Southeast Longleaf Ecosystem Occurrences Geodatabase
FNAI Progress Report, Apr 15 – Jul 15, 2019

The Southeast Longleaf Ecosystem Occurrences (LEO) Geodatabase is a project to develop a spatial database for longleaf pine occurrence and condition across the range.   With funding from NRCS through the U. S. Endowment for Forestry and Communities, Florida Natural Areas Inventory (FNAI) began work in April 2018. Our work during the fifth quarter focused on revising the training protocol and Collector App, conducting a training session in Mississippi, and processing existing data sources for upload into the LEO Geodatabase. In addition we began close coordination with the Longleaf Alliance for field survey planning. Project activities from Apr 15 – Jul 15, 2019 are summarized below.

Partner Outreach

We continued to correspond with longleaf partners, learning about and gathering data for both longleaf occurrences and data to inform potential longleaf occurrence and condition. Outreach this quarter consisted of regular email and phone correspondence, especially with data providers to ensure accuracy of data content as we processed it for upload into the LEO database.

On April 18-19 we met with Karen Zilliox Brown (LLA) at FNAI to begin coordination with LLA on field survey planning and training.

Rapid Assessment Training

On June 19 -20 we conducted a second LEO Rapid Assessment training session in the Desoto-Camp Shelby LIT with Karen Brown (LLA), Sarah Holmes (LLA's recently hired field contractor), and several LIT members. (This followed an initial training in March 2019 with 7 LIT members). In preparation, we updated all training documents and presentations, as well as the Collector app. Updates were based on feedback from LIT members who had started data collection this spring, and consultation with LLA.   The training agenda, documents, and participant list are attached to the end of this report.

Assessment Metrics

We continued to revise metrics/attributes for field data collection based on feedback from LIT members who have been collecting LEO data in the field, and from the most recent training session.   The latest metric documents are available on the project webpage: https://www.fnai.org/se_longleaf.cfm.   Another draft is in progress awaiting final review.

Mobile App

The LEO Collector App has been deployed to individuals who participated in the two LEO Rapid Assessment training sessions in the Desoto-Camp Shelby LIT. We continue to update the app (currently version 2.3) as assessment metrics are revised, and based on feedback from users.

Field Survey Coordination

Coordination with Longleaf Alliance

At the end of last quarter The Longleaf Alliance was selected to coordinate field data collection on the LEO project. This quarter we have been coordinating closely with the LLA, especially Karen Brown, to provide information to assist their hiring of a field contractors to work in Desoto-Camp Shelby and GCPEP LITs. Coordination has also included the rapid assessment metrics and training described above.

Dataset of Priority Areas for Field Assessment

This quarter we completed delineation of field survey polygons for the GCPEP LIT (1,957 sites), based on review of high resolution aerial photography overlaid with a variety of data sources that indicate the potential for longleaf occurrence, including species occurrence data, burn permit locations (where applicant noted presence of longleaf), FNAI longleaf pine SDM, and UGA gopher tortoise SDM. Delineation of field survey polygons for the Chattahoochee Fall Line is underway.

Field Data QC Protocol

FNAI developed a quality control protocol intended for use by the Longleaf Alliance (LLA) staff, as part of their field data coordination on the LEO project. In that role LLA will be responsible for QA/QC of incoming field survey data collected within designated LITs using the LEO Collector app. This protocol is designed for QC/editing of survey points and polygons via ArcGIS Pro.

On July 10 we held a training webinar with Lucas Furman and Karen Brown (LLA) to discuss and demo the quality control protocol and workflow for incoming LEO field survey data.
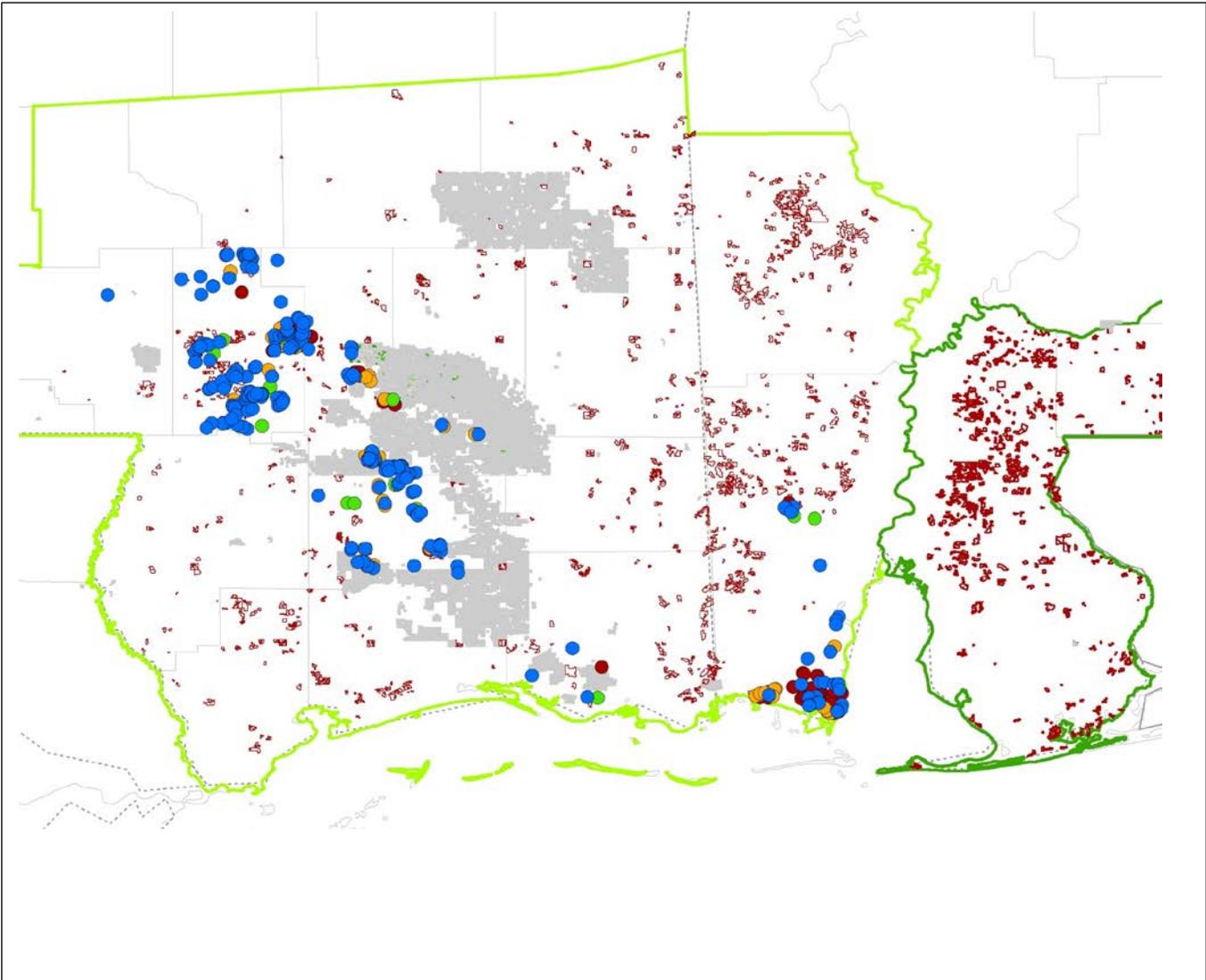
Field Survey Progress – Desoto-Camp Shelby

LIT members began surveying within the Desoto-Camp Shelby (DCS) LIT following the March 2019 preliminary training. These individuals have been able to conduct surveys, using the LEO Collector App and polygons, as time allows with other duties. In June the LLA contracted with Sarah Holmes to begin dedicated surveys. Sarah also has been conducting LEO field surveys since the June 19 training.

FNAI deployed 1,504 survey sites for assessment in the DCS. To date surveyors have delineated an additional 81 new longleaf sites for a total of 1,585 sites. Progress to date:

	Total Sites for Survey (potential longleaf polygons)	Longleaf Pine – Assessed	Longleaf Pine – Not Assessed	Longleaf Absent – Not Assessed	No Access
SITES	1,585	236	10	50	62
ACRES	187,411	26,771	2,098	4,319	78

Condition Group Lookup Table
Deliverable #5 – due Jul 15, 2019

The Condition Group Lookup Table is intended as a tool for displaying and summarizing ecological data from multiple sources, in a format consistent with definitions from the America's Longleaf Restoration Initiative. The crosswalk/lookup table allows detailed metric values (cover classes, etc) associated with longleaf sites, to be 'rolled up' into categories of Maintain, Improve, Restore for viewing on a map and summarizing in reports. The LEO draft was modified from the crosswalk used in the Florida Longleaf Pine Database. In the current version FNAI uses thresholds for maintenance condition from the LPC Longleaf Pine Maintenance Condition Class Definitions to the extent feasible. In addition we consulted the latest NatureServe Southern Open Pine metrics (v2.0). FNAI plans to seek review of the crosswalk from the LEO Mapping Subcommittee in the next quarter. The latest draft crosswalk is provided as a separate attachment (not for distribution).

Incorporate Existing Data into the LEO Database
Deliverable #8 – due Jul 15, 2019

As of July 2019 FNAI has received more than 80 longleaf-related GIS datasets from many partners across the southeast. Many of these datasets are longleaf stand polygons or other longleaf pine occurrence data that we review, interpret and process into a standard GIS format and set of standard LEO attributes. Interpretation of existing data frequently includes communication the data provider. To ensure accuracy, transparency, and repeatability all processing steps are fully documented for each dataset. Processing of existing longleaf pine data in MS, AL, and GA is complete, as is all USFS stand data across the range. We expect to continue receiving data from partners and that this task will be ongoing throughout the project.

Longleaf Ecosystem Occurrences (LEO) Rapid Assessment Training Agenda

DATE: **June 19 – 20, 2019**

TIME: **Weds, 9:00 – 5:00;   Thurs, 9:00 – 1:00**
PLACE: Camp Shelby Environmental Building & Nearby Field Sites

This is the second field training workshop to be held for the LEO project. Participants will learn about the purpose of the SE LEO project, how to use the LEO Rapid Assessment Collector app, conduct field surveys and collect data according to the LEO Rapid Assessment Protocol. Participants will also learn to quality control their data prior to submission to the LEO database.

Prerequisites: Participants should know the basic flora of longleaf ecosystems in their area and have some background in field botany, forestry or biology.   Participants must have a mobile device (preferably tablet size or larger) with GPS & Wi-Fi connection, ability to download and install the Collector app, and an ArcGIS Online log-in from their organization.

Weds, June 19

9:00 – 9:30   Introduction & overview of the LEO project

9:30 – 10:30   Technology: Mobile device set-up; using the Collector app

10:30 – 10:45   Break

11:00 – 12:30   Rapid Assessment attributes

12:30 – 1:00   Lunch (Bring your own)

1:00 – 1:45   Field Protocol and logistics overview.

1:45 – 2:30   Data QC and Sync

2:30 – 5:00   Field Practice. Note: adjourn in parking lot; CS Environmental Building closes at 4:30 pm.

Thurs, June 20

9:00 – 10:00   Review and clarify training issues from previous day

10:00 – 10:30   Logistics 2: Team field planning

10:30 – 1:00:   TBD office or field: Additional practice

LEO RA Training Document List June 19 2019

1_LEO_RA_Training_Intro_20190619.ppx: Overview of LEO project with focus on field survey components.

2_Collector Classic Android Protocol for LEO Field Surveys 20190611pdf: Written description of Collector set-up, with reference to RA protocol and Collector Interface pdfs

3_LEO_RA_Training_AndroidCollectorClassic_Interface_20190611.pdf: Slides with screenshots to demonstrate use of Collector for LEO project. We have versions for Collector Classic (Android) and Collector for iPad.

4_LEO_RA_Training_Attributes_20190619.pdf: Slides describing each attribute with interpretation/collection guidance.

5a_LEO_Rapid_Assessment_Field_Protocol_20190619.pdf: Written document with complete field survey protocol, including full field attribute descriptions and guidance for data collection.

5b_LEO_RA_Attribute_Table_ 20190619.pdf: Succinct tabular version of attributes, for quick reference.

6_LEO RA_Logistics_Protocol_and_Field_QC_20190619: Slides used for discussion of parsing survey area into zones and for field data QC. Reiterates RA Protocol and QC rules, and provides images with examples.

Flyer_for_FieldSurveyors_June2019.pdf: Brief ½ page synopsis of project, for giving to public encountered during field surveys.

Collector Quick Reference 2-pager for Android.pdf: Collector help sheet, for use in the field. Currently only for Android.

LEO Rapid Assessment Training - Participant List for Desoto-Camp Shelby LIT

Training Date	Participant	Agency	email
03/21-22/2019	Ryan Mitchell	LLA	ryan@longleafalliance.org
(7 people)	John Gruchy	MDWFP	john.gruchy@wfp.ms.gov
	Conner Herrington	MDWFP	Conner.Herrington@wfp.ms.gov
	Richard Ladner	NWTF	rladner@nwtf.net
	Becky Stowe	TNC MS	rstowe@TNC.ORG
	Melinda Lyman	TNC MS	mlyman@TNC.ORG
	Tamara Campbell	USFWS	tamara_campbell@fws.gov
06/19-20/2019			
(6 people, excl Tamara)	Karen Zilliox Brown	LLA	karen@longleafalliance.org
	Caleb Hinton	MDWFP	Caleb.Hinton@wfp.ms.gov
	Scott Baker	MDWFP	Scott.Baker@wfp.ms.gov
	Sarah Holmes	Private Contractor	holmes8070@bellsouth.net
	Willie Holmes	Private Contractor	holmes8070@bellsouth.net
	Randy Browning	USFWS	randy_browning@fws.gov
(Assisted training)	Tamara Campbell*	USFWS	tamara_campbell@fws.gov

DRAFT Crosswalk of LEO Attributes to LPC Management Classes for Maintain, Improve, Restore (MIR)

This crosswalk is intended as a tool for displaying and summarizing ecological data from multiple sources, in a format consistent with definitions from the America's Longleaf Restoration Initiative. The crosswalk allows detailed metric values (cover classes, etc) associated with longleaf sites, to be 'rolled up' into categories of Maintain, Improve, Restore for viewing on a map and summarizing in reports. The LEO draft was modified from the crosswalk used in the Florida Longleaf Pine Database. In the current version FNAI uses thresholds for maintenance condition from the LPC Longleaf Pine Maintenance Condition Class Definitions to the extent feasible. In addition we consulted the latest NatureServe Southern Open Pine metrics (v2.0).

Attribute	Maintain	Improve	Restore[c]	Source[a]	Notes	Actual LEO Cover Class Threshold for Maintain[b]
Longleaf Pine Dominance	-	-	-	LEO	Metric will be reported as original values: Dominant, Co-dominant, Occasional, Rare, Absent	
Flat-tops	Yes	None		LPC, SOP- excellent	Flat-tops and Large Longleaf together get at presence of older mature longleaf; SOP parses Large Longleaf classes by Basal Area	
Large Longleaf	Yes	None		LPC		
Longleaf Stand Age	Older Mature	Younger Mature or Pre-reproductive		LPC		
Longleaf Canopy Age Classes	Multiple (2+) age classes	One age class or LLP absent from canopy		LPC		
Longleaf Pine Regeneration ($\leq$2 inch dbh)	$\geq$5%	<5%, or not evident		LPC, SOP		
Longleaf Pine Sapling (Late Regeneration)	$\geq$5%	<5%, or not evident		LEO (following LPC Regen)		
Longleaf Pine Basal Area	20 - 90	<20 or >90		SOP- excellent, good	LPC 'Maintain' is 40-70	
Other Pine Basal Area	-	-	-	LEO	LPC metric is % cover of off-site pine, LEO does not address; metric is informational, will not convert to MIR.	
Hardwood Canopy Basal Area	$\leq$20	>20		SOP- excellent, good	LPC = <10 for maintain	
Midstory Cover	$\leq$20%	>20%		LPC	SOP - excellent, good thresholds vary by habitat but are similar.	16 - 25%
Fire Tolerant Hardwoods Cover	$\leq$25%	>25%	>45%	FNAI-FL	LPC 'Maintain' is <5% cover of fire-intolerant hardwood; SOP 'Maintain' varies by habitat for % fire intolerant hardwoods	16 - 25%
Tall Shrub Cover	<15%	$\geq$15%		SOP	Not in LPC metrics	6 - 15%
Short Shrub Cover	$\leq$30%	>30%		LPC	SOP is $\leq$35% for excellent, good	26 - 35%
Herbaceous Cover	>35%	$\leq$35%		LPC	LPC is conditional with presence of native pyrogenic species	36 - 45%
Pyrogenic Grass Cover	>15%	$\leq$15		SOP	LPC 'Maintain' is presence only	16 - 25%
Non-native Grass Cover	<1%	1 – 15%	>15%	FNAI-FL	Not in LPC metrics	<1%
Invasive Plant Cover	$\leq$1%	>1%		LPC		<1%
Condition Rank	Excellent-Good	Fair	Low	LEO	Consider reporting original values; Mgmt Classes allow incorporation of other source data	

[a]Crosswalk criteria source: LPC = Longleaf Partnership Council 2014 - General Longleaf Pine Maintenance Consition Class Metrics; SOP = Southern Open Pine, from Field Guide of Southern Open Pine Rapid Assessment Metrics (v2.0; NatureServe, 2018).

[b]LEO cover classes are based on 10% range intervals, e.g. 16-25%, 26-35%. This means that maintenance class threshold values of 20 and 25, (e.g., midstory cover and fire tolerant hardwood cover, respectively) are equivalent because both fall within the actual range value of 16-25% in the LEO system.

[c]The current crosswalk differs from the Florida version in that 'Restore' thresholds are not identified for most attributes; instead we interpret 'Restore' following ALRI as 'adding longleaf acreage from other land uses and forest types'. Non-Longleaf sites in need of conversion are not within the LEO project scope and not included in the database. A few values are included for Restore where these are derived from the FL database; additional review is expected.