Southern Forest Futures Project

Southern Region
Southern Research Station
Southern Group of State Foresters

David N. Wear, Southern Research Station
John G. Greis, Southern Region
USDA Forest Service

Why?

- Because citizens of the South and nation rely on the > 200 million acres of southern forests for many goods, services, and values…
- And because multiple pressures are affecting forests…
- The USFS and SGSF chartered the Southern Forest Futures Project to evaluate the future…

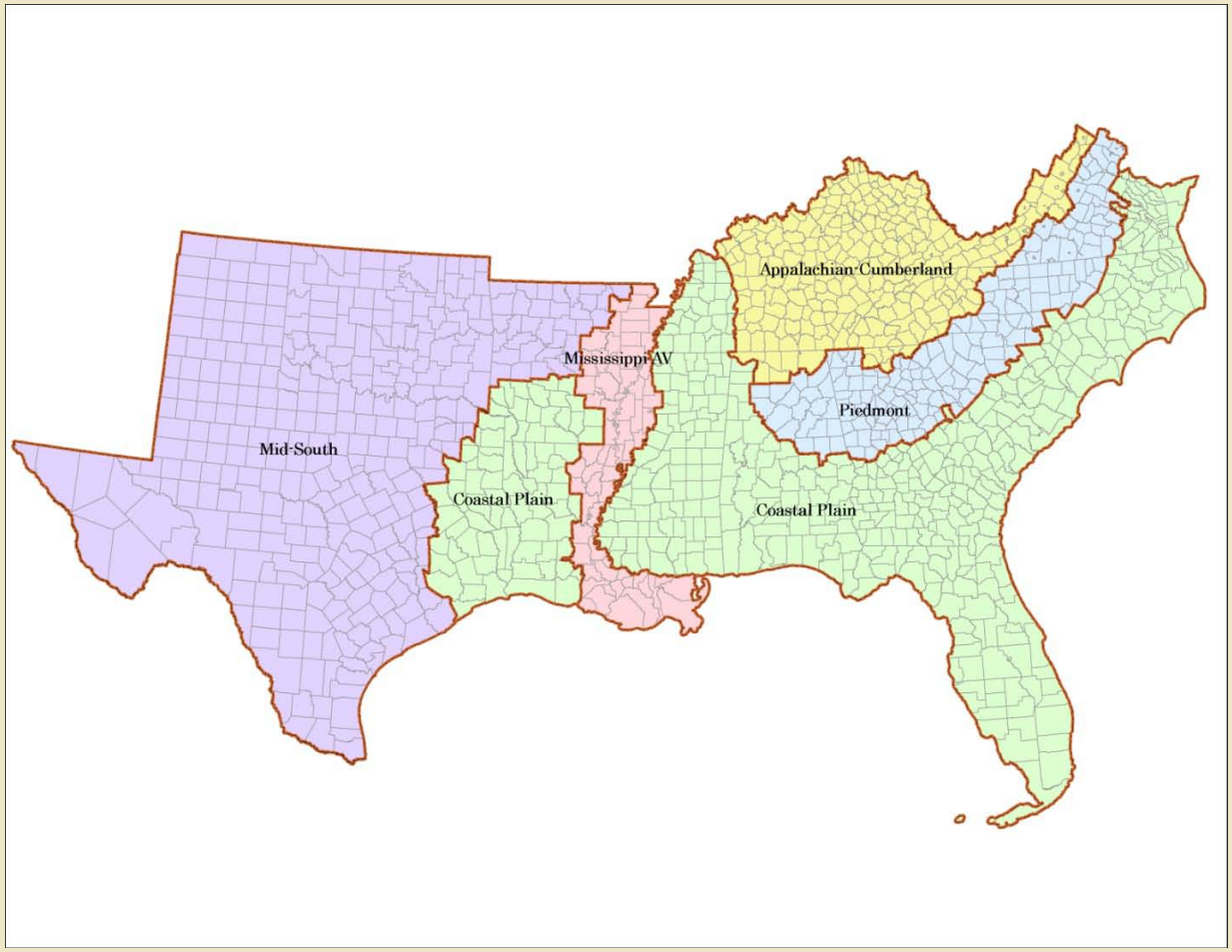
What is the SFFP?

- The Southern Forest Futures Project (SFFP) provides a science-based “futuring” analysis for the forests of the southeastern United States
- The ultimate goal is to translate these science findings into useable information for management and policy making

What is being produced by the SFFP?

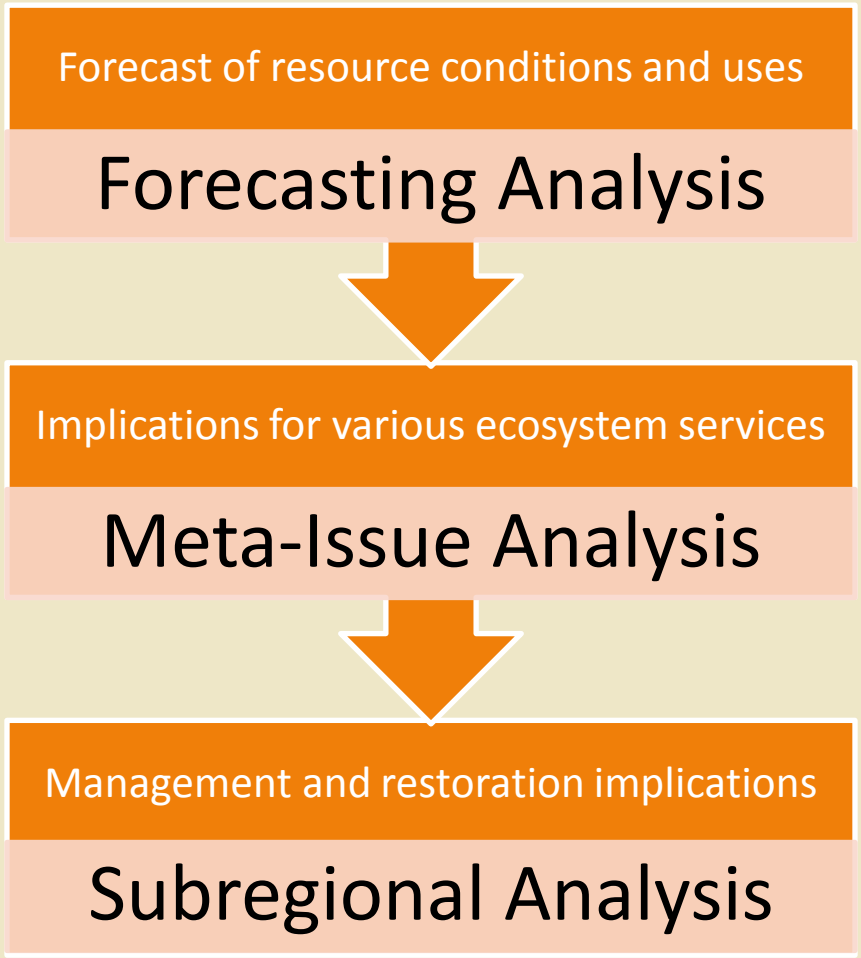
- Phase I (May 2011): Region-wide
  - Technical Report
    - 17 Chapters exploring forecasts and meta-issues
  - Summary Report
    - Compact synthesis of findings and implications
- Phase II (Winter 2012): Subregional
  - Subregional Management Implication Reports
    - Forthcoming translation of findings for 5 subregions in the South

SFFP Subregions



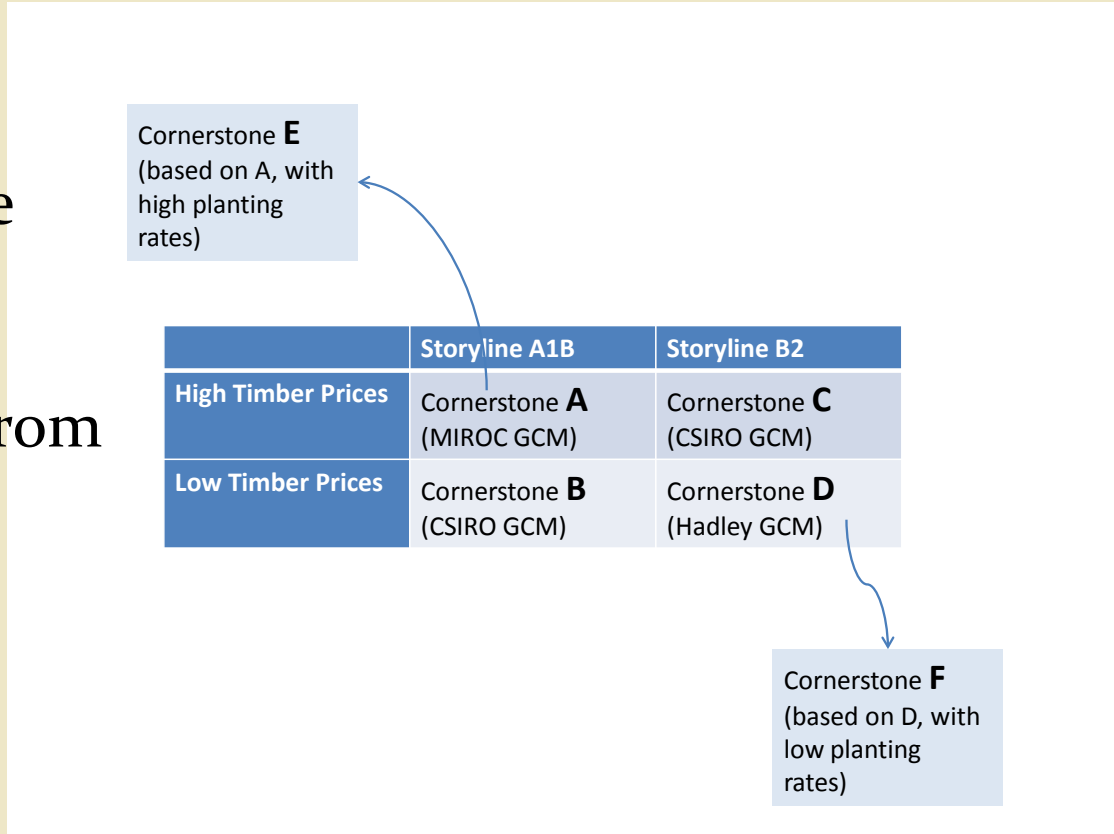
How was the SFFP Conducted?

- Chartered by USFS and SGSF
- Public Scoping
  - 15 public meetings; >600 people
- Technical Analysis
  - >40 scientists/analysts
- Peer Review
  - Highly Influential Scientific Assessment



Cornerstone Futures

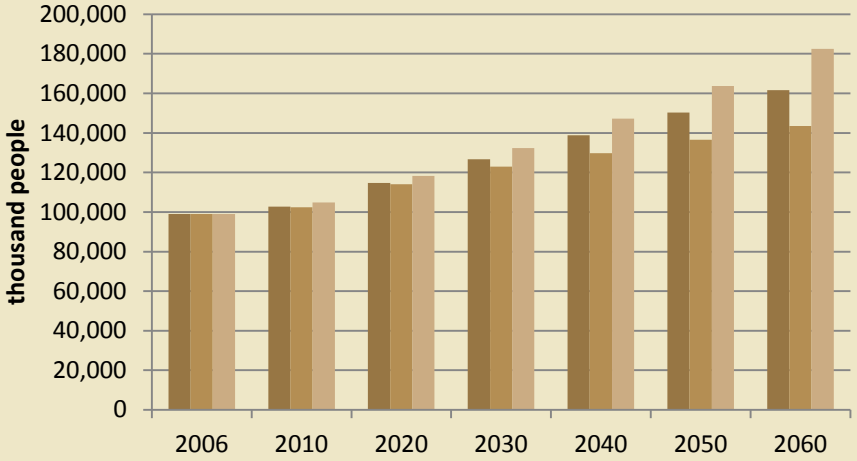
- Defined by
  - Population/income forecasts from RPA/IPCC
  - Climate forecasts from RPA/IPCC
  - Product market futures
  - Tree planting intensities
- 6 Cornerstones (A-F)

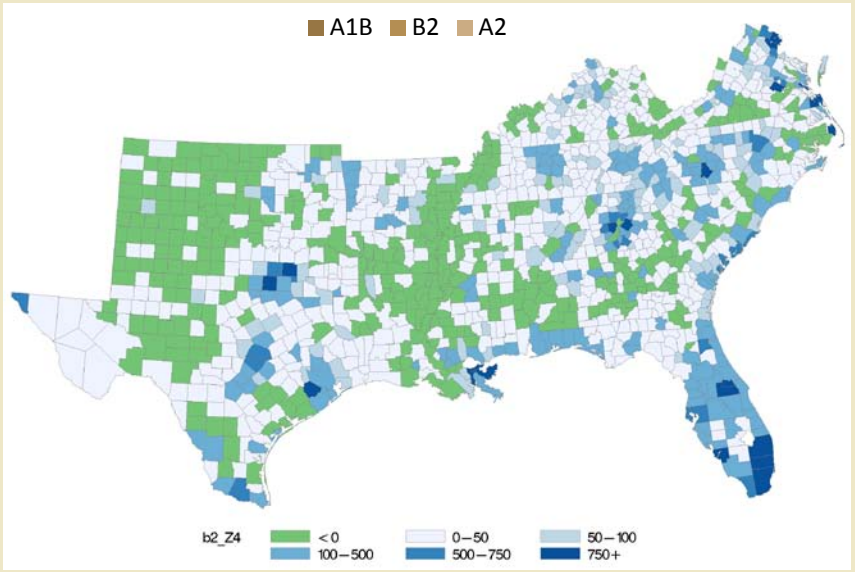


Cornerstone futures provide a foundation for exploring a range of effects. Analytical futures provide additional insights into markets and other questions.

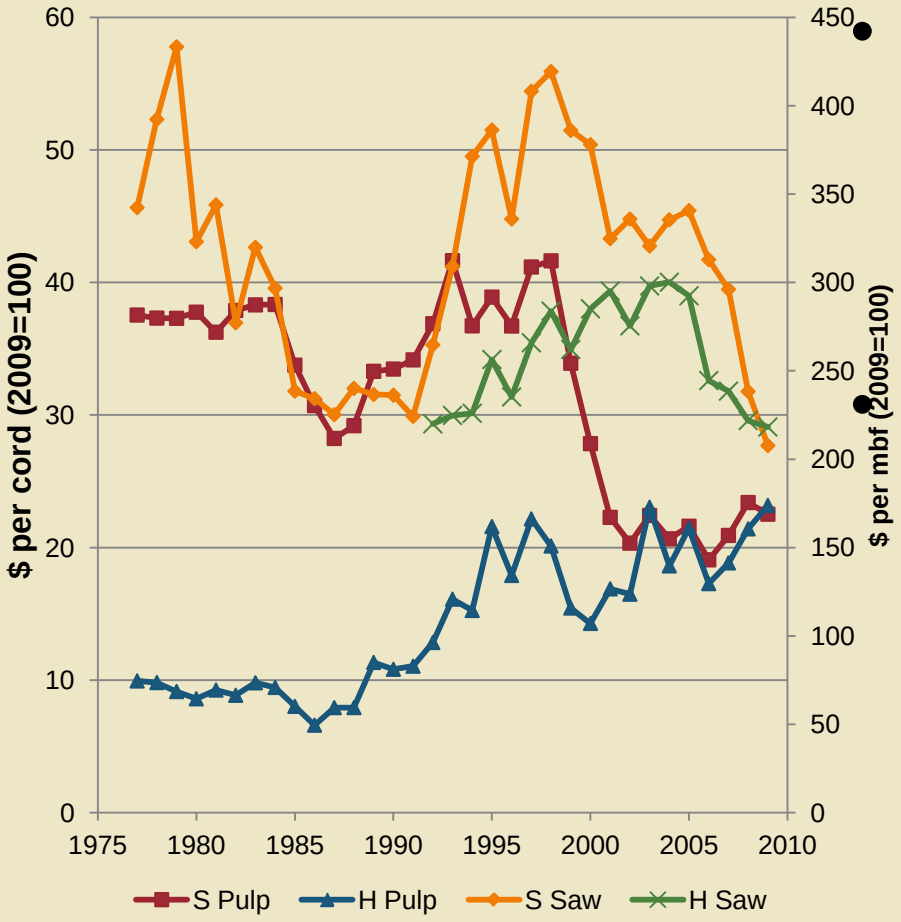
Cornerstone Futures—drivers

- Downscaled data
  - County-level from RPA
  - Population growth (annual)
  - Personal incomes (annual)
  - Climate data (monthly)
    - Precipitation
    - Temperature



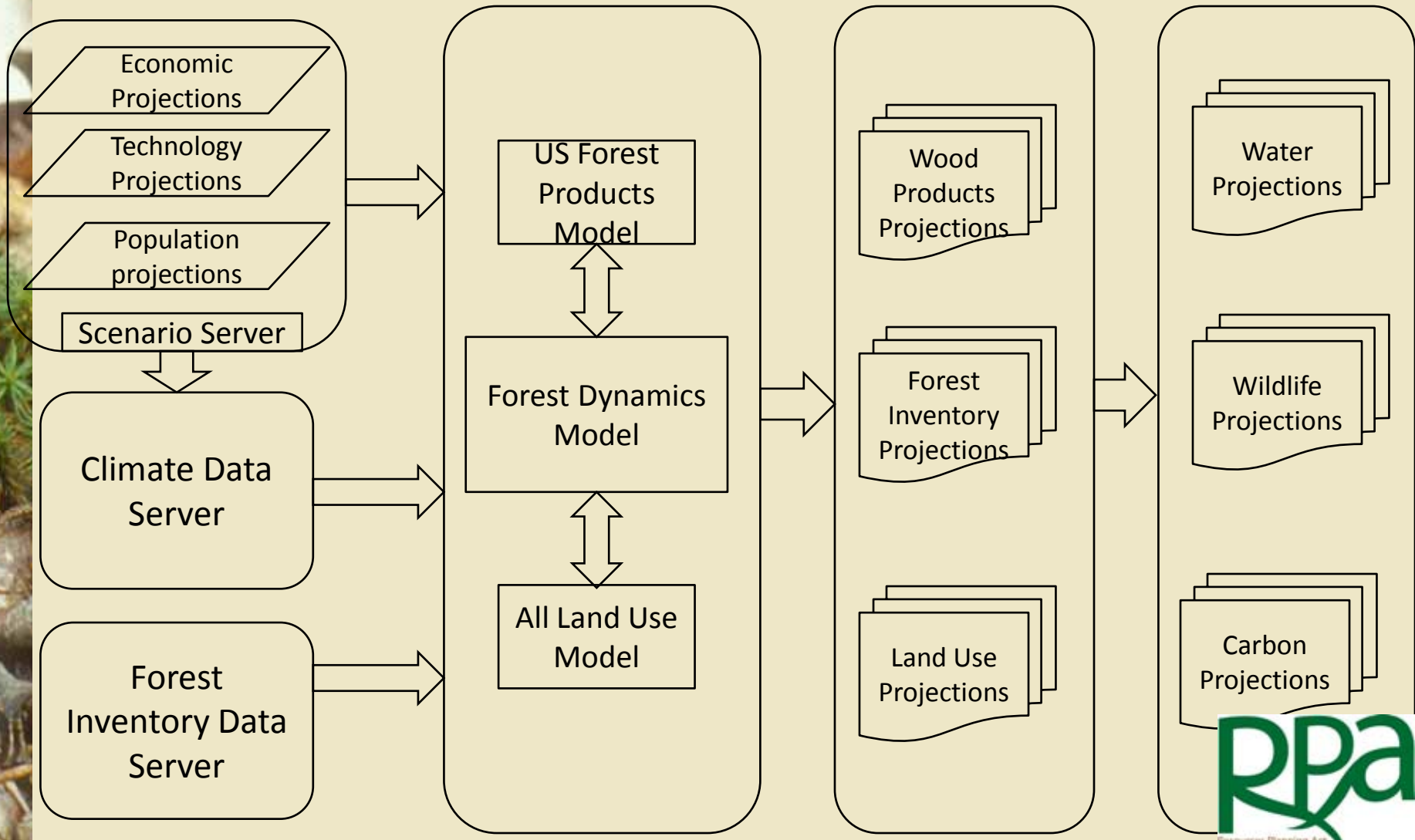


Cornerstone Futures-drivers



- Price data
  - Growth rates applied to Timber Mart South subregions (26)
  - 2006 base
- Planting data
  - Planting rates applied for forest types within survey units
  - Based on empirical planting rates from FIA plot records

US Forest Assessment System



Forest Dynamics Model

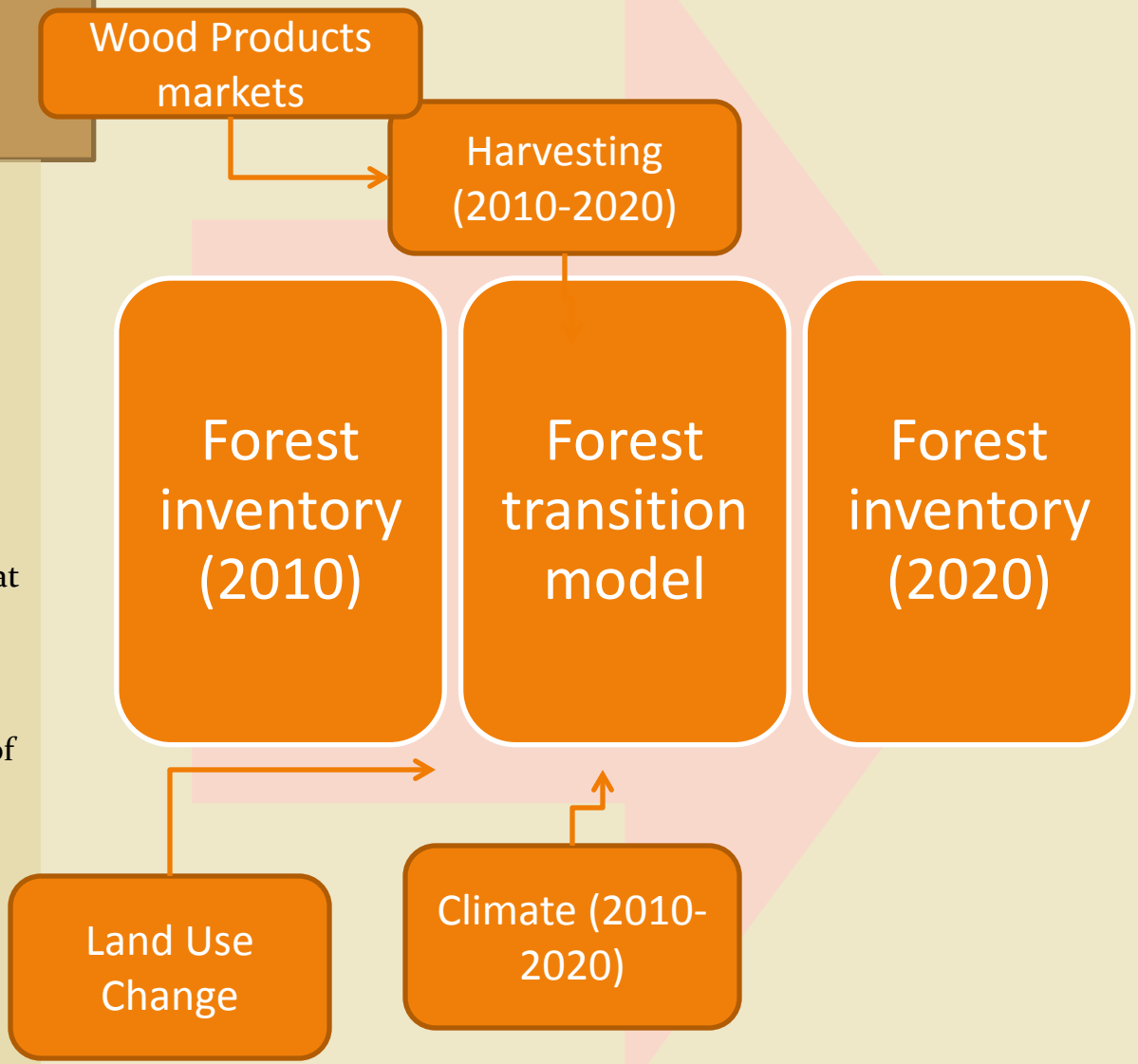
Objective: forecast structure of forest inventory for a given future.

Choice of the forest metric is important. We chose to explicitly model the development of the forest inventory… consistent with its area-frame design.

… a national forecasting system that is consistent with the national monitoring system

This allows for direct comparison of forecasted inventories with historical records….

Also allows for constant updating with new inventories and challenging hypotheses using new inventories.



Ten Key findings

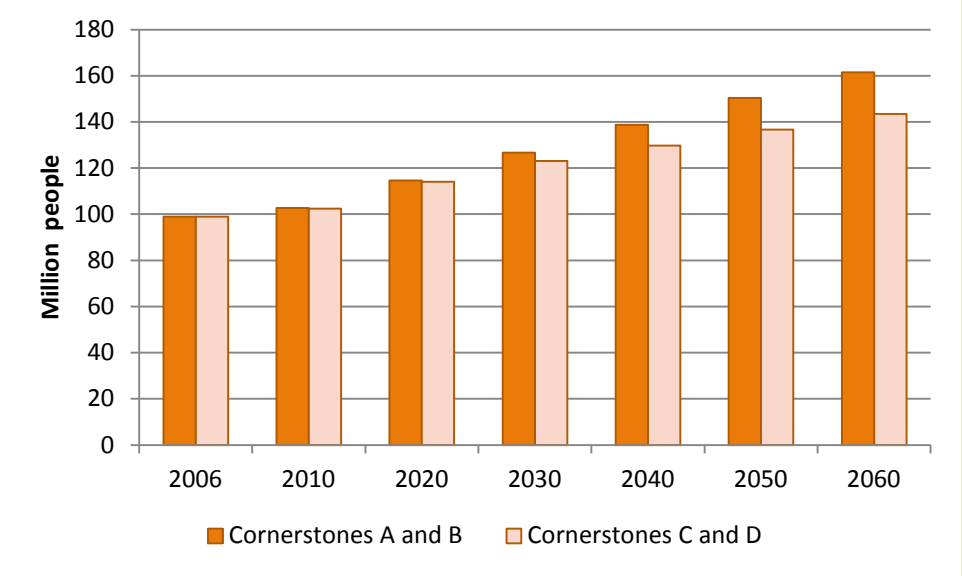
Next we present a set of ten key findings that provide a synthesis of the findings contained in the 17-chapter technical report… Each finding represents work from two or more chapters…

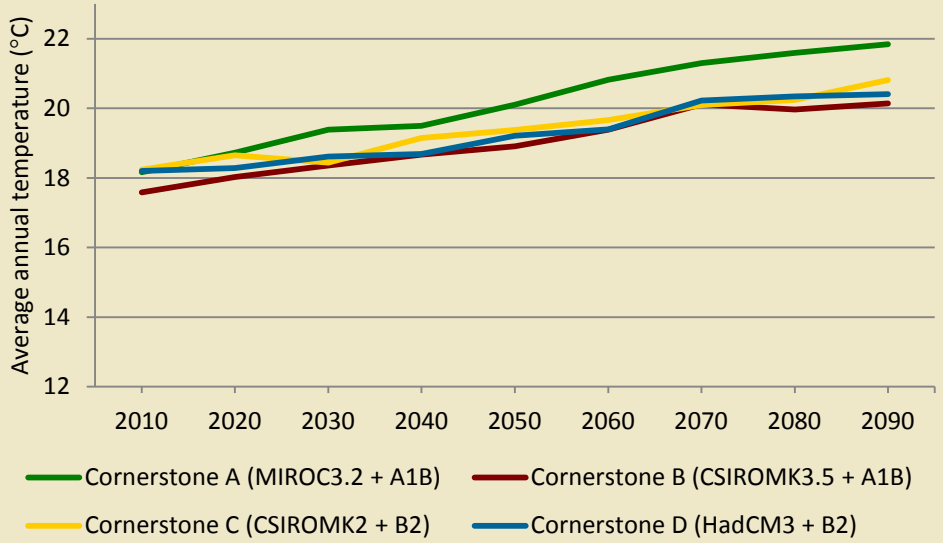
Key Finding 1

A combination of four primary factors will interact to reshape the South's forests:

- Population growth
- Climate change
- Timber markets
- Invasive species

- These factors need to be considered in combination
- Socioeconomic factors dominate climate early

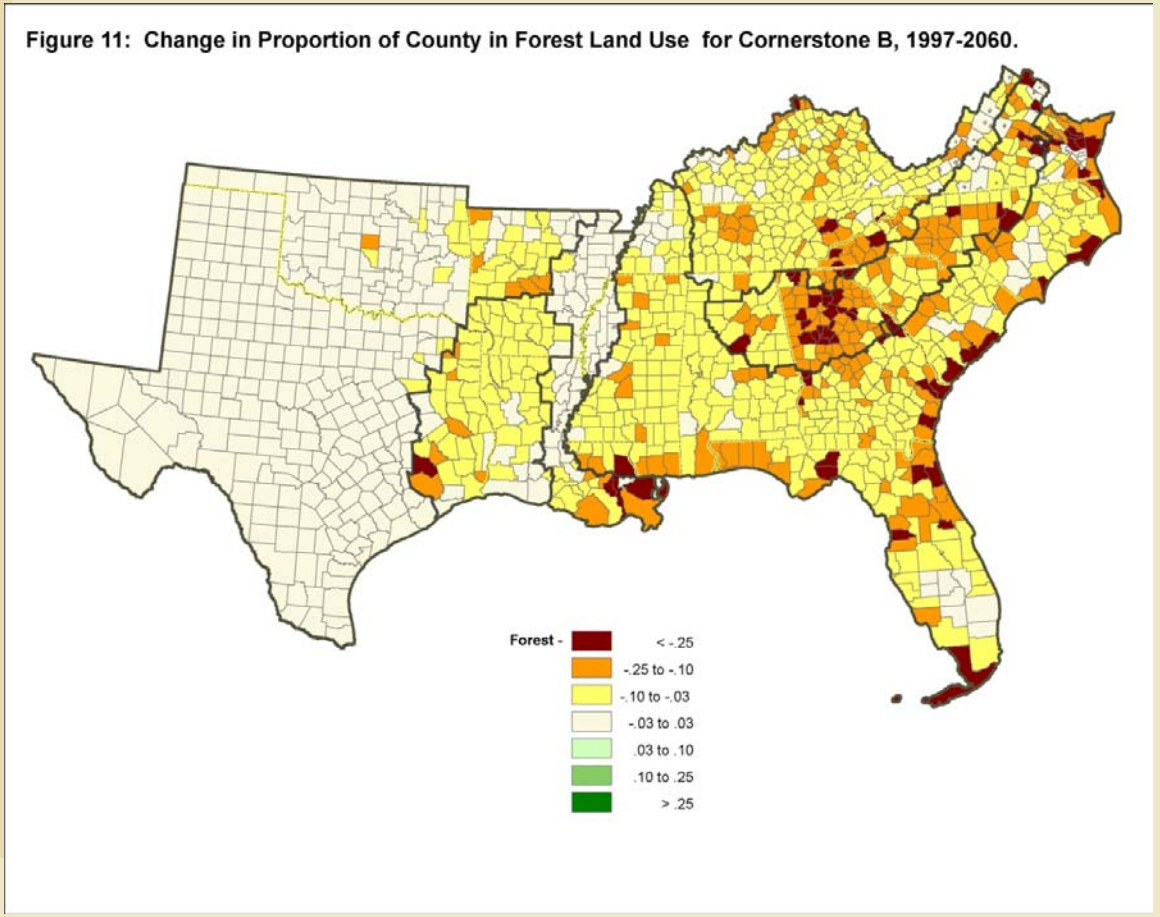




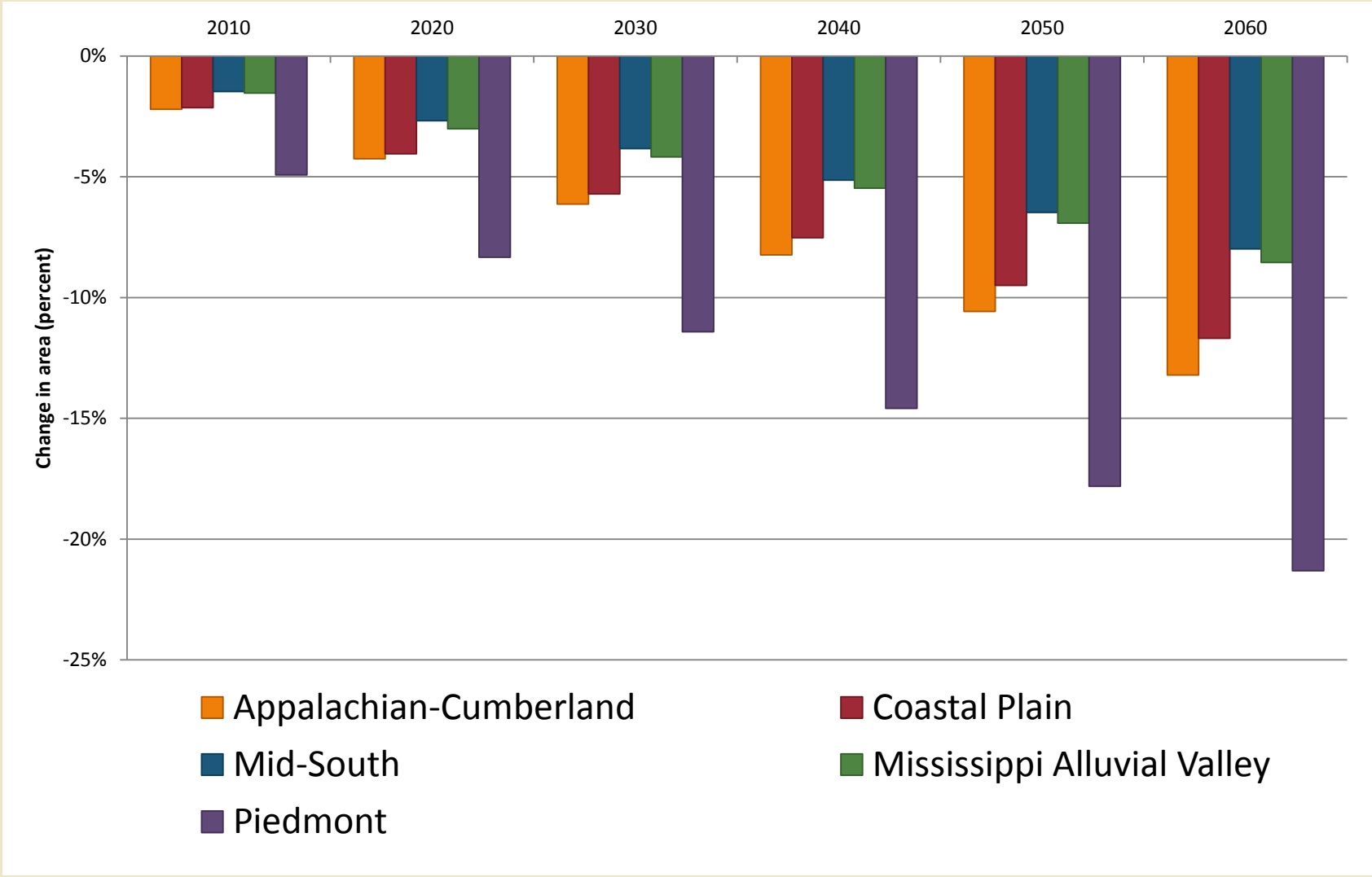
Key Finding 2

Urbanization is forecasted to result in forest losses, increased carbon emissions, and stress on other forest resources

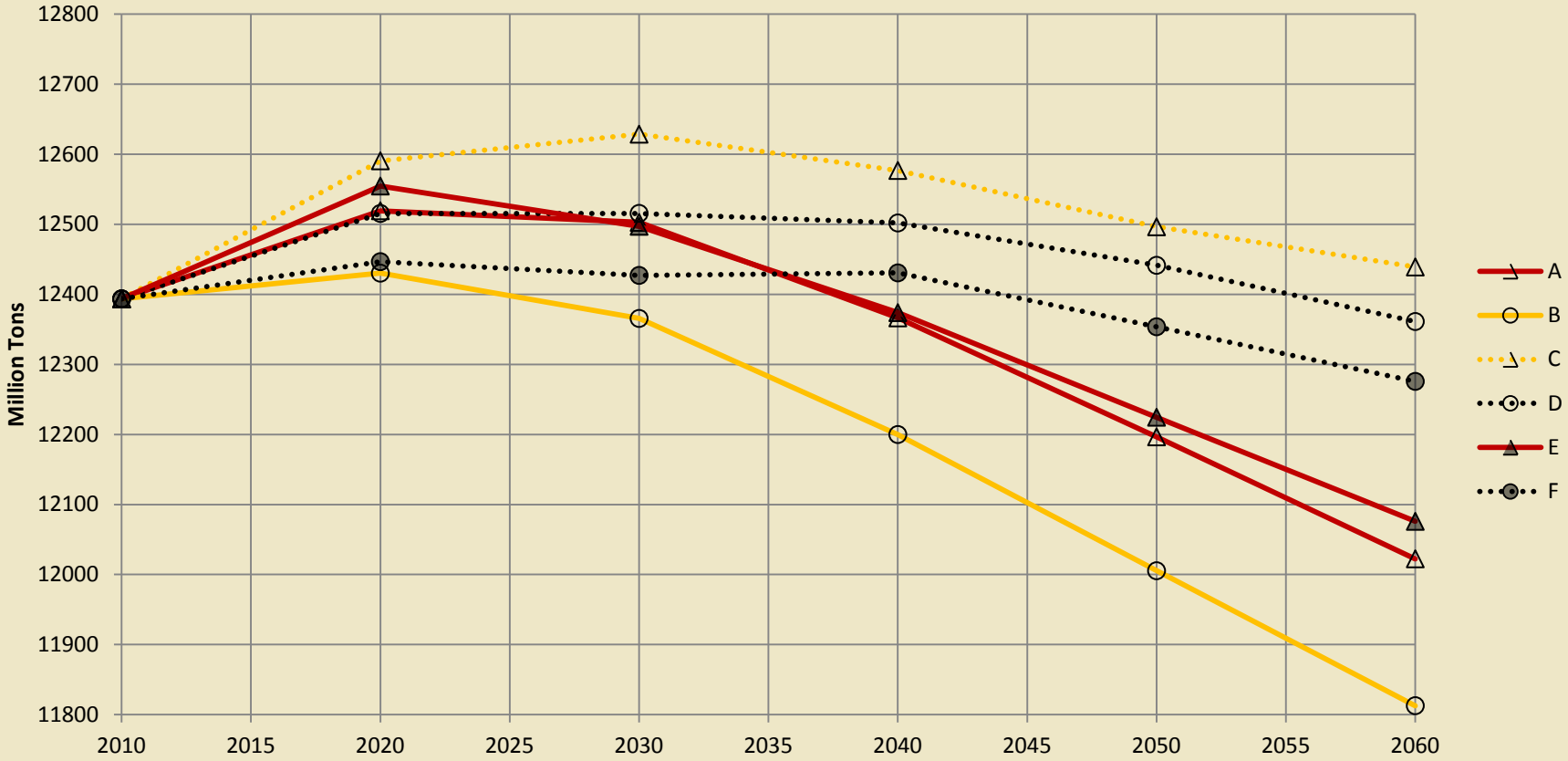
- Urbanization : 30-43 million acres by 2060
- Forest losses: 11-23 million acres by 2060



Land use changes



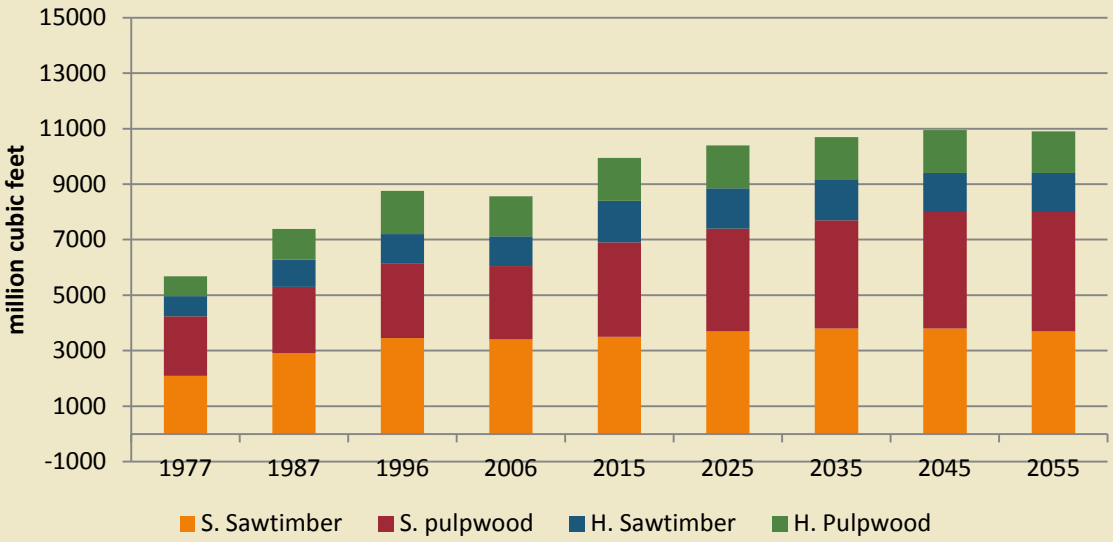
Forest Carbon Forecasts

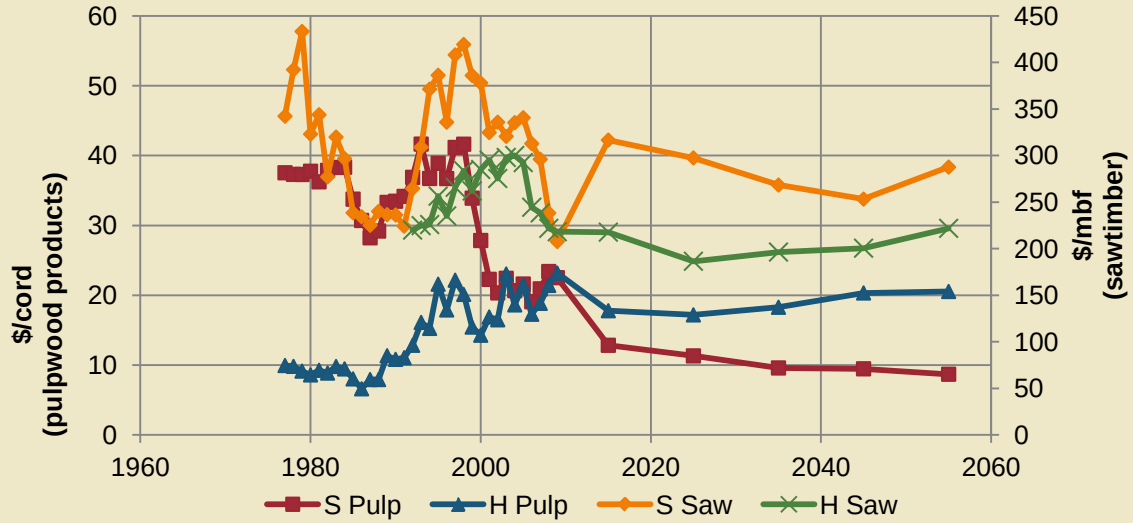


Key Finding 3

Southern forests could sustain higher timber production levels, but demand is the limiting factor and demand growth is uncertain

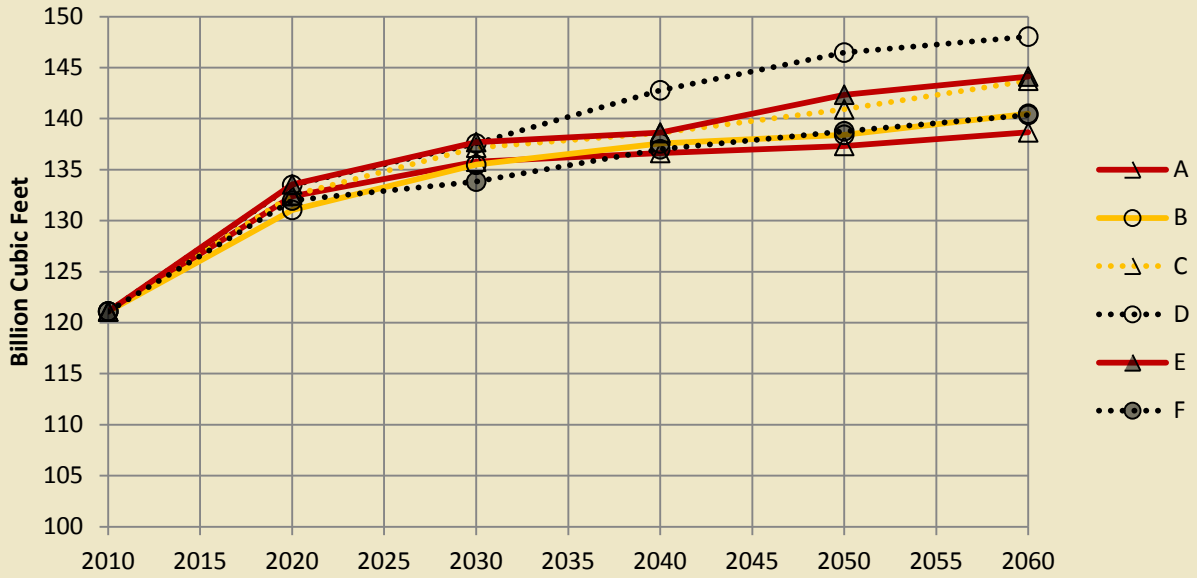
- Supply continues to grow
- With moderate demand growth: no upward pressure on the prices
- Orderly change –up to 70% expansion



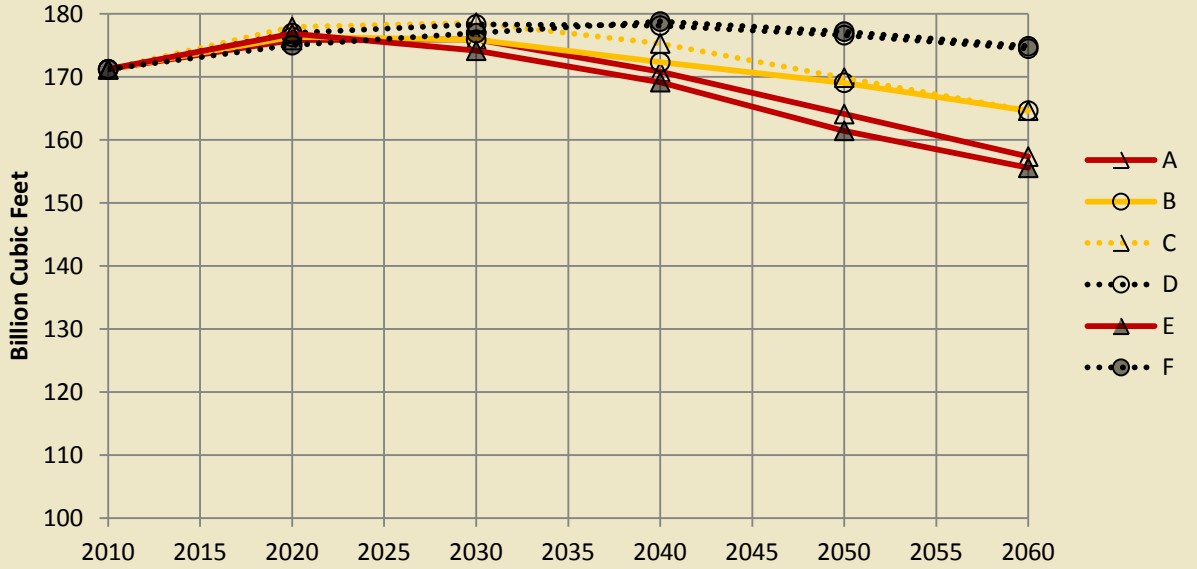


Growing Stock Forecasts

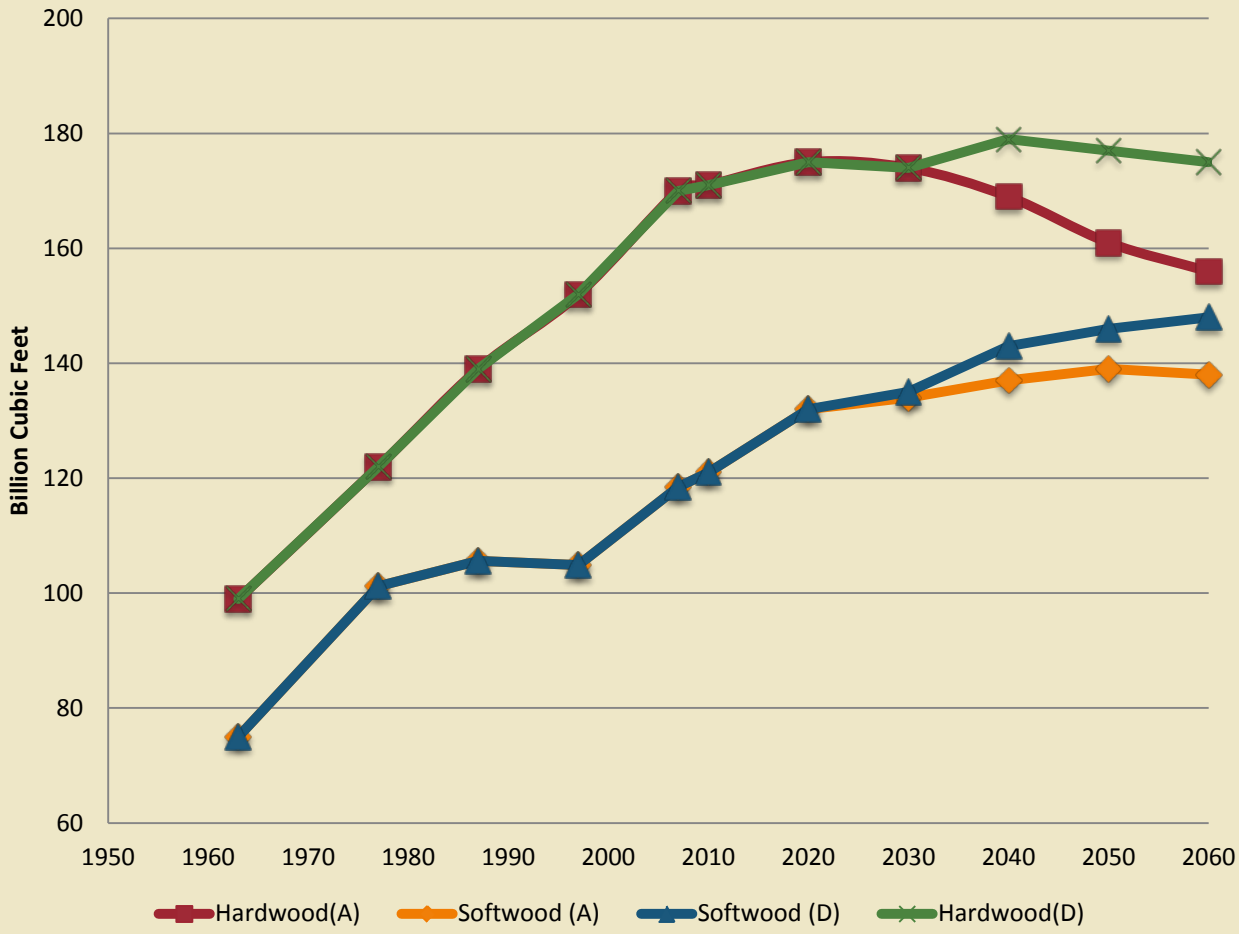
Softwood



Hardwood



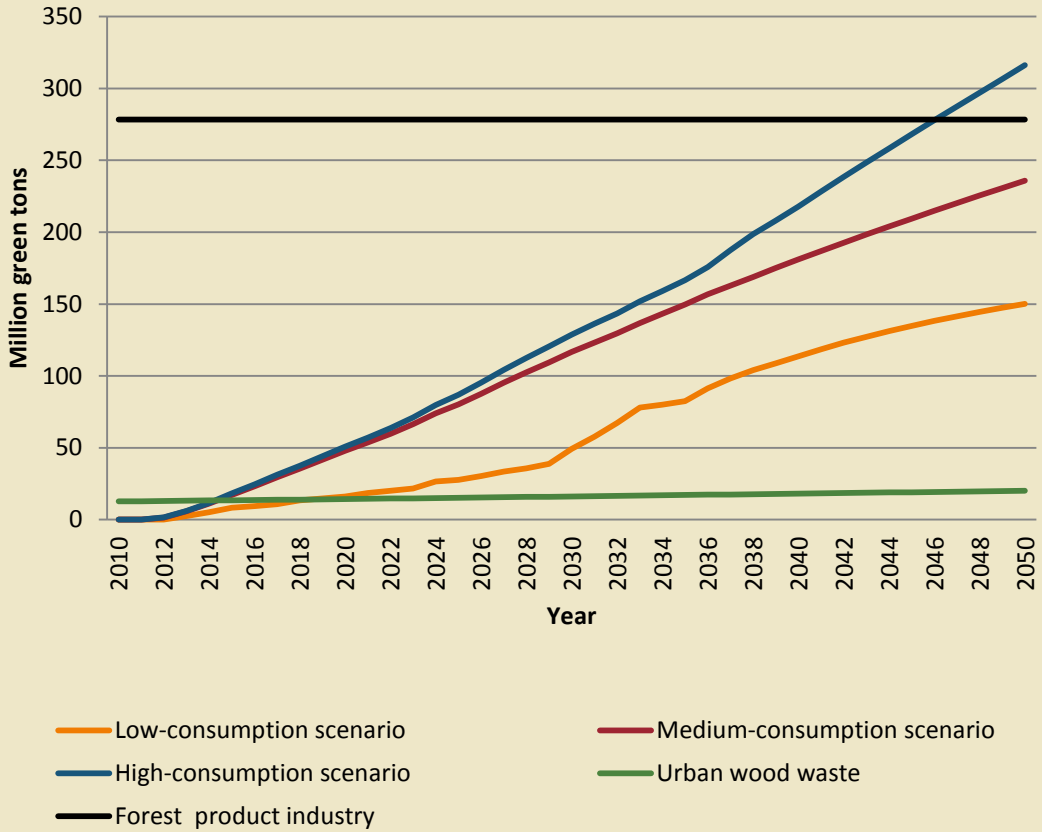
Growing Stock Forecasts



Key Finding 4

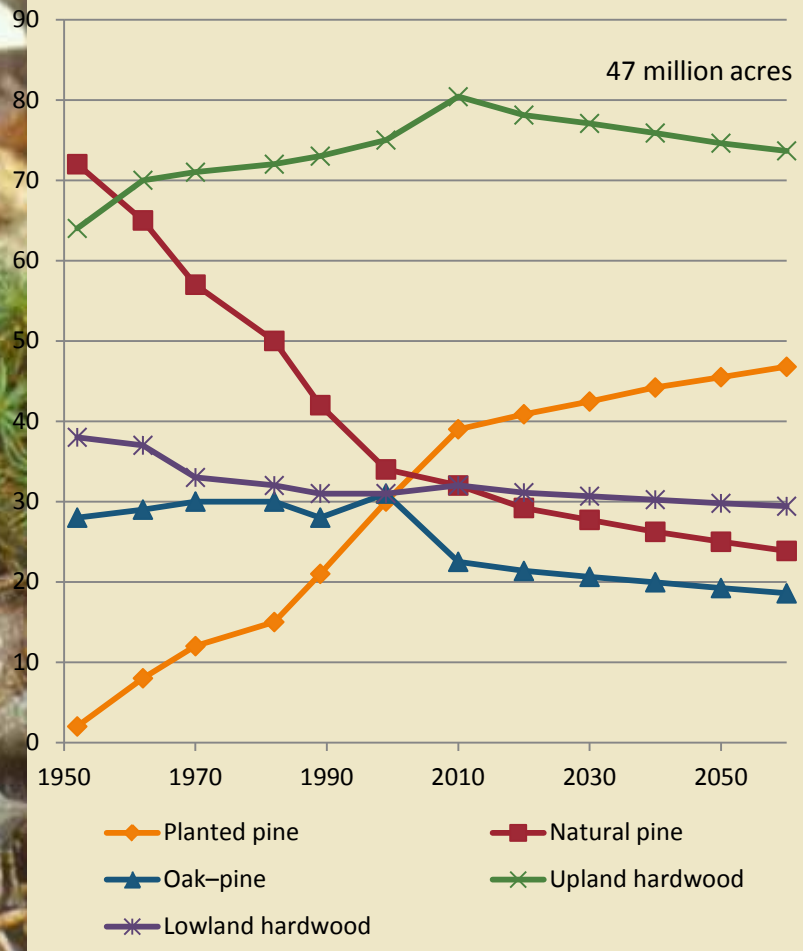
Bioenergy futures could bring demands that are large enough to trigger changes in forest conditions, management, and markets

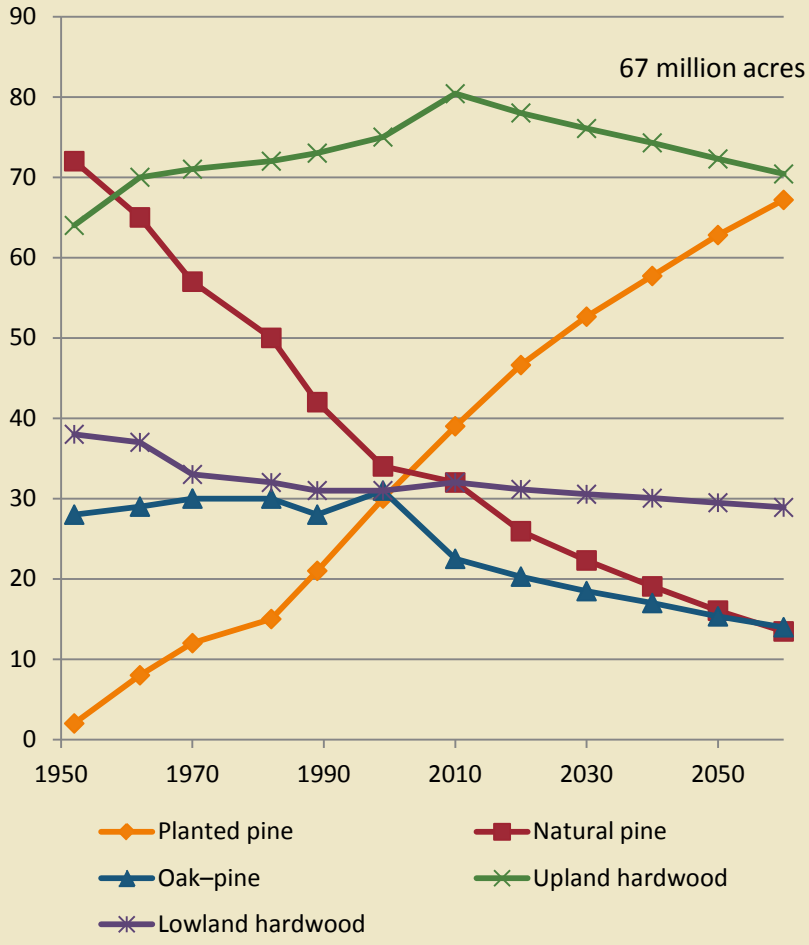
- Bioenergy: highest potential for demand growth
- Demands quickly exhaust wood waste and lead to strong demand for softwood pulpwood
- Bioenergy would compete with traditional wood products
- Forecasts range from an additional 54% to 113% over 2006 timber harvest volumes by 2050.



Pine plantation response to market demands

Plantation response ranges between forecasts for Cornerstones E and F

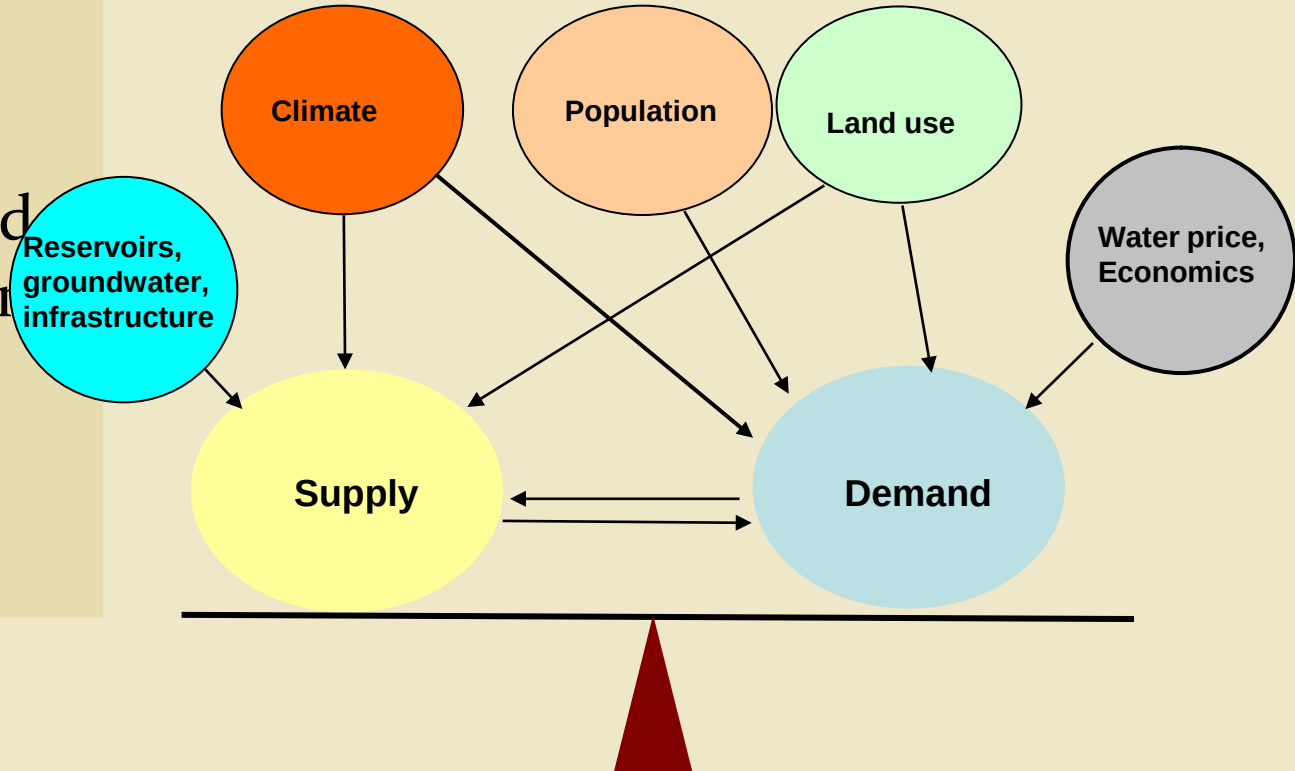




Key Finding 5

A combination of factors has the potential to decrease water availability and degrade quality. Forest conservation and management can help to mitigate these effects

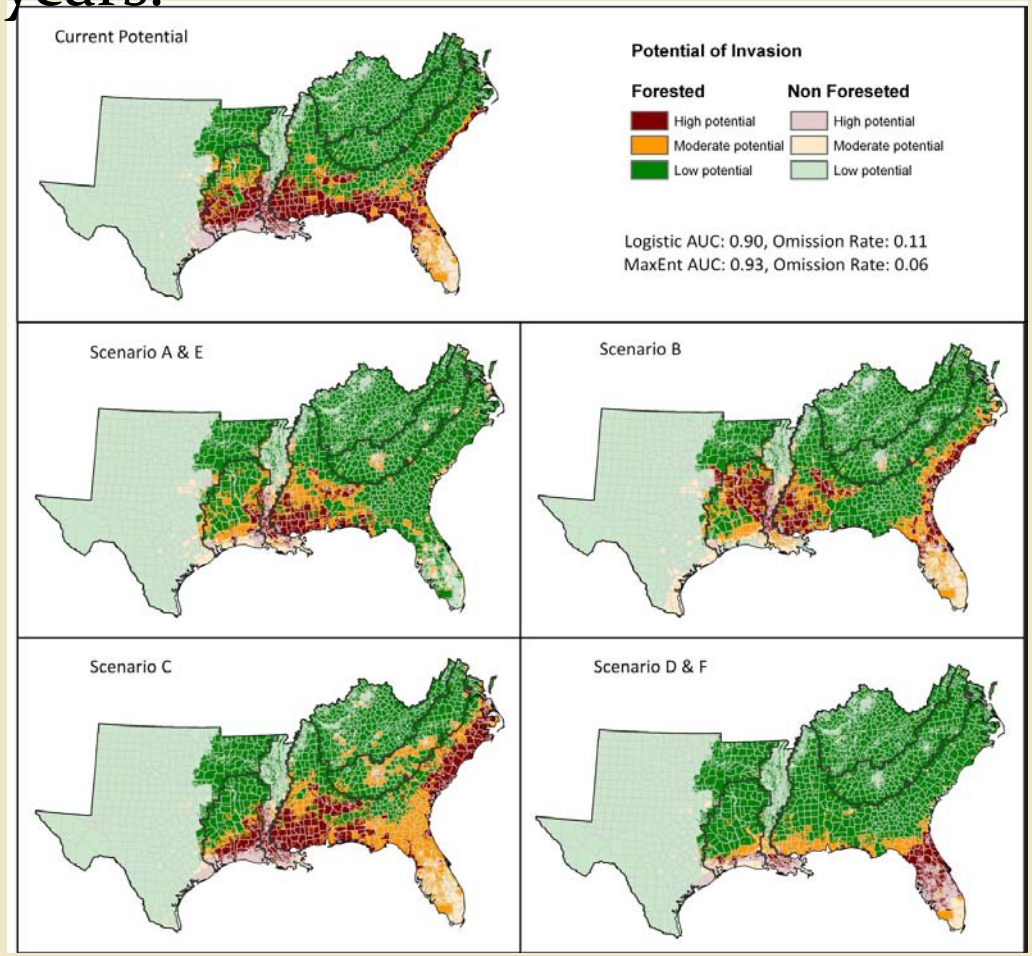
- Futures lead to increased water stress in several areas of the South.
- The future of water quality in developing watersheds will be affected by the area and condition of forests.



Key Finding 6

Invasive species create a great but uncertain potential for ecological changes and economic loss

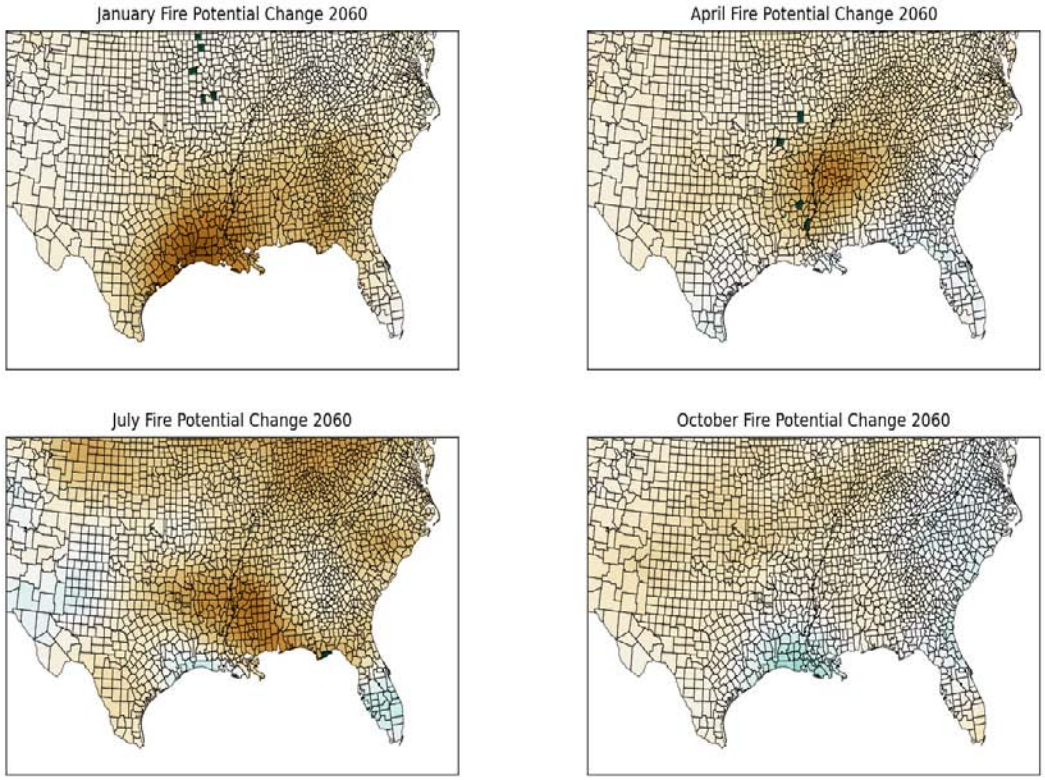
- Key invasive insect and disease pests grew over the past 10 years
- Area of plant invasions could expand from 19 million to about 27 million acres in the next 50 years.



Key Finding 7

An extended fire season combined with obstacles to prescribed burning will increase wildland fire-related hazards

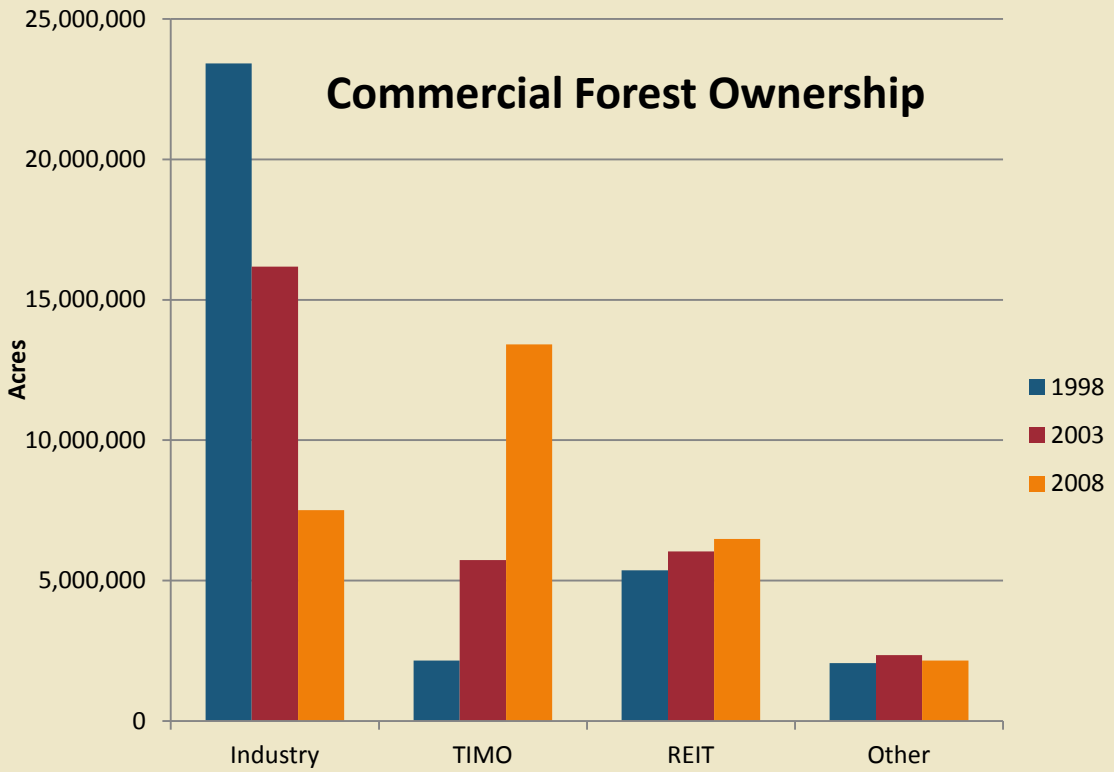
- Wildland fire potential is likely to increase over the next 50 years
- Major wildfire events are also likely to occur more often.
- Several obstacles may impede the ability to practice prescribed burning
- Private and State firefighting capacity has been reduced



Key Finding 8

Private owners control forest futures and ownership patterns have become less stable

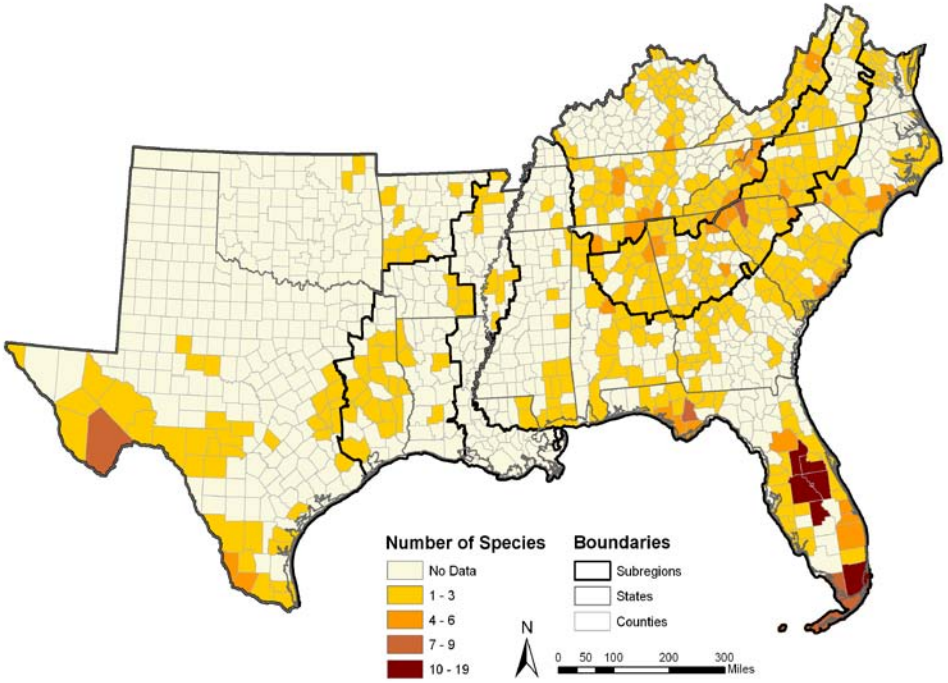
- Private owners hold more than 86 percent of forests in the South
- Forest investment instruments increase "churn"—potential for rapid change
- Family forest owners are likewise subject to dynamic forces which encourage parcelization and fragmentation.



Key Finding 9

Threats to species of conservation concern are widespread but are especially concentrated in the Coastal Plain and Appalachian-Cumberland subregions.

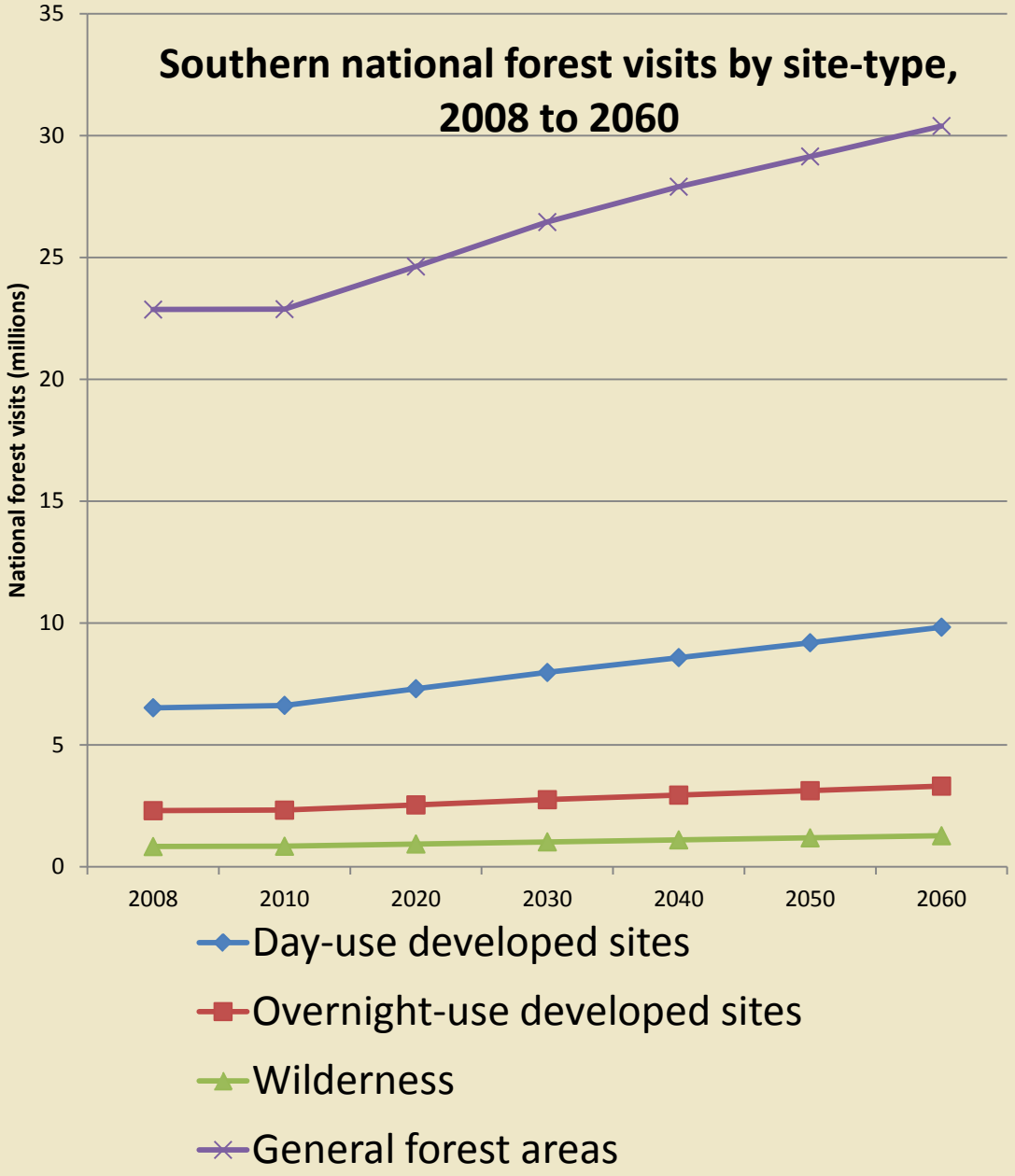
- Coastal Plain forests: rising sea levels, intensifying management, spreading invasive species, and urbanization affect species
- The Appalachian-Cumberland subregion contains a large number of threatened plants and imperiled vertebrates (especially amphibians) coincident with development



Federal status plant species

Key Finding 10

Increasing populations would increase demand for forest based recreation while the availability of land to meet these needs is forecasted to decline



In conclusion…

- Our scope does not include prescriptions for policymaking, yet policy is an important factor in the forecasts.
- The unfolding of the future will clearly depend on myriad policies including those affecting trade, domestic taxes, and perhaps most directly, policies designed to encourage bioenergy production

Thanks for listening…