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LEADER

*Tomorrow's
Forest*

VOLUME XV — ISSUE 4


WINTER 2023

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COVER Orton-Sprunt property in Brunswick County, North Carolina. Photo by Karen Zilliox Brown.

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The Longleaf Alliance

PRESIDENT'S MESSAGE



CAROL DENHOF

On behalf of the staff and board of The Longleaf Alliance, thank you to all who were able to attend our 14th Biennial Conference in Wilmington, North Carolina. What a week! As I write this in November, I'm still energized from being with you all in a place that is so closely tied to longleaf. We not only rekindled connections to each other but were reminded that connecting to and understanding the history of longleaf can help us in our restoration efforts. Our amazing plenary presenters, Earl Ijames, Abigail Dowd, Roger Shew, and Dwayne Estes, established a true sense of place for all attending and inspired us to think about what once was to determine what can be once again. A special thanks to all of you for sharing with the group.

I also want to express a sincere thank you to all our generous sponsors for supporting this year's conference. The funding provided helped make this an exceptional event. Your dedication to the overall longleaf effort has been steadfast over the years, and we greatly appreciate your partnerships.

We are grateful for the opportunities provided by The Richard and Rita Porterfield Educational Trust. The Trust established a fund to assist those who would not otherwise have the means to attend Longleaf Alliance educational events, including the Biennial Conference. Through their support, 32 people received registration assistance, including 17 students. This significantly impacted the record-setting student attendance for an in-person Longleaf Conference with 33 undergraduate and graduate students. Seeing this next generation attending and presenting their longleaf-related work is exciting, and I can't wait to see this how this group engages in the longleaf community in the future.

Huge kudos to the entire Longleaf Alliance Team and our local hosts for all the collective work that went into creating a fantastic experience for everyone. I especially want to thank Sarah Crate, our conference coordinator, for her work over the

past year in planning a memorable event, and Karen Brown, our conference field trip coordinator, for orchestrating two half-day opportunities. Congratulations on a job well done!

I was blown away by the many presenters and exhibitors featured. We are lucky to have such smart and innovative people working within the longleaf community, and we appreciate you all sharing your insightful work with us. Learning from our partners' experiences is so important in increasing the effectiveness of our own longleaf efforts.

The opportunities for networking with colleagues and friends were numerous, and attendees had the chance to reconnect with folks they have known for years and become acquainted with the new faces in the room. Our community is expanding, and I loved seeing so many people attending for the first time. These folks bring diverse perspectives and ideas to the table that challenge and update how we approach longleaf awareness, restoration, and management.

I can't begin to express how grateful our Longleaf Alliance team is for the time each of you took to be with us for the conference week. The energy and buzz during the plenary sessions, breaks, meals, field trips, and concurrent sessions give me confidence in the continued dedication to restoring and managing this great Southern Forest system. The topics discussed during the speaker sessions are already spurring collaborative project development that will potentially impact our work going forward. We've learned how to stay connected in a virtual space now, but nothing beats being able to meet in person and have meaningful conversations about the challenges and opportunities facing the future of longleaf.

I, for one, left Wilmington energized and on a longleaf high, and I could also see that excitement in others! Let's keep the momentum building and push it out to our home areas and into the work we all do for longleaf.

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MANAGEMENT CHECKLIST | WINTER 2023

PLANTING LONGLEAF

+ **Site-Prep Burns:** Sometimes, it is important to conduct a site prep burn before planting longleaf. Site prep burns can remove logging slash, lead to better planting jobs, stimulate early growth by increasing available nutrients, and decrease hot spots that may kill young seedlings in subsequent burns. On deep sands or sites with little logging slash, site-prep burns may not be needed; fuel can be saved until the first or second-year burn.

+ **Plant Early:** Early planting is almost always better than late planting to take advantage of the winter precipitation and maximize survival. With containerized seedlings, proper planting depth is the most critical factor for success.

GRASSTAGE STANDS

+ **Check Survival:** Evaluate young stands to determine one-year survival and ensure adequate stocking. Wait until after the first frost when the grass stage longleaf is more easily seen.

+ **First Burn:** Late December through the end of winter is an excellent time to introduce fire in young, healthy longleaf stands to help control unwanted pine seedlings and other competition.

SAPLING & MATURE STANDS

+ **Prescribed Fire:** Winter is also a prime time to conduct fuel reduction burns in mature or sapling stands but use caution (or wait) when burning in drought-stressed stands. If reintroducing fire into a long-unburned stand, remember to monitor duff moisture to guide when to burn, and be ready to do immediate mop-up.

+ **Prune Longleaf:** In some stands that lack fuels or have a low stocking rate, mechanical pruning may be an option to avoid the “Old Field” growth form. Winter is the easiest time to prune, and it should be finished before the spring green-up. Pruning may not be practical in a large stand.

+ **Timber Thinning:** Take advantage of dry conditions and thin when the bark is less prone to slipping to minimize equipment damage to your stand. Thinnings later in the year may knock off patches of bark when the sap is rising, leading to stress, beetles, loss, etc.

CONTROL COMPETITION

+ **Herbicide Treatments:** Basal bark and stem injection herbicide treatments are typically most effective at controlling unwanted or invasive trees and shrubs during the dormant season.

+ **Mechanical Brush Management:** It may be easier to reduce heavy shrub layers during the cooler months. Allow time to dry down the slash and follow up later with a growing season burn.

GROUNDCOVER & WILDLIFE

+ **Plant Native Warm-Season Grasses:** Later winter through early spring is the recommended time to plant our native understory species. Some plants require a cold-stratification period and need to be planted earlier.

+ **Install Nest Boxes:** If you want more natural pest control agents like kestrels and owls on your property, install boxes early, as these are among the species that begin nesting in winter.

WALK THE “LINE”

Now is an excellent time to inspect your property lines and freshen up boundary line markings. Take advantage of the cooler weather and greater visibility in the winter woods.

Reach out to The Longleaf Alliance with any longleaf management questions at longleafalliance.org/contact.

Photo by Lisa Lord



Q&A



Virtual Longleaf Foundations will be offered again in 2023!
Please check longleafalliance.org/upcoming-events for details.

Q. Dear Longleaf Alliance,
I enrolled in your Longleaf Foundations Academy to learn how to best approach my first longleaf restoration planting. My challenge is with 80 acres of cutover loblolly plantation in eastern North Carolina that I want to convert back to longleaf. I was planning to "spray, burn, plant" starting this summer, so I want to be sure I understand the decisions and timing between herbicide application and burning.

In the Site Prep Webinar within the Foundations Academy, you described a more longleaf groundcover-friendly approach.

In that specific example, you chose to "hold off" on the site prep burn after the herbicide application.

Does "hold off" mean there was no site prep burn or just a delay? If a delay, for how long, and what is the benefit of holding off this burn?

Thanks for the helpful webinar!
Learning about the Flatwoods

A. Dear Learning,
Although site prep burns typically follow a couple of months after herbicide treatment, we want people to consider their own situation and objectives rather than the norm. With a good understanding of the tract before it was cut, you have a strong predictor of what your primary challenge(s) will be in restoration.

Select your chemical approach (herbicides/rates/timing) to reach your objectives. No standard "recipe" fits all sites. Much of the work contractors do is for intensive plantation establishment, intended to concentrate the site's productivity on the tree crop, to the detriment of the other forest components. When we eliminate the native groundcover, we may prepare the way for the most aggressive pioneer weed species to invade while also losing our best source of fuels for future prescribed fire.

In the example you asked about, we highlighted the work by Nathan Klaus and the Georgia Department of Natural Resources to retain and enhance native longleaf ecosystem habitats. Knowing that different herbicide prescriptions lead to vastly differing results, they tested a prescription designed to preserve native grass and herbaceous diversity on the site. In their management, they rely upon prescribed fire to enhance this site as it develops rather than taking an herbicide-intensive approach. Their

goal is to start burning as early as possible so they conserve their fuels for when prescribed fire can be most effective. In this case, they waited until their trees were one-year-old seedlings, all still in the grass stage but vigorous enough to withstand the initial dormant season burn treatment.

Like the Georgia example, one of the main reasons people sometimes forgo a site prep burn is to save fuels for a better burn to control competition after their seedlings are established. This is common when converting a former loblolly stand back to longleaf or when a longleaf planting is surrounded by loblolly stands that produce a lot of wind-blown seed. Wild loblolly recruits are one of the most aggressive competitors for longleaf seedlings in the grass stage. In these situations, be aware that loblolly germinates in the spring, not the fall; its seed or tiny seedlings may be overlooked when the site prep prescription is made or missed by subsequent herbicide treatment.

The good news is that young loblolly is susceptible to fire if you can burn early – before they reach 6 feet tall. Because loblolly initiates height immediately, that means planning a first burn as soon as the longleaf seedlings are vigorous grass stage seedlings, after one year's growth but before age three. Further delays mean the invading loblolly are likely too tall to control with fire alone. To successfully burn in that window requires fuels, and after a clearcut, most of the fire will be carried by grasses.

In conversion or restoration, we should also consider the harvesting job itself as part of the regeneration treatments. Ideally, the cutover tract was cleanly harvested and left with very few areas of concentrated limbs and heavy debris that would ignite and burn for a long time during a prescribed fire. The best loggers use a pack it in/pack it out approach – each time they pull a load of timber to the landing, they return to the woods with a grapple load of limbs and scatter them on their way to pick up their next load. But if you are left with heavy residual fuels, you would be better off trying to burn off as much of that as you can before planting. While vigorous grass stage longleaf pines are resilient to low intensity, fast-moving fire, smoldering slash can cause mortality.

We hope this helps to answer your question, but let's talk again if you want help fine-tuning your site prep plans.

Sincerely,
The Longleaf Alliance

Promoting native habitats in the southeastern United States



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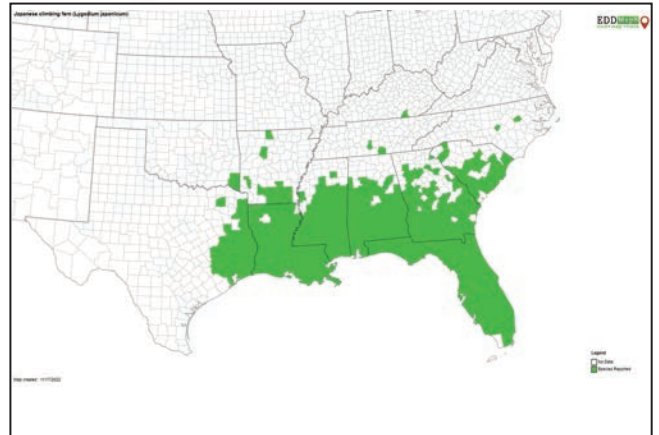
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Top Left: Ellis Martin and Roy O. Martin, Sr.
Bottom: Brittany Ray - Harvest Technician, Employee since 2015

PLANT SPOTLIGHT

Lygodium japonicum (Thunberg) Swartz
Japanese climbing fern

Invasives



Description

A perennial fern that climbs and twines around herbs, shrubs, and trees reaching lengths up to 100 feet.

This sporangia fern has two different leaflets depending on the age and location on the vine. The lobes are either long and segmented or rounded and close together, ranging from a vibrant lime green to a deep forest green color.

Distribution

Native to eastern Asia (including Korea, India, eastern Australia, and Taiwan), Japanese climbing fern is found worldwide and considered invasive in South and North America, Mexico, Africa, and Hawaii. It prefers temperate to tropical zones.

SPREAD

Japanese climbing fern spreads aboveground through spores and belowground through rhizomes, doubling its survival rate. However, the spores are only active in the fall. Any disturbance to the vine during the spring season will release hundreds of thousands of spores into the habitat to grow new vines.

LONGLEAF IMPACTS

This invasive fern is found across most of the longleaf range causing significant damage to both the understory and overstory. Per its name, the vine climbs up trees and large shrubs, creating dense, tangled masses that shade out the tops of the trees. It also overtakes the groundcover, eliminating

native plants and animals from the ecosystem. The gopher tortoise and the Red-cockaded Woodpecker are two significant species affected by this invading fern, destroying habitat and diminishing food supplies.

TREATMENT

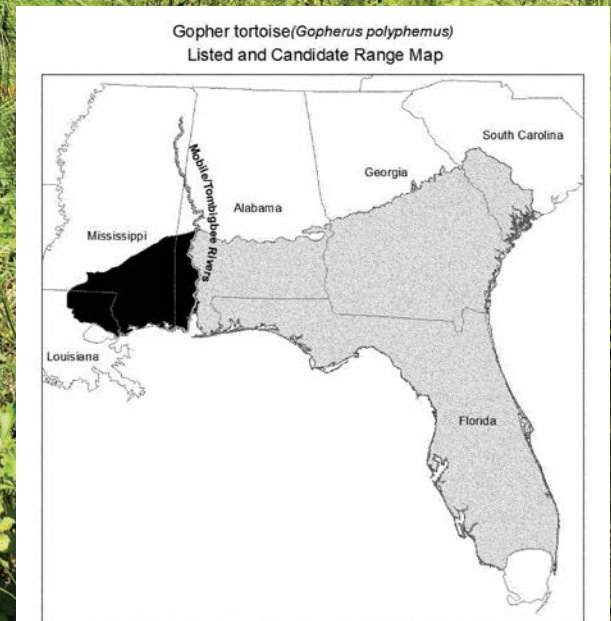
Don't lose hope – there are management practices and treatments to help stop the spread! The first is to be preventative. Avoid disturbing known infestations in the fall during its sporing season, and speak to your local city mowing crews about doing the same. Be sure to clean off any contaminated equipment or clothing before exiting the site. The next step is using chemical treatment. Herbicide application is the number one way to ensure the eradication of this invasive species. Glyphosate or triclopyr are effective. Always consult with a professional on mixed solutions or attend a herbicide class at your local extension office.

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WINDOW *into* WILDLIFE

By Peter Stangel, Chief Operating Officer, U.S. Endowment for Forestry and Communities, Inc., and Troy Ettl, Executive Director, Turner Foundation, Inc.



THE DECISION NOT TO LIST THE GOPHER TORTOISE WAS NO COINCIDENCE

Forest owners in Florida, Georgia, South Carolina, and eastern Alabama breathed a sigh of relief in October when the U.S. Fish and Wildlife Service (USFWS) ruled that the eastern population segment of the gopher tortoise did not warrant listing as Threatened or Endangered under the Federal Endangered Species Act (ESA). Had a listing occurred, forest owners would have been subject to regulations that impact forest management and harvest.

The decision not to list was no coincidence. It was largely due to collaborations that clarified the number and distribution of tortoises and implemented conservation practices to benefit tortoises and their habitats. Many entities, including the USFWS, deserve credit for this positive outcome. Forest owners were essential members of many of these collaborations.

An Iconic Species

The football-sized gopher tortoise inhabits dry, upland habitats such as longleaf pine sandhills and pine flatwoods. They use shovel-like feet to excavate burrows in well-drained, sandy soils. Burrows can be 40' long and 10' deep and provide habitat for more than 300 other species. Tortoises may live to be 60 years old. Periodic fire, such as prescribed burns, is necessary to maintain open, sunny spots where tortoises nest and to maintain their preferred plant foods. Gopher tortoises are declining throughout their range due to development, habitat alteration, and other factors.

Two distinct populations of gopher tortoises. The segment west of the Mobile and Tombigbee Rivers was listed as federally threatened in 1987. The larger eastern segment is protected by state designations. Map by U.S. Fish and Wildlife Service.

Authorities recognize two distinct population segments of gopher tortoises. The western segment -- Louisiana, Mississippi, and western Alabama -- was listed as federally threatened in 1987 and remains so today. The eastern segment -- South Carolina, Georgia, Florida, and eastern Alabama -- has been on the "candidate" list, meaning that USFWS was considering proposing them as Endangered or Threatened under the ESA. Some states also provide legal protection to tortoises.

Tortoises and Forestry

The gopher tortoise's range overlaps with productive forest lands. Certain types of active forest management are compatible with -- and necessary -- to help maintain the reptile's desired habitat conditions. For example, forest thinning enhances tortoise habitat, and prescribed fire is essential in maintaining it. Some practices, such as densely stocked forests that limit sunlight on the ground, and intensive site prep that disrupts native plant growth, are detrimental. But, with compromises, gopher tortoises and forestry co-exist.

Stewardship of gopher tortoises and their habitats is a badge of honor for many forest owners. The USDA Natural Resources Conservation Service (NRCS) Working Lands for Wildlife initiative features the gopher tortoise as a "win-win" for agricultural and forest productivity that enhances wildlife on working lands. NRCS offers landowners cost-share programs to restore and maintain tortoise habitat.



Photos by Lisa Lord

be actively managed, providing wood and fiber for local mills. Forest owners are benefitting through voluntary conservation easements. Partners in South Carolina, Florida, and western Alabama made similar contributions.

What's Next?

We think the decision not to list the eastern population of gopher tortoises is a win. Others, such as the Center for Biological Diversity, disagree. There is no question that continued diligence and conservation is needed to address the many challenges that tortoises still face.

Conservation biology is about species and their habitats. While individual gopher tortoises may be lost, implementation of inclusive,

science- and data-driven plans means that the eastern population of gopher tortoises is secure, at least for now.

Collaborations create trust among diverse entities. Having tasted success with the gopher tortoise, partners will be more willing to collaborate on future challenges. Not every natural resource issue will have the science, financing, and leadership necessary to achieve the positive outcomes that the gopher tortoise collaborations have. When these factors align, however, collaborations can achieve desirable outcomes for natural resources and people.

Additional Resources

- U.S. Fish and Wildlife Service. 11 October 2022. U.S. Fish and Wildlife Service Completes Gopher Tortoise Review: Eastern Portion of the Species' Range Does Not Currently Meet Criteria for Listing Under the Endangered Species Act. <https://www.fws.gov/press-release/2022-10/us-fish-and-wildlife-service-completes-gopher-tortoise-review>.
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A version of this story previously appeared in the October 24, 2022 issue of Tree Frog Forestry News. (treefrogcreative.ca/the-decision-not-to-list-the-gopher-tortoise-was-no-coincidence-2/)

Gopher Tortoise Economics

Federally endangered tortoises on private forests, ranches, and farms could impact revenue and property value. For fast-growing southern states eager to attract new business, avoiding new federal regulations was a strong incentive for proactive conservation on behalf of tortoises and their habitat.

The Department of Defense also had a strong incentive to conserve tortoises. Some military bases provide habitat for gopher tortoises. Endangered species can impact military readiness by impeding testing and training, which could, in turn, impact local economies.

Forest Owners Helped Clarify Tortoise Status

The USFWS decision not to list the eastern population was partially the result of better understanding the tortoise numbers and distribution on private lands. For example, through the National Alliance of Forest Owner's Wildlife Conservation Initiative, member companies provided access to millions of acres of private working forests for research and population inventories. The Forest Landowner's Association credits the USFWS for seeking broader inclusion of private landowners, including multi-generational forest owners, in assessing the tortoise's status. Conservation Without Conflict continuously promoted the merits of science-based, data-driven decisions and voluntary, rather than regulatory, approaches.

Conservation in Action

The USFWS decision also depended on measurable, permanent outcomes for tortoise conservation. For example, in Georgia, a science-driven plan supported by public/private partnerships resulted in 29 populations of tortoises and their habitats being newly protected. In Georgia alone, more than 105,000 acres of land have been conserved; 80,000 acres are newly open to the public for recreation. These forests are permanently protected from conversion to other uses. They will

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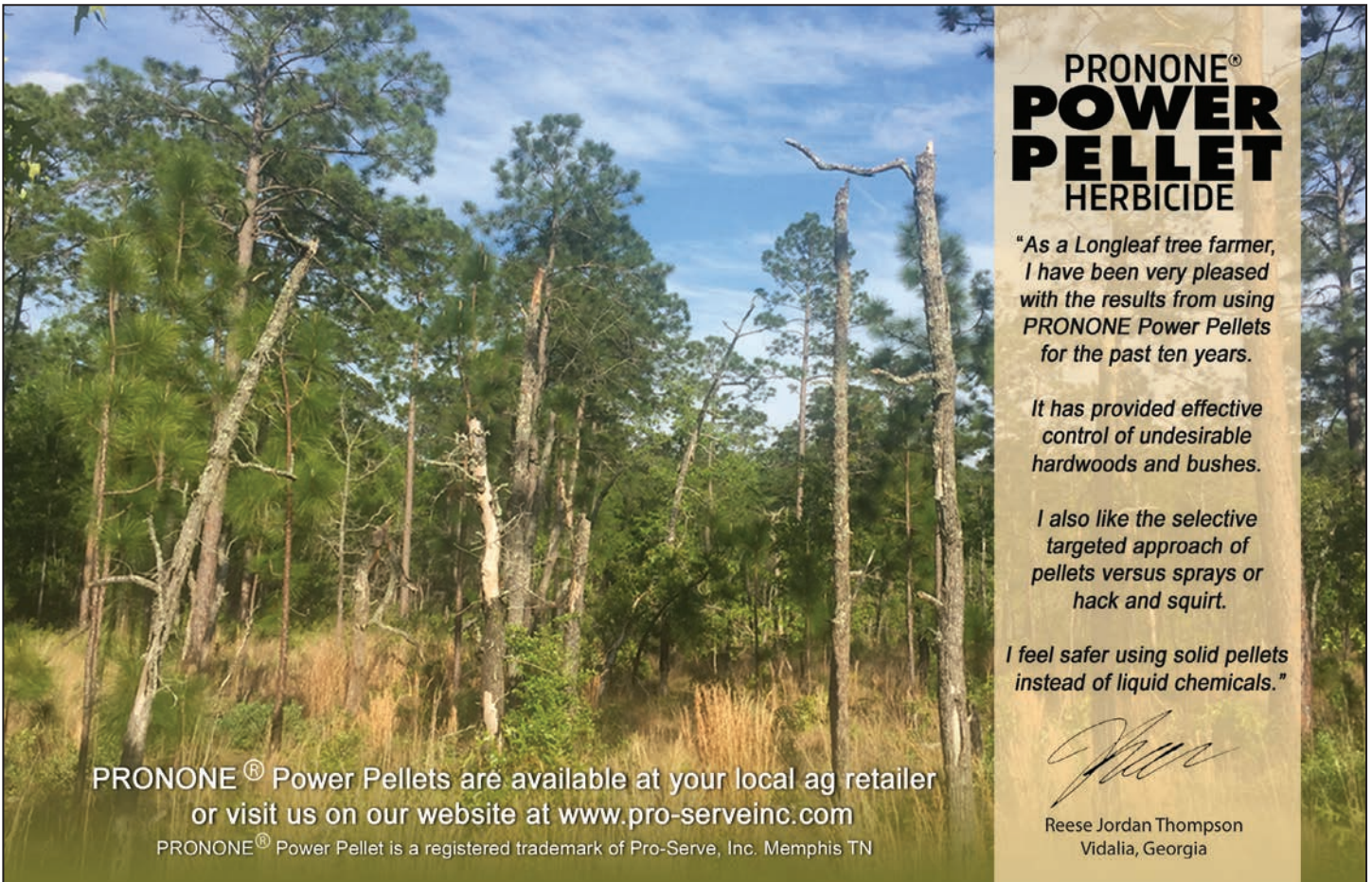
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SENTINEL LANDSCAPES MARRY DEFENSE AND CONSERVATION while Creating Opportunities for Landowners

By Jen Howard, Steward Terra Communications

Active land management is a matter of national security. That's the simple premise behind the Sentinel Landscapes Partnerships program that unites seemingly unlikely bedfellows from the Department of Defense, The Longleaf Alliance, and a host of other state and federal agencies to "strengthen military readiness, preserve natural resources, protect critical habitat, and enhance America's working lands."

What could appear to be disparate interests, the Sentinel Landscapes program brings together organizations that thrive on open spaces, particularly those threatened by the encroachment of residential and commercial development.

"What we have come to realize is that well-maintained training areas look a lot like well-maintained habitat. It only makes sense that the Department of Defense would work with its neighbors to ensure that military installations do not become islands of conservation among fragmented habitats. That's the challenge of the Sentinel Landscape program – to provide a unity of effort in the 'spaces between the bases' to create a true landscape effect," said LTC (ret.) Ken Bradley, Georgia Sentinel Landscape Coordinator.

Many of the nation's southeastern installations were established before or shortly after the Second World War when the Department of Defense focused on activities contained within its fenced boundaries. Due to technological advances, those training activities can now have impacts beyond the fence, including sound, light, and low-flying helicopters. Additionally, the passage of time coupled with active forest management means that installations often boast an oasis of mature, well-managed timber, habitats attractive to threatened and endangered species. Because the required management for listed species is the same on installations as it is off, the presence of species such as the Red-cockaded Woodpecker or indigo snake can encumber training and impact military readiness, increasing the need for continuity of habitats adjoining the base. While expanding the installation footprint through property acquisition or voluntary conservation easements can be part of the solution, the Sentinel Landscape program has incentives at the ready to encourage private landowners to take an active role in managing their property.



Photo courtesy of Bryan Whitmore, Fort Stewart, DPW, ENRD, Forestry Branch.

GEORGIA SENTINEL LANDSCAPE

Georgia is home to nine military installations touching more than 60 counties from Augusta to Savannah, south to Florida, and west to Alabama. As part of a prescribed fire pilot project initiated in 2020 and a partnership between the Department of Defense and the Natural Resources Conservation Service, The Longleaf Alliance received funds to increase the number of acres burned by removing common barriers that discourage landowners from burning – education, equipment, and funding. Also, last year, the Georgia Sentinel Landscape (GSL) was awarded more than \$2 million from USDA Natural Resources Conservation Service (NRCS) Regional Conservation Partnership Program (RCPP). These funds were combined with an additional \$2.2 million in partner contributions from the Georgia Conservancy.

Education

Carrying a drip torch while stringing fire can be intimidating to even the most experienced land manager. That's why Learn & Burn workshops enable landowners to gain valuable hands-on experience and knowledge in ignition techniques, fire safety, and smoke management concerns. The workshops also allow attendees the opportunity to connect with fellow neighbors implementing prescribed burning as a land management tool.

Equipment

For landowners who only burn periodically, investing in high-quality equipment to facilitate a burn may not make financial sense. The Georgia Forestry Commission and local Resource, Conservation, and Development Councils (RC&Ds) offer seven burn trailers for rent across the Georgia

Sentinel Landscape. Each trailer is fully stocked with equipment a landowner might need to conduct a safe prescribed burn on their property, such as drip torches, hard hats, and fire rakes. These mobile units make prescribed burning more cost-efficient and give landowners access to high-quality equipment.

Landowner Incentives

Even with education and the right equipment, prescribed burning still comes at a cost. The Georgia Sentinel Landscape offers funding to help landowners use fire as a tool. Landowners within the Sentinel Landscape counties can apply for the competitive funding that ranks applications with an emphasis on longleaf ecosystem health, gopher tortoise and quail habitat, and proximity to military installations.

Since the Georgia Sentinel Landscape was established four years ago, partners have collectively enrolled and protected 151,000 acres in the program. Since 2020, The Longleaf Alliance has provided cost-share funding for 24,723 acres of prescribed burning in the GSL.

NORTHWEST FLORIDA SENTINEL LANDSCAPE

The Longleaf Alliance is also excited to partner with the newly established Northwest Florida Sentinel Landscape (NWFSL). The 16-county NWFSL spans the Florida Panhandle. It is home to six of the nation's most important Air Force and Naval Air installations and ranges. Since being federally designated in March 2022, NWFSL partners have provided over \$18 million to protect nearly 8,500 acres. NWFSL partners have also worked with private landowners



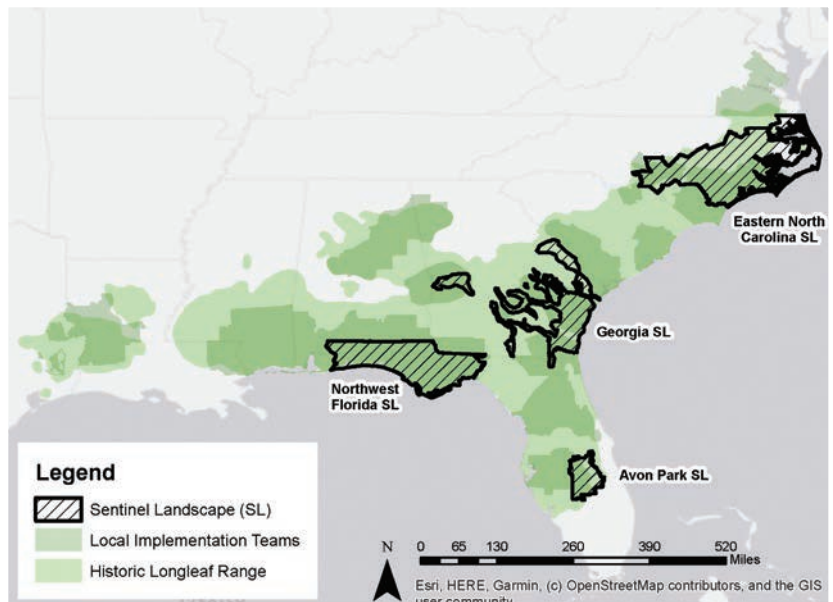
Sentinel: a soldier or guard whose job is to stand and keep watch

Photos courtesy of Fort Benning, NRM

to develop forest management plans for over 24,000 acres to conserve wildlife habitat, retain working forest and agricultural lands, and protect the missions of military installations.

Within the NWFSL, the Gulf Coastal Plain Ecosystem Partnership (GCPEP) is a key champion for protecting military training flight paths around Naval Air Station Whiting Field from development. To date, the Navy, Santa Rosa County, State of Florida, and other partners have spent nearly \$40 million to protect over 13,000 acres between NAS Whiting Field and Blackwater River State Forest and buffering the base. Most of these lands are now managed by the Florida Forest Service as part of Blackwater River State Forest.

“GCPEP and the Apalachicola Regional Stewardship Alliance (ARSA) are key partnerships within the Northwest Florida Sentinel Landscape,” said Kent Wimmer, Senior Representative for Defenders of Wildlife and Coordinator for the Northwest Florida Sentinel Landscape. “These partnerships are essential for restoring habitats, getting fire on the ground, and controlling exotic invasives across our landscape. Through this federal Sentinel Landscape designation, we are helping our partners better understand where priorities overlap so they may develop and submit collaborative proposals and keep up to date on the many conservation initiatives being pursued across the Panhandle. We look forward to supporting our partners’ projects and achieving mutual conservation objectives.”



The Longleaf Alliance is a partner in both Georgia Sentinel Landscape and the newly established Northwest Florida Sentinel Landscape. The Eastern North Carolina Sentinel Landscape also prioritizes longleaf management, and the Avon Park Air Force Range Sentinel Landscape is part of the newly established Heartland Longleaf Local Implementation Team in Central Florida. A South Carolina Sentinel Landscape, the Lowcountry Sentinel Landscape, is under consideration.



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GCPEP staff assist with restoration of Florida bog frog habitat. The burn piles are the result of mechanical removal of overgrown woody species. This is a series of restoration steps to promote herbaceous species growth and assist with regulating the seepage hydrology of bogs in the small floodplain of the seepage stream. Photo by Kaiden Spurlock.

The Longleaf Alliance (TLA) made significant progress toward our mission to ensure a sustainable future for longleaf pine ecosystems in 2022. From Texas to Virginia, Alliance staff assisted landowners and partners with longleaf establishment, prescribed fire, habitat restoration, at-risk species conservation, mapping, outreach, and more.

TLA programs continue to follow our GUIDE-ing framework to achieve key strategic longleaf objectives. The Alliance's G.U.I.D.E. acronym (Growing - Understanding - Improving - Diverse - Ecosystems) identifies our key strategic longleaf objectives.

All in all, it was a very full year for The Longleaf Alliance and our partners. We are proud to share with you some of our successes.

GROWING — We raise awareness, increase engagement, and grow a love for longleaf across the range.

In addition to exposing the general public to the story of longleaf pine, we also teach those same folks about how the benefits of “good fire” can have a significant impact on the landscape. The need for effective prescribed fire outreach and education is critical as more people are living and working in the wildland/urban interface.

2022 brought the in-person return of many public outreach festivals focusing on prescribed fire, including Party for the

Pine and Fire in the Pines in North Carolina and the second annual Savannah River Fire Festival in Georgia. Combined with other festivals focusing on longleaf, forestry, and wildlife, The Alliance festival exhibits reached almost 50,000 people.

The *Getting Started with Prescribed Fire on Private Lands* video, produced in partnership with the Georgia Department of Natural Resources, combines landowner testimonials with technical resources and reached over 10,000 people on various social media platforms in 2022.

Burner Bob® the Bobwhite Quail, TLA's iconic mascot promoting the benefits of prescribed fire, had a very busy year, attending more than ten in-person events and releasing his newest outreach materials - *A Walk in the Woods with Burner Bob® & Friends* video and *Save the Indigo* coloring book.

UNDERSTANDING — We collect and share technical information about longleaf through science-based education, outreach, and technical assistance through methods best for each audience.

In addition to hosting the 14th Biennial Longleaf Conference in Wilmington, North Carolina in the fall, Alliance staff kept very full calendars all year with more than 350 technical assists to landowners and partners and reaching more than 2,500 people through workshops, field days, learn and burns, webinars, and academies.



A



MORNING BREAK

B



C

A. Invasive Species Coordinator Emma McKee treats cogongrass in Florida. Alliance field teams treated over 3,000 acres of invasive species in 2022. Photo courtesy of Florida Power and Light.

B. Susan French and Burner Bob® promoted the Savannah River Fire Festival on the local news in April.

C. Gopher tortoise release day. TLA partners with University of Georgia Savannah River Ecology Lab to head-start gopher tortoises. Eggs are collected for rearing, and one-year-old tortoises are released the following year. Photo by Lisa Lord.

Longleaf Academy Program

In 2022, the Longleaf Academy Program continued offering both virtual and in-person learning opportunities. Virtual Longleaf Foundations, a condensed introductory course similar to Longleaf 101, was offered all year; participants completed online modules at their own pace with the opportunity to join “Ask the Alliance” live sessions throughout the year. With support from our partners, TLA staff offered four in-person Academy sessions, including Longleaf 101, Fire 201, Herbicide 201, and Groundcover 201 field day.

The Owen Fellowship

The Owen Fellowship of The Longleaf Alliance aims to advance longleaf pine research through a graduate student scholarship award. Recipients participate in the Biennial Longleaf Conference and contribute to The Longleaf Leader. In 2022, the inaugural Owen Fellowship was awarded to Kelly Petersen, Ph.D. Student in Ecology at the University of Georgia, to support her work on longleaf pine genetic diversity. As a two-year award, the application period for the 2024-2025 Fellowship will be announced in April 2023. Thanks to the generosity of Bill Owen, the second round of The Owen Fellowship will provide a \$20,000 scholarship award, paid in two annual installments.

IMPROVING FOREST HEALTH — Through active stewardship, we improve the condition of longleaf ecosystems across the range.

Longleaf Tree Improvement

In July, The Alliance convened a summit of longleaf tree improvement specialists from every sector, including federal, state, and private perspectives, as well as the leaders of each of the three university-led cooperatives (North Carolina State University, University of Florida, and Texas A&M University). Of the roughly 100 million longleaf seedlings produced annually, only about one-quarter have any degree of genetic improvement. Some existing orchards and seed production areas are vulnerable to age, declining health, and storm damage; many are not managed. Through this gathering, participants were energized to move forward in improving the quality and quantity of seed for future longleaf restoration.

Gulf Coastal Plain Ecosystem Partnership Landscape

The Gulf Coastal Plain Ecosystem Partnership (GCPEP) gathered on May 25th to celebrate its 25th Anniversary at the Bear Lake Pavilion of Blackwater River State Forest, the exact location of the first GCPEP gathering in 1997. Close to 100 people, both past and present partners, were joined by friends



Texas Forests and Water Forum, Nacogdoches, TX. Photo by Lisa Lord.

from the Longleaf Partnership Council to mark this significant milestone and to reflect on all of the restoration accomplished in this landscape effort.

The Alliance is proud of the GCPEP field teams' hard work to support the stewardship of the landscape. The EST (Ecosystem Support Team), WEST (Wetland Ecosystem Support Team), and the AMBBIS (reticulated flatwoods salamander) team continued to assist partners with prescribed fire, invasive species control, wetland restoration, reticulated flatwood salamander head-starting, Red-cockaded Woodpecker cavities, and other habitat improvement activities in Alabama and Florida.

DIVERSE FORESTS CONSERVED — We work with landowners to ensure the future of longleaf by conserving high-quality, diverse longleaf forests across generations.

Forests and Water

Two-thirds of the freshwater in the United States comes from forested watersheds. Forest landowners are essential to supporting healthy watersheds and our drinking water.

In South Carolina and Georgia, The Longleaf Alliance partners with the Southeastern Partnership for Forests and Water, the Savannah River Clean Water Fund, and the Georgia and South Carolina Forestry Commissions. In 2022, this partnership released the Savannah River Watershed Conservation Priority Index (CPI) Map, identifying conservation areas of greatest importance for clean drinking water in the lower

Savannah River, helping move toward the Fund's goal of retaining 60% of forest cover.

Expanding this work to the western longleaf range, The Longleaf Alliance, with partners from the Texas Longleaf Team, Southeastern Partnership for Forests and Water, Texas Partnership for Forests and Water, and several others, hosted the Texas Forests and Water Forum in Nacogdoches, TX. Over 90 people attended, and it was an excellent opportunity to expose new audiences, including representatives from the conservation, forestry, corporate, and regulatory sectors, to the work of The Alliance and connect healthy, well-managed longleaf forests and source water protection.

ECOSYSTEMS RESTORED — Through advocacy, policies, assistance, partners, and our own management actions, we facilitate the expansion of longleaf ecosystems across the range.

The Longleaf Alliance, working in collaboration with restoration partners, supported the planting of 8 million longleaf pine seedlings in fiscal year 2022. Planting projects were completed on both private and public land, with funding from Arbor Day, Enviva, National Forest Foundation, National Fish & Wildlife Foundation, One Tree Planted, U.S. Fish and Wildlife Service (USFWS) Partners Program, USFWS Tyndall Air Force Base, and TLA donor funds. We also continued our tree planting program with Appalachian Mountain Brewing and Georgia-Pacific's Aria® brand.





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REKINDLING OUR CONNECTIONS

In October, The Alliance hosted the 14th Biennial Longleaf Conference in Wilmington, North Carolina, with a sold-out crowd of longleaf enthusiasts in attendance. More than 350 registrants representing 16 states joined us to “rekindle our connections,” including 33 undergraduate and graduate students (a record-setting student attendance for an in-person Longleaf Conference). The chance to come together was made possible by a great team of Alliance and event staff, as well as the numerous Conference supporters, speakers, and attendees.



1. The Longleaf Alliance team. Photo by LuAnn Craighton.
2. Attendees enjoying the Awards Luncheon with music by Abigail Dowd. Photo by Samantha Dillon.
3. Participants at Hike and Hoop, one of the partner sponsored events, look for Venus flytraps at Carolina Beach State Park. Photo by Kevina Casaletto.
4. Wildflowers blooming at the Orton-Sprunt property. Photo by Casey White.
5. The conference is always a great time to network and catch up with both old and new friends. Photo by Emma McKee.
6. Botanical Paper Sculpting by Cynthia Woodsong. Photo by Wendy J. Ledbetter.
7. Field tour stop at Orton-Sprunt in Brunswick County, NC. Photo by Samantha Dillon.
8. Over 20 posters were exhibited at the conference. Photo by Emma McKee.
9. Burner Bob® enjoying the view of the Cape Fear River and Battleship North Carolina from the Hotel Ballast. Photo by Kaiden Spurlock.
10. Thank you to the 99 speakers, moderators, and poster presenters that contributed to an excellent and informative Conference program. Photo by Emma McKee.
11. The interactive Longleaf Pine Tour of Wilmington encouraged conference-goers to explore the nearby sights, including the Stanley Rehder Carnivorous Plant Garden. Photo by Bennett Tucker.
12. The silent auction offered many unique longleaf-related items and some exciting bidding battles. Photo by Kaiden Spurlock.

14th Biennial Longleaf Conference

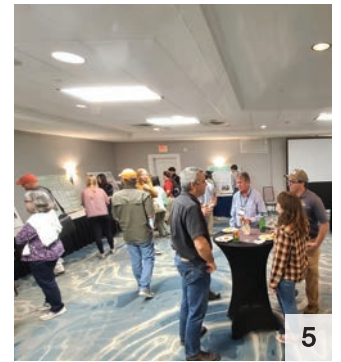


Photo by Jessica Williams

THE COSTS AND BENEFITS OF GROWING LARGER LONGLEAF PINE

By Arun Regmi^a and John L. Willis^b

Timber management is an important objective for many landowners. From an economic perspective, shortening timber rotation length is often the best strategy for maximizing profitability. This basic principle has driven decades of research into genetics, herbicides, fertilization, and silvicultural practices, with the common goal of accelerating tree growth. Collectively, these efforts accelerated the development of intensive pine silviculture which transformed the southeastern United States into the preeminent softwood producer in North America.

Yet, for all its economic efficiency, intensive pine silviculture has its drawbacks. One of the primary concerns is a reduction in wood quality, as faster-growing trees produce lower wood density, a higher proportion of juvenile wood, and fewer growth rings at a given age than trees grown in natural stands. Another potential concern is the loss of large, mature trees from the landscape. The loss of these trees is ecologically important, as they provide habitat for the Red-cockaded Woodpecker and contribute to carbon sequestration efforts. Consequently, landowners with multiple objectives are often interested in management alternatives to intensive pine silviculture but are leery of the financial impact of deviating from standard practices.

To explore the cost of growing large, mature trees, researchers at Mississippi State University and the USDA Forest Service Southern Research Station collaborated on a project simulating the growth and economic performance of longleaf pine in even-aged silvicultural systems. Specifically, the study examined the

cost of extending timber rotations 10, 20, and 30 years beyond the conventional financial rotation age across a range of site quality, assuming a three percent discount rate.

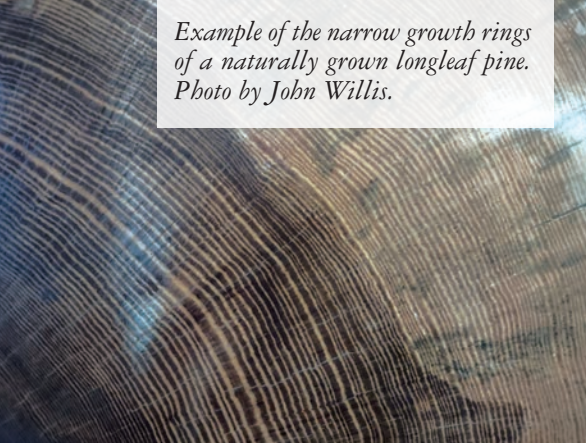
The economic cost of extending the final harvest beyond the conventional financial rotation age increased with time and was greatest on high-quality sites. For example, results indicate that landowners would require an additional \$3.24 per ton to offset costs associated with extending the final harvest ten years beyond the optimal rotation age on high-quality sites. Extending the final harvest 30 years beyond the conventional financial rotation age on high-quality sites required an additional \$17.21 per ton. In contrast, extending the final harvest for the

same length of time on a low-quality site would incur an additional \$3.14 and \$16.59 per ton, respectively (see Regmi et al., 2022a).

While the negative impacts of extending the rotation length on revenue are evident, it is important to recognize that the results of our study were based solely on income derived from the sale of pulp and sawtimber. Longleaf pine provides landowners several alternative revenue streams that can help offset costs associated with extending the timber rotation. For instance, many public agencies offer landowners financial assistance for establishing longleaf pine stands. Many of these same agencies also offer financial and professional assistance with prescribed burning. Collectively, these incentives can help offset the impact of extending the timber rotation by reducing management costs.

Our research found that the optimal rotation age for longleaf pine ranged from 44 years on high-quality sites, 50 years on medium-quality sites, and 55 years on low-quality sites.

Example of the narrow growth rings of a naturally grown longleaf pine. Photo by John Willis.



Example of the wide growth rings of plantation grown southern pine. Photo by John Willis.



Table 1: Land Expectation Value (LEV), cost of rotation extension, and annual value added from alternative revenue sources for growing larger longleaf pine on an extended rotation age on medium productivity site at 5% interest rate.

| 1. Timber management | Conventional | 10-year | 20-year | 30-year |
|----------------------------------------|--------------|--------------|--------------|---------------|
| Rotation | 21*, 31*, 46 | 56 | 66 | 76 |
| LEV (\$/ac) | 97.40 | 37.42 | -53.17 | -121.54 |
| Periodic cost (\$/ac) | | -59.98 | -150.57 | -218.94 |
| Annual Cost (\$/ac/year) | | -3.21 | -7.84 | -11.22 |
| 2. Pine Straw raking ^a | | | | |
| LEV (\$/ac) | 958.61 | 916.65 | 892.66 | 878.55 |
| Annual value added (\$/ac/year) | 53.61 | 49.02 | 46.49 | 45.03 |
| 3. Hunting lease selling ^b | | | | |
| LEV (\$/ac) | 110.80 | 124.34 | 132.07 | 136.63 |
| Annual value added (\$/ac/year) | 6.20 | 6.65 | 6.88 | 7.00 |

Note: *Thinning years. ^aRevenue from pine straw raking was assumed to occur annually from 10 years until the first thinning (average \$150/ac/year). ^bRevenue from hunting lease start at the age of 22 until the final harvest (average \$20/ac/year). Definition: Land Expectation Value (LEV): Present value (discounted) of all revenues and costs associated with growing timber on bare land for perpetuity.

Landowners can also earn income from the lucrative pine straw market or by leasing land for hunting. Results simulated on a medium-quality site demonstrate the additional income obtained from harvesting pine straw more than offsets losses incurred by extending the timber rotation (Table 1). Revenue earned through hunting leases was also sufficient to cover the costs of extending the timber rotation and provide a viable option for landowners who are hesitant to rake straw or in areas lacking strong straw markets (Table 1). Furthermore, landowners might receive a premium price for higher-quality timber products grown on a longer rotation age. A survey of softwood sawmills across the southeastern United States found that some were willing to pay up to \$12/ton premium for higher-quality sawlogs grown on an extended rotation age (see Regmi et al., 2022b). Landowners growing larger, mature trees may also gain access to the utility pole market, where high-quality individual trees can be sold at a 30-50% premium above sawtimber. Finally, growing timber on a longer rotation may improve the financial opportunities associated with developing carbon markets and other ecosystem services.

Intensive pine silviculture has provided an efficient method for producing sawtimber. However, this method often comes at the expense of other ecosystem services that many landowners value. Extending timber rotations beyond the conventional financial rotation age will negatively impact

income streams derived only from pulp and sawtimber products. However, landowners looking to balance timber income with ecosystem services have several options to offset the economic inefficiencies created by growing large, mature trees. Thus, economic and restoration goals may be situationally more compatible than previously believed.

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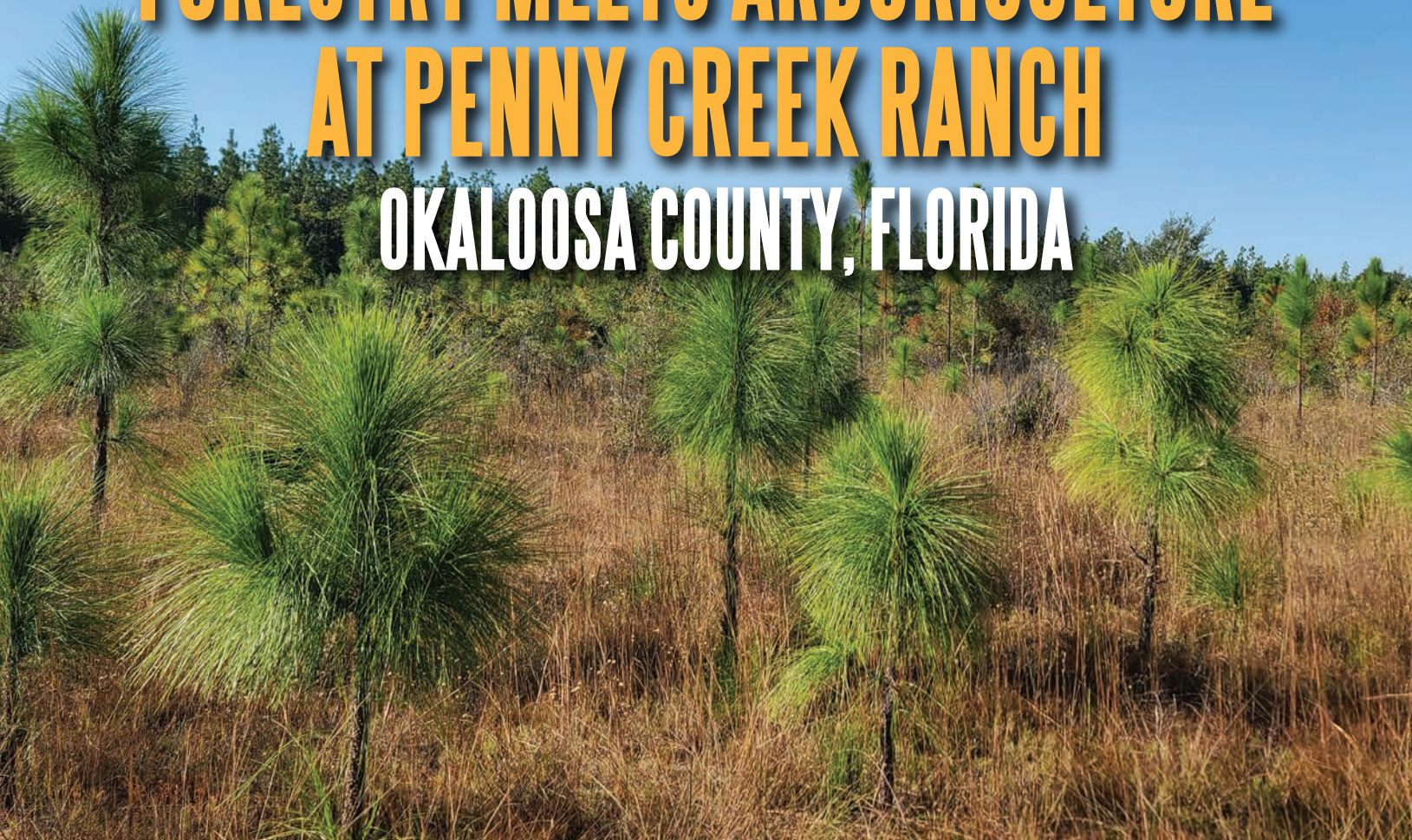
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^a Department of Ecosystem Science and Management, Penn State University, University Park, PA, USA

^b Southern Research Station, USDA Forest Service, Auburn, AL, USA

By Emma McKee, *The Longleaf Alliance*

FORESTRY MEETS ARBORICULTURE AT PENNY CREEK RANCH OKALOOSA COUNTY, FLORIDA



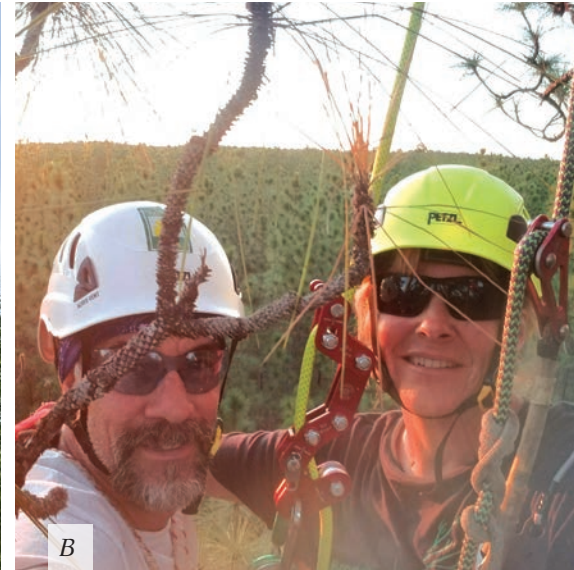
The panhandle of Florida is well renowned for its emerald coast waters and white sandy beaches. That is until you go about an hour or two north, where the landscape changes from whites and blues to browns and greens. There you will find the largest contiguous longleaf pine ecosystem, Blackwater River State Forest. Surrounding the state-protected lands are private landowners enthusiastic about growing the old forest further. One of these is Penny Creek Ranch, a 60-acre piece of longleaf owned by Rob and Alicia Calley.

Rob Calley, owner and founder of Backridge Tree Service and a board-certified master arborist, comes from a timber family where proper land management is a livelihood. He and his wife Alicia began expressing interest in becoming longleaf landowners in 2014, having spent many years taking their children into the Blackwater River State Forest for camping, swimming, hiking, and fishing. They wanted a place to call home close to the Forest that held such wonderful memories and where the family could continue to enjoy

the great outdoors for generations to come. They came across a small 30-acre parcel that had been clearcut of longleaf in 2014. Perfect, they thought, as they wanted to start from the bare ground and watch their management practice flourish as the years went by.

By 2015 Alicia and her daughter, Emma McKee, had attended The Longleaf Alliance's Longleaf 101 Academy at Florida's Coldwater Gardens, where they gathered a wealth of information about land management in the longleaf pine ecosystem. This was not the only benefit to form, though. They met Ad Platt, TLA's Vice President of Operations, along with other outreach and training specialists. This led to learning about land management assistance programs and personnel available for networking and resources.

Rob and Alicia were introduced to the Natural Resources Conservation Service's (NRCS) Environmental Quality Incentives Program (EQIP) as an option for funding and assisting land management and restoration. Through this



Family involvement is a big deal at Penny Creek Ranch.

A. The Calley family poses with the longleaf pine tree dedicated to late Mike "Grampy" Dockery, Alicia's father.

B. Owners, Rob and Alicia, climb a longleaf pine with a view over Blackwater River State Park.

C. Rob and daughter Emma finish hand-clearing midstory brush to determine the size of a cogongrass infestation. Emma now works as TLA's Invasive Species Coordinator.

program, they have established close relationships with wildlife biologists and other management personnel who have helped write management plans, guide chemical and mechanical treatments, and fund their first prescribed burn. In 2019, the Calleys hired a private prescribed fire contractor company to burn the entire 30-acre property.

Through EQIP, they contacted Florida Fish and Wildlife Conservation Commission (FWC) biologist Don Buchanan to determine what wildlife and vegetation they had on-site to guide their land management practices. As they made that first walk through Penny Creek Ranch, Buchanan noted, "Be

cautious of the many gopher tortoise burrows and grass stage longleaf scattered throughout. You have amazing regeneration on this property and a higher chance of success being adjacent to Blackwater River State Forest, which has mature, seeding trees surrounding the entire east end of your property." His observations gave Rob and Alicia the hope they needed to restore the barren property to a flourishing longleaf pine ecosystem.

Buchanan's land management report recommended the Calleys cut trails and designate management blocks. The site was split into 10 quadrants to focus management practices

on specific areas and support the native wildlife throughout the year. One area is used as a “no- manage zone” dedicated to keeping the thick foliage, mainly for the native birds and insects.

From there, the property’s accomplishments continued to stack up:

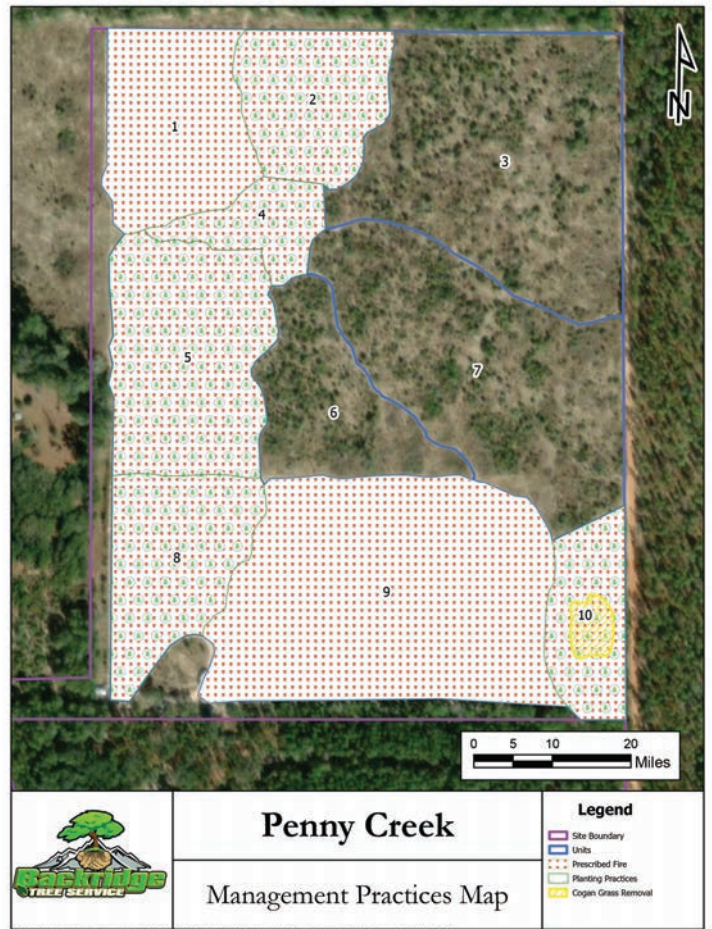
- **Invasives species:** Their first task was to address a cogongrass problem. With advice from Buchanan and other training resources from UF/IFAS Extension office, the Calleys formed and implemented a treatment plan. They used hand saws to remove the midstory growth and determine the infestation area, followed by multiple chemical treatments.
- **Prescribed fire:** Rob and Alicia attended a Learn and Burn workshop with Tall Timbers and The Alliance, building confidence to continue prescribed fire management on their own following the contractor burn in 2019. They attempted a prescribed burn with family help in the “Blakes quadrant” in 2020.
- **Midstory control:** After their experience using a hand saw in the cogongrass treatment area, the Calleys purchased a brush cutter and a mowing deck that attaches to a skid steer to expand their midstory work and promote groundcover across the property.
- **Double the acreage:** In 2020, an additional 30 acres of 20-year-old longleaf was purchased.

“Forestry meets arboriculture” is one of the backbone sayings that drive Rob, certified master arborist, and Alicia, certified arborist, to spend their weekends on the land. They use their background to inform their work – structural pruning of co-dominate longleaf tops, reducing weight to mitigate curvature, and watching out for pests such as the sawfly. The Calleys are selective when removing hardwoods, keeping in mind which trees are native but will also not crowd out grass stage longleaf. They tend to keep turkey oaks, chinquapin, persimmons, white/red oak, blue jack oak, tall blueberry, and sparkleberry to support a diversity of native animals. Wildlife on the property is abundant and thriving, including fox squirrel, turkey, Bobwhite Quail, kestrels, hawks, many native birds, pocket gopher, gopher tortoise, and numerous snakes. Since restoration

efforts began, they have seen a significant increase in native flowers and grasses due to hardwood management and prescribed burning. What once was thick midstory brush is now longleaf with beautiful understory as far as the eye can see.

Rob and Alicia utilize their platform as tree business owners to spread the word about The Longleaf Alliance and EQIP programs that could help their clients’ land management needs. On average, the master arborist sees eight clients a day and, where applicable, always mentions these services.

Rob and Alicia always say, “We may never get to see the old maturity of this baby pine, but we will have seen its strength and struggle to get there.”



In the future, they would love to host land tours with a focus on land management from the ground up, invasives treatment, the importance of networking, and tree health. Also, they are interested in offering chainsaw safety training along with proper pruning techniques for longleaf pines and hardwoods.

Family involvement is a big deal at Penny Creek Ranch. Every family member has their “own” designated longleaf tree, earned after completing some form of management practice on the land. One daughter wrote her senior research paper about the property, another cleared a quarter acre of thick shrubs, and their son helped build the fire breaks/trails and split unwanted hardwoods into firewood.

The owners firmly believe in “reduce, reuse, and repurpose.” The unwanted cut brush and timber are used for firewood, making garden beds, mulch, and whittling spoons or other small utensils. These practices are taught to all family members in hopes of being the foundation of a generation-to-generation legacy of land use and management practices.

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Notes from the LPC

By Carol Denbof, *The Longleaf Alliance, Longleaf Partnership Council Chair*

As I assume the Longleaf Partnership Council (LPC) Chair position for 2023, I'd first like to acknowledge the leadership that has come before me and thank Colette DeGarady for laying the groundwork for this year. Ensuring commitment from our federal partners and developing the next iteration of the Range-Wide Conservation Plan are necessary for the continued success of this landscape-level collaboration.

I would also like to thank all the members of the LPC – past, current, and new members – for your willingness to share your time, energy, and passion with this team. Strong partnerships and relationships are foundational to the success of our collective longleaf efforts across the region, and the strength of America's Longleaf depends on our ability to collaborate. This quote from Helen Keller summarizes the importance of working together - "Alone we can do so little, together we can do so much." Because we all come from different places (both geographies and objectives), we can bring together our unique skillsets, resources, perspectives, and connections to maximize accomplishments across the range.

This year, the LPC will build upon the progress made since its establishment by continuing the work fundamental to our shared longleaf restoration goals. This is done by the extensive network of landowners and professionals operating across the longleaf range to restore, manage, and conserve the working forests of the longleaf ecosystem. The importance of our teams in making a difference on the ground cannot be overstated. We now have 18 Local Implementation Teams (LIT) scattered across nine states, and the local relationships within these areas help make the work happen. Each LIT is different, with various needs and objectives based on the partners and landscape, but all are working in their own way to scale up longleaf restoration and conservation.

A top priority for the coming year will be setting a path for the future of America's Longleaf. Through the outcomes of the

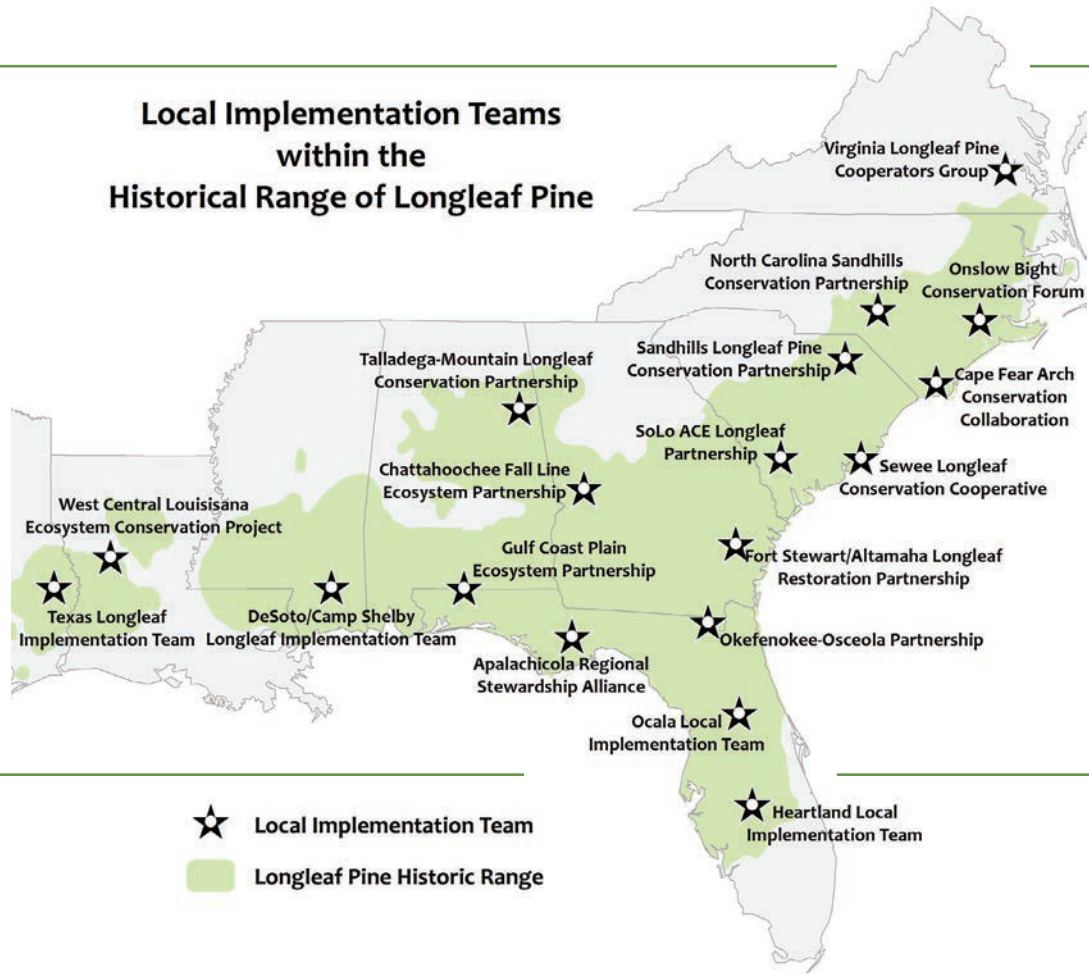


Longleaf Partnership Council meeting in conjunction with the 14th Biennial Longleaf Conference. Photo by Stephanie Hertz.

Southeast Longleaf Ecosystem Occurrences Geodatabase (SE LEO), Southeast Firemap, Forest Inventory Analysis (FIA), and other spatial analyses of the region, we now have a better understanding of where and what condition longleaf forests are in on the landscape. These tools allow the LPC to be strategic in our priority actions as we update the next iteration of the Conservation Plan. In December, a diverse Conservation Plan Writing Team gathered at the Solon Dixon Forestry Education Center to assess key strategies, identify any stumbling blocks, and dive into updating this important planning document.

It's an exciting time for longleaf pine and America's Longleaf. We know there are challenges ahead that we must address to ensure the long-term sustainability of this ecosystem, but these are outweighed by the opportunities we are beginning to tap into as a group. There is much to be done, but it gives me confidence to learn about the innovative ways we are now approaching the work of longleaf restoration and to experience the energy in the longleaf community for continuing and growing this effort.

**Local Implementation Teams
within the
Historical Range of Longleaf Pine**



★ Local Implementation Team
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Fire in the Pines Festival 2022

By Michelle Ly, *The Nature Conservancy North Carolina*



Photos courtesy of Alan Craddick and National Fish and Wildlife Foundation

On October 8, 2022, the Fire in the Pines Festival (FIP) was hosted at Halyburton Park in Wilmington, North Carolina, in-person for the first time in two years! The Festival was a huge success, with over 1,700 attendees visiting the park throughout the day. This community event included 33 local environmental organizations, food trucks, face painting, an interpretive hayride through the park, birds of prey, reptiles, jugglers, live music, and a controlled burn demonstration! The burn area is located in front of Halyburton Park, so visitors can revisit the burn after the Festival and see firsthand the benefits of fire. Prior to the festival day, the FIP Team also hosted educational field trips for two elementary schools in New Hanover County. These field trips provide a closer look at the relationship between the longleaf ecosystem and fire. Since the COVID-19 pandemic, the Fire in the Pines Festival has expanded beyond the festival

day to include a variety of activities both in person and remotely. The activities range from guided plant hikes, bird hikes, carnivorous bog workshops, scavenger hunts, and photo contests. The diversity of these small events aims to target different audiences and provide a more intimate platform for conversations around the benefits of prescribed fire.

Festival partners include The Nature Conservancy NC, NC Coastal Land Trust, NC Forest Service, and the City of Wilmington's Park and Recreation Department. The Moore Charitable Foundation, International Paper, and the National Fish and Wildlife Foundation support the Festival.

The Nature Conservancy Restores Army Compatible Use Buffer Lands in Louisiana to Longleaf Forest

By Will DeGravelles, *The Nature Conservancy*



Taken just after a prescribed burn in Feb. 2022, TNC's Bailey Road Tract of its Fort Polk Buffer properties under the ACUB program is already planted to longleaf with regular prescribed burning underway. Photo courtesy of TNC.

Under the Army Compatible Use Buffer (ACUB) Program, The Nature Conservancy (TNC) in Louisiana and the U.S. Department of Defense began working together in 2007 to conserve longleaf pine and associated natural communities. By 2015, TNC owned over 1,500 acres of inholdings and lands adjacent to Kisatchie National Forest and Fort Polk in Vernon Parish. The protection and conservation-oriented management of these lands serve multiple beneficial purposes, including wildlife habitat and aiding military readiness through buffering of undeveloped lands adjacent to active military training areas. Presently, upland areas consist primarily of loblolly pine plantations typical of the region, but desired future conditions of these upland forests are based on the habitat requirements of the Red-cockaded Woodpecker. Though Hurricane Laura caused significant damage to the riparian forests of these lands in 2020, upland areas – having not yet been thinned – were mostly spared damage. TNC recently signed a timber harvest contract to conduct first and second thinnings on several stands over the coming years. These thinnings will jump-start active restoration phases on the plantation sites by increasing tree spacing and providing conditions conducive to reintroducing regular prescribed fire and groundcover development thereafter. Regeneration harvests 5-7 years following thinning will set the stage for longleaf pine underplanting. However, loblolly 'reserves' will be retained in the overstory for RCW foraging and nesting long into the future. With frequent prescribed fire, these woodlands will provide quality habitat not just to RCWs, but to an array of native flora and fauna of the longleaf ecosystem.

Broxton Rocks Preserve – Advancing Restoration & a Future for Forest Certification

By Erick Brown, Director of Stewardship, The Nature Conservancy Georgia



Left: Underplanted longleaf in a loblolly stand at Broxton Rocks. Right: Recent harvest to be underplanted with longleaf in 2023-24. Photos by Erick Brown.

has over 24,000 acres of protected lands that provide habitat for a number of rare animal and endemic plant species such as the federally threatened eastern indigo snake, gopher tortoise, Georgia plume and cutleaf beardtongue.

The Mill Creek Tract, like so many other tracts recently protected, is a mix of stand types mostly dominated by off-site species like loblolly and slash pines and will be rolled into the effort to restore the Preserve to longleaf pine woodlands. About one year prior to acquisition, ~125 acres of the tract were clearcut and replanted to loblolly pine. With the financial support of many partner organizations, including NFWF, Arbor Day Foundation, and The Georgia Ornithological Society, we immediately treated the area with the targeted application of selective herbicide. We then conducted a prescribed fire to remove the young loblolly pine and replanted the site in longleaf.

The TNC prescribed fire team has maintained a 2.5-year fire return interval at the Preserve over the past 10 years, including over 1,000 acres of prescribed fire at the core Rocky Creek Tract last year. The efforts to create a frequently burned, open pine woodland seemed to pay off in May. A local botany field trip (which happened to include several birders) observed and recorded a Red-cockaded Woodpecker (RCW) foraging in one of the older slash pine plantations being gradually restored to longleaf. The closest known population of RCWs is at Moody Forest Natural Area ~30 miles away. Unfortunately, we do not know the fate of this lone bird and cannot confirm a resident population. However, we are greatly encouraged to see such a positive indicator of the success of our restoration efforts.

Longleaf Partner Named Conservationist of the Year

By Charles Babb, South Carolina Sandhills Longleaf Pine Conservation Partnership Coordinator



Chesterfield SWCD Chairman Roger Smith (right) presents the Conservationist of the Year award to Pat and M.B. Godbold and family members, pictured standing with SLPCP Coordinator Charles Babb. Photo by Susan Griggs.

Patricia and M. B. Godbold, owners of “The Pond Farmstead,” were recently honored as Conservationists of the Year by the Chesterfield Soil and Water Conservation District. Their 100-acre property in Cash, South Carolina, is managed as a mixture of mature and newly established longleaf pine with an emphasis on improving wildlife and understory habitat for pollinators. The Godbolds have been cooperating with the Sandhills Longleaf Pine Conservation Partnership (SLPCP) since 2015, when they expressed the idea of using their forestland to produce a habitat for honeybees raised by their daughter, Layne Rogerson.

Old stands of longleaf at The Pond have been thinned and had fire introduced, along with understory plantings of native vegetation. Artificial nest cavities were installed for Red-cockaded Woodpeckers, with the first successful hatch this year. Off-site pines were removed and replaced with longleaf seedlings after using selective herbicides to protect native wiregrass during site preparation activities. Riparian buffers are being protected and managed for cavity-dwelling species, amphibians, and a lone pitcher plant that emerged along the wetland.

The Godbolds are exceedingly gracious in allowing their property to be used as an educational center for others to learn about various topics. Events for students, Natural Resources Conservation Service employees, Longleaf Alliance Academies, and other groups who wish to learn about the possibilities of forestland use other than timber production have been held. This place and this family are a blessing to all who have worked there.

SoLoACE Partnership Provides Educational Workshops

By Jennie Haskell, *The Longleaf Alliance*



Photo by Jennie Haskell

Clemson Extension and The Longleaf Alliance hosted a series of three workshops for landowners and land managers last summer within the South Lowcountry – ACE Basin (SoLoACE) Longleaf Partnership landscape. The workshops provided information on managing the longleaf ecosystem while covering a variety of information in several locations.

The first session included presentations from the Natural Resources Conservation Service (NRCS) on financial incentives, The Longleaf Alliance (TLA) on water protection, and the South Carolina Forestry Commission (SCFC) on best management practices. Kenyetta Render with NRCS described how to apply for the Environmental Quality Improvement Program (EQUIP) and the Conservation Stewardship Program (CSP) and which activities can be included in a plan. Lisa Lord from TLA outlined the benefits of protecting water quality. Andrew Williams with SCFC explained the necessity of following South Carolina's best management practices to reduce erosion and soil compactions during forest management activities.

The second session included presentations from Dan Peebles from South Carolina Department of Natural Resources and Linda Lee from University of Georgia's Savannah River Ecology Laboratory to discuss wildlife management and identifying native plants. The field tour on Good Hope Plantation, in Jasper County, SC, demonstrated various forest management treatments to achieve their objectives of providing excellent quail habitat and a sustainable flow of timber products. The property supports several Red-cockaded Woodpecker clusters whose

habitat benefits from selective harvesting and prescribed fire. Participants on the field tour observed the change in understory vegetation following the recent timber harvest which promoted numerous grasses and forbs.

Collaboration Leads to Greater Accomplishments within the Sewee Longleaf Conservation Cooperative

By Tripp Gaskin, *USDA Forest Service*



Photo courtesy of U. S. Forest Service

The last few years have brought many challenges to longleaf restoration efforts on the Francis Marion National Forest. The COVID-19 pandemic, pandemic-related timber sale contract extensions, aviation contracting issues, extreme western fire seasons, a national prescribed fire pause for the U.S. Forest Service, and a southern pine beetle outbreak have all challenged the Francis Marion's efforts forcing us to adapt our management strategies.

Despite these challenges, there were significant achievements on the Francis Marion National Forest in fiscal year 2022 with help from partners within the Sewee Longleaf Conservation Cooperative (SLCC). There were 22,500 acres of prescribed fire completed, including 17 first-entry burns and 43 acres burned under Wyden agreements. Wyden agreements allow the U.S. Forest Service to enter into cooperative agreements with landowners to burn their property, allowing for more

effective prescribed fire operations benefitting both the National Forest and the private landowner.

The Francis Marion also partnered with the Santee Experimental Forest to conduct a watershed study evaluating the hydrological effects of converting a watershed from loblolly pine to longleaf pine dominance. The timber sale for this project was completed in 2022 in coordination with the South Carolina Forestry Commission through a Good Neighbor Agreement. The longleaf pine planting is scheduled for winter 2022-2023 and will total 206 acres.

Longleaf Partners Gather in Mississippi



Left: Young gopher tortoises with The Nature Conservancy's head-starting program in MS. Photo by Cody Pepe. Right: Alex Harvey, Registered Forester, and President of DefineMyLegacy, shares the developing management plans to improve and interpret longleaf stands on Camp Iti Kana. Photo by Ad Platt.

Mississippi, near Bond, MS. The event was supported by Alliance staff Carol Denhof, Cody Pope, and Ad Platt in partnership with Enviva to highlight how partnership efforts can work on high conservation value conversion sites.

The Mississippi Longleaf Implementation Team held its membership meeting in October with 60 people attending. A field trip to longleaf pine restoration sites at Camp Shelby added a key element to the restoration discussions. The tour also included a visit to The Nature Conservancy in Mississippi's successful Gopher Tortoise Head Start facility.

In November, some 32 partners and landowners attended a longleaf field day at Camp Iti Kana, Girl Scouts Council of Greater

Pensacola & Perdido Bays Estuary Program Management Plan Completed

By Vernon Compton, The Longleaf Alliance, with excerpts from PPBEP Management Plan Public Release



Blackwater River winding through Blackwater River State Forest. Photo by Vernon Compton.

In October 2022, The Pensacola & Perdido Bays Estuary Program (PPBEP) completed its first-ever Comprehensive Conservation and Management Plan (CCMP) for the Pensacola and Perdido Bay Watersheds. PPBEP's CCMP – A Prescription for Healthy Bays – is intended to serve as a guide for implementing monitoring, research, reporting, restoration, education and outreach, and policy priorities that enhance the community's quality of life and economic prosperity while improving the health and sustainability of the Pensacola and Perdido Bay Watersheds. The CCMP recommends priority actions developed in partnership with community stakeholders to address stressors that impair water. The identified actions are important steps to restoring land and water while maintaining a balance between humans and nature. The Action Plan includes goals of conserving and restoring critical habitat and restoring and conserving fish and wildlife, with longleaf pine forests identified as one of the priority habitats.

"Environmental stewardship is critical to our quality of life and economy along the Gulf Coast. Having the CCMP in place establishes a blueprint for forming partnerships and leveraging resources to create long-lasting improvements to the health and resilience of our estuaries and communities," said Robert Bender, Chairman of the Pensacola & Perdido Bays Estuary Program Policy Board.

"On behalf of the Estuary Program, we wish to thank all of our stakeholders and staff who have put in an incredible amount of work to produce this CCMP. Having the CCMP in place positions our communities to take advantage of unprecedented funding opportunities to address long-standing water quality impairments and habitat degradation. The work is just beginning, but we have a bright future ahead," said Matt Posner, Executive Director of the Pensacola & Perdido Bays Estuary Program.

The Gulf Coastal Plain Ecosystem Partnership (GCPEP) Director Vernon Compton commended the PPBEP for the plan's development and applauded the goals and actions focusing on aquatic and upland natural communities. GCPEP partners have long recognized the vital role of longleaf forests in protecting water quality. Their continued management and restoration actions are helping to move the needle with improving water quality in the landscape.

The CCMP is available on the Estuary Program website at www.ppbep.org/the-plan/ccmp.

Investigating Natural Occurrence of Longleaf Pine on the Eastern Shore of Virginia

By Phil Sheridan and Chase Howard, Virginia Longleaf Pine Cooperators, and Tom Eberhardt, USDA Forest Service Forest Products Laboratory



Historical range of longleaf pine in Virginia.
Map courtesy of Arvind Bhuta.

Some range maps of the natural occurrence of longleaf pine (*Pinus palustris*) include the Eastern Shore of Virginia. The Eastern Shore occurrence of longleaf pine is supported by a 1925 herbarium needle specimen from Accomack County, VA, a first-hand report by botanist Harold Moldenke, and less persuasive and ambiguous naval store place names. However, no native longleaf pine is known to occur on the Eastern Shore, no living botanist has seen any native longleaf pine in this area, and botanists and ecologists debate whether longleaf pine was native at this location. We compared needle length of the Moldenke longleaf pine specimen to a data set of Virginia longleaf pine and the Moldenke needle specimen falls within the Virginia data range. We also went to Accomack County, VA in March 2020 to the area of the herbarium specimen collection. We discovered a newspaper article that this site was “1800 acres of the finest old-growth pine on the Eastern Shore.” We also found turpentine stumps and a single dead skeletal pine specimen that we were able to positively identify as longleaf pine with the Koehler method. Therefore, the native occurrence of longleaf pine on the Eastern Shore is supported not only by Moldenke’s notes and his herbarium specimen, but by an actual skeletal specimen. Further, the historic newspaper account of an old-growth pine forest is precisely the refugia where we would expect remnant longleaf pine to have persisted in Virginia.

Protecting Clasping Warea (*Warea amplexifolia*)

By Rachel Townsend, Alachua Conservation Trust



Left: Clasping warea plant removed from pot prior to being outplanted. Photo by Rachel Townsend. Right: Volunteers established irrigation lines in preparation for planting. Photo by Rachel Alexander.

Alachua Conservation Trust natural resources interns recently assisted on an exciting multi-agency project. Organized by Cheryl Peterson at Bok Tower, a small group of nature lovers came together to plant the federally endangered *Warea amplexifolia* (clasping warea) on St. Johns River Water Management District property. Along with the help of the Florida Forest Service and Florida Fish and Wildlife Conservation Commission volunteers, we established irrigation lines and outplanted over 100 *Warea* plants. We all know the phrases “it takes a village” and “many hands make light work,” but land management truly leans on the efforts of one another to accomplish mutual goals.

Clasping warea is endemic to Florida and has only been known to grow on the northern third of the Lake Wales Ridge. Due to the annual wildflower’s sensitivity and the degradation of xeric sandhills in the region, it has found itself on the federally endangered list. One of the causes of these declining populations is a lack of fire on the landscape. Sandhills are a pyrogenic natural community, meaning they depend upon fire to thrive: the longleaf pine overstory, diverse herbaceous understory, and the multitude of wildlife from gopher tortoise to Bobwhite Quail all require regular fire to maintain their equilibrium. Despite a lack of fire, whether due to a decrease in proper weather parameters, an increase in smoke-sensitive areas, or a need for additional resources, there is still hope for restoring groundcover species with the seedbank they’ve left behind.

To learn more about reestablishing the precarious species, please see boktowergardens.org/blog/conserving-clasping-warea-with-the-duke-energy-foundation.

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LONGLEAF *Art* SPOTLIGHT

Artist Lisa D. Watson

Field of Vision

By Wendy J. Ledbetter, *The Longleaf Alliance*

AVANT GARDENER, A CREATIVE EXPLORATION OF IMPERILED SPECIES

With great delight, I experienced *Avant Gardener, A Creative Exploration of Imperiled Species* by Lisa D. Watson at the Sulfur Studios in Savannah, Georgia in fall 2022. An ecological artist, Lisa shares her talent and artistic expression to communicate the need for balance between humans and nature. The art installation features the Southeast's endangered, threatened, and rare flora and fauna, including elements of the longleaf pine ecosystem, and serves to reflect on the human impacts on these resources.

Lisa's concern for natural resources translates further by using recycled objects and repurposing raw materials as part of her medium. Typical materials include layout board, poster board, discarded paper products, fiberboard, styrofoam, mesh, produce bag netting, cheesecloth, muslin, toile, batting, and cork. Since 1989, her daily practice of reducing waste and limiting consumption has included constructing her own frames from discarded wood and using remnant commercial and household paint.

The highlight of the installation is an impressive mural depicting a longleaf pine forest, including native shrubs, grasses, wildflowers, and pine regeneration. The species and habitat depicted are the result of Lisa's time in the field with local naturalists and resource professionals in southeastern Georgia. Many of these natural areas have benefitted from conservation practices like prescribed burning and reforestation conducted by the Fort Stewart/Altamaha Longleaf Conservation Partnership. Longleaf pine ecosystem enthusiasts will appreciate the diversity displayed in the mural. While Lisa noted one of her favorite species is the gopher tortoise, other favorites of the southern landscape, like the Venus

flytrap, sundews, and pitcher plants, are featured in the collection. Many of the individual works include the diverse pollinators that use or require native vegetation for their life cycles.

Lisa's commitment to the environment goes beyond her artwork. She is a popular presenter discussing pollinators, native plants, and thoughtful conservation planning. The livelihood of her own company, Plan It Green Design, LLC, includes consultation services on the use and installation of native species for gardens and landscaping in the Savannah area.

The *Avant Gardener* exhibition will be featured at additional venues in Georgia and South Carolina in 2023 and will be paired with a variety of nature-related activities and lectures for the public. The exhibition is accompanied by composer Eric Chasalow's *What Shade of Green is Our Horizon?*

Find Lisa online at www.art-ldw.com

Upcoming Exhibits

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Longleaf Destinations



Landmark Park: A Living History Museum and Park - Dothan, Alabama

By Laura Weber, Executive Director, Landmark Park/Alabama Agricultural Museum

Landmark Park, home to Alabama's Official Museum of Agriculture, is pleased to announce the installation of a brand-new exhibit depicting the longleaf pine ecosystem! Designed by Backstory Media and Kelton Designs, this interactive exhibit features live animals, taxidermy, a kid-sized gopher tortoise burrow, and interpretive panels that showcase the longleaf pine ecosystem.

The Park was fortunate to secure top exhibit designers Phil Ratliff and John Kelton to develop the project. Extensive research was completed, exploring the plants and animals that inhabit the longleaf pine forest. Clear and concise graphic panels explain the ecosystem's synergy, while live animals, taxidermy, and sculptures bring the designers' vision to life.

Live animals include a gopher tortoise, eastern indigo snake, corn snakes, aquatic turtles, and a legless lizard. A demonstration hive of honeybees will also be joining the exhibit in the spring of 2023.

Since the gopher tortoise plays such a key role in the longleaf ecosystem, the live gopher tortoise takes center stage at Landmark Park. Kids can crawl through the kid-sized gopher tortoise burrow and see how it feels to be a keystone species. Visitors will also learn about the importance of controlled burns in a longleaf forest.

After exploring the exhibit, visitors can make their way outside and enjoy the boardwalk and nature trails at Landmark Park. Landmark Park is a site on the Wiregrass Birding Trail, so birders will have an opportunity to see a variety of species.



A

B

C

D

A. The new exhibit includes an interpretive display on Alabama Landscapes. Photo by Phil Ratliff.

B. Park visitors Megan and Georgia Carter explore the gopher tortoise burrow exhibit. Photo by Bence Carter.

C. Peak into the “bidden” features of longleaf pine and what is happening belowground. Photo by Phil Ratliff.

D. Veteran’s Community Garden at Landmark Park.

This exhibit was made possible by funding obtained through the State of Alabama several years ago. Special thanks to retired Senator Harri Anne Smith and Senator Arthur Orr for contributing to this project. The Park has also recently rebuilt the playground, renovated the elevated boardwalk, designated a dog-friendly walking trail, developed a community garden for veterans, and added a bridal suite to the Stokes Activity Barn.

Landmark Park is a 150-acre living history museum and park located at 430 Landmark Dr. in Dothan, Alabama. It is home to an 1890s living history farmstead, Alabama Agricultural Museum, and many more recreational opportunities. The Park hosts approximately 50,000 visitors annually for field trips, special events, and regular visitation.

Admission is \$5 for adults, \$4 for kids, and free for members and children 2 and under. Landmark Park is a Blue Star

Museum, allowing active and retired military and up to five family members free admission from Memorial Day to Labor Day. The Park’s membership program allows guests to purchase a pass that is good for a full year.



Hours are Monday-Saturday, 9 a.m.-5 p.m., and Sunday, noon-5 p.m. For details on field trips, special events, venue rentals, and more, visit www.landmarkparkdothan.com or call 334.794.3452 or follow us on your favorite social media platforms.



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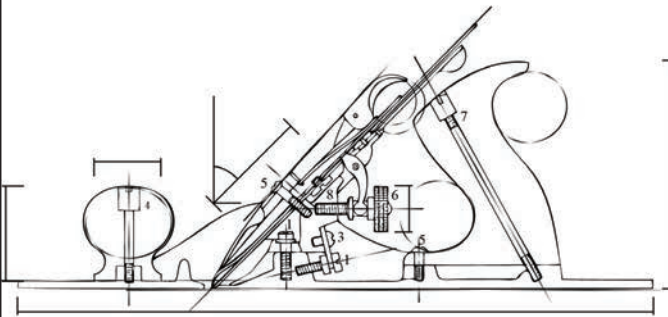
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By Rbett Johnson, Founder and President Emeritus of The Longleaf Alliance

A GRATEFUL TRIBUTE TO *Kenwood Nichols*

Only a few today can fully appreciate the role Kenwood (Ken) Nichols (1939-1922) played in The Longleaf Alliance and its subsequent success as an organization. In 1995-96, Dean Gjerstad and I were struggling to respond to the growing interest in the conservation and increase of both the quantity and quality of longleaf pine forests. We existed as an informal and unfunded project in the School of Forestry at Auburn University, where Dean and I were employed as faculty members. We began to discuss with our existing volunteer Advisory Committee the possibility of becoming an independent 501c3 corporation, an idea opposed by the then Dean of Forestry.

Ken, who was serving on the School of Forestry Board of Advisors after his retirement from the forest industry, was asked to join our Board with the stated objective to keep us in the Auburn fold. After two meetings, Ken switched allegiances, caught the longleaf bug, and became our strongest advocate for separating and creating a new organization. To that end, Dean and I spent hours at his Selma home and the Dixon Center hammering out a charter, bylaws, and policies for the still non-existent organization. The charter formalized the purpose and objectives of the organization, and the bylaws addressed the creation of a slate of officers, detailing their duties, terms, and how they would be chosen. In addition, the bylaws set similar standards for a Board of Directors (not Advisors) to direct the organization with the help of the officers and staff. Policies on funding



sources, acceptance of gifts, membership, and the seemingly endless details necessary for the sustainable operation of an NGO were debated and formulated. After considerable collaboration and alterations, Ken personally engaged at his expense a knowledgeable attorney he was acquainted with, and we successfully sought 501c3 status. Ken remained on the Board as a valuable contributor with only a one-year hiatus, as required in the bylaws, from the Board's inception until failing health caused him to resign in 2020.

Ken was profoundly hard of hearing and brought an array of hearing enhancements to Board meetings over the years. He usually did not participate in the lively give-and-take flow of ideas from our bright and involved Board, and I often wondered if he could hear and follow the discussions. Suddenly, he would clear his throat and ask if he could say something. Then he would proceed to not only synthesize all of the ideas presented previously, merge them into a coherent and insightful narrative, and finally outline a course of action that would result in general agreement. I learned that was his genius — he listened, contemplated, and rethought before he spoke. He was meticulous, unfailingly honest, modest and a tireless worker. Undoubtedly, those qualities are what made him successful in the forest industry and in business. I would suggest that The Longleaf Alliance has never had or will ever have a better or more dedicated friend. In fact, it may have never existed at all without him.

When Ken was 13 years old, his father gave him the use of 100 acres of marginal cropland and timberland that was part of the family farm in Dallas County, Alabama. Ken planted pine trees and managed the young stand, performing the planting, pruning, thinning, and harvesting. While active in the Future Farmers of America, he entered his timber stand in statewide forestry and agriculture competitions during each year of high school, finishing fourth, third, second, and finally, first in the state for his property management. During this time, he planted some 60,500 seedlings. His work earned him a scholarship to Auburn University, graduating in 1961 with a Bachelor of Science degree in Forest Management. After service in the Army, Ken entered Duke University, again on a scholarship, completing his studies in 1964 with a Master's degree in Forestry Business Management. Ken had an unparalleled work ethic and deeply respected the power of a good education.

Honoring the 2022 REGIONAL LONGLEAF AWARDEES

Thirteen individuals and organizations were recognized at the 14th Biennial Longleaf Conference for their contributions and unwavering dedication to longleaf restoration across the southeastern United States. Longleaf Alliance President Carol Denhof presented the awards at the Recognition & Awards Luncheon on October 26 in Wilmington, North Carolina.



DeSoto National Forest, accepted by Keith Coursey, Nathan Renick, Jay McClain, Antoine Bonner, & Stephanie Allison –
USDA Forest Service Team Achievement



Stephanie Hertz, Texas A&M Natural Resources Institute –
Bill Boyer Natural Resource Professional of the Year



Trip Chavis & Lamar Comalander, Milliken Advisors, Inc. – Palustris Corporate Achievement



Herbert Hodges & the Willie Hodges Estate Family Farm, Georgia –
Gjerstad/Johnson Landowner of the Year



Johnny Stowe, South Carolina Department of Natural Resources –
Burner Bob® Prescribed Fire Champion



Randy Browning, U.S. Fish and Wildlife – True Longleaf Champion



Dr. Martin Cipollini, Berry College – True Longleaf Champion



Julie Moore, retired U.S. Fish and Wildlife – True Longleaf Champion



Dr. Lytton J. Musselman, Old Dominion University – True Longleaf Champion



Working Lands for Wildlife Gopher Tortoise Initiative, accepted by Matthew Vandersande — Natural Resources Conservation Service Team Achievement



Michael Fuller, Military Ocean Terminal Sunny Point, North Carolina – Department of Defense Team Achievement



St. Marks National Wildlife Refuge, accepted by Logan Ridgeway & Dan Frisk – U.S. Fish and Wildlife Service Team Achievement



Bradley Brandt, Arbor Day Foundation – Non-Profit Conservation Partner Award



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“Our love of trees and being good stewards of the environment is a passion that has always connected us with the longleaf pine ecosystem. As we now look at the future with our daughter, we want to make sure this incredibly rich and diverse ecosystem is preserved and protected for future generation to enjoy. That’s why we are passionate about supporting The Longleaf Alliance and what they do to enhance, restore, and protect our longleaf pine forests.”

Patrick & Emma of North Carolina



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Photo by Lytton J. Musselman

WINTER REFLECTIONS ON THE TREE THAT BUILT TIDEWATER

By Dr. Lytton John Musselman, Old Dominion University

Winter is my favorite season to enjoy longleaf pine. Without leaves on other trees and shrubs, this pine seems to assume a stature consonant with its majesty and historical value. No ticks, chiggers, or mosquitos are other benefits of winter walks. This time of year, fire marks are more conspicuous in the scorched trunks of standing trees and on the charred remains of those shrubs – ecological interlopers – not adapted to fire.

Pine forests are famed for the lilting whispers that frame their presence on a summer day with even the slightest breeze, a sound so enticing that when motels first appeared, many were called Whispering Pines. The December day I visited the Blackwater Ecologic Preserve was drizzling, grey, and still. Extraneous sounds were muffled by the fog and the gentle, consistent dripping. Vibrant in their understated manner, mosses were green and decidedly happy. Many were producing capsules to open when the air dried so a breeze could distribute the spores. Hummocks of peat mosses covered low areas in uneven mounds with varied hues of green and pink where insect-eating pitcher plants once grew.

Trunks of longleaf were wet and dark. As I looked at most of the trees, probably hatched when Kennedy was president, I wondered how the Preserve appeared during the reign of Henry VIII when mammoth longleaf pines towered above the deep sandy soil. I imagined how spectacular these woods must have been but was brought back to the present, recalling Aldo Leopold's famous query of what a field of wild sunflowers looked like tickling buffalo bellies and deciding it was a question not to be asked. It was just too late, with too much of the original habitat gone. Fortunately, the longleaf has not suffered the same fate. At least, we can still find vestiges of its former glory even here at its northern limit.

Though a southern tree, which is the keystone species throughout much of the South, longleaf has a proclivity for winter weather. Seeds fall and begin to germinate in December, unlike any other native pines. Seedlings must establish themselves during the winter months if they are to see another season. With the arrival of summer's heat, the young pine resembles a grass plant (unique among all pines) and sends its tap root in search of water essential for survival.

Longleaf needs more than water to survive, however. When Europeans first arrived, the park-like forests of longleaf greeted

them in much of Tidewater Virginia. To their delight, the tall trees with long boles (the distance from the ground to the first branch) made excellent masts for sailing ships. Resin and tar were derived from tree sap, producing material once so essential in the maritime industry that these products are still called naval stores. Though there were many sites where these naval stores were extracted, few remain. "Turpentine" has gone the way of the Santa Fe *Chief* and rational political discourse. Little appreciated for its contribution to the region's maritime prowess by a population largely dependent on these industries, its memory lingers, enshrined in such place names as Pitch Kettle Road.

Hearts of longleaf are impregnated with resins resistant to decay. Slightly buried in the sandy soil is a once stately tree trunk; I find parts still hard and fragrant from the pitch, a kind of embalming fluid for trees. Worn smooth by weather and bleached by the sun, these arboreal vertebrae are sometimes used as kindling and known in rural North Carolina as "lighter wood," "fat lighter," or "fat wood" because they burn furiously. Other carcasses remain in the form of big turpentine stumps, trees that had large box-like areas hollowed out to collect resin. Earth kilns (tarkels), where resin was extracted from lighter wood and boxed trees, are also at the Preserve. These scars are enduring testimony to enslaved Africans who worked in the woods in summer heat to produce naval stores.

My eye catches some germinating seeds on the white sand. What an encouragement! This means the fire has reduced the litter sufficiently to allow germination on the bare sand. The

mother tree dispatches offspring from its cones on a pointed-winged seed, twirling as it falls to drive it into the sand.

Unlike North Carolina, few longleaf survive in the Commonwealth. Not only were they cut and gouged out to collect the naval stores, but they were also further humiliated by feral hogs. The tender buds of the young pines were a choice food of these country hams on the hoof. Perhaps the greatest detriment to longleaf growth, however, was the cessation of fires. Unlike Native Americans, European settlers were unsettled by wildfires set either by lightning or humans, which spread rapidly by the highly flammable needles of the longleaf. Fire suppression did not save this forest type; it sealed its doom.

Fortunately, the northernmost longleaf community is preserved at the Blackwater Ecologic Preserve near Zuni in Isle of Wight County. This 300+ acre tract, the first such preserve in Virginia, was given by the Union Camp Corporation to Old Dominion University in 1985. We have re-introduced fire and been pleased with the response of the longleaf and other plants, some of them extremely rare. With the support of The Nature Conservancy, Virginia Division of Forestry, and the Department of Natural Resources, we are slowly restoring a long-neglected part of our cultural and ecological heritage. I dream that students in the future will be able to come to the Preserve on a winter day and walk through a park-like savanna of towering longleaf interspersed with boggy areas with peat mosses and pitcher plants, realizing how much Tidewater Virginia owes to longleaf pine.

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