



Longleaf Pine Understory Plant Development at the USDA NRCS East Texas Plant Materials Center

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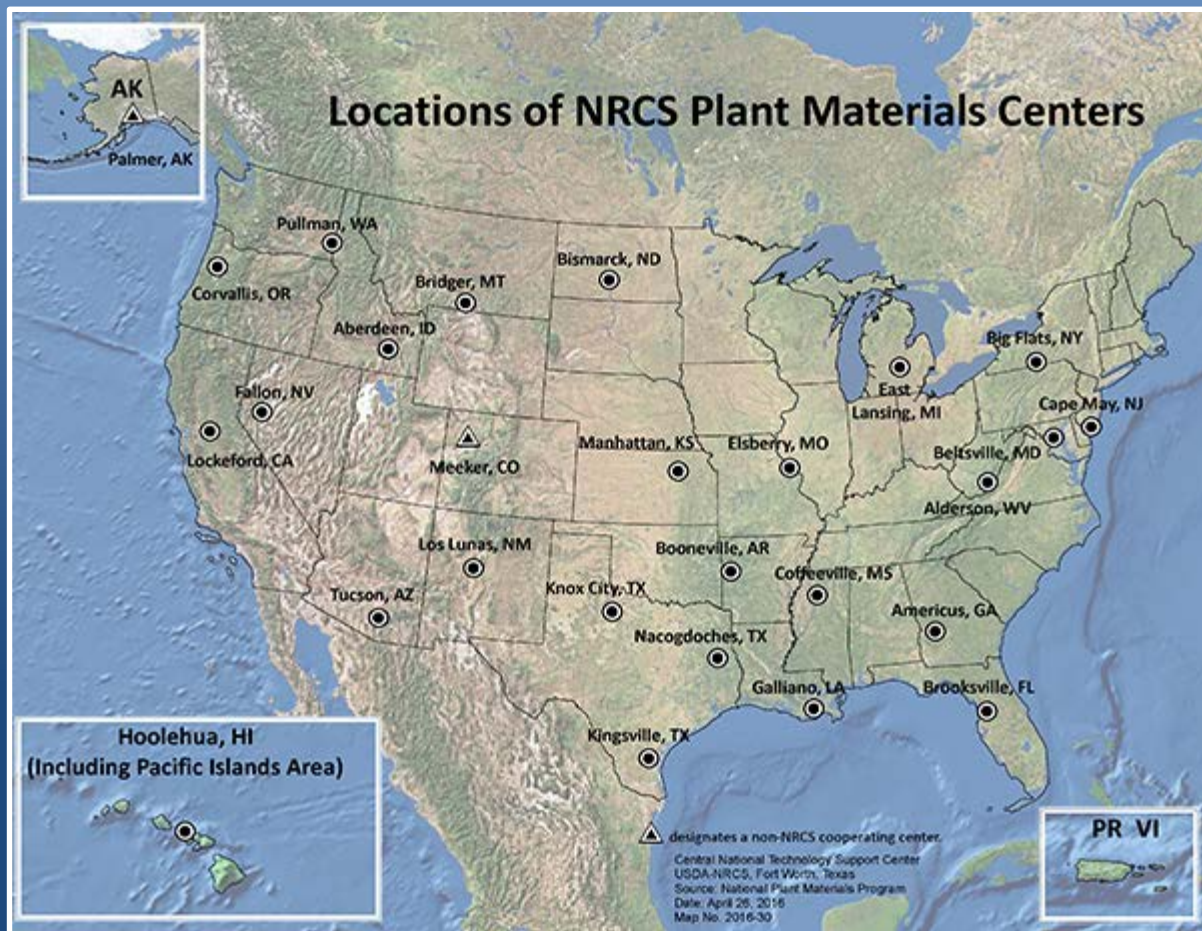
Plant Materials Program

Who We Are

Network of 25 Centers that cover different eco-regions throughout the US.

4 distinct regions, West, Central, Southeast, and Northeast.

Our mission is to find plant based solutions to conservation problems





United States Department of Agriculture

USDA NRCS East Texas Plant Materials Center

75 Acres

Services 42 million acres
in 4 states

Established in 1982

Partners

USFS

SFASU

SWCDs

Texas Native Seeds



Longleaf Pine Ecosystem

Incredibly diverse flora and fauna

Longleaf pine is a declining ecosystem

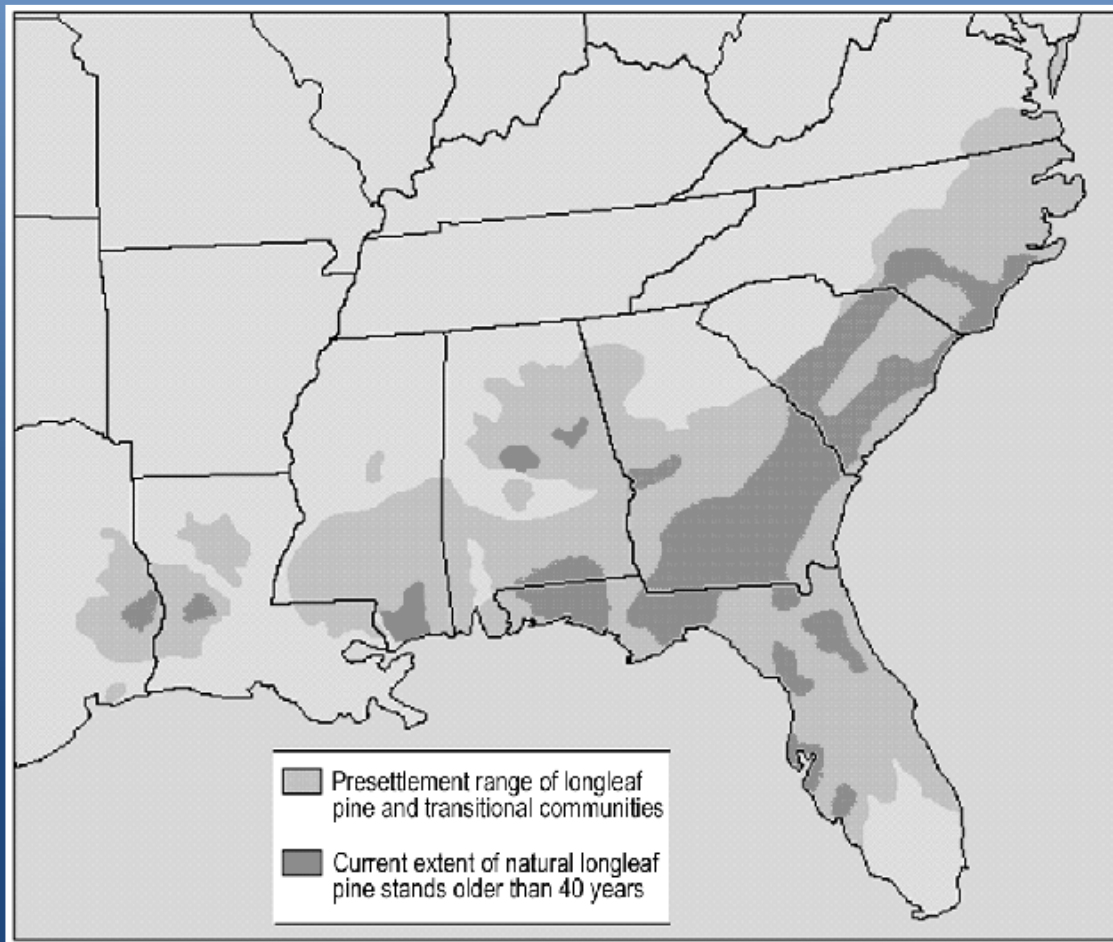
92 million acres down to 4.3 million acres

Economically valuable

Timber

Grazing 1.5 tons/acre

Wildlife



Longleaf Pine Ecosystem

Fire dependent system

Dominated by wire grass in east and bluestems in the west

Fine fuel species are important for restoration efforts



NRCS East Texas Plant Materials Center Longleaf Pine Understory Goals

Returning fire is critical for successful restoration

Fine fuel plants should be the core component of the restoration seed mixes

Once fire is restored diversity will increase



NRCS East Plant Materials Center Longleaf Pine Understory Goals

Regionally adapted understory species for LLP restoration in east Texas and Louisiana

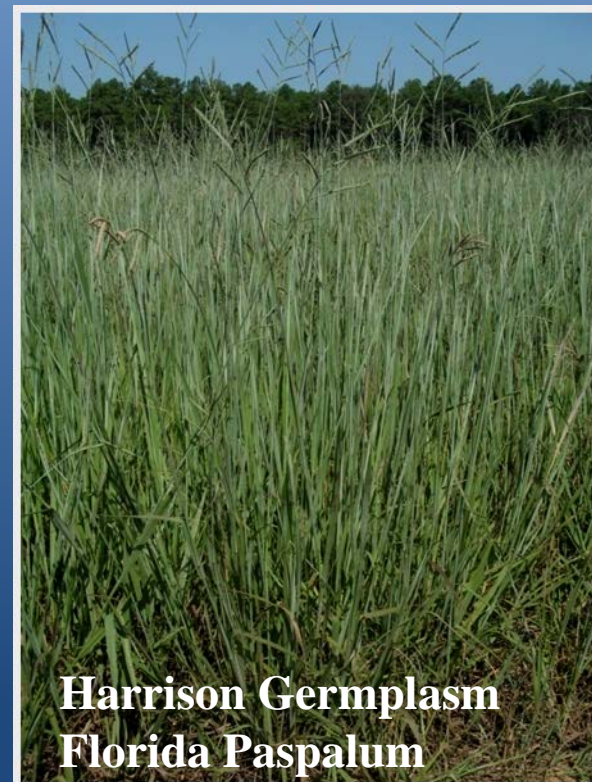
Release material to commercial seed producers

Focus on a core group of plants for restoration seed mixes

Species must be easy to propagate, harvest, and clean to reduce restoration costs



Current Releases



New Release

Coastal Plains Germplasm Little Bluestem

Schizachyrium scoparium

Released in 2016

Commercially produced by
Roundstone Native Seed

NRCS in Louisiana and Texas
requested a little bluestem
adapted to the coastal plains to
support conservation and
environmental programs

Current commercially available
cultivars have failed to establish
or persist



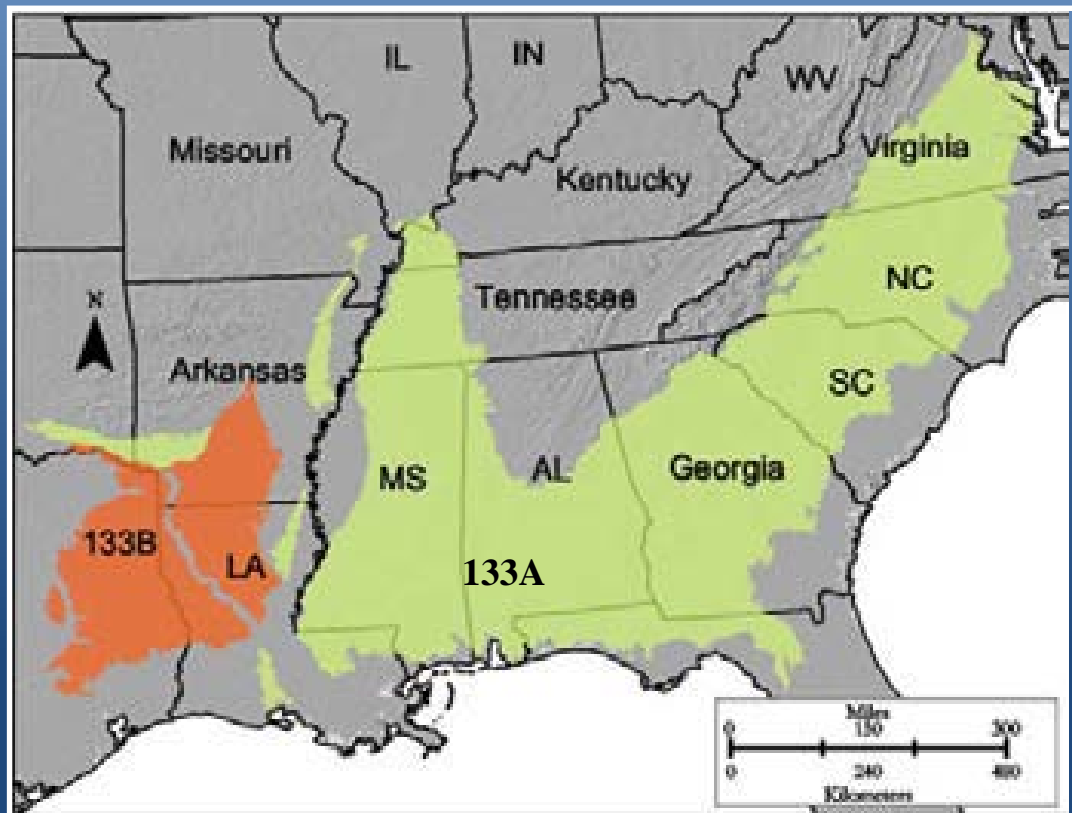
ETPMC Seed Production Field

Coastal Plain Germplasm Little Bluestem

Developed for adaptation to MLRA 133B and surrounding MLRAs

Most commercially available native seed was developed in areas with vastly different environmental conditions

- Shorter growing seasons
- Drier climate
- Colder winters
- Drier and shallower soils

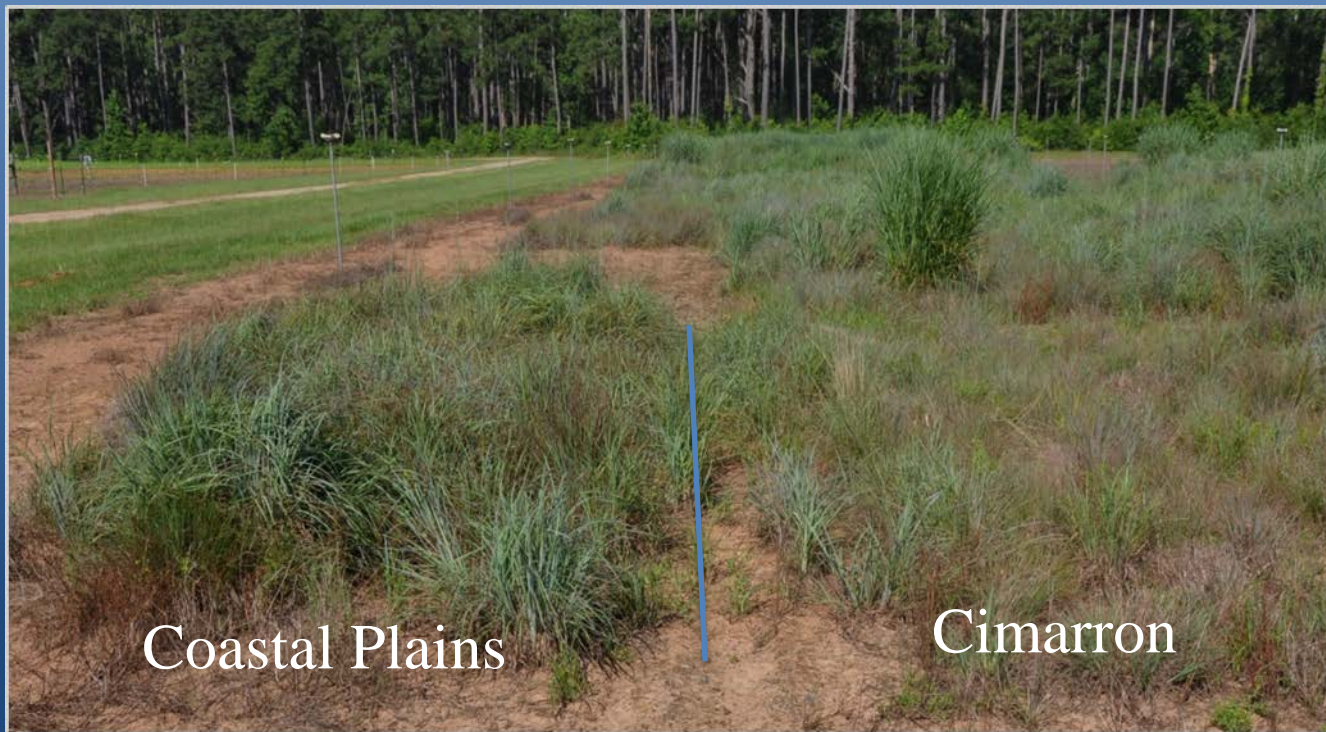


Little Bluestem Adaptation Trial at ETPMC

5 year replicated study

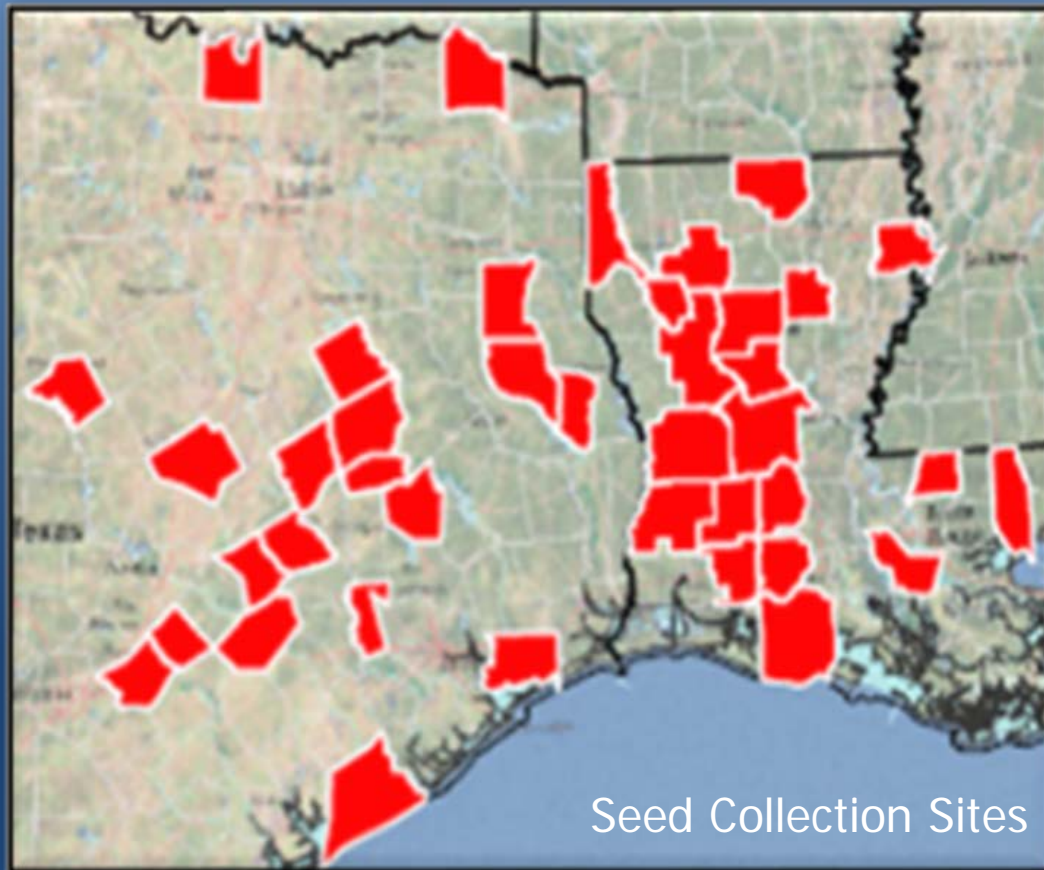
Cimarron, Aldous, and Ok Select decreased over time

Coastal Plains
Germplasm most vigorous and spread to neighboring plots



Development Coastal Plains Germplasm Little Bluestem

- 87 seed collections from native little bluestem stands were evaluated at the ETPMC for germination and seedling vigor
- 77 collections were selected for seed increase, transplanted to the field, and evaluated for two years
- Seed from the 77 collections was bulk harvested and planted into a seed increase block in 2008



Coastal Plains Germplasm Little Bluestem

No significant disease or other problems noted in seed increase block

Seed yield averages 65 PLS pounds per acre with some years producing greater than 80 PLS pounds.

Seed increase block is phenotypically diverse



Seed production field showing diversity

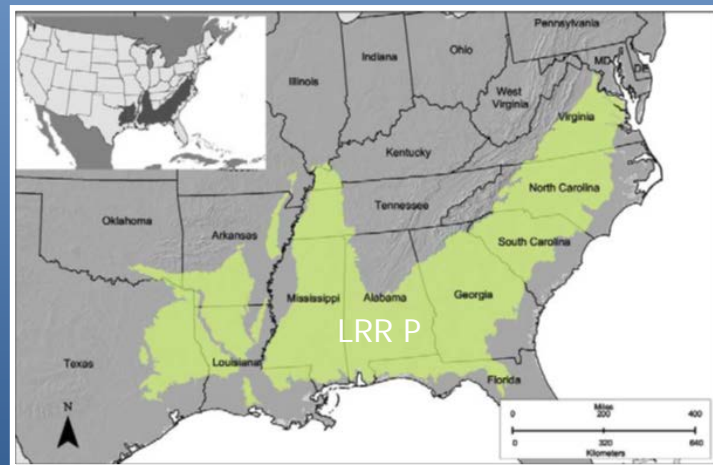
Conservation Uses Coastal Plains Germplasm Little Bluestem

•Potential for use in multiple NRCS conservation practices

- Field Borders
- Critical Area Planting
- Upland Wildlife Habitat
- Conservation Cover
- Range Plantings
- Restoration and Management of Declining Habitats

•Land Resource Region P correlates strongly to the historic longleaf pine range

•Adaptation to LRR P would make Coastal Plains Germplasm ideal for use in longleaf pine understory restoration



NRCS East Texas Plant Materials Center Longleaf Pine Understory Adaptation Trials

Pinehill bluestem accession
9095064 and Coastal Plains
Germplasm were sent to 4
locations in LRR P for adaption
trials

Americus, Georgia
Booneville, Arkansas
Coffeeville, Mississippi
Brooksville, Florida



NRCS East Texas Plant Materials Center Longleaf Pine Understory Current Work

Developed partnerships with the USFS and Texas Native Seeds



Pooling resource to make seed collections and evaluations

Working with multiple species



Pineywoods dropseed



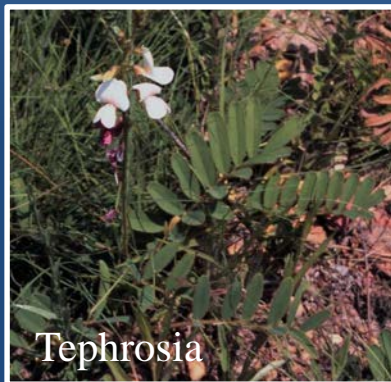
Pinehill bluestem



Swamp Sunflower

NRCS East Texas Plant Materials Center Longleaf Pine Understory Future Work

- Gayfeather (*Liatris pycnostachya*)
- Splitbeard bluestem (*Andropogon ternarius*)
- Yellow Indiangrass (*Sorghastrum nutans*)
- Big bluestem (*Andropogon gerardii*)
- Multi-bloom tephrosia (*Tephrosia onobrychoides*)
- Rattlesnake Master (*Eryngium yuccifolium*)





Functioning Ecosystem Healthy Environment





United States Department of Agriculture

USDA NRCS East Texas Plant Materials Center

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