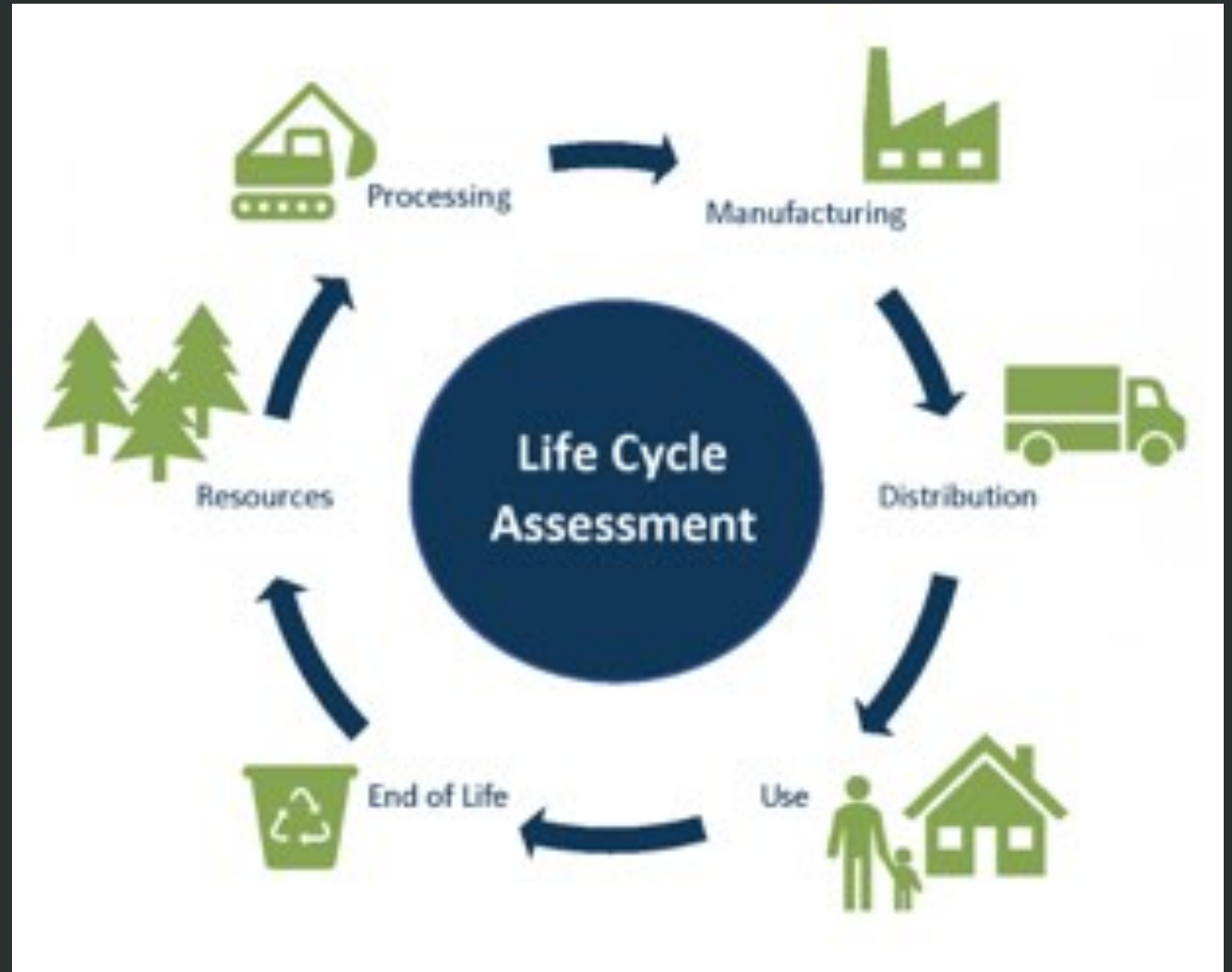
BENEFITS OF BUILDING WITH **WOOD**

Wood and wood products need the least amount of energy to manufacture and has the lowest impact on air and water quality.

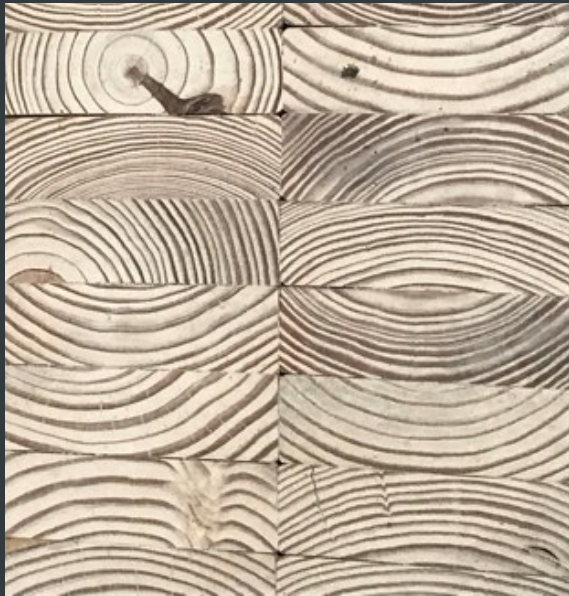


<https://www.forestfoundation.org/wood-a-good-choice-for-energy-efficiency-and-the-environment>

Life Cycle Assessment is potentially the most important method for assessing the overall environmental impact of products, processes or services



The Kendeda Building at Georgia Tech utilized salvaged beams from historic campus building remodels and upcycled end cuts of their nail-laminated panels into beautiful stair treads





Why Build With Wood?

Renewable Resource

It's a solution not a problem

- Exceeds other building materials in several areas
 - Sustainably-sourced natural resource
 - Cost savings (construction and energy)
 - Aesthetics and biophilic response



Mass Timber Construction in Atlanta-T3 Atlantic Station



Mass timber offers a rare opportunity—a chance to transform the construction industry so that we reduce emissions while adding millions of carbon-sequestering trees to the landscape. We will garden the earth as stewards living in a built environment made increasingly of sustainably grown wood.

America's oldest standing wooden home is still holding 400-year old carbon. Dedham, MA

YOU can be part of the carbon solution.

Build with WOOD!



TO **SUSTAIN** PRIVATE FOREST.

WE MUST **SUPPORT** THE
ECONOMICS THAT SUSTAIN
THEM.



> QUESTIONS?

Tiffanie Starr

Timberland Investment Resources, LLC

Forest Landowners Association member

starr@tirllc.com