

SPRINGS PROTECTION THROUGH LONGLEAF PINE RESTORATION AND OUTREACH IN THE SANTA FE RIVER SPRINGS BASIN

Protect Florida Springs Tag Grant PFS 1314-08



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Introduction

Longleaf pine (*Pinus palustris*) is an ecologically important species that provides protection to groundwater and springs. Of the historic range spanning over 90 million acres in the southeastern United States, it is estimated that less than four percent remain. Public education and outreach with hands-on activities offers the public a unique environment to learn about springs ecosystems and how to help protect springs through longleaf pine and groundcover restoration. The Alachua County Environmental Protection Department (ACEPD) received a Protect Florida Springs Tag Grant from the Wildlife Foundation of Florida for state fiscal year 2013-14 for the project titled Springs Protection through Longleaf Pine Restoration and Outreach in the Santa Fe River Springs Basin. The funding was utilized to conduct a public education workshop at O'Leno State Park on Longleaf Pine Forest Restoration & Management. The public education workshop included technical presentations about springs, longleaf pine restoration, and financial incentives followed by a field tour of restoration areas within O'Leno State Park. Additional outreach events included planting activities at Poe Springs Park Longleaf Pine Restoration Area and installing an educational sign focusing on longleaf pine restoration. A second field tour was conducted at a longleaf pine restoration site on private property, the Simons Tree Farm near the Santa Fe River. The workshop and second field tour were conducted in conjunction with the University of Florida School of Forest Resources and Conservation and Institute of Food and Agricultural Sciences (IFAS) Extension Florida Forest Stewardship Program.

The purpose of the workshop and restoration projects was to encourage and educate landowners in the Santa Fe River Springs Basin within Alachua, Gilchrist and Columbia counties to conduct longleaf pine restoration. Planting and maintenance activities for longleaf pine were conducted at Poe Springs County Park to enhance the existing Longleaf Pine Restoration Area, a 40-acre demonstration project for springs' water quality protection on the western portion of the Park. The combination of an educational workshop and the continued restoration at the Park will help promote the conversion of acreage to longleaf pine and protect water quality in the Santa Fe River Springs Basin.

Longleaf Pine Forest Restoration & Management Workshop

The educational Longleaf Pine Forest Restoration & Management Workshop was held at O'Leno State Park on Friday, February 28, 2014. Over 20 participants, including private landowners, forestry consultants, and government staff, attended the workshop and field tour. The focus of the workshop activities was to educate the public and provide helpful information that workshop participants can use on their own properties and share with others to protect Florida's springs through longleaf pine habitat restoration. The workshop included a morning session with presentations and an afternoon field tour of longleaf pine restoration activities at O'Leno State Park. Workshop project partners included the University of Florida School of Forest Resources and Conservation and IFAS Extension Florida Forest Stewardship Program, ~~the Florida Fish and the Wildlife Conservation Commission~~, Florida Department of Environmental Protection (O'Leno State Park), Florida Fish and Wildlife Commission, Florida Department of Agriculture and Consumer Services, Florida Forest Service, Protect Florida Springs Tag Grant Program and Wildlife Foundation of Florida, and The Longleaf Alliance.

Longleaf Pine Workshop Presentations

The Longleaf Pine Forest Restoration & Management workshop was held at O'Leno State Park on February 28, 2014 (Appendix A). Technical presentations included information about springs protection, longleaf pine restoration, groundcover restoration, pine straw harvesting, financial incentives, and conservation easements (Figure 1). Workshop participants were provided with a bound booklet that included copies of the presentations and technical information on longleaf restoration (site preparation, planting, groundcover restoration, prescribed fire, hardwood control, and conservation easements). The workshop agenda, presentations, project final report, and additional resources are available on the ACEPD website.



Figure 1: **Left** – Jim Myles, ACEPD, makes a presentation on Springs Protection. Carol Lippincott, the program facilitator, stands on the far right. **Right** – Ad Platt, The Longleaf Alliance, discusses longleaf pine and the economics of restoration.

Springs Protection – *Jim Myles, ACEPD*

This presentation included introductory information about the Floridan aquifer system, karst features, springshed delineation, and factors impacting springs. Excessive nutrients from over fertilization and animal and human waste have degraded water quality. Water use, primarily for irrigation, has decreased spring flows.

Why Longleaf Pine? – *Ad Platt, The Longleaf Alliance*

Longleaf pine is the native forest community found in most of the upland landscape throughout the southern United States and is among the most diverse forest ecosystems in the world. However, longleaf pine remains in approximately three million acres of the 90 million acres of forest that occurred at the peak. In 1995, The Longleaf Alliance was formed to be an advocate for longleaf retention and restoration, focusing on its ecological and economic values. Longleaf pine seedlings have high survival rates, growth is comparable to other pines, economic incentives are numerous, and fire maintained forests provide ideal habitat for many species.

Groundcover Restoration – *Anne Barkdoll, O'Leno State Park*

In southern pine forests, most of the plant and animal biodiversity is associated with the fire dependent groundcover. Restoration can be achieved through either release (hardwood removal followed by fire)

or recreation. Remnant groundcover is protected and the site is maintained to promote release of groundcover; additional planting may not be needed with this method. Groundcover recreation requires a seed source, site preparation, and direct seeding or planting.

Ecological Pine Straw Harvesting – *Ad Platt, The Longleaf Alliance*

Harvesting pine straw provides early return on investment but requires management to be successful. Pine straw is primarily used as mulch for landscaping; it conserves soil moisture, prevents crusting of the soil surface, maintains a more uniform soil temperature, reduces weed problems, and prevents erosion of exposed soil. Longleaf pine straw is becoming increasingly more available, it is easy to bale, and it is the longest lasting of all pine straws.

Managing Wildlife and Getting Assistance

– *Kris Cathey, Florida Fish and Wildlife Conservation Commission*

Longleaf pine communities are among the most biologically diverse in the southeast. More than 80 species of birds (excluding migrants) utilize this community to fulfill essential aspects of their lives. Longleaf pine restoration improves soils, water quantity, water quality, and animal and plant health. Common land management practices implemented with landowner assistance programs include prescribed fire and mechanical and chemical vegetation enhancement. Financial incentives include cost-share, partial reimbursement through the Southern Pine Beetle program, Environmental Quality Incentives Program, Wildlife Habitat Incentives Program, and the Landowner Incentives Program.

Conservation Easements – *Ramesh Buch, ACEPD*

The Alachua County Forever Program was established in 2000 to acquire, improve, and manage environmental significant lands, to protect water quality and wildlife habitat, and provide areas for low-impact, resource-based recreation. Conservation easements allow property owners to continue with existing or desired future land uses, lower the taxable value and estate tax, and keep the property under private management.

Workshop participants asked thoughtful questions after each presentation and appeared to be engaged in each of the workshop topics. Participants asked questions and brought up issues on groundwater use, springs protection, the role of native plants including longleaf pine forests in groundwater conservation, incentives needed to reduce conversion of forested lands to irrigated agriculture in this basin, wide tree-spacing to maximize groundwater recharge in longleaf pine stands, benefits of grazing longleaf pine stands, sources of longleaf pine seedlings, benefits of using nearby seed source, the high dollar value of ecosystem services provided by longleaf pine forests, longevity of harvested groundcover seed, benefits of pine straw to nutrient cycling in longleaf pine forests, the importance of minimizing soil disturbance during site preparation for pine straw harvest, need for statewide consistency regarding property tax exemptions for pine stands, and importance of working with a Certified Public Accountant and attorney when negotiating conservation easement for longleaf pine stands.

Longleaf Pine Workshop Field Tour, O'Leno State Park

Following the technical presentations and lunch provided for the attendees, workshop participants joined Anne Barkdoll, O'Leno State Park, for a 2-hour walking field tour of three longleaf pine restoration sites with varying understory and various stages of restoration located within the State Park (Table 1, Figure 2). The restoration sites included an area where longleaf pine restoration began after an infestation of southern pine beetle in loblolly and slash pine, an area where invasive hardwoods were removed as part of a longleaf pine restoration project, and an area of longleaf pine sandhill with successful groundcover restoration. A variety of understory plants provides habitat, food, and cover for wildlife, both game and non-game species. Grass seeds are used extensively by birds and provide an important food source. Grasses, aster family species, and plants in the legume family are some of the more common understory plants.

Table 1. Species Observed during O'Leno State Park Field Tour

Plant Species Observed		
Plant Family	Scientific Name	Common Name
Asteraceae (Compositae or aster family)	<i>Ageratina jucunda</i>	Hammock Snakeroot
Asteraceae (Compositae or aster family)	<i>Pityopsis graminifolia</i>	Narrowleaf Silkgrass
Asteraceae (Compositae or aster family)	<i>Liatris elegans</i>	Pinkscale Gayfeather or Blazing Star
Asteraceae (Compositae or aster family)	<i>Liatris spicata</i>	Dense Gayfeather or Blazing Star
Asteraceae (Compositae or aster family)	<i>Salvia azurea</i>	Azure Blue Sage
Fabaceae (Legume, pea or bean family)	<i>Dalea pinnata</i>	Summer Farewell
Pinaceae (Pine family of conifers)	<i>Pinus palustris</i>	Longleaf Pine
Poaceae (Gramineae or true grasses)	<i>Aristida stricta</i> var. <i>beyrichiana</i>	Wiregrass
Poaceae (Gramineae or true grasses)	<i>Panicum anceps</i>	Beaked Panicum
Poaceae (Gramineae or true grasses)	<i>Sorghastrum secundum</i>	Lopsided Indiangrass
Poaceae (Gramineae or true grasses)	<i>Saccharum giganteum</i>	Sugarcane Plumegrass
Poaceae (Gramineae or true grasses)	<i>Tridens flavus</i>	Purpletop Tridens
Polygonaceae (Knotweed family)	<i>Eriogonum tomentosum</i>	Dogtongue Wild Buckwheat

During the field tour participants talked about herbicides specific to pasture grasses in longleaf pine stands, identification of grasses native to longleaf pine sandhill (community), burning after hatching season to minimize loss to young turkey and quail, benefits to wildlife by burning smaller parcels in a mosaic pattern, using growing-season burns to reduce hardwood understory on richer soils, managing fire to encourage natural reseeding, approaches to groundcover restoration in pine plantations compared to natural stands, desirability of restoring groundcover before planting longleaf pine where feasible, value of diversifying forest-management goals on larger parcels, high variability of cost of groundcover restoration, and the possibility of pine straw harvest on sites with groundcover.



Figure 2: Anne Barkdoll, O’Leno State Park, shows participants examples of understory restoration. **Top** – An area with young longleaf pine. **Bottom** – A more mature understory with larger longleaf pines and sugarcane plume grass.

Workshop participants were asked to complete an evaluation summary. Seventy-six percent of the participants completing workshop evaluation summary indicated the event was very relevant to their land management projects or employment. The majority of the participants were landowners and many had a management plan for their property. Thirty-five percent of the participants indicated they were not familiar with the concept of a springshed before the workshop, but now understand the concept. Key concepts that participants reported to have learned from the event include: plant species identification and information on groundcover, springs protection information (features and management), ecological pine straw management and low impact pine straw raking, the National Wild Turkey Federation involvement in management plans (for wildlife), controlled burn timing effects, understory restoration and wildlife management benefits, cost-share and landowner assistance programs, and conservation easements.

Longleaf Pine Restoration Projects, Poe Springs Park

Workshop attendees and other volunteers were invited to participate in a hands-on experience and assist with planting activities at Poe Springs Park Longleaf Pine Restoration Area. ACEPD staff selected a three-acre location in the western portion of the Restoration Area where the area was disturbed and fill had previously been stockpiled (Appendix B). Site preparation included herbicide treatment, biomass harvesting, and a control burn prior to planting activities on March 24, 2014. The area was initially treated with herbicides to kill bahiagrass (*Paspalum notatum*), bermudagrass (*Cynodon dactylon*), and flatsedge (also called nutsedge) (*Cyperus* sp.) prior to restoration with wiregrass, longleaf pine, and wildflowers (Figure 3). The initial herbicide treatment of the grasses and nutsedge was conducted on September 10, 2013 by Kestrel Ecological Services LLC. A second treatment targeting resprouting grasses and flatsedge followed in November 2013. The chinaberry trees (*Melia azederach*) were treated with a Garlon 4 basal application on November 12, 2013. The chinaberry tree is a Category II species on the Florida Exotic Pest Plant Council's (FLEPPC) 2013 List of Invasive Species and is listed for its potential to disrupt native plant communities (FEPPC, 2013 <http://www.fleppc.org/list/list.htm>). Following treatment the trees were cut by ACEPD staff and later harvested for biomass (Figure 4).



Figure 3: Left – A portion of the Longleaf Pine Restoration Area prior to herbicide treatment (August 30, 2013).

Right – Nutsedge and Bermuda grass in the Longleaf Pine Restoration Area, prior to herbicide treatment.



Figure 4. Left – Chinaberry tree girdled and treated with Garlon 4 (November 12, 2013).

Right – ACEPD staff member, Bob Kennedy, cutting a Chinaberry tree after treatment.

A controlled burn was conducted on March 3, 2014 throughout the entire Poe Springs Park Longleaf Pine Restoration Area. The control burn was conducted to reduce fuel buildup, remove unwanted invasive exotic vegetation, and to stimulate the germination of some desirable forest trees and understory (groundcover) species. The burn was performed by ACEPD Alachua County Forever (ACF) and Water Resources staff members (Figure 5). On March 12-14, 2014 ACEPD Water Resources staff member Jim Myles scraped the area to remove debris and dead vegetation prior to replanting the three acre planting area in the northwest portion of the Longleaf Pine Restoration Area (Appendix B) .



Figure 5. Left – A portion of the Longleaf Pine Restoration Area after the controlled burn and prior to site preparation for planting (March 12, 2014). **Right** – A portion of the Restoration Area after site preparation for planting (March 14, 2014).

On March 24, 2014, 2,000 wiregrass and 1,000 longleaf pine tubelings (containerized seedlings), were planted in the three-acre portion of the Longleaf Pine Restoration Area (Figure 6). The tubelings for both the wiregrass and longleaf pine were purchased from the Florida Forest Service Andrews Nursery in Chiefland, Florida. ACEPD Water Resources and ACF staff and volunteers planted the wiregrass and longleaf pine seedlings. The wiregrass and pine seedlings were hand planted and randomly spaced, keeping the longleaf further apart.



Figure 6. Left – Planting technique demonstration by Suzie Hetrick, ACF, March 23, 2014. **Right** – Longleaf pine and Wiregrass planting, longleaf pine is the bright green seedling (left) and the wiregrass being more grey-green in color.

In addition to longleaf pine and wiregrass tubelings, wildflower seed was planted in patches at several locations within the restoration area (Figure 7). The Florida Upland Meadow Mix wildflower seed, which includes grasses and composites, was selected for this project (Table 2). The wildflower seed mix was purchased from the Wildflower Seed and Plant Growers Association in Crescent City, Florida.



Figure 7 – Planting wiregrass and longleaf pine, the area in the foreground (right) is the area where wildflower seed was spread and watered in.

Table 2. Species Included in the Florida Upland Meadow Mix

Wildflower Species Planted		
Plant Family	Scientific Name	Common Name
Asteraceae (Compositae or aster family)	<i>Coreopsis basalis</i>	Goldenman Tickseed
Asteraceae (Compositae or aster family)	<i>Helianthus radula</i>	Stiff or Rayless Sunflower
Asteraceae (Compositae or aster family)	<i>Liatris gracilis</i>	Slender Gayfeather
Asteraceae (Compositae or aster family)	<i>Liatris spicata</i>	Dense Gayfeather
Asteraceae (Compositae or aster family)	<i>Pityopsis graminifolia</i>	Narrowleaf Silkgrass
Asteraceae (Compositae or aster family)	<i>Solidago odora</i>	Anise Scented Goldenrod
Asteraceae (Compositae or aster family)	<i>Solidago stricta</i>	Wand Goldenrod
Asteraceae (Compositae or aster family)	<i>Vernonia angustifolia</i>	Tall Ironweed
Fabaceae (Legume, pea and bean family)	<i>Dalea pinnata</i>	Summer Farewell
Lamiaceae (Mint or deadnettle family)	<i>Monarda punctata</i>	Spotted Beebalm
Plantaginaceae (Plantain family)	<i>Penstemon multiflorus</i>	Manyflower Beardtongue
Poaceae (Gramineae or true grasses)	<i>Andropogon virginicus</i> var. <i>deciens</i>	Broomsedge Bluestem
Poaceae (Gramineae or true grasses)	<i>Eragrostis spectabilis</i>	Purple Lovegrass
Poaceae (Gramineae or true grasses)	<i>Muhlenbergia capillaris</i>	Hairawn Muhly
Poaceae (Gramineae or true grasses)	<i>Sorghastrum natans</i> 'Americus'	Indiangrass 'Americus'*
Poaceae (Gramineae or true grasses)	<i>Tridens flavus</i>	Purpletop Tridens

*The 'Americus' cultivar is adapted for the southeastern United States and became available in 2002.

Education Signage, Poe Springs Park

In order to explain the recent planting efforts and educate the public about longleaf pine restoration for springs' protection, an educational sign was developed as a public outreach tool (Figure 8). The purpose is to inform the public about the longleaf pine restoration projects at Poe Springs Park and the benefits of converting acreage to longleaf pine and establishing mature longleaf pine forests.



Figure 8. Education signage developed for the Longleaf Pine Restoration Area at Poe Springs Park.

Additional Field Tour, Simons Tree Farm

A second field tour was arranged through the Florida Forest Stewardship program to visit a longleaf pine restoration site on private property, the Simons Tree Farm, near the Santa Fe River in High Springs, Florida (Appendix C). This field tour was held on April 24, 2014 and was led by property owners Bob and Erika Simons with 37 attendees (Figure 9). Features on the property include longleaf pine restoration (a slash pine/hardwood conversion), economy style groundcover restoration, a conservation easement, sinkholes, the Santa Fe River, and neighboring conservation and recreation land (River Rise State Preserve and Camp Kulaqua).

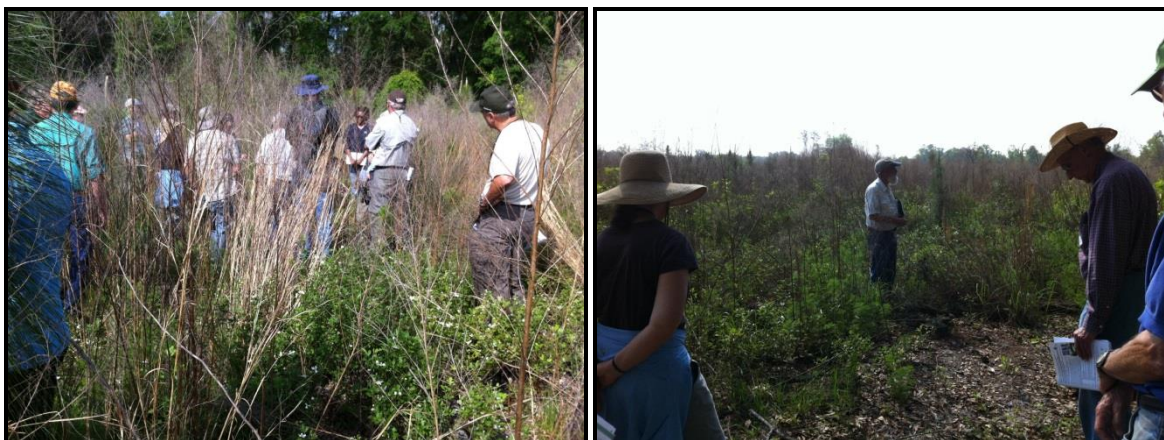


Figure 9. Left – Participants on the field tour in a longleaf pine and groundcover restoration area. Right – Bob Simons, property owner, shows examples of understory restoration in an area with young longleaf pine.

The 107-acre property includes a 51-acre longleaf pine restoration area and a 53.5-acre natural area abutting the Santa Fe River under conservation easement with Alachua Conservation Trust (Figure 10). There is no clearing or cutting of trees in the conservation area. The goal of the longleaf restoration is to develop a mature longleaf stand with native understory, the stand being approximately half the density of trees as a slash or loblolly pine plantation.

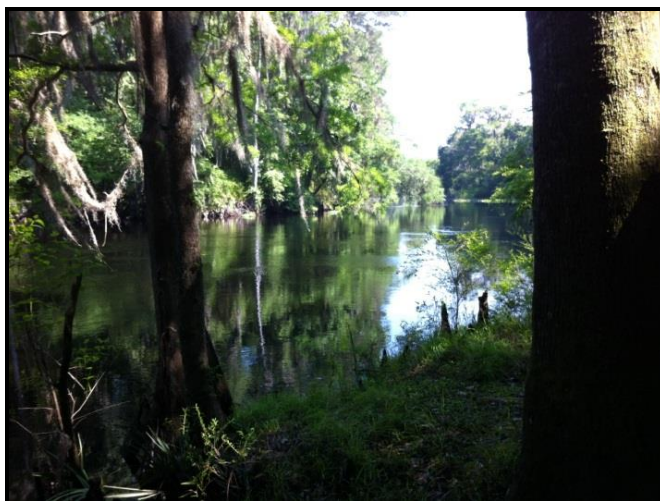


Figure 10. View of the Santa Fe River from the Simons Tree Farm conservation easement area.

The initial longleaf restoration work on the Simons Tree Farm was to prepare the area for planting by removing existing slash pine and oaks. The slash pine planted on the site in 1964 was harvested in 2009. Following harvest of the trees, Velpar (a broad spectrum hexazinone herbicide) was applied in April 2010 and the remaining oak biomass was harvested for fuel in October 2010. Longleaf pine containerized seedlings (tubelings) were mechanically planted in November 2010 at a rate of approximately 680 trees per acre; groundcover seeds were planted in February 2011.

The field tour began near the entrance of the property and followed an access road that ends on the property's conservation easement area near the Santa Fe River. The initial portion of the tour focused on the planted longleaf pine, and tree species planted for wildlife value along the southern fence, e.g., red mulberry and buckthorn, and groundcover plantings (Table 3). The tour participants also viewed an area of groundcover restoration where wiregrass and other species had begun to take hold and reproduce (Figure 11). Tour participants were provided with a bound booklet from the February 28, 2014 workshop that included copies of the workshop presentations and technical information on longleaf restoration.

The landowner's strategy for low cost longleaf pine habitat restoration was a theme throughout the field tour and a number of recommendations based on site specific experience were provided. The landowner recommends planting the tree seedling in November or December to take advantage of the winter storm fronts that typically bring rain to the area in January and February. The landowner found that wiregrass and yellow Indiangrass, both grown from seed, did very well, as did partridge pea, and the landowner said he would plant these species (from seed) again. The landowner plans to introduce fire into the area when the trees are approximately 10 years old. Fire will help keep down the formation of woody understory, release seed (from groundcover plants), and provide nutrients for longleaf pine.

Table 3. Species Observed during the Simons Tree Farm Field Tour

Plant Species Observed		
Plant Family	Scientific Name	Common Name
Asteraceae (Compositae or aster family)	<i>Pityopsis graminifolia</i>	Narrowleaf Silkgrass
Asteraceae (Compositae or aster family)	<i>Liatris</i> sp.	Gayfeather or Blazing Star
Fabaceae (Legume, pea or bean family)	<i>Chamaecrista fasciculata</i>	Partridge Pea
Fagaceae (Beech family, includes oaks)	<i>Quercus muehlenbergii</i>	Chinkapin (Chinquapin) Oak
Moraceae (Mulberry or fig family)	<i>Morus rubra</i>	Red Mulberry
Orobanchaceae (Broomrape family)	<i>Castilleja</i> sp.	Indian Paintbrush
Pinaceae (Pine family of conifers)	<i>Pinus palustris</i>	Longleaf Pine
Poaceae (Gramineae or true grasses)	<i>Andropogon brachystachyus</i>	Shortspike Bluestem
Poaceae (Gramineae or true grasses)	<i>Andropogon gerardii</i>	Big Bluestem
Poaceae (Gramineae or true grasses)	<i>Andropogon ternarius</i>	Splitbeard Bluestem
Poaceae (Gramineae or true grasses)	<i>Andropogon virginicus</i> var. <i>glaucus</i>	Chalky Bluestem
Poaceae (Gramineae or true grasses)	<i>Aristida stricta</i> var. <i>beyrichiana</i>	Wiregrass
Poaceae (Gramineae or true grasses)	<i>Panicum virgatum</i>	Switchgrass
Poaceae (Gramineae or true grasses)	<i>Sorghastrum nutans</i>	Yellow Indiangrass
Poaceae (Gramineae or true grasses)	<i>Schizachyrium scoparium</i>	Little Bluestem
Rhamnaceae (Buckthorn family)	<i>Rhamnus caroliniana</i>	Carolina Buckthorn



Figure 11. Left – Longleaf pine, approximately four years in age. Right – Wiregrass establishing as groundcover.

The tour ended with a walk through the conservation easement area and a brief presentation on Silviculture Best Management Practice (BMP) implementation (Appendix D) and signup (for the intent to implement the BMPs) by Robin Holland, Silvicultural BMP Forester with the Florida Forest Service (Figure 12). More information on silviculture BMPs and BMP courtesy checks can be found at: <http://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Our-Forests/Best-Management-Practices-BMP>. Following the tour, lunch for the event was provided by Alachua County at O’Leno State Park.



Figure 12. Robin Holland, Florida Forest Service, discusses silviculture BMPs.

Field tour participants were asked to complete an evaluation summary. Over half of the participants indicated the event was very relevant to their land management projects or employment. The majority of the participants were landowners and many had a management plan for their property. Approximately 70 percent of the respondents indicated they learned new information on the field tour. Key concepts that participants reported to have learned from the event include low cost understory restoration using seed, herbicide use and site preparation, the importance of native understory species, the specifics of longleaf pine forestry practices, experimenting to see what will work, burn rotations, understory restoration, and plant species identification.

Summary

The Longleaf Pine Forest Restoration & Management Workshop included presentations, field tours, and hands-on experience to educate participants on longleaf pine and groundcover restoration. Workshop and field tour participants can utilize the knowledge and skills on their own properties and share with others to protect Florida's springs. The Longleaf Pine Restoration Area on the western portion of Poe Springs Park provides a lasting demonstration project for springs' water quality protection. The recent prescribed fire, site preparation and planting (longleaf pine, wiregrass and wildflowers) will contribute to the ongoing restoration of a former sandhill community with longleaf pine and native groundcover. The educational sign offers the public more detailed information on this valuable resource and the enhancement of this area at Poe Springs Park. The participants at the Simons Tree Farm Tour were able to see a successful privately owned longleaf restoration site. A combined total of approximately 60 participants including private landowners, forestry consultants, and federal, state, or county staff attended the February workshop and April field tour.

Participants voluntarily provided demographics data and completed a survey to evaluate their knowledge of the topics covered during the workshop and field tour at O'Leno State Park and the field tour at the Simons Tree Farm. The Florida Forest Stewardship Workshop Evaluation Summary detailing the responses from workshop participants is provided in Appendix E. Based on the responses, the evaluation concluded that most participants agreed strongly that the programs:

- Increased their knowledge of issues impacting springs (Workshop held at O'Leno),
- Increased awareness of the importance of longleaf pine and groundcover restoration,
- Demonstrated some low cost techniques for groundcover restoration applicable to their property (from the Simons Tree farm Tour),
- Provided information on site preparation and prescribed fire, and
- Increased their familiarity with ecological pine straw harvesting (Workshop held at O'Leno).

Participants from the Longleaf Pine Forest Restoration & Management Workshop and the Simons Tree Farm Tour indicated they would like to have more information presented on cost-share and land owner assistance programs, converting bahiagrass to longleaf pine, seed sources, species of groundcover to plant for wildlife (game and non-game), conservation easements, and more details on the economics of longleaf pine restoration.

Acknowledgments

The Alachua County Environmental Protection Department (ACEPD) wishes to thank the following partners for their funding, assistance, and/or participation in the Longleaf Pine Forest Restoration & Management Workshop. Special thanks go to Dr. Carol Lippincott (Floridia LLC) for facilitating the Workshop, Chris Demers (Forest Stewardship Program) for workshop coordination and outreach, Jim Myles (ACEPD) for assisting with site preparation, coordinating acquisition of plant materials and supplies for the plantings, and managing plant installation at the Poe Springs Park Restoration Area, Bob and Erica Simons (Simons Tree Farm) for the field tour, and Takumi Sullivan (Alachua County Communications Office) for her work on the design of the educational sign.

- Protect Florida Springs Tag Grant Program & Wildlife Foundation of Florida
- Alachua County Parks Office
- Alachua County Communications Office
- Alachua County Forever Land Conservation Program
- Florida Department of Agriculture and Consumer Services Florida Forest Service
- University of Florida School of Forest Resources and Conservation and IFAS Extension Forest Stewardship Program
- Florida Fish and Wildlife Conservation Commission
- The Longleaf Alliance
- Simons Tree Farm

Glossary

Best Management Practices (BMPs) – practices adopted as standards for a particular industry (e.g. silviculture) to protect the environment from degradation and reduce pollution.

Biomass – plant based woody material that is harvested for use as a biofuel. In Alachua County and the surrounding area biomass is used for fuel to produce electricity at the Gainesville Renewable Energy Center.

Control burn - Controlled or prescribed burning is a technique sometimes used in forest management, farming, and native habitat restoration. Fire is a natural part of both forest and grassland ecology and controlled fire can be a tool for ecosystem management. Controlled burning is typically conducted during the cooler months to reduce fuel buildup and decrease the likelihood of serious hotter fires. Controlled burning stimulates the germination of some desirable forest trees and understory (groundcover) species.

Conservation easement - The most traditional tool for conserving private land, a “conservation easement” (also known as a conservation restriction) is a legal agreement between a landowner and a land trust or government agency that permanently limits uses of the land in order to protect its conservation values. It allows landowners to continue to own and use their land, and they can also sell it or pass it on to heirs.

Groundcover (or understory) – the herbaceous plants and low shrubs beneath the canopy in a forest, considered as a whole.

Hexazinone - is an organic compound that is used as a broad spectrum herbicide. A member of the triazine herbicides, it is manufactured by DuPont and sold under the trade name Velpar. It functions by inhibiting photosynthesis and thus is a nonselective herbicide. It is used to control grasses and broadleaf and woody plants.

Karst - A type of terrain characterized by sinkholes, caves, disappearing streams, springs, rolling topography and underground drainage systems. Such terrain is created by groundwater dissolving limestone.

Sandhill - A type of ecological community or xeric wildfire-maintained ecosystem. It features very short fire return intervals, one to five years. Without fire, sandhills undergo ecological succession and become more oak dominated. Sandhill is a forest of widely spaced pine trees with a sparse midstory of deciduous oaks and a moderate to dense groundcover of grasses, herbs, and low shrubs. Sandhill communities occur on the rolling topography and deep sands of the Southeastern U.S. Coastal Plain. Dominant vegetation includes longleaf pine (*Pinus palustris*), American turkey oak (*Quercus laevis*), and wiregrass (*Aristida stricta* var. *beyrichiana*). A number of **endangered and threatened** animals are typical of this habitat including the Gopher Tortoise (*Gopherus polyphemus*) and Sherman's Fox Squirrel (*Sciurus niger shermani*).

Release (groundcover seeds) - Many plant species in naturally fire-affected environments require fire to germinate, establish, or to reproduce. Opening up an existing understory can provide a mechanism for the species to naturally reproduce.

Santa Fe River (Basin) - The Santa Fe River is a 75-mile (121 km) river in northern Florida. The watershed of the river is approximately 1,380 square miles (3,574 km²) and spreads across southern Columbia, southern Suwannee, western Bradford, far southern Baker, Union, northern and eastern Gilchrist, and northern Alachua counties. The headwaters of the river are Lake Santa Fe, near Melrose, Florida.

Spring – A point where underground water emerges onto the Earth's surface

Springshed – Those areas within groundwater or surface water basins that contribute to the discharge (flow) of a spring.

Tubelings – Containerized seedling for direct planting. Tubelings are young seedling plants or trees that are grown rapidly in plastic "plug" containers and that can be easily removed for planting.

APPENDICES

APPENDIX A

Longleaf Pine Forest Restoration Workshop Agenda and Facilitator's Report

Forest Stewardship Workshop:

Longleaf Pine Forest Restoration & Management in the Santa Fe River Springshed



February 28, 2014; 8:30 am – 3:30 pm

O'Leno State Park

410 S.E. O'Leno Park Road, High Springs, FL 32643

Longleaf pine has many favorable characteristics for landowners with long-term, multiple-use land management objectives. Longleaf pine yields a large proportion of high value solid wood products, is adapted to fire and is resistant to many insects and diseases. Longleaf pine forests provide ideal habitat for a diverse array of plants and animals. Restoration of native Longleaf pine habitat is an important component to protecting springs and groundwater. The Santa Fe River basin is a critical groundwater recharge area due to the well-drained sandy soils that allow the water to reach the Floridan aquifer, which in turn provides groundwater for springs, drinking water, and agricultural uses. The goal of the workshop is to educate private landowners about longleaf pine habitat management and restoration efforts.



Tentative Agenda:

8:30 am	Sign-in, meet & greet
9:00	Welcome, Workshop Purpose, Overview, <i>Carol Lippincott, facilitator</i>
9:15	Group introductions
9:30	Springs Protection, <i>Jim Myles, Alachua County Environmental Protection Dept.</i>
9:45	Why Longleaf Pine? <i>Ad Platt, The Longleaf Alliance</i>
10:25	Break
10:40	Groundcover Restoration, <i>Anne Barkdoll, Oleno State Park</i>
11:00	Ecological Pine Straw Harvesting, <i>Ad Platt</i>
11:20	Managing Wildlife and Getting Assistance, <i>Kris Cathey, Florida Fish and Wildlife Conservation Commission</i>
12:00	Conservation Easements, <i>Ramesh Buch, Alachua County Forever</i>
12:30 pm	Lunch
1:15	Field tour
3:15	Conclusion, evaluation and adjourn

Register: This workshop is free but pre-registration is required. Please register on-line at <http://fsp-workshop022814.eventbrite.com/>. Those without Internet access can reserve a space by calling Chris Demers at (352) 846-2375. Lunch is included. ***Space is limited so please register soon.*** Directions to the Park are on the back. Please share this announcement with others who may be interested.



Funding for this workshop is provided by a Protect Florida Springs tag (license plate) grant administered by the Wildlife Foundation of Florida, the USDA Forest Service through the Florida Department of Agriculture and Consumer Services Florida Forest Service, and a grant from the Florida Sustainable Forestry Initiative.

REPORT

FOREST STEWARDSHIP WORKSHOP: Longleaf Pine Forest Restoration & Management In the Santa Fe River Springshed

**Report submitted by Floridia LLC to
Alachua County Environmental Protection Department
March 3, 2014**

This free public workshop was held on Friday, February 28, 2014 at O'Leno State Park in Alachua County, Florida. Workshop planning was coordinated by Robin Hallbourg of Alachua County Environmental Protection Department (ACEPD) and Chris Demers of University of Florida School of Forest Resources and Conservation (UF). ACEPD contracted with Carol Lippincott of Floridia LLC to facilitate the workshop.

Workshop Purpose

The purpose of the workshop was to educate private landowners about longleaf pine habitat management and restoration efforts.

Workshop Participants

Participants were private landowners, forestry consultants, and federal, state, or county staff. Most stayed to participated in the field tour after lunch.

Workshop Agenda

The workshop consisted of an overview, introductions, and 6 morning presentations, each followed by a question and answer period, on the following topics:

- Springs Protection – Jim Myles, ACEPD
- Why Longleaf Pine? – Ad Platt, Longleaf Alliance
- Groundcover Restoration – Anne Barkdoll, Florida Park Service
- Ecological Pine Straw Harvesting – Ad Platt, Longleaf Alliance
- Managing Wildlife and Getting Assistance – Kris Cathey, Florida Fish & Wildlife Conservation Commission.
- Conservation Easements – Ramesh Buch, ACEPD

Field Tour

After lunch, which was provided, Anne Barkdoll led a 1¾ -hour walking field tour of 3 nearby longleaf pine restoration sites in O'Leno State Park. These included an area where longleaf pine restoration began after an infestation of Southern Pine Beetle in loblolly and slash pine, an area where invasive hardwoods were removed as part of a longleaf pine restoration, and an area of longleaf pine sandhill with successful groundcover restoration. The tour concluded with participants filling out UF's workshop evaluation form.

Summary of Discussions

Workshop participants asked thoughtful questions after each presentation and seemed engaged in the workshop topics. Participants asked questions and brought up issues regarding who manages groundwater use, the need to reduce groundwater use to protect springs, the role of native plants including longleaf pine forests in groundwater conservation, incentives needed to reduce conversion of forested lands to irrigated agriculture in this basin, importance of vegetated wetlands in groundwater recharge, wide tree-spacing to maximize groundwater recharge in longleaf pine stands, benefits of grazing longleaf pine stands, sources of longleaf pine seedlings, benefits of using latitudinally nearby seed source, America's Longleaf Restoration Initiative to increase longleaf from 3 to 8 million acres in 15 years, extremely high dollar value of ecosystem services provided by longleaf pine forests, longevity of harvested groundcover seed, benefits of pine straw to nutrient cycling in longleaf pine forests, minimizing soil disturbance during site preparation for pine straw harvest, possibilities of upcoming compensation for groundwater recharge in forests, need for statewide consistency regarding property tax exemptions for pine stands, and importance of working with a Certified Public Accountant and attorney when negotiating conservation easement for long leaf pine stands.

During the field tour participants talked about herbicides specific to pasture grasses in longleaf pine stands, identification of grasses native to longleaf pine sandhill, burning after hatch to minimize loss to young turkey and quail, benefits to wildlife of burning smaller parcels in a mosaic pattern, using growing-season burns to reduce hardwood understory on richer soils, managing fire to encourage natural reseeding, approaches to groundcover restoration in pine plantations compared to natural stands, desirability of restoring groundcover before planting longleaf pine where feasible, value of diversifying forest-management goals on larger parcels, high variability of cost of groundcover restoration, and the possibility of pine straw harvest on sites with groundcover.

Recommendations for Future Workshops

The primary recommendation is to advertise future workshops more broadly to maximize attendance and to attract those who have not yet attended similar workshops. In addition to emails sent to UF's distribution list, perhaps include posting notices in the free Community Calendar section of local newspapers in the region, providing free Public Service Announcements to local radio stations in the region, emailing flyers to large longleaf pine nurseries, and asking the various workshop sponsors to send email advertisements to their distribution lists.

Report prepared and submitted by:



Carol Lippincott, PhD, CPF
Certified Professional Facilitator

Floridia LLC
1831 NW 12 Rd.
Gainesville, FL 32605-5382

352-377-8693
Contact@FloridiaLLC.org
www.FloridiaLLC.org

APPENDIX B

Poe Springs Park Longleaf Pine Restoration Area Map



Poe Springs Park Longleaf Pine Restoration Area

-  Poe Spring
-  Proposed Wiregrass Planting
-  Longleaf Planting (2011)
-  Longleaf Planting (2012)
-  Project Area
-  Poe Springs County Park
-  Longleaf/ Wiregrass Planting (2014)



0 350 700 Feet



DISCLAIMER: This map and the spatial data it contains are made available as a public service, to be used for reference purposes only. The Alachua County Environmental Protection Department provides this information AS IS without warranty of any kind, implied or expressed, regarding accuracy, completeness, or fitness of use. The quality of the data is dependent on the various sources from which each data layer is obtained.

APPENDIX C

Simon Tree Farm Field Tour
Handouts and News Article



Property Tour

Simons Tree Farm

Property of Bob and Erika Simons

Alachua County, FL



Date: *Thursday, April 24, 2014;*
Sign in, meet and greet at 9:00 AM

Tour: Bob and Erika Simons had their eye on this property for several years and finally had a chance to purchase it and make their vision for it a reality. About half the property has been converted from slash pine to longleaf pine with effort to restore the grass and herbaceous groundcover component as well. The other half of the property, bordering the Santa Fe River, is protected in a conservation easement. With River Rise State Preserve to the north, Camp Kulaqua to the south, and sinkholes dotting the landscape, this unique property offers much in the way of recreation and enjoyment for the family. This will be a walking tour so please dress appropriately.



Register: This tour is free, lunch and materials included. Following the tour we'll caravan to O'Leno State Park for lunch in the open air pavilion. Please register on-line at <http://fsp-tour042414.eventbrite.com/>. Those without Internet access can reserve a space by calling Chris Demers at (352) 846-2375. ***Space will be limited so please register soon.*** Directions to the property are on the back. Please share this announcement with others who may be interested. Contact Chris Demers, (352) 846-2375, cdemers@ufl.edu, for more information about Forest Stewardship Program events.



Funding for this workshop is provided by Alachua County, the USDA Forest Service through the Florida Department of Agriculture and Consumer Services Florida Forest Service, and a grant from the Florida Sustainable Forestry Initiative.



Property Tour

Simons Tree Farm

Property of Bob and Erika Simons

Alachua County, FL

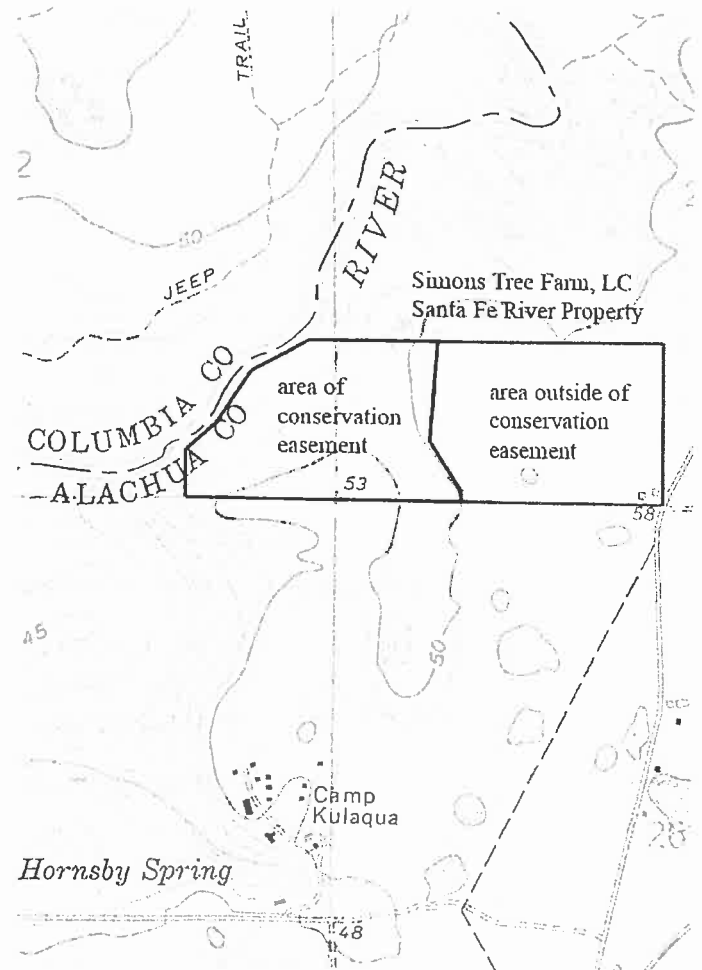


April 24, 2014

We Thank Bob and Erika Simons for hosting us today. The Simons have a long-term vision for this property and have made great progress in that direction over the last few years.

About half the property (outside of conservation easement on the map) has been converted from a slash pine stand to longleaf pine, with a great deal of effort to restore the grass and herbaceous groundcover component as well on a large portion.

The other half of the property, bordering the Santa Fe River, is protected in a conservation easement. With River Rise State Preserve to the north, Camp Kulaqua to the south, and sinkholes dotting the landscape, this unique property is an important part of the Santa Fe River forest corridor and springshed, and offers much in the way of recreation and enjoyment for the family.



Funding for this workshop is provided by Alachua County, the USDA Forest Service through the Florida Department of Agriculture and Consumer Services Florida Forest Service, and a grant from the Florida Sustainable Forestry Initiative.

Resource Contacts

Derek Alkire Cooperative Biologist National Wild Turkey Federation (352) 262-2373 dalkire@nwtf.net www.nwtf.org	Chris Demers Forest Stewardship Coordinator UF/IFAS School of Forest Resources & Conservation (352) 846-2375 cdemers@ufl.edu	Bob and Erika Simons Landowners bobgraybeardsimons@gmail.com
Dave Conser Alachua County Forester Florida Forest Service (352) 955-2239 David.Conser@freshfromflorida.com	Robin Holland Silvicultural BMP Forester Florida Forest Service (352) 732-1273 Robin.Holland@freshfromflorida.com	Joe Vaughn Landowner Assistance Biologist Florida Fish and Wildlife Conservation Commission (352) 955-2241 Joseph.Vaughn@MyFWC.com
	Monica Jones District Conservationist USDA Natural Resources Conservation Service (352) 376-7414 ext. 3 Monica.Jones@fl.usda.gov	

Questions about this or other Forest Stewardship Program activities can be directed to Chris Demers at 352-846-2375 or by email at cdemers@ufl.edu. For more information and events see the UF Forest Stewardship web site at: http://www.sfrc.ufl.edu/forest_stewardship

Lunch after tour at O'Leno State Park →

-Back out to US 441

-North about 4 miles to Park entrance

441

O'Leno State
Park

S US Highway 441

41

Santa Fe River Property

Size: 107 acres

Size of Pine Plantation: 51 acres

Size of Conservation easement: 53.5 acres

Date of land purchase: 6/23/2008

Date of donation of conservation easement: 12/31/2012

Pine plantation history: Old house and original farmland probably established around 1900.

Slash pine planted on old field in 1964 and harvested in 2009.

5 lbs./acre of Velpar ULW applied in April, 2010. Dead oaks harvested for fuel in Oct., 2010.

Longleaf pine containerized seedlings v-blade planted (680 per acre) in November of 2010.

Ground cover seeds spread by hand and by tractor + fertilizer spreader in February of 2011.

Costs: Herbicide + application = \$100/acre, Seedlings = \$100/acre, Planting = \$100/acre,

Purchase of and spreading of ground cover seed = \$100/acre (on 30 acres)

Ground cover species planted: wiregrass, yellow Indian-grass, lopsided Indian-grass, little bluestem, big bluestem, switch-grass, split-beard bluestem, chalky bluestem, short-spike bluestem, Indian paintbrush, narrow-leaf silk-grass, blazing-star, partridge-pea, chinquapin.

Longleaf pine plantations established on our property in Suwannee County:

January, 1990	110 acres machine planted with bare root longleaf pine seedlings
January, 1999	45 acres machine planted with bare root longleaf pine seedlings
November, 2004	240 acres machine planted with bare root longleaf pine seedlings
January, 2006	80 acres hand planted with containerized longleaf pine seedlings
November, 2006	160 acres machine planted to containerized longleaf pine seedlings
November, 2007	80 acres machine planted to containerized longleaf pine seedlings
November, 2007	30 acres machine planted to containerized longleaf pine seedlings
November, 2007	10 acres machine planted to containerized longleaf pine seedlings
November, 2010	120 acres machine planted to containerized longleaf pine seedlings
January, 2013	76 acres machine planted to containerized longleaf pine seedlings

Restoring the native longleaf

Classic pine forests help protect North Florida's groundwater

By [Cindy Swirko](#)

Staff writer

Published: Thursday, April 24, 2014 at 6:33 p.m.

Bob Simons has restored hundreds of acres across North Central Florida to longleaf pine forests and watched as gopher tortoises, birds and blackberries moved in.

In the process, he has helped filter water that eventually makes its way into the aquifer, rivers and lakes — a key concern in a region where groundwater is being depleted and springs are being polluted.

And Simons earns money from these forests.

On Thursday, landowners, scientists and conservationists got a first-hand look at the varied benefits of restoration on a tour of more than 100 acres that Simons owns just north of High Springs as part of a forest stewardship program sponsored by several agencies.

"I've been managing pine plantations for 55 years, starting as a teenager in high school, and I have about 11 longleaf plantations. Most have been done for economic reasons — we have to make a living at it," Simons said, adding that he planted about 40,000 plugs at his High Springs property. "They don't get any water, and they don't get any fertilizer. If they make it, they make it. They are tough."

Roughly half the property is sandy uplands that will grow into the classic Florida longleaf savanna of pines with an understory of wire grass, palmetto and other native vegetation.

The other half is hardwood buffer along a quarter-mile of the Santa Fe River. Simons and his wife, Erika, have a conservation easement on the land that earns them tax credits in return for giving up the right to develop the land.

Both the land and water benefit from plantations such as Simons', said Chris Demers, forest stewardship coordinator with the School of Forest Resources and Conservation at the University of Florida.

"Restoring the upland longleaf forest that was there before European settlement — that filters the water through those deep sands, and it protects the water that way," Demers said. "He's got this bottomland hardwood buffer along the Santa Fe River that also helps protect it."

Much of the native longleaf forest in Florida has been lost through logging and development.

Now, tree farms are often densely planted in slash pines, which grow quickly. Because of the growing methods, the plantations lack the plant and animal diversity and the functions of a natural forest.



Doug Finger/The Gainesville Sun

Bob Simons, at center, leads a tour of his tree farm during the Longleaf Pine Forest Stewardship Workshop on Thursday.

About 30 people joined Thursday's tour. Simons was peppered with questions about his techniques in clearing and replanting the land, troubleshooting problems that arise, tips for managing the land and many more issues.

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Karla Gaskins of Fort White has inherited a family farm on the Alapaha River in South Georgia that she is restoring to a longleaf forest.

"I have 1,300 acres, and my stepmother has 2,500, and we have just recently established the Gaskins Forest Education Center — which was a lifetime dream of my father's," she said. "We want to do this for the habitat, the environment and to pass something worthwhile on to my children and my grandchildren."

David Conser, Alachua County forester for the Florida Forest Service, said more private landowners are giving longleaf restoration a shot.

Incentives are offered from various agencies including the Natural Resources Conservation Service, a part of the U.S. Department of Agriculture.

"The restoration of longleaf pine has become really en vogue right now. It's really become popular," Conser said. "There are cost-sharing possibilities. This species used to cover 90 million acres across the Southeast, and now it's down to 3 million. And that 3 million, very little has the native groundcover. The groundcover makes it the second-most diverse ecosystems on terrestrial Earth behind rainforests."

APPENDIX D

Silviculture Best Management Practices (BMPs)

Silviculture BMPs and FDEP Adopted BMAPs



Contact your local BMP Forester for more information on Silviculture BMPs:

Roy Lima - Watershed Forester

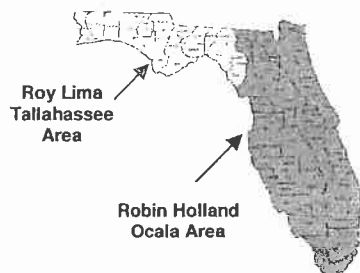
(850) 681-5942

Roy.Lima@FreshFromFlorida.com

Robin Holland - BMP Forester

(352) 732-1273

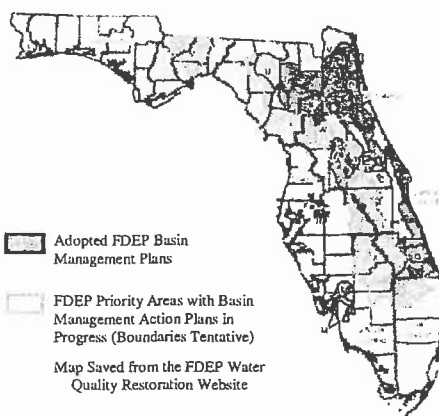
Robin.Holland@FreshFromFlorida.com



Visit the 'For Landowners' Section of Our Website to Download a Notice of Intent Form or to View the FL Silviculture BMP Manual

www.FloridaForestService.com

FDEP Basin Management Action Plan Areas



What is an FDEP Adopted Basin Management Action Plan and How Does It Affect My Forestry Operations?

The acronym BMAP stands for Basin Management Action Plan. A BMAP is a collection of strategies to reduce the discharge of specified pollutants into an impaired waterbody. BMAPs are designed to achieve water quality targets called Total Maximum Daily Loads (TMDLs). As of May 2013, FDEP has adopted nineteen BMAPs across the state, with many more in the planning and development stages.

Under Florida law, landowners who conduct bona-fide ongoing silviculture operations within a Florida Department of Environmental Protection (FDEP) adopted BMAP area are required to either implement FDACS-adopted Best Management Practices (BMPs) or conduct costly water quality monitoring at their own expense.

What are Silviculture Best Management Practices (BMPs)?

Silviculture BMPs are the minimum standards necessary to conduct forestry activities near waterbodies and wetlands in a manner that is environmentally sound.

- ☒ Silviculture BMPs protect our natural water resources from the degradation and sedimentation that can sometimes occur when conducting forestry operations.
- ☒ Silviculture BMPs should be applied on all bonafide ongoing forestry operations, especially those adjacent to waterbodies and wetlands, and may be enforced by federal, state, and local authorities through reference of regulatory statute or rule.

What do Forest Landowners Need to Do?

The first step is to enroll in the Silviculture BMP Notice of Intent Program (Rule 5I-6 F.A.C.) by submitting a completed Notice of Intent to Implement Silviculture Best Management Practices form. Next familiarize yourself with Silviculture BMPs and make sure all of your forestry contractors are BMP trained. Your local BMP Forester can help you determine what Silviculture BMPs are applicable to your property. Finally keep records documenting your forestry activities including contracts, receipts, and Silviculture BMP Courtesy Checks to help verify your BMP implementation.

Silviculture BMP Courtesy Checks are voluntary on-site inspections conducted by your local BMP Forester to evaluate BMP compliance for ongoing or recently completed forestry operations such as timber harvesting, site preparation, forest roads, stream crossings, etc. This evaluation provides the landowner or contractor with a report card on the level of BMP compliance for the work that was conducted as well as suggestions on ways to improve Silviculture BMP implementation for future operations.

The future of forestry in Florida depends on all of us working together to preserve our valuable natural resources for the generations to come.

APPENDIX E

Florida Forest Stewardship Evaluation Summaries

EVALUATION SUMMARY

Florida Forest Stewardship Workshop:
Longleaf Pine Forest Restoration & Management in the Santa Fe River Springshed
February 28, 2014; O'Leno State Park

Participants	
Landowner	11
Forester	1
Biologist/Natural Resources Professional	4
Extension Agent	1
Total	17

1. How many acres do you own or manage?	
Sum =	7063
Median =	250
Average =	642

2. If a landowner, do you have a current Forest Stewardship Management Plan, Tree Farm Plan or other management plan for your property?	
Current means written and up-to-date within the last 5 years	
Yes	8
No	3
Not Applicable	4

Which of the following do you currently manage on your land?	
Timber	9
Livestock	2
Pond(s)	1
Game wildlife species	6
Non-game wildlife species	3
Recreation	2
Other: wetlands, marsh, Gaskins Forest Education Center	4

3. How relevant was this event to your land management projects or job?	
Not Relevant	0
Somewhat Relevant	3
Very Relevant	13

4. Prior to attending the event, how much did you already know about the topics discussed?	
The workshop gave me considerable new information	5
Gave me some new information	7
Reinforced what I already knew	5

5. Briefly describe one or two key things you learned or gained from today's event.
Species ID
Springs management, springs features
Ecological pine straw mgmt
NWTF involvement in local mgmt plans
Varous ground cover benefits
Effects of different timing of controlled burns, different mgmt schemes based on desired outcomes
Low impact pine straw raking
Understory restoration benefits, assistance programs, pine straw harvesting
Information on ground cover
Mechanical clearing not so good, pasture land requires intensive effort, possible sale of pine straw
Conservation easement information
Vital importance of not disturbing ground where you want to recover natural ground cover
Longleaf pines and straw, benefits to wildlife mgmt

6. To what extent can you apply the information presented today to the land you own/manage or your job?	
Not at all	0
To some extent	7
To a great extent	9
Not applicable for my situation	0

If applicable, what practices or other information do you plan to use?	
All	
Burning, timber harvest	
Simply the opportunity to interact w/ speakers and other attendees invaluable	
Ecological pine straw mgmt	
Answer questions regarding planting longleaf	

7. Which statement best describes your understanding of the concept of a springshed?	
I am still unclear	0
I was not familiar with this term prior to the event, but now I understand it	6
I was familiar with this concept prior to the event	10

8. How did you learn about today's event?	
Florida Land Steward Newsletter	6
Email Invitation	5
Florida Forest Steward or Florida Land Steward web site	4
County Extension Office	1
County Forester	0
Newspaper	0
Friend/colleague	3
Other: FWC - Gene Kelly	1

9. Please share any suggestions or recommendations you have that would benefit future Florida Forest Stewardship workshops and tours. Include additional topics and/or presenters you would like to see offered.	
Keep doing what you are doing	
Sometimes presenters are working with gov't money and don't understand the costs to the landowner	
Tour of working tree farms geared toward production of timber	
I would like to have seen Kris Cathey's presentation expanded to workshop level, seed harvesting and regeneration, commercial availability of seed, restricted burn methodology for small properties, would like to have seen Mr Buch's talk more specific to participants at hand, research presentation from Tall Timbers	
Specific programs available in detail and how we could benefit (all agencies)	
Growth and yield of planted longleaf pine when the information becomes available	
Forestry practices and aquifer recharge, payment for ecosystem services	

10. Do you currently receive the Florida Land Steward newsletter?	
Yes, by mail	7
Yes, by email	8
Yes, on the Florida Land Steward website or Forest Stewardship website	0
I do not receive the newsletter	3

11. If you would like to receive the newsletter, what is your preferred method?	
I prefer to receive the newsletter by mail	1
I prefer to receive the newsletter by email	5
I prefer to check the website (floridalandsteward.org) for news and upcoming programs	0

EVALUATION SUMMARY

Florida Forest Stewardship Tour:
Simons Tree Farm, Alachua County, Florida
April 24, 2014

Participants	
Landowner	8
Forester	1
Biologist/Natural Resources Professional	2
Extension Agent	0
Other	5
Total	16

1. How many acres do you own or manage?	
Sum =	99,134
Median =	547
Average =	12,392

2. If a landowner, do you have a current Forest Stewardship Management Plan, Tree Farm Plan or other management plan for your property? (Current means written and updated every 5 years or so)	
Yes	6
No	2
Not Applicable	5

Which of the following do you currently manage on your land?	
Timber	8
Livestock	1
Pond(s)	3
Game wildlife species	6
Non-game wildlife species	8
Recreation	6
Other: wetlands, marsh, Gaskins Forest Education Center	5

3. How relevant was this event to your land management projects or job?	
Not Relevant	0
Somewhat Relevant	4
Very Relevant	9

4. Prior to attending the event, how much did you already know about the topics discussed?	
The workshop gave me considerable new information	3
Gave me some new information	11
Reinforced what I already knew	2

5. Briefly describe one or two key things you learned or gained from today's event.
"Poor man's" understory restoration, site prep choice of hexazinone for hardwood control
Use liquid Velpar, grasses in understory
Level of site prep required for longleaf pine
It's cheaper to use seed from groundcover species without having to do extensive site prep
Planting and seeding wiregrass and other understory plants, some herbicide use
Inspired to spread native grass seeds
Specifics of LLP forestry
Wildlife trees/shrubs for upland sites
Accuracy of aerial herbicide application
Having courage to experiment
Groundcover restoration
I knew nothing about managing pines, so it was all new info for me
Protect your stuff from deer, names of plants
Some people wait to burn at least 10 years
Variety of groundcover (grasses) and their success rates, burn rotations

6. To what extent can you apply the information presented today to the land you own/manage or your job?	
Not at all	0
To some extent	6
To a great extent	7
Not applicable for my situation	3

7. How did you learn about today's event?	
Florida Land Steward Newsletter	1
Email Invitation	9
Florida Forest Steward or Florida Land Steward web site	2
County Extension Office	0
County Forester	0
Newspaper	0
Friend/colleague	2
Other	2

If applicable, what practices or other information do you plan to use?
Understory seeding at nature preserve restoration
Spreading seed on some of our restoration sites
Planting understory, herbicide, Rx burning
Explore aerial herbicide application
Seed dispersal for increasing groundcover
Manage burns depending on site

8. Please share any suggestions or recommendations you have that would benefit future Florida Forest Stewardship workshops and tours. Include additional topics and/or presenters you would like to see offered.
Understory restoration and wildlife enhancement
Pine straw workshop, bahiagrass conversion and longleaf pine plantings, managing or preventing larger oaks from taking over sandhills
More info on understory where available and native species
Would like to see an area where biomass harvesting is being used for restoration
Cost-share programs for longleaf pine growers, talk about \$ considerations between loblolly and slash
Specific workshop about species to plant for wildlife (game and nongame), best to plant/high survival/costs/seed production
More on ground w/ property owner workshops

9. Do you currently receive the Florida Land Steward newsletter?	
Yes, by mail	2
Yes, by email	3
Yes, on the Florida Land Steward website or Forest Stewardship website	2
I do not receive the newsletter	9

10. If you would like to receive the newsletter, what is your preferred method?	
I prefer to receive the newsletter by mail	1
I prefer to receive the newsletter by email	11
I prefer to check the website (floridalandsteward.org) for news and upcoming programs	1