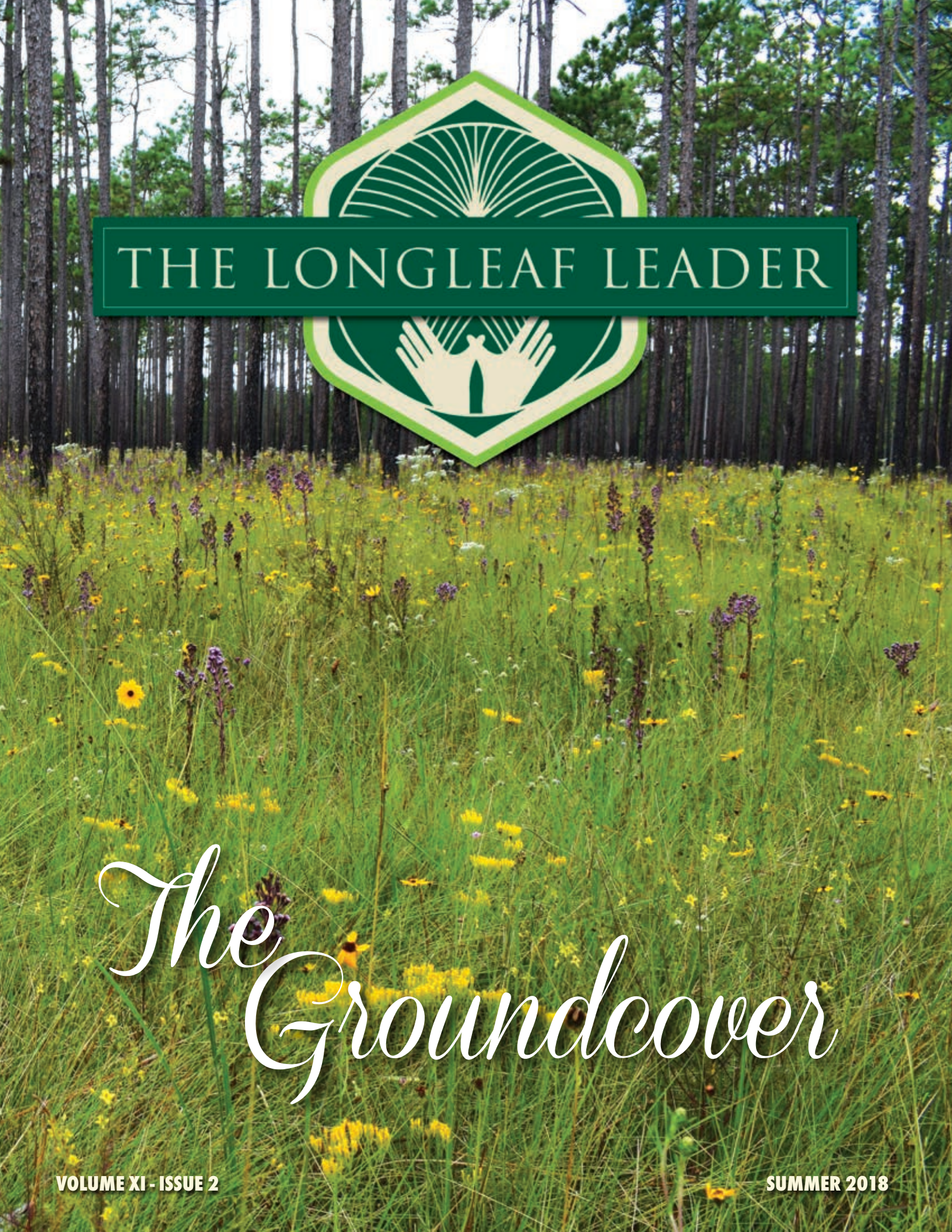

THE LONGLEAF LEADER

The Groundcover

VOLUME XI - ISSUE 2

SUMMER 2018

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TABLE OF CONTENTS

PUBLISHER The Longleaf Alliance, EDITOR Carol Denhof, ASSISTANT EDITOR Margaret Platt, DESIGN Bellhouse Publishing
ADVERTISING Carol Denhof 678.595.6405 – carol@longleafalliance.org
COVER Longleaf pine savanna with incredible groundcover diversity at Green Swamp Preserve in North Carolina. Photo by Carol Denhof.

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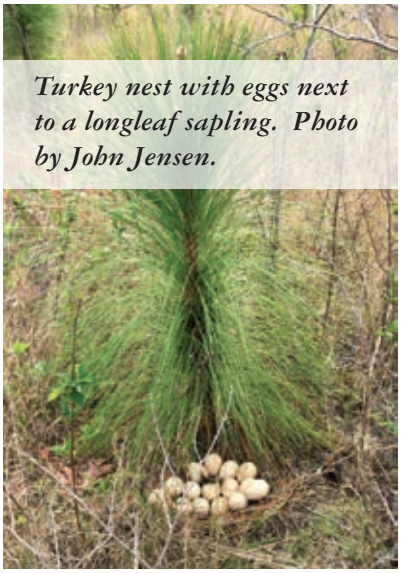
Groundcover and a Wild Turkey Nest

By Robert Abernethy, The longleaf Alliance

PRESIDENT'S MESSAGE



Turkey nest with eggs next to a longleaf sapling. Photo by John Jensen.

On April 26, I received a photo from several people in Georgia all within a few hours. John Jensen (Georgia DNR) took the photo of a wild turkey nest with 15 eggs at the base of a longleaf pine seedling. While we all know a picture is worth a thousand words, this picture is priceless and tells the story of why so many of us are working so hard to restore the longleaf ecosystem.

Sometime about April 11, a wild turkey hen laid her first egg at the base of a longleaf sapling. She then laid an egg a day for 15 days. Like most hens, she selected a nesting site in thin grasses with excellent groundcover and a large bush or stem on one side of the nest. The nest was protected from the rear by the longleaf sapling and the top by the needles. In the event of an attack by a raccoon, she could explode off the nest and escape to nest again. But the raccoon would have difficulty finding this nest because the hen selected a spot out of the creek bottoms (where coons live) and within a landscape of high-quality groundcover where the raccoon would have to search the entire field to find the nest.

Judging by the dead persimmon saplings, the area appears to have been burned the past year which is exactly where wild turkey research would have predicted she would nest. Wild turkey hens prefer open, sunlit fields that were burned the previous year. They avoid fresh burns and areas so thick they have trouble walking through them.

We also know from the photo that the sparse groundcover will produce an abundance of insects in the form of grasshoppers, beetles, and moths within reach of the young poults that they will need to eat when they hatch. As the poults grow taller, throughout the summer the groundcover will also grow taller to hide the poults from avian predators such as red-tailed hawks.

When we work with landowners, we try to determine what their objectives are. Do they want wildlife habitat? Do they want income-producing pine timber and straw? Do they want a property where they can walk with their grandchildren and play in the woods? A well-managed tract of land encompassing young and old stands of longleaf as well as hardwood stands along the bottomlands can provide a landowner in the Southeast with all these amenities. But it starts with the tree, the groundcover, and fire.

Have a great summer, and I hope to see you at the 12th Biennial Longleaf Conference in Alexandria, Louisiana, October 23-26. Thank you for continuing your work for the restoration of the longleaf ecosystem.

2018 | Calendar

July 17-19, 2018
Longleaf Academy: Fire & Longleaf 201
UGA Conference Center, SREL
Windsor, South Carolina

August 14-16, 2018
Longleaf Academy: Herbicides & Longleaf 201
Solon Dixon Forestry Education Center
Andalusia, Alabama

September 25-27, 2018
Longleaf Academy: Understory Diversity 201
Little Ocmulgee State Park
McRae, Georgia

October 23-26, 2018
2018 Biennial Longleaf Conference
Holiday Inn Alexandria - Downtown
Alexandria, Louisiana

December 4-6, 2018
Longleaf Academy: Longleaf 101
Georgetown, South Carolina

For more information about events please visit The Longleaf Alliance website (www.longleafalliance.org.) Dates, locations, and course titles are not final until registration has opened.

SUMMER 2018 MANAGEMENT CHECKLIST

- **Evaluate Young Stands:** Inspect new longleaf plantings and plan future treatments if problems are noted. Mow or spray problematic species such as: crabgrass, coffee weed, partridge pea, hairy indigo, and other emergent weeds.

- **Planting Longleaf:** Secure soil samples for selected longleaf restoration sites. Subsoil or rip sites with hardpans early to allow time for the furrow to settle.

- **Order longleaf seedlings:** If you are planting longleaf this year and have not already ordered your seedlings, do so as soon as possible. All nursery production is again expected to be sold out this year. A list of preferred nurseries can be found at www.longleafalliance.org.

- **Herbicide Treatments:** Secure contractors for any chemical site-prep treatments. For maximum efficacy, foliar active herbicides such as glyphosate (Roundup®/Accord®) should be applied to pasture grasses before the first frost. If targeting waxy species, triclopyr (Garlon®) may be applied now or delayed until after the first frost to minimize impact to herbaceous groundcover.

- **Spray invasive species** such as: kudzu, cogongrass, bermudagrass, Japanese climbing fern, bahiagrass, and fescue.

- **Prescribed Fire:** Burn wiregrass and native groundcover to maximize fall seed production and viability.

- **Conduct a seed bed preparation burn** on mature stands with good cone crops. This allows the seed bed to be clean but not so clean that predators destroy all the seed.

- **Order Native Seed for Understory Restoration:** Seed from local ecotypes and endemic species is limited and expensive. Although some landowners have the time and expertise to collect their own seed, most restoration will occur with seed purchased from the few seed companies that sell southeastern sourced seed.

Q&A

Q. Dear Longleaf Alliance,

I'm looking for some recent publications on restoring longleaf and fire ecology. Do you have any suggestions?

An Avid Reader

A. Dear Avid,

You're in luck! Two new books are available. But first, don't forget that The Longleaf Alliance has an array of science-based, publications on restoring longleaf pine, native groundcover, and using prescribed fire. Search 'books' on our website at www.longleafalliance.org for more information.

As for the two books just recently published:

Ecological Restoration of Longleaf Pine Forests, L. Katherine Kirkman and Steven B. Jack, editors was released by CRC Press. The 427-page book summarizes more than two decades of basic and applied research and demonstration work conducted at the Joseph W. Jones Ecological Research Center at Ichauway in southwestern Georgia. The book is technical, but there is a wealth of information to be gleaned from it on various aspects of restoration and holistic management of longleaf pine forests. It's well worth purchasing and reading if you're serious in this field.

The University Press of Florida published *Fire Ecology of Florida and the Southeastern Coastal Plain* by Reed Noss. Noss does a great job summarizing and discussing fire ecology and natural history of fire in the southeast with an emphasis on Florida and adjacent areas of the coastal plain.

Anyone serious about restoring longleaf pine ecosystems and understanding and using fire in the southeast will find these two books great additions to their library.

As always, contact us with your longleaf pine related questions.

Happy reading!

Sincerely,

The Longleaf Alliance

Q. Dear Longleaf Alliance,

A landowner recently called me about browning buds on his 4-year-old longleaf pine. I drove out to his place, and when I arrived I saw that the needles on the candles of his young trees were turning brown and dying. On many of the buds there was a white resin leaking from the stem. A majority of the trees also showed a great deal of branching, which is atypical of longleaf so young.

He had applied 12 OZ of Polaris® AC (a.i. Imazapyr) per acre two years ago as a woody release treatment, roughly in early September of 2016. I checked the label of his herbicide, and that treatment was on label and conservative. He had applied the herbicide himself, and he did not use a surfactant.

Other than this herbicide application, the stand has not been treated in anyway. What do you think is the issue?

Thanks,

Hunter

Imazapyr damage resulting from a cut-stump treatment to remove sweetgum.

A. Dear Hunter,

Unfortunately, this is not an uncommon occurrence. The trees pictured are suffering from what some have come to call "Arsenal® (or Imazapyr) Disease." The landowner followed the labeled recommendations of waiting until after August 15th to apply the herbicide over the top of 2-5 years old longleaf without a surfactant. The Polaris® AC label goes on to instruct applicators to "use lower labeled rates on sandy soils" and "not apply this product when conifers are under stress from drought, disease, injury, or other stressors reducing their vigor."

The reason Polaris® AC suggests waiting until after mid-August is to wait until the growing season is (usually) over and the trees have a resting bud. However, longleaf makes multiple growth flushes during the growing season, occasionally up to 6 or 7 flushes in a wet year. During years with warmer fall temperatures, longleaf will continue to produce flushes, albeit small ones, well into the latter part of the year. Too often, Imazapyr will damage or kill the actively growing terminal buds.

Another strike against the application is that in late 2016, 75% of Georgia was in a severe drought which continued into early 2017. Across the state, the drought began to worsen after the herbicide was applied in September to already stressed trees.

Although a woody release application over the top of 2-5-year-old longleaf is on label, I cannot recommend it due to the numerous amount of damaged longleaf we've seen across the range. There are other herbicide options that may be effective treating the target species. When the stand has a good grass component, a well-timed prescribed burn after the first or second growing season does a great job of removing hardwood or off-site pines from a longleaf stand.

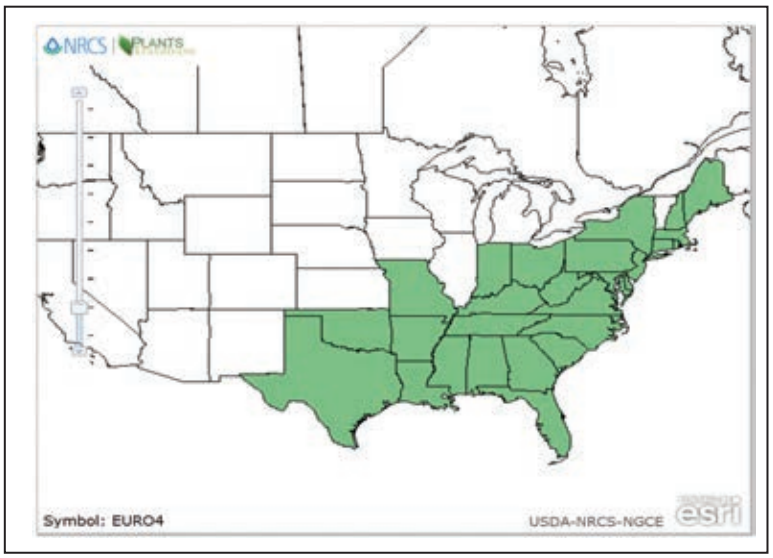
The Longleaf Alliance

UNDERSTORY

By Carol Denhof, The Longleaf Alliance

PLANT SPOTLIGHT

Eupatorium rotundifolium (L.) Roundleaf Thoroughwort



Map showing distribution of roundleaf thoroughwort. USDA PLANTS Database.

Roundleaf thoroughwort in bloom in a pine savanna in North Carolina. Photo by Carol Denhof.

Description

Roundleaf thoroughwort is a perennial and is one of the many flowering plants in the composite family (Asteraceae) that bloom in late summer and fall in the piney woods. The plant can reach 3 feet in height and is covered in short hairs. The sessile leaves are arranged oppositely on the stem and are rounded to broadly ovate in shape. The mostly single stems are oppositely branched in the upper portion and flat-topped (corymb) flower arrangements are formed at the tops of the stem branches. The flowers are white in color and arranged in clusters or heads with white bracts.

Distribution & Habitat

This species of *Eupatorium* has a very wide distribution. It can be found growing in a variety of habitats (from dry to wet pinewoods and savannas) from Maine south to central Florida and west to east Texas.

Wildlife Uses

Eupatorium spp. have been shown to provide moderate browse for some wildlife species. Like many other composite species, roundleaf thoroughwort provides a nectar source for native bees and butterflies.

Commercial Sources

Seed of roundleaf thoroughwort is available for purchase through Roundstone Native Seed (roundstoneseed.com). Plants can occasionally be purchased from native plant nurseries and specialty growers.

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Miller, J.H. and K.V. Miller. Forest Plants of the Southeast and their Wildlife Uses. The University of Georgia Press, Athens, GA. 454pp.

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By Catherine Rideout, East Gulf Coastal Plain Joint Venture

WILDLIFE SPOTLIGHT

Northern Bobwhite

The Northern Bobwhite *(Colinus virginianus)* – also commonly known as quail – has a widespread distribution across the Northeast, Southeast, and Midwest United States and is associated with multiple habitats including longleaf pine woodlands. In forested habitats, the bobwhite prefers what is called savanna or open woodland, with native grassland/scrub understory. Savanna habitat is disturbance-dependent and requires fire and timber thinning. The species can also be found in similar native grassland/scrub habitats on agricultural lands and rangelands. This handsome gallinaceous game bird is small (about 10 inches long), with a short round tail, and has beautiful plumage in a texture of gray, white, rufous, and black. Males have a bright white throat and a boldly patterned brown and white head while females have a similar pattern but the throat color and head pattern are not as distinct as on the males. This bird is aptly named because it has a clear and emphatic whistle of "bob-WHITE!"

Northern Bobwhite Quail. Photo by Dan Small.

This well-studied bird has endured declines in recent decades, tracking with trends of grassland species reliant on similar habitats. Habitat losses across the United States occur in longleaf woodlands, pine barrens, prairies, and shortleaf pine bluestem. Loss of management by fire and grazing has resulted in changes of the structure and composition of plants required by bobwhites throughout their life cycles. While certain timber management and grazing regimes can benefit this suite of species, in the second half of the 1900s, modern techniques for intensive timber management and grazing have altered the landscape in a way that has negatively impacted them.

Partners in Flight is an initiative which developed in response to declining songbird populations in 1990. Its mission is "keeping common birds common and helping at-risk species through voluntary partnerships" www.partnersinflight.org/. In 2016, this initiative, comprised of state and federal agencies, industry, universities, and non-governmental organizations, developed a Continental Landbird Plan. In the Plan, Northern Bobwhite is categorized as a "Common Bird in Steep Decline." Other birds in this category are those which have experienced long-term declines, and it is estimated they have lost from 50-70% of their populations since 1970. Quail have declined over 80% range-wide since 1966. Associated grassland birds also found in this category include loggerhead shrike, Eastern meadowlark, and field sparrow. In response to bobwhite declines, the Southeastern Quail Study Group was developed in 2002 under the auspices of the southeastern state wildlife agencies. Additional states within its range showed considerable interest. Now named the *National Bobwhite Conservation Initiative* (bringbackbobwhites.org), the partnership's goal is to restore wild quail populations across much of their former range to numbers comparable to 1980. The initiative's diverse approach to conservation includes elements of scientific and biological planning to determine where on the landscape to focus efforts; habitat delivery strategies focused on forests, grasslands, grazing lands, and agricultural lands; implementation of bobwhite and grassland bird monitoring to evaluate conservation success; addressing key policy issues affecting grassland birds; and communications and outreach. Non-governmental organizations, personnel from 25 state wildlife agencies, seven staff members, and a technical committee and management board are critical to the efforts to restore wild quail populations. Collaboration among members of the *Partners in Flight* and the *National Bobwhite Conservation Initiative* is also key to success in restoring populations of many declining grassland bird species. As these partnerships continue to strive on behalf of grassland bird conservation, we hope to regularly encounter that sweet music to our ears, the whistle of "bob-WHITE!"

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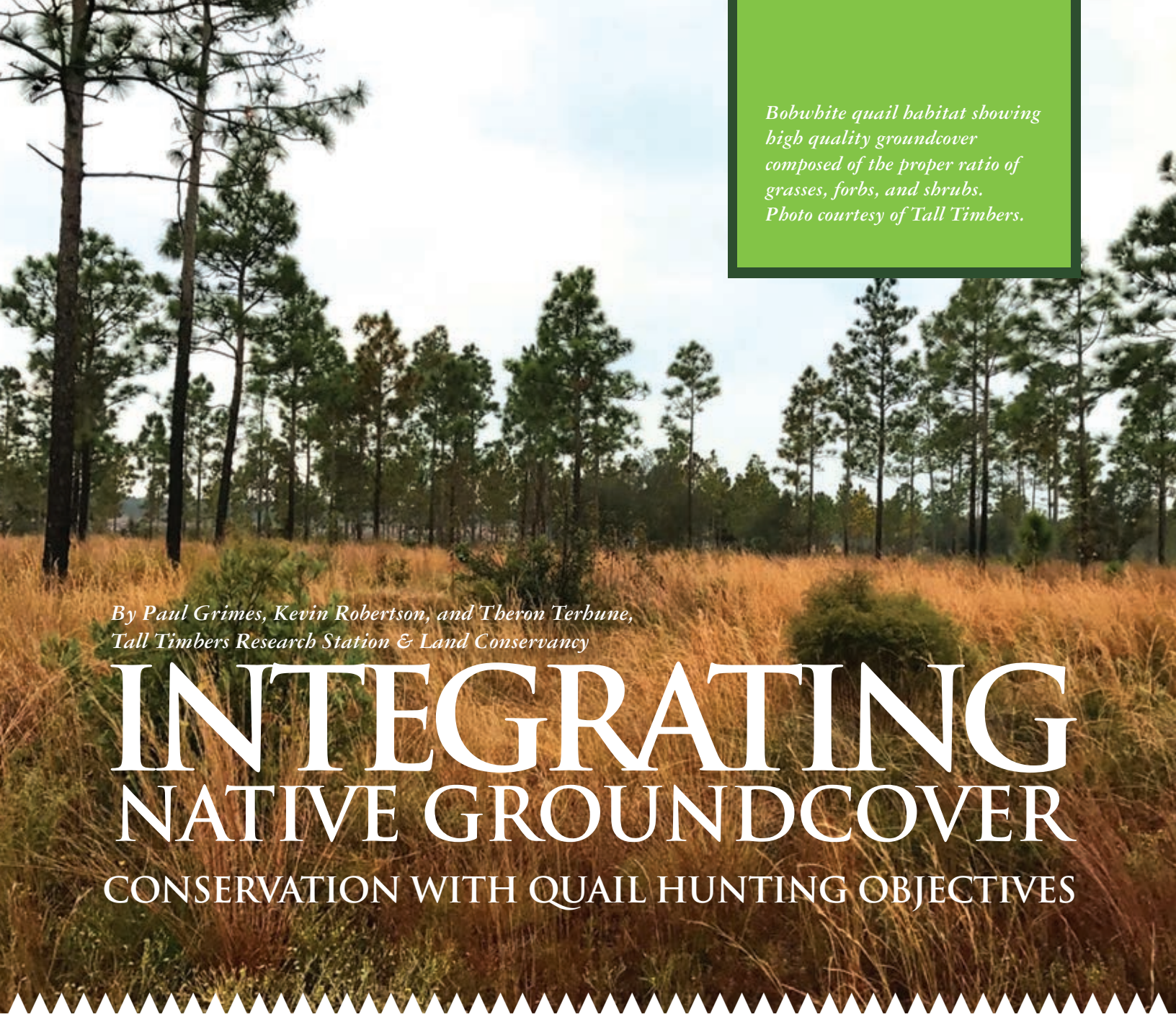
Brennan, L. A., F. Hernandez, and D. Williford (2014). Northern Bobwhite *(Colinus virginianus)*, version 2.0. In *The Birds of North America* (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.397

Website: National Bobwhite Conservation Initiative: https://bringbackbobwhites.org/



Bobwhite quail habitat showing high quality groundcover composed of the proper ratio of grasses, forbs, and shrubs. Photo courtesy of Tall Timbers.

By Paul Grimes, Kevin Robertson, and Theron Terhune, Tall Timbers Research Station & Land Conservancy

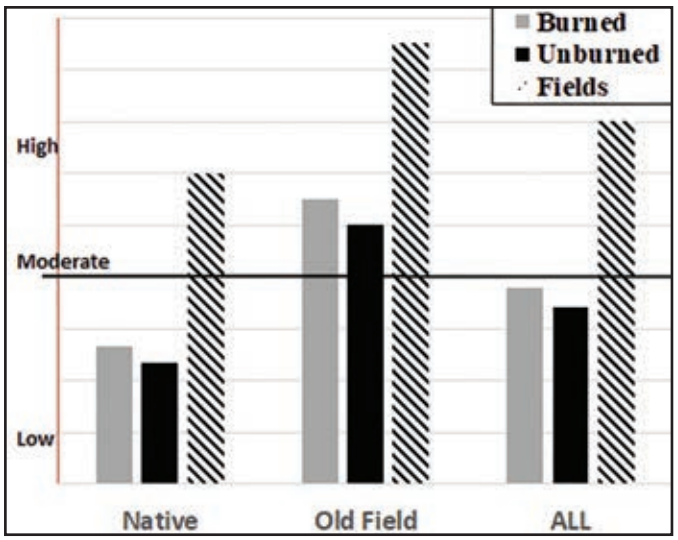
INTEGRATING NATIVE GROUNDCOVER

CONSERVATION WITH QUAIL HUNTING OBJECTIVES

Native longleaf and shortleaf pine communities of the southeastern U.S. maintained by frequent fire are among what Veldman and colleagues (2015) referred to as "old-growth grasslands, savannas, and woodlands." These community types are becoming rarer by the day. As such, there has been increasing concern about the conservation of such communities around the world, as they continue to be degraded and converted to other land uses. Plants in these communities are known for being fire-dependent, long-lived perennials with large root energy reserves, high resprouting capacity, ability to flower shortly after fire, non-persistent seed banks, and limited ability to colonize new locations through seed dispersal once they are removed. Many of these plants are sensitive to root-damaging soil disturbance, and are slow to return or may not return within a person's lifetime. Although some people refer to them as being "early successional communities" because of the occurrence of frequent fire, they function more like old-growth, climax communities, given that fire does not kill (but only "topkills") most plants. Most species are long-lived and persistent, making the community quite stable over time, probably changing little over hundreds or even thousands of years.

The remaining area of native pine communities, often called "native groundcover," represents only a small fraction of its

original extent. Maintenance of the full suite of native species requires frequent (1-3 year return-interval) prescribed fire, pine and hardwood canopy cover below about 50%, and limited soil disturbance. Native groundcover has been largely eliminated by fire exclusion, farming, industrial plantation forestry, improved pasture, and land development. Where it has not been eliminated, native groundcover can still be degraded gradually over time by fire return intervals greater than 2-3 years, unchecked canopy closure, unchecked exotic invasive species encroachment, or intense/extensive soil disturbance. However, it is important to note some level of soil disturbance is natural and has a neutral or beneficial influence on native plant diversity, such as that from burrowing activity of vertebrates such as pocket gophers and gopher tortoises or insects such as harvester ants. Whereas intense and extensive soil disturbance associated with human activities such as plowing, disking, roller chopping, and logging may cause long-term or permanent damage to native plants.



Tall Timbers' findings related to insect abundance among burned, unburned, and fields within native and old field sites in Georgia, Florida, and the Carolinas. On average, insect abundance was higher on old field sites than native groundcover.

In the Red Hills Region of northern Florida and southern Georgia, known for longleaf pine and native pineland wildlife, less than 15% of the original extent of native groundcover remains, including remnants in poor condition. Much of this remnant ground coincides with privately owned properties that are intensively managed for wild, northern bobwhite "quail" hunting as the landowner's primary objective. The relationship between conservation of native groundcover and management for quail is mostly positive but has had its areas of friction. On the one hand, conservation of native quail populations for hunting has provided a major impetus for managing native pine communities with the fundamental processes necessary for their persistence – frequent, low-severity fire with areas left green for wildlife cover and tree regeneration, and timber management that ensures abundant light at ground-level profiting the full suite of native plants and animals. Thousands of acres in the South are managed for quail which otherwise may have been converted to other land uses, far less favorable to native groundcover in order to meet different objectives. On the other hand, at a smaller scale (typically <30% of the managed lands) within these properties, quail management can involve a certain amount of intentional soil disturbance, including plowing or disking of firebreaks to contain prescribed burns, disking for food plots or fallow fields to support bobwhite broods (discussed further below), and roller (drum) chopping to control woody vegetation and provide access for hunting. As such, it has been our experience that native groundcover disturbance is not necessarily all or nothing, as it depends on the intensity and frequency of the disturbance and has a wide range of effects among plant species. At one extreme, repeated disking for farming, fallow fields, or maintenance of a firebreak represents the nearly complete elimination of plants except for annual weeds. Even if disturbance is stopped, re-establishment of plants is limited to a certain number of plant species which represent "old-field" vegetation and exclude native groundcover indicator species [see box or section below]. Collectively, this underscores the importance of recognizing soil-sensitive communities and managing according to one's objectives while minimizing the ill-effects on native plants.

Objective Driven Management and Research

Ultimately the level and extent of soil disturbance varies by property and is based on the individual landowner's specific objective(s). In the South, quail hunting objectives are usually best defined by establishing a desired covey find rate (coveys found per hour of hunting). From there, biologists can deduce the necessary average quail density required to meet that objective, then determine whether or not that desired density can realistically be achieved under existing constraints within that particular landscape and soil type. Many landowners have multiple objectives that might include both maintenance of native groundcover and high quail hunting success. However, recognizing the tradeoffs associated with sometimes competing interests is important to frame realistic goals and evaluate success.

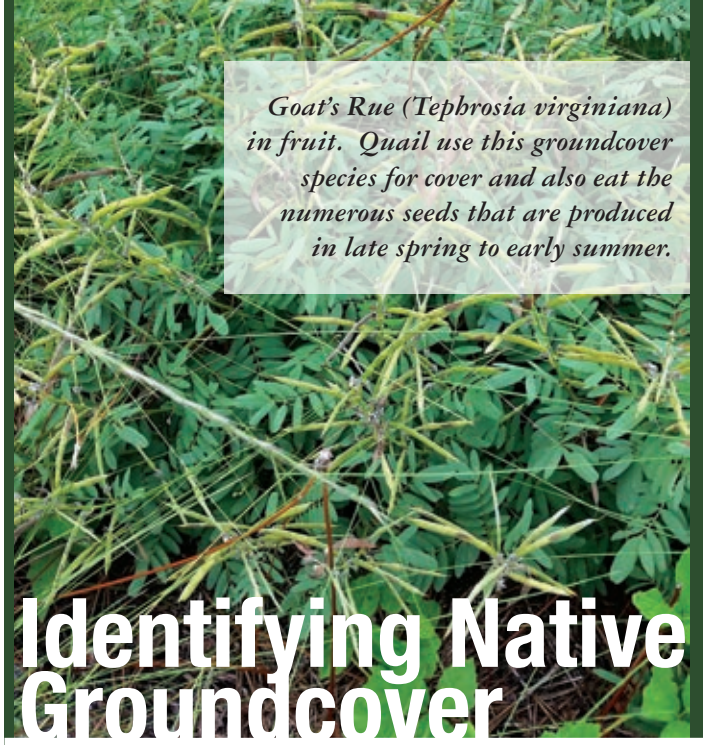
Research at Tall Timbers has found that limited or sporadic disturbance, like roller chopping or the one-time disking of a firebreak in native groundcover, nearly eliminates about a fifth of the species, including wiregrass, which do not come back for at least several years even with removal of disturbance. Many other species regrow from remaining roots and seeds. Such disturbances also greatly increase the presence of weeds not typically seen in native groundcover, such as yankeeweed *(Eupatorium compositifolium)*, Canadian horseweed *(Conyza canadensis)*, and poorjoe *(Diodella teres)*, and off-site, historically wetland woody plants such as water oak *(Quercus nigra)*, live oak *(Quercus virginiana)* and sweetgum *(Liquidambar styraciflua)*. Although present in native groundcover, species such as common ragweed *(Ambrosia artemisiifolia)*, broomsedge *(Andropogon virginicus)*, goldenrod *(Solidago fistulosa* and others), and blackberry *(Rubus cuneifolius* and others) also increase considerably with soil disturbance. The loss of wiregrass combined with the increase in these less flammable weedy and woody plants can reduce effectiveness and narrow the range of conditions for prescribed burning, an essential component of quail management. Conversely, intact native groundcover allows for effective burning and woody plant "top kill," as well as offering a wider range of possible burn days, including early spring and early summer, which effectively reduces the amount of recently burned area, and increases cover on a property at a given time during the burn season.

We continue to research and refine optimal management techniques for effectively assisting landowners with meeting target quail objectives for a property while protecting native groundcover. For example, often times increasing quail densities on certain sites can be negatively influenced by a lack of insect and cover availability necessary to promote improved brood success. Taking a closer look at the details associated with this perceived limitation, we conducted sampling across multiple properties in various landscapes throughout Georgia, Florida, and the Carolinas to measure insect abundance and diversity within various suitable cover types (i.e., 1-year unburned native groundcover, burned native groundcover and managed "old field"). Results indicate higher insect abundance on old field sites, particularly within fields (See Figure 1). Fields with native annual vegetation can also provide an added value associated with increased hunting success. However, there still exists some uncertainty regarding additional habitat metrics that could hold equal or more influence on brood success when paired with insect abundance and diversity. It is also unclear as to what exact levels of insect abundance and diversity are necessary for allowing quail populations to exceed certain production thresholds.

Landowner objective drives the decisions made for managing a property. Under objectives driven by high quail hunting success, it is more challenging to avoid compromises that result in some degradation of native groundcover. Stemming from research conducted by Tall Timbers, the following management practices are recommended to minimize these compromises and potentially degradable impacts to native groundcover while assisting to meet landowner's specific quail hunting objective:

- Mowing (appropriately timed) instead of roller chopping. Transitioning from roller chopping to mowing for woody vegetation control and providing access lanes significantly reduces soil disturbance.
- Utilizing existing openings or previously disturbed areas achieving high quality brood range. Brood fields distributed throughout a property have been shown to improve brood-rearing conditions and subsequently chick survival on lower-quality soils. Avoiding or minimizing the creation of new fields in areas with existing native groundcover while focusing brood field management in previously degraded areas can effectively improve available brood range while minimizing negative impacts on native groundcover.
- Be creative when implementing a burn program while meeting small-scale bobwhite objectives.
- Utilizing existing roads, creeks/streams, fields, and etc. when implementing a burn program for bobwhite objectives. Reducing the scale/size of prescribed fire by using existing landscape features to serve as firebreaks can prevent unnecessary soil disturbance and save fuel/maintenance costs.
- Implement a patchy burn under mild conditions (i.e., high humidity) can be suitable to create heterogeneous vegetation.
- Burn more frequently (12- to 18-month fire return interval to reduce thatch and increase patchiness.
- Proactively control exotic invasive species with herbicides when feasible.
- Offset deficient resource availability by nutritional supplementation and where possible, utilize existing roads or paths for feed lines to reduce unnecessary soil compaction.
- Maintain mesomammalian nest predator levels at or below recommended level (<15% predator activity index) to maximize bobwhite productivity.

Continued ➔



Goat's Rue (Tephrosia virginiana) in fruit. Quail use this groundcover species for cover and also eat the numerous seeds that are produced in late spring to early summer.

Identifying Native Groundcover

Native groundcover in southern upland pine communities (sandhills and clayhills) are best identified by the presence of "indicator species" specific to those communities, as well as low cover of indicator species for disturbed sites. Perhaps the most visible (and sensitive to soil disturbance) indicator species east of the Mississippi River is wiregrass *(Aristida stricta)*. Indicator species distributed across most of the Coastal Plain include herbs such as little bluestem *(Schyzachyrium scoparium)*, bracken fern *(Pteridium aquilinum)*, goat's rue *(Tephrosia virginiana)*, pineland twin flower *(Dyschoriste oblongifolia)*, and woody plants including bluejack oak *(Quercus incana)*, turkey oak *(Q. laevis)*, black oak *(Q. velutina)*, sand post oak *(Q. margaretta)*, running oak *(Q. pumila)*, dwarf huckleberry *(Gaylussacia dumosa)*, Darrow's blueberry *(Vaccinium darrowii)*, and deerberry *(V. stamineum)*. Conversely, areas with a history of intensive soil disturbance even a century prior tend to be dominated by off-site mesic woody plants, including such as loblolly pine *(Pinus taeda)*, water oak *(Q. nigra)*, live oak *(Q. virginiana)*, willow oak *(Q. phellos)*, sweet gum *(Liquidambar styraciflua)*, black cherry *(Prunus serotina)*, and red maple *(Acer rubrum)*. Several woody species occur in both post-disturbance and native sites, but are dominant over the off-site species in native sites, such as southern red oak *(Q. falcata)*, post oak *(Q. stellata)*, blackjack oak *(Q. marilandica)*, white oak *(Q. alba)*, mockernut hickory *(Carya tomentosa)*, and sassafras *(Sassafras albidum)*. Indicator species for flatwoods pine communities have not yet been well studied.

By Dale G. Brockway, Southern Research Station USDA Forest Service

LONGLEAF PINE CONE PROSPECTS FOR 2018 & 2019

The regional cone crop, based on green cone counts, is failed for 2018, at 7.2 cones per tree. The natural variation, typically seen throughout the native range of longleaf pine, is less evident in this year's data, with most sites failing and several other sites having only poor production. Bumper crops, good crops, and fair crops were not observed anywhere. Poor crops (10 to 25 cones per tree) were present in Grant Parish, Louisiana, Leon County Florida, Chesterfield County South Carolina and Bladen County, North Carolina. Failed crops (< 10 cones per tree) were noted in Escambia County, Alabama, Santa Rosa County, Florida, Okaloosa County, Florida, Baker County, Georgia, Leon County, Florida, Chattahoochee County, Georgia and Putnam County, Florida.

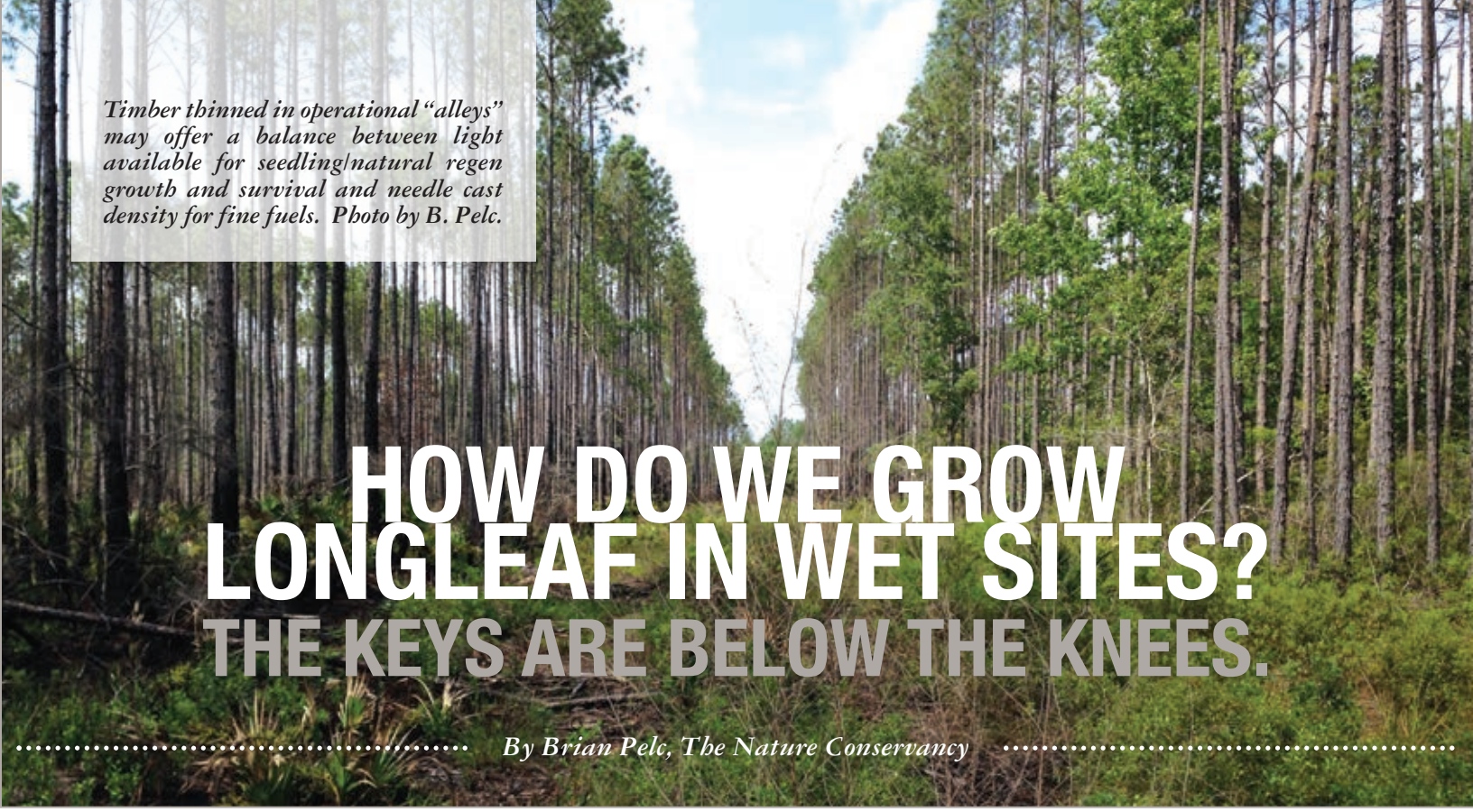
The regional cone crop outlook, based on counts of unfertilized conelets, is good for 2019, at 86.5 cones per tree. The cone crop is forecasted to be a bumper crop at three sites, a good crop at seven sites and a poor crop at one site, reflecting a good deal of natural variability. However, keep in mind that cone crop estimates based on counts of unfertilized conelets are less reliable than those based on counts of green cones, because of conelet losses during their first year, with often fewer than half surviving to become green cones during their second year.

Cooperator	State and County	Estimated cones per tree from green cones for fall 2018	Estimated cones per tree from conelets for fall 2019
Kisatchie National Forest	Louisiana, Grant	19.2	64.1
T.R. Miller Woodlands	Alabama, Escambia	5.4	60.8
Blackwater River State Forest	Florida, Santa Rosa	9.2	102.6
Eglin Air Force Base	Florida, Okaloosa	0.4	72.2
Apalachicola National Forest	Florida, Leon	0.8	92.9
Jones Ecological Research Center	Georgia, Baker	1.5	148.3
Tall Timbers Research Station	Florida, Leon	13.1	139.9
Fort Benning Military Base	Georgia, Chattahoochee	3.8	77.9
Sandhills State Forest	South Carolina, Chesterfield	13.9	83.7
Bladen Lakes State Forest	North Carolina, Bladen	12.0	89.1
Ordway-Swisher Biological Station	Florida, Putnam	0.4	19.9
Region Averages		**7.2**	**86.5**

The 53-year regional cone production average for longleaf pine is about 28 green cones per tree. The single best cone crop occurred in 1996 and averaged 115 cones per tree. Good cone crops were observed in 1967 (65 cones per tree), 1973 (67 cones per tree), 1987 (65 cones per tree), 1993 (52 cones per tree), 2014 (98 cones per tree) and 2017 (62 cones per tree). Fair or better cone crops have occurred during 49% of all years since 1966, with an increased frequency since the mid-1980s. Reasons for this increasing frequency may be related to environmental change or management factors (or a combination of these). Research analysis of these long-term cone crop data has resulted in the recent publication of two scientific articles, which provide new insights into the reproductive pattern of longleaf pine in an environment with increasingly variable conditions. An electronic portable document file (pdf) of each of these two articles is included along with this report:

Guo, Q., Brockway, D.G., Chen, X., 2017. Temperature-related sex allocation shifts in a recovering keystone species, Pinus palustris. Plant Ecology & Diversity 10(4): 303-310.

Chen, X., Guo, Q., Brockway, D.G., 2017. Power laws in cone production of longleaf pine across its native range in the United States. Sustainable Agriculture Research 6(4): 64- 73.



Timber thinned in operational "alleys" may offer a balance between light available for seedling/natural regen growth and survival and needle cast density for fine fuels. Photo by B. Pelc.

HOW DO WE GROW LONGLEAF IN WET SITES?

THE KEYS ARE BELOW THE KNEES.

By Brian Pelc, The Nature Conservancy

When the sun first rises on the Apalachicola Regional Stewardship Alliance (ARSA) Local Implementation Team boundary, light breaks through a mix of pine plantation and relic longleaf along the Florida Panhandle's Aucilla River. What that sunlight occasionally reveals would be familiar to the regions' inhabitants a thousand years ago: open pine savannas with abundant and diverse grasses and forbs in the understory and occasional hardwood shrubs and tree saplings. Unfortunately, more often than not, the private and public forests that cover so much of the region are much less useful for wildlife, now reduced to a couple of hardy shrub species and a mix of off-site pines in the canopy. According to David Printiss, North Florida Program Manager for The Nature Conservancy, "Wet and Mesic Flatwoods, characterized by their poorly drained, acidic soils, once accounted for about 40% of the longleaf habitat across the 90-million- acre range. Most of what remains is in serious need of active management including frequent fire and conversion back to a longleaf pine dominance. That means much more than simply planting trees; it means resetting the clock on the forest structure by reducing the massive excess of the shrub layer, by any and all means, including prescribed fire every 1-3 years. Reducing the hardwood competition will give the groundcover component of the ecosystem a fighting chance to survive and prosper." But our understanding of precisely how to manage for that fighting chance is still limited.

Dense shrubs replace native groundcover essential for habitat and low intensity fire. Photo by B. Pelc.

Well-drained sites, like the nearby Munson Sandhills of the Apalachicola National Forest, are great for longleaf, making good use of the tree's naturally frugal water needs; longleaf thrives on dry, low competition sites while most hardwoods struggle, especially in combination with good fire management. In contrast, these wetter sites often have a sandy or limestone soil but also sit atop a flat clay layer that impedes drainage, providing ample water for fast growing shrubs to take advantage. Add to that several decades of fire suppression and most native groundcover and natural pine regeneration is replaced by dog hair-thick shrubs like gallberry (Ilex glabra) and titi (Cyrilla racemiflora.) Establishing new longleaf seedlings or native grasses in this shady and competitive

environment has been very difficult for land managers. High-quality flatwoods sites are often characterized with between 10-25% midstory shrub cover and more than 50% of the understory composed of herbaceous groundcover. Simply due to the expanded shrub layer and lack of grasses and forbs, a major portion of ARSA flatwoods would be considered in poor condition. And, as stated previously, there is serious lack of information about how to get flatwoods longleaf forests back to a functional, high diversity condition from this degraded state. There'll be more on restoration in a bit, but understanding how our precious woods got in this sad state is important to fixing it.

Melanie Kaeser works for U.S. Fish and Wildlife Service based out of the Panama City office but is part of a natural resources team responsible for the 30,000 acres of Tyndall Air Force Base. According to Kaeser, "Tyndall's flatwoods were severely impacted by commercial forestry operations and fire suppression. Reforestation in the last century brought in mostly off-site slash pine, but it's not clear exactly what triggered the massive expansion of the shrub layer, basically consuming all the space that a highly diverse herbaceous understory once occupied." Certainly, changes in fire in the last 100 years plays a role. Foresters and ecologists have repeatedly documented that fire suppression leads to increased abundance of hardwood trees and shrubs. But fire is not all equal and simply bringing it back in the form of dormant season prescribed fire may not have the same controlling effect that warm season, large-scale natural fires once did. As natural components of the longleaf pine ecosystem, these hardwood species have adapted to regular fire by resprouting top-killed stems from stored root reserves. This strategy may be underlying the massive expansion with fire suppression because belowground storage may have continued to accumulate during fire suppression and instead of accounting for resprout after fire, shrubs simply added new stems to existing stems. Like a bank account, when the root storage is flush, these shrub species can "afford" to support larger and larger above and below ground biomass making them increasingly competitive for soil and light resources and thus replacing the diverse herbaceous grasses and forbs. Restoring native plant communities associated with the longleaf pine ecosystem may be more challenging than simply "draining the bank account" because the tools we have on hand and our ability to monitor the draining process are too crude, too ineffective or potentially too destructive. Kaeser describes the situation this way, "In many cases, degraded sites resulting from a history of infrequent dormant season fire can be improved by first reducing heavy fuel loads with dormant season fire followed by low intensity, frequent growing season fire. However, on a property like Tyndall, forest restoration activities including prescribed fire can be difficult because we have to consider military mission, resources, and safety requirements that result in highly complex prescribed fire scenarios. Alternatively, heavy equipment can be used to remove the shrub layer mechanically but could have unintended costs and consequences to the seed bank and remnant plant species if not implemented properly. With long-term management, our goal is to convert the mature slash pine plantations back to longleaf pine and restore the floristically diverse understory composed of native grasses, sedges, and forbs using low intensity, frequent prescribed fire."

Dann Childs (Tyndall Air Force Base) and Melanie Kaeser (USFWS) leading field tour in a relic longleaf flatwoods site with groundcover composed of occasional shrubs with herbaceous (grasses and widlflowers) dominance. Photo by Catherine Phillips.

Long-term management can include row thinning canopy trees, chopping or mowing the shrub layer repeatedly, and during strategic times of the year, applying herbicides where relic flatwoods won't be heavily impacted. Tyndall's Integrated Natural Resource Management Plan and Forest Management Component Plan lays out this approach in a novel strategy that cuts timber in wide (4 rows), machine-accessible "alleys" while retaining two rows of off-site pine canopy on either side to provide forest structure and fine fuels (needle cast) for fire during the first critical decades of longleaf conversion. Longleaf pine seedlings are planted in two cohorts (15-20 years apart) in an attempt to have an uneven-aged forest when the longleaf mature. The first several iterations of this management effort

have shown promising results in both longleaf seedling survival and a shift from shrub dominance to a more floristically diverse, fire-friendly fine fuel community.

But can it be repeated across the range? The ARSA partners, including Kaeser and Printiss and numerous others from within the LIT and across the range are going to find out. ARSA is uniquely positioned, both as an alliance that values partnership and as a region with thousands of acres of flatwoods in need of direction. A technical working group with representatives from The Nature Conservancy, US Fish and Wildlife Service (Panama City office and St. Marks NWR), US Forest Service (Apalachicola National Forest and Southern Research Station), Florida Forest Service, Florida Fish and Wildlife Conservation Commission, and Florida Natural Areas Inventory are developing a plan to monitor the groundcover community (including native pine regeneration and seedling survival) responses to this novel approach, as well as more common conversion strategies, like underplanting, across numerous sites in the ARSA landscape. The Partnership is confident that not only will this work provide valuable management tools for longleaf acres in the area, but will help move the needle on groundcover quality and the 8-million-acre goal across the entire longleaf pine range.

LONGLEAF RESTORATION: { A FAMILY PERSPECTIVE }

By George Tyson

George Tyson's prized English setters on point in a gap created within the heavily thinned loblolly pines. Longleaf seedlings will be planted, mimicking the process occurring in nature after a disturbance such as a lightning strike. Photo by Lucy Tyson.

George Tyson has had a lifelong passion for quail hunting and believes that "small c" conservatives are the best conservationists. His wife, Anne, has a long history of more broad-based involvement in environmental causes. Their children spent vacations hiking in national parks; dinner table discussions frequently were devoted to environmental topics. In the last decade, longleaf restoration has become a family affair. George and Anne acted on their combined passion and interest in longleaf by becoming active members of The Longleaf Alliance and George joined the Board of Directors in May 2013.

In 2006, seeking land for quail hunting, George purchased a small tract of poorly managed loblolly pinewoods on the Little Pee Dee River in Dillon County, South Carolina. Two things then occurred: he purchased a larger, contiguous tract for investment; and he began to burn the original tract annually to improve the hunting. After each burn, hundreds of longleaf seedlings "spontaneously" generated, and it was evident that there were several dozen heirloom longleaf seed trees scattered amongst the loblollies.

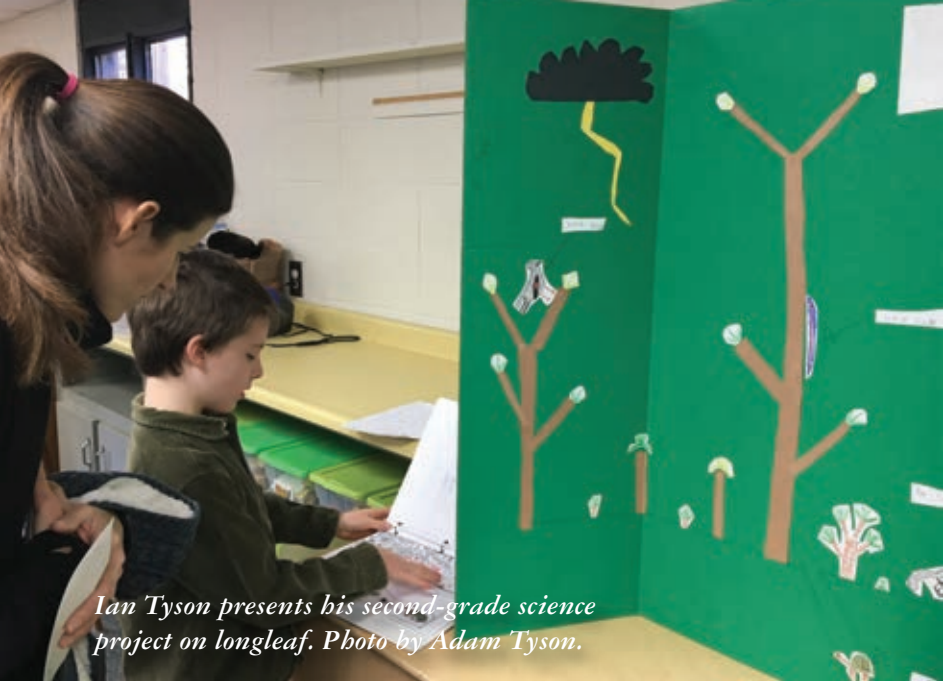
Vaguely aware that longleaf was the best quail hunting habitat,

Tyson sought information regarding the growth and survival of these seedlings; and he rapidly learned that the major source of knowledge was The Longleaf Alliance. By this time, with over 1600 acres and two and a half miles of riverfront, Anne and the three girls were all in, hiking and kayaking. George and Anne attended a Longleaf Academy and immediately grasped the concept of restoration. With a forty-acre tract of planted longleaf already existing on the newly purchased land, they developed a hundred-year plan to restore completely their land to the primeval Southern longleaf forest. According to George, "It was scary the first time I said it out loud, to speak of planning something that would be completed in my grandchildren's lifetimes. But, now I think it's kind of cool."

As timber has been cut, the easy part has been to site prep and plant longleaf seedlings. By the end of 2018, over 500 acres will be in longleaf. Prescribed burning of these tracts is undertaken on a rotational basis. The low-lying, very fertile areas along the riparian borders have been replanted in loblolly for current income. ("Current" defined as the next quarter century.) The more interesting challenge has been to plan and carry out conversion of the quail hunting tracts without clearcutting. There is not a consensus approach on a best method for this; but across the range landowners are increasingly testing different approaches to change species over time. Working with their timber manager, Richard Howard (Howard Land & Timber in Darlington, South Carolina), the pines were heavily thinned, creating the architecture of a longleaf forest. This improved the aesthetics of quail hunting and allowed the broomsedge-based understory to move in. Next, essentially following the Stoddard-Neel approach, gaps are being cut, and longleaf seedlings will be planted. As these reach shoulder height, the process will be repeated until the entire tract is converted.

The Tysons offered the land to the Environmental Studies Department at Wofford College, George's alma mater; and for ten years, hundreds of students have used it as a living laboratory. Timber income from the property has been used to sponsor a visiting lectureship at Wofford devoted to the preservation and restoration of Southern ecosystems. The educational approach has extended even into the younger age group.

Additional nearby tracts have been purchased as they become available; all of which will be restored to longleaf. George and Anne see this land, now well over 1700 acres, and this restoration, as a legacy for their family, for Wofford College, and for the state of South Carolina. Clearly, the biodiversity of the longleaf forest is unparalleled and provides habitat for many threatened species. Moreover, there is growing evidence to



Ian Tyson presents his second-grade science project on longleaf. Photo by Adam Tyson.

A Wofford College student obtains a core sample under the watchful eye of Julie Moore, Board Member of The Longleaf Alliance. Photo by Anne Tyson.

suggest that the net contribution of the longleaf forest to clean air and water and to carbon sequestration is superior to that of other ecosystems of equivalent biomass. However, one major concern is whether the longleaf forest can support itself economically in an era when timber will no longer do so. Specifically, can a family, without great wealth, afford to keep land such as this, undeveloped through generations? Compensation of the landowner for ecosystem services, such as is done in Europe, is becoming more common and may be the solution. Better markets for longleaf timber, non-timber markets, and recognition of the value of ecosystem benefits can make longleaf an attractive choice for private landowners. However, if we only value timber returns in a pulpwood market, then longleaf will increasingly be relegated to lands of the public or the ultra-wealthy. It brings to mind these familiar lyrics by Joni Mitchell –

"They took all the trees
And put them in a tree museum
Then they charged the people
A dollar and a half just to see 'em"

Visiting Lectureship: Wofford College		
Year	**Speaker**	**Lecture Title**
2012	Rhett Johnson	"Longleaf in the Long Run: Restoring the South's Richest Forest"
2014	Johnny Stowe	"Fire in the Southland: The Natural and Cultural Heritage of Woods-Fire"
2015	Julie Moore	"The Role of the Private Landowner in Conservation"
2016	J Drew Lanham	"The Color of the Land: Sand County to Carolina Clay"
2017	Dan Flores & John Lane	"Coyote: A Conservation About One of America's Most Resilient Mammals"
2018	David Shield	"Southern Provisions: The Creation and Revival of a Cuisine"
2019	Janisse Ray	TBA-20th anniversary of publication of Ecology of a Cracker Childhood

LANDOWNER ASSISTANCE RESOURCES

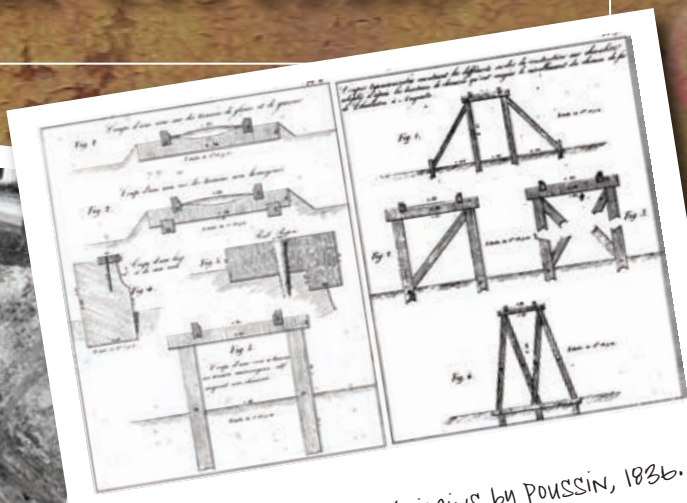
- NRCS Longleaf Program Incentives continue to be funded strongly across the South.
- NRCS Longleaf practices in some states can assist with conversion without clearcutting.
- Your state's forestry and/or wildlife agencies can offer valuable assistance, also an increasing number of non-governmental conservation partners can as well.
- Federal partners with longleaf include US Fish &Wildlife and US Forest Service.
- If your property is within the area of one of the 17 Longleaf teams (LITs), there may be other types of assistance available also, including technical support.
- The Longleaf Alliance is always available for technical assistance, by phone, email, or website question line.

By Howard Wayt

WHEN LONGLEAF RULED THE RAILS

The Gregg-Graniteville Archives, University of South Carolina Aiken.

The Gregg-Graniteville Archives, University of South Carolina Aiken.



From Chemins de fer Américains by Poussin, 1836.

The wooden frame I held in my cotton-gloved hands was intricately pierced and carved, with gold-leaf around the edges. Professor Deborah Tritt, in charge of the Gregg-Graniteville Archives at the University of South Carolina Aiken, had presented it to me for my inspection. It held a photograph of the steam locomotive Best Friend of Charleston probably taken in the 1930's. Not of the real one, of course, but of the replica built by the Southern Railway for publicity in 1929. The original Best Friend blew up in 1831, long before photography was even invented. It was a nice picture, very evocative of the time, but one I had seen many times before. There was a tiny brass plaque nailed to the frame below the picture. I didn't bother to read it.

"The frame is made from some railroad wood," said Deborah in a rather casual way as I was about to put it down.

"What railroad wood?"

"From the railroad tracks they found."

"…Whaaaat?" I looked closer. I had been fooled by the dark wood stain, but flipping the frame over revealed lighter patches where the aged pine wood color and grain showed through untinted. Construction workers had found those tracks in 1944 when digging sewer line trenches in nearby Warrenville, SC, four feet down in the damp, sandy soil. They belonged to the South Carolina Canal and Railroad Company (SCCRR), the first railroad in the South, and were part of a railroad mainline that, at 136 miles, was the longest in the world in 1833. Back then even the rails had been made of wood and were only capped with a thin bar of English-rolled iron to protect them from the wear of iron wheels. "The wood was the Southern pine," former Chief Engineer Horatio Allen would reminisce fifty years later, "the hard, resinous surface of which was as suitable for the iron bars as wood could be." Given that they were using virgin timber stands, most of his "Southern pine" was probably longleaf.

Well, well, two-hundred-year-old longleaf pine. It looked good for its age, considering it had been buried in the ground for nearly one hundred years before being unearthed. South Carolina Governor Hayne and his entourage had rolled over that wood in 1833 on their way to Augusta, GA in celebration of the completion of the railroad. When the track had been unearthed in 1944, Graniteville Company President S.H. Swint, excited by the find, had paid for excavation and documentation, and had taken a big piece of wood out and had this frame made from some of it as a souvenir. I squinted at the little brass plaque. In tiny letters it read, "The frame was carved from piling used in constructing the original road between Charleston and Hamburg." That'll teach me – I should have known better than to skip the plaque. If Deborah hadn't said anything I might never have known.

The railroad used that pine for everything, not just for the tracks, but for sheds, shanties and depots of all kinds, turntables, railroad cars – they even burned it in the boilers of

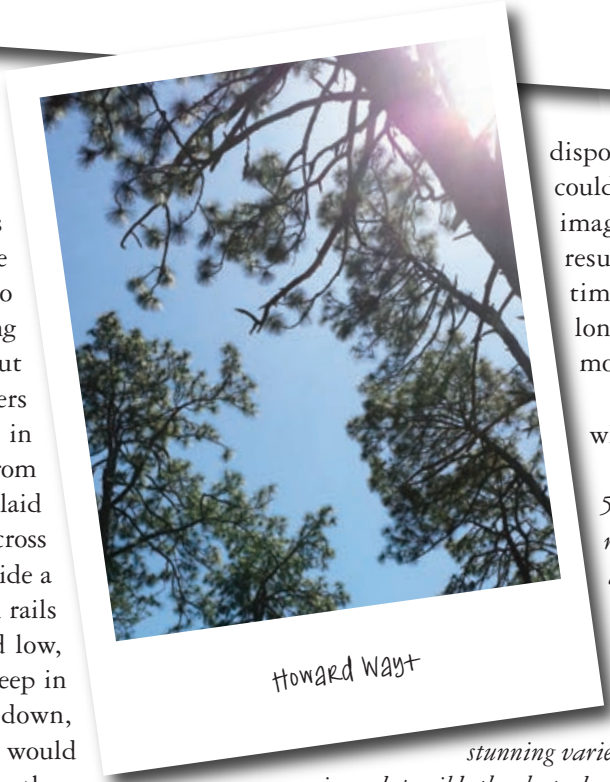
Howard Wayt

their locomotives to generate steam. The *Best Friend of Charleston*, the first steam locomotive put into regular service on a railroad in the U.S., was operated by the SCCRR beginning in 1830, and was likely often fueled by longleaf pine, though obviously any wood would, and did, do. Before the invention of headlamps, they even burned pitch-pine torches to light the way of night trains, also a first.

But the tracks were the main consumers of longleaf, with crews cutting a two-hundred-foot-wide swath through the countryside to provide the wood necessary for building them. Ancient longleaf pines were cut down, split, and hewn into timbers sometimes as big as one-foot square in section and as long as could be got from the tree. These timbers became sills, laid on the ground in long parallel lines across marshes, swamps and streams to provide a stable, firm base for the cross-ties and rails to mount to. Where the land dipped low, they cut pine piles and drove them deep in the soil, sometimes twenty-five feet down, building wooden trestles where others would have raised earthen roadbeds. Across those sills, piles, and trestles they ran mile after mile of pine cross-ties, and then pine rails topped with those thin, flat, iron bars.

Today you can see those same iron bars still spiked to their pine rails in the Hitchcock Woods of Aiken, SC, not far from either Warrenville or the Gregg-Graniteville Archives. Recently uncovered by storm-water erosion, the tracks have sprouted from the forest floor much like the longleaf pines that now tower overhead. Laid down when Andrew Jackson was still President of the United States, weathered but still mostly intact, those longleaf pine rails now show us just how "suitable for the iron bars" they really were. Thanks to the careful work of archaeologists we now know that there is far more of that pine down there in the sand and clay waiting for us, much of it as solid as the day it was hewn. The existence of those tracks is just beginning to be recognized as potentially one of one of the most important historical discoveries in a century, encompassing what are believed to be the only intact examples of iron-capped wooden rails in existence. Yet they emerge from the white sand of Hitchcock Woods in such a subtle and understated way that you might pass right over them without even knowing they were there or what they were. Long forgotten, it's almost as if they had buried themselves, waiting to re-emerge at just the right time, hoping they would be recognized and remembered. Waiting to remind a disposable society of what permanence could be achieved with resinous wood and imagination. Waiting for their resurrection so as to bear witness of a time when pine fueled the South, and longleaf ruled the rails. Waiting no more, revealed at last.

Howard Wayt



Howard Wayt

I passed the frame back to Deborah, who put it gently away.

The Hitchcock Woods Foundation is a 501(c)(3) nonprofit that is solely responsible for the ecological stewardship and management of Hitchcock Woods, the largest privately owned urban forest in the country, with over 2,100 acres of forestland resources and 70 miles of sandy trails that provide access to a stunning variety of ecosystems. The Foundation's work is made possible thanks to donor support. To learn more about Hitchcock Woods and the Foundation's work visit www.hitchcockwoods.org .

Growing season burn on partner Reese Thompson's property in Wheeler County, Georgia. Photo by Reese Thompson.

By Randy Tate, The Longleaf Alliance

FORT STEWART/ALTAMAHA LONGLEAF RESTORATION PARTNERSHIP CELEBRATES THEIR FIFTH ANNIVERSARY!

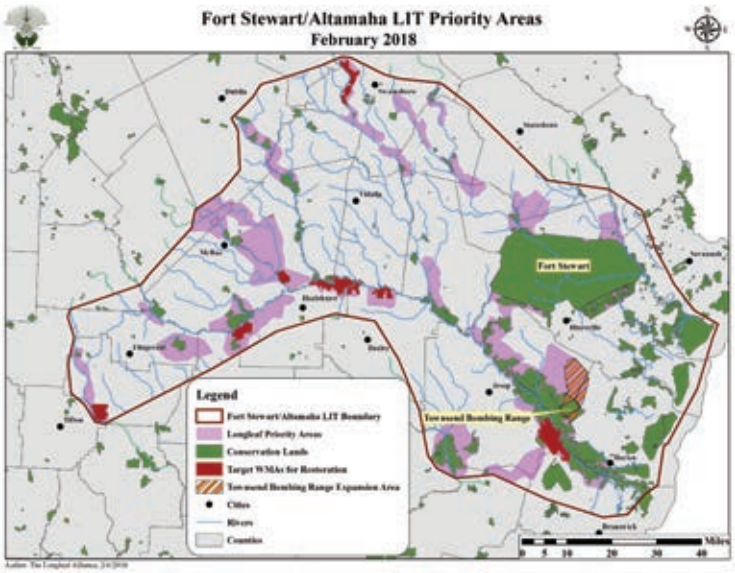
Old growth longleaf forest on Moody Forest Natural Area. Photo by Randy Tate.

Groundcover species planted from seed in one of the Groundcover Demonstration Sites on Moody Forest Natural Area. Photo by Carol Denhof.

Southeast Georgia has always been a land of longleaf pine. The old growth longleaf at Moody Forest Wildlife Management Area (WMA) in Appling County along the Altamaha River attests to what was once widespread across the uplands in this part of the South Atlantic Coastal Plain. The landscape was likely a mix of longleaf sandhills on the relic sand dunes along the eastern or northeastern banks of the many river systems, longleaf woodlands of varying types in the uplands, and longleaf flatwoods in wetter areas. It was this longleaf landscape in Southeast Georgia that inspired Janisse Ray to write *The Ecology of a Cracker Childhood*, a book that helped spread the word on longleaf and went on to be honored as a "book all Georgians should read."

In March of 2008, America's Longleaf Restoration Initiative identified longleaf pine focal areas through a "charrette" process involving experts from across the longleaf pine range. This process designated "significant geographic areas" for longleaf pine conservation. Significant Geographic Areas (SGAs) would become the foundation of America's Longleaf Restoration Initiative and are pivotal in guiding future conservation and restoration efforts across the range of longleaf.

The Fort Stewart/Altamaha area of Southeast Georgia was an obvious initial focal area for many reasons. Fort Stewart contains Georgia's largest contiguous area of longleaf pine forest. It is home to one of the South Atlantic Coastal Plain's largest acreages of longleaf flatwoods with embedded wetlands.



Map showing priority areas for the Ft. Stewart/Altamaha Longleaf Partnership

Fort Stewart's landscape includes longleaf sandhills and is home to multiple threatened and endangered species. The exemplary forestry practices, skillful wildlife management, and extensive prescribed fire at Fort Stewart have resulted in rebounding populations of several species of concern, particularly the red-cockaded woodpecker, while it also maintained the military's ability to train.

The Altamaha River was designated by The Nature Conservancy (TNC) in the late 1990s as one of the Last Great Places. By 2008, the Georgia Department of Natural Resources (GA DNR), TNC and other partners had protected over 130,000 acres of land along the Altamaha and its tributaries (Oconee, Ocmulgee, and Ohoopee Rivers). Priorities were based on protecting large areas of floodplain and adjoining uplands. Much of the upland acreage was in intensively managed slash or loblolly pine plantation and were being restored to longleaf pine.

The Fort Stewart/Altamaha area of Southeast Georgia clearly met the criteria for a focal area and subsequent designation as a SGA. It was an area with an extensive network of conservation lands with existing longleaf pine forest, a federal anchor (Fort Stewart), and the potential for much more conservation and restoration.

The initial funding for the Fort Stewart/Altamaha SGA was through a National Fish and Wildlife Foundation (NFWF) Longleaf Stewardship Fund (LSF) grant to GA DNR in 2012. This grant provided funding to hire a Partnership Coordinator to put together the Local Implementation Team (LIT). In 2013, GA DNR contracted with the Longleaf Alliance to hire the coordinator, and with this hire, the LIT was off and running. The Partnership has since greatly benefited from other NFWF LSF grants to accomplish our work.

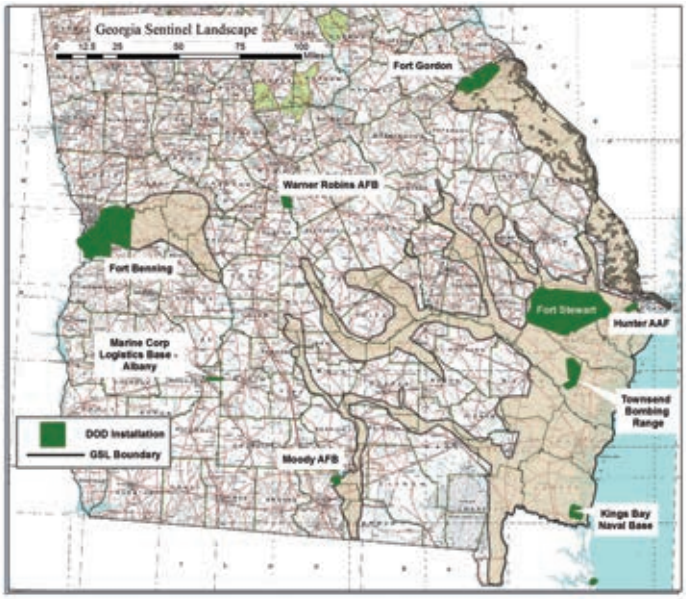
On July 31, 2013, Southeast Georgia lovers of the longleaf pine ecosystem came together at the Mary Kahrs Warnell Forest Education Center in Guyton, Georgia for the initial meeting of the Fort Stewart/Altamaha Longleaf Restoration Partnership (also known as the Fort Stewart/Altamaha LIT). This enthusiastic beginning has since yielded many benefits to the longleaf pine ecosystem in Southeast Georgia and to the many species that call this ecosystem home. In addition to benefiting many game and non-game species of the longleaf ecosystem, people who enjoy these woods have benefited from healthier lands too. As part of the range-wide effort to restore longleaf pine, the Fort Stewart/Altamaha LIT is working to do its share.

The Fort Stewart/Altamaha LIT is comprised of many and diverse partners that have been working together on other conservation issues in Southeast Georgia for many years. The conservation successes along the Altamaha River, Fort Stewart's Army Compatible Use Buffer (ACUB) program, NRCS conservation programs, and other actions elsewhere within the SGA attest to existing strong partnerships and previous cooperation. It was natural for these partners to come together around longleaf pine conservation.

The Fort Stewart/Altamaha Longleaf Restoration Partners include Fort Stewart/Hunter Army Airfield, Townsend Bombing Range (Marine Corps Air Station/Beaufort), GA DNR, NRCS, Georgia Forestry Commission, The Nature Conservancy/Georgia, The Orianne Society, The Georgia Conservancy, The Georgia Land Trust, Georgia Power, The Longleaf Alliance, US Fish & Wildlife Service, Mr. Reese Thompson, The Ogeechee Riverkeeper, International Forest Company, and The Conservation Fund.

The partners of the Fort Stewart/Altamaha LIT have shared goals and objectives for the conservation, management, and restoration of longleaf pine within the SGA. Proper fire management on the uplands of all protected lands has always been a top priority in the SGA. To achieve this fire management goal, partners have worked on increasing fire management resources by training fire crews and purchasing fire engines and other necessary safety equipment. To maintain trained crews, partners have joined forces to conduct trainings and safety refreshers each fall before the start of the burning season. Fire management planning has also been a high priority through the focus on effective fire management plans and good burn unit preparation.

Increasing the number of acres of longleaf planted is another priority of the Partnership. Both public and private lands have been targeted for planting longleaf seedlings. Other priorities have included targeted public outreach and landowner education. Several Longleaf Conservation Field Days have been

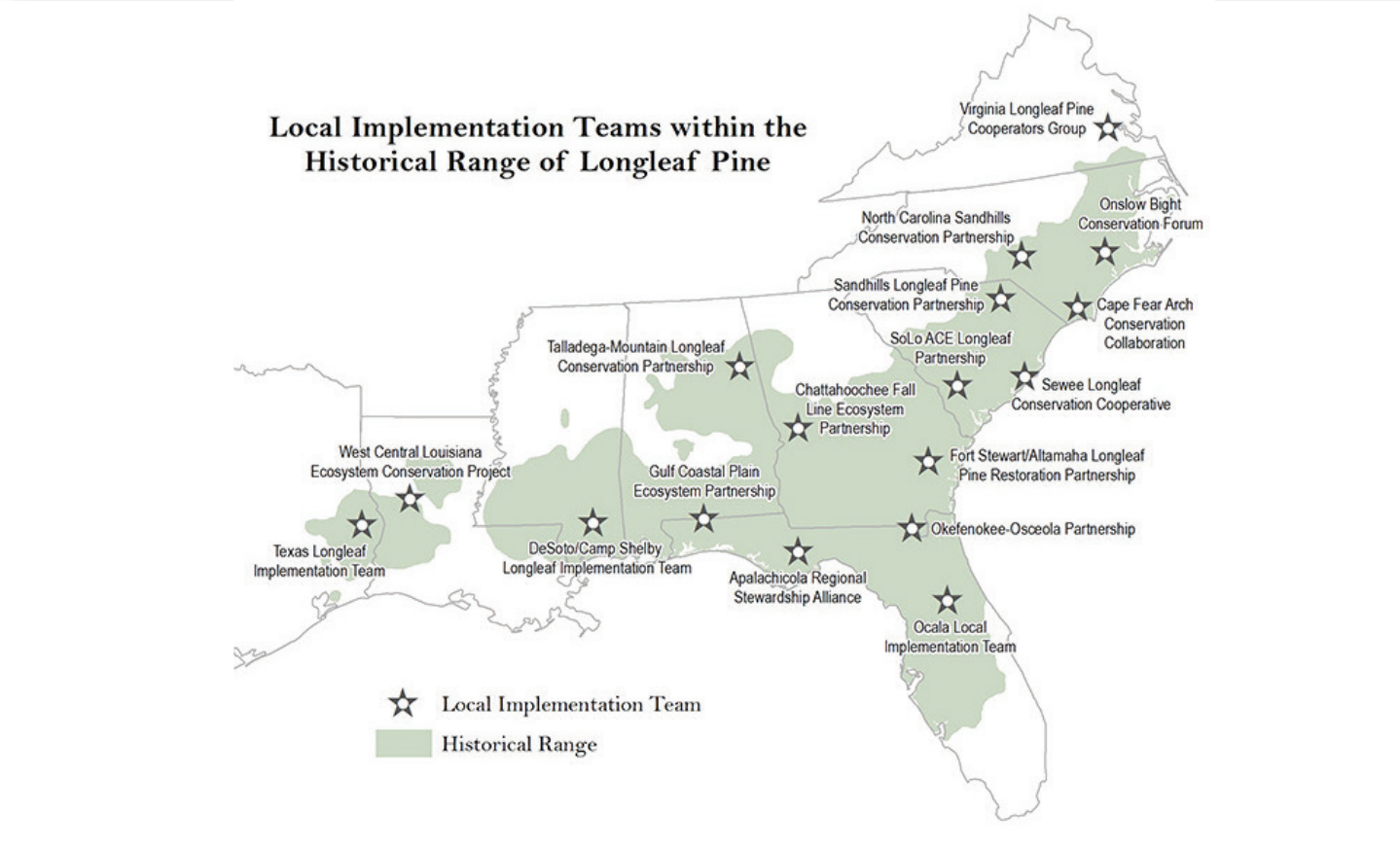


Map showing Georgia Sentinel Landscape.

held around the SGA over the years. These field days bring landowners and longleaf technical experts together to discuss longleaf issues and what resources are available to achieve success. Longleaf Academies have been taught across the SGA to help achieve the goal of landowner education.

Recognizing the value of native groundcover to wildlife, biodiversity and fire, groundcover restoration has been an important focus of the Partnership, and a Groundcover Working Group has been formed. Through the Working Group, the Partnership is working toward establishing donor sites for groundcover seed collection. A groundcover restoration demonstration site has been established at Moody Forest.

The Fort Stewart/Altamaha Partnership helped play a significant role in the recognition of much of southern Georgia as a Sentinel Landscape Partnership by the Department of Defense. This national designation recognizes important military and conservation landscapes that are worthy of expanded conservation efforts. The designation noted that the presence of existing conservation partnerships – like the Fort Stewart/Altamaha LIT – was a positive factor in determining the award. The Fort Stewart/Altamaha LIT has certainly been a positive factor for longleaf pine conservation over the last five years. We look forward to continued success in our longleaf pine conservation efforts within the SGA and to working with new partners in the Georgia Sentinel Landscape to achieve the goals of America's Longleaf Restoration Initiative.



Forest Landowner Association Launches on the Chattahoochee Fall Line

By LuAnn Craighton, The Nature Conservancy and RT Lumpkin, Georgia Forestry Commission

Organizational meetings of the West Central Georgia Forest Landowner Association were conducted at the county units of the Georgia Forestry Commission. Photo by LuAnn Craighton.

Peer-to-peer communication, availability of technical advice, access to equipment, and enhancing relationships between conservation partners are the cornerstones of advancing stewardship activities on private forest lands. To help meet these needs, the West Central Georgia Forest Landowner Association (WCGFLA) was organized in early 2018. This effort is being led by the Georgia Forestry Commission with support from the Chattahoochee Fall Line Conservation Partnership. In April, three meetings were held across a five-county area to launch the association. Over 100 stakeholders attended the meetings and expressed interest in participating in future activities. A Board comprised of local landowners is providing guidance for WCGFLA. The purpose of WCGFLA is: To provide a platform to gather, share, educate and implement sound forest and land management practices while creating a culture among landowners of sustainable forest stewardship that encourages working forests, beneficial wildlife habitat and improved watersheds. The initial meetings focused on the importance of having a stewardship plan for forested property, the resources available through the Georgia Forestry Commission to write stewardship plans, and the creation of a new Prescribed Fire Cooperative & Training Center in the region. During the meetings, participants completed a survey designed to help quantify specific needs for prescribed fire assistance in the area as well as to solicit input on future program topics. Looking ahead, WCGFLA plans to host both classroom and field training opportunities for landowners. Follow West Central Georgia Forest Landowner Association on Facebook to keep up with our activities!

A Wildlife Festival for a Sandy Soiled Slithery Friend on the Conecuh National Forest

By Traci Wood, Alabama Wildlife and Freshwater Fisheries, Habitat and Species Conservation Coordinator

Students handling an Eastern indigo snake at the Eastern Indigo Snake & Wildlife Festival. Photo by Traci Wood.

An entire day dedicated to the celebration of a snake? You bet! This is exactly what happened on May 4th with the 1st annual Eastern Indigo Snake and Wildlife Festival at Conecuh National Forest. Conservation partners joined forces to bring awareness to this king of the longleaf forest, along with other wildlife that inhabit this ecosystem. This event was part of a conservation milestone for the threatened eastern indigo snake in Alabama. Twenty indigos were released into Conecuh National Forest, marking the half-way point of a long-term initiative to establish a sustainable population. The Division of Wildlife and Freshwater Fisheries, in partnership with Auburn University, U.S. Forest Service, U.S. Fish and Wildlife Service, Orianne Center for Indigo Conservation, and other conservation partners has been working together for almost two decades on behalf of this species. Declining longleaf pine habitat led to the disappearance of the snake from the state's landscape, with the last wild indigo observed in the 1950s. As an apex predator, the indigo significantly contributes to the biodiversity of the forest by helping to maintain a healthy balance within the food chain – an indication of an ecologically functional forest. Indigos eat a variety of prey including rattlesnakes and copperheads. This year, the release was followed by the Eastern Indigo Snake & Wildlife Festival. We welcomed approximately 533 visitors, including schoolchildren, who visited to learn about snakes, gopher tortoises, red-cockaded woodpeckers, black bears, and longleaf pine habitat. Visitors had an opportunity to hold an indigo and gopher tortoise — even Smokey Bear made an appearance! Re-establishing the indigo within its historic range is restoring a piece of Alabama's natural history. We hope you will join us in May 2019!

Isolated Wetland Restoration in the North Carolina Sandhills

By Jeff Marcus, The Nature Conservancy

Sandhills Game Land wetland post-restoration. Photo by Jeff Marcus.

Isolated wetlands are important natural communities embedded within longleaf pine ecosystems. They provide breeding habitat for rare amphibians (such as gopher frog, ornate chorus frog, and Mabee's salamander), foraging habitat for chicken turtle and several birds and bats, and support many rare and unique plants. Most of these species depend on both high-quality wetlands and adjacent upland habitat. Paradoxically, these wetlands require fire when seasonally dry to maintain habitat quality. Across North Carolina, many wetlands have been degraded by ditching, fire suppression, and other insults.

In the NC Sandhills, the North Carolina Wildlife Resources Commission (NCWRC) and The Nature Conservancy (TNC) have been working to restore isolated wetlands by clearing woody vegetation from fire-suppressed sites, plugging ditches, reintroducing fire, and restoring uplands. NCWRC has restored, enhanced, or created 11 wetlands on Sandhills Game Land. Most of these sites supported only a few, common breeding amphibians before restoration and more than a dozen species after, including Carolina gopher frog and tiger salamander. TNC recently completed a five-year project to enhance six clay-based Carolina Bays. This restoration work can be difficult but is extremely important.

Changes for the Okefenokee Osceola Longleaf Implementation Team (O2LIT)

By Hunter Bowman, The Nature Conservancy

A family outing to the Okefenokee National Wildlife Refuge, circa 1950. Photo by McBrier Maloney.

After a successful winter and spring full of prescribed burning, longleaf plantings, Longleaf Academies with The Longleaf Alliance, and planning next winter's plantings, the O2LIT will undergo a few changes this summer. We are sad to say goodbye to Laura Bosworth, the Georgia Forestry Commission's Longleaf Forester, who was a selfless team player and extremely helpful in creating plans to replant the West Mims Wildfire area in longleaf. Laura will continue her work with longleaf at American Forest Foundation.

The O2LIT and the Nature Conservancy will also be hiring a new coordinator this summer when I depart at the end of July. I will be pursuing a master's degree in forestry from Duke University.

Finally, the Georgia Forestry Commission will be making changes to its structure, which will affect the personnel that we work with, and the roles that they play both in forestry and in fire control.

Although the O2LIT is going through some changes, the good work that we do will continue, and we look forward to meeting our new team members!

Bringing Together Private Lands Initiatives

By Cheryl Millett, The Nature Conservancy and Ivor Kincaide, Alachua Conservation Trust

New Prescribed Burn Association Coordinator, Barry Coulliette, with Alachua Conservation Trust, reviewing burn techniques with private landowners. Photo by Ashley Williams.

At our March 22nd Ocala Longleaf Pine Local Implementation Team (OLIT) meeting at Prairie Creek Lodge, we decided to initiate a private lands working group to mesh the array of efforts, opportunities, and project ideas to be most effective working together. This group will strengthen work through Wildland Restoration International, Florida Forest Service, Ocala National Forest, and Camp Blanding, among others.

A prime example of current work is that Prescribed Burn Coordinator, Barry Couliette with Alachua Conservation Trust (ACT), has hit the ground running alongside the Prescribed Burn Association (PBA). The PBA is composed of private landowners working together to share resources and training to get more good burning done. Barry invited PBA members to observe a prescribed burn on ACT's Little Orange Creek property and to revisit post-burn to critique the effects as compared to the burn objectives, and discuss burn techniques, weather, and fire behavior.

Meanwhile, we completed 228 acres of site preparation for red-cockaded woodpecker habitat restoration on Ocala National Forest. We also completed the second year of a three-year land management study to determine the impact of herbicide treatment on hardwoods as a sandhill restoration approach at Camp Blanding.

Restoring Longleaf at South Carolina's Cheraw State Park

By Susan Griggs, NRCS

Monitoring site photos taken prior to initiating longleaf understory management on the Cheraw State Park. a. Initial photo was taken in 2005, and b. the most recent after the 2018 burn season. Photos by Cheraw State Park.

Many of the Sandhills Longleaf Pine Conservation Partnership's (SLPCP) recent updates have focused on the unique work accomplished with private landowners. While private landowner work is the Partnership's primary focus, it should not overshadow the unique accomplishments that occur on public lands within the LIT. Cheraw State Park (CSP) is a 10,000-acre portion of the LIT noted for its premier golf course. What many golfers may not realize is that the Park has much more to offer than 18 holes of golf.

CSP is committed to managing 5,000 acres of upland pine forest to improve habitat for both the red-cockaded woodpecker (RCW) and the pine barrens tree frog, both found on the property, along with species such as quail and fox squirrels. In 2000, the Park began implementing prescribed fire to improve native understory vegetation in its quest to restore its previously ignored longleaf. Most recently, the Park partnered with the The Nature Conservancy to prescribed burn 1400 acres in 2018. Working alongside the SLPCP, CSP has plans to add 263 more acres of longleaf and implement management practices on 146 additional acres.

Receiving no state funding, CSP relies on timber and pine straw sales along with grant funding to accelerate its ability to apply management practices like prescribed fire, herbicide treatments, and mechanical mulching. Management at the Park had the foresight to implement permanent photo points early in the restoration process to document changes over time as shown in the photos. Using habitat improvement practices and the installation of RCW recruitment clusters, the Park plans to eventually expand its 16 active RCW clusters, to a total of 25.

South Lowcountry – ACE Basin (SoLoACE) Longleaf Partnership Update

By Bobby Franklin, The Longleaf Alliance

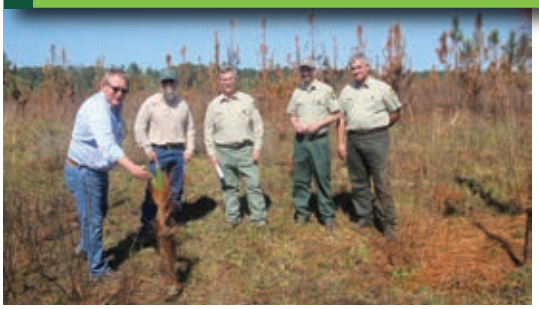
Ryan Mitchell discussing landowner objectives during field tour at the Groundcover Restoration Workshop in Aiken, SC. Photo by Bobby Franklin.

While Spring was arriving in the land between the Edisto and Savannah Rivers, the Partnership was busy with outreach programs. April saw the first ever Groundcover Restoration 201 Academy in Aiken attended by 31 people. Thank you to our hosts Aiken Electric Cooperative, Inc., Bob McCartney, and Hitchcock Woods. A special word of thanks to John Seymour and Roundstone Native Seed for driving from Kentucky to speak and demonstrate their planting equipment; we are indebted to you! We also completed a portion of a 'Learn to Burn' Workshop at Webb Wildlife Center attended by 24 landowners. Three inches of rainfall the day before prevented us from burning, but a lot of good information was shared, and plans are to reconvene and burn as soon as we dry out.

As always, thanks to all our partners: The Longleaf Alliance, Clemson University, Ducks Unlimited, The Hitchcock Woods, International Paper Company, Lowcountry Land Trust, National Fish and Wildlife Foundation, National Wild Turkey Federation, USDA/NRCS, The Nature Conservancy, Nemours Wildlife Foundation, Savannah River Ecology Lab, SC Audubon Society, SC Department of Natural Resources, SC Forestry Commission, U.S. Fish & Wildlife Service, U.S. Forest Service/Savannah River Forest Station.

Texas Longleaf Implementation Team Update

By Kent Evans, Coordinator



US Forest Service captured the opportunity to plant longleaf following the catastrophic 23,000-acre "Bearing Fire" on the Davy Crockett National Forest in 2011. The new stand is being evaluated by US Forest Service staff: Dr. Jim Guildin, Jason Nolde, George Weick, Jeff Mathews, Kerry Hogg. Photo by Kent Evans.

Our longleaf team sponsored The Longleaf Alliance's Academy 'Longleaf 101' in May with 25 participants. The Alliance staff was assisted by many Texas specialists including Dr. Comer, SFA University, Dr. Taylor, Texas A&M University, and US Forest Service Fire Management Officer, Jamie Sowell. We toured longleaf stands burned from age two and others starting at age eight. Much less yaupon and sweet gum were in the stands when burning started at age two. Campbell Global forester, Brian Gowin, showed participants the company stewardship of longleaf including savanna-like conditions on unique soil types.

The US Forest Service has plans to restore 150,000 acres of loblolly and slash back to longleaf on the National Forests in Texas. Many persons are familiar with longleaf stands on the Angelina and Sabine National Forests, but efforts will return longleaf to some of its historic range west of the Neches River. The Sam Houston National Forest is implementing a new 800-acre restoration project where relict longleaf is growing northwest of Shepherd. Plans are to keep existing longleaf, do patch cutting and or thinning of the loblolly that has occupied the site for the past 80 years, plant additional longleaf, then mimic the natural fire regime by implementing a 2 to 3-year interval prescribed burn program.

National Wild Turkey Federation Promotes Native Plant Establishment in Louisiana

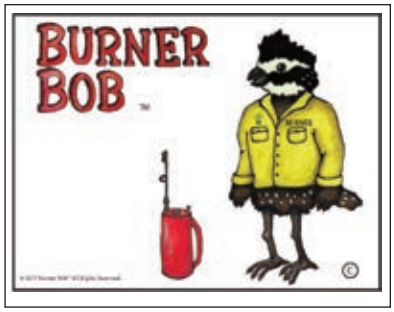
By Dan Weber, The Nature Conservancy

Longleaf pine seedlings at International Forest Company growing facility. Photo by NWTF.

On June 1st, the National Wild Turkey Federation with the West Central Louisiana Ecosystem Partnership (WLEP), put on an event promoting the benefits and proper methods of native understory establishment. The event was open to all landowners and professionals interested in native grass understory, pollinator habitat, cattle grazing, longleaf pine, and foraging habitat. A large group spent the day enjoying a BBQ lunch and discussing how to increase native plant installations, improve installation quality, and help landowners with plant selection and practices that are appropriate for their operations. The event was funded in part by a grant from the National Fish and Wildlife Foundation Longleaf Stewardship Fund and was hosted by International Forestry Company (IFCO) at their nursery facilities in Deridder, Louisiana.

The featured speaker was Robert Hoffman with Roundstone Native Seed, and representatives from NRCS and USFWS also provided information to attendees on available technical assistance and cost-share opportunities for longleaf pine restoration on private lands. Roundstone has been growing and supplying regionally adapted native seeds for 20 years. They currently have seed for over 300 species, have 125 standard mixes in inventory, and continue to focus on expanding regional ecotypes both in number of species and in regions served. Robert provided attendees with a detailed overview including site conditions and preparation and proper use of equipment that included a planting demonstration.

While you're in the grass stage...



By Anne Rilling, The Longleaf Alliance

Bob Becomes Burner Bob to Spread the Word, and the Flame

Bob lives in the Ideal Forest with an abundance of food; he is strong and healthy. An unmanaged forest can quickly become overgrown with hardwood trees and invading types of pine trees and other shrubs that shade the forest floor. Because a shaded ecosystem will no longer provide good food for Bob, the landowner uses a carefully planned fire to remove the unwanted trees and shrubs. This fire is called a prescribed burn. The fire also burns the grasses that provide seed for Bob, but they will quickly regrow. This prescribed burn may destroy some of Bob's shelter, but he can take flight and move out of the way into another area of the forest.

While watching the landowner and the burn team at work, Bob learns how to prescribe burn safely. Along with being trained, the team gives him a yellow fire jacket. Now Bob is ready to help his friends and neighbors safely manage their forests. They call him "Burner Bob."

LONGLEAF LITERATURE SPOTLIGHT

Images in the book *The Pines* explore remnants of old-growth longleaf pinelands across the southeatern United States. The photographs are more about a place than a tree. Hemard is after a sense of the momentous and sacred, what he can experience in the present that gives a tiny glimpse of insight to both past and future. He seeks place where time is tangible and puts himself in his place as a human in a much larger narrative.

Chuck Hemard is a lifelong resident of the American South. His recent photographs, made mostly with large format film cameras, explore the complexities of contemporary landscape.

The Pines was published as a monograph with Daylight Books. The work has been featured in *Smithsonian* Magazine (online), *Hyperallergic*, and *Garden & Gun* (online). In 2014, he was awarded an Artist Fellowship from the Alabama State Council on the Arts and has work included in public collections across the southeastern United States, including the Columbus Museum of Art in Columbus, Georgia and the Ogden Museum of Southern Art in New Orleans, Louisiana.

Hemard is an Associate Professor at Auburn University in the Department of Art and Art History.

LONGLEAF ART SPOTLIGHT

LARRY T. - SCULPTING NEW CONNECTIONS BETWEEN PEOPLE AND ANCIENT TREES

By Larry T. and Stacey Ann Glasgow

Wave Mavericks. Longleaf pine root. Photo by Larry T.

Larry T. Manuel began carving three-dimensional wood sculptures in his late teens, learning to hand carve tikis using chisels and mallets on the beach in between surf sessions. In the 1970s, Pensacola Beach attracted a handful of traditional tiki-carving surfers, and during those days Larry was trained in the old ways, learning valuable skills directly from these old school chisel masters, before the use of chainsaws revolutionized woodcarving in the '90s.

Manuel's work, he says, is focused on the "heart" of trees, the place where the tree and root intersect. The longleaf pine root wood he favors is often referred to in the woodworking community as "lighter knot." Larry says the multi-direction grain and high sap-content creates an ideal canvas for advanced chisel work.

North American indigenous trees have been the focus of Manuel's sculpture over the past decade, with longleaf pine, red cedar, and bald cypress being his preferred southern wood mediums. Deer antler, sea glass and other found objects collected on adventures with his loyal companion, Smokey Dog, are often incorporated into his work. His maternal family's heritage farm in Monroeville, Alabama has provided an abundant wood source to draw from for his carving work, throughout his art career.

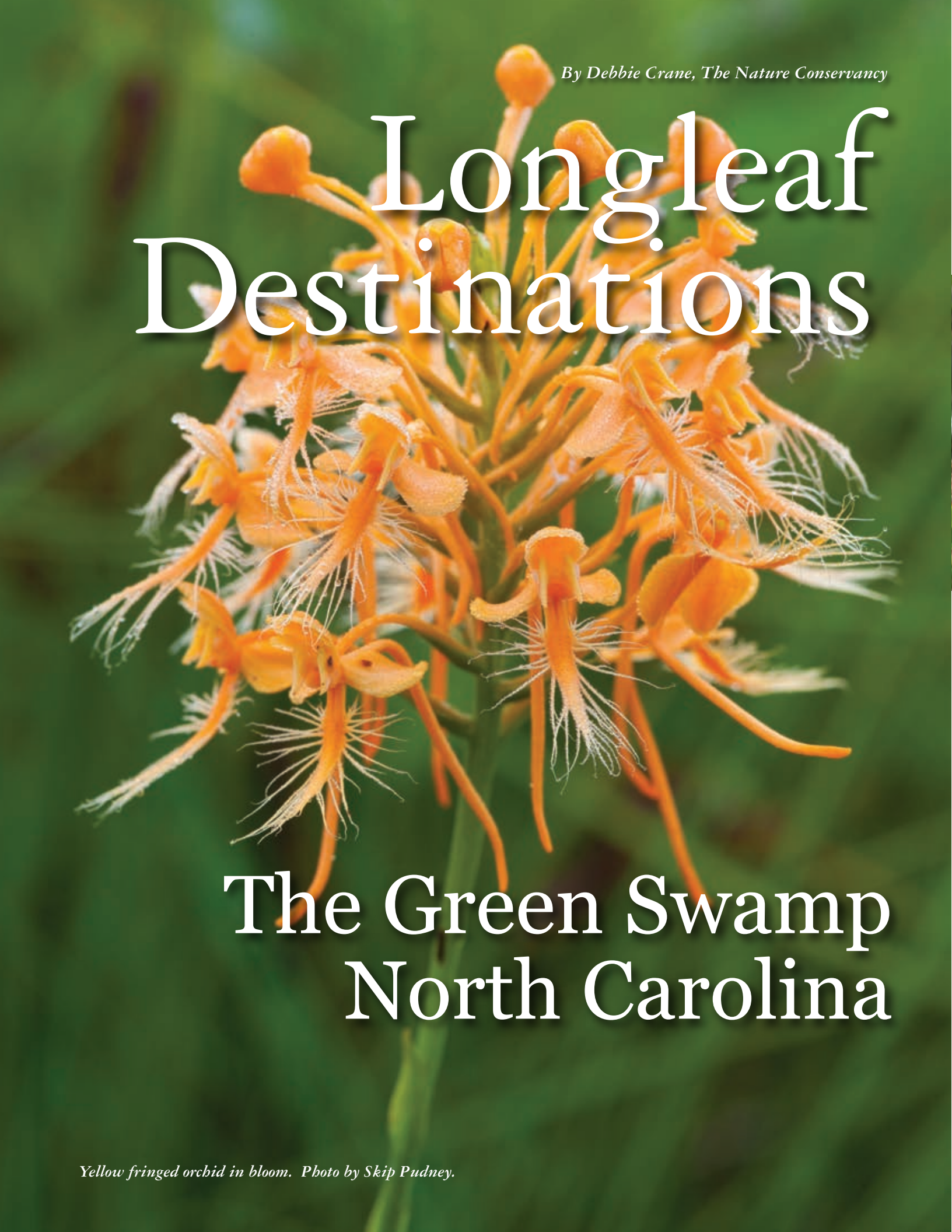
The family farm has always been Larry's place of refuge, a place to escape the stresses of society and contemplate his connection to nature. Two years ago, with the help of the NRCS program, he began planting longleaf pines. Larry says returning the family land to its indigenous state is his new artist's mission. His love of longleaf pine inspired him to create a large longleaf pine sculpture. Recently he procured a huge longleaf pine top section from an old homestead site in his East Hill neighborhood of Pensacola, Florida. Developers had torn down the old house and cut down a group of longleaf pines to build a new home. The group of longleaf trees was lovingly known as the “Three Sisters” by local residents. Larry considers it to be a sacred project and is looking forward to seeing what the muse will bring, by way of this unique longleaf treetop.

Sculptures from his 21-piece collection, "Twisted Expressions," are now on exhibit at the Coastal Arts Center of Orange Beach, Alabama. The new gallery sits on beautiful Wolf Bay and is a must-see for all Gulf Coast art lovers. Manuel's award-winning longleaf pine sculpture, inspired by the work of Tim Burton and titled "Burton Babe," is currently the featured centerpiece of the gallery.

By Debbie Crane, The Nature Conservancy

Longleaf Destinations

The Green Swamp North Carolina



Yellow fringed orchid in bloom. Photo by Skip Pudney.

The Venus flytraps are the big draw, but they are just one of many reasons to plan a visit to The Nature Conservancy's Green Swamp Preserve in Brunswick County, North Carolina. The Conservancy acquired the preserve as a gift from Federal Paper Company in 1977. Since that time, it has managed the preserve, largely through controlled burning. Today, that management is paying off for nature and visitors who are treated to a botanical motherload.

When people talk about a longleaf pine forest, the uninitiated may imagine a land of nothing but pine. But a healthy longleaf pine forest on the Carolina coastal plain includes not just pine but sunny savannas filled with an array of flowering plants.

Venus flytrap. Photo by Skip Pudney.

Savanna with pitcher plants. Photo by Skip Pudney.

Visitors to the preserve will reap the benefits of routine fire. Over the years, it is being returned to its historical glory as the Conservancy puts more fire on the ground. Some plants require fire as part of their life cycle; wiregrass will only produce seed after it burns. Venus flytraps are adapted to fire. Burning removes shrubs that shade the forest floor; flytraps flourish in that sunlight.

The preserve also owes a lot to the fact that its soils are generally poor. Carnivorous plants are adapted to poor soils and must look elsewhere for nutrients, which they find in the form of insects. The preserve is home to some of the healthiest populations of Venus flytraps, a carnivorous plant whose natural range is restricted to a small area of southern North Carolina and northern South Carolina. No less an expert than Charles Darwin once described the plant as "one of the most wonderful plants in the world." It captures its prey by snapping shut. They are tiny plants, but visitors are often surprised to find them scattered around their feet. They are easiest to see in late spring when they bloom – their tiny white flowers jut about a half foot or so into the air on long green stems. Visitors from as far away as the United Kingdom and Tasmania have contacted the Conservancy to plan trips to see flytraps in the wild.

Other carnivorous plants bloom at the same time of year. Pitcher plant flowers look a bit like origami. The two most common at the preserve are *Sarracenia flava* and their more rotund kin, *Sarracenia purpurea*. Both ensnare insects who wander into their water-filled pitchers. The tinier bladderworts also occur in the preserve and use a similar mechanism for dining out. Other carnivorous plants work a bit like Velcro – trapping their prey with sticky tentacles. Sundews and butterworts get their nutrients this way. In all, there are 14 kinds of carnivorous plants in the preserve.

Orchid enthusiasts make their pilgrimage to the preserve as well. Sixteen species of native orchids are found there. Orchids bloom in the preserve from late winter through mid-November. May is a great time to see a variety of spring-blooming orchids. Wear enough insect repellant, don your sunscreen and bring lots of water, and the August visitor will also be rewarded with a number of orchid blooms and other flowering plants.

Flower of Carolina grass of parnassus. Photo by Skip Pudney.

Insect-dining plants and orchids aren't the only botanical joys at the preserve. Many other plants also occur here. Carolina Grass-of-Parnassus *(Parnassia caroliniana)* is a beauty that blooms in the fall. In fact, the fall is one of the prettiest times to visit the preserve. Although the carnivorous plants will be past their prime, they still dot the landscape. The Grass-of-Parnassus with its white flowers delicately etched with dark green veins are found in the ecotones, the areas at the edge of savannas. The savannas are also filled with grasses in their autumn glory – golden brown, waving in the wind. Fall is a good time to see asters and other wildflowers.

The preserve trail is easy to negotiate – even small children will enjoy this walk in the woods. The primitive trail is 1.5 miles out and back – winding through savannas. It also

Above: Green Swamp savanna in the fall. Photo by Skip Pudney.
Left: Yellow butterwort in bloom. Photo by Skip Pudney.

includes a small section of board walk that cuts through pocosin – an Algonquin word that roughly translates to 'swamp on a hill.'

You can look off the boardwalk and see pocosin, which looks – and is – impenetrable. They are chock full of greenbrier, bay and other thickly growing shrubs. Pocosin was once common across the land, but much pocosin has been destroyed. Short-thinking humans looked at them and didn't see value. But, in fact, they are extremely valuable to people and nature. They are natural carbon sinks – sequestering carbon, nitrogen and mercury. They also absorb flood waters. And a host of animals make their homes there.

The Green Swamp Preserve is an easy add-on for people who are visiting the beach towns of Brunswick County – Oak Island, Holden Beach, Ocean Isle Beach, and Sunset Beach. It is a short drive from Wilmington and Southport. It is an easy daytrip from the Raleigh-Durham area of North Carolina or Myrtle Beach, South Carolina.

The Green Swamp is open to visitors year-round during daylight hours. A small portion of the trail is boardwalk, which can be slippery. Visitors should:

- Stay on the trail
- Wear close-toed shoes.
- Wear insect repellant. More information about tick-borne and mosquito-borne diseases in North Carolina is available at http://epi.publichealth.nc.gov/cd/diseases/vector.html
- Do not take plants. Poaching Venus flytraps is a felony, punishable by up to 29 months in prison and $50 a plant. Report suspicious activity to 1-800-662-7137.
- Consult the N.C. Wildlife Resources Commission for hunting schedules http://www.ncwildlife.org

Getting There

From Wilmington follow US 17 south to Supply, NC. At the HWY 211 intersection turn right and follow NC 211 north for 5 miles. The parking area for the trail head will be on the right. There is also a pond and a kiosk at the trail head.

Longitude: -78.29925218290 / Latitude: 34.09321823280

And, whatever you do, don't try to get there by Google Maps. This is one of those wild places that hasn't quite made it onto Google in an accurate fashion!

12th Biennial Longleaf Conference

LONGLEAF REFLECTIONS

Looking Back Taking Stock Making Progress

Alexandria, Louisiana October 23-26, 2018

Mark Hainds with Dendrology Class from Lurleen B. Wallace Community College.

By Ad Platt, The Longleaf Alliance

LONGLEAF ALUMNI

CATCHING UP WITH MARK HAINDS

As the first employee of The Longleaf Alliance, Mark Hainds met and assisted many over 20 years as an Alliance and Auburn University employee (jointly). We still get many questions about Mark; especially people ask "What is he up to today?"

I recently reached out to Mark for an update, and found him resting after working on his mushroom log rack arrays, which will expand his production area to 6-8 species that he sells at the Palafox Farmers Market in Pensacola. His cultivated mushrooms are supplemented by about a dozen more species that he collects from the wild, and all are in high demand. Mark and his family still spend four out of five weekends at the Palafox Market, but about one weekend per month is now spent promoting his new book, *Border Walk.*

Q - Mark, catch us up on these last four years.

A - I am the Forestry Instructor at Lurleen B. Wallace (LBW) Community College in Andalusia, Alabama, the only two-year Forest Technology program in Alabama. I teach forestry classes like dendrology, silviculture, forest mensuration, cartography, forest pathology, and forest fire, for students who are seeking a two-year Associates Degree in Forestry. Many of our students go on to work with Alabama Forestry Commission, private forestry consultants, or timber companies.

Q - What are you most excited about today in the ongoing longleaf restoration movement?

A - I get very excited to teach about the bigger picture, beyond just wood products. Exposing students to the understory components and what really drives the system, and how these small plants have value, and the invasive threats our forests face from invaders like cogon grass, Japanese climbing fern, and tallow tree.

Q - So tell us about your walk and this book project.

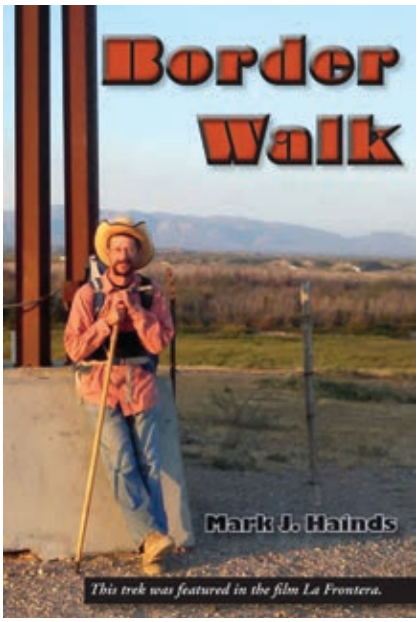
A -The original motivation for my walk may have been selfish, and in the process, I put myself at considerable risk. But one of the discoveries was how decent and amazing the people along the border are, and the real-world effects of our obsession with border security. The focus of the story evolved from me, into the people that live along the US-Mexico border.

One message to get out - I've spent my entire life living and working in rural America, where people feel like they are not heard or respected by the powerful ruling elites. Not surprisingly, this is the same way folks feel along the border, with outsiders from Washington coming in to dictate solutions for fears and perceived problems that don't exist. Naturally, they resent it, just like you would.

Q - The book, *Border Walk* is just about the Texas portion of the trip, but now you have already completed the other sections, right?

A - It takes me about three years to write a book. But on the two-year anniversary of the Texas-Mexico walk, I went back to El Paso, but this time started walking west into New Mexico from the same International Border Marker. I did this walk in two-week segments at a time, over Christmas 2016 and 2017, and two weeks in the summer, with a last piece in November 2017. I became the first person in history known to have walked the entire southern US border.

Border Walk is available through all major online bookstores or interested parties can contact Mark directly for a signed copy through www.sweetbill.com or his author page on Facebook, "Mark J. Hainds."



Habitat along the border walk in the Sonoran Desert. Photo by Mark Hainds.

I definitely want to thank again the Tex-Mex compadres, most of whom I met through my work with longleaf, many of whom became lifelong friends. Without their essential help, this project could never have happened. They did a lot to keep me going; I could not have walked unsupported on the Texas section.

Q - Will there be additional books or film resulting from the remainder of the trek?

A - The movie about this trek, *La Frontera*, still plays periodically in different PBS markets around the country. Anyone who wants to view it on demand can search online for Mark Hainds or Rex Jones, the producer, and the title, and you can watch the entire 57-minute film online. I also take it to events and book signings. Another movie that helped to inspire my book was *No Country for Old Men*, filmed mostly in Hudspeth County, Texas; very authentic in depicting this part of the landscape and towns.

Q - You write in detail about the strong motivations for your epic trek, which included accumulating job stresses, constant travel, health crises, and intimations of impending mortality. For many people who are deeply engaged in the environmental arena, the challenges are bigger than anyone can meet, they are multiplying rapidly, resources are never sufficient, and many who are committed to a job they believe in can be at risk for burning out. Thoughts now about maintaining a healthy work/life balance?

A - I think part of a healthy work life balance is being able to turn it off and to get away, and it is so hard in the current always-connected age. To not be able to have the necessary downtime is a big problem for people like me. Some folks are different, and feed on that challenge. Relentless phone messages are very wearing for people like me. Keeping manageable deadlines and workloads is hard. I need more time outdoors, and also in teaching, which I find very positive and satisfying. Choosing an adventure and a getaway is necessary for me.

Q - Tell us about the land use choices and the ecosystems you traversed.

A - From the Chihuahuan Desert down to the Rio Grande Valley, I met with local botanists, biologists, and other scientists along parts of the way. Early pioneers described entering a country with grass up to the bellies of their horses. But now much is barren desert, where woody vegetation has replaced the herbaceous layer. Any grassland in North America is a fire-driven ecosystem, but when you understand the history of overgrazing with sheep, goats, and cattle, it helps you understand the changes we see today. Red Rock Ranch is an example I explored where recovery was well underway, resulting in far more variety of all the native wildlife species. This process can take decades, longer in places with only nine inches of annual precipitation.

Q - As a naturalist and a forester, compare and contrast the needs and opportunities for environmental restoration in the longleaf and along the Texas/Mexico border.

A - A good example was Chispa Road, a depopulating area, now that the range quality has been reduced to where you need 100 acres per cow. Like a lot of rural America, hunting leases for urban populations are driving rural land prices. There you see a transition from cattle to hunting, and sometimes an effort to restore the grasses and understory. In some areas they might do this for ecological reasons; in other areas simply taking the cows off or just reducing grazing pressure would help.

The agencies promoting prescribed fire in Alabama are missing in this part of Texas, where they are still very much concerned with suppressing wildfires. You see very little prescribed fire, but I walked through occasional places where a road fire had done beneficial work killing the woody invaders like cedar or mesquite.

Q - And you are a forestland owner yourself in Covington County, Alabama. Tell us about your property (11 acres bordering Conecuh National Forest, and a 400 acre family farm in Missouri).

A - It's a small place, which I started cutting loblolly off of and gradually replacing with longleaf and bringing fire in. We

bought an additional four acres for the gardens for vegetables for the Palafox Market, and for the wood needed for mushroom production arrays. On our old family farm in Missouri, I have worked annually for 20 years during vacations to restore bottomland hardwoods and shallow water wetlands. My goal is to one day bring the tall grass prairie back to the hills, currently in fescue hay fields.

Q - If you were to mentor the larger restoration effort today, on your own terms, what would you emphasize most?

A - That is a fantastic question. And this is probably redundant to what others like Johnny Stowe are already preaching, but my generation was the first to hear of the importance of fire and the understory in almost every ecosystem in North America. To the degree we can get students to go out and learn about the fire aspects that are so important to these systems, it will make a difference. At every opportunity, educate any and all next-generation audiences on the importance of the fire and the understory, these are the foundations and building blocks for the ecosystems we seek to restore. But also, one thing I don't want to do is to take credit for what people like Stoddard and others attempted to preach many years earlier, before broader audiences were ready to receive it.

Q - How will you continue to use your deep experience and years of dedicated training and testing to advance longleaf restoration?

A - I'm always happy to contribute to articles in the magazine. Our college has a Speakers Bureau, and I put together four talks that I'm willing to take to various civic organizations, and they call on me regularly. One of those talks is on longleaf, one is on feral pigs, another is on the border walk, and the fourth one is on foraging. We just did one of those workshops in Walton County, Florida, and it filled up immediately, so we will offer it again in the fall. If foraging on public lands, it is important to do it responsibly and ethically, but once people become aware of the great value of a diverse forest, they are much more likely to restore their own land to a diverse natural forest.

Mark, on behalf of those you have shared your knowledge and experience with over the years, thanks, and we look forward to many more chances to work with you.

By Lynnsey Basala, The Longleaf Alliance

Reach a Wider Audience by Becoming a Biennial Longleaf Conference Sponsor

It's happening folks: the largest and longest running longleaf event in the country is right around the corner. The Biennial Longleaf Conference, hosted by The Longleaf Alliance, is a wildly successful regional conference and four-day event that is focused on the restoration and conservation of the longleaf ecosystem, once the largest and most diverse forested landscape in North America dominated by a single tree species. This conference brings together approximately 300-350 private landowners, land managers, wildlife biologists, conservation groups, consultants, university researchers, forestry professionals, agency personnel and outreach personnel — everyone who shares an interest in restoration of longleaf pine ecosystems. Don't miss this opportunity to reach a wider audience by becoming an official Biennial Longleaf Conference Sponsor. Don't delay as exhibit space is limited.

MORE INCENTIVES & ACKNOWLEDGEMENT FOR 2018 CONFERENCE SPONSORS: This easy-to-read table highlights the various giving levels and incentives available on-site October 23-26 in Alexandria, in addition to other added benefits throughout the year. For more information about becoming a sponsor or for special requests, contact Lynnsey Basala at lynnsey@longleafalliance.org or 314-288-5654.

2018 CONFERENCE SPONSORSHIP

		$10,000	$5,000	$2,500	$1,000	$500
Longleaf Leader	Listing in Annual Report in Winter Edition	x	x	x	x	x
	Ad in 4 issues	½ Page	½ Page	½ Page	¼ Page	
	Receive electronic version for internal company use	x	x			
	Quarterly issues	x	x	x	x	x
Biennial Conference	Invitation(s) to The Palustris Society & Board Social	2	1			
	Meal, Break, Awards Banquet, Celebration or Field Tour Sponsor (prominent logo placement provided at these events; exclusivity guaranteed for $10k+sponsors)	Celebration Sponsor	Meal or Field Tour Sponsor	Break Sponsor (4) available	Hospitality Room Sponsor	
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	Complimentary Exhibit Space	x	x	x		
Media	E-blast to Alliance Database	x				
	Press release acknowledging company's significant contribution	x				
	Quote for company use	x	x	x		
	Check presentation, if requested	x				
	Company logo on LLA and conference registration website (displayed in hierarchy)	x	x	x	x	
LLA Programs & Services	Aluminum property sign (redeemable voucher(s) to be given)	4	1	1		
	Electronic banner placed at every Academy and LLA workshop, includes company logo and recognition onsite (restrictions may apply but is not anticipated)	x	x	x		

Heartpine

By Chris Zieber, Appalachian Mountain Brewery

It wasn't much—a dilapidated old welding shop. The chain link fence was barely visible through the vegetation climbing confidently up - no one offering resistance for years. The yard was strewn with castoffs from the former occupants—a hubcap, a steel bumper, hundreds of nuts, nails, screws and bolts. Humble vinyl siding with its pale, sky blue paint was covering up bare-bones cinderblock walls. A few dusty windows barely let in any light, and opening the creaky garage doors was the only way to shed light on what would become the first brewery in Boone, North Carolina.

It's human nature to create, a yearning desire to make something from nothing. There's an excitement in the air when a project, no matter how large or small, begins to take shape. I felt that electricity when I first stepped onto the grounds of what is now Appalachian Mountain Brewery (AMB). I didn't fully understand the dedication and perseverance it would take to complete the construction process, and that was just to open the brewery's doors. The bonds between the founders of AMB were forged during those sweltering, dirty days, and we were imbued with a shared sense of purpose: that we could build something together that measured success not in dollars and pints but rather by what we could give back.

The first brews brought together barley, hops, water, and yeast in almost magical harmony, and soon Long Leaf IPA, our flagship, was flowing from the tap. Drawing from the North Carolina state toast, whose first line reads "Here's to the land of the Long Leaf Pine," and was an unofficial toast of ours for many years before the brewery was ever conceived. Along with opening our doors to thirsty patrons, we also began relationships with local non-profits. The "Pints For Non-Profits" program, where proceeds from every pint sold were sent to different non-profits, was our initial effort at charitable giving. The quality liquid, focus on sustainability and philanthropy, and the relaxed, family-and dog-friendly atmosphere soon led to the pub becoming a community hub for anyone wanting to get involved and give back.

Flash forward five years, and our mission has only become more clear. The immense growth of beer sales across North Carolina and into Tennessee and South Carolina could have only hoped to keep up with our philanthropic aspirations. In 2016 we formed the "We Can So You Can Foundation" to stay organized and continue to invest in our community. With land conservation being one of the primary focus areas for our nonprofit, we soon partnered with The Longleaf Alliance to support their mission to repopulate the once king of the Southern forests. Upon speaking with the The Alliance, it was immediately evident that they shared our enthusiasm and passion for restoring and preserving the landscapes we live in and love to explore. With Long Leaf IPA in hand, the words of the North Carolina State Toast in mind, and countless lively phone calls, we committed to donating the funds to plant one longleaf pine for every case of Long Leaf IPA sold. We also committed to getting cold Long Leaf IPA to every meeting, conference, and educational event we physically could, because everyone deserves a cold beer for helping give back.

And so, our dedication to the people and ecosystems that support us continues. As our community grows taller and wider, now reaching from the Outer Banks to the Mississippi, we keep sinking our roots deeper into both old and new relationships. Not only are we crafting new ties with The Longleaf Alliance, we continue to add elements to *Rail Jam*, our ski and snowboard event focused on restoring Boone's historic amphitheater, and *Float Fest*, our summer splish-splash spectacular helping keep the High Country's water clean. These events combine the natural ability of beer to bring people together and our desire to drive awareness and activism in our community. With the "Drink a Pint, Plant a Pine" initiative, we're taking the next step in our long journey of helping the community we love. We hope you'll join us!

Appalachian Mountain Brewery's mission is to sustainably brew high quality beer, support local non-profits and help our community prosper. Our mission is simple: sustainability, community and philanthropy.