Quick Reference Table of LEO Rapid Assessment Attributes v.3

November 2019

Spatial scale	Field Name *= essential	Field Definition	Field Abbreviation	Field values
	Survey Date*	Date of the field assessment	SURVEYDATE	Mm/dd/yyyy
	Surveyor*	Surveyor name	SURVEYOR	Surveyor name or initials
	Point Type*	Indicates whether point was collected with GPS or plotted on-screen.	POINT_TYPE	GPS plotted – field on site plotted – field at boundary plotted - remote
Stand	Survey Status*	Indicates LLP is present, absent, or the site is inaccessible (not evaluated), and if a longleaf ecosystem assessment was done.	SURVEYSTAT	LLP present – assessed LLP present – not assessed LLP absent – not assessed no access – not assessed
Stand	Other Pine Present	Indicates if non-longleaf pine are present and if they appear to be of planted or natural origin.	OTH_PINEPR	none other pine - planted other pine - natural
Stand	Other Pine Species	Indicates predominant species of other pine present.	OTH_PINESP	loblolly slash shortleaf pond pitch unknown or other pine species none
Stand	Fire evidence	Describes whether or not there is evidence that fire has occurred at the site and the general fire frequency, as determined by visual evidence (e.g. fire scars on trees, blackened tree trunks, standing blackened shrubs, woody understory density and height).	FIRE_EVID	no evidence of fire evidence of fire exists, but not recent or frequent evidence of frequent fire evidence of recent fire, but not frequent
Stand	Rare Species Observed	Rare animal or plant species observed.	RARE_SP	none Gopher tortoise –burrow Gopher tortoise Other – provide in comments

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Stand	Site Comment	Provides additional information about the site and the Survey Status chosen.	SITECOM	Revisit to assess (temporary placeholder) Data from secondary source only indicates LLP P/A Other pine grassland Natural treeless grassland/prairie Live longleaf pine absent in any stratum (eg., clear cut, storm damage, wildfire) but vegetation clearly indicates presence of a longleaf ecosystem Other (specify in comments field below) None (no comments)
IF LONGLEAF NOT ASSESSED STOP HERE. IF LONGLEAF ASSESSED, CONTINUE DATA COLLECTION				
Stand	Longleaf Stand Type*	Indicates whether the longleaf appear to be of planted or natural origin.	LLP_TYPE	natural planted not applicable
Stand	Longleaf Dominance*	Indicates dominance of LLP in the stand relative to other tree species. Dominant: LLP occupies the highest percentage of area of the stand Codominant: LLP occupies approximately the same percentage as other stand tree species Occasional-rare: LLP present but a low percentage relative to other stand tree species, or if the only trees present are very sparse (<1% cover) longleaf regeneration or saplings. Live longleaf pine in any stratum absent	LLP_DOM	dominant codominant occasional-rare live LLP absent in any stratum
Stand	Flat-top Tree Presence	Indicates the presence and abundance of flat-topped trees observed within the stand.	FLAT_TOPS	none single tree 2-3 trees >3 trees
Stand	Large Longleaf Pine	Indicates the presence and abundance of Longleaf pines > 14” dbh observed within the stand.	LRG_LLP	none single tree 2-3 trees >3 trees

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Stand	Longleaf Stand Age*	Predominant LLP age class determined by visual estimate and judgement of field evaluator. Older mature: large longleaf (>12" dbh) are common and/or flat-top trees are present. If tree ages are known, the canopy longleaf trees should average 50+ years old. Younger Mature: the majority of trees in the stand have reached reproductive status, large (>12") or flat-top trees are rare or absent. If tree ages are known they should average 20-50 years. Pre-reproductive: majority of longleaf in the stand are small in stature and little or no reproduction is evident because the trees are too young. If tree ages are known they average < 20 years. Not applicable: no live longleaf present in any stratum	LLP_ST_AGE	older mature younger mature pre-reproductive not applicable
Stand	Longleaf Regeneration	Estimated cover of LLP regeneration from grass stage to 2" dbh.	LLP_REGEN	not evident < 1% 1 - 5% 5 - 15% > 15%
Stand	Longleaf Saplings	Estimated cover of LLP saplings from > 2" to < 5" dbh in the stand.	LLP_SAPL	not evident < 1% 1 - 5% 5 - 15% > 15%
Stand	Longleaf Canopy Age Classes	Indicator of an even- or uneven-aged stand; the number of age classes of mature LLP present in the canopy and sub-canopy. Excludes LLP_REGEN, and LLP_SAPL which are captured separately.	LLCAN_AGCL	at least 3 age classes 2 age classes 1 age class mature trees absent
Basal area - if within the stand, estimate from GPS point; If outside the stand looking in, estimate for the stand.				

Spatial scale	Field Name *= essential	Field Definition	Field Abbreviation	Field values
From point if pt-type = GPS	Longleaf Total Basal Area	Estimated basal area of all longleaf pines ≥ 5" dbh for the entire stand rounded to the nearest ten.	LLP_TOT_BA	0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, >180
From point if pt-type = GPS	Other Pine Basal Area	Estimated basal area in square feet per acre of other pines (not LLP) with dbh ≥ 5" for the entire stand rounded to the nearest ten.	OTHPINE_BA	See LLP_TOT_BA.
From point if pt-type = GPS	Hardwood Canopy Basal Area	Estimated basal area in square feet per acre of canopy hardwoods with dbh ≥ 5' for the entire stand rounded to the nearest ten.	HW_CAN_BA	See LLP_TOT_BA.
All percent cover values (except invasive plants): if within the stand, estimate within 20 m radius circle around GPS point; If outside the stand looking in, estimate for the stand. See protocol for further guidance.				
In 20 m radius circle if pt-type GPS	Midstory Cover*	Percentage of the ground within the stand covered by all woody plants other than LLP that are greater than 10 feet tall and that were not counted in the canopy (< 5" dbh). Spaces between leaves and stems count as cover.	MIDST_COV	0 < 1% 1 - 5% 6 - 15% 16 - 25% 26 - 35% 36- 45% 46 - 55% 55 - 65% 66 - 75% 76 - 85% 86 - 95% 96 - 100%
In 20 m radius circle if pt-type GPS	Midstory Fire Tolerant Hardwood Cover:	Percentage of the ground within the stand covered by fire tolerant hardwoods such as turkey oak, sand post oak, bluejack oak, blackjack oak, black oak, post oak, southern red oak, black hickory and flowering dogwood within the midstory (stems greater than 10 feet tall that were not counted a canopy [< 5" dbh]). Spaces between leaves and stems count as cover.	FIREHW_COV	See MIDST_COV.
In 20 m radius circle if pt-type GPS	Tall Shrub Cover*	Percentage of the ground within the stand covered by woody plants other than LLP that are 3 – 10 feet tall. Spaces between leaves and stems count as cover.	TSHRUB_COV	See MIDST_COV.

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In 20 m radius circle if pt-type GPS	Short Shrub Cover*	Percentage of the ground within the stand covered by woody plants other than LLP that are ≤3 feet tall. Spaces between leaves and stems count as cover. <1% includes zero and "not visible" is only used when outside a stand looking in, and the stratum is not visible because of a visual barrier. This might due to topography (berms, roadcuts) or structures (fencing, walls).	SSHRUB_COV	0 < 1% 1 - 5% 6 - 15% 16 - 25% 26 - 35% 36- 45% 46 - 55% 55 - 65% 66 - 75% 76 - 85% 86 - 95% 96 - 100% not visible
In 20 m radius circle if pt-type GPS	Native Herbaceous Cover*	Percent cover of all native non-woody, soft-tissue plants regardless of height, including non-woody vines, legumes, and graminoids (grasses, sedges, rushes). Spaces between leaves and stems count as cover.	HERB_COV	See SSHRUB_COV.
In 20 m radius circle if pt-type GPS	Native Pyrogenic Graminoid Cover	Percent cover of native perennial pyrogenic graminoids (grasses and grass-like species) that are maintained by periodic fire; includes, but not limited to wiregrass (*Aristida stricta*, *A. beyrichiana*), dropseed grasses (*Sporobolus* spp.), cutover muhly (Muhlenbergia capillaris var. trichopodes), toothache grass (*Ctenium aromaticum*), little bluestem (*Schizachyrum scoparium*), splitbeard bluestem (Andropogon ternarius), Elliott's bluestem (*A.gyrans* var. *gyrans*), big bluestem (*A. gerardii*), Indiangrasses (*Sorghastrum* spp.), slender bluestem (*Schizachyrum tenerum*), Chapman's beaksedge (*Rhynchospora chapmanii*). Excluded from this group are species that commonly proliferate after soil disturbance (ie, weedy species) such as: switchgrass (*Panicum virgatum*) and old field broomsedge (*A. virginicus*).	PYROGR_COV	See SSHRUB_COV.
In 20 m radius circle if pt-type GPS	Non-native Herbaceous Cover	Percent cover of non-native herbaceous species, often grasses, that are indicators of fallow agriculture or planted pastures. Typically includes pasture grasses such as bahiagrass, centipede grass, carpet grass, digitgrass, bermudagrass, and limpograss.	NONNAT_COV	See SSHRUB_COV.
Invasive plant cover and remaining attributes: estimate for stand				

Spatial scale	Field Name *= essential	Field Definition	Field Abbreviation	Field values
Stand	Invasive Plant Cover	Percent cover of invasive exotic plants (woody and herbaceous) within the stand. Refer to "A Field Guide for the Identification of Invasive Plants in Southern Forests" by James Miller 2010: https://www.srs.fs.fed.us/pubs/gtr/gtr_srs119.pdf.	INVPL_COV	not evident < 1% 1 - 3% 4 - 10% > 10%
Stand	Surveyor Ecological Rank	Surveyor's impression of the ecological condition of the vegetation relative to an undisturbed, well-maintained natural system. excellent: plant species composition, abundance and structure are characteristic of conditions prevalent under historic fire regime. good: plant species composition, abundance and structure are only partially characteristic of conditions previously prevalent under historic fire regime. fair: vegetation retains some components and/or structure characteristic under historic fire regime. Components of original pyrogenic groundcover are present, but sparse. low: vegetation retains little of the original community species components and/or structural characteristics. Components of original pyrogenic groundcover are not evident.	SURV_RANK	excellent good fair low
Stand	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

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	Comments	Additional optional information	COMMENTS	

Note: the SE LEO RA relies on the USDA NRCS Plants Database (USDA, NRCS 2018) for classification of growth habit for vascular plants. The USDA recognizes the following growth habits: forb/herb, graminoid, shrub, subshrub, tree, vine. The SE LEO RA definition of shrub is all woody vegetation < 10 ft tall and defines woody to be USDA classes: shrubs, subshrubs, trees and vines. The USDA classification does not distinguish woody from herbaceous vines; for the SE LEO RA we anticipate that most vines observed and appreciably contributing to cover will be woody (*Vitis* spp., *Smilax* spp., *Gelsiminum* spp. for example). *Rubus* spp. are considered by USDS as subshrubs and thus in the LEO RA are counted as woody.

References

NatureServe. 2018. Field Guide of Southern Open Pine Rapid Assessment Metrics (v1.9) (Aug 29). Durham, NC.

America's Longleaf Restoration Initiative. 2014. General Longleaf Pine Maintenance Condition Class Metrics.

Florida Natural Areas Inventory and Florida Forest Service. 2018. Longleaf Pine Ecosystem Geodatabase v.4 Final Report. Sept 2018.

USDA, NRCS. 2018. The PLANTS Database (http://plants.usda.gov, 21 December 2018). National Plant Data Team, Greensboro, NC 27401-4901 USA.

Miller, J., Chambliss, Loewenstein, N. 2010. A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS–119. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 126 p. https://www.srs.fs.fed.us/pubs/gtr/gtr_srs119.pdf https://www.fs.usda.gov/treesearch/pubs/35292