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Old-Growth Communities

SUMMER 2023

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 COVER Groundcover and longleaf pine restoration on the Apalachicola Bluffs and Ravines Preserve, Florida.

 Photo by Andrew Kornylak, courtesy of The Nature Conservancy.

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The Longleaf Alliance PRESIDENT'S MESSAGE



As longleaf restorationists, we focus a great deal of energy on establishing new forest habitats. Tree planting is the first step in building our future longleaf pine forests and is essential to increasing longleaf acreage across the Southeast. The collective

efforts of the longleaf restoration community have made significant progress over the past couple of decades to move closer to our shared goal of reaching 8 million acres of longleaf pine. At the formation of The Longleaf Alliance in 1995, data showed that we were at around 3 million acres. Now that number has grown to approximately 5.2 million acres.

We are proud to have played a small part in helping to expand this acreage. With our amazing funding partners' support, The Alliance provides direct tree planting funds to offset establishment costs on public and private lands. We supported planting 7.9 million longleaf pine seedlings on nearly 13,000 acres in

the latest planting season. We are excited to see this program continue to build momentum and are already making plans for the 2023-24 season.

While things are going strong with establishing new stands of longleaf, we continue to lose intact stands through conversion to other land uses. To make a real difference in longleaf expansion, it is vital to conserve our existing high-quality, functioning forests that play an essential role in providing ecosystem benefits such as biodiversity, watershed protection, and carbon sequestration. Identifying priority longleaf properties to protect healthy, sustainable tree populations is key, but we also must consider sites with high-quality groundcover components.

We often talk about old-growth and mature forests in reference to old trees, but I'm excited to hear from Dr. Kyle



Whitetop pitcher plant. Photo by Carol Denhof.

old-growth groundcover. We know that the groundcover in longleaf is the basis for the incredible diversity we find in these ecosystems. Many of the perennial species growing in this layer are very long-lived, qualifying for the classification of old-growth. Groundcover lays the foundation for many of the ecological processes that drive longleaf communities, and we should all be aware of how our management practices dramatically impact forest function.

Harms in this issue's feature article about

There are some exciting opportunities on the horizon for large-scale land protection efforts involving longleaf conservation. I was fortunate to attend a Forest Legacy meeting this spring and

learned ways TLA and America's Longleaf partners could collaborate to identify lands for long-term protection through this program. On visits to Little River State Forest and the Perdido River Corridor sites in southern Alabama, we saw the significant impacts of multi-agency cooperation to convert sites to longleaf and manage mature stands.

Despite our many challenges, I'm hopeful for the future of longleaf. Through the collaborative efforts to protect our forests and because of dedicated landowners and land managers doing good work across the region, I feel confident that we will reach our shared restoration goals.

The Longleaf Alliance

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MANAGEMENT CHECKLIST | SUMMER 2023

EVALUATE YOUNG STANDS

• **Mow or spray problematic species** such as crabgrass, coffee weed, partridge pea, hairy indigo, and other emergent weeds. Old fields seldom burn well until there is sufficient grass cover to carry a fire.

PREPARE FOR PLANTING LONGLEAF

- Secure soil samples from former agricultural sites (crop fields or pastures) planned for longleaf restoration.
- **Check for hardpans** on former agricultural sites. If amelioration is needed, subsoil (rip) when very dry; do so early enough to allow time for the furrow to settle before planting season.
- If you haven't yet, order your longleaf seedlings now! Find a list of preferred nurseries at longleafalliance.org.
- Secure contractors for any chemical site-prep treatments. Proper timing of treatments yields better results. Foliar-active herbicides such as glyphosate should be applied to actively growing pasture grasses at their most receptive stage. If targeting waxy species, triclopyr may be applied now or delayed until after the first frost to minimize impact on herbaceous groundcover.

TACKLE INVASIVE SPECIES PROBLEMS

• **Repeated herbicide applications** will likely be necessary to combat non-native species such as kudzu, cogongrass, bermudagrass, climbing fern, bicolor lespedeza, bahiagrass, and fescue.

PRIORITIZE PRESCRIBED FIRE

- **Growing-season burns** may continue as the weather allows.
- Conduct post-burn evaluations to determine if previous burns achieved objectives, including woody control.
- Prepare for future burning by creating firebreaks.

NATURAL REGENERATION

- If natural regeneration is part of your plan, **conduct longleaf pine cone counts** to estimate the developing cone crop for the fall.
- **Perform a seedbed preparation burn** on mature longleaf stands with good cone crops before seed fall (October-November). The goal is to increase the likelihood that longleaf seed falls on bare mineral soil but not so clean that predators can easily find and destroy most of the new seed.

GROUNDCOVER RESTORATION

• Order native seed early. Seed from local ecotypes and some endemic species may be limited.

PLAN FOR COOLER WEATHER

• Now is a great time to review, update, or create a management plan.

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

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11

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ACRES

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FOREST OFFSETS ISSUED

67M

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\$750M



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FROM THE INBOX

Dear Longleaf Alliance,

I just bought 40 acres of land with a mixed stand of longleaf and slash pine trees. There are live oaks and midstory vegetation of yaupon holly with a mix of blueberry and sparkleberry throughout the property. In one area, there is a large patch of cogongrass. I know longleaf understory is typically maintained with fire or mowing. Would this work with the cogongrass infestation?

Cogongrass Patch

Dear Patch,

Cogongrass is a tricky species when deciding what

treatment method for eradication is best for your property. Mowing or using fire alone are not proper treatment methods for cogongrass, and here is why – 75% of cogongrass lives underground through its rhizomes and roots. Mowing only the top encourages its roots and rhizomes to spread further. However, mowing can reduce the thatch, making spraying of the regrowth more effective, and temporarily minimizes fire risk.

Cogongrass thrives in fire. The high silica content in the plant increases its probability of igniting. Cogongrass fires are intense, with typical flame lengths doubling the height of the grass; if the grass is 5 feet tall, it will have a 10+ foot tall flame height. Even its allelopathic defense mechanism (typically affecting adjacent plants through the soil) is released through thermal energy and carried with the smoke, damaging nearby vegetation even if no flames were nearby. Cogongrass itself aggressively resprouts after a fire using its vast underground resources. Flowering and germination of this invasive species can also increase following a burn.

For these reasons, you can see that mowing and/or burning alone will not help eradicate or control cogongrass infestation. However, do not be discouraged. There are proven treatment methods that will work!

Effective chemical control of cogongrass can be achieved with glyphosate, a foliar active herbicide. Even though this is not a selective herbicide, applying glyphosate only to the cogongrass leaves will successfully target this invasive without harming your mid to upperstory species.

Lucky for you, summertime is prime spray time. Between May and October (months may vary by one's location) is the most effective treatment time of the year for cogongrass. You may have to re-treat, as cogongrass does not give up easily and can take up to five retreatments for confirmed eradication. Good luck!

Sincerely, The Longleaf Alliance





Tilling can eliminate cogongrass from open sites with heavy equipment access if:

- tilling depth is based on actual rhizome depth (min of 6 inches)
- site contamination is prevented
- tilling is repeated consistently (once a month for a year)
- tilling is followed with herbicide treatments, especially in wellestablished infestations

Mowing does <u>not</u> control cogongrass, but it can help to prepare for other effective treatments like herbicide.



There are no effective biological control agents for cogongrass.

Despite being introduced as potential cattle forage, the plant is too high in silica.

Livestock feed only on very young cogongrass, which grows faster than they can eat it.

Two herbicides, glyphosate and imazapyr, are effective cogongrass treatments.

Due to the soil residence time of imazapyr, this herbicide is most appropriate for areas lacking desirable species with no plans to replant within one year of treatment.

Always follow the chemical label and use all recommended personal protective equipment (PPE).

Using herbicide with other treatments (fire, tilling, mowing) can be beneficial.

MECHANICAL



Fire promotes cogongrass growth.

It creates high-intensity fire measuring 500°F with flame heights reaching 15 feet; this can result in mortality to overstory pines.

However, prescribed fire can be beneficial to decrease thatch before chemical treatment. After a burn, wait to apply herbicide until regrowth reaches 18 inches.



CLEAN EQUIPMENT Cogongrass can establish from small rhizome fragments (1 inch) and survive up to three weeks without soil or water.



By Jacob Barrett, The Longleaf Alliance

Groundcover PLANT SPOTLIGHT

Sorghastrum secundum (Elliott) Nash Lopsided Indiangrass Grass Family – Poaceae



Description

This perennial bunchgrass has tall (3-6'), leaning stems with rather long flower clusters that favor one side, to which its name alludes. The leaves grow up to 20" in length and 1/4" in width, are alternately arranged, and feel rough to the touch.

During peak flower, the drooping golden spikelets are highlighted by golden-yellow anthers and tipped with long, maroon, spirally twisted awns. This display typically lasts a couple of weeks before the seed begins to ripen.

Distribution, Habitat, and Conservation Concerns

Lopsided Indiangrass grass occurs across much of the southeastern Coastal Plain, from South Carolina to Florida and west to Louisiana. Typically found in regularly burned sandhills and other dry woodlands, these grasses thrive in full and partial sunlight.

A combination of development, misapplication of herbicides, and lack of prescribed fire continue to negatively impact this native grass and a plethora of understory species.

Similar Species

This species is similar to yellow Indiangrass (Sorghastrum nutans) and slender Indiangrass (S. elliottii). Both species have erect, not one-sided, plumelike, golden brown flower clusters. S. nutans may also be distinguished by its awns, which are less than ³/₄" long.

Wildlife Value and Availability

Lopsided Indiangrass is utilized by many different species of skipper butterflies as a larval host. Seeds are large enough to be targeted by songbirds and upland game birds, small mammals, and various arthropod species.

Most Indiangrass species can be found in native plant nurseries or native seed companies. Many plants have multiple common name aliases, so be sure to match the taxonomic name to verify what you are purchasing.

Burning or cutting the plant back every couple of years encourages flowering.

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By Sarah Crate, The Longleaf Alliance

Eastern Arogos Skipper Atrytone arogos arogos Hesperiidae Family

Named for their quick, darting flight pattern, small skipper butterflies make up more than a quarter of the butterfly species in the U.S. Grass skippers are the largest group of skippers, named for their larvae's preferred host plants.

DESCRIPTION

Like other skipper butterflies, arogos skippers have small, stout bodies. Its wingspan is between $1 - 1\frac{1}{2}$ inches (2.9 - 3.7 cm). The undersides of the wings are orange, and the upperside is yellow-orange with black borders.

DISTRIBUTION AND HABITAT

The arogos skipper occurs in scattered, isolated populations across much of the mid and eastern United States. The eastern arogos subspecies has disappeared from most recorded locations. Only a few disjunct sites remain, with the majority of individuals in Florida and New Jersey. The species is a specialist on seasonally wet to dry grassland and pine savanna habitats.

LIFE CYCLE & PRESCRIBED FIRE

Arogos skippers have two to three generations each year. Females lay single eggs under grass leaves; potential host species include big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), pine barren sandreed (*Calamovilfa brevipilis*), lopsided Indiangrass (*Sorghastrum secundum*), and toothache grass (*Ctenium aromaticum*), depending on location.

Caterpillars feed on grasses, live in tents of two leaves silked together, and pupate in a leaf cocoon aboveground.

While their grass host species and habitat benefit from prescribed fire, eggs and larvae are vulnerable to fire. To ensure population viability, patchy fires over a large area are recommended to retain refugia and prevent local extirpation. Arogos skipper nectaring on Balduina. Photo by Jeffrey S. Pippen, www.jeffpippen.com





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Members of our pine savanna research team in awe of the bigh biodiversity groundcover at Blackwater River State Forest, FL. Photo courtesy of Jonathan Myers.

By Kyle E. Harms, Department of Biological Sciences, Louisiana State University

EXPANDING THE "OLD-GROWTH" CONCEPT TO SOUTHEASTERN GROUNDCOVER

High-biodiversity native groundcover across the southeastern U.S. is special, in part because it is a characteristic component of the ancient vegetation types that naturally assembled here.

Setting the stage: The "old-growth" forest concept

For many of us, the longstanding phrase "old-growth forest" conjures up images of big trees, a diversity of organisms, and a pleasant place in which to enjoy the biophilic benefits of nature. Old-growth forests are stands in which the forest community type is an ancient - and generally predominant element of the broader landscape, and whose current membership assembled over an extended period of time. Each old-growth forest stand has enjoyed forest status for a very long stretch without severe human-caused nor catastrophic natural disturbance (yet allowing for the characteristic smallimpact disturbances of natural treefall gaps, animal burrows, etc.). In the U.S. Forest Service's first nationwide inventory of old-growth forests within the 178,488,890 acres of Forest Land under Forest Service and Bureau of Land Management jurisdiction (excluding non-inventoried portions of Alaska), only 18.3% was classified as "old-growth."1 In short, oldgrowth forests are very special for various reasons, including their antiquity and scarcity.

Expanding the "old-growth" concept to grasslands, savannas, and open-canopy woodlands

Joe Veldman and colleagues argued that the world's ancient grasslands, savannas, and open-canopy woodlands "suffer from an image problem among scientists, policy-makers, land managers, and the general public."² The problem is that these community types are frequently misinterpreted. Ancient grasslands, savannas, and woodlands are all too often viewed as second best (or worse) seral or successional transients for the sites they occupy, as opposed to being the very types of communities that nature chose, or they are conflated with atypical, human-derived vegetation that results from land use. One solution to the problem is to more accurately position them within the global constellation of natural community types. By applying "old-growth" status to all worthy communities, we better acknowledge just how special they are and better characterize them for future management and restoration.2,3



Cleistesiopsis bifaria (small spreading pogonia), a showy orchid which is endemic to the southeastern U.S., in bloom about two months after a prescribed fire at The Nature Conservancy's Lake Ramsay Preserve, LA. Photo by K. E. Harms.

Our prime remnant and restored southeastern U.S. habitats of all sorts deserve the same reverence that we readily apply to old-growth closed-canopy forests. Actually, that's not much of a stretch for us here in the Southeast since we already recognize how important the groundcover is as a component of old-growth longleaf pine habitat.⁴ I simply want to help promote the use of the old-growth label for all deserving relatively continuous herbaceous groundcover here on the Southeastern Coastal Plain.

It is important to recognize that terms like "forest," "woodland," "savanna," and even "old-growth," are all human constructs. Each of these labels can be applied objectively once practical criteria are established to classify particular sites, but the specific conditions for each label are arbitrary. For example, a continuum of tree-canopy cover exists from grassland, to savanna, to woodland, to forest, such that any quantitative divisions along that continuum are subjectively positioned. As soon as we define "forest" or "old-growth" by strict criteria (e.g., a threshold basal area or age), we have arbitrarily chosen conditions that separate forest from nonforest or old-growth from non-old-growth. Even so, these human-made concepts and criteria are useful since they provide objective means to classify vegetation in specified sites and compare vegetation among sites.



Mostly perennial plants in a half-square meter sampling quadrat resprouting about one month after a prescribed fire in the pine savanna at Camp Whispering Pines Girl Scout Camp, LA. Photo courtesy of Jonathan Myers.

Whether we label a particular site grassland, savanna, woodland, or forest, if that community type is meant to be in the site and has enjoyed long-term, relatively undisturbed persistence in the site, it should be considered "old-growth." These special natural communities in the Southeast share several attributes with old-growth communities worldwide: community assembly over long periods of time, generally high biodiversity (within each site's biogeographic context), invaluable natural capital plus ecosystem services, and vulnerability to anthropogenic destruction or degradation.

Long-term community assembly in the 36th global biodiversity hotspot

In 2016 the North American Coastal Plain (NACP), which contains the geographic range of precolonial longleaf pine ecosystems, was recognized as the 36th global biodiversity hotspot⁵ (see map). Norman Myers⁶ conceived of the global hotspot idea, then developed it with collaborators, including conservation biologists from Conservation International.⁷ In the southeastern U.S., only the southern tip of Florida was included by 2000, forming part of the Caribbean hotspot. However, clear criteria were established to potentially add other regions of the globe. To be considered a biodiversity hotspot, a region must: (1) contain more than 1500 endemic species of plants, and (2) have lost more than 70% of its historic habitat. Noss et al.⁵ marshaled the evidence, and now we're on the map!

Beyond demonstrating that the NACP meets the criteria for inclusion on the global biodiversity hotspot map, Noss et al.⁵ detailed the evidence for long-term community assembly in ecosystems throughout the region. For example, even though shortgrass, mixed grass, and tallgrass North American prairies of the Midwest and Great Plains are also ancient ecosystems,⁸ many of those sites were covered by ice a mile or more thick during the most recent ice age (in some places right up until only about 12,000 years ago). In sharp contrast, the NACP remained glacier-free during the Last Glacial



Global Biodiversity Hotspots. Regions identified by 2000 are shown in green, with subsequent additions in blue. The North American Coastal Plain is #36. Map courtesy of User: Ninjatacoshell, Wikimedia Commons, CC BY-SA 3.0.

Period (115,000 - 11,700 years ago). The best available evidence indicates that relatively continuous, potentially high-diversity, herbaceous groundcover with discontinuous oak or pine canopies was common across the region for at least several tens of thousands — if not hundreds of thousands — of years.⁹

High-diversity groundcover

Our remnant and restored southeastern U.S. native groundcover often boasts extreme levels of biodiversity. This became broadly known when Joan Walker and Bob Peet¹⁰ published results from Joan's dissertation research in North Carolina's Green Swamp and compared them to global compilations of groundcover diversity values. Walker and Peet¹⁰ reported that "vascular plant richness was often near 40/m²." Values in the 30s/m² from other frequently burned sites have since been reported,^{11,12} and a single 1000-m² plot in Florida contained 168 species.¹³

Land managers and others across the Southeast have long known that groundcover diversity quickly declines under fire suppression.¹⁴ **Frequent**, **low-intensity fire is the keystone process that helps maintain the groundcover diversity and structure**.¹⁵ Resprouting perennials, not recruits from seed, account for the majority of post-fire biomass and species diversity. Even though fire keeps hardwood encroachment at bay in many ancient natural grasslands, savannas, and opencanopy woodlands, closed-canopy hardwood forests are not the successional "climax" state — they are aberrant results of anthropogenic fire suppression that can eliminate old-growth, high-diversity groundcover.^{16,17}

Identifying old-growth groundcover

Just as the U.S. Forest Service has designed protocols to identify old-growth forest stands across forest-community types,¹ it would be helpful to develop methods to identify old-growth non-forest communities of all types across the southeastern U.S. In fact, it may be useful to develop methods to identify old-growth groundcover assemblages independent of the tree canopy. In many individual sites, it may be that even though the trees would not meet old-growth standards, the groundcover nevertheless would, or vice versa.

Dendochronology can often provide good estimates of ages for trees with annual rings, but similar tools are generally unavailable for herbaceous plants. Even so, ages can sometimes be inferred through demographic studies. Estimating the lifespans of perennial groundcover plants would provide valuable data for efforts to assess the minimum ages of groundcover assemblages. Many native bunchgrasses in our region are likely to have lifespans extending substantially beyond a century, as is true for some western U.S. bunchgrasses; for example, Lauenroth et al.¹⁸ estimated individual-plant lifespans of 500 years for blue grama (Bouteloua gracilis) under lightly grazed conditions on the ancient Great Plains shortgrass steppe. Here in the Southeast, clonal shrubs – such as gallberry (*Ilex glabra*) – may live for at least centuries, and lifespans for genets (genetically unique individuals) of clonal saw palmetto (Serenoa repens) may exceed 10,000 years.¹⁹ Many herbaceous non-tussock-forming species may live for decades to centuries. For example, orchids like small spreading pogonia (Cleistesiopsis bifaria) have the

potential for prolonged dormancy between reproductive events,²⁰ which complicates estimating the ages of individuals, but is one innate mechanism for their potential longevity.

Valuing natural capital and ecosystem services of oldgrowth groundcover

We need detailed economic analyses to fully understand the value of natural capital and ecosystem services in high biodiversity and/or old-growth groundcover across the southeastern U.S. Ecosystem services such as maintenance of pollinator populations, groundwater recharge, and natural carbon sequestration operate via Southeastern grassy groundcover. Monetizing the value of fully functioning highdiversity and/or old-growth groundcover would help determine the appropriate levels and sources for incentive programs for management and restoration.

High-biodiversity native groundcover across the Southeast is a defining feature of the ancient vegetation types meant to be here. Some of it deserves the extra-special status of "old-growth"; much of it could attain that status over the longer term. Managing and restoring the groundcover not just the appropriate canopy trees across our Southeastern regional landscapes — should remain among our highest priorities. A groundcover focus is especially compelling now that global leaders have agreed to the "30 by 30" goal, i.e., to ensure the sound management and restoration of at least 30% in each of the the planet's ecosystems (not simply individual species of importance) by 2030 (United Nations Kumming-Montreal Global Biodiversity Framework, 2022 and separate U.S. Executive Order on Tackling the Climate Crisis at Home and Abroad, 2021).

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By Lisa Lord, Conservation Programs Director, The Longleaf Alliance

BECOMING A FORESTRY PROFESSIONAL: Trial by Fire

Reed Caradine meets with loggers to discuss socioeconomic factors affecting their operation as part of his work with timberhauling.com, North Carolina State University, and Carolina Loggers Association with sponsorship from the U.S. Endowment for Forestry and Communities.

eed Caradine has always been interested in owning land. Land represents an important asset for his future, a place for hunting, growing food, and future economic opportunity. Growing up in central Arkansas, Reed wasn't exposed to forestry as a practice, career, or industry. In 2013, after getting his undergraduate degree in Portuguese from West Point, he embarked on a successful eight-year Army career. As he contemplated post-Army life, a friend and future forestry professional, Parker White, suggested looking into forestry as a career path after learning of Reed's interest in the environment and becoming a landowner. Fast forward just a few short years, and Reed was starting his master's work in Forestry at Duke University.

Not long after beginning his graduate program, Reed attended the Appalachian Society of American Foresters

Conference where he met Sam Cook, Executive Director of Forest Assets at North Carolina State University and a consultant for forestry and diversity, equity, inclusion and justice. Sam became Reed's mentor, helping to guide his journey, along with Mark Megalos, Executive Director of the National Woodland Owners Association (NWOA), and Gary Bullen, an international business consultant. Sam, Mark, and Gary initiated and piloted the Minority Consultant Mentorship Program (MCMP), an effort designed to offer sustained mentoring for minorities wanting to enter forestryrelated fields. Sam's networking and business expertise and Mark's experience working with landowners have been invaluable to Reed. With four decades of experience establishing businesses, marketing, and plans for enterprises in the U.S. and abroad, Gary is walking Reed and the others through the business planning process.





Reed Caradine of Upstream Forestry in the field on a prescribed fire and cruising timber

Minority Consultant Mentorship Program supports future forestry professionals

The Minority Consultant Mentorship Program (MCMP) is a partnership between National Woodland Owners Association and the U.S. Endowment for Forestry and Communities focused on building a workforce via a private-sector alliance. Conceptually, the goal of the MCMP is to diversify the forestry consultant pool for the Sustainable Forestry Land Retention Program. The program aims to develop a cadre of self-supporting consultants or forestry supply chain professionals and create sustained mentoring efforts for minority forestry and natural resource professionals. Reed Caradine is currently in the first cohort, along with four other mentees.

"The U.S. Endowment saw potential in this pilot program to advance the representation of minorities within the consulting forester ranks. As we moved forward, we saw a need throughout the forestry value chain. So instead of an 'only consulting' approach, we have expanded to all the interest areas of our mentees," says Mark Megalos. "We provide training and experiential learning opportunities to an expanded group of future leaders. The enthusiasm and support from multiple sources suggest we are on the right track and have struck gold with our business, training, and experiential approach."

As for the future of the MCMP, Mark notes, "As we explain the intent of the Minority Consulting Mentorship Program, interest has expanded throughout the southern region and even includes discussions in Puerto Rico."

Reed always wanted to be a business owner, even before he considered forestry as a career. Sam helped him understand the role of a consulting forester for landowners, and now Reed is working to build out his forestry business, Upstream Forestry, with the support of the MCMP and partners like The Longleaf Alliance (TLA). The mission of Upstream Forestry is to educate, train, and advise clients on the benefits of using natural resources to cultivate a healthy and sustainable environment throughout generations. He's driven by his passion to help people take care of themselves and their environment. To gain experience, Reed is working as a contractor for NWOA in cooperation with the Natural Resources Conservation Service (NRCS) and TLA to assist landowners enrolled in NRCS' Environmental Quality Incentives Program (EQIP) that have been unable to accomplish their prescribed burning. He offers the muchneeded capacity in South Carolina to evaluate enrolled properties and connect landowners to prescribed fire resources to burn. His work is accelerating prescribed fire across the state.

After graduation in 2024, Reed wants to continue working with NWOA and TLA while building his business. His most significant focus is helping landowners meet their objectives and connecting them to the many resources available. Reed also enjoys being a minority in the field and serving as a representative for all people that need it. "I feel a lot of energy from this project to keep going, especially when I call landowners, and they are excited to hear from me. I'm here to help them achieve their goals now and ensure plans are in place for future generations, and that's rewarding," says Reed.

Reed's early interest in the land has come to fruition — as a student, business owner, and advocate.

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By Cody Pope, The Longleaf Alliance **REVISITING BROOKEWOOD**

The Longleaf Leader first featured Brookewood in the spring of 2015, and Longleaf Alliance staff recently had the chance to revisit the property with owner/manager Judd Brooke. Considering the dynamic nature of working woodlands and natural resource management, we were excited to return to this longleaf pine stronghold in southern Mississippi.

The first parcel of land that would come to comprise Brookewood was purchased by Clyde and Ruth Brooke, Judd's parents, in 1952. A cut-over site, the family decided to reforest with slash pine. Years later, after more acreage was acquired, the Brookes noticed a trend on their working lands. The slash pine they had planted years earlier as an investment had difficulty dealing with the repeated wildfires, diseases, and hurricanes, but the naturally occurring longleaf pines were thriving.

After paying attention to and learning from the land, the Brookes decided to go all in on longleaf in the late 1990s and started removing the slash and loblolly pine to make way for more longleaf, both planted and naturally regenerated. Much of this restoration work on the property was done with the help of state and federal agencies like the Mississippi Forestry Commission (MFC), the U.S. Fish and Wildlife Service (USFWS), and the Natural Resources Conservation Service (NRCS). Management activities (like prescribed burning, herbicide spraying, and mechanical treatments) are also supported through the collection of pine straw on a portion of the property.

The 4,400-acre property took a hit in 2005 when Hurricane Katrina tore its way inland from the Gulf of Mexico. Around 60% of the merchantable timber was lost to the storm, but the longleaf pine associated ecosystems were still intact. The woodlands, savannas, pitcher plant bogs, and wetlands have recovered quite nicely since that last extreme disturbance event. Now talks have begun with USFWS in hopes of reintroducing Red-cockaded Woodpeckers. If the plans come to fruition, this would be the second Safe Harbor Agreement between the federal government and a private landowner in the state of Mississippi.

LANDOWNER CORNER





Alongside improving future generations of forests and creating a more sustainable path forward, Brookewood also provides a connection to the area's rich history.



sunning itself.

Photos by Cody Pope

Currently, Judd has a few other projects in the works for Brookewood. One is establishing a conservation easement to ensure the maintenance of the property is sustained in perpetuity. Another interest is contributing longleaf pine seeds from his property to contribute some genetic diversity among seed extractories, nurseries, and possibly genetic improvement studies. Through his observations and discussions with other partners like Randy Browning of USFWS, Judd is attentive to the differences in growth form, growth rate, and resiliency of natural regeneration when compared to artificial containerized regeneration and is interested in possibly setting up a study project to see if any discernable differences exist.

The longleaf pine understory is also a focal point of Judd's restoration efforts, and not just on his own property. A neighbor is also restoring longleaf pine habitat to resemble some of his land's original glory. Judd is helping with that endeavor by allowing the seed collection of little bluestem from his land using a flail vacuum. Little bluestem is a main source of fuel for the naturally occurring fires that shaped

longleaf ecosystems in its western range. The neighbor restoring his understory is already seeing promising results and plans to continue implementing this technique on more of his property this fall.

Alongside improving future generations of forests and creating a more sustainable path forward, Brookewood also provides a connection to the area's rich history. The repeated use of fire to open the woodlands creates a scenery that resembles what our ancestors saw and repeatedly wrote accounts of. The railroad lines that can still be traced across the landscape are a relic of what almost removed these great forests from our world entirely. Judd says it's not uncommon to find old axe heads and spikes while traveling along the old railroad path.

Judd never stops working to achieve his land management goals and objectives for Brookewood. From prescribed burning to controlling invasive species to reducing soil erosion, these efforts are invaluable to longleaf pine restoration and enhancing wildlife habitat in Mississippi and the Gulf Coast.



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TECHNOLOGY CORNER

By George Jensen, Tall Timbers

FROM THE CANOPY'S POV – DRONES IN NATURAL Resource management and outreach

George Jensen and Mark Melvin check out Nortons on Nochaway, which has seen 30 years of restoration. Photo taken with DJI Mavic 3 T.

Drones are used in natural resources for photography, videography, remote sensing, and mapping systems. Specialty units offer aerial herbicide applications and prescribed fire aerial ignitions.

I am frequently reminded that before going to school for natural resources, my idea of southern pine ecosystems was

loblolly pine stands the that surrounded Statesboro, Georgia in the early '90s. This is a belief I still hear today and one I'm utilizing drones to help educate on. My job with Tall Timbers as the Southwest Georgia Prescribed Burn Association Coordinator allows me to work with landowners and individuals from various backgrounds. Drone photography, especially with the onset of the newly affordable and highresolution setups, is a great way to help level the knowledge playing field. Individuals new to the field are drawn in by the simple beauty these aerial photos can provide, while experienced personnel revel in seeing their field of



George Jensen flying an Ebee X to assist a joint research project between The Jones Center at Ichauway and Tall Timbers.

study from a unique point of view. I try to use drone photography and videos to reflect the beauty and complexity

of our true southern pine ecosystems, as well as aid wildlife management and fire ecology research. Drone photography

> does not have to reinvent your brand as an organization or individual, but it will help better capture what you are impacting or monitoring.

> Natural communities, such as the longleaf pine ecosystem, often require a specific recipe of canopy-to-ground ratio to maintain the balance of fire application and biological diversity. These areas greatly benefit from a different perspective to help conceptualize key management and ecological principles. Drones provide an accessible, bird's-eye view of what is happening above the canopy.

If you're anxious about jumping in, start small, be courteous, and be curious. The pictures are worth the \$500-\$1500

equipment investment to reflect the beauty of the longleaf pine ecosystem to the masses. They can also streamline and

TECHNOLOGY CORNER

▼ DJI M600 IGNIS System: Aerial ignition system like the one shown here allow safe and effective firing operations on prescribed fires or wildfires. Plastic spheres (ping-pong balls) containing potassium permanganate are injected with a second chemical (glycol) immediately before aerial release, causing delayed ignition of ground fuels.





Johnny Stowe, Dr. Mike Stambaugh, George Jensen, and Savannah Lutz in a 1-year fire return interval longleaf pine stand. Photo taken with DJI Phantom 4 Pro.



I his Stoddard Plot at Iall Timbers has been burned since 1960. Photo taken with DJI M210 X5s.

If you're anxious about jumping in, start small, be courteous, and be curious.

improve day-to-day management with current imagery that allows for tracking over time.

The Federal Aviation Administration (FAA) governs all aircraft, including drones or unmanned aerial vehicles (UAVs). The FAA requires licensure and registration to operate any drone larger than 249 grams. The licensure is awarded after passing the "Part 107" exam, a pilot's knowledge test. There is no operational flight test to become a drone pilot. I strongly recommend the license exam even if you are flying the "249-gram" products, as it covers a lot of information and can mitigate liabilities in the eyes of the companies you represent.

Once licensed, start small; "stick time" on smaller, less expensive units (like a DJI mini) will correlate to larger-scale applications.

Can't fly DJI products? Check out the government's cleared drone list at www.diu.mil/blue-uas-cleared-list.



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THE LONGLEAF PARTNERSHIPCOUNCILBy Carol Denbof, The Longleaf Alliance,
Longleaf Partnersbip Council Chair

The overall longleaf pine restoration effort is highly dependent on the collaboration and cooperation of the many partners working together under the umbrella of America's Longleaf Restoration Initiative (ALRI). Because of these active and engaged partners, the effort has made meaningful advances during the first 15 years of the Initiative. This spring, the Longleaf Partnership Council (LPC) was able to gather in Georgia at the Little Ocmulgee State Park to further strengthen relationships, hear updates from Working Groups and Committees, and provide input into future planning for ALRI.

Teams have been hard at work setting the stage for the next 15 years of ALRI. The Conservation Plan Writing Team has made tremendous progress in updating the 2009 Range Wide Conservation Plan for Longleaf Pine. This diverse group of partners brought specific expertise to this process that focused on updating the Overall Goals, Implementation Strategies, Conservation Strategies, and Evaluating Outcomes sections of the Plan. The team presented the updated plan at the LPC meeting in Georgia and solicited feedback from the group at large. The goal is to have a final draft completed by mid-July, with the printed product available later this fall. By the time this issue of *The Longleaf Leader* is published, the 2022 Longleaf Accomplishment Report will be finalized and ready for distribution. Once again, it has been a successful year for longleaf restoration and management. In total, 123,304 acres of land were planted with longleaf pine, and an additional 10,291 acres were converted to longleaf through silvicultural practices last year. More than 1.7 million acres have been managed with prescribed fire, and another 292,293 acres have seen other maintenance activities such as groundcover planting and mid-story treatment. We also track lands conserved, and a total of 38,796 acres were protected in 2022. These accomplishments directly reflect the hard work done at the state and Local Implementation Team levels to implement on-the-ground restoration. Job well done on another great year!

Looking toward the fall, the LPC has planned a September 21st gathering in Natchitoches, Louisiana for our next meeting. These meetings are open to LPC members and other partners interested in engaging with America's Longleaf, and we look forward to connecting with our partners from the western end of the range.







The National Wildlife Federation and Longleaf for All partners have an exciting new opportunity for forest landowners in the historic Longleaf pine range! With the overwhelming success of Hodges Estate Demonstration Forest in Georgia we are seeking to expand our network into Florida, Alabama, and South Carolina.



Mr. Hodges' property is showcasing his success with longleaf and wildlife habitat restoration, balancing economic and ecological priorities.

Outreach opportunities include:

- Prescribed Fire Training
- Heirs Property
- Sustainability Practices
- Funding Opportunities
- And much more!



Our Longleaf for All Landowner Mentorship Program is seeking applications from historically underserved landowners to join our mentorship program to share expertise and host events on their properties for unserved, underserved, and other minority forest landowners. Landowners will be compensated for their involvement.

Come join the cause and help educate others on the importance of sustainable forestry! Visit our website today: https://americaslongleaf.org/longleaf-for-all/

REGIONAL UPDATES

Monsoon Wildfire on Fenvkvcekv Creek Preserve, Flagg Mountain By Brittany Seaborg, The Nature Conservancy



The Monsoon Wildfire burns into the duff under an oldgrowth longleaf pine. Photo by Geoff Sorrell, The Nature Conservancy.

On March 28th, 2023, The Nature Conservancy in Alabama (TNC) responded to a wildfire on the newly acquired Fenvkvcēkv Creek Preserve at Flagg Mountain. The ignition is attributed to a lightning strike near Fenvkvcēkv (Finicochika) Creek during heavy rains (approximately 6+ inches) on March 26th. Given the wet conditions, the lightning strike is presumed to have ignited an old pine stump which smoldered until drier conditions allowed the fire to spread. The Alabama Forestry Commission (AFC) notified TNC staff of the wildfire on the morning of March 28th. By midday, TNC staff traveled across the state to respond to the fire and begin suppression actions. Due to the steep terrain, TNC staff used indirect tactics – utilizing drainages to flank and pinch the wildfire between Fenvkvcēkv Creek and a woods road – to contain the fire at 50 acres.

The Flagg Mountain area is a fire-suppressed old-growth montane longleaf ecosystem comprising state-owned and private lands. The wildfire, appropriately named the Monsoon Wildfire, burned across

adjoining Conservation Fund and TNC properties. Until the recent collaborative efforts between TNC and AFC to reintroduce fire into the ecosystem, it was estimated that the area had not seen fire for 70+ years. Fenvkvcēkv Creek Preserve at Flagg Mountain was slated for a prescribed burn this past winter, but appropriate conditions were limited. With heavy fuel loading, first-entry burns require a saturated duff layer and the cool temperatures of winter months. Unfortunately, due to the untimely wildfire in fire-suppressed longleaf, mortality is expected among the old-growth trees.

Rare Flora and Fauna Benefit from Ft. Stewart/Altamaha Partnership Prescribed Fire Operations By Shan Cammack, Georgia Department of Natural Resources, and Wendy J. Ledbetter, The Longleaf Alliance



Fire crew member with Sandbill rosemary. Photo by Caleb Goldsmith, The Orianne Society.

The Wildlife Conservation Section of the Georgia Department of Natural Resources (DNR) and The Orianne Society teamed up to burn private land of significant conservation value along the Canoochee River in southeastern Georgia. This carefully orchestrated burn benefitted rare upland species, including Sandhill rosemary (*Ceratiola ericoides*) and Sandhills milk-vetch (*Astragalus michauxii*) as well as hydric and ecotonal vegetative communities, including a pitcher plant bog with sweet pitcher plant (*Sarracenia rubra*) and a large population of the state threatened dwarf witch-alder (*Fothergilla gardenia*).

The 500+acre property also harbors a significant gopher tortoise population. A property survey conducted by the Georgia DNR Gopher Tortoise team in early 2019 found an estimated 146 individuals at a density of 0.94/ha. The gopher tortoises are now feasting on the new tender growth emerging from this most recent burn operation. When combined with the adjacent properties along the Canoochee River to the north, tortoise numbers are well over the minimum population size for long-term viability (250). This effort contributes to the Gopher Tortoise Conservation Initiative, a statewide initiative to work with landowners to voluntarily provide and improve 100,000 acres of habitat to support 65 viable populations of the threatened tortoise. The Initiative is closing in on fulfilling its goal with 62 populations already protected.

Prescribed burn operations conducted by Ft. Stewart/Altamaha Longleaf Partnership members are vital to maintaining quality habitat conditions for the rare flora and fauna in Southeast Georgia.

REGIONAL UPDATES

Indigo Snake Festival Educates Students about the Longleaf Ecosystem *By Vernon Compton, The Longleaf Alliance*



Left: A.R.T. field crew members explore a wetland with students using dip nets. Photo by Ad Platt. Right: Festival poster artwork by Carolyn Rox.

Conecuh National Forest hosted the 2023 Eastern Indigo Snake & Wildlife Festival at Open Pond Recreation Area in May. The festival focused on the indigo snake and other rare species as well as the longleaf ecosystem they depend upon for habitat and survival. South Alabama students from Florala, Pleasant Home, and Andalusia schools and a large northwest Florida home school group attended with a total of 374 participants.

Education stations included indigos and other snakes, gopher tortoises, birds, longleaf ecosystem, isolated wetlands, and prescribed fire. The festival's location in a very well-managed national forest added to the education and learning opportunities available to students. Based on the many questions throughout the day, students discovered a lot about

native plants, wildlife, and longleaf. They also learned about the history of the longleaf ecosystem and the tremendous progress being made in recovering longleaf across the range. Whether it be an indigo snake, a gopher tortoise, a longleaf seedling, or an older flattop longleaf pine on site, the students were able to get a better sense of the diversity of the system and the many tools used to restore and manage it.

Special thanks to Conecuh National Forest Wildlife Biologist Derek Colbert for bringing the many partners and students together for this perfect festival day in the pineywoods. Partner agencies and educators included the Alabama Forestry Commission, Covington County Extension, Turtle Point Science Center, Auburn Museum of Natural History, Alabama Herpetological Society, Wild Taught Environmental Education Specialists, The Longleaf Alliance, and the USDA Forest Service.

Longleaf Restoration at Louisiana Ecological Forestry Center

By Dan Weber, The Nature Conservancy



Longleaf seedling planted at the Louisiana Ecological Forestry Center. Photo courtesy of LEAF.

In March, The Nature Conservancy funded a 216-acre longleaf reforestation project by applying funds from its Plant a Billion Trees Project. This activity took place on the grounds of the Louisiana Ecological Forestry (LEAF) Center in Sabine Parish, Louisiana. At approximately 4600 acres, LEAF is the site of one of the state's largest private longleaf pine restoration efforts.

The Louisiana longleaf local implementation team, the West Central Louisiana Ecosystem Partnership (WLEP), has a long history of collaboration with the LEAF Center, supporting workshops and stewardship efforts, including prescribed burns and mulching. The LEAF Center regularly hosts agencies and landowners interested in advancing their understanding of restoring and maintaining longleaf habitat. To learn more about LEAF's history and current priorities, read the informative article "New Life for the 'Gardens in the Forest'" in *The Longleaf Leader's* spring 2021 issue (longleaf.info/LEAF).

The WLEP is a coalition of stakeholders supporting longleaf and other ecosystem restoration efforts within the Fort Polk/Kisatchie National Forest Significant Geographic Area. It includes the U.S. Forest Service and U.S. Department of Defense, Natural Resource Conservation Service, conservation NGOs, and others.



REGIONAL UPDATES

Continued Collaboration During Leadership Transition for Okefenokee-Osceola By Rebecca Shelton, The Nature Conservancy



Longleaf 101 Academy participants. Photo by The Longleaf Alliance.

As mentioned in the spring issue of *The Longleaf Leader*, The Nature Conservancy's (TNC) Georgia Chapter decided to transition out as the Okefenokee-Osceola Local Implementation Team (O2LIT) Coordinator after serving in that role for the last six years. As of July 2023, the Alachua Conservation Trust (ACT) is now providing leadership to the O2LIT. The first meeting to facilitate this transition had invitees from the O2LIT, the O2O Wildlife Corridor, and the Ocala LIT. In addition to explaining the leadership change from TNC leadership representative Rebecca Shelton to ACT's Kimberly Tillman, featured speakers provided updates from NFWF proposals (Kimberly Tillman), NOAA (Angie Enyedi, Senior Meteorologist), and Florida Land Steward (Chris Demers, Extension Program Manager University of Florida IFAS).

The O2LIT will continue building collaborative partnerships while also focusing on educational outreach opportunities. A Longleaf 101 Academy was held in March at the Austin Cary Learning Center in Gainesville, Florida, with 23 in attendance. This course offered a multiday workshop with site visits.

Another Longleaf Academy course, Groundcover Restoration 201, was successfully completed June 6-8 in Lake City, Florida. During this 2.5-day course, students gained tools for planning and implementing their own groundcover projects through expert instruction from restoration practitioners and producers, hands-on exercises, equipment demonstrations, and a field tour.

Landowner Workshop Held in the South Carolina Sandhills By Charles Babb, Sandhills Longleaf Pine Conservation Partnership Coordinator



Dr. David Coyle, Clemson University, discusses insect pests and disease damage to longleaf trees, along with management practices to reduce their spread within the stand. Photo by Sue Griggs.

The Sandhills Longleaf Pine Conservation Partnership (SLPCP) recently co-hosted a workshop with Clemson University for landowners who want to learn more about pine straw production. "We realize that landowners may need the supplemental income that can be gained by selling pine straw," said Charles Babb, SLPCP Coordinator. "We wanted to show landowners the ins and outs related to raking, while mitigating the potential stress on the trees and ecosystem."

Clemson Extension Forester Ryan Bean presented topics related to income, pest management, rotational raking, stand thinning, and nutrient deficiencies that can happen with intense straw raking. A field tour compared sites that had been managed with fire and those that had not. Participants also saw stressed trees in a stand that was not thinned "on time" and the damage from beetles.

"Some landowners plant longleaf for the sole purpose of raking straw to maximize income," said Babb. "Others are looking at the long-term return of forest products and improved habitat for wildlife. Both have a place, and with proper management, landowners can benefit from both scenarios."

When a planted longleaf stand is actively growing and has reached canopy closure, landowners may consider straw production as long as management decisions are made based on the overall health of the forest. Those decisions can include the careful use of selective herbicides, prescribed fire rotations, timely thinning, and a limited raking scheme that allows the soil to remain covered with organic material to recycle nutrients and prevent erosion.

Successful Burning in an Urban Center Showcased at a Learn & Burn Workshop By Jennie Haskell, The Longleaf Alliance



Recently burned shaded fuel break at Hitchcock Woods in Aiken, South Carolina

To support prescribed fire in the South Lowcountry ACE Basin Longleaf Partnership (SoLoACE), the Hitchcock Woods Foundation, The Longleaf Alliance, South Carolina Forestry Commission, and Clemson Extension hosted a Learn & Burn Workshop in March. Attendees had the opportunity to learn about prescribed burning planning and the reintroduction of fire back to Hitchcock Woods as well as apply fire to the ground.

At 2,100 acres, Hitchcock Woods is one of the most extensive urban forests, surrounded by neighborhoods and the city of Aiken, South Carolina. With approximately 70 miles of trails for walking and equestrian use, the property is open to the public daily. Despite these challenges, staff have used prescribed fire over the last twenty-five years to protect neighbors from wildfire risk and improve wildlife habitat.

"Proper planning and adequate communications are instrumental in conducting the burns, as well as managing the fuels," states Bennett Tucker, Superintendent of Hitchcock Woods. In areas close to houses and busy roads, the staff reduce

midstory vegetation by bush-hogging or mowing for a distance of about 100 feet before burning. These shaded fuel breaks are aesthetically pleasing, allowing visibility into the forest while also distributing fuels on the forest floor.

Several hundred acres of upland pine habitat are prescribed burned yearly to reduce fuels and stimulate the grasses and forbs. This management has contributed to the successful reintroduction of the federally endangered Red-cockaded Woodpecker on the property and improved habitat for many flora and fauna of the longleaf ecosystem.

For more information about Hitchcock Woods, visit hitchcockwoods.org.





Reaching the Next Generation

The most requested illustration by Patrick Elliott in the Learning with Longleaf series is the 'Southeastern Native Americans Purposely Burn the Longleaf Pine Forest,' helping the next generation become more aware of good fire, its long history, and its value to the longleaf ecosystem.

Environmental education and study of the longleaf pine ecosystem – at any age – presents an opportunity to understand important biological concepts, cultural history, and the current conservation issues of a large portion of the southeastern United States.

Sharing our longleaf pine knowledge, excitement, and experience with children is one of our favorite ways of growing a love of longleaf across the range!

The Longleaf Alliance's 119-page educational series, Learning with Longleaf, highlights the longleaf pine ecosystems' natural and cultural history. Each lesson provides concise messaging for students, helpful background information for teachers, a keyword glossary, and suggested activities. Patrick Elliott's richly detailed color illustrations accompany each topic, with black-and-white printable PDFs for coloring.

The Longleaf Alliance developed extension activities to complement this series. Long-time readers of *The Longleaf Leader* will recall word games and puzzles in the 'While you're in the grass stage' section featuring a lesson from *Learning with Longleaf*. More recently, the 'Slicing the Longleaf Pie' demonstration and the popular block tower game, 'Tumbling Longleaf Ecosystem,' were shared with additional fact sheets and guides.

Visit longleafalliance.org \rightarrow Education & Outreach \rightarrow Next Generation to download copies of *Learning with* Longleaf.



On longleafalliance.org you can also meet Burner Bob® the Bobwhite Quail who lives in the longleaf forest with other animal friends, devoting his life to explaining that the longleaf forest, with its many plants and animals, has evolved with the use of good fire. View Bob's short films, preview his coloring books, and order free copies!



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Interactive Extension Activities Tumbling Longleaf Ecosystem Slicing the Longleaf Pie FREE Downloads TUMBLING LONGLEAF ECOSYSTEM

> Extension Activity

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The Longleaf Alliance's educational series highlights the natural and cultural history of longleaf pine ecosystems.

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Illustrations by Patrick Elliott accompany each topic and double as coloring sheets. FREE Downloads

Longleaf Pine Distribution



By Rhett Johnson, President Emeritus and Co-Founder of The Longleaf Alliance

The Longleaf Legacy of Patrick Elliott

I was saddened to learn of the death of Patrick Elliott, an early supporter and contributor to The Alliance when we were a young organization searching to determine our role in building support for the conservation of the longleaf ecosystem.

In 1996 The Longleaf Alliance became aware of an amazingly detailed drawing of the sandhill longleaf community, which depicted native plants and animals and the roles each played in the ecosystem. Julie Moore, one of our original board members, had worked with Patrick Elliott to include this art for a longleaf-themed calendar she was helping to produce. At the time, Patrick was employed as a backdrop creator for the Natural History Museum in Tallahassee and was an accomplished self-taught naturalist and illustrator.

I contacted Patrick to see if he was interested in creating an extended color version for us, and he readily agreed. After some back and forth, Patrick produced the finished product, which was immediately popular and today graces the walls of uncountable dens, studios, and classrooms across the longleaf range.

The interest from teachers was so great we asked Patrick to produce a large-scale, black-and-white rendition with an accompanying species key. That led to the idea of expanding this educational partnership. Working closely with our Education Coordinator, John McGuire, Patrick produced an additional 25 drawings depicting the ecosystem's plant and animal diversity and the history of the longleaf forest from pre-settlement through the present day. These illustrations became wonderful learning resources, particularly once they were available online as free downloads. Innovative educators across the region made great use of this teaching tool, a unique alternative to standard materials featuring distant ecosystems like the rainforest.



Patrick's art is available at longleafalliance.org/merchandise and includes prints, a 20" x 28" longleaf ecosystem puzzle, and notecards.

> on the appropriate host plants for that species. We used that image and many others on popular t-shirts that I still spot on friends of The Alliance today.

> Patrick was one of the humblest and most modest people I have ever known. When I identified him as an artist, he would protest that he was only an illustrator. So were Frederic Remington, Andrew Wyeth, and Norman Rockwell! Perhaps the best example of his commitment to longleaf conservation and character was his frequent offer to bargain down when we discussed compensation for his work. I used to lecture him regularly on the art of negotiating prices! He knew our funds were limited and greatly undervalued his contribution to help us out.

> During the 28 years (and counting) of The Longleaf Alliance, I can think of none who gave so much of himself or was more consequential in bringing longleaf into the public's consciousness than this unassuming man and artist.

As Patrick created his art, there was a great deal of communication between him and The Alliance staff as he insisted on accuracy and context. He was often apologetic for including too many species in a single drawing, insisting that he only did so to insure he didn't leave out an important plant or animal. He was a keen observer of the natural world, spending time in the field to increase his understanding of one of the most diverse ecosystems on the planet.

Patrick's meticulous passion for accuracy more than matched his skill in illustrating the longleaf story. The Alliance has early versions of his work with copious handwritten notes on the back, including scientific names of plants and animals and other explanations of why they are there.

One of my favorite drawings illustrates many of the butterflies of the longleaf forest. In addition to the beautiful and colorful adults, Patrick added the larvae and placed them



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Longleaf Destinations

LONGLEAF MUST-SEES: ROAD TRIP WORTHY DETOURS

Black River Cypress Preserve in South Carolina. Photo by Dana Beach.

eginning in 2014, when The Alliance's quarterly publication transitioned from newsletter to magazine, each issue of *The Longleaf Leader* includes a "Longleaf Destinations" article highlighting places of interest for longleaf pine across its range. The goal is to use longleaf-related recreation or travel opportunities to share the vast diversity of longleaf ecosystems across the landscape.

We often hear folks erroneously assume that longleaf is relegated to dry sandy ridges or steep south-facing slopes. On the contrary, areas too steep, too dry to farm, or too poor to grow loblolly or slash pine are the most likely to have escaped conversion. We have not only lost longleaf acreage, but what remains is merely a vestige of the dominant richness that once was the longleaf pine ecosystem. For thousands of years, subtle differences in soils and topography influenced fire behavior, site productivity, etc., which affected the composition of the longleaf forest, including the groundcover plants, insect and animal species, and tree height. With its extensive geographical range and large number of endemic species, there is always something new to see in this landscape.

After ten years of *The Longleaf Leader* and 37 longleaf destination articles we now have an interactive tour guide for longleaf pine across the Southeast. Explore our map and discover more about this fascinating ecosystem: longleafalliance.org/what-is-longleaf/the-ecosystem



A. High Bluff Creek, Tate's Hell State Forest in Florida. Photo by Caitlin Snyder. B. Heritage Oak Overlook at the Mobile Botanical Garden in Mobile, Alabama. Photo by Mobile Botanical Garden. C. Old-growth mountain longleaf at Berry College in Georgia. Photo by Martin Cipollini.

Longleaf Destinations interactive map available at longleafalliance.org/ what-is-longleaf/the-ecosystem





Longleaf Destinations

Virginia

• Town of Wakefield

North Carolina

- Croatan and Uwharrie National Forests
- Green Swamp
- Sandhills Gamelands
- Southern Pines & Weymouth Woods
- City of Wilmington

South Carolina

- City of Aiken
- Black Cypress Preserve
- Congaree National Park
- Francis Marion National Forest
- Hobcaw Barony
- Jasper County

Georgia

- Altama Plantation Wildlife Management Area
- Berry College and Rome, GA
- William Bartram Trail
- City of Columbus
- Moody Forest
- Red Hills Region

Florida

- Coldwater Gardens
- Disney Wilderness Preserve
- City of Gainesville
- Longleaf Ecology and Forestry Society
- Lower Apalachicola River Basin
- Lower Suwannee National Wildlife Refuge
- City of Pensacola
- Shoal Sanctuary

Alabama

- Montane longleaf near Birmingham
- Landmark Park
- City of Mobile
- Solon Dixon Forestry Education Center

Mississippi

- DeSoto National Forest
- Mississippi Sandhill Crane National Wildlife Refuge

Louisiana

- Kisatchie National Forest & 2018 Conference Field Tour in Alexandria
- Southern Forest Heritage Museum in Long Leaf, LA

Texas

- Boykin Springs Recreation Area
- City of Lufkin
- Roy E. Larsen Sandyland Sanctuary

<image>

TO TLA'S NEWEST ECOSYSTEM Support team member!

Jasmine Little joined the Gulf Coastal Plain Ecosystem Partnership's Ecosystem Support Team in May. Jasmine previously worked in various positions with the Georgia Department of Natural Resources, including as a Wildlife Technician II with an Ecological Restoration Crew and serving as an Invasive Species Intern with the Student Conservation Association. Her work centered on implementing prescribed fire and invasive species control. Jasmine has a Bachelor of Science in Environmental Science from Kennesaw State University (2021) and graduated with honors and a minor in Applied Statistics and Data Analysis and Biology. She joins Natural Resource Supervisor Kaiden Spurlock, Senior Team Member Donna Vassallo, and Team Members Alan Patterson and Alexis Feysa.

2023 Ecosystem Support Team: Donna Vassallo, Jasmine Little, Alexis Feysa, Alan Patterson, and Natural Resource Supervisor Kaiden Spurlock

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By Lynnsey Basala, The Longleaf Alliance

When People Connect, Culture is Strengthened



The Longleaf Alliance Spring Social at Wormsloe Plantation in Savannah, GA. A. TLA President Carol Denhof with Sarah Ross, Executive Director, UGA Center for Research and Education at Wormsloe. Photo by Lynnsey Basala. B. TLA members and partners socialize on a beautiful spring evening. Photo by Wendy J. Ledbetter. C. VP for Development Lynnsey Basala welcomes attendees. Photo by Wendy J. Ledbetter.

The COVID-19 pandemic undoubtedly impacted our social networks. To reconnect with friends across the range, The Longleaf Alliance Leadership Team and Board of Directors decided to host member-exclusive socials annually. These events provide the perfect opportunity for members, partners, and longleaf enthusiasts to mingle and catch up outside of the Biennial Longleaf Conference, Longleaf Academies, and rangewide longleaf restoration planning meetings. A return to all social systems is a relief.

Member events would not be possible without generous conservation partners donating venue space with a beautiful

backdrop and other in-kind materials that make the events truly special. Members and partners within sixty miles of the selected city are invited to hear brief remarks and updates from TLA Leadership, learn more about the location from the gracious host, and spend time speaking with old and new friends. There is a heavy emphasis on fellowship, sharing ideas and passions, delicious food, and live entertainment.

The Longleaf Alliance hosted the Spring Social in April at Wormsloe Plantation in Savannah, Georgia. Fifty guests enjoyed one of the most ecologically and historically significant sites along Georgia's coast.

To ensure your invitation to member-exclusive events in your part of the longleaf range, maintain an active membership with The Alliance. Annual membership begins at just \$50 (\$25 for students). You can call our headquarters at 334.427.1029 to confirm your membership status at any time.

HEARTPINE

By Jacob Barrett, The Longleaf Alliance NATURE'S FIREWORKS IN THE FIRE FOREST

When traversing through lower Alabama, putting your mind into cruise control is almost effortless. Early mornings, the dull hum of tires against pavement, the aroma of freshly turned peanuts, and the narrow roads with just enough room for a combine to make it nearly impossible to pass. As I slow, from the vantage of my driver's seat, the sea of earth tones beneath the Conecuh National Forest's longleaf begins to have a sharper definition than just a greenish-brown blur. The light morning breeze tickles the culms of the many grasses that happen to be in bloom. Those opening lines from "America the Beautiful" come to mind, "O beautiful for spacious skies / For amber waves of grain." I cannot help but picture those tall, arching flower clusters of lopsided Indiangrass, little bluestem, and wiregrass glistening against the amber sunrise of fall. Give me the seemingly simplistic yet diverse longleaf woodland, and I will pass on fields of grain every time.

With another trip around the sun almost complete, our nation will soon be 247 years old, still not nearly as old as the oldest known living longleaf pine at Weymouth Woods Nature Preserve in North Carolina. It is difficult to comprehend 247 years' worth of time, let alone 475. That old tree has seen its fair share of various fireworks over the years, I am certain. Long before bottle rockets and Roman candles appeared on the scene, summertime thunderstorms delivered fireworks in the form of lightning.

Even after the flames died and the ground cooled, the "fireworks" show persisted throughout the summer with explosions of green growth below the canopy. The incredibly



intricate patterns of leaf shapes and delicate flower structures form right before our eyes, albeit a relatively slow-paced show but a spectacular one, nonetheless. All the while, the next generation of longleaf pines emerge from the incredibly diverse groundcover, progressively rocketing upward with each flush of their candles.

This spectacle carries itself well into fall for the finale with a grand showing of purple and gold from our *Solidago* and *Liatris* species. From the most saturated bogs to the driest of sandhills and all the plant communities in between, these species are the heartbeat of the longleaf ecosystem.

I encourage you to get out, enjoy, and be a part of the season-long fireworks show. Speaking from experience, I promise you'll revisit the photos of the flowers and landscapes many times, unlike 4.5 minutes of a continuous, grainy fireworks video.

And if you find yourself stuck behind a tractor on a backroad this fall, take a moment to wave back to those amber waves in the understory if you're fortunate enough to catch a glimpse.

