

Longleaf Pine in Virginia: History, Ecology and Restoration

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Longleaf Pine Distribution

Range of the longleaf pine. Today only four percent of the longleaf pine forests that originally grew in the Coastal Plain of North America remain.

The map shows the distribution of longleaf pine across the Southeastern United States. States labeled include ORLA, MO., ARK., TEX., LA., MISS., ALA., GA., FLA., KY., WV., VA., NC., and SC. The distribution is concentrated in the coastal plain regions of Texas, Louisiana, Mississippi, Alabama, Georgia, and Florida, with smaller pockets in the Carolinas and Virginia. A small inset map shows the distribution of the longleaf pine in the Gulf of Mexico. A small illustration of a longleaf pine tree is in the bottom left corner.

~ 90 million acres at time of European settlement



Longleaf – wiregrass savannas
& flatwoods of the coastal
plains from North Carolina to
Florida, east to Texas



Longleaf – bluestem flatwoods
of southeast Virginia



Montane longleaf pine woodlands
of northeast Alabama and
northwest Georgia



South
Quay
Sandhills
near
Franklin,
Virginia



Longleaf pine sandhills of
Virginia south to Georgia



Longleaf Pine History in Virginia

- At time of settlement (1607), there were between 1 and 1.5 million acres of longleaf pine-dominated forests in Virginia.
- Most longleaf pine was south of the James River, but range extended north to Accomack County on the Eastern Shore.
- Virginia naval stores industry began in 1608 – when John Smith exported the first “tryalls of Pitch and Tarre”. Pitch was used for sealing boat hulls; tar was the grease for wagon axles.
- **Early transportation in Virginia depended on longleaf pine.**
- Both tar kilns and boxing of live trees were used to produce/collect pine tar and crude gum. Most consumed locally until 1700.
- Major period of naval stores production & export was 1700 to 1840. In 1791, the port of Norfolk exported 29,376 tons naval stores.

Longleaf Pine History in Virginia – Naval Stores



Longleaf Pine History in Virginia

- Longleaf pine was largely exhausted in Virginia by 1850. No export records of naval stores exist after 1840.
- Main factors associated with loss of longleaf pine in Virginia:
 - 1) feral hogs on open range (rooting up/eating seedlings);
 - 2) land clearing for agriculture;
 - 3) cessation of burning = no seedling regeneration;
 - 4) naval stores extraction / timber removals with no regeneration.
- Remember: Longleaf was gone from Virginia long before the advent of modern forest management in the U.S. around 1900.
- Five small remnant longleaf populations remain in Virginia today – between 150 and 200 mature (seed-bearing age) trees, located in Isle of Wight, Southampton, Suffolk, and Chesapeake.

Longleaf: “The Forest that Fire Made”



Longleaf Pine Fire Resistance



Longleaf Pine Fire Resistance



Fire Effects on “Grass Stage” Seedlings



Fire Controls Competing Vegetation in Longeaf Stands



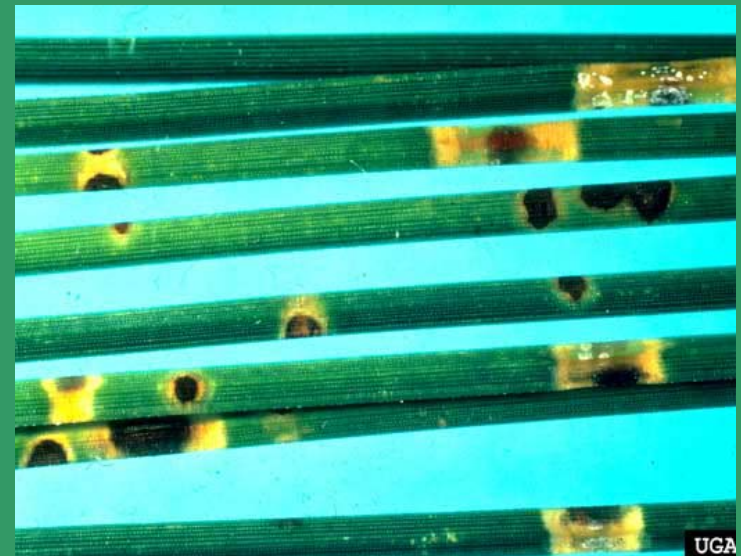


When to Avoid Fire in Longleaf Stands



Longleaf is most fire-susceptible between 12" and 48" in height.

Fire to Control Brown Spot Needle Blight (*Scirrhia acicola*) in Longleaf Seedling Stands



Fire to Prepare Seedbeds for Natural Regeneration of Longleaf



Reasons to use fire in longleaf pine management

- **Seedbed preparation for natural regeneration:** (July - September)
- **Pre-plant site preparation/competition control:** (October – March)
- **Brownspot disease control:** (February – March)
- **Post-planting competition control:** Early- to mid-spring fire (don't burn if most trees are 12" to 48" tall...“fire-susceptible stage”).
- **Stand maintenance (understory) burns:** Vary time-of-year and intensity; include at least 50% growing season burns to suppress hardwoods and increase herbaceous groundcover (legumes/grasses).
- **Maintain pine straw raking operations:** Burn once every four years to keep hardwoods out; allows straw harvesting every four years.

Reasons to Restore Longleaf Pine in Virginia

Longleaf Pine Uses / Values / Benefits

- Traditional forest products (Lumber, timbers, poles, pilings, plywood)
- Non-traditional products (pine straw, quail hunting leases)
- Aesthetics and biodiversity conservation
(our Natural and Cultural Heritage)

Longleaf Pine Values: Forest Products



Longleaf Pine Values: Wildlife Habitat



Longleaf Pine Values: Aesthetics



High Species Diversity Associated with Longleaf Forests



High plant diversity is associated with groundcover, not overstory

389 rare plant species are associated with longleaf pine communities, VA – TX

36 mammal species

86 bird species

38 reptile species

34 amphibian species



Longleaf Pine – Associated rare plants in Virginia



Pixie-moss



Pale grass-pink orchid



Purple pitcherplant



White-fringed orchid

Longleaf Pine Restoration on Virginia State Natural Area Preserves



Longleaf Reforestation Summary on State Natural Area Preserves

February 2008 – 80 acres at Chub Sandhill NAP (Sussex)

December 2008 – 45 acres at Chub Sandhill NAP

December 2008 – 5 acres at Blackwater Preserve (Isle of Wight)

March 2011 – 100 acres at Antioch Pines NAP (Isle of Wight)

- Total of 230 acres planted with 115,000 “native” longleaf pine seedlings on state natural area preserves so far.
- An additional 102 acres are being prepared for planting at Antioch Pines NAP in winter 2011-12.

Longleaf Pine in Virginia

Almost gone; but on its way back.



For More Information:

www.longleafalliance.org

The Longleaf Alliance
housed at Auburn University's
Solon Dixon Forestry Education
Center
in south Alabama