

Texas Supplement
Longleaf Pine (Pinus palustris) Ecosystem

**RESTORATION AND MANAGEMENT OF
DECLINING HABITATS CODE 643**

This supplement is designed to provide requirements for restoring and managing the Longleaf Pine (*Pinus palustris*) Ecosystem of Texas. This ecosystem historically evolved from natural occurring fires that were and are more beneficial to the growth and development of longleaf pines. Longleaf pines are highly fire resistant and generally are located on sites that burned more frequently. The frequency of fire separated longleaf pine from other southern pines that are less fire resistant compared to longleaf pine. Longleaf pines are better adapted to sandy, drier and more acidic soils than other species of *Pinus* and these dry sites burned frequently favoring these pines. The longleaf pine ecosystem is host to a diverse group of plants and numerous wildlife species including the endangered red-cockaded woodpecker (*Picoides borealis*).



The decline of the longleaf pine ecosystem can be attributed to the over harvesting, clearing for agricultural and domestic development, the decline of natural and prescribed fires, and conversion to other faster growing pine species.

Currently there is approximately less than 3% of the historic longleaf pine ecosystem in the U.S.

DEFINITION

Restoring, conserving, enhancing, and managing unique or diminishing native terrestrial and aquatic ecosystems.

PURPOSE

To return aquatic or terrestrial ecosystems to their original or usable and functioning condition and to improve biodiversity by providing and maintaining habitat for fish and wildlife species associated with the ecosystem.

*Note: NRCS uses the term “Wildlife” to include all animals, terrestrial or aquatic.

CONDITIONS WHERE PRACTICE APPLIES

Sites or areas that once supported or currently support a unique, dwindling, or imperiled native plant and animal community.

CRITERIA General Criteria and Specifications

All necessary local, state, and federal permits shall be obtained by the landowner (or designee) prior to the restoration.

Methods used shall be designed to protect the soil resource from erosion and compaction.

Invasive plant and animal species and noxious weeds shall be controlled. When possible, control will be limited to that necessary to control undesirable species while still protecting habitat that benefit native pollinators and other fish and wildlife species that depend on the site for food, cover, and water.

Undisturbed areas shall be conserved on a sufficient extent of the area to sustain disturbance-intolerant species.

Planting recommendations (species and density) and seeding rate specifications will be prepared to achieve the desired habitat condition.

Only high quality and ecologically adapted plant materials will be used. When feasible, only local ecotypes will be used. Site preparation, planting dates and methods, and plant material care and handling shall optimize vegetation survival and growth.

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [Field Office Technical Guide](#).

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A pretreatment assessment of the targeted habitat will be documented to provide a baseline for comparison with post-treatment habitat conditions. Goals or success criteria will be established using reference sites for guidance and comparison. Where no such reference site exists, use ecological site description or historic data to establish restoration goals.

Use of fertilizers, pesticides and other chemicals shall not compromise the intended purpose of this practice.

Restoration

Controlling competition from both herbaceous and woody plants are vital management practices in establishing a healthy stand of longleaf pine. Competition for light, water and nutrients can retard the growth of seedlings, decrease survival rates and prolong the period of time longleaf seedlings remain in the grass stage. Additionally, ripping to break up a hard pan or compacted soil is proven to be beneficial in restoring longleaf pine.

Site Preparation and Competition Control Competition control is the most important management practice for establishing longleaf pine.

- Herbicide control is an effective tool for controlling competition. Approved herbicides should be used and the label strictly followed.
- Prescribed burn before longleaf pine seedlings are planted or in spring the year of planting, depending on site and needs on the site. Good mechanical and or chemical site preparation should be conducted during the summer or early fall prior to planting seedlings which may eliminate the need for prescribed burning.
- Where a hard pan is suspected or soils are compacted, deep ripping of the subsoil should be conducted 2 – 3 months prior to planting. This 2 or 3 month period will allow the soil to settle prior to planting. This practice may be the second most important management practice for establishing longleaf pine.

Tree Planting –

Containerized seedlings

- Plant the containerized longleaf pines in the late fall to early winter during the dormant season. Plant 300 to 600 trees per acre to achieve adequate stocking.
- Plant with adequate soil moisture
- On flat terrain, leave plug slightly exposed above the soil surface
- On previously cropped fields or heavily prepared sites, plant seedlings where the plug is slightly above the soil grade. We never want to plant where the plug or terminal bud is completely below the soil line.
- Plant seedlings as vertical as possible
- Where areas have been ripped, do not plant in the rip but place the seedlings next to the rip.
- If you plant is an unprepared field or a site where pasture grasses exist, herbaceous weed control must be used to release the planted seedlings.

Bareroot Seedlings

- It is NOT suggested or encouraged to plant bare-root seedlings in Texas.
- If bare-root seedlings are the only alternative available, plant the seedlings so that the terminal bud is at or slightly above the soil surface. Make sure that the terminal bud is above the soil line.
- Plant seedlings as soon as they are lifted. Upon delivery keep out of direct sunlight and as cool as possible.
- Bare root seedlings are most effectively planted by machine but can also be hand planted with a shovel, hoe dad or dibble bar.
- Avoid J-rooting seedlings
- Do not chop roots with a machete just prior to planting.
- Do not twist seedling into hole

Competition Control

Longleaf seedlings are susceptible to herbaceous and woody competition until they break out of the grass state and growth begins. Herbicide release to control competition should be used when longleaf pines are in the grass stage and prescribed burning cannot be safely conducted. Releasing longleaf pines from early competition tends to get the seedlings growing and out of the grass stage. Do not burn longleaf pines when they break the grass stage until they reach 5' in height as this is the time when fire can damage the terminal bud.

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Burning is an option to control hardwoods early and late in longleaf pine growth. Caution should be taken when burning in the growing season (spring), as fire can be detrimental to the longleaf pine after the buds have swollen and started growing.

Prescribed Burning

- Prescribed burns will be conducted according to an approved written burn plan.
Prescribed burning is a supplemental and necessary management practice for the establishment and restoration of longleaf pine ecosystems.
- Longleaf pines are susceptible to fire and should not be burned when between 18” and 5’ tall and in spring when the buds have swollen and are starting to put on new growth.
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Operation and Maintenance

- Where brown spot occurs or competition exists while the seedlings are in the grass stage, (<18”) burning or herbicide applications are recommended and where burning is not a safe alternative, fungicides may be used to control brown spot and herbicides used to control herbaceous competition.
- Control of invasive species is required
- Protect newly planted seedlings from grazing animals
- Burn at planned intervals according to a prescribed burn plan

Conservation Practices

Practice Name

- Forest Stand Improvement – 666
- Prescribed Burning – 338
- Restoration and Management of Rare and Declining Habitats – 643
- Tree/Shrub Establishment – 612

Facilitating Practices

- Firebreak – 394
- Tree/Shrub Preparation – 490
- Silvopasture Establishment – 381
- Wetland Wildlife Habitat Management – 644
- Early Successional Habitat Development/Management - 647
- Fence – 384
- Upland Wildlife Habitat Management – 645
- Pest Management – 595
- Tree/Shrub Pruning – 660
- Range Planting -550

REFERENCES

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