LPEGDB Version 3 Summary Report

Supplement to the Longleaf Pine Ecosystem Geodatabase v.1 Final Report and v.2 Summary Report

September 2015

A cooperative project between Florida Natural Areas Inventory and the Florida Forest Service

LPEGDB Version 3 Summary Report

This report summarizes work conducted by Florida Natural Areas Inventory (FNAI) in cooperation with the Florida Forest Service (FFS) to produce Version 3 of the Longleaf Pine Ecosystem Geodatabase (LPEGDB). Version 3 addresses recommendations by longleaf partners for refinement of data collection protocols, continued enhancement of the database, and development of user-friendly map products. The objectives for this phase of the LPEGDB were as follows: 1) Coordinate with regional longleaf partners to revise the longleaf rapid assessment protocol and publish related data collection tools and training guide; 2) obtain data from partners to add or improve longleaf occurrence and condition information on both public and private lands; and 3) develop downloadable GIS layers, user guide, and web map viewer that facilitate the ability to display and summarize longleaf information.

Revised Data Collection Model

FNAI worked with FFS to revise the original LPE Rapid Assessment Protocol to include additional metrics, enhance compatibility with regional efforts, and promote similar assessments rangewide. FNAI coordinated closely with regional partners and considered input from four primary sources:

1) Recommendations from the August 2014 Longleaf Partners Meeting.
2) The Condition Metrics for Southern Open Pine Ecosystems project, a collaboration between NatureServe and USFWS to develop a series of metrics for a rapid assessment of longleaf pine systems throughout the Southeast. FNAI participated in a project meeting in March 2015 that was attended by forestry and wildlife professionals from Mississippi to South Carolina. The metrics discussion included the desired ranges of values for a core set of wildlife species and general ecological health. FNAI also consulted a set of draft metrics developed by the project team after the meeting.
3) Draft longleaf pine assessment metrics from The Nature Conservancy (TNC) in North Carolina. FNAI participated in a conference call and email exchange with TNC-NC and NatureServe to compare and discuss consistency of our respective assessment designs. NatureServe and TNC-NC also reviewed and provided feedback on proposed revisions to the LPE Rapid Assessment.
4) Longleaf Pine Maintenance Condition Class Definitions published by America's Longleaf Restoration Initiative (ALRI) in October 2014. These definitions are the standard adopted by ALRI and are expected to help guide implementation of the Range-wide Conservation Plan for Longleaf Pine (ALRI 2009).

Based on this input, data collection fields for the Rapid Assessment were revised as follows:

- "LLP Maturity" was changed to "LLP Dominance" to more accurately reflect the definition of the metric; the field values remained the same.
- "Older-mature Characteristics" was added to indicate the presence of flat-topped trees within the stand.
- "LLP Early Regeneration" and "LLP Advanced Regeneration" were added. Regeneration is an indicator of the potential sustainability of the stand. It may also indicate the need for planting or active management of the stand such as burning and thinning to encourage seed germination. Advanced regeneration is an indicator of the immediate sustainability and health of the stand. Trees in this category are less susceptible to scorch during prescribed fire and can quickly replace the canopy following thinning or

larger-scale cutting. Values in this field were chosen to be consistent with ALRI's Longleaf Pine Maintenance Condition Class Definitions.

- "LLP Basal Area" field values were changed to integers to the nearest 10 rather than large classes in order to facilitate crosswalk into other systems.
- "Turkey Oak and Sand Post Oak Cover" was changed to "Fire Tolerant Hardwood Cover" to reflect a greater number of characteristic and desirable hardwood species.
- "Midstory Cover" was removed because of confusion with definitions used by other programs. Multiple shrub strata categories were considered. This problem was resolved by expanding the definition of Shrub Cover to include all woody species up to 16 feet tall (consistent with other programs) and adding "Average Shrub Height" in order to assess a stand using ALRI criteria.
- We considered adding a field to capture soil disturbance, but decided that it was too complex and subjective to be applied consistently in a rapid assessment.
- "Invasive Plant Distribution" was replaced with "Invasive Plant Cover" in order to assess a stand using ALRI criteria.
- "Natural Community Type" was replaced with "Soil Hydrology" because assessors had difficulty assigning the natural community type. Values for "Soil Hydrology" will help to classify the historic or current natural community, which is useful for species habitat mapping and land use planning.
- "Stand Type" was added to indicate if a stand was naturally regenerated or if manually planted by hand or machine. These numbers will help evaluate agency goals.

All rapid assessment metrics including definitions, field values, and rationale are described in Appendix A. The crosswalk of attributes to management levels for Maintain, Improve, and Restore, originally described in the LPEGDB v.1 Final Report, was updated to include the revised metrics and follows the 2014 ALRI Longleaf Pine Maintenance Condition Class Definitions as closely as possible (see Appendix B). Where ALRI criteria did not cover all attributes a combination of other schemes was used including FNAI Reference Natural Community desired condition ranges, 2011 draft criteria from the Longleaf Measures Work Group, 2011 East Gulf Coastal Plain Joint Venture– Longleaf Woodlands Desired Future Conditions version 1.1, and expert knowledge.

In addition to the metrics revisions, the rapid assessment data collection method has been changed from a polygon-based to a point-based model. This eliminates the need for editing polygons in the field (or post field work) while providing the specific location where data were collected. This will greatly reduce the training needed to complete a rapid assessment and facilitates transfer of the data collection model to other potential users. The training materials have been revised accordingly and include presentations for Rapid Assessment Data Field Descriptions Overview (Appendix C) and Rapid Assessment ArcPad Procedure (Appendix D); the latter describes check-out and check-in procedures using ArcPad 10.2 and the updated rapid assessment file geodatabase which includes a template point feature class and domains that enable automatic creation of a data collection form in ArcPad. The full data collection model including geodatabase and documentation will be available for distribution. Next steps include expanding data collection tools to other formats, potentially Trimble, ESRI's Collector for ArcGIS, Trimble, and/or other mobile apps.

Additions and Revisions to LPEGDB v.3

Updates to LPEGDB v.3 include integration of new (or newly available) longleaf occurrence and condition data as well as new attributes identifying managed areas and land cover type. New criteria were also applied to exclude sites with low potential to be LPEs. Updates are described by category below.

New Data Sources

FNAI Field Projects

FNAI regularly conducts field surveys as part of contracted projects for various agencies. Longleaf information is collected both systematically as part of natural community mapping and monitoring, and opportunistically during the course of other work. Longleaf information was mined from FNAI field projects for 2014-15 and integrated into LPEGDB v.3 following crosswalk methods described in the LPEGDB v.1 Final Report. Information was added or revised for the following sites: Apalachee WMA, Yellow River WMA- Escribano Point, Platt Branch WEA, Hilochee WMA, Box-R WMA, Branan Field WEA, Marjorie Harris Carr Cross Florida Greenway (vicinity), Lake X Florida Forever Project, and Arbuckle Creek Florida Forever Project.

FNAI Element Occurrence Database

The FNAI Element Occurrence (FLEO) Database contains data for natural communities and rare species with location descriptions that may include longleaf pine and associated communities. Longleaf information was mined from the FLEO Database for observations occurring 2010 – 2015 and used to update longleaf occurrence status from 'unknown' to confirmed for approximately 30 stands/polygons.

Red-cockaded Woodpecker (RCW) Cavity Trees

FNAI obtained a detailed RCW dataset from USFS that identifies the location and species of cavity trees on the Apalachicola National Forest. This information was used to revise longleaf occurrence information in stands where cavity trees occurred. These data also helped identify an additional stand forest type – undrained flatwoods – for inclusion in the LPEGDB as potential longleaf. Note that these were previously overlooked because only 'Pine' class types were included and undrained flatwoods is assigned a class type of 'Hardwood'. Many of these stands, however, were confirmed as longleaf sites based on cavity tree data; the remainder were added to LPEGDB v.3 and assigned longleaf occurrence status of 'unknown'.

Resources Management Service, LLC (RMS)

There is broad support for including longleaf pine plantations in the LPEGDB and this will be a primary focus of work beyond version 3. One of the objectives in this phase, however, was to take initial steps toward collecting readily available information on private plantation lands. RMS provided a polygon dataset of longleaf plantations within the Coastal Headwaters Longleaf Forest Florida Forever Project in Escambia and Santa Rosa Counties. The project represents almost 100,000 acres of pinelands with approximately 6,200 acres in longleaf. These 6,200 acres were confirmed as longleaf in LPEGDB v.3, although some had already been assessed during the 2013 Rapid Assessment; all pinelands within the boundary that were not current longleaf plantation were assigned longleaf occurrence status of 'no' in LPEGDB v.3.

Attributes

This section describes significant revisions to attributes in LPEGDB v.3. Definitions for all attributes are provided in metadata and in Appendix E.

Conservation Lands

In previous versions of the LPEGDB, information about conservation lands (aka managed areas) was provided via a stand-alone table that could be linked to LPE polygons through a separate GIS operation (table join or relate). In version 3, conservation lands are integrated in both the spatial geometry and attributes of the LPE feature classes. This means that all polygons are split across conservation land boundaries, and that each polygon is assigned conservation land attributes based on the March 2015 version of Florida Conservation Lands. New attributes include Managed Area Name, Owner Type, Managing Agency, and Managing Agency Group. See Appendix E for all attribute descriptions.

The addition of conservation land attributes to LPE polygons facilitates a user's ability to query and summarize data by owner and manager categories. The spatial integration also helped resolve a problem in version 2 where some polygons were merged across conservation land boundaries if they had the same land cover type, causing erroneous assignment of longleaf status and condition to areas outside conservation lands that had not been assessed. This was especially true for several large pine plantation polygons in Columbia, Dixie, Hamilton, and Taylor counties.

Land Cover

As with conservation lands, land cover information in previous versions of the LPEGDB was provided as a table with the ability to link this information to polygons based on a key field. In version 3, land cover information is provided directly in the attribute tables of the LPE polygon feature classes. The association of land cover with LPE polygons, however, is complex because there is often a many-to-one relationship, i.e. a single LPE polygon may overlap with more than one land cover type, depending on the source of both. Assignment of land cover was also complicated by differences (unrelated to actual land use change) in the most recent versions of the Florida Cooperative Land Cover Map (CLC) – version 2.3 published in 2012 and v.3 published in 2014. (Differences are expected to be resolved with CLC v3.1 in fall 2015).

To address the many-to-one relationship problem the majority land cover type was calculated and assigned to each LPE polygon for both versions of CLC (2.3 and 3). A series of rules was then applied per land cover class, or groups of classes, to select which CLC version to ultimately assign; the land cover source was retained as an attribute. For the most part, assignment was based on CLC v.3 except in some instances where CLC v2.3 was known or assumed to better represent the current land cover type. New attributes in LPEGDB v.3 include Major Land Cover Type and Land Cover Source. See Appendix E for all attribute descriptions. The addition of land cover attributes facilitates a user's ability to query and summarize data by natural community (e.g. sandhill, mesic flatwoods, etc) or land use type (e.g. coniferous plantation or other cultural class vs natural classes).

Confidence Tier

Confidence Tier is intended to reflect the strength of evidence for occurrence of longleaf pine. Its primary use is to help target priorities for future surveys but also to enable informative summaries of current knowledge. Although Confidence Tier was updated simultaneously with the addition of new data sources, the integration and update of land cover necessitated a more comprehensive review of this attribute.

Land cover provides the primary distinction between Confidence Tiers 3 and 4; for both tiers, longleaf has not been confirmed and occurrence status is considered unknown. Tier 3, however, represents areas expected to be LPEs based on land cover classification of Sandhill or Upland Pine; it also can include sites based on two other criteria: FFS land records with some indication of longleaf occurrence (but not confirmed), or overlap with areas identified as longleaf by forest cover/vegetation models (Comprehensive Statewide Forest Inventory Analysis Study or Florida Fire Risk Assessment Canopy Inventory Project [CSFIAS/FRACIP]; see LPEGDB v.2 Summary Report). All other unknown sites are assigned Tier 4.

The review of Confidence Tier based on new land cover revealed the need for some additional revisions. The application of CSFIAS/FRACIP criteria to Confidence Tier 3 appeared to likely overestimate expected longleaf in coniferous plantations. In LPEGDB v.3 this criteria was adjusted so that overlap of CSFIAS/FRACIP longleaf was assigned Tier 3 only for flatwoods (mesic, wet, or scrubby) and upland coniferous sites. This means that approximately 69,000 acres, primarily pine plantation, previously assigned Tier 3, are now Tier 4.

Other revisions include a correction to a subset of stands from St. Johns Water Management District that were previously assigned Tier 4 but for which there was sufficient evidence to assign Tier 0, i.e. stand is not longleaf; and a correction to several polygons where Confidence Tier 1 (confirmed longleaf) or 1A (confirmed longleaf with condition data) was previously assigned based on location of GPS point data located only on the polygon edge or other configuration that was not representative of the entire polygon.

Stand Type

Stand Type is not a new attribute but the values and definition have been updated. Where stand type is designated as planted or natural by the original source, as typically occurs with stand-level data, the LPEGDB v.3 Stand Type is denoted with a modifier of '-1', e.g. Natural-1 or Planted-1. Otherwise Stand Type was assigned based on the Major Land Cover Type and denoted with a modifier of '-2' as follows: coniferous plantation or wet coniferous plantation were assigned as 'Planted-2'; any other natural forested land cover type (except Upland Coniferous which FNAI considers to be semi-natural) were assigned as 'Natural-2'. Remaining types including open wetlands, semi-natural or cultural classes were assigned as 'Undetermined'.

Other Database Updates

This section summarizes additional updates to both data and attributes that fall into a general category of data clean-up, but which resulted in important improvements to the database.

RCW Data Review

In addition to updates based on new RCW cavity tree data described above, longleaf occurrence was also revised for some sites based on a thorough review of all RCW information available through FNAI. Some sites previously assigned as longleaf based solely on overlap with RCW habitat maps were downgraded to unknown status if not corroborated by RCW cluster center or other longleaf observations. Other sites were added based on a re-analysis and review of current and historic cluster center data.

Potential Pinelands Review

The universe of polygons in the LPEGDB is intended to be longleaf pine sites and other current pinelands that potentially could be (or could have been) longleaf pine. The original polygons in LPEGDB v.1 were largely derived from CLC v.2 land cover which has since been substantially updated. Moreover, stand datasets that were incorporated in LPEGDB v.2 included at least some non-pineland polygons which were simply attributed as not being longleaf.

To minimize inclusion of non-pineland sites, polygons with major land cover type other than Upland Coniferous, Upland Pine, Sandhill, Mesic Flatwoods, Scrubby Flatwoods, Coniferous Plantations, Wet Flatwoods, and Wet Coniferous Plantations were reviewed with aerial photography to determine if the entire class or a subset could be removed from the database. Classes with few polygons were comprehensively reviewed; classes with many polygons (>100) were partially reviewed to help inform a decision about the class as a whole. Additional sources including stand forest types, a secondary land cover source and longleaf status of individual polygons were also used to inform removal of polygons. Deletions were applied conservatively, especially to forested hardwood classes where confusion between classes is common and to open grassland classes such as pasture and dry prairie which often can be sparsely treed mesic flatwoods. This effort resulted in the removal of approximately 670,000 acres from LPEGDB v.3.

Small and Sliver Polygons

Small polygons and slivers are inadvertently created during GIS overlay operations to update boundaries and this was the case with the integration of conservation lands and RMS data into the LPEGDB. Any polygons < 0.5 acres were deleted to conform to the LPEGDB minimum mapping unit. Slivers >0.5 acres were detected by calculating a thinness ratio and also by visual inspection. Although many slivers were removed with this method, not all could be automatically selected without also selecting valid LPE polygons.

FNAI and FFS also discussed the need for a size threshold for LPE viability. Although no final threshold was set FNAI applied conservative criteria of <3 acres at least 50 m from any other polygon to remove small isolated polygons.

Results

The total acreage of confirmed longleaf in version 3 of the LPEGDB is 2,150,907, a decrease of 48,705 acres from version 2 (Table 1; Fig. 1). Although several new longleaf sites were confirmed in v.3, an overall decrease occurred primarily due to a correction for some large pine plantation polygons adjacent to managed areas (see Conservation Lands above). The total acreage with condition data is now 1,688,572, an increase of 14,363 acres from version 2, largely on managed conservation lands. The acreage of sites in Confidence Tier 3 decreased by 104,335 acres. These are sites where longleaf is not confirmed but is expected, either because they have been identified as sandhill or upland pine by land cover, or because FFS land records or remote sensing data indicate a high probability of longleaf. The decrease in v.3 is due to a combination of factors including land cover updates, adjustment in the criteria for how modeled longleaf data from CSFIAS/FRACIP informed confidence tier (see above), and stand-based evidence that longleaf does not occur. The removal of non-pineland sites resulted in an overall decrease of 564,322 acres in the database.

Table 1. Status of LPE occurrence on managed conservation lands and private lands as determined by Rapid Assessment and other data sources in the LPEGDB. The sum of yellow-highlighted values in the Total Acres column equals the rounded 2.2 million acres of LPEs confirmed by this project.

LPE Occurrence	Managed Conservation Lands	Permanent Conservation Easements	Other Private Lands	Total Acres
LPE Confirmed: ecological data available	1,004,305	27,895	656,372	1,688,572
LPE Confirmed: ecological condition undetermined	329,216	31,035	102,085	462,336
LPE Expected: sandhill, upland pine, upland mixed woodland	50,147	5,626	136,137	191,911
LPE Unknown: pine flatwoods, plantation, and other classes	387,779	163,173	4,431,554	4,982,507
LPE Does Not Occur	1,051,559	14,170	443,233	1,508,962
Total	**2,823,006**	**241,899**	**5,769,381**	**8,834,286**

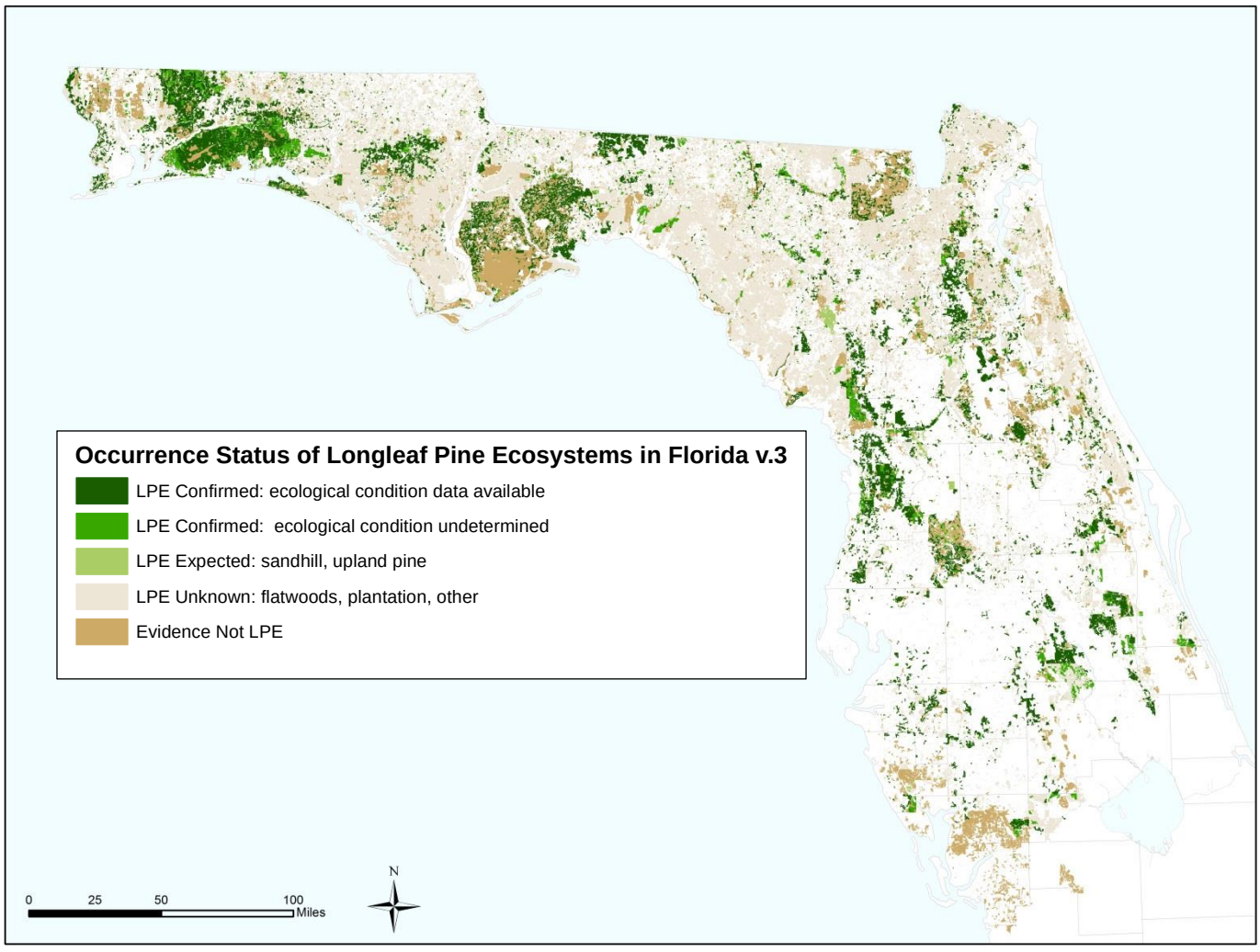

Figure 1. Occurrence status of potential longleaf pine ecosystem sites in the LPEGDB v.3.

Data Products and Summaries

A recommendation from the August 2014 Longleaf Partners Meeting was for more user-friendly formats for displaying, searching, and summarizing LPE data. For LPEGDB v.3 several products have been developed to address the needs of both GIS users and those with limited or no GIS experience.

New GDB Format and User Guide

The public geodatabase has been streamlined to include only two feature classes: 1) LPE_Occurrence_Status which allows users to view and query all potential longleaf sites based on longleaf occurrence status, i.e. whether confirmed, unknown, or absent; 2) LPE_Condition_by_Management_Class which includes all confirmed longleaf pine sites along with ecological condition data where it exists. Sites that have not been confirmed as longleaf are excluded. Additional fields related to conservation lands, owner type, stand type, and land cover are included within the attribute tables of both datasets to facilitate access to this information. A template for field data collection is also provided as LPE_Rapid_Assessment_Field_Points, an empty dataset with fields and domains based on the revised Rapid Assessment data collection model.

A revised user guide explains the contents of the database and how to make use of the associated layer files within the ESRI ArcMap environment. See Appendix F.

Web Map Viewer

A web map viewer for LPEGDB v.3 was developed using ESRI Web Application Builder for ArcGIS Online. The map services are hosted and maintained by FNAI. In the current design users are able to toggle map displays for longleaf occurrence status and ecological condition by management class. Background layers for counties and Conservation Lands are also available for display.

Data Summaries

At the August 2014 Longleaf Partners meeting users requested specific types of data summaries. In response, acreage summaries with accompanying maps have been prepared for attributes related to land manager type, land cover, and counties.

Table 2 summarizes the acreage of confirmed longleaf by Manager Type with a breakdown by managing agency for federal and state conservation lands. Both GIS and web map users will have the ability to search and display longleaf sites by managing agency or manager group (Fig. 2). Note that Conservation Easements, although privately owned and managed, are typically monitored by the easement holder which may be federal, state, local, or private. In the FNAI Conservation Lands database, the managing agency for conservation easements is listed as the easement monitor. For the LPEGDB easements appear as a separate subset within the Manager Group attribute. Table 2 shows that almost half of existing longleaf pine in Florida is managed by US Dept. of Defense, US Forest Service and Florida Forest Service, and over one-third is managed by private individuals or entities.

Figure 3 summarizes and displays acreage of confirmed longleaf by land cover types that have been grouped into categories for Sandhill/Upland Pine, Flatwoods (includes Scrubby, Dry, Mesic, and Wet Flatwoods), Coniferous Plantations (includes upland and wet plantation), and Other land cover types. The Other category is largely composed of (75%) 'Upland Coniferous', 'Mixed Hardwood Coniferous' and 'Rural' land cover types, all of which tend to have aerial photo signatures with semi-natural components. Sandhill and Upland Pine represent the largest portion of known longleaf. Both GIS and web map users will have the ability to search and display by land cover type.

Table 3 summarizes acreage per county for both confirmed longleaf sites and potential longleaf sites where occurrence is unknown. In Figure 4 counties are displayed based on acreage groups. This information could be useful for prioritizing resources for both management, in the case of known longleaf sites, and further assessments in the case of potential longleaf sites.

Distributed Data Collection Model

As mentioned above the LPEGDB v.3 contains an empty dataset (LPE_Rapid_Assessment_Field_Points) with fields and domains based on the revised Rapid Assessment data collection model. A separate geodatabase (LPE_v3_Rapid_Assessment.gdb), which is strictly designed for data collection and contains the same template dataset, is also available for distribution. It is envisioned that this database would be packaged with related training guides including the Rapid Assessment Data Field Descriptions Overview (Appendix C) and Rapid Assessment ArcPad Procedure (Appendix D).

Table 2. Acres of confirmed longleaf pine ecosystems by manager type.

Manager Type	Acres	
Federal Conservation Lands		**628,687**
US Dept. of Defense	346,103	
US Fish and Wildlife Service	19,437	
US Forest Service	261,989	
Federal Conservation Lands- Other	1,158	
State Conservation Lands		**642,542**
FL DEP, Florida Coastal Office	1,089	
FL Fish and Wildlife Conservation Commission	78,957	
Florida Forest Service	351,998	
Florida Park Service	67,686	
Northwest Florida Water Management District	3,677	
South Florida Water Management District	1,606	
Southwest Florida Water Management District	54,327	
St. Johns River Water Management District	25,704	
Suwannee River Water Management District	21,811	
State Conservation Lands- Other	35,687	
Local Conservation Lands		**34,532**
Private Conservation Lands		**27,761**
Conservation Easements		**58,930**
Other Private Lands		**758,440**
Total		**2,150,891**

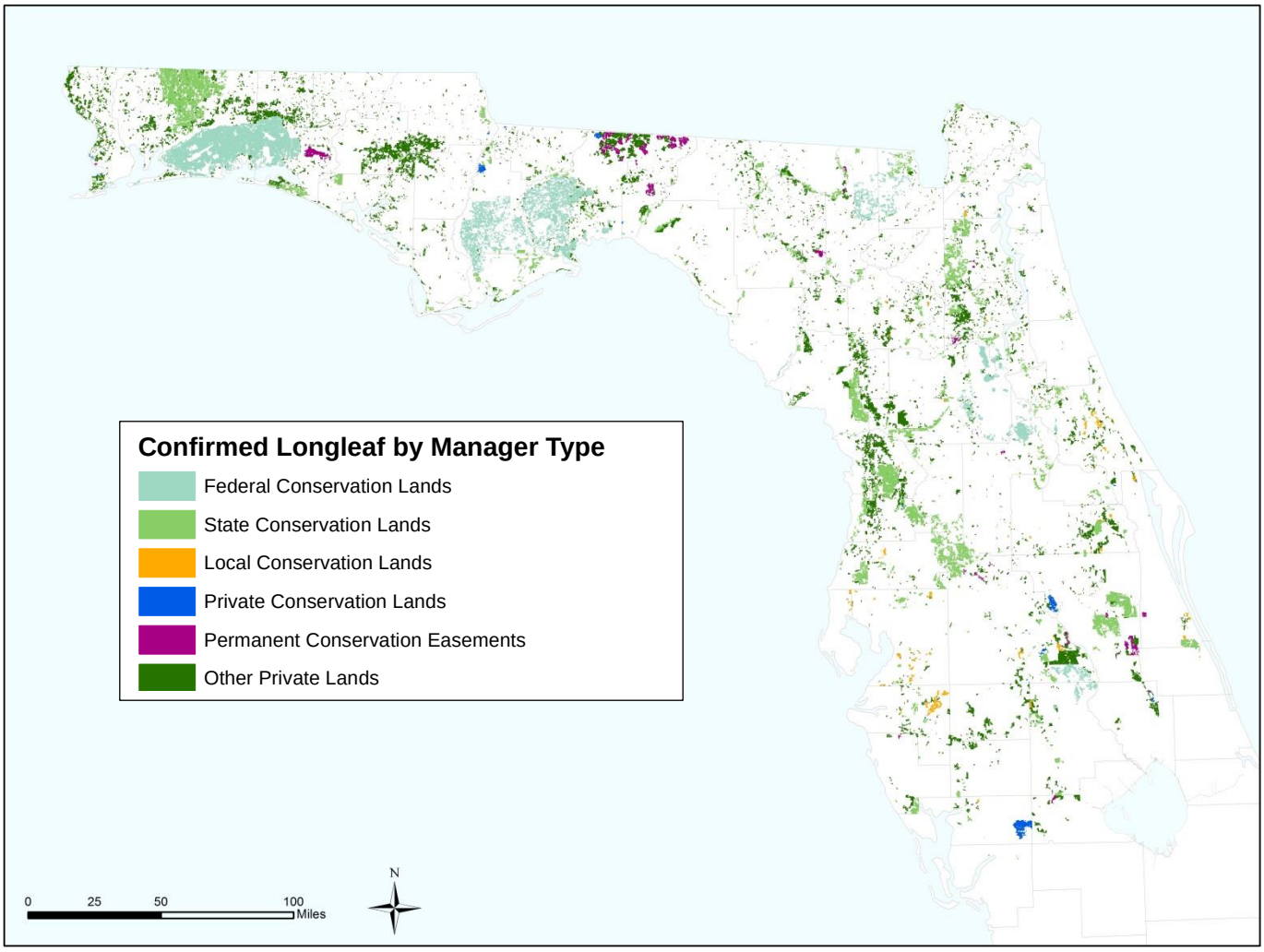

Figure 2. Occurrence confirmed longleaf pine ecosystem sites by manager type.

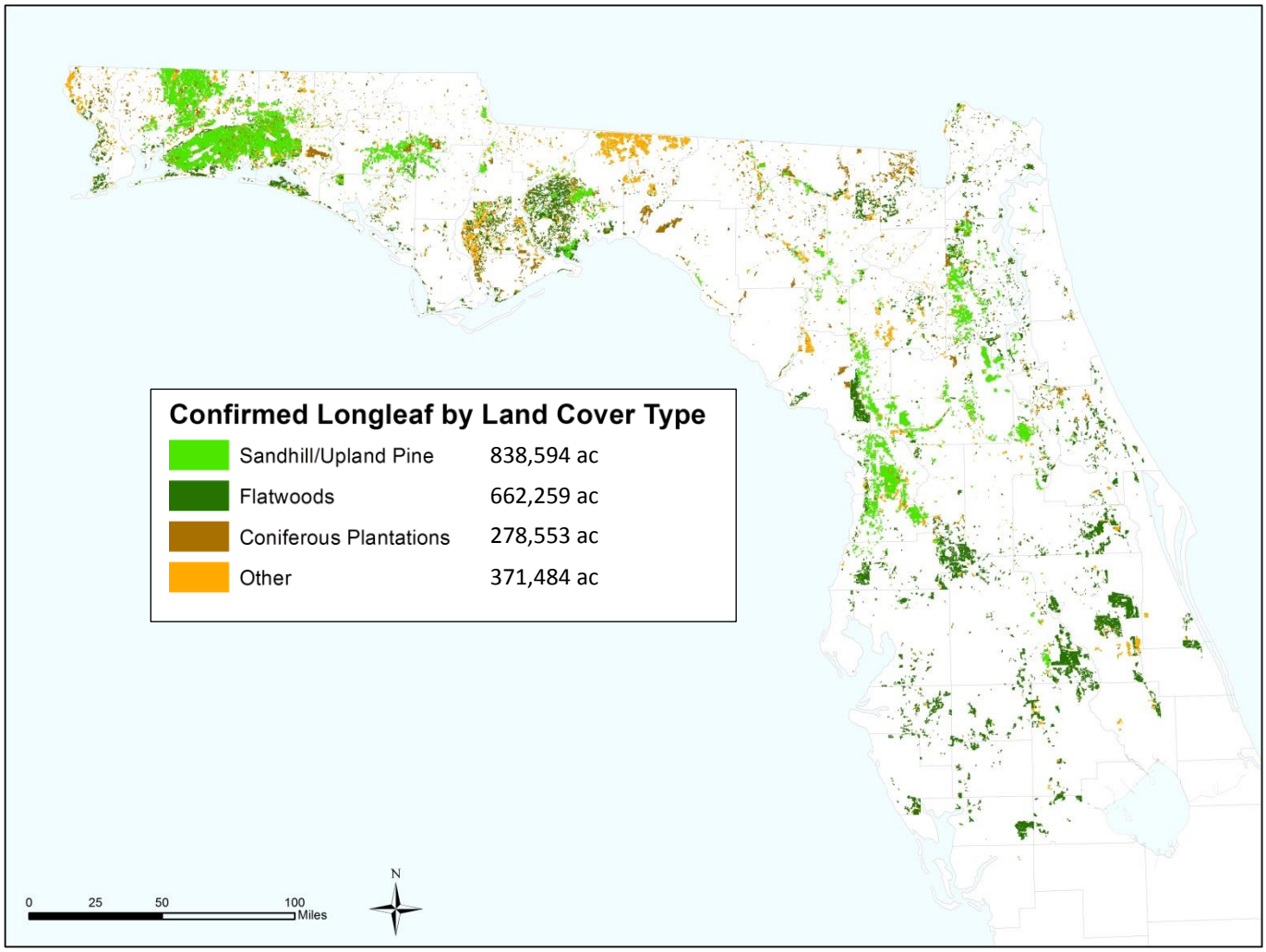

Figure 3. Occurrence confirmed longleaf pine ecosystem sites by land cover type.

Table 3. Acres by county for confirmed longleaf pine sites and sites where longleaf occurrence is potential but unknown.

COUNTY	Longleaf Pine Confirmed	Longleaf Pine Unknown	COUNTY	Longleaf Pine Confirmed	Longleaf Pine Unknown
ALACHUA	30,993	134,079	JEFFERSON	43,560	84,395
BAKER	25,519	120,181	LAFAYETTE	4,616	126,471
BAY	27,438	263,853	LAKE	32,716	36,050
BRADFORD	1,455	77,370	LEE	162	9,124
BREVARD	12,466	31,567	LEON	94,435	77,224
CALHOUN	8,532	214,820	LEVY	68,698	170,647
CHARLOTTE	16,775	14,124	LIBERTY	83,323	107,026
CITRUS	83,952	15,961	MADISON	12,438	134,733
CLAY	61,948	99,687	MANATEE	18,944	26,852
COLLIER		38	MARION	91,951	88,125
COLUMBIA	30,070	147,514	NASSAU	14,451	181,018
DESOTO	7,301	17,463	OKALOOSA	247,251	85,709
DIXIE	2,970	178,430	OKEECHOBEE	7,508	4,667
DUVAL	12,277	90,306	ORANGE	36,036	50,099
ESCAMBIA	41,365	77,451	OSCEOLA	71,977	62,845
FLAGLER	1,837	104,433	PASCO	30,534	26,466
FRANKLIN	22,767	35,337	PINELLAS	1,194	1,709
GADSDEN	9,656	108,872	POLK	89,970	65,847
GILCHRIST	10,998	70,804	PUTNAM	56,579	108,323
GLADES	8,538	52,672	SANTA ROSA	178,421	98,870
GULF	6,255	195,212	SARASOTA	10,678	22,787
HAMILTON	14,897	119,618	SEMINOLE	4,431	6,274
HARDEE	17,478	15,892	ST. JOHNS	3,593	111,584
HENDRY		6	SUMTER	19,444	22,825
HERNANDO	48,223	16,298	SUWANNEE	26,405	134,924
HIGHLANDS	25,106	39,423	TAYLOR	14,936	269,588
HILLSBOROUGH	13,380	13,050	UNION	2,319	73,885
HOLMES	4,598	88,145	VOLUSIA	37,238	102,114
INDIAN RIVER	504	9,616	WAKULLA	73,590	61,980
JACKSON	25,681	148,485	WALTON	163,861	180,696
			WASHINGTON	36,652	140,322

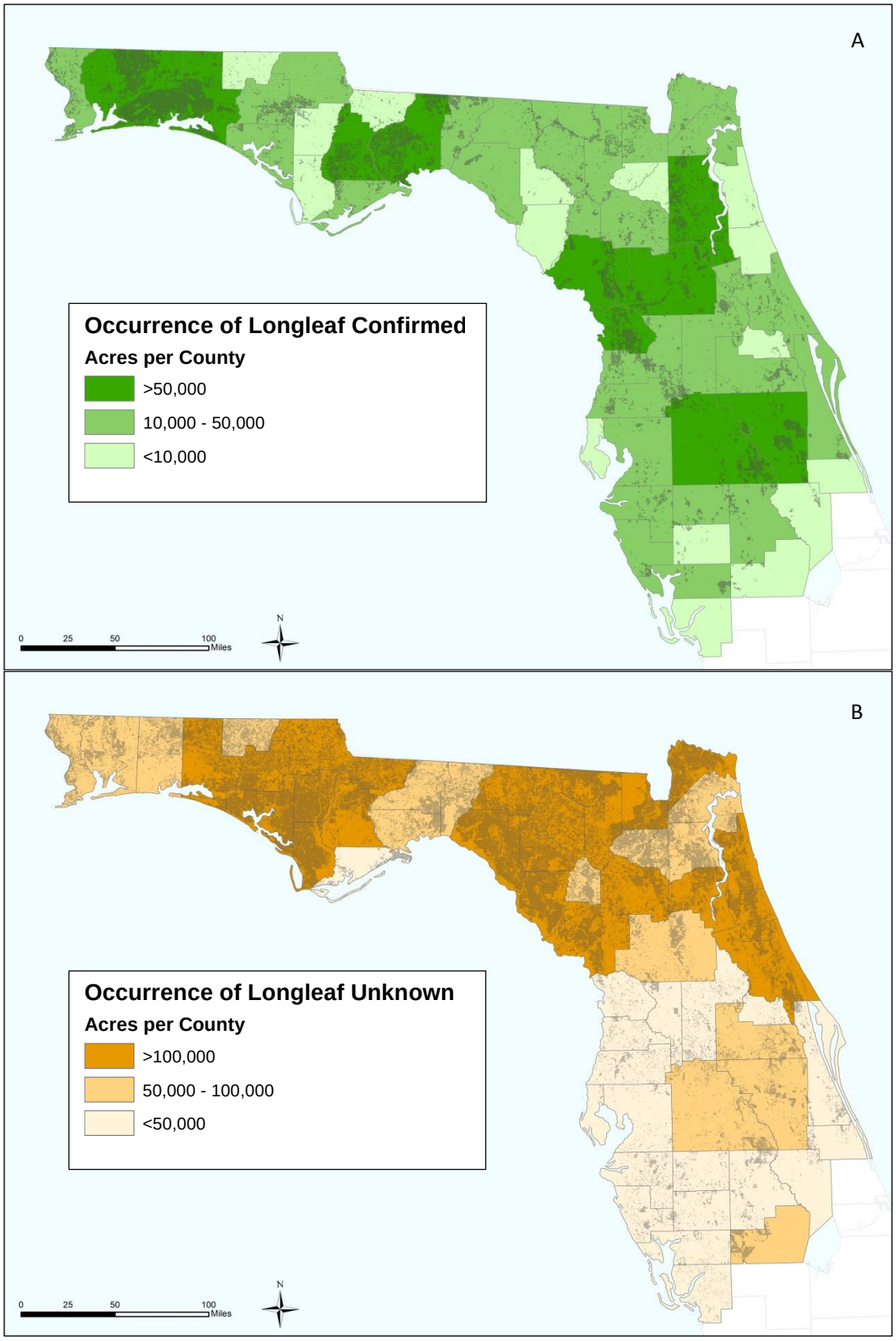

Figure 4. Acres by County for A) confirmed longleaf sites and B) potential longleaf sites where occurrence is unknown.

References

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Appendix A. Longleaf Pine Ecosystem Rapid Assessment Field Descriptions, September 2015

Field Name: Survey Date

Field Abbreviation: SURVEYDATE

Definition: Date of the field assessment

Field values: yyyy/mm/dd

Rationale: Enables assessment of data age

Field Name: LLP Dominance

Field Abbreviation: LLP_DOM

Definition: Indicates the presence and dominance of LLP in the canopy. Field values are defined as follows:

Dominant:	LLP occupies the highest percentage of area of the canopy species
Codominant:	LLP occupies approximately the same percentage as other canopy species
Occasional-rare:	LLP present in the canopy but a low percentage relative to other species
Absent:	LLP not present in the canopy

Field values:

- Dominant
- Codominant
- Occasional-Rare
- Absent

Rationale: Documentation of the presence and dominance of LLP in the canopy helps to determine if that stand qualifies as a LLP site and if restoration is required for the stand.

Field Name: LLP Age Structure

Field Abbreviation: LLP_AGE

Definition: Indicates the age structure of LLP in the canopy AND sub-canopy

Field values:

- at least 3 age classes
- 2 age classes
- 1 age class
- absent from canopy

Rationale: Knowledge of the age structure of the stand help determine if improvements are indicated. Natural stands tend to have multiple age classes which contribute to structural diversity in the stand which provides habitat for a variety of wildlife and plant species. It generally indicates that sunlight is reaching the ground which is beneficial to the groundcover and the plants and animal species that comprise LLP systems. It also indicates that the stand does not require additional planting for the continuance of LLP.

Field Name: Older-mature Characteristics

Field Abbreviation: OLDER_LLP

Definition: Indicates the presence of flat-topped trees (more than one) within the stand.

Field values:

- yes
- not evident

Rationale: Older-mature trees are potential red-cockaded woodpecker cavity trees and are an indication of structural diversity of the stand.

Field Name: LLP Early Regeneration

Field Abbreviation: LLP_EARLY

Definition: Estimated cover of LLP regeneration that is <6' tall.

Field values:

- not evident
- < 1%
- 1 - 5%
- 5 - 15%
- >15%

Rationale: Regeneration is an indicator of the potential sustainability of the stand. It may also indicate the need for planting or active management of the stand such as burning and thinning to encourage seed germination. Values in this field were chosen to be consistent with Americas Longleaf Restoration Initiative

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Field Name: LLP Advanced Regeneration

Field Abbreviation: LLP_ADVANC

Definition: Estimated cover of LLP regeneration that is 6-16' tall

Field values:

- not evident
- < 1%
- 1 - 5%
- 5 - 15%
- > 15%

Rationale: Advanced regeneration is an indicator of the immediate sustainability and health of the stand. Trees in this category are less susceptible to scorch during prescribed fire and can quickly replace the canopy following thinning or larger-scale cutting. Presence of these trees may eliminate or reduce the need for site-preparation for planting which can be detrimental to groundcover plants.

Field Name: LLP Basal Area:

Field Abbreviation: LLP_BA

Definition: Estimated basal area in square feet per acre of LLP for the entire stand rounded to the nearest ten.

Field values: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, >120

Rationale: Although traditionally used as a measure of volume of timber, basal area is a widely used measure of the dominance of tree species. It is repeatable using a 10x or 5x basal area prism or gauge. Basal area values are used in recommendations for various wildlife species habitat including red-cockaded woodpecker and northern bobwhite.

Field Name: Fire Tolerant Hardwood Cover

Field Abbreviation: FIREHW_COV

Definition: Percentage of the ground within the stand covered by the general extent of turkey oak, sand post oak, bluejack oak, blackjack oak, southern red oak, and dogwood within the midstory and canopy (any stem greater than 16 feet tall); **Spaces between leaves and stems count as cover.**

Field values:

Code	Description
1	< 1%
3	1 - 5%
10	6 - 15%
20	16 - 25%
30	26 - 35%
40	36- 45%
50	46 - 55%
60	55 - 65%
70	66 - 75%
80	76 - 85%
90	86 - 95%
98	96 - 100%

Rationale: High levels of hardwood midstory are generally detrimental to LLP systems because they shade groundcover that is important for fuel to carry fire and cover for wildlife species. Leaf litter from hardwood trees is less flammable than native groundcover further reducing the effectiveness of prescribed fires. However, certain hardwood species are somewhat fire tolerant and are naturally part of several of LLP systems. In order to determine the extent of hardwood species that invade these systems as a result of infrequent fire it is important to record the cover of the fire-tolerant hardwood species.

Field Name: Other Hardwood Cover

Field Abbreviation: OTH_HW_COV

Definition: Percentage of the ground within the stand covered by the general extent of hardwood species excluding turkey oak, sand post oak, bluejack oak, blackjack oak, southern red oak, and dogwood within the midstory and canopy (any stem greater than 16 feet tall); typical species are laurel oak, water oak, sweetgum, live oak, sand live oak. **Spaces between leaves and stems count as cover.**

Field values: see FIREHW_COV above

Rationale: High levels of hardwood midstory are generally detrimental to LLP systems because they shade groundcover. Reduced groundcover means less fuel to carry fire and less cover for wildlife species. Leaf litter from hardwood trees is less flammable than native groundcover further reducing the effectiveness of prescribed fires and allowing continued invasion by hardwood species. Typical species recorded in this field are sweetgum, water oak, laurel oak, tree sparkleberry, and various holly species.

Field Name: Other Pine Cover

Field Abbreviation: OTHPINE_COV

Definition: Percentage of the ground within the stand covered by the general extent of pine species other than LLP within the midstory and canopy (any stem greater than 16 feet tall); **Spaces between leaves and stems count as cover.**

Field values: see FIREHW_COV above

Rationale: Other pine cover is included to help fulfil one of the attributes in America's Longleaf Restoration Initiative as well as to get a full picture of the pine composition of the site.

Field Name: Shrub Cover

Field Abbreviation: SHRUB_COV

Definition: Percentage of the ground within the plot covered by the general extent of woody plants **excluding vines and pines** from the ground to 16 feet tall; **Spaces between leaves and stems count as cover.**

Field values: see FIREHW_COV above

Rationale: We considered taking covers at various heights but decided that one field for shrub cover and average shrub height (below) provides simple but adequate "picture" of a stand. The shrub cover along with the average shrub height provided the information needed to assess the stand using America's Longleaf Restoration Initiative criteria.

Field Name: Average Shrub Height

Field Abbreviation: AVSHRUB_HT

Definition: Average height of woody plants **excluding vines and pines** from the ground to 16 feet tall

Field values:

- 0 – 3 ft
- 3 – 6 ft
- 6 – 9 ft
- 9 – 16 ft

Rationale: Shrub height can affect the suitability of the stand for many wildlife species. It is directly related to fire frequency in LLP systems. The value for average shrub height is needed to assess a stand using America's Longleaf Restoration Initiative criteria.

Field Name: Pyrogenic Grass Cover

Field Abbreviation: PYROGR_COV

Definition: Percent cover of native perennial graminoids that are maintained by periodic fire; includes wiregrass (*Aristida stricta*), pineywoods dropseed (*Sporobolus junceus*), Florida dropseed (*Sporobolus floridanus*), Chapman's beaksedge (*Rhynchospora chapmanii*), cutover muhly (*Muhlenbergia capillaris* var. *trichopodes*), toothache grass *(Ctenium aromaticum*), little bluestem (*Schizachyrum scoparium*) and Florida toothache grass *(Ctenium floridanum*). Does not include switchgrass (*Panicum virgatum*) or *Andropogon virginicus.*

Field values: see FIREHW_COV above

Rationale: Pyrogenic grasses, along with pine needle cast, provide the primary fine fuel in LLP systems. Many of these species are eliminated and slow to recover following ground disturbance.

Field Name: Herbaceous Cover

Field Abbreviation: HERB_COV

Definition: Percent cover of all native non-woody, soft-tissued plants regardless of height, including non-woody vines, legumes, and graminoids (grasses, sedges, rushes); does not include non-native pasture grasses.

Field values: see FIREHW_COV above

Rationale: Herbaceous cover is a general indicator of the amount of light reaching the ground. Although not as important for fuel as the specific subset of pyrogenic grasses, herbaceous cover indicates the ability of the site to carry a fire and is important for many wildlife species.

Field Name: Fire Evidence

Field Abbreviation: FIRE_EVID

Definition: Describes the general time period since last fire as determined by visual evidence within the stand (e.g. fire scars on trees, standing blackened shrubs)

Field values: not evident; < 2 years; 2 - 5 years; > 5 years

Rationale: Frequency of fire in LLP systems is closely associated with ecological function and is often the primary management tool. Fire evidence helps explain the various structure values and provides insight into management of the stand.

Field Name: Invasive Plant Cover

Field Abbreviation: INVPL_COV

Definition: Percent cover of invasive exotic plants within the stand; includes only FLEPPC Category I and II listed species

Field values: not evident; <1%; 1 - 3%; 4 - 10%; >10%

Rationale: Invasive exotic plant species are a major threat to biological integrity of vegetative plant communities, including LLP systems. These species can out compete the native species, thus altering ecological function and contributing to decline in ecological integrity. The Florida Exotic Pest Plant Council reviews and updates a list of invasive exotic plants every two years.

Field Name: Condition Rank

Field Abbreviation: COND_RANK

Definition: Describes the ecological condition relative to a natural system (natural vegetative plant community). Values are defined as follows:

excellent	Community species composition/abundance and structure are characteristic of conditions prevalent under historic fire regime.
good	Community species composition/abundance and structure are only partially characteristic of conditions previously prevalent under historic fire regime.
fair	Retains some components and/or structure characteristic under historic fire regime. Components of original pyrogenic groundcover are sparse or suppressed so as to be functionally irrelevant.
poor	May retain little of the original community species components and/or structural characteristics. Components of original pyrogenic groundcover are not evident.

Field values:

- excellent
- good
- fair
- poor

Rationale: The condition rank provides an additional tool for evaluating the site that is not necessarily tied to the other variables in the rapid assessment. The field gives the evaluator to convey his general

judgement of the site. This field is particularly useful for sites that are ecologically intact but are structurally deficient. This field was favored in the FNAI longleaf pine partners meeting.

Field Name: Soil Hydrology

Field Abbreviation: SOIL_HYDRO

Definition: Soil Hydrology describes how fast water drains through the soil:

xeric:	deep, well drained to excessively drained sands or gravelly sands; typical of sandhills.
sub-mesic:	moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture; typical of upland pine (clay hills).
mesic:	somewhat poorly drained soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture; typical of mesic flatwoods.
hydric:	poorly drained soils that have a high water table, soils that have a clay layer or other impervious material at or near the surface; typical of wet flatwoods

Field values:

- xeric
- sub-mesic
- mesic
- hydric

Rationale: Structure and composition of LLP systems is directly related to soil hydrology. Values for this field will help to classify the historic or current natural community, which is useful for species habitat mapping and land use planning.

Field Name: Stand Type

Field Abbreviation: STAND_TYPE

Definition: describes if the stand was naturally regenerated or if manually planted by hand or machine. If unknown based on the field visit, record as natural.

Field values:

- natural
- planted

Rationale: It may be important to know how much longleaf pine has been planted and the extent of natural LLP systems. These numbers will help evaluate agency goals.

Field Name: Comments

Field Abbreviation: COMMENTS

Definition: Comments provides additional, optional information about the site (stand)

Rationale: Allows the field evaluator to provide any additional comments that describe things not covered by the other fields.

Appendix B. Crosswalk of LPEGDB v.3 Rapid Assessment Metrics to management classes for Maintain, Improve and Restore

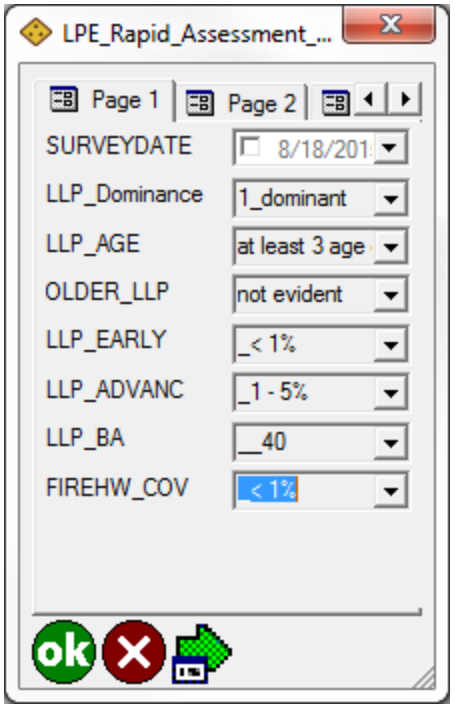
	Management Class			
Attribute	**Maintain**	**Improve**	**Restore**	**Source***
Longleaf Pine Canopy Dominance	Dominant	Codominant to Occasional-Rare	Absent	LMWG, FNAI
Longleaf Pine Age Structure	Multiple (2+) age classes	One age class	Absent from canopy	LPC
Older-Mature Characteristics	Yes	Not evident	N/A	LPC, FNAI
Longleaf Early Regeneration	5 - 15%	<5 or >15%	Not evident	LPC, FNAI
Longleaf Advanced Regeneration	5 - 15%	<5 or >15%	Not evident	LPC, FNAI
Longleaf Pine Basal Area	10 - 70	<10 or >70	N/A	FNAI
Fire Tolerant Hardwood Cover	≤15%	16 - 55%	>55%	FNAI
Other Hardwood Cover	≤5%	6 - 35%	>35%	JV, FNAI
Other Pine Cover	≤15%	16 - 45%	>45%	FNAI
Shrub Cover	≤30%	30 - 75%	>75%	LPC
Shrub Height	≤3 ft	>3-6 ft	>6 ft	LPC, FNAI
Pyrogenic Grass Cover	>20%	1 - 20%	<1%	LPC, FNAI
Herbaceous Cover	>40%	10 - 40%	<10%	LMWG
Fire Evidence	≤5 years	>5 years	Not evident	FNAI
Invasive Plant Cover	<1%	1 – 10%	>10%	LPC, FNAI
Condition Rank	Excellent to good	Fair	Poor	FNAI

*Crosswalk criteria source: LPC = Longleaf Partnership Council (ALRI 2014); LMWG = Longleaf Measures Work Group Draft 2011; JV = East Gulf Coastal Plain Joint Venture - Longleaf Woodlands DFC v1.1

Longleaf Pine Ecosystem (LPE)
Rapid Assessment Data Fields Overview

Session Objectives:

1. Review the Rapid Assessment data fields and their definitions
2. Learn the abbreviated field names
3. Learn assignment of field values



Appendix C

Rapid Assessment Data Field Descriptions

Interpretive Guide		Geodatabase Guide	
Class	**Field Definition**	**Field Name**	**Field values**
Survey Date:	Date of the field assessment	SURVEYDATE	(automated)
LLP Dominance:	Indicates the presence and dominance of LLP in the **canopy** **Dominant:** LLP occupies the highest percentage of area of the canopy species **Codominant:** LLP occupies approximately the same percentage as other canopy species **Occasional-rare:** LLP present in the canopy but a low percentage relative to other species **Absent:** LLP not present in the canopy	LLP_DOM	dominant codominant occasional-rare absent
LLP Age Structure:	Indicates the age structure of LLP in the **canopy AND sub-canopy**	LLP_AGE	at least 3 age classes 2 age classes 1 age class absent from canopy
Older-mature Characteristics	Indicates the presence of flat-topped trees (more than one) within the stand.	OLDER_LLP	yes not evident
LLP Early Regeneration:	Estimated cover of LLP regeneration including planted trees that is <6' tall.	LLP_EARLY	not evident < 1% 1 - 5% 5 - 15% > 15%
LLP Advanced Regeneration:	Estimated cover of LLP regeneration including planted trees that is 6-16' tall.	LLP_ADVANC	not evident < 1% 1 - 5% 5 - 15% > 15%
LLP Basal Area:	Estimated basal area in square feet per acre of LLP for the entire stand rounded to the nearest ten.	LLP_BA	0 10 20 30 40 50 60 70 80 90 100 110 120 >120

Fire tolerant hardwood Cover:	Percentage of the ground within the stand covered by the general extent of turkey oak, sand post oak, bluejack oak, blackjack oak, southern red oak, and dogwood within the midstory and canopy (any stem greater than 16 feet tall); **Spaces between leaves and stems count as cover.**	FIREHW_COV	**Code** / **Description** 1 — < 1% 3 — 1 - 5% 10 — 6 - 15% 20 — 16 - 25% 30 — 26 - 35% 40 — 36- 45% 50 — 46 - 55% 60 — 55 - 65% 70 — 66 - 75% 80 — 76 - 85% 90 — 86 - 95% 98 — 96 - 100%
Other Hardwood Cover:	Percentage of the ground within the stand covered by the general extent of hardwood species excluding turkey oak, sand post oak, bluejack oak, blackjack oak, southern red oak, and dogwood within the midstory and canopy (any stem greater than 16 feet tall); typical species are laurel oak, water oak, sweetgum, live oak, sand live oak. **Spaces between leaves and stems count as cover.**	OTH_HW_COV	(see FIREHW_COV above)
Other Pine Cover:	Percentage of the ground within the stand covered by the general extent of pine species other than LLP within the midstory and canopy (any stem greater than 16 feet tall); **Spaces between leaves and stems count as cover.**	OTHPINE_COV	(see FIREHW_COV above)
Shrub Cover:	Percentage of the ground within the plot covered by the general extent of woody plants **excluding vines and pines** from the ground to 16 feet tall; **Spaces between leaves and stems count as cover.**	SHRUB_COV	(see FIREHW_COV above)
Average Shrub Height:	Average height of woody plants **excluding vines and pines** from the ground to 16 feet tall	AVSHRUB_HT	0 – 3 ft 3 – 6 ft 6 – 9 ft 9 – 16 ft
Pyrogenic Grass Cover:	Percent cover of native perennial graminoids that are maintained by periodic fire; includes wiregrass (*Aristida stricta*), pineywoods dropseed (*Sporobolus junceus*), Florida dropseed (*Sporobolus floridanus*), Chapman's beaksedge (*Rhynchospora chapmanii*), cutover muhly (*Muhlenbergia capillaris* var. *trichopodes*), toothache grass (*Ctenium aromaticum*), little bluestem (*Schizachyrum scoparium*) and Florida toothache grass (*Ctenium floridanum*). Does not include switchgrass (*Panicum virgatum*) or *Andropogon virginicus*.	PYROGR_COV	(see FIREHW_COV above)

Herbaceous Cover:	Percent cover of all native non-woody, soft-tissued plants regardless of height, including non-woody vines, legumes, and graminoids (grasses, sedges, rushes); does not include non-native pasture grasses.	HERB_COV	(see FIREHW_COV above)
Fire Evidence:	Describes the general time period since last fire as determined by visual evidence within the stand (e.g. fire scars on trees, standing blackened shrubs).	FIRE_EVID	not evident < 2 years 2 - 5 years > 5 years
Invasive Plant Cover:	Percent cover of invasive exotic plants within the stand; includes only FLPPC category I and II listed species.	INVPL_COV	not evident <1% 1 - 3% 4 - 10% >10%
Condition Rank:	describes the ecological condition relative to a natural system (natural vegetative plant community) values:	COND_RANK	**Code** / **Description** excellent — Community species composition/abundance and structure are characteristic of conditions prevalent under historic fire regime. good — Community species composition/abundance and structure are only partially characteristic of conditions previously prevalent under historic fire regime. fair — Retains some components and/or structure characteristic under historic fire regime. Components of original pyrogenic groundcover are sparse or suppressed so as to be functionally irrelevant. poor — May retain little of the original community species components and/or structural characteristics. Components of original pyrogenic groundcover are not evident.

Soil Hydrology	xeric: deep, well drained to excessively drained sands or gravelly sands; typical of sandhills. sub-mesic: moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture; typical of upland pine (clay hills). mesic: somewhat poorly drained soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture; typical of mesic flatwoods. hydric: poorly drained soils that have a high water table, soils that have a clay layer or other impervious material at or near the surface; typical of wet flatwoods.	SOIL_HYDRO	xeric sub-mesic mesic hydric
Stand Type	Natural or Planted	STAND_TYPE	natural planted
Comments:	Comments provides additional, optional information about the site (stand)	COMMENTS	

Survey Date

Field Name: **SURVEYDATE**

Most field data collection software automatically gives you the option of the current date. In ArcPad, check the box to select the current date or manually enter a date.

LLP Dominance

Field Name: **LLP_DOM**
Indicates the presence and dominance of LLP in the **canopy**

Field Values:

- **Dominant:** LLP occupies the highest percentage of area of the canopy species
- **Codominant:** LLP occupies approximately the same percentage as other canopy species
- **Occasional-rare:** LLP present in the canopy but a low percentage relative to other species
- **Absent:** LLP not present in the canopy

Longleaf pine is Dominant

Longleaf pine is Codominant

LLP Age Structure

Field Name: **LLP_AGE**
Indicates the age structure of LLP in the **canopy**

Field Values:

- **at least 3 age classes**
- **2 age classes**
- **1 age class**
- **absent from canopy**

Trees in this stand appear to be 1 age class.

Older-mature Characteristics

Field Name: **OLDER_LLP**

Indicates the presence of flat-topped trees (more than one) within the stand.

Field Values:

- **yes**
- **not evident**

yes

not evident

LLP Early Regeneration

Field Name: **LLP_EARLY**

Estimated cover of LLP regeneration including planted trees that is <6’ tall.

Field Values:

- not evident
- < 1%
- 1 - 5%
- 5 - 15%
- > 15%

1 -5 %

not evident

LLP Advanced Regeneration

Field Name: **LLP_ADVANC**

Estimated cover of LLP regeneration including planted trees that is 6-16’ tall.

Field Values:

- not evident
- < 1%
- 1 - 5%
- 5 - 15%
- > 15%

5 - 15 %

1 -5 %

1 -5 %

LLP Basal Area Field Name: **LLP_BA**

Estimated basal area in square feet per acre of LLP for the entire stand

Field Values: 0 to >120 in increments of 10

20 or 30

40 or 50

60 or 70

110 or 120 or > 120

Fire Tolerant Hardwood Cover

Field Name: **FIREHW_COV**

Percentage of the ground within the stand covered by the general extent of turkey oak, sand post oak, bluejack oak, blackjack oak, southern red oak, and dogwood within the midstory and canopy (any stem greater than 16 feet tall); **Spaces between leaves and stems count as cover.**

Field Values

- < 1%
- 1 - 5%
- 6 - 15%
- 16 - 25%
- 26 - 35%
- 36- 45%
- 46 - 55%
- 55 - 65%
- 66 - 75%
- 76 - 85%
- 86 - 95%
- 96 - 100%

These same cover classes are used for all of the cover estimates

Fire Tolerant Hardwood Cover (FIREHW_COV)

Example 1 Cover = 26 - 35%

Fire Tolerant Hardwood Cover (FIREHW_COV)

Example 2 Cover = 6 - 15%

Other Hardwood Cover Field Name: **OTH_HW_COV**

Percentage of the ground within the stand covered by the general extent of hardwood species excluding turkey oak, sand post oak, bluejack oak, blackjack oak, southern red oak, and dogwood within the midstory and canopy (any stem greater than 16 feet tall); typical species are laurel oak, water oak, sweetgum, live oak, sand live oak.
values: see FIREHW_COV

Example Cover = 66 - 75% or 76 - 85%

Other Pine Cover Field Name: **OTHPINE_COV**

Percentage of the ground within the stand covered by the general extent of the canopy of pine species other than LLP; **Spaces between leaves and stems count as cover.** Canopy is defined as any stem greater than 16 feet tall.
values: see FIREHW_COV

Shrub Cover Field Name: **SHRUB_COV**

Percentage of the ground within the plot covered by the general extent of woody plants **excluding vines and pines** from the ground to 16 feet tall; **Spaces between leaves and stems count as cover.**

values: see FIREHW_COV

Example Cover = 16 - 25%

Average Shrub Height Field Name: **AVSHRUB_HT**

Average height of woody plants **excluding vines and pines** from the ground to 16 feet tall .

Field values:

- 0 – 3 ft
- 3 – 6 ft
- 6 – 9 ft
- 9 – 16 ft

Example value = 0 – 3 ft

Pyrogenic Grass Cover Field Name: **PYROGR_COV**

Percent cover of native perennial graminoids that are maintained by periodic fire; includes wiregrass (*Aristida stricta*), pineywoods dropseed (*Sporobolus junceus*), Florida dropseed (Sporobolus floridanus), Chapman's beaksedge (*Rhynchospora chapmanii*), cutover muhly (*Muhlenbergia capillaris* var. *trichopodes*), toothache grass *(Ctenium aromaticum*), little bluestem (*Schizachyrium scoparium*) and Florida toothache grass *(Ctenium floridanum*), **not** switchgrass (*Panicum virgatum*). values: see FIREHW_COV

Pyrogenic Grass Cover Field Name: **PYROGR_COV**

Example Cover = 1 - 5%

Example Cover = 76 - 85%

Herbaceous Cover Field Name: **HERB_COV**

Percent cover of all native non-woody, soft-tissued plants regardless of height, including non-woody vines, legumes, and graminoids (grasses, sedges, rushes); **does not include non-native pasture grasses**. values: see FIREHW_COV

Example Cover = 86 - 95% or 96 – 100%

Herbaceous Cover Field Name: **HERB_COV**

Note: Runner oaks, and woody vines such as greenbrier and yellow jessamine don't count in HERB_COV; they are included in shrub cover.

e

Fire Evidence Field Name: **FIRE_EVID**

Describes the general time period since last fire as determined by visual evidence within the polygon (e.g. fire scars on trees, standing blackened shrubs).

Field Values:

- not evident
- < 2 years
- 2 - 5 years
- > 5 years

Invasive Plant Cover Field Name: **INVPL_COV**

Percent cover of invasive exotic plants within the stand; includes only FLEPPC Category I and II listed species.

Field Values:

- not evident
- < 1%
- 1 - 3%
- 4 - 10%
- > 10%

Condition Rank Field Name: **COND_RANK**

Describes the ecological condition relative to a natural system (natural vegetative plant community). Consider the species composition/abundance and vegetative structure characteristic of conditions prevalent under historic fire regime.

Field Values:

- excellent
- good
- fair
- poor

excellent

Condition Rank Field Name: **COND_RANK**

Good (needs fire, but the components are there)

Condition Rank Field Name: **COND_RANK**

Fair (evidence of ground disturbance; no recent fire, but still retains many of the characteristic components)

Condition Rank Field Name: **COND_RANK**

Poor (well managed plantation, but lacks characteristics of the former natural vegetative community)

Soil Hydrology
Field Name: **SOIL_HYDRO**

Field Values:

- xeric: deep, well drained to excessively drained sands or gravelly sands; typical of sandhills.
- sub-mesic: moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture; typical of upland pine (clay hills).
- mesic: somewhat poorly drained soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture; typical of mesic flatwoods.
- hydric: poorly drained soils that have a high water table, soils that have a clay layer or other impervious material at or near the surface; typical of wet flatwoods.

Stand Type

Field Name: **STAND_TYPE**

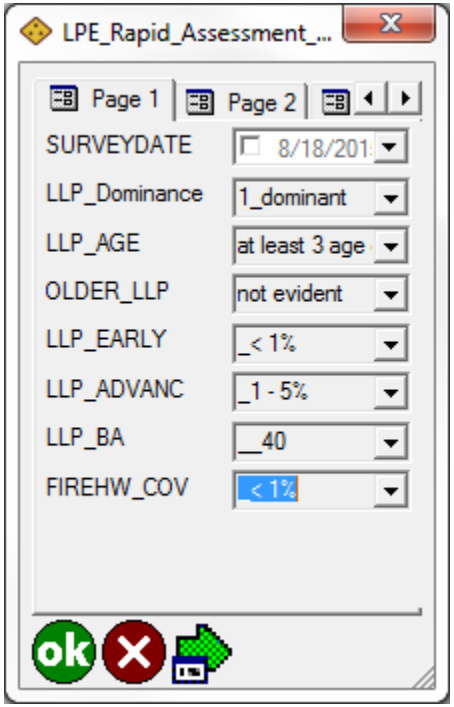
Field Values:

- natural
- planted

Comments

Field Name: **COMMENTS**

This is a text field that provides additional, **optional** information about the stand. Such as “this is an exceptional site”.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8/18/201
LLP_Dominance
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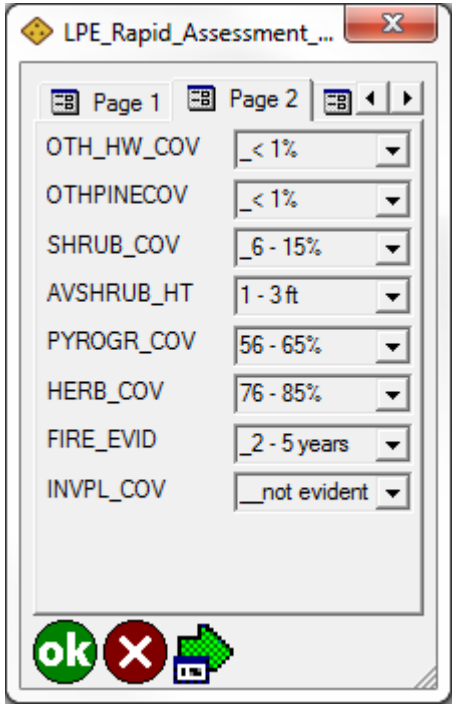
LLP_AGE
at least 3 age
OLDER_LLP
not evident
LLP_EARLY
_< 1%
LLP_ADVANC
_1 - 5%
LLP_BA
__40
FIREHW_COV
< 1%
ok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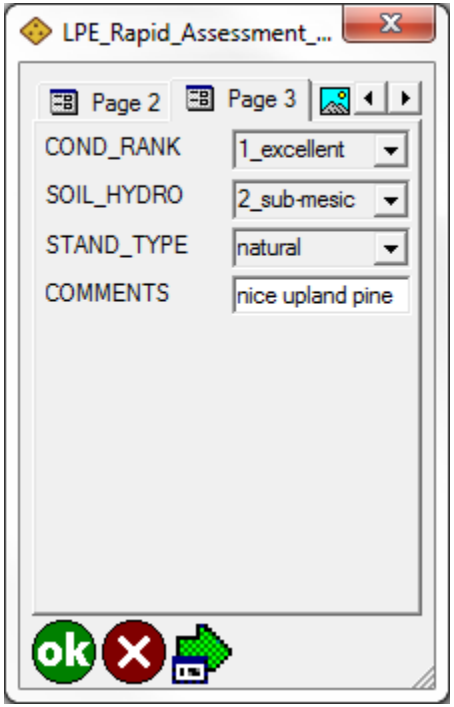
Page 1
Page 2
OTH_HW_COV
_< 1%
OTHPINECOV
_< 1%
SHRUB_COV
_6 - 15%
AVSHRUB_HT
1 - 3 ft
PYROGR_COV
56 - 65%
HERB_COV
76 - 85%
FIRE_EVID
_2 - 5 years
INVPL_COV
__not evident
ok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Page 2
Page 3
COND_RANK
1_excellent
SOIL_HYDRO
2_sub-mesic
STAND_TYPE
natural
COMMENTS
nice upland pine
ok

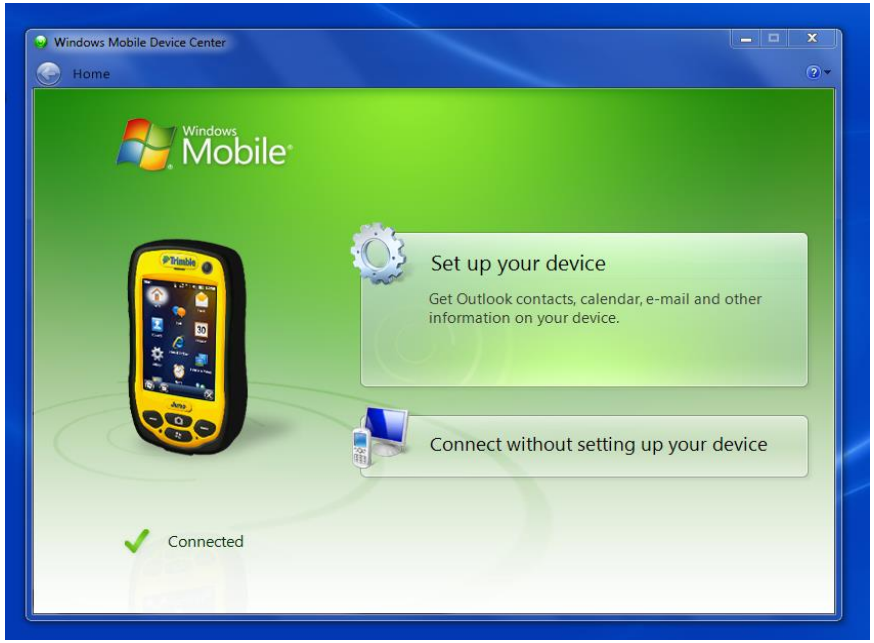
LPE Rapid Assessment
Data Check-out, Field Data Collection, and Check-in Process
Using the ArcPad Data Manager Toolbar

Session Objectives:

1. Check out data from a geodatabase for editing in the field using the ArcPad Data Manager Toolbar in ArcMap
2. Collect data in the field using ArcPad
3. Check in field data and update a geodatabase using the ArcPad Data Manager Toolbar in ArcMap

Establishing a connection with your mobile device.

- When you plug in your field unit (datalogger) to your computer, the Windows Mobile Device Center program should open. This program replaces ActiveSync for previous versions of Windows. If Windows Mobile Device Center does not open, reboot your field unit.
- Click “Connect without setting up your device”



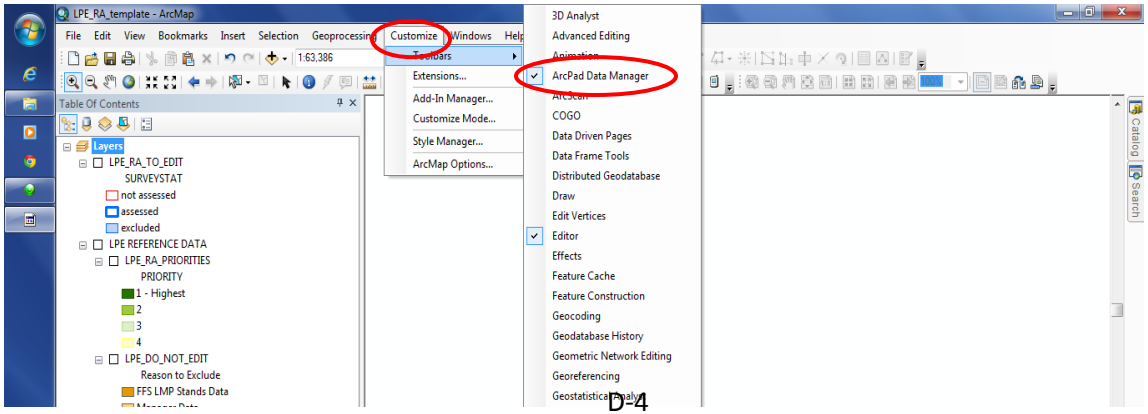
That is all that is necessary for the transfer of files to and from the datalogger.

- If you want to browse for files on your field unit, click “Browse the contents of your device” under File Management. We will revisit File Management later.

Using the ArcPad Data Manager Toolbar to Check-out Data (LPE_Rapid_Assessment_Field_Points only)

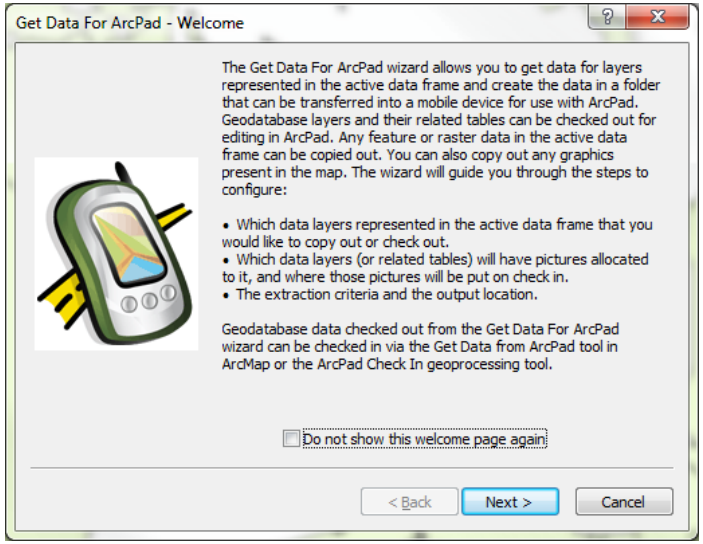
Open an ArcMap project for working with the Longleaf Pine Rapid Assessment data. You can start with a new (blank) project or a template with the standard content for your office. This content might include conservation lands, county boundaries, roads, background imagery, etc.

- Add the "LPE_Rapid_Assessment_Field_Points" feature class from the LPE_v3_Rapid_Assessment Geodatabase provided by FNAI.
- Turn on the ArcPad Data Manager toolbar by right-clicking "Customize" at the top of the window and clicking in the box for ArcPad Data Manager. This will only be available if you have installed ArcPad on your computer.

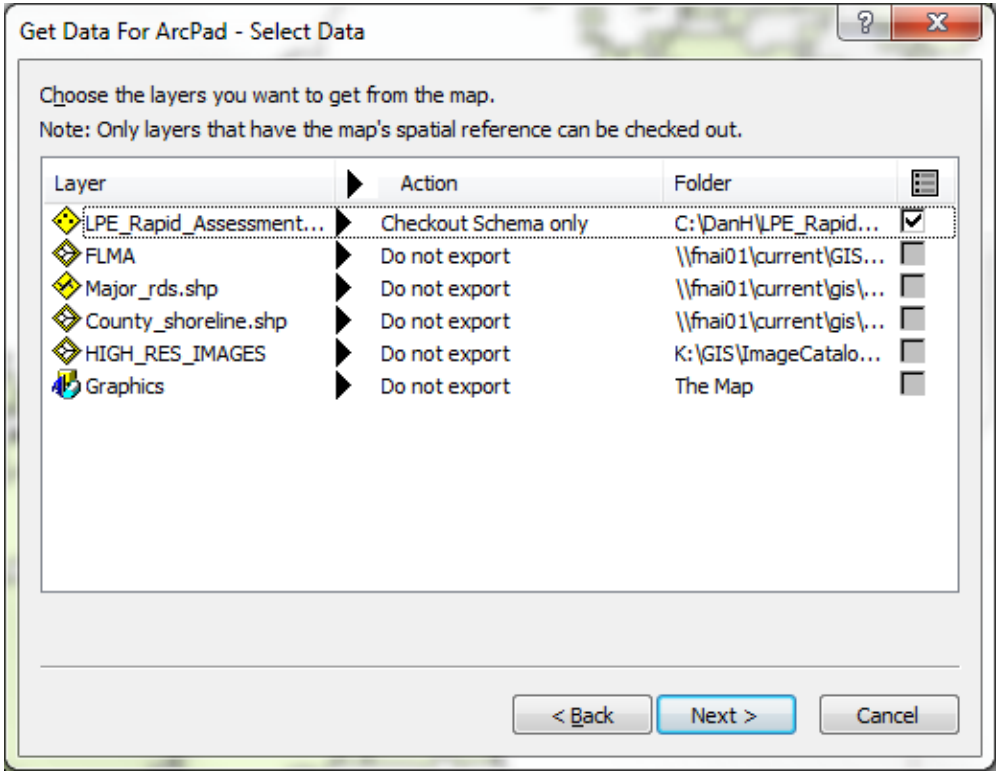


- Click the “Get Data for ArcPad” button on the ArcPad Data Manager toolbar (shown below).

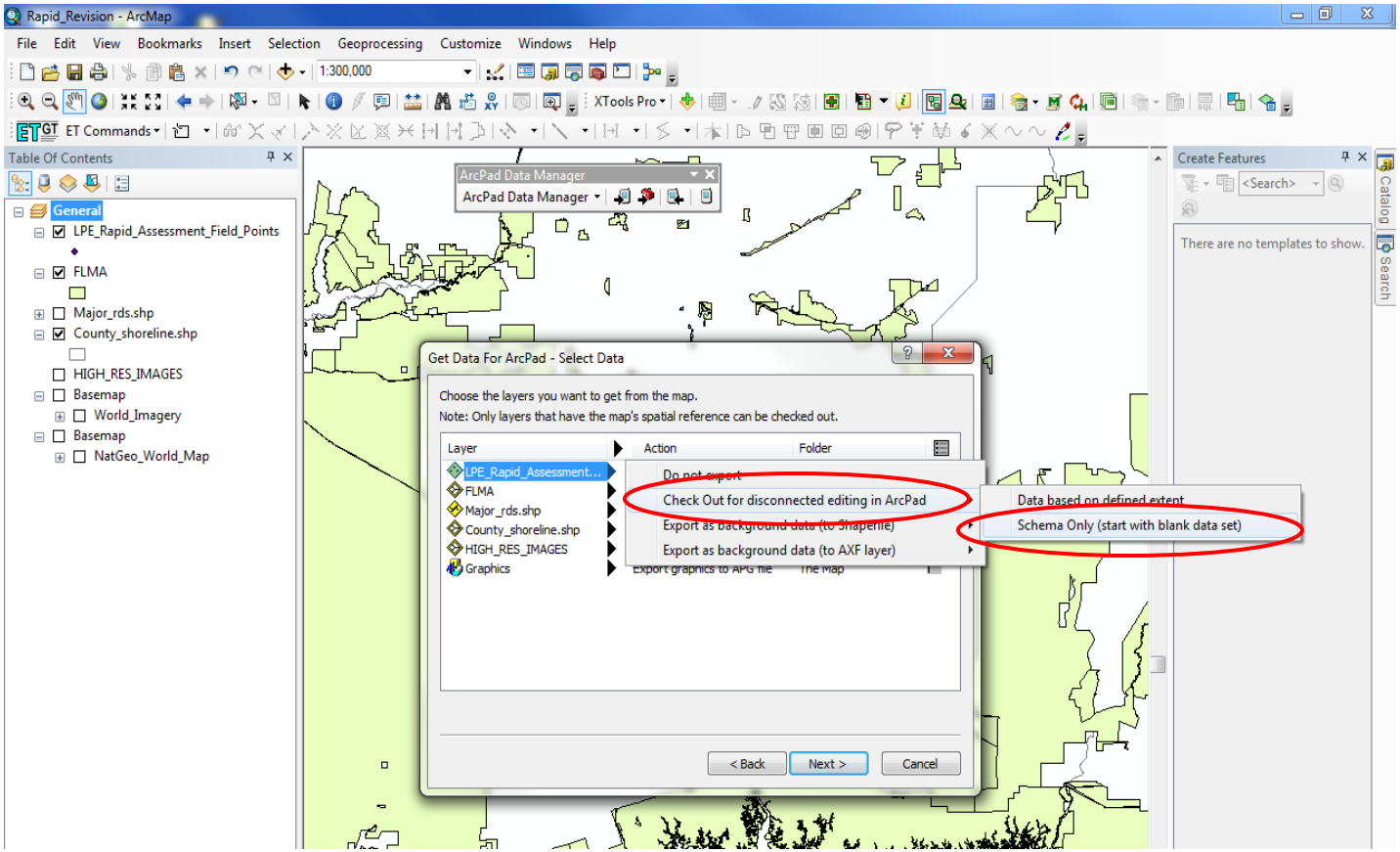
- A welcome window will generally describe what “Get Data for ArcPad” does, which is packaging files for transfer to a mobile device running ArcPad—click “Next”



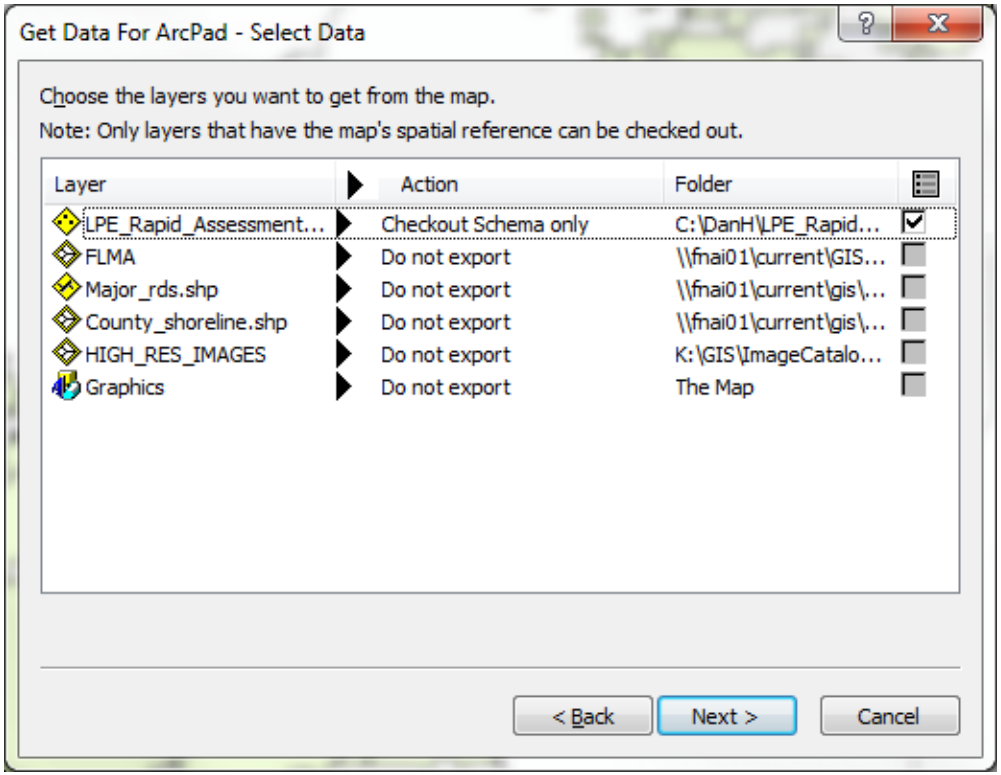
- In this training you will only check out a blank file from the LPE Rapid Assessment Field Points feature class. You will add data points to this file using ArcPad during your field session. Other layers can also be checked out at the same time and added to your ArcPad map; that will be covered in a separate document.



- Select an Action for each file you intend to export. For this exercise only select an action for the LPE_Rapid_Assessment_Field_Points: select “Check Out for disconnected editing in ArcPad”, then “Schema Only (start with blank data set)”.

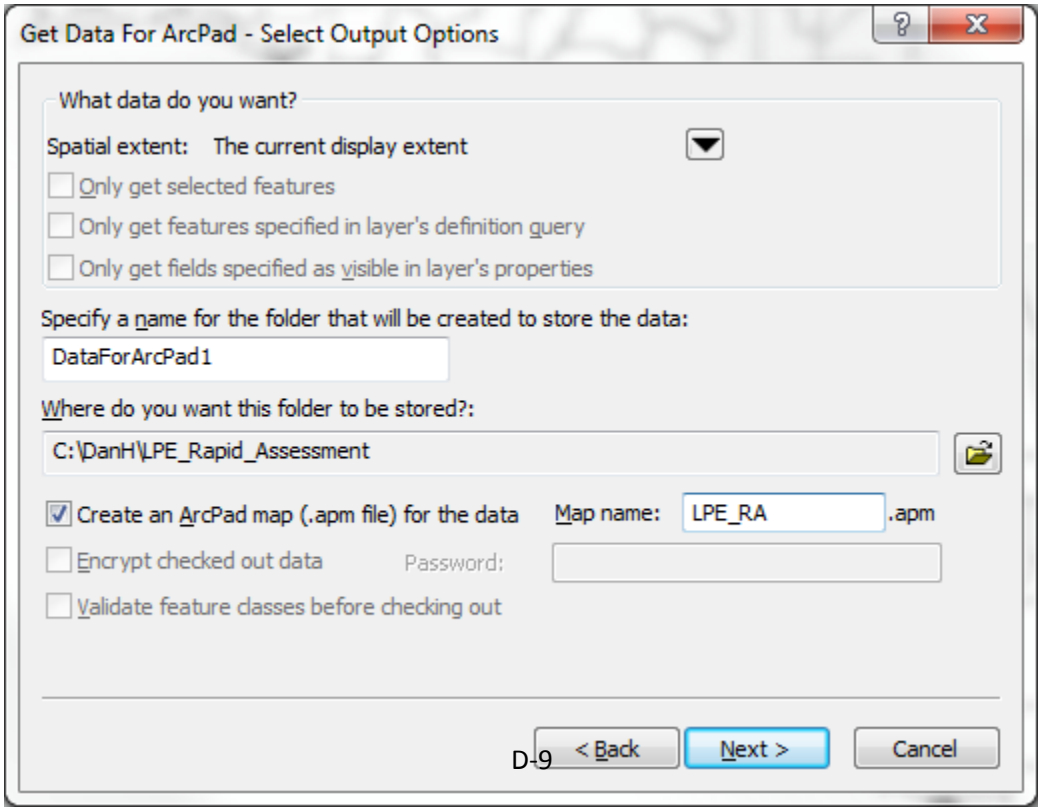


- Click “Next” when finished selecting an action for each layer.

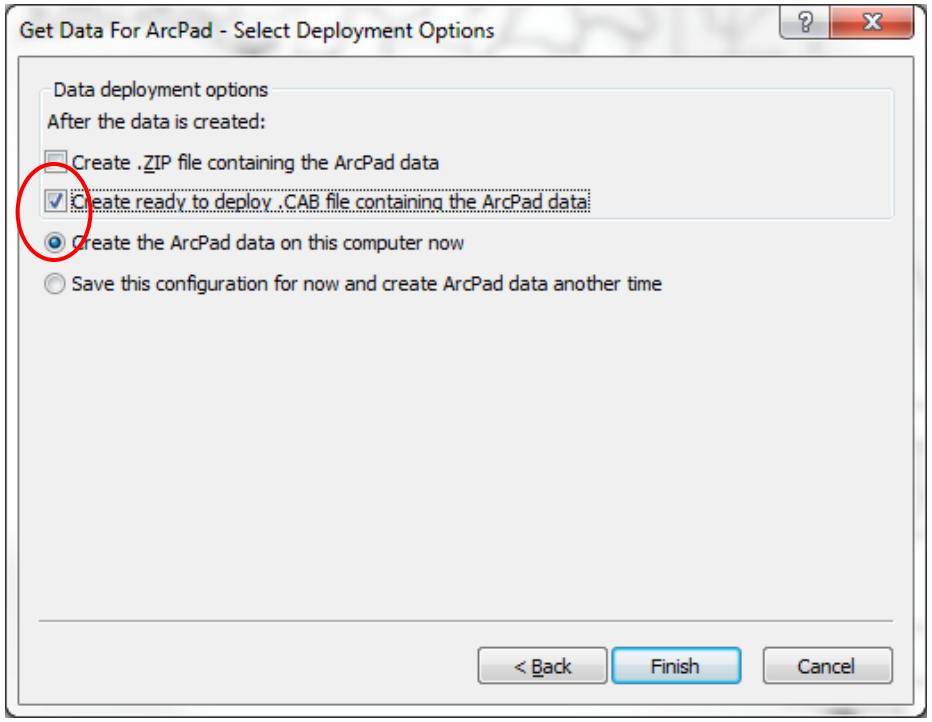


Select “Next” at the Select Picture Options screen; the default is “None”

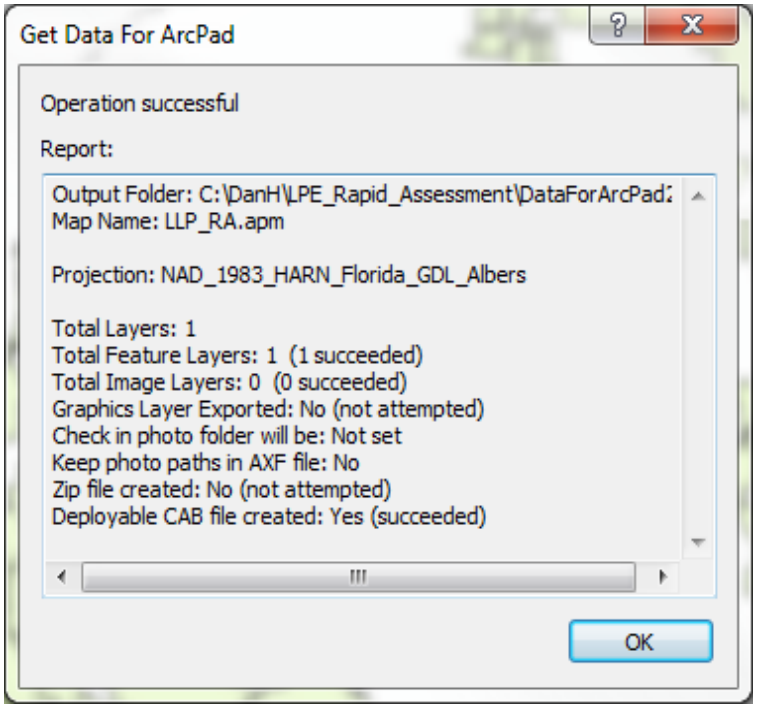
- In the following window several of the options are not applicable (“greyed out”), since we are only checking out a blank file (schema only). Your selections on this page will be the default setting until you change them.
- Specify a name for the folder for this check-out session; “DataForArcPad1” is the default; the next time you check out, the default will be “DataForArcPad2”.
- Choose a location to store the folder containing your check-out data and ArcPad map; this may be prescribed in another portion of your training. Remember this file name and location for the check-in procedure. Name the ArcPad map “LPE_RA”.



- Under deployment options, check the “Create ready to deploy .CAB file…” and select “Create the ArcPad data on this computer now”, then click “Finish”.

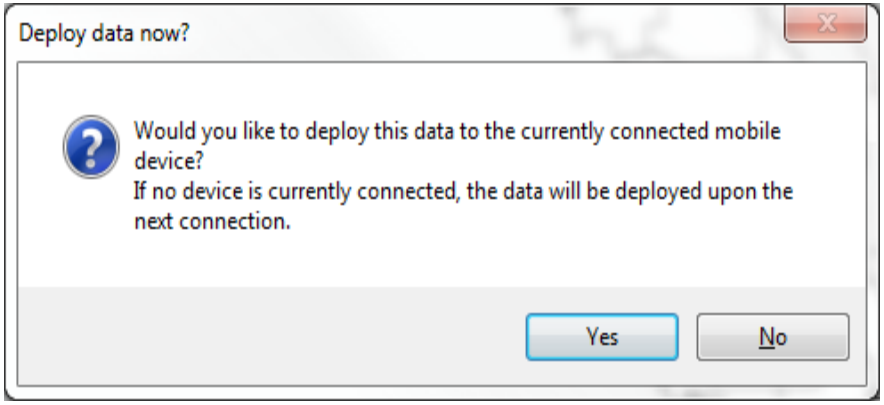


- You should then receive an “Operation successful” message. Click “OK”.

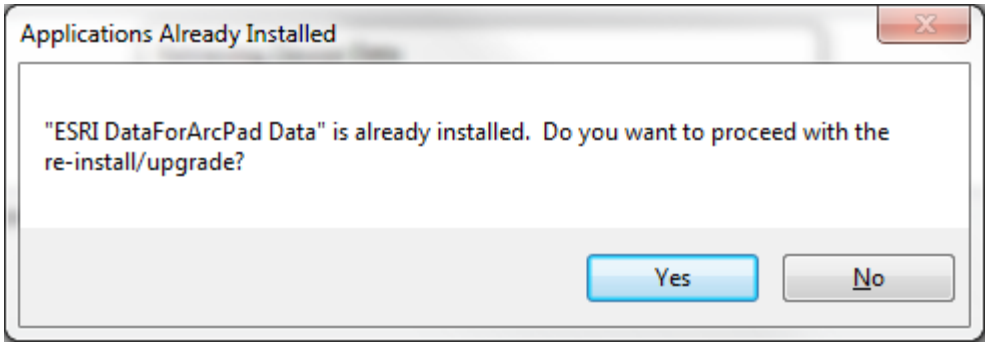


Note: If you have moved on to more advanced data check-out with additional files and receive an error message, you may have exceeded the 50 MB file size for background imagery. Zoom into a smaller area or do not include imagery in the check-out.

- Deploy the data to your field unit (GPS Datalogger)



If you've deployed data previously, you will get this message:



Click "Yes"

- The deploy process will take a minute or so; follow any on-screen prompts on your field unit.
- It may ask for a location to install the “CAB file” or “DataForArcPad file”; choose “Device” rather than the Storage Card if you have one on your unit.
- Then click “Install” or “OK”. It may state that the CAB file has been installed; click “OK”. Or, it may ask if you want to install the CAB file (replacing a former file) click “Yes”.
- Your checked-out data is now on your mobile device and included in an ArcPad map (project) on your field unit and ready for updating. This process should overwrite previously checked-out files; however, if you have deployed data during a previous session, make sure you are entering points in a new blank version of the data.

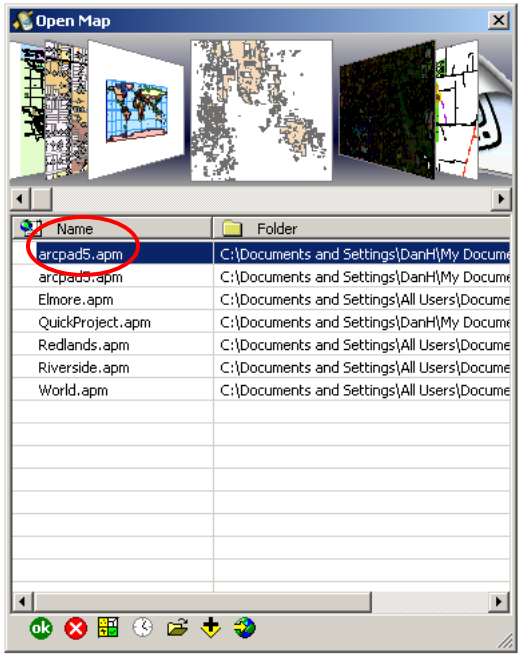
Manual Copying of ArcPad Project Folder

- If you have a problem deploying the files to your field unit, you may manually copy the files using File Management in the Windows Mobile Device Center.
- Paste the entire folder created during the Check-out procedure into the My Documents folder on your field unit. If you are following the default naming, it will be called "DataForArcPadx"

Opening the Project on your Field Unit and Data Collection

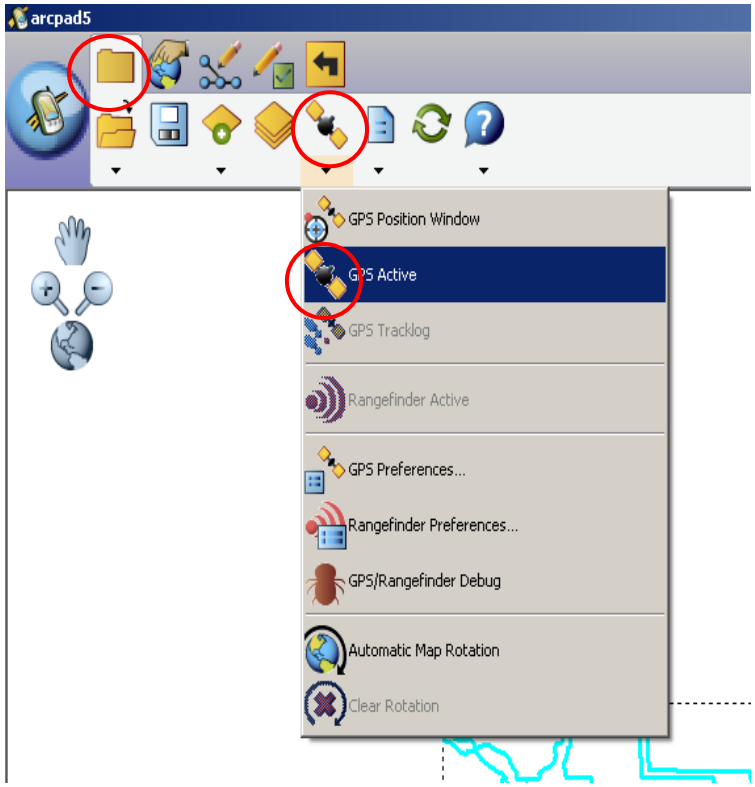
- Open ArcPad on your field unit.
- Select “Choose a map to open” in the Welcome to ArcPad menu.
- If the Welcome to ArcPad menu does not open automatically, click on the “Main Tools” icon that looks like a closed file folder at the top left. Then click the “open map” icon directly underneath it as depicted below.

- Chose the ArcPad map (.apm) file created for this field session (named during the check-out procedure), then click “OK” at the bottom of the screen.

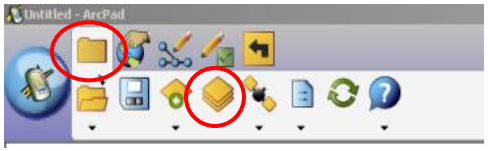


Note: the check-out procedure automatically creates a “picture” of your layout at the time of check-out. Even though you may not have selected some of the layers for export, they will show up in this picture that represents your ArcPad map (.apm), which is shown at the top of your ArcPad screen.

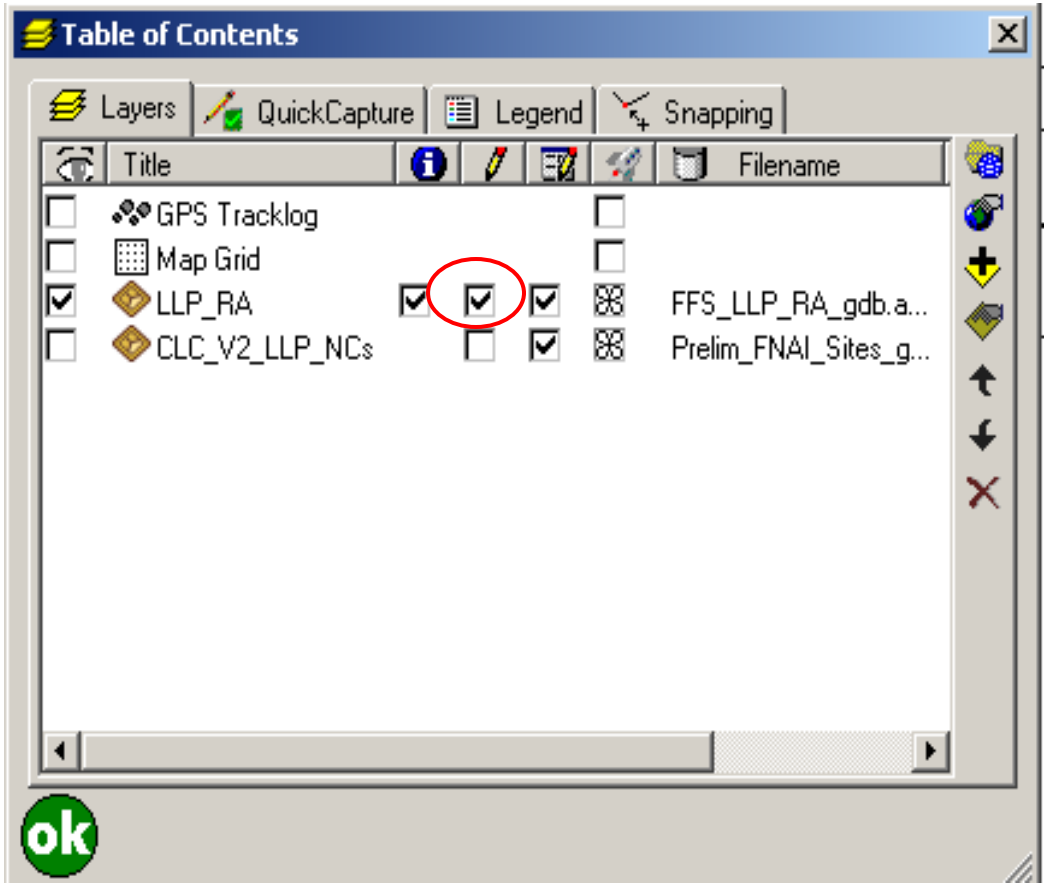
- Activate your GPS (if not already activated) by clicking the dropdown menu under the satellite icon and select “GPS Active”. You will find this under the main menu (folder icon). If you are inside and reviewing the procedure, don’t activate the GPS; a no position warning will interrupt your review.



- Open table of contents.

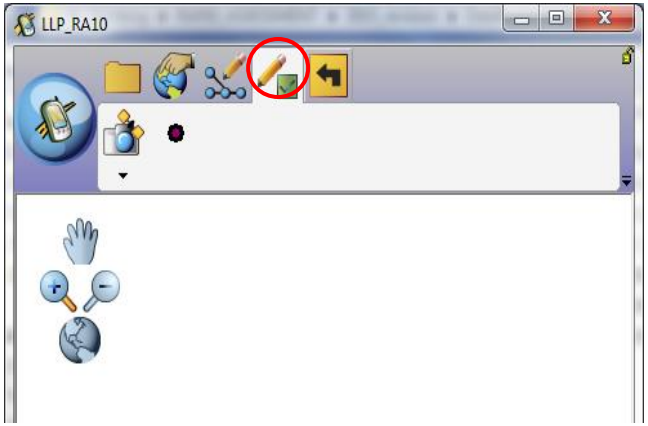


- Check the start editing box for the RA data (the box under the pencil).

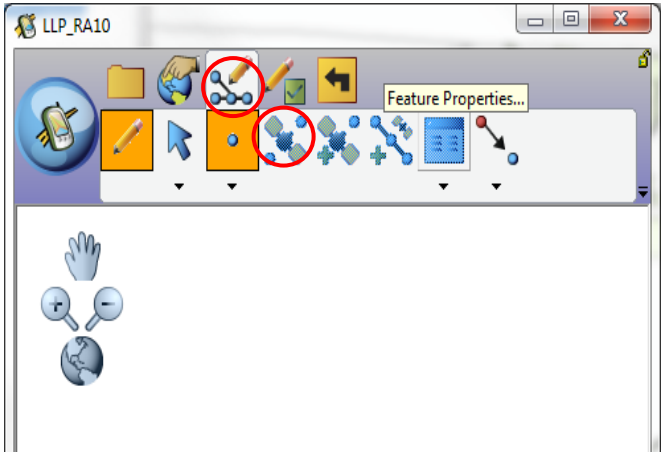


Then click “OK”

- Once you click “OK” in the table of contents you may automatically be taken to the QuickCapture menu.

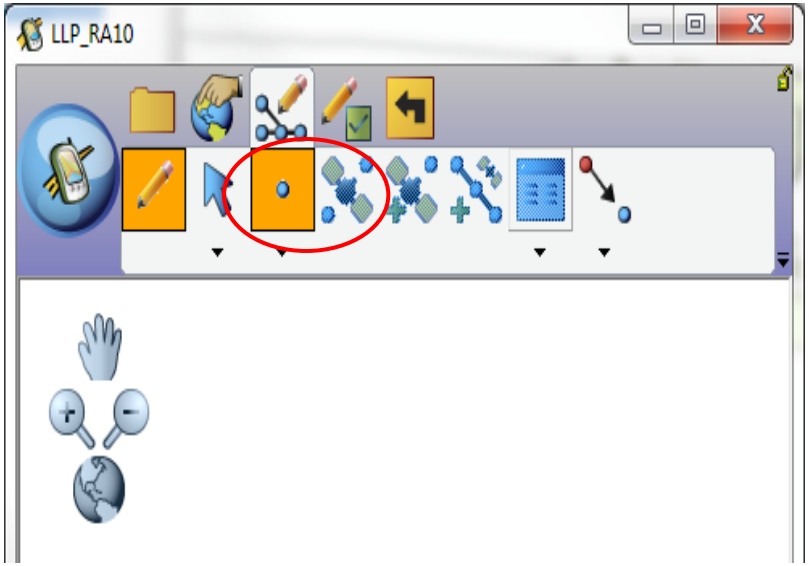


- If so, click on the tab to the left called Drawing Tools for data collection.

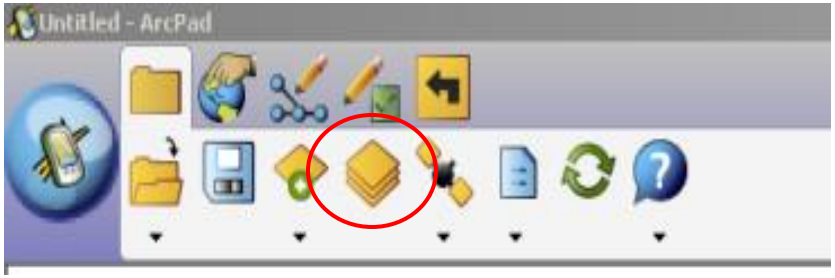


- If your GPS is active you can then click on the Capture Point icon ( ) to take a point where you stand and begin entering the rapid assessment data.

- You also have the option of digitizing a point on the screen by clicking on the point button ( ), then clicking a location on the screen. You should only do this when you have background files that allow you to place the point at a known location.



- If you need to add additional layers such as imagery, click the Add Layers button to browse to the location. You may want to store large imagery files on a micro SD card (located behind the battery on your Flint).

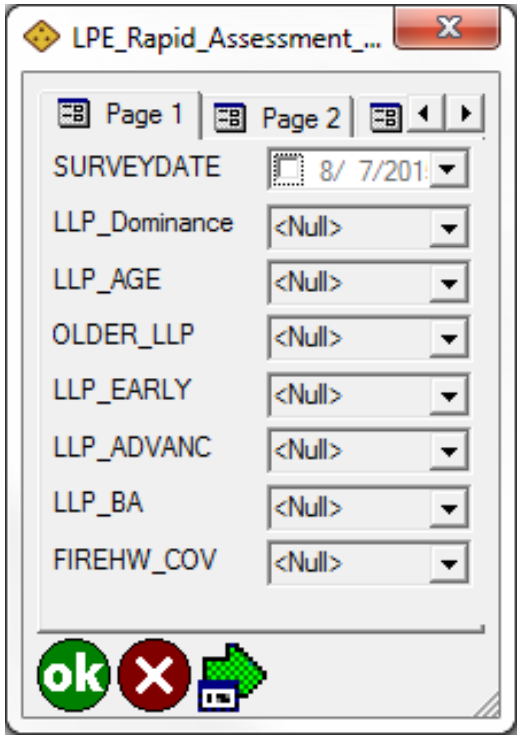


- Once you've clicked the "Capture Point" icon or manually placed a point, a data form will show on your screen.

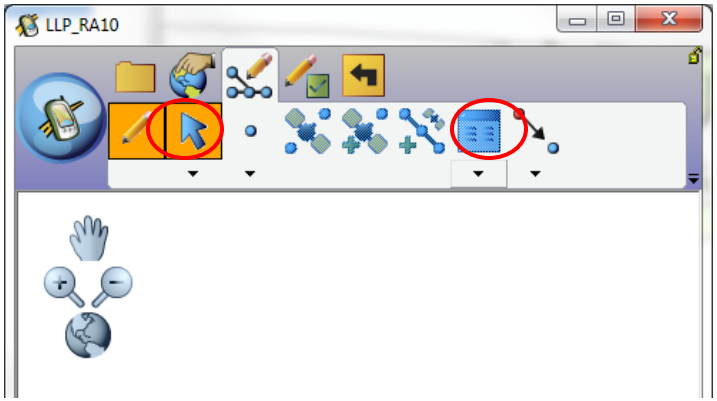
- Complete each page of the form by clicking on the drop-down menus, then clicking on the next page.

- There are 3 pages in the field form; please complete each page.

- Click "OK" to store the data.



- If you need to edit the data after closing the form select the point ( ), then click the Feature Properties ( ) icon under the drawing tools menu to re-open the form.



- When the field session is complete, close ArcPad and follow the Check-in procedures to update your RA geodatabase.

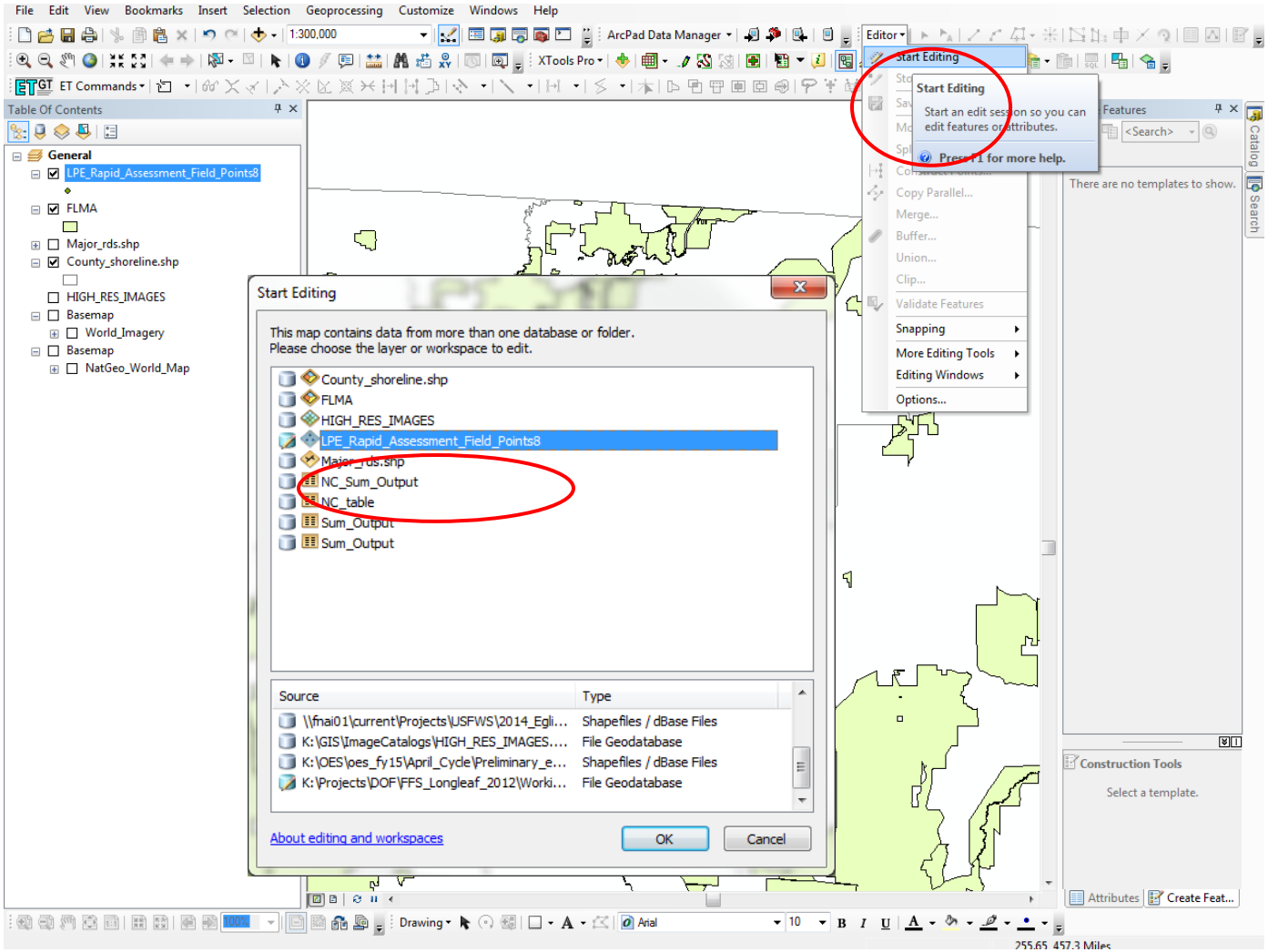
Check-in Field Data Procedure
(updating your RA geodatabase with field data)

Connect your field unit to your computer. Copy the entire folder for your field session (located in My Documents\DataForArcPad on your mobile device) and paste it on your computer, writing over the version created during the Check-out.

Alternatively, you may paste it in another folder dedicated to Check-in, just remember the location for the following procedure.

Again, your folder will be in the My Documents folder on your field unit. The default name created during the CAB deployment is “DataForArcPad”. You may copy the folder using windows explorer or the Mobile Device Center.

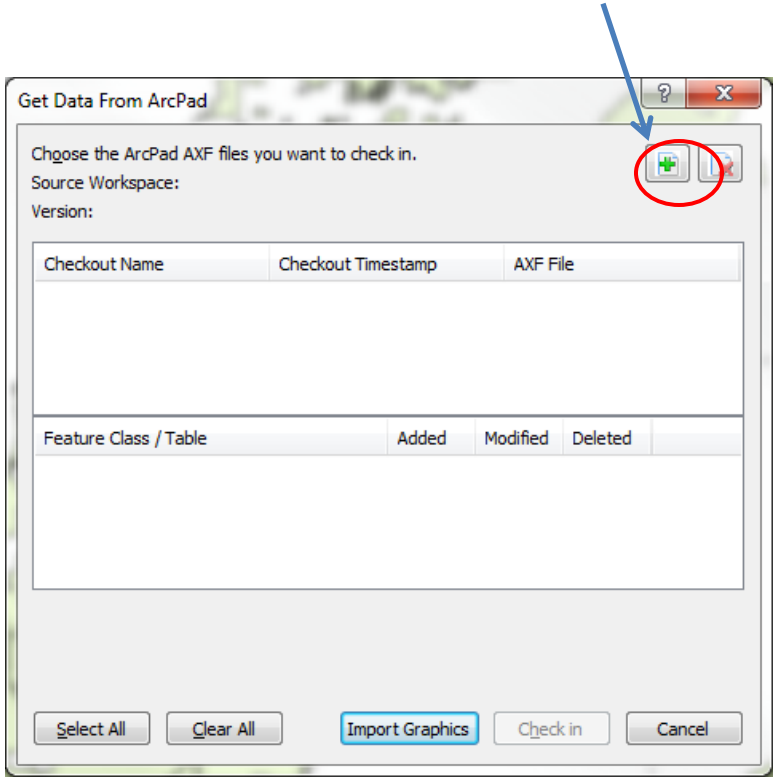
Once the file is on your computer open your RA ArcMap project and start editing your LPE Rapid Assessment geodatabase.



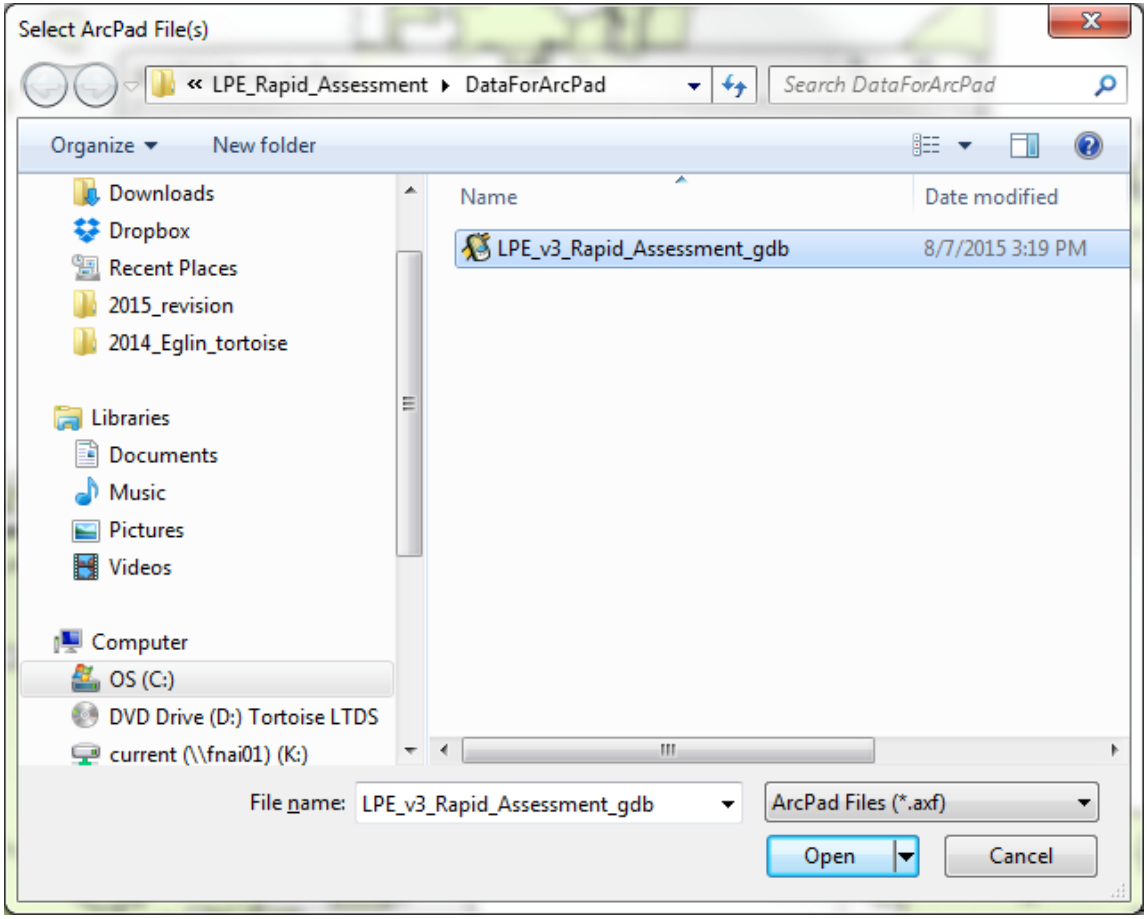
On the Arcpad Data Manager toolbar click

“Check In Edits From ArcPad”

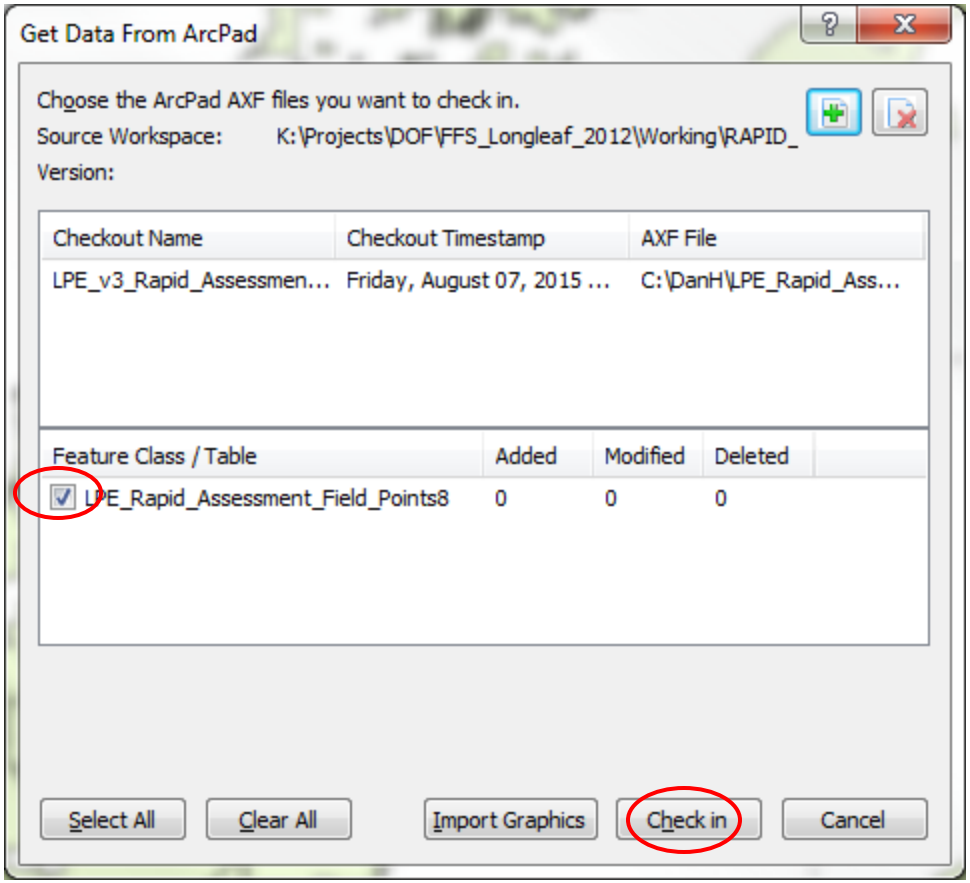
Then click the browse for ArcPad files button



Browse to the location of the file you just copied from your field unit to your computer and click “Open”



Check the box for your RA data and click “Check in”.



This will update your RA geodatabase with field data. Open your feature class to confirm your field edits, make a backup, then delete the folder on your field unit to complete the process.

Repeat the process from the start for your next field session. Your field session may be from one to several days. You should check in your data at the end of each field session to prevent loss of data and to allow you to review your data while the information is still fresh in your head. You'll continue to add points to your geodatabase with each check-in. The geodatabase will be submitted to FNAI at a date to be determined.

Thanks for your contribution to this effort.

LPE_Occurrence_Status_v3 Attributes

The LPE_Occurrence_Status_v3 is a polygon feature class of confirmed longleaf pine ecosystems, potential longleaf sites where occurrence status remains unknown, and remaining pinelands that are known not to be longleaf sites. These data were developed as part of the Longleaf Pine Ecosystem Geodatabase (LPEGDB) project and represent potential and known longleaf pine ecosystem sites in Florida. The purpose of this project is to provide data on the distribution and condition of longleaf pine ecosystems in Florida.

Attributes

Field: LPEGDB_ID_v3 (Alias: LPEGDB_ID_v3)

Definition: Unique identification number for polygon in the database. Gaps are allowed in number sequence. ID numbers are updated with each version of the LPEGDB as polygons are edited.

Field: LPE_Occurrence (Alias: LPE Occurrence)

Definition: Occurrence status of longleaf pine ecosystem within the polygon.

Field Values	Definition
Yes	Occurrence of longleaf pine ecosystem has been confirmed by empirical evidence from the data source.
Unknown	Occurrence of longleaf pine ecosystem is neither confirmed nor unconfirmed.
No	Absence of longleaf pine ecosystem is indicated by empirical evidence from the data source(s).

Field: CONF_TIER (Alias: Confidence Tier)

Definition: Confidence Tier indicates the strength of evidence for occurrence of longleaf pine ecosystem. Its primary use is to help target priorities for future surveys but also to enable informative summaries of current knowledge.

Field Values	Definition
1A	Occurrence of longleaf pine ecosystem has been confirmed by empirical evidence from the data source but ecological data are not available.
1	Occurrence of longleaf pine ecosystem has been confirmed by empirical evidence from the data source but ecological condition data are not available.
2	Occurrence of longleaf pine ecosystem is documented within the polygon by a secondary source; or longleaf presumed from RCW record
3	Occurrence of longleaf pine ecosystem is neither confirmed nor unconfirmed, but is expected based on land cover classifcation of Sandhill or Upland pine; FFS land records with some indication of longleaf occurrence (but not confirmed); or overlap with areas identified as longleaf by forest cover/vegetation models (Comprehensive Statewide Forest Inventory Analysis Study or Florida Fire Risk Assessment Canopy Inventory Project).
4	Occurrence of longleaf pine ecosystem is neither confirmed nor unconfirmed, and land cover a type other than Sandhill or Upland pine.
0	Absence of longleaf pine ecosystem is indicated by empirical evidence from the data source(s).

Field: CONF_DESC (Alias: CONF Description)

Definition: Confidence Tier Description is a brief description of the Confidence Tier codes

Field Values	Definition
Longleaf pine confirmed and ecological condition data available (3 or more attributes)	Brief description of Confidence Tier 1A. See metadata for CONF_TIER for detailed description.
Longleaf pine confirmed; ecological condition data not available	Brief description of Confidence Tier 1. See metadata for CONF_TIER for detailed description.
Longleaf pine documented in secondary source; or longleaf presumed from RCW record	Brief description of Confidence Tier 2. See metadata for CONF_TIER for detailed description.
Longleaf occurrence unknown but expected	Brief description of Confidence Tier 3. See metadata for CONF_TIER for detailed description.
Longleaf occurrence unknown but possible	Brief description of Confidence Tier 4. See metadata for CONF_TIER for detailed description.
Longleaf pine absence indicated by field data or stand description	Brief description of Confidence Tier 0. See metadata for CONF_TIER for detailed description.

Field: DATA_SRC (Alias: Data Source v.3)

Definition: Source(s) of information used to determine the boundary, occurrence status,and/or ecological condition of longleaf pine ecosystems. For multiple sources, boundary and/or occurrence sources are typically listed first followed by condition sources although information may overlap among all sources.

Source Abbreviations	Description
Eglin AFB	Stands and plot data from Eglin Air Force Base
FFS Compiled Longleaf Stands	Florida Forest Service effort to collect and mine information on longleaf pine stands from various sources.
FFS State Lands Inventory	Florida Forest Service Forestry Data Model: stand boundaries and statistics for State Forests.
Florida Park Service	Natural Community boundaries and attributes for Florida State Parks
FNAI- Cooperative Land Cover v2, v2.3, v3	Indicates use of Cooperative Land Cover (by version) as primary source of information about the polygon; FNAI prefix indicates that decisions about subset of land cover types to include were made by Florida Natural Areas Inventory.
FNAI Compiled Data	Generally refers to Florida Natural Areas Inventory Element Occurrence Database records for rare species and natural communities; data within the database is from multiple sources.
FNAI Field Survey	Generally refers to GPS field surveys conducted for natural community mapping and ecological assessment conducted by Florida Natural Areas Inventory since 2002 for many agencies; also includes field surveys for other purposes that include longleaf pine information.
FWC	Fish and Wildlife Conservation Commission shapefiles for longleaf plantings on lands they manage.
FWC Land-owner Assistance Program	Fish and Wildlife Conservation Commission shapefiles for longleaf plantings on private lands supported by the FWC Land Owner Assistance Program, excluding programs funded by the USDA Natural Resources Conservation Service (NRCS).
LPEGDB Rapid Assessment 2013	Sites assessed by Florida Forest Service County Foresters as part of the 2013 Rapid Assessment phase of the LPEGDB project.
Resource Management Service, LLC	Longleaf stand boundaries within the Coastal Headwaters Longleaf Forest Florida Forever Project boundary provided by Resource Management Service, LLC.
St. Johns River WMD	Stands, plot data, and fire management unit data provided by St. Johns River Water Management District on lands they manage.
The Nature Conservancy	Information on longleaf occurrence for Rock Hill Preserve and Apalachicola Bluffs and Ravines Preserve provided via personal communication with the Northwest Florida Program Director of The Nature Conservancy.
USFS Stands, USFS ECM	Stand data and Ecological Condition Model (ECM) data provided by U. S. Forest Service for National Forests in Florida
USFS RCW Data	Red-cockaded woodpecker cavity tree data provided by U. S. Forest Service for Apalachicola NF.

Field: COUNTY (Alias: County)

Definition: Name of Florida county

Field: POLY_ACRES (Alias: POLY Acres)

Definition: Acreage of polygon calculated in GIS

Field: STAND_TYPE (Alias: Stand Type)

Definition: Type of stand, whether natural or planted. In this case stand may refer to a stand-level polygon typical of forest management agencies or a land cover-based polygon.

Field Values	Definition
Natural-1	Stand type is designated as natural by the original source, typical of stand-level data.
Planted-1	Stand type is designated as planted by the original source, typical of stand-level data.
Natural-2	Stand type is a natural forested land cover type (except Upland Coniferous which FNAI considers to be primarily semi-natural) based on the Major Land Cover Type.
Planted-2	Stand type is coniferous plantation or wet coniferous plantations based on the Major Land Cover Type.
Undetermined	Information was insufficient to determine whether stand is natural or planted.

Field: MANAME (Alias: Managed Area Name)

Definition: Official name of the Managed Area (conservation land), as determined by the managing agency.

Field: OwnerType (Alias: Owner Type)

Definition: Owner type

Field Values	Definition
Public	Site is within FNAI Conservation Lands and owner is designated as federal, state or local public entity.
Private	Site is not included within the FNAI Conservation Lands database and assumed to be privately owned; or site is within FNAI Conservation Lands but owner is designated as private.

Field: MANAGING_A (Alias: Managing Agency)

Definition: Name of the lead managing agency for the Managed Area (conservation land). Lands not within the FNAI Conservation Lands database have NULL values.

Field: MA_GROUP (Alias: Man Agency Group)

Definition: Managing agency (or private manager) category.

Field Values	Description
Federal Conservation Lands	Managed for conservation purposes by the federal government.
State Conservation Lands	Managed for conservation purposes by state government.
Local Conservation Lands	Managed for conservation purposes by local government (counties and municipalities).
Private Conservation Lands	Managed for conservation purposes by a private individual or organization.
Permanent Conservation Easements	Private land managed for conservation purposes as proscribed by permanent conservation easement; easements may be held and monitored by public agency or private organization.
Other Private Lands	Managed by a private individual or entity without conservation designation.

Field: Major_LC (Alias: Major Land Cover Type)

Definition: Land cover type making up majority of the polygon determined by overlap calculation of LPE polygon with Florida Cooperative Land Cover Map (CLC). See LC_Source for version of CLC used. See LPEGDB v.3 Summary Report for a description of land cover assignment to LPE polygon.

Field: LC_Source (Alias: Land Cover Source)

Definition: Source used to assign land cover type in Major_LC field.

Field Values	Description
CLC v2.3	Cooperative Land Cover Map v2.3, published Dec 2012 by FNAI: http://fnai.org/LandCover.cfm
CLC v.3	Cooperative Land Cover Map v.3, published Oct 2014 by FWC: http://myfwc.com/research/gis/applications/articles/Cooperative-Land-Cover
CLC v2.3 & 3	Cooperative Land Cover Map version 2.3 and 3 were used in combination to assign land cover type; combination primarily applies to wet coniferous plantations where CLC 2.3 classified polygon as Coniferous Plantations and v.3 classified polygon as Cultural Palustrine.
FNAI	Land cover type was assigned by FNAI based on current aerial photo interpretation or other information determined to be more accurate than CLC v2.3 or v.3. Review by FNAI was opportunistic during the course of data review for other purposes.

Field: LPE_PT_ID (Alias: LPE Condition Pt ID)

Definition: Unique identifier for FNAI ecological condition point informing that polygon. May be linked to feature class FNAI_LPE_Condition_Data_v3.

LPE_Condition_by_Mgmt_Class_v3 Attributes

The LPE_Condition_to_Mgmt_Class_v3 is a polygon feature class of confirmed longleaf sites with ecological condition data from multiple sources that has been crosswalked into three management levels described in the Range-wide Conservation Plan for Longleaf Pine (America's Longleaf 2010): acres to maintain, acres to improve, and acres to restore.

Attributes

The LPE_Condition_to_Mgmt_Class_v3 feature class includes all of the attributes described above for LPE_Occurrence_Status_v3. The additional ecological condition attributes in LPE_Condition_to_Mgmt_Class_v3 are described below.

Field: LLP_DOM_mc

Definition: Longleaf Pine Dominance. Indicates the presence and dominance of longleaf pine in the canopy. Field data were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: Dominant
I	Improve: Codominant to Rare
R	Restore: Absent from canopy

Field: LLP_AGE_mc

Definition: Longleaf Pine Age Structure. Indicates the age structure of longleaf pine in the canopy and sub-canopy. Field data were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: Multiple (2+) age classes
I	Improve: One age class
R	Restore: Absent

Field: OLDER_LLP_mc

Definition: Older-mature Characteristics. Indicates the presence of flat-topped trees (more than one) within the stand. *This is a new field for v.3. No data have been crosswalked for version 3.

Field Values	Definition
M	Maintain: Yes
I	Improve: Not evident
R	Restore: N/A

Field: LLP_EARLY _mc

Definition: Longleaf Pine Early Regeneration: Estimated cover of longleaf pine regeneration that is <6' tall. Field values crosswalked to management classes (mc). *This is a new field for v.3. No data have been crosswalked for version 3.

Field Values	Definition
M	Maintain: 5 - 15%
I	Improve: <5 or >15%
R	Restore: Not evident

Field: LLP_ADVANC _mc

Definition: Longleaf Pine Advanced Regeneration: Estimated cover of longleaf pine regeneration that is 6-16' tall. Field values crosswalked to management classes (mc). *This is a new field for v.3. No data have been crosswalked for version 3.

Field Values	Definition
M	Maintain: 5 - 15%
I	Improve: <5 or >15%
R	Restore: Not evident

Field: LLP_BA _mc

Definition: Longleaf Pine Basal Area. Estimated basal area in square feet per acre of longleaf pine for the entire stand. Field values werew crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: 10 - 70
I	Improve: <10 or >70
R	Restore: N/A

Field: FIREHW_COV _mc

Definition: Fire Tolerant Hardwood Cover. Percentage of the ground within the stand covered by the general extent of turkey oak, sand post oak, bluejack oak, blackjack oak, southern red oak, and dogwood within the midstory and canopy (any stem greater than 16 feet tall) Field values were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: <=15%
I	Improve: 16 – 55%
R	Restore: >55%

Field: OTH_HW_COV _mc

Definition: Other Hardwood Cover. Percentage of the ground within the stand covered by the general extent of hardwood species excluding turkey oak, sand post oak, bluejack oak, blackjack oak, southern red oak, and dogwood within the midstory and canopy (any stem greater than 16 feet tall); typical species are laurel oak, water oak, sweetgum, live oak, sand live oak. Field values were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: <=5%
I	Improve: 6 – 35%
R	Restore: >35%

Field: OTHPINE_COV _mc

Definition: Other Pine Cover. Percentage of the ground within the stand covered by the general extent of pine species other than LLP within the midstory and canopy (any stem greater than 16 feet tall). Field values were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: <=5%
I	Improve: 6 – 35%
R	Restore: >35%

Field: MIDST_COV _mc

Definition: Midstory Cover. Percent cover of midstory woody-stemmed plants (including vines and pines) from 6 to 16 feet tall. Field values were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: <=20%
I	Improve: 20 – 75%
R	Restore: >75%

Field: SHRUB_COV _mc

Definition: Shrub Cover. Percentage of the ground within the plot covered by the general extent of woody plants excluding vines and pines from the ground to 16 feet tall. Field values were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: <=30%
I	Improve: 30 – 75%
R	Restore: >75%

Field: AVSHRUB_HT _mc

Definition: Average Shrub Height. Average height of woody plants excluding vines and pines from the ground to 16 feet tall. Field values were crosswalked to management classes (mc). *This is a new field for v.3. No data have been crosswalked for version 3.

Field Values	Definition
M	Maintain: <=3 ft
I	Improve: 3 – 6 ft
R	Restore: >6 ft

Field: PYROGR_COV _mc

Definition: Pyrogenic Grass Cover. Percent cover of native perennial graminoids that are maintained by periodic fire. Field values were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: >20%
I	Improve: 1 – 20%
R	Restore: <1%

Field: HERB_COV _mc

Definition: Herbaceous Cover. Percent cover of all native non-woody, soft-tissued plants regardless of height, including non-woody vines, legumes, and graminoids (grasses, sedges, rushes); does not include non-native pasture grasses. Field values were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: >35%
I	Improve: 10 – 35%
R	Restore: <10%

Field: FIRE_EVID _mc

Definition: Fire Evidence. Describes the general time period since last fire as determined by visual evidence within the stand (e.g. fire scars on trees, standing blackened shrubs). Field values were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: <=5 yrs
I	Improve: >5 yrs
R	Restore: Not evident

Field: INVPL_COV _mc

Definition: Invasive Plant Cover. Percent cover of invasive exotic plants within the stand; includes only FLEPPC Category I and II listed species. *This is a new field for v.3. No data have been crosswalked for version 3.

Field Values	Definition
M	Maintain: <1%
I	Improve: 1 – 10%
R	Restore: >10%

Field: COND_RANK _mc

Definition: Condition Rank. Describes the ecological condition relative to a natural system (natural vegetative plant community). Field values were crosswalked to management classes (mc).

Field Values	Definition
M	Maintain: Excellent or Good
I	Improve: Fair
R	Restore: Poor or Very Poor.

Appendix F

Longleaf Pine Ecosystem Geodatabase v.3 User Guide

Steps for Accessing Data

1. Fill out and return the GIS Data License Agreement to:

Brian Camposano, State Forest Ecologist
Brian.Camposano@FreshFromFlorida.com
(850) 681-5890

2. You will receive a link via email to download a zip file: LPEGDB_v3_Sep2015.zip

3. Extract the zip. Contents will extract into a folder named LPEGDB_v3_Sep2015.

4. The folder contents are a Map Package: LPEGDB_v3_Map.mpk and pdf documents including LPEGDB reports.

5. Double-click the Map Package to open it. The map will automatically open in ArcMap to display LPEGDB layers (see next pg of this guide). The actual geodatabase will be extracted to your hard drive. View the source of any LPE layer in ArcMap to determine the file path to the LPEGDB_v3.gdb.

The LPEGDB_v3.gdb is an ArcGIS 10.2 file geodatabase. Users are encouraged to refer to the metadata associated with each feature class and LPEGDB v.3 report for details about attributes.

For technical data questions please contact:

Amy Knight, GIS Program Specialist
aknight2@admin.fsu.edu
(850) 224-8207 x214

LPEGDB_v3_Map

Double-clicking the map package – **LPEGDB_v3_Map.mpk** – will automatically open layers in ArcMap with the default view.

Layers occur in Groups:

LONGLEAF PINE ECOSYSTEM OCCURRENCE STATUS

Each layer within this group has a definition query on the LPE_Occurrence field of the *LPE_Occurrence_Status_v3* feature class.

ECOLOGICAL CONDITIONS

Expand this group to view layers based on 9 different condition attributes. Only polygons with confirmed longleaf are included in this group. All layers in this group are based on the *Condition_by_Mgmt_Class_v3* feature class.

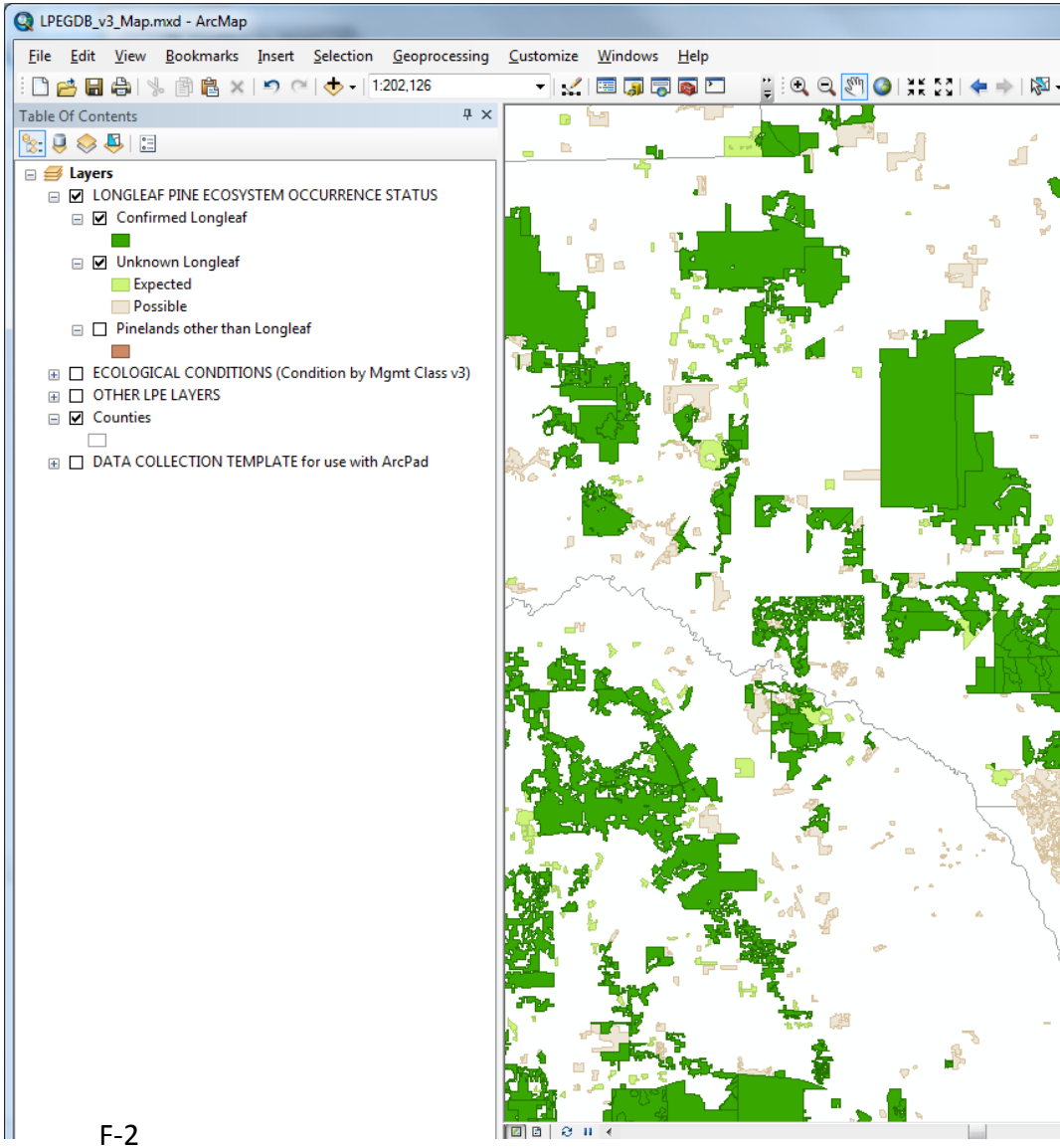
OTHER LAYERS

Expand this group to view layers based on land cover type and managing agency. Only polygons with confirmed longleaf are included in this group. All layers in this group are based on the *Condition_by_Mgmt_Class_v3* feature class.

DATA COLLECTION TEMPLATE

This group contains an empty point feature class for use with ArcPad Data Collection. See separate Rapid Assessment Training Guides for use.

Default View



LPEGDB_v3.gdb

Click Source Tab in ArcMap to determine file path to unpackaged data. It should resemble path shown.

The many-digit code in folder name will differ for each user.

LPE_Occurrence_Status_v3 polygons

Includes confirmed longleaf pine sites, potential longleaf sites where occurrence status remains unknown, and remaining pinelands that are known not to be longleaf sites.

LPE_Condition_by_Mgmt_Class_v3 polygons

Includes confirmed longleaf sites with ecological condition attributes from multiple sources that have been crosswalked into management classes for Maintain, Improve, and Restore.

LPE_Rapid_Assessment_Field_Points

This is an empty feature class that serves as a template for ArcPad field data collection based on the Rapid Assessment v.3 data collection model. See Rapid Assessment Training Guides for instructions.

CONTENTS