Woodland Stewards Webinar Series

Session 1: Getting to Know Your Woodlands

Audio starts at 7PM Eastern (6PM Central)

(Please go to Tools>Audio>Audio Setup Wizard to ensure audio is correctly set)

WOODLAND STEWARDS
A Regional Extension Program for Landowners

The Woodland Stewards Webinar Series was created by a team of Extension professionals from the following programs:

NC STATE EXTENSION

UTEXTENSION INSTITUTE OF AGRICULTURE THE UNIVERSITY OF TENNESSEE

UK UNIVERSITY OF KENTUCKY College of Agriculture Forestry Extension

Extension University of Missouri

DIVISION OF AGRICULTURE RESEARCH & EXTENSION University of Arkansas System

CLEMSON COOPERATIVE EXTENSION

UNIVERSITY OF GEORGIA EXTENSION

MISSISSIPPI STATE UNIVERSITY EXTENSION

UNIVERSITY OF MARYLAND EXTENSION Solutions in your community

Virginia Cooperative Extension Virginia Tech • Virginia State University

Southern Regional Extension Forestry

Getting to Know Your Woodlands

Dr. Don C. Bragg

USDA

Dr. Bill Hubbard

UNIVERSITY OF MARYLAND EXTENSION
Solutions in your community

Mr. Derrick Phinney

CLEMSON COOPERATIVE EXTENSION

Dr. Walt McPhail

South Carolina Landowner and Tree Farmer

WOODLAND STEWARDS
A Regional Extension Program for Landowners

Session 1
Dr. Robert Bardon
Moderator

NC STATE EXTENSION

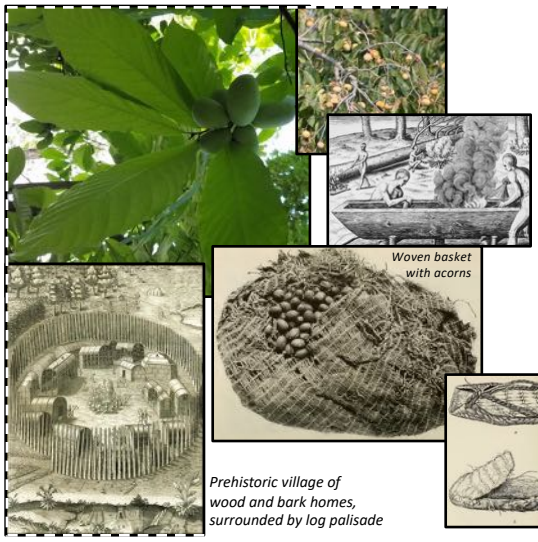
A Brief History of Southern Forests and Why Your Woodlands Are Important TODAY

Don C. Bragg, Ph.D.
Project Leader and Research Forester
USDA Forest Service
Southern Research Station
Monticello, Arkansas

WOODLAND STEWARDS
A Regional Extension Program for Landowners

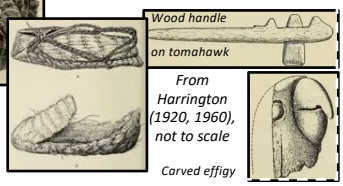
USDA

South is blessed with 245 million acres of forest



Native American uses of trees

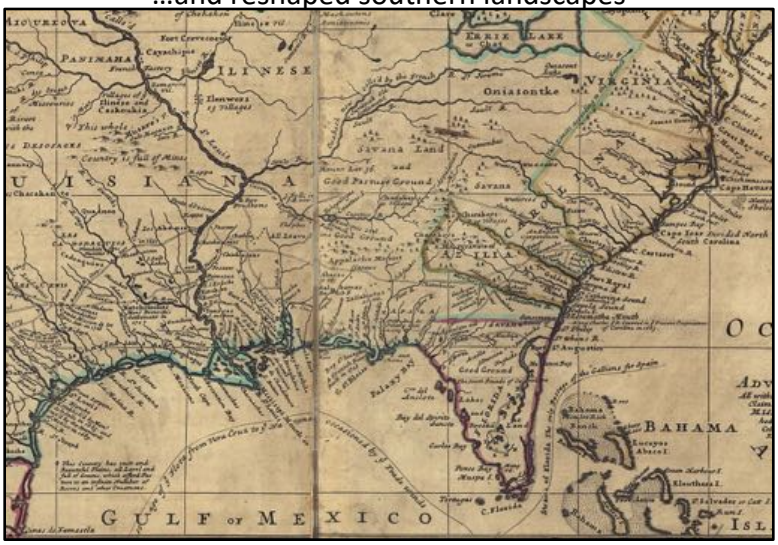
Food
Fuel
Fiber/clothing
Structures
Tools & weapons
Ceremonial objects
Transportation



Native Americans used fire as a tool…

Painting by Charles Marion Russell

…and reshaped southern landscapes



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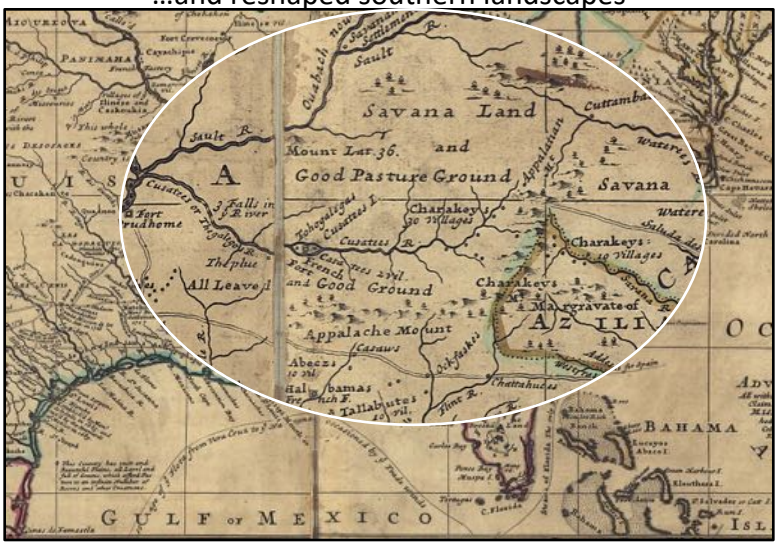

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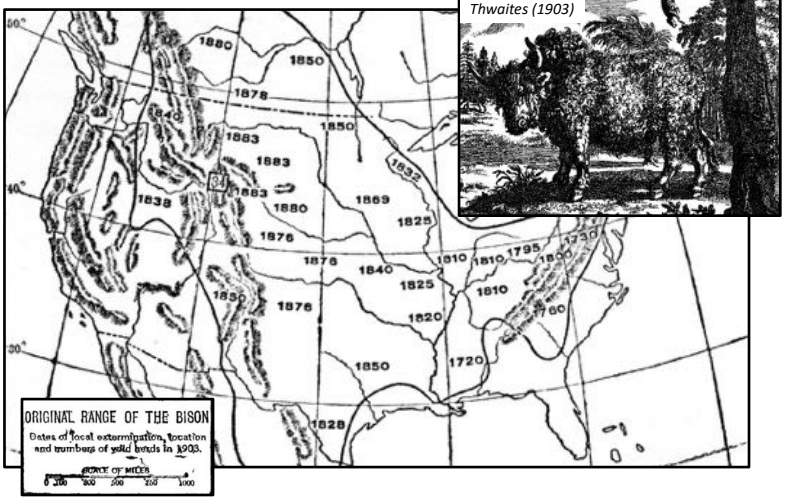
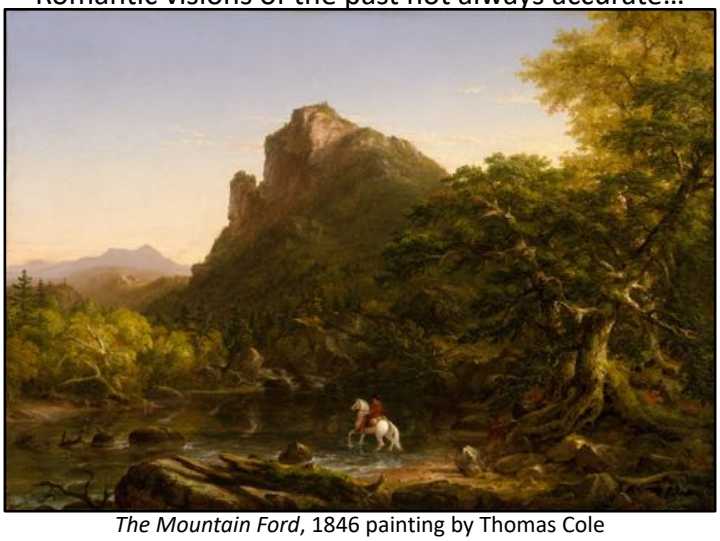
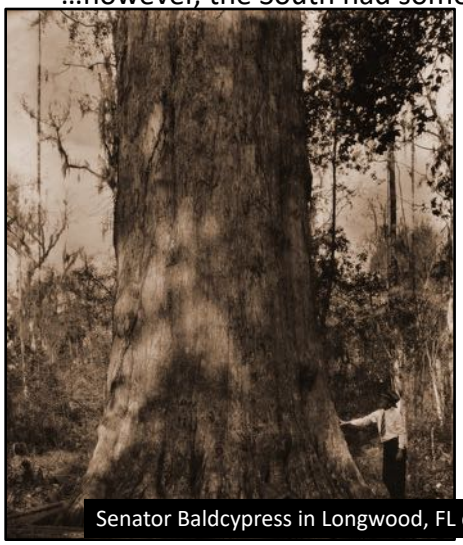


Romantic visions of the past not always accurate…



The Mountain Ford, 1846 painting by Thomas Cole

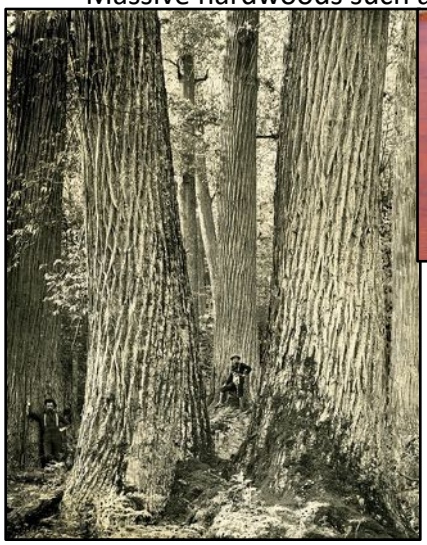
…however, the South had some pretty huge trees!!



Senator Baldcypress in Longwood, FL circa 1935

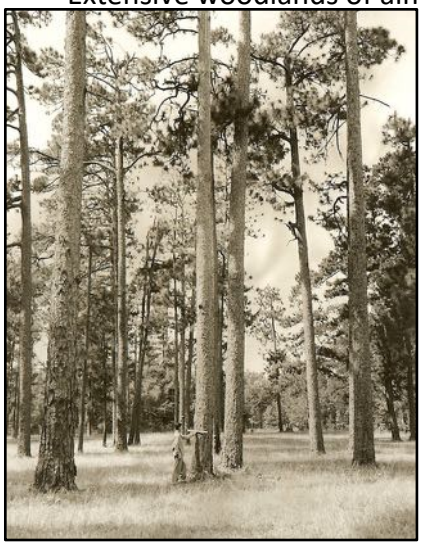
Senator Baldcypress in Longwood, FL circa 2009

Massive hardwoods such as American chestnut



Chestnutting by Winslow Homer (1870)

Extensive woodlands of almost pure longleaf pine…



Note the open, grassy understory

…supported high biodiversity in understory

Shortleaf and loblolly pine forests

Massive bottomland hardwoods…

…that had to tolerate frequent flooding

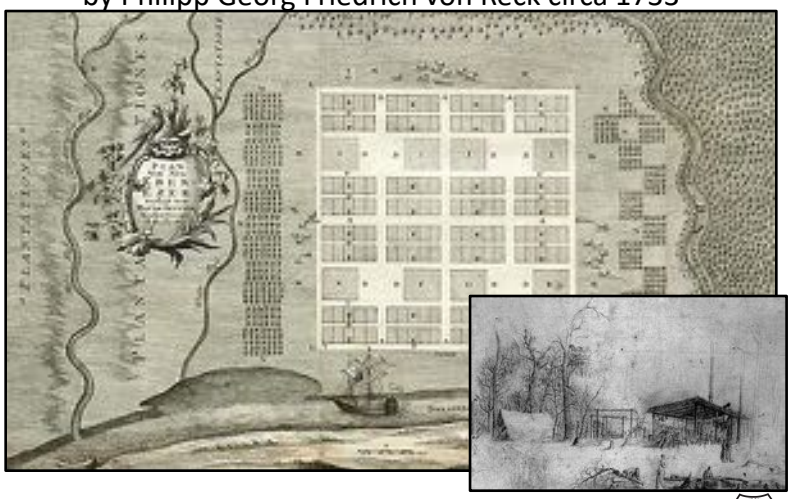
Overflow mark
(high water)

Many virgin forests dominated by scrubby trees

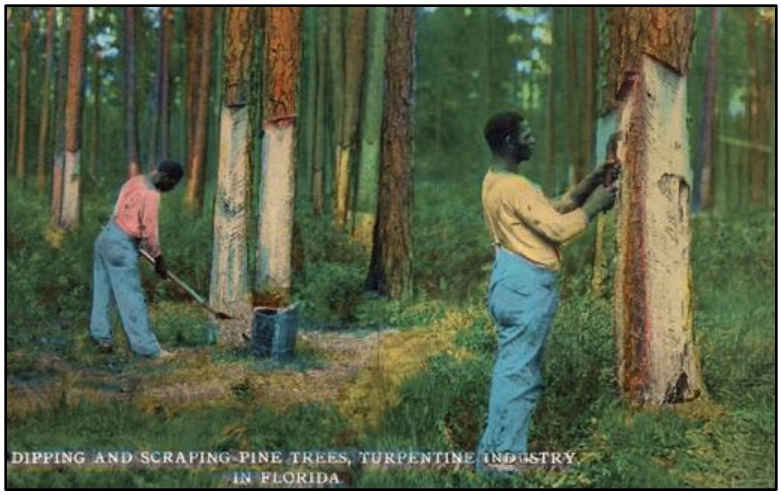
Major cities carved out of forested wilderness

Savannah, Georgia, circa 1734

Drawing of the New Ebenezer settlement (Georgia)
by Philipp Georg Friedrich von Reck circa 1733

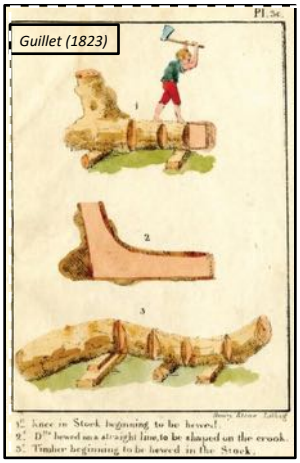


Earliest timber industry was often not lumber

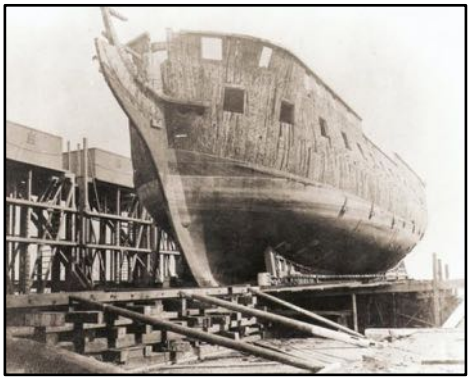


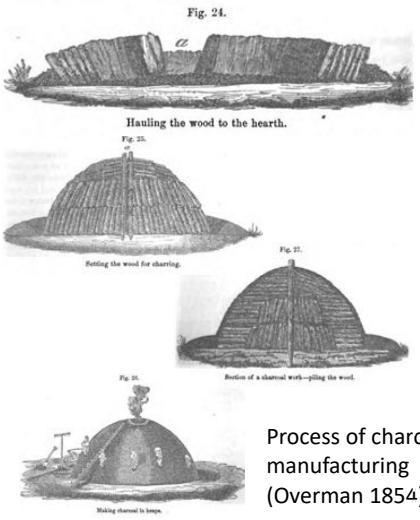
Live oak for shipbuilding
(dense, strong, curved wood)

Image from Norton (2013)



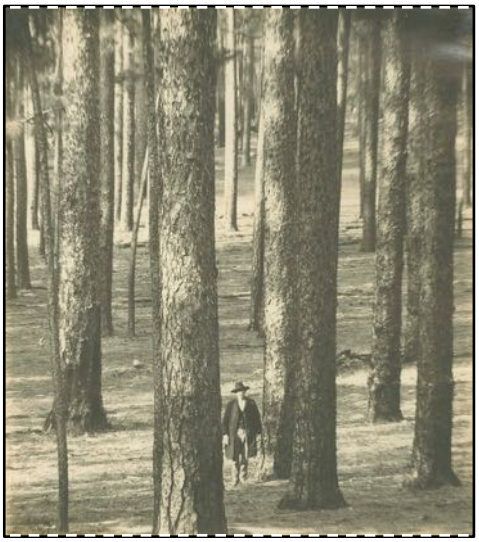
Live oak for shipbuilding
(dense, strong, curved wood)





Process of charcoal
manufacturing
(Overman 1854)

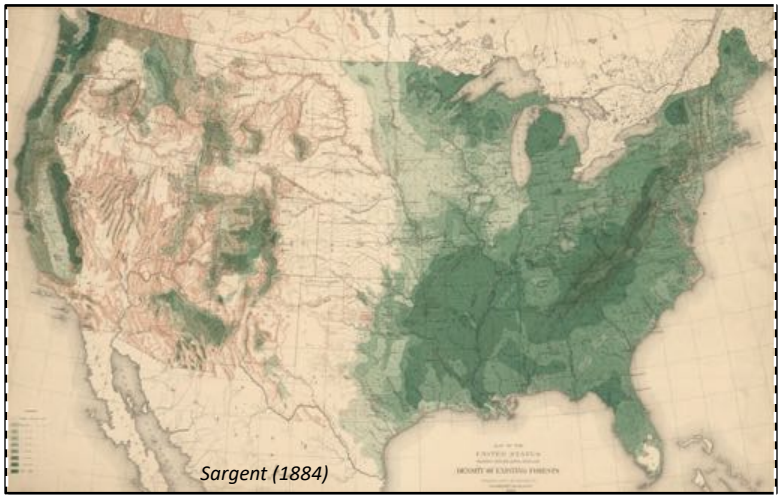
White oaks for tight cooperage



Most southern forests hardly touched prior to 1860

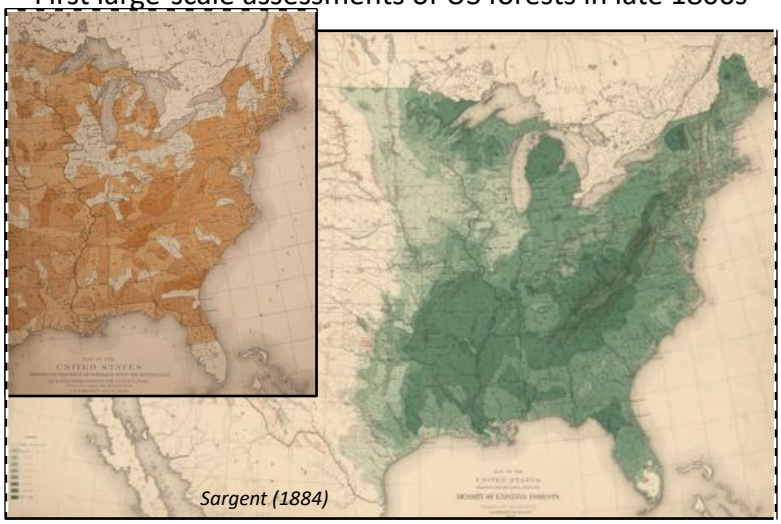
Guerilla Warfare, Civil War
1862
painting by Albert Bierstadt

First large-scale assessments of US forests in late 1800s



Sargent (1884)

First large-scale assessments of US forests in late 1800s



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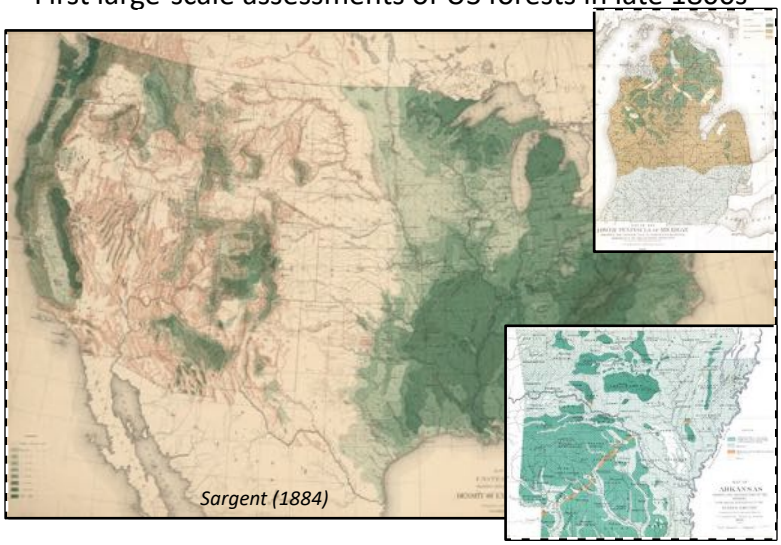
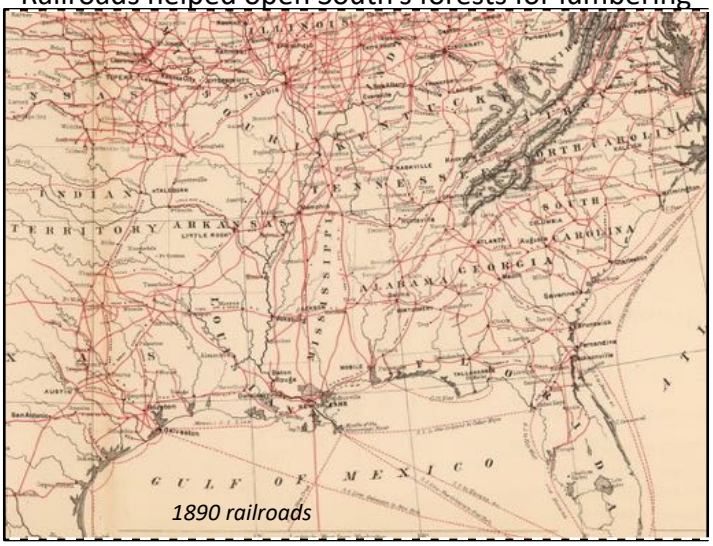


Sargent (1884)

Railroads helped open South's forests for lumbering

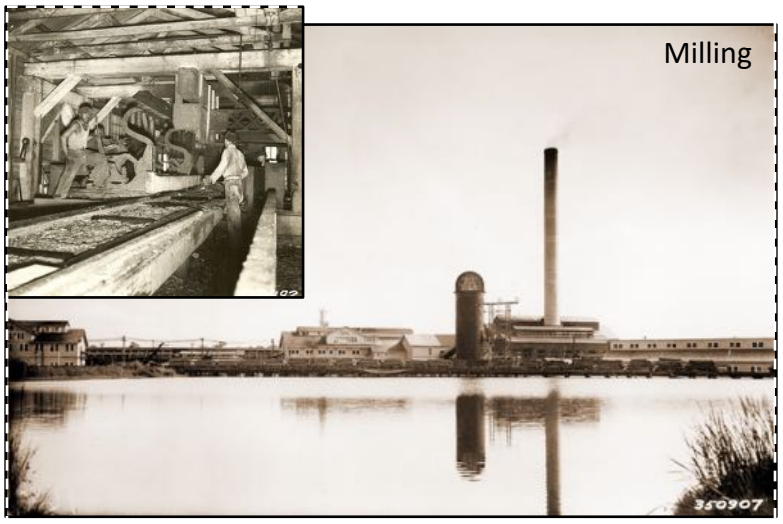


1890 railroads

New England and Lake States cut out

Large workforce looking for opportunities

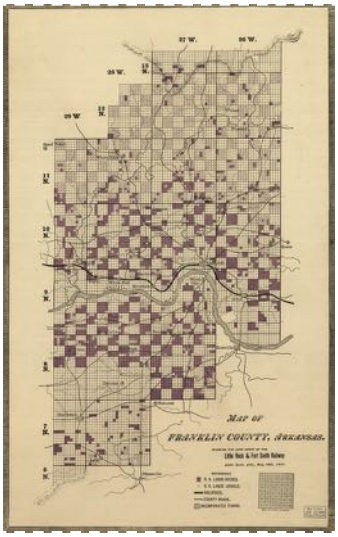
Lumbering

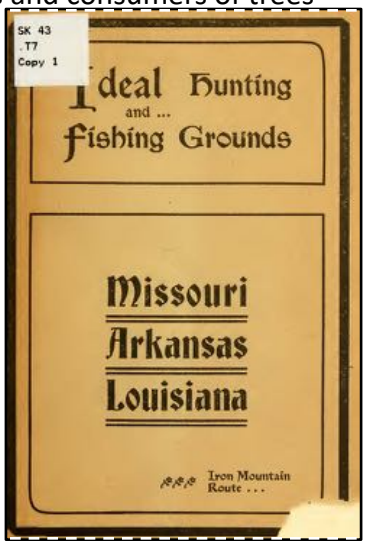

Milling
350907


Milling

Shipping

Railroads as landowners and consumers of trees





Frank H. Goodyear

Charles W. Goodyear

Lumbermen AND railroad barons…

Lumbermen AND railroad barons…

Home of T.L.L. Temple

Managers and skilled millworkers

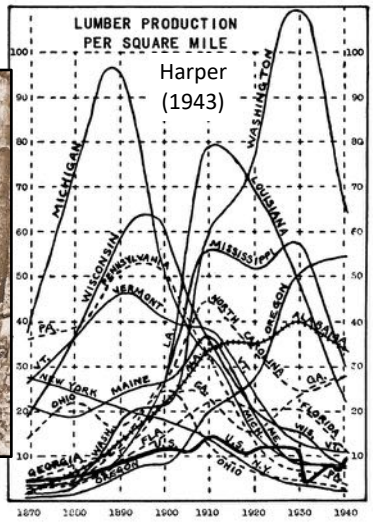
Workers that did the hard jobs…and reaped few rewards

Lumber mills as communities…and overlords

Many company owned towns

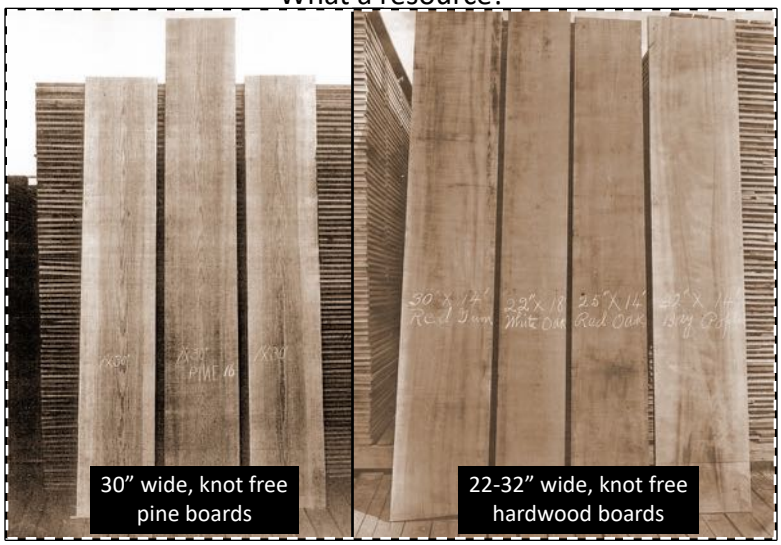
Community

1900-1930 southern lumbering dominance



What a resource!

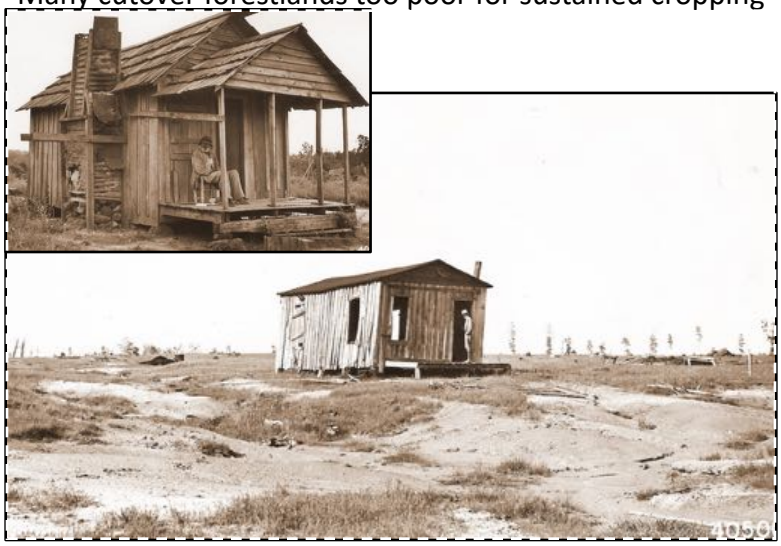
What a resource!



Resulting “stumpscapes”

Some—but not all—cutover became cropland

Many cutover forestlands too poor for sustained cropping



Many cutover forests lacked a seed source…

…or were repeatedly burned into oblivion

Fire as a timberman's scourge…

Could forestry prove a solution?

President Teddy Roosevelt (left)
and Gifford Pinchot (right)

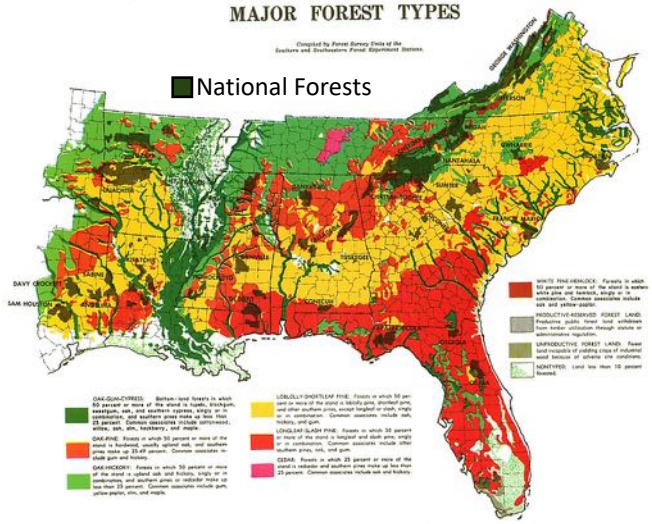
When the Gay Nineties began, the common word for our forests was "inexhaustible." To waste timber was a virtue and not a crime. There would always be plenty of timber....The lumbermen...regarded forest devastation as normal and second growth as a delusion of fools....And as for sustained yield, no such idea had ever entered their heads. The few friends the forest had were spoken of, when they were spoken of at all, as impractical theorists, fanatics, or "denudatics," more or less touched in the head. What talk there was about forest protection was no more to the average American that the buzzing of a mosquito, and just about as irritating.

Gifford Pinchot (1947)
Breaking New Ground

Movers and shakers…and early adopters

College-level education of foresters started early

Legislation allowed for creation of more national forests



CCC and other government work programs

Fire fighting became a priority

Fire fighting became a priority

Public relations to fight fires

1920s Forest Service glass slide

Public relations to fight fires

Needed to convince the timber industry…

…who were used to a much different world!

Second-growth timber inherently deficient?

Not if properly grown and tended!

Field research at experimental forests

Importance of pulp and paper industry

Importance of pulp and paper industry

Importance of pulp and paper industry

Needed to learn how to artificially regenerate forests

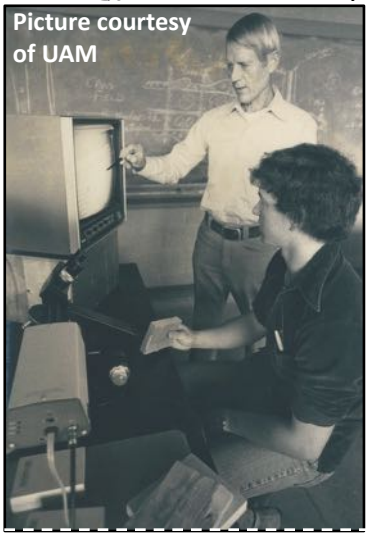



Forest genetics and tree improvement programs

Forest genetics and tree improvement programs

Heady days for southern forestry

Technology comes to forestry…



…and trees go to space!

…and trees go to space!

Moon tree and plaque picture by Jesse Berry

For most of 20th Century, southern forestry grew…

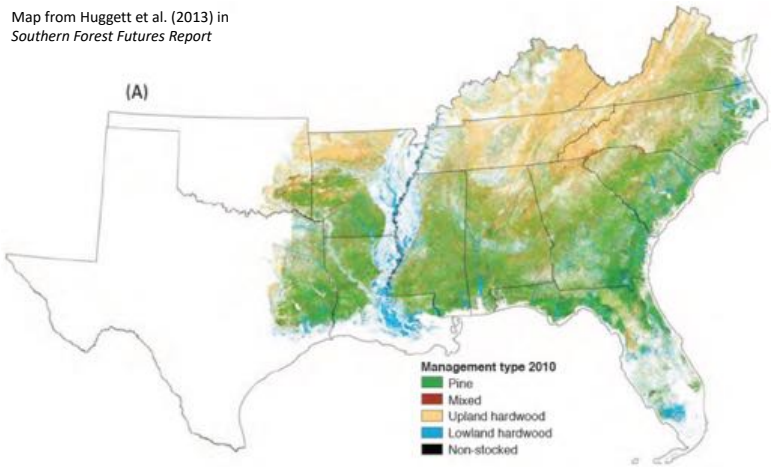
…a few large areas of bottomland forest clear for crops…

…and this brings us to today!

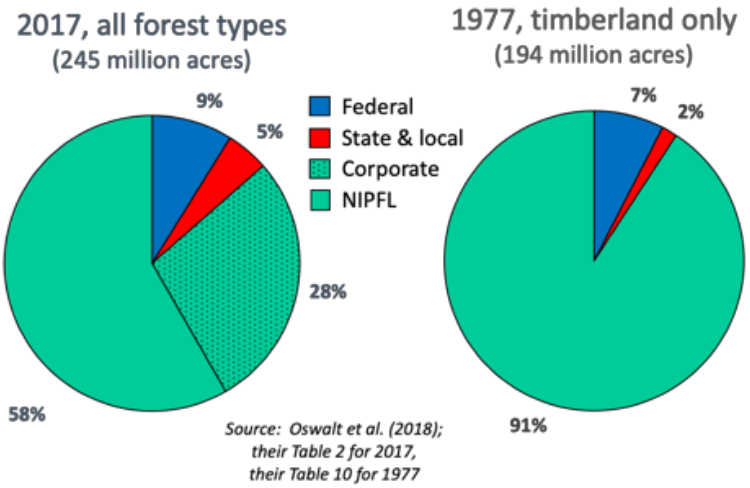
Today, most timberland loss is to urbanization

But the South has seen a net gain in forest cover!

Map from Huggett et al. (2013) in *Southern Forest Futures Report*



Southern forest ownership, 1977 versus 2017



Source: Oswalt et al. (2018); their Table 2 for 2017, their Table 10 for 1977

Forestry practices continue to intensify…

Forestry practices continue to intensify…

13-year-old test plantation in SC

…upland hardwood area largely stable…

…mixed outcomes in bottomland forests…

…longleaf area increased, in part due to more planting…

…shortleaf pine experiencing major decline…

…fewer large sawlogs being produced from natural stands…

…much higher % of pine from planted stands…

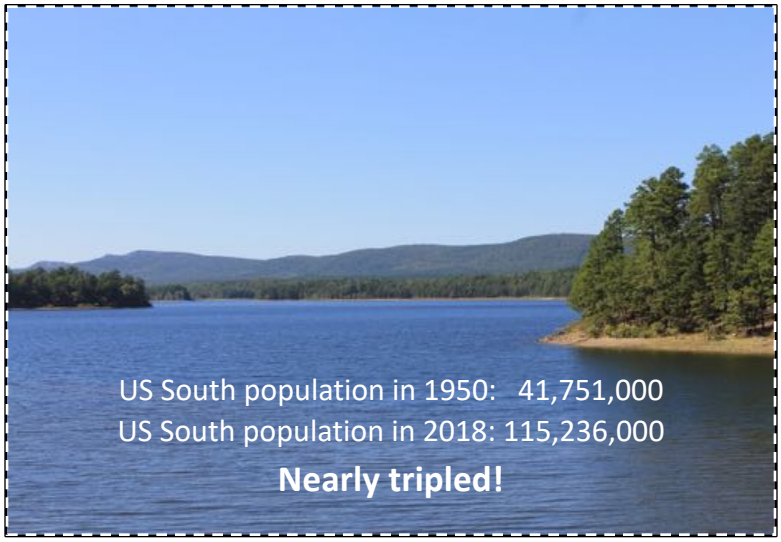
…more consistent if lower grade product…

…hardwood markets still pretty strong…

…pulp & paper industry declining, partially replaced by pellets…

…while timber is the most obvious “ecosystem good”
that makes your forests valuable, it is not
the only good or service they provide!

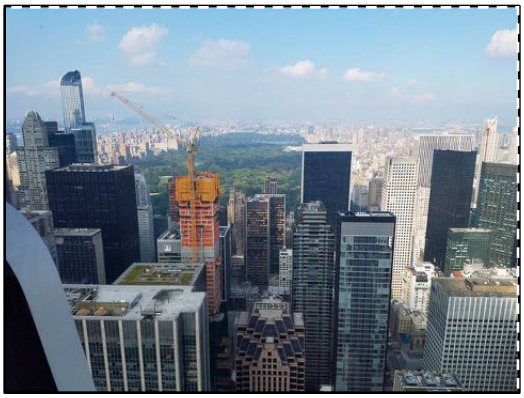
Ecosystem goods and services…water



Ecosystem goods and services…huntable wildlife

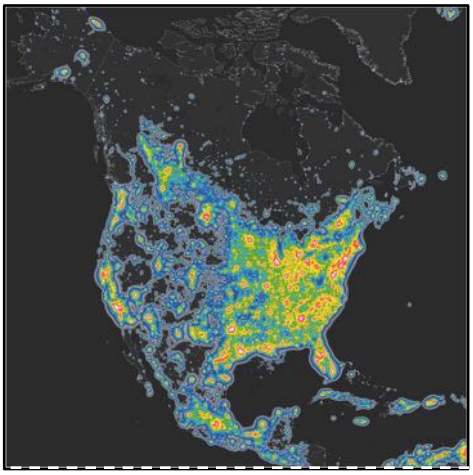
Other forest goods and services

An urban future…



…a rural past(?)

An urban future…



…a rural past(?)

dbragg@fs.fed.us

Time to take a break!

WOODLAND STEWARDS
A Regional Extension Program for Landowners

A Landowner's Perspective

Walter McPhail – Mauldin, South Carolina

WOODLAND STEWARDS
A Regional Extension Program for Landowners

Generation to Generation

Estate Planning

- What is going to happen to your land when you pass on?
- Do you have a will?
- Grand daddy who passed away during the Flu epidemic did not have a will. (In 1918) leaving his wife and five children.
- The estate was settled by Walter in 1994.

Planted 1994
Growth 1940

Volunteer

Loblolly Pines

- 30-35 year rotation
- 3 Thinnings
- Genetically Improved Pine
- 500 trees per acre 9’ x10’
- Herbaceous Weed Control
- Hardwood Release
- Fertilization

We grow trees to make money. We make money selling trees.

Enjoyment, 401K, Retirement

- 1984 - Purchased Land: $400 per acre ($200 for land and $200 for trees)
- 3 Thinnings – Total: $1,800 per acre
- 2019 - Present value: $4,400 per acre ($2,500 per acre for land and $1,900 for trees)
- Trees produced $3,700 per acre or $106 per acre per year
- Hunting lease $15 per acre

County Forestry Association

Field Tour

FOREST MANAGEMENT PLAN

Due West Tree Farm - American Tree Farm # SC-3653.2

Owner:	McPhail Tree Farms, LLC. 2 Jenkins Court Mauldin, South Carolina 29662
Total Area:	106.86 acres
Location:	34.314 / -82.367 decimal degrees 1.7 miles south of Due West, SC via Hwy 20 / 185
Plan Standards:	This plan is written to comply with standards of the American Tree Farm Program, as well as the National and South Carolina standards for Forest Stewardship Plan development. The landowner can utilize this plan to assist in qualifications for **cost share programs** that may be available.
Plan Author:	Nathan McClure SC Reg. Forester #1839, SAF Cert. Forester #1812 F&W Forestry Services, Inc. 210 South Main Street Fountain Inn, SC 29644 Phone: 864-230-1664

GENERAL PROPERTY DESCRIPTION

The Due West Tree Farm includes two parcels that are "almost" adjacent and total 106.86 acres. The two adjacent parcel s are Parcel # 043-00-00-101 at 69.43 acres and Parcel # 043-00-00-114 at 37.43 acres

Topography

This predominantly forested Tree Farm is located on lands that are level to gently rolling. There are two small perennial streams within the southern and western sections of the tract. There is a topographic map of the property in Appendix A.

Access and Security

Access to the property is good with a well-developed internal road system. Two access roads lead from highway 185 into the tract and one forest road leads from Harkness Lane. Cable gates have been installed on these roads. See the maps in Appendix A for the road locations.

The property boundaries are marked in white spray paint on trees in some locations. Records indicate that a boundary survey was completed in 2006 followed by boundary painting in various locations in 2006, 2009 and 2010.

Land History

Much of the tract has an agricultural land use history, including row crop production. Specifics of past use can be found in the individual stand descriptions found in this Plan.

LANDOWNER'S MANAGEMENT OBJECTIVES

Primary objective: Wood production

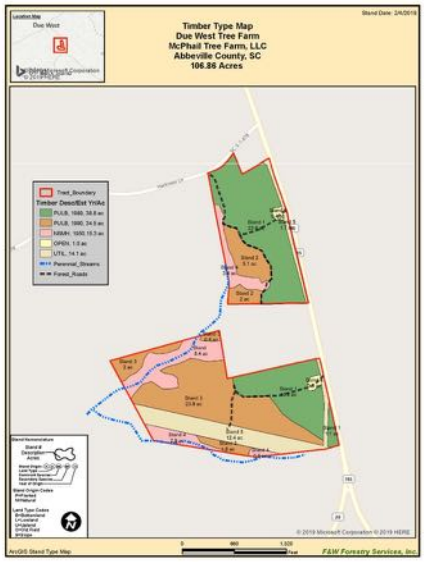
Secondary objective: Wildlife management for game and non-game species: diverse habitat and species

The landowner has also expressed a desire for the property to be a **revenue producing asset**, but he is also interested in using management practices that minimize impact on soil and water resources.

The landowner has indicated a preference for pine timber rotations that include three selection harvests followed by a final harvest over a 35 year rotation. He also recognizes the value of managing for higher value products, such as utility poles.

Timber should be managed in a way that maximizes revenue based on timber growth and product value.

Maps



STAND 1 – 38.8 acres

- This stand is composed of planted Loblolly pine that was established in 1989 on old row crop areas. Cecil sandy loam soil.
- The stand is well stocked with approximately 110 square feet of basal area per acre. The timber includes a blend of pine CNS (27 tons/ac) and pine sawtimber (62 tons/ac). Timber meeting the utility pole standard is estimated at 25-30%.
- The heights of the dominant trees in this stand are approximately 80' resulting in an exhibited site index of 73 (base age 25).
- Stand growth rate is 4.5 – 5% per year.
- The understory includes very little vegetation.

Silvicultural Practices

Past Silvicultural Activity:
Commercial thinning of pines occurred in 2007 and 2015; A woody release by skidder application of herbicide in
2011; additional larger hardwood control by hack and squirt applied herbicide in 2014.

Future Harvests:
A third selection thinning of the pine plantation is recommended for 2021. The residual stocking should be 65-75 sf/ac of basal area with approximately 70-80 trees per acre. A final harvest of the stand should be conducted in 2026.

Threatened & Endangered Species

- Description and recommended practices to meet manage without negative impact of any known rare species
- Statement that rare species are not known to exist and what resources have been searched

Special Sites

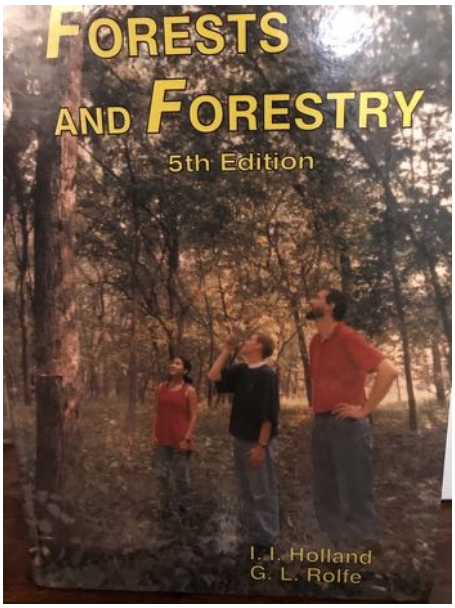
- Description of sites of historical, archeological, or environmental significance (cemeteries, native American sites, etc.) These are especially important when heritage is a desired objective

Forest Health and Invasive Species

- Description of potential problems with insects and disease affecting forest health. Recommendation on practices to reduce risk from these pests
- Identification of specific invasive species that exist on the property and a general recommendation on how and when to control them.

Resources

- Extension Service
- County Forestry Associations
- Forestry Commission
- American Tree Farm System
- Forest Land Owners Association
- National Woodland Owners



I challenge you to be more involved in your forest and wildlife management.

Get a management plan.

Be active in your county and state forestry associations.

Help select programs and become an officer.

If there is no local forestry association, START ONE.

Be involved.

Walter McPhail, 2 Jenkins Ct. Mauldin SC 29662
864-288-7618 **TreeVetSC@aol.com**

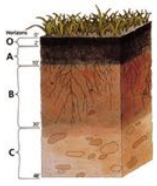
Management Plans: The Why and How

Bill Hubbard: University of Maryland Extension
Derrick Phinney: Clemson University Extension

WOODLAND STEWARDS
A Regional Extension Program for Landowners

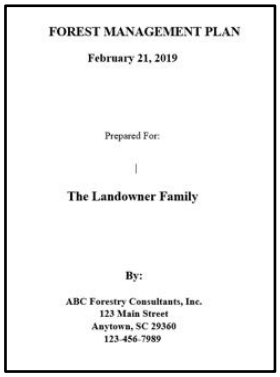
Why is a Management Plan Important?

- 766 Million Acres of Forest Land in the US
- 81% is held in private ownership in the Eastern US
- 340 Million Acres in the Eastern US
- Management plan is a landowners "How to Manual"



Parts of a Management Plan

- Your Objectives
- Property Location and History
- Maps
- Stand Description and Recommendations
- Activity schedule
- Supplemental information



FOREST MANAGEMENT PLAN

February 21, 2019

Prepared For:

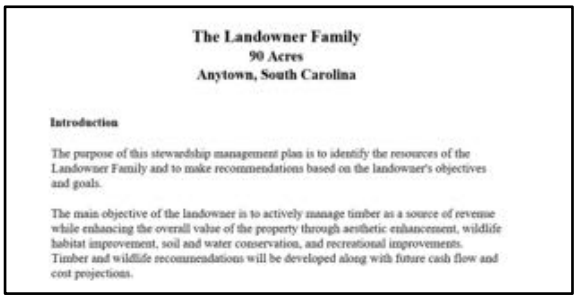
The Landowner Family

By:

ABC Forestry Consultants, Inc.
123 Main Street
Anytown, SC 29360
123-456-7989

Your Objectives

- Defining Objectives is Important
- Desired Outcomes for Your Property
- Involve Family Members
- What are your Management Constraints?



The Landowner Family
90 Acres
Anytown, South Carolina

Introduction

The purpose of this stewardship management plan is to identify the resources of the Landowner Family and to make recommendations based on the landowner's objectives and goals.

The main objective of the landowner is to actively manage timber as a source of revenue while enhancing the overall value of the property through aesthetic enhancement, wildlife habitat improvement, soil and water conservation, and recreational improvements. Timber and wildlife recommendations will be developed along with future cash flow and cost projections.

What are your interest?








Property Location and History

- Describe the Property
- Reference the Deed/Plat
- Location Map
- Surveys
- Soil Maps
- Stand Maps
- Aerial

Location

The Landowner Family's property is located approximately X miles north of the Town of Reevesville, SC off of Hwy 78. The GPS coordinates of the property are xxx degrees Latitude and xxxx degrees Longitude. See attached maps for additional information.

History

The tract contains a mix of agriculture fields and forest land. The agriculture fields have a history of crop rotation and are currently being farmed. The forest land contains upland areas mostly dominated by pine plantation and wetlands mainly in bottomland hardwood species. Harvesting has been conducted in the late 1980's and replanted in loblolly pines, but no active management has been conducted since.

Plat and Stand Map

Soils Map

Soil Map—Orangeburg County, South Carolina

Landowner Family

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AvA	Alcolu sand, 0 to 2 percent slopes	7.1	1.0%
BtB	Blanton sand, 0 to 6 percent slopes	10.7	1.5%
BoB	Bonneau sand, 0 to 4 percent slopes	8.0	1.1%
By	Byars loam	76.0	10.9%
Cx	Coxville sandy loam	195.1	27.9%
GoA	Goldsboro sandy loam, 0 to 2 percent slopes	87.8	12.5%
Lo	Lynchburg fine sandy loam, 0 to 2 percent slopes	141.4	20.2%
NoA	Nobosco loamy sand, 0 to 2 percent slopes	16.2	2.3%
NoB	Nobosco loamy sand, 2 to 6 percent slopes	3.4	0.5%
OnA	Ocilla loamy sand, 0 to 2 percent slopes	14.5	2.1%
Pn	Pelham loamy sand, 0 to 2 percent slopes	29.1	4.1%
Ra	Rains sandy loam	110.4	15.8%
Totals for Area of Interest		700.5	100.0%

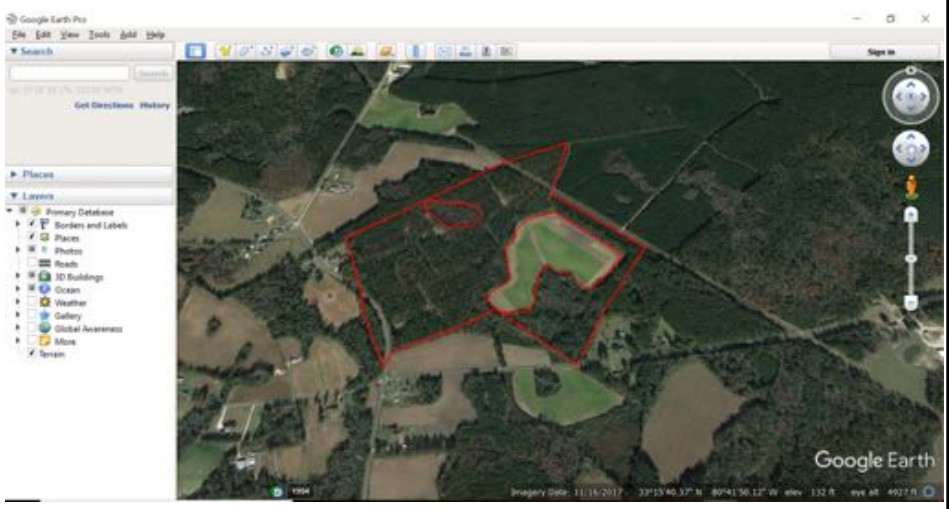
Online Tools

https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

Online Tools

https://mylandplan.org/signup

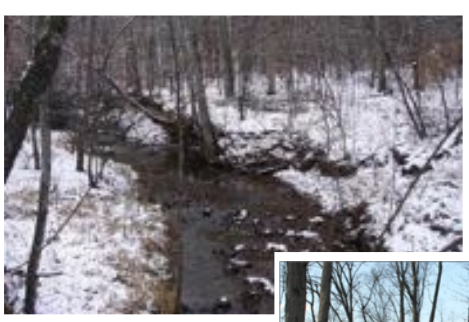
Online Tools



Resource Assessment

- Descriptive information about natural resources on your property
- Stand types
- Soils
- Threatened and Endangered Species
- Historical features
- Wildlife Use
- Helps determine capability of meeting objectives

Stand Types



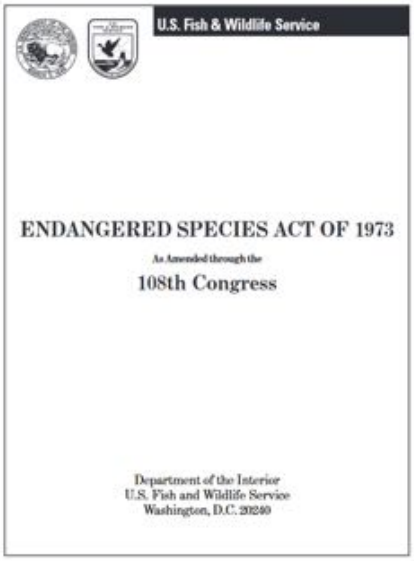


Stand Types




Soil Profile

Endangered Species



U.S. Fish & Wildlife Service

ENDANGERED SPECIES ACT OF 1973

As Amended through the

108th Congress

Department of the Interior
U.S. Fish and Wildlife Service
Washington, D.C. 20240

U.S. Fish & Wildlife Service

ESA Basics

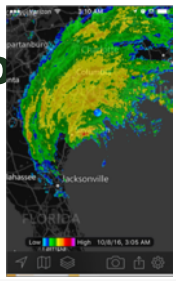
40 Years of Conserving Endangered Species

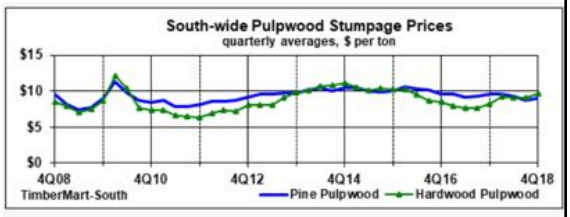
http://www.fws.gov/endangered/

Historical and Cultural Resources

Management Recommendatio

- Should outline a general set of treatments or operations
- Cover a 10 year block of time
- Fluid Plan and can be revised
  - Change in objectives
  - Change in markets
  - Change in weather





Source: The TMS Market News Bulletin 4Q2018

TIMBER STANDS

STAND 1 - LOBLOLLY PINE (52 ACRES)

Description

This stand of loblolly was bedded and then planted during the 1994-95 planting season. This stand is approximately 24 years old and contains about 550 trees per acre with an average diameter of 8 inches and an average merchantable height of 38 feet.

Recommendations

Stand 1 should be fifth-row thinned in 2019 to remove the diseased and suppressed trees in order to give room for the more vigorous trees to accelerate in growth. Leaving approximately 200-250 trees per acre. A prescribed burning schedule should begin the year following the thinning operation and continue at two-year to three-year intervals.

The thinning will benefit quail, deer, and turkey by opening up the stand. The sunlight will be able to penetrate the forest floor allowing herbaceous plants and small shrubs to grow in the understory, therefore increasing the forage productivity of the stand. Prescribed burning will control the understory and also create new vegetation.

STAND 2 – MIXED HARDWOOD/PINE (14 ACRES)

Description

This is a mixed aged hardwood/pine stand. Based on historical photos back to 1994, it appears this stand had some harvesting conducted prior to this date. Currently the stand in made up of low quality gums, maples, oaks and a few loblolly and pond pine. Average diameter is 9 inches. Very low volume is present, and soils are classified as Rains Loamy Sandy. This area is wet most of the year.

Recommendations

This area is best suited to manage for aesthesis and wildlife. Retain this area in its current condition. Several wildlife openings can be created along the edge of this stand and the agriculture field. Monitor for overall forest heath.

Activity Schedule

- List when activities will take place
- Can include projected costs and re
- Records of the activities should be
  - Dates, Times, Expenses, Incomes
  - Types of seedlings
  - Herbicides
  - Weather
  - Contractors

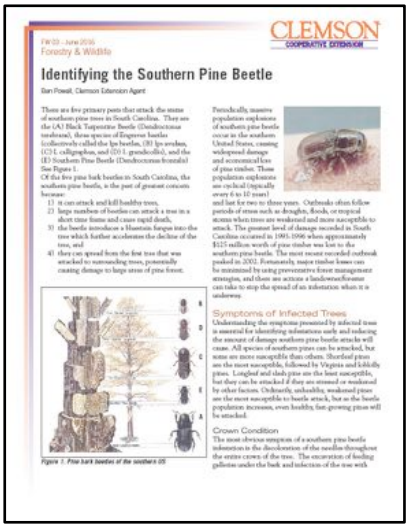
These records will be helpful in the future as you evaluate your successes, plan additional activates and update the management plan.

Schedule of Activities and Recommendations

Stand #	Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1	Planted Loblolly Pine	Conduct 5th row thinning	Establish fire breaks	Prescribe burn	Maintain fire breaks	Maintain fire breaks	Prescribe burn	Maintain fire breaks	Evaluate for possible harvest	Conduct harvest	Reevaluate
2	Hardwood/ Pine	Retain	Monitor for overall forest health	Evaluate for wildlife food plots	Establish food plots	Maintain food plots	Maintain food plots	Maintain food plots	Evaluate based on objectives	Retain	Retain
3	Bay/Pond	Retain this area for overall diversity	Retain this area for overall diversity	Retain this area for overall diversity	Retain this area for overall diversity	Retain this area for overall diversity	Retain this area for overall diversity	Retain this area for overall diversity	Retain this area for overall diversity	Retain this area for overall diversity	Retain this area for overall diversity
4	Non-timber / Ag Field	Maintain ag lease	Add wildlife buffers to field edges	Maintain buffers and ag lease	Maintain buffers and ag lease	Maintain buffers and ag lease	Maintain buffers and ag lease	Maintain buffers and ag lease	Maintain buffers and ag lease	Maintain buffers and ag lease	Maintain buffers and ag lease

Supplemental Information

- Fact sheet and publications
- List of foresters, wildlife biologist, county extension agents, USDA, financial advisors, and anyone else that might be of assistance
- Supplemental and alternative sources of income
- Cost Share – Federal and State
- Glossary of Terms
- Expenses
- Liability


CLEMSON
COOPERATIVE EXTENSION

Forestry & Wildlife

Identifying the Southern Pine Beetle

Symptoms of Infected Trees

Crown Condition

Supplemental Information

Extension Services:

Arkansas: https://www.uaex.edu/environment-nature/forestry/

Georgia: http://extension.uga.edu/topic-areas/environment-natural-resources/forestry.html

Kentucky: http://forestry.ca.uky.edu/extension-home

Maryland: https://extension.umd.edu/wye/ume-extension/forestry

Mississippi: http://www.cfr.msstate.edu/extension.asp

Missouri: https://extension2.missouri.edu/find-your-interest/agriculture-and-environment/agricultural-systems-and-natural-resources/forestry

North Carolina: https://forestry.ces.ncsu.edu/

South Carolina: https://www.clemson.edu/extension/forestry/

Tennessee: https://ag.tennessee.edu/fwf/Pages/UT-Extension---Forestry.aspx

Virginia: https://www.ext.vsu.edu/forestry/

Supplemental Information

My Land Plan - https://mylandplan.org/

Soil Web - https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

SREF - https://sref.info/

Cost Share Programs - http://www.southernforests.org/rural/cost-share-programs

Google Earth - https://www.google.com/earth/versions/

Managed and Unmanaged Forest

Why Do We Need to Manage Our Land?

- Our responsibility to be good stewards of the land
- Private landowners are critical to forestry
- Environmental and economic benefits
- Forestry is an investment
- Your land should be an asset and not a liability
- Leave it better than you found it

Make sure your woodlands are providing the benefits and results you want.

The Landowner Is the Key to Success

- Must work together
- Most rewarding benefits
  - Productive and Healthy Forest
  - Create Present and Future Value
  - Positive Economic Impact
  - Pride In Your Work and Efforts
  - Share with Family and Future Generations

- **You Hold the Seed to Growing Our Forest, Its Success Depends On You**!

Questions?

WOODLAND STEWARDS

A Regional Extension Program for Landowners