USDA United States Department of Agriculture

NATURAL RESOURCES CONSERVATION SERVICE

LONGLEAF PINE ECOSYSTEM RESTORATION

FY20-24 IMPLEMENTATION STRATEGY

Longleaf pine forests are one of the most biologically diverse ecosystems on the planet.

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Longleaf pine forests are part of the historical and cultural fabric of the Southeast.

Longleaf Pine Conservation Goals

Longleaf pine forests once covered more than 90 million acres across the Southeast. They stretched from eastern Texas through central Florida, north to southern Virginia. These forests represent one of the world's most unique and biologically diverse ecosystems. They support an estimated 900 different plant species and provide habitat to approximately 100 bird species, 36 mammal species, and 170 species of reptiles and amphibians.

Longleaf pine forests are also part of the historical and cultural fabric of the Southeast. Native Americans have a long history of actively managing the region's forests, including with fire, for food and fiber. Later, timber harvests and the extraction of naval stores (such as tar, pitch, rosin, and turpentine) helped supply raw materials to the growing country. Longleaf pine forests are also valued for their open, verdant, park-like beauty, and recreational opportunities such as birdwatching and hunting.

Over the past two centuries, conversion to agriculture, other forest types, other land uses, and fire suppression have reduced the longleaf pine forests to less than five percent of their original range. The extensive loss of longleaf pine has caused a noticeable change in the Southeast, demonstrated by the fact that more than 30 species associated with longleaf pine forests, such as the red-cockaded woodpecker, gopher tortoise, and black pine snake are listed as federally threatened or endangered by the U.S. Fish and Wildlife Service (USFWS).

Conservation Programs and Approaches

Public and private sector leaders have recognized the need to address the substantial decline in both the quantity and quality of longleaf pine forests across the Southeast. In 2005, America's Longleaf Restoration Initiative (ALRI) was formed to support a focused, range-wide restoration approach across public and private lands. ALRI includes USDA's Natural Resources Conservation Service and U.S. Forest Service, as well as partners like the U.S. Department of Defense, U.S. Fish and Wildlife Service, American Forest Foundation, National Fish and Wildlife Foundation, National Wildlife Federation, The Nature Conservancy, Forest Landowners Association, The Conservation Fund, The Longleaf Alliance, and state agencies.

An Alabama-Coushatta Tribe of Texas Elder and master basket weaver uses longleaf pine needles to weave the Tribes intricate handmade baskets.

Longleaf pine ecosystems include a unique and diverse understory including pitcher plants.

IMPLEMENTATION STRATEGY

America's Longleaf Restoration Initiative

In 2009, ALRI released the Range-wide Conservation Plan for Longleaf Pine (range-wide plan), which provides a framework for longleaf pine ecosystem conservation. It includes a goal to restore, improve, and maintain eight million acres of longleaf pine forests on public and private lands by the end of 2024. The three actions – restoring, improving, and maintaining – were identified because different sites have different existing conditions and landowner objectives that can benefit from site-specific conservation approaches. ALRI has also described an optimal forest structure and condition, called the maintenance condition class, because it represents the optimal forest habitat for plants and wildlife associated with longleaf pine ecosystems.

In June 2010, the U.S. Departments of Agriculture, Defense, and Interior formalized their commitment to the ALRI in a Memorandum of Understanding.

MOVING TOWARDS THE EIGHT-MILLION-ACRE GOAL

- **Restoring** longleaf pine forests on suitable sites within its range currently in other forest types or land classifications.
- **Improving** forest stands with longleaf pine trees present, but missing significant components of understory communities or fire regimes to support representative communities of longleaf pine ecosystems.
- **Maintaining** existing longleaf pine ecosystems in good condition. Assessing good condition can be done through an evaluation of the overstory canopy, mid-story canopy, and ground layer conditions.

The ALRI range-wide plan targets restoration, improvement, and maintenance activities to within Significant Geographic Areas (SGAs). SGAs are areas that contain large existing blocks of longleaf pine, many of them anchored by public lands such as military installations, national forests, national wildlife refuges, state forests, or heritage reserves. The ALRI goal is 50 percent of the acreage increases within 17 SGAs as delineated in the ALRI range-wide plan.

Focusing in SGAs increases the value of longleaf habitats by building the footprint of existing forest blocks. These large forest blocks can support a diversity of wildlife, including those with large home ranges or those requiring buffers to development. Inherent to landscape-scale conservation sites is also an increased resiliency to catastrophic events such as hurricanes.

Within the SGAs, partners are working in teams, known as local implementation teams (LITs), to coordinate local on-the-ground restoration efforts. Coordinated restoration efforts, such as controlled burns, through LITs can increase the efficiency and effectiveness of the work while reducing the cost per acre.

Over the first ten years of ALRI implementation, the long regional decline of longleaf pine ecosystems has reversed. Longleaf pine forests in the Southeast have grown from the historic low of approximately 3.4 million acres to approximately 4.7 million acres in 2020. In addition, populations of red-cockaded woodpeckers appear to be growing across their range. These achievements are the result of ten years of dedicated public and private efforts. Still, there are places in the range where longleaf pine is being lost or degraded. In order to achieve the ALRI goal, the pace and scale of restoration activities across land types will need to accelerate over the next five years.

Within USDA, both NRCS and USFS are contributing to this Shared Stewardship approach. USFS has committed to restoring 1 million acres of longleaf pine on national forest system lands and works closely with state forestry agencies on their public lands. NRCS provides private landowners with technical and financial assistance for longleaf pine restoration. ALRI estimates that 80 percent of the overall eight-million-acre goal will have to occur on private lands.

Mature longleaf pine tree with thick fire-resistant bark at Boykin Springs, TX.

IMPLEMENTATION STRATEGY

USDA Natural Resources Conservation Service Programs

NRCS' longleaf conservation efforts support the ALRI range-wide plan through three distinct, but related approaches: Longleaf Pine Initiative (LLPI), Working Lands for Wildlife – Gopher Tortoise (WLFW-GT), and Regional Conservation Partnership Program (RCPP). Each NRCS initiative has a specific focus, but they complement each other to achieve the desired outcomes.

Assistance to private landowners

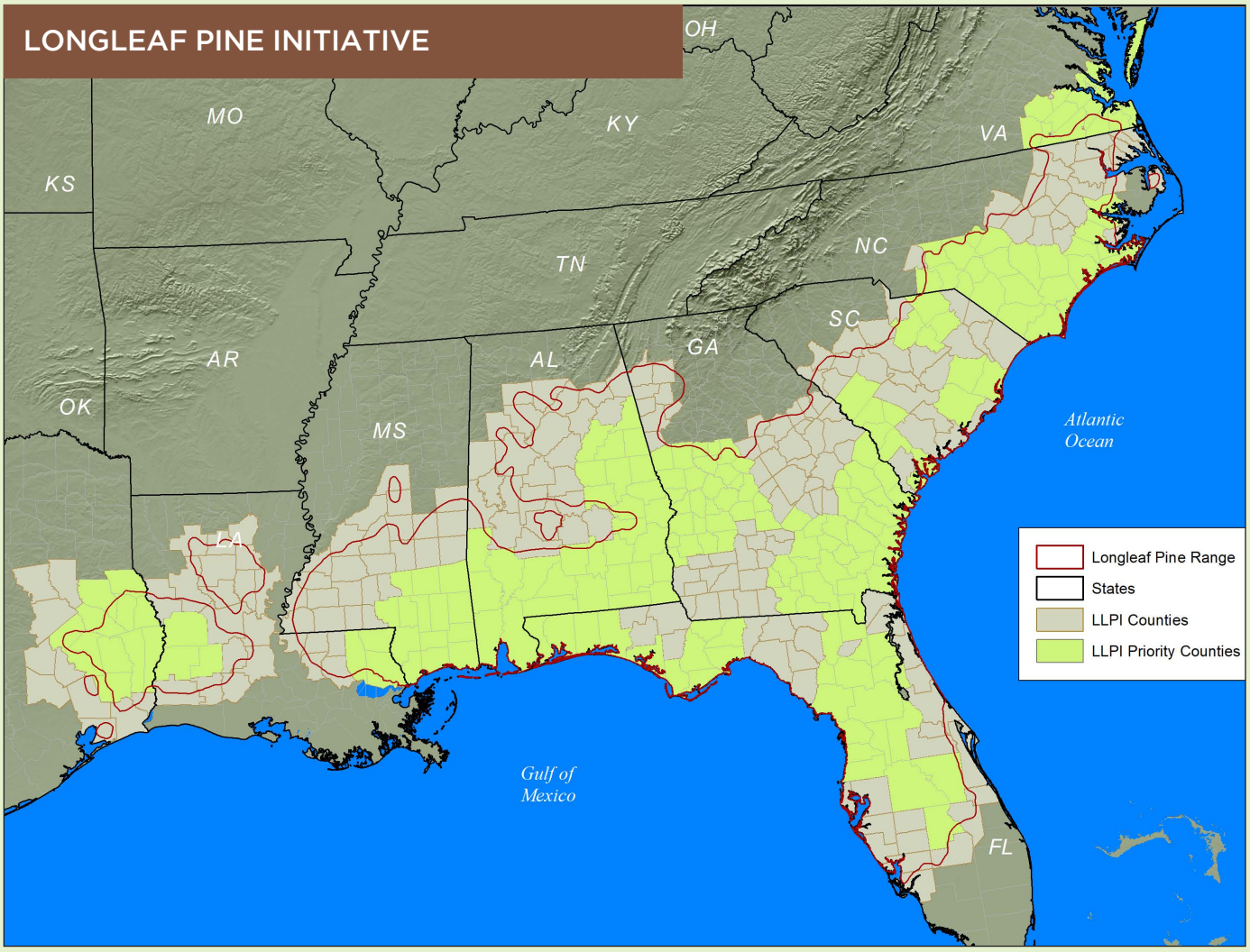
NRCS provides technical and financial assistance to customers, helping them identify and implement a variety of conservation practices. Financial assistance comes from a variety of Farm Bill programs, which cover a portion of the costs for implementing conservation practices.

FARM BILL PROGRAMS

- **Environmental Quality Incentive Program** (EQIP) - provides financial and technical assistance to agricultural producers and forest landowners to plan and implement conservation practices that improve soil, water, plant, animal, air, and related natural resources on agricultural land and non-industrial private forestland.
- **Conservation Stewardship Program** (CSP) - assist agricultural producers and forest landowners in undertaking additional conservation activities beyond those typical to EQIP in improving, maintaining, and managing existing conservation activities. NRCS recently updated the program, which included several enhancements and bundles that benefit the management of longleaf pine forests.
- **Regional Conservation Partnership Program** (RCPP) - offers new opportunities for the NRCS, conservation partners, agricultural producers, and forest landowners to work together to harness innovation and expand the conservation mission. NRCS implements RCPP through four existing NRCS programs authorities: Agricultural Conservation Easement Program (ACEP), Healthy Forests Reserve Program (HFRP), EQIP, and CSP.

Both NRCS and private landowners invest in the implementation of conservation practices to restore and protect longleaf pine ecosystems.

IMPLEMENTATION STRATEGY



Priority Counties. Updated NRCS 2020 Longleaf Pine Initiative counties and priority counties.

Longleaf Pine Initiative

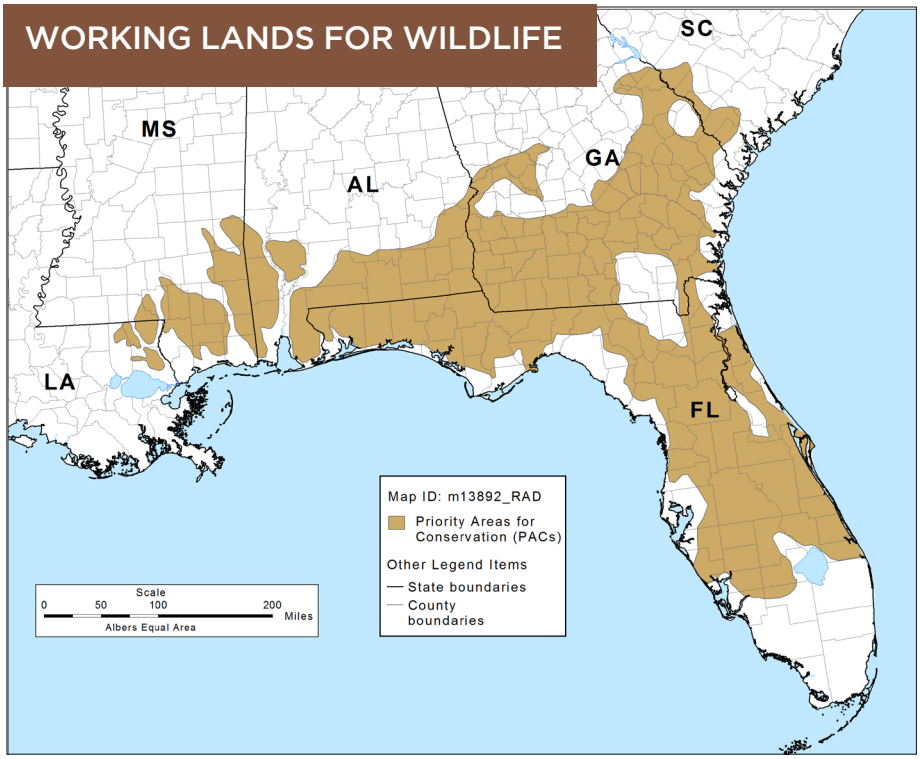
NRCS works with agricultural producers and forest landowners to restore longleaf pine forests on private lands through its Longleaf Pine Initiative (LLPI). Launched in 2010, the LLPI covers parts of nine states: Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Texas, and Virginia. Within these nine states, NRCS has identified priority counties based on known stands of longleaf pine and the existence of protected forests on adjacent lands. These two factors can contribute to greater ecosystem benefits through habitat connectivity and management efficiencies. These efficiencies include centralized forestry-related resources such as qualified contractors and mills. The priority counties mostly coincide with the ALRI range-wide plan SGAs. NRCS has set a revised goal that 75% percent of the LLPI-funded restoration activities will occur in the priority counties.

The boundary of the LLPI was modified in 2020 to better include known occurrences of longleaf pine and suitable habitat in the Southeast. The updated boundary largely aligns with the longleaf pine range published by the USFS in the Atlas of United States Trees (also known as Little's range). This boundary was called the "Longleaf Pine Historic Range" in the previous implementation strategy.

This boundary modifcation should increase the opportunities for on-the-ground conservation work through the LLPI. Still, the ranking and selection of LLPI proposals by landowners will be done on a case-by-case basis by NRCS after considering several factors. For example, proposals in priority counties have the benefit of being located near large blocks of existing longleaf pine stands.

Meanwhile, proposals outside of priority counties could benefit from favorable site conditions and the long-term commitment of the landowner to restore and maintain longleaf pine. Favorable site conditions mean that less effort and less time is required to achieve the maintenance condition class for longleaf pine. Favorable site conditions could include a large undeveloped area, presence of mature longleaf pine trees, an undisturbed native seedbank of understory plants, native wildlife, proximity to other longleaf stands, and the absence of non-native invasive plants or wildlife. Proximity to other stands is important because multiple restoration sites can be linked together over time and form large continuous stands.

Together, conservation actions in the LLPI on private lands will contribute to the ALRI goal.



Targeted approach. NRCS is focusing its conservation efforts in these new priority areas for conservation, which were developed with state and federal agencies, non-government organizations and universities in 2016.

Regional Conservation Partnership Program

NRCS also targets funds to support private lands restoration through the RCPP. The longleaf pine range has been designated as an RCPP Critical Conservation Area. NRCS implements RCPP conservation program contracts and easement agreements through four existing NRCS programs: ACEP, EQIP, CSP, and HFRP. Partners, working closely with landowners and communities, define and propose projects that will achieve regional natural resource goals while also meeting complementary local conservation priorities. Practices to be applied include forest stand improvement, prescribed burning, restoration and management of rare or declining habitats, and tree and shrub establishment.

Working Lands for Wildlife

NRCS also provides another avenue to assist private landowners with longleaf restoration — the Working Lands for Wildlife (WLFW) partnership for the gopher tortoise.

In 2012, the gopher tortoise was selected as a target species. The partnership provides participating land- owners with Endangered Species Act (ESA) predictability for their conservation activities for up to 30 years. Through WLFW, NRCS provides technical and financial assistance to voluntarily implement conservation practices for the gopher tortoise, largely in longleaf ecosystems, while continuing to manage the property as working lands.

NATURAL RESOURCES CONSERVATION SERVICE

NRCS FY20-24 IMPLEMENTATION STRATEGY

Frequent low-intensity fire helps maintain a diverse understory of native plants and healthy longleaf pine trees used by wildlife.

CONSERVATION ACTIONS

NRCS FY20-24 Implementation Strategy

The NRCS Longleaf Pine Restoration Implementation Strategy links together the efforts of the LLPI, WLFW, and RCPP to help private landowners improve both the quantity and quality of longleaf pine forests in the Southeast. Working with NRCS leadership from the nine participating states and longleaf pine restoration partners, such as the ALRI, this strategy was developed to coordinate actions for longleaf pine restoration on private lands.

This strategy is organized by four conservation actions that address the major threats to, or needs for, the longleaf pine ecosystem. For each conservation action there is a specific objective and for each objective there is a set of considerations (or prioritization) when implementing the program. Funding sources and milestone goals are identified for FY20-24. Milestone goals are presented as acreage outputs for each conservation action and for the entire LLPI by year. Milestone goals both help inform the short-term funding process and the long-term desired outcomes.

To address threats and needs, NRCS is focusing on four conservation actions:

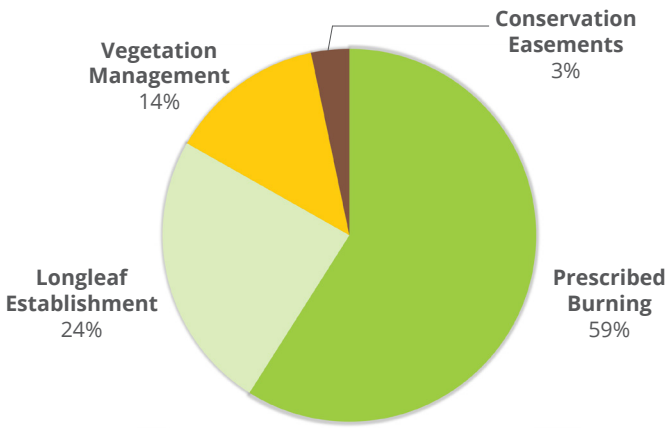
- Improving vegetation management (chemical and mechanical treatments) in existing longleaf pine stands
- Increasing use of prescribed fire
- Establishing longleaf pine through planting
- Protecting working forests and habitat through conservation easements

NRCS MILESTONE ACREAGE GOALS FOR LONGLEAF PINE ECOSYSTEM RESTORATION

	FY20	FY21	FY22	FY23	FY24
Vegetation Management	37,632	34,613	36,035	38,036	39,656
Prescribed Fire	149,503	157,035	163,286	169,539	173,724
Longleaf Establishment	61,001	63,365	66,151	70,087	73,264
Conservation Easements	13,025	9,625	8,625	7,625	6,625

Having a strategy is important, but the effective and efficient implementation of the strategy over time is crucial to achieve the desired conservation outcomes. Through a combination of range-wide and locally developed ranking criteria, NRCS will prioritize financial assistance on private lands. For the LLPI, priorities include restoring longleaf pine on suitable lands in the range, improving the quality of existing longleaf stands, and maintaining the structure and composition of longleaf pine on high quality sites. Through WLFW, NRCS will focus on actions that will occur within longleaf forests that benefit gopher tortoises. With the addition of RCPP, partners can provide leverage and secure voluntary conservation easements to benefit at-risk species by protecting longleaf habitat blocks, especially in rapidly developing areas and in the vicinity of military installations.

RELATIVE CONTRIBUTIONS TO THE 2024 GOAL



CONSERVATION ACTION: VEGETATION MANAGEMENT

Site-specific Threat Addressed: Competition from undesirable vegetation impairs the growth of longleaf pine and degrades the quality of habitat for at-risk species.

Purpose: Restoring, improving, and maintaining the structure and composition of longleaf pine ecosystem usually requires vegetation management. An open canopy and midstory permits sunlight to reach the ground, supporting a diverse native herbaceous understory with regeneration of longleaf seedlings. This understory is vital to wildlife such as gopher tortoise. An open midstory also supports foraging by birds such as red-cockaded woodpecker. Controlling non-native invasive plant species often requires mechanical or chemical treatments.

The ALRI identified a need and opportunity to specifically improve mixed forest types where longleaf was present but not the dominant tree. Harvesting other tree species can help longleaf pine trees reach maturity and dominance sooner with less overall effort.

Objective: NRCS will work with partners to increase management of native and non-native plants on private lands to facilitate achieving the maintenance condition class of longleaf pine stands through technical and financial assistance.

Prioritization:

To achieve this objective effectively and efficiently, NRCS will prioritize:

- Vegetation management at sites where longleaf pine occurs (especially mature longleaf pine trees) and where it will be done in conjunction with prescribed burning.
- The use of non-ground disturbing mechanical treatments or targeted chemical treatments rather than broadcast chemical treatments when a healthy native herbaceous understory occurs at the site.
- Vegetation management near existing stands of longleaf pine.
- Vegetation management within the gopher tortoise PACs.

Funding Source: EQIP, CSP, CTA

Milestone Goals: NRCS aims to support conservation vegetation management activities on more than 185,973 acres on private lands through FY24.

CONSERVATION ACTION: PRESCRIBED FIRE

Site-specific Threat Addressed: Frequent low-intensity fire to maintain longleaf pine ecosystem structure and composition.

Purpose: Longleaf pine ecosystems depend on frequent low- to moderate-intensity fires to maintain their structure, composition, and function. Altered fire regimes that are departed from historical conditions can result in excessive fuel loading and pose a wildfire danger to forest stands, wildlife, and local communities. Altered fire regimes also create more competition from fire-intolerant and shade-tolerant plants. Frequent fires help maintain an open canopy, suitable conditions for longleaf seedling establishment, and a healthy understory of herbaceous vegetation that directly benefits wildlife.

Objective: NRCS will work with partners to increase the use and frequency of prescribed fire on private lands through technical and financial assistance.

Prioritization:

To achieve this objective effectively and efficiently, NRCS will prioritize:

- Developing conservation plans for private lands that recommend prescribed burning within the first 18 months post-planting and the implementation of prescribed burning that mimics a natural fire frequency for the life of the stand (approximately every 1 to 3 years).
- Education and outreach to landowners on the importance of frequent controlled burns for longleaf pine ecosystems.
- The use of prescribed fire through its project ranking process. Burning schedules should be designed to achieve specific objectives (e.g., controlling hardwoods, creating habitat) for the diversity of species that occur on the site.

Funding Source: EQIP, RCPP, CSP, CTA

Milestone Goals: NRCS aims to support conservation prescribed fire activities on more than 813,087 acres on private lands through FY24.

CONSERVATION ACTION: LONGLEAF ESTABLISHMENT

Specific need addressed: There are too few mature seed-producing longleaf pine trees in the region to naturally reseed all of the desired areas.

Purpose: To achieve the eight-million-acre goal, more longleaf seedlings will need to be planted in places where it formerly occurred. Conversion of longleaf pine stands to agriculture, other forest types, and other land uses continues to pose a threat to the long-term sustainability of the ecosystem. These losses affect not only longleaf pine trees, but also the plants and wildlife that depend upon them.

Objective: NRCS will work with partners to plant longleaf pine seedlings on suitable sites within its range using financial and technical assistance.

Prioritization:

To achieve this objective effectively and efficiently, NRCS will prioritize:

Planting longleaf seedlings on sites that will continue to be improved or maintained through vegetation management, prescribed fire, or conservation easements.

- Prioritize planting longleaf pine on forest sites after catastrophic natural events such as hurricanes.
- In landscapes where pine stands were recently harvested, longleaf pine will be planted wherever it is suitable.
- To maximize benefits for wildlife, NRCS recommends tree plantings of 454 to 605 trees per acre.
- In plantings of greater than 500 trees per acre, NRCS recommends that wildlife openings equal to 15 percent of the planned area be left unplanted to support growth of herbaceous forage. If openings are linear in nature, NRCS recommends a minimum of 36 feet between tree rows.
- Wildlife openings may be planted in native grasses and forbs or left unplanted with one-third of the site managed annually with prescribed fire, herbicides, mowing, or haying.
- Planting longleaf pine instead of other tree species when providing for long-term storage of carbon (above and below ground carbon).
- Minimizing ground disturbance activities when a native herbaceous understory seedbank is present.
- Site plans may include options for daylighting roads (i.e., trimming vegetation on roadsides to allow sunlight to reach the road surface and shoulders). Note: This is a technique that may benefit northern bobwhite as well.

Funding Source: EQIP, RCPP, CTA, CSP

Milestones: NRCS aims to support planting of longleaf seedlings on more than 333,868 acres on private lands through FY24.

CONSERVATION ACTION: WORKING FORESTS PROTECTION

Site-specific Threat Addressed: Conversion to non-agricultural and non-forestry uses

Purpose:

Longleaf pine forests across the historic range continue to be lost to non-agricultural and non-forestry uses, adversely affecting rural communities and many species of flora and fauna that live in this valuable ecosystem. At-risk species need healthy, open longleaf forests with varied shrub and herbaceous understory vegetation. Voluntary conservation easements help protect private lands from rapid development and they potentially provide a means to help improve habitat connectivity and secure agricultural ownership, especially around military installations.

Objective:

NRCS will increase opportunities for landowners to use Farm Bill conservation easement programs that help landowners maintain their working forests and restore and protect suitable habitats, especially those valuable to at-risk species. In all landscapes with potential suitable habitats, NRCS will pursue voluntary conservation leases and easements to protect and restore those sites to support the long-term survival of the at-risk species.

Prioritization:

To achieve this objective effectively and efficiently, NRCS will prioritize:

- Landowners who are committed to maintaining longleaf pine ecosystems with actions such as prescribed fire and vegetation management.
- Focus on working lands inhabited by at-risk species.

Funding Source:

EQIP, ACEP, CTA, RCPP, HFRP

Milestones:

NRCS aims to use easements to protect 45,525 acres of privately owned longleaf pine forests in rapidly developing areas through FY24.

IMPLEMENTATION STRATEGY

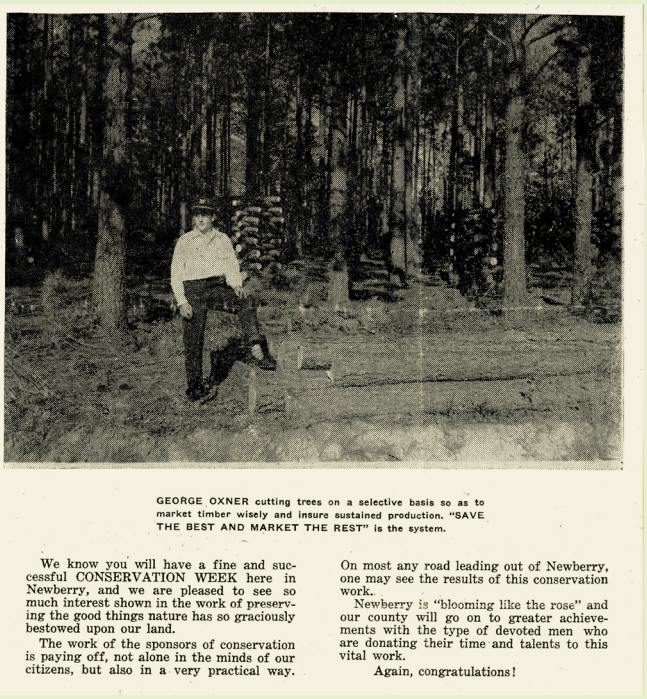
Conservation Outcomes and Benefits to Landowners

NRCS is dedicated to achieving a wide range of conservation outcomes that also provide specific conservation benefits to landowners. The desired conservation outcomes for longleaf pine restoration include: habitat for plants and wildlife, including habitat for at-risk species such as the gopher tortoise; water quality improvement; and air quality improvement, such as storing carbon both above and below ground. The benefits to landowners can include: the sustainable production of high-quality timber or other forest products, recreational opportunities (such as birdwatching or hunting), and traditional or cultural uses.

Landscape-scale conservation outcomes start with site-specific actions. This strategy has outlined the rationale and process of implementing actions on private lands in the Southeast. Landscape-scale conservation outcomes, like the recovery of an at-risk species, are achieved as a result of many concerted site-specific actions. Tracking and reporting on the quantity of these contributing conservation actions provides a useful measure of progress toward reaching broader conservation outcomes.

For longleaf pine forests, ALRI has set a goal of restoring, improving, and maintaining eight million acres in the Southeast by the end of 2024. NRCS is supporting this goal through the actions and milestone goals described in this strategy. The annual outputs implemented through this strategy will vary with site conditions and objectives of each participating forest landowner. By contributing to this shared public and private effort, NRCS will support beneficial outcomes across the longleaf pine range.

George Oxner has been sustainably managing his longleaf pine stands in Newberry County, South Carolina for timber and wildlife since the 1950's.



GEORGE OXNER cutting trees on a selective basis so as to market timber wisely and insure sustained production. "SAVE THE BEST AND MARKET THE REST" is the system.

We know you will have a fine and successful CONSERVATION WEEK here in Newberry, and we are pleased to see so much interest shown in the work of preserving the good things nature has so graciously bestowed upon our land.

The work of the sponsors of conservation is paying off, not alone in the minds of our citizens, but also in a very practical way. On most any road leading out of Newberry, one may see the results of this conservation work.

Newberry is "blooming like the rose" and our county will go on to greater achievements with the type of devoted men who are donating their time and talents to this vital work.

Again, congratulations!

Longleaf pine forests support an estimated 900 different plant species and provide habitat to approximately 100 bird species, 36 mammal species, and 170 species of reptiles and amphibians.

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