

Habitat Quantification Tool Development for Sandhill and the Florida Pine Snake



Final Report to the Florida Fish and Wildlife Conservation Commission

June 2019





Cover Photographs:

top:	Florida pine snake (Pituophis melanoluecus mugitus), FNAI
center:	Sandhill at Gold Head Branch State Park (Dan Hipes, FNAI); this site provides excellent habitat for the Florida pine snake.
bottom:	Long unburned sandhill (Dan Hipes, FNAI); this site is currently unsuitable for the Florida Pine Snake.

Recommended citation: Florida Natural Areas Inventory and NatureServe. 2019. Habitat Quantification Tool Development for Sandhill and the Florida Pine Snake. Report to the Florida Fish and Wildlife Conservation Commission, Tallahassee, FL.

ABSTRACT

NatureServe and Florida Natural Areas Inventory (FNAI), in collaboration with Environmental Defense Fund's (EDF) Habitat Team, have been developing Habitat Quantification Tools (HQTs) to evaluate habitat quality for a core group of animal species that are characteristic of open pine systems. The tools compare site data characterizing canopy, mid-story, shrub, and ground cover vegetation, collected through on-the-ground rapid assessment. Reference values were based on species habitat needs and derived from sites in reference condition. The result is a set of values that reflect the ecosystem's composition, structure, function, and landscape context. The goals of this project were refinement of a Sandhill HQT, development of a Florida Pine Snake HQT, and production of a user manual for employment of these tools. During initial periods of this project FNAI led a series of field tests to refine and get feedback on the Sandhill HQT metrics and scoring. The recommended refinements were reviewed, considered, and incorporated into version 2.0 of the Sandhill HQT, which is the foundation of the Florida Pine Snake HQT with the addition of metrics that specifically address habitat features that support essential behaviors of the species. In order to develop a list of potential metrics for Florida pine snake habitat, FNAI contacted species experts within FWC and reviewed publications describing habitat needs and use. We developed a series of metrics (parameters) addressing soil suitability, above-ground cover, and below ground refuges. We then requested feedback from the species expert team. Adjustments were made to create version 2.4 of the Florida Pine Snake HQT. User manuals were produced for both the Sandhill HQT and the Florida Pine Snake HQT

ACKNOWLEDGMENTS

Environmental Defense Fund provided funding and coordination for the initial phase (prior to this project) of Habitat Quantification Tool (HQT) development; Paxton Ramsdell (EDF Southeast Habitat Program Manager) was instrumental in securing funding for this project and remains interested in practical implementation of the tools. We thank Joe Prenger (USFWS) for his interest and support of this project. Joe was always willing to share his time and ideas throughout the project. We thank Jennifer Goff (FWC Conservation Planning Services) for her initial thoughts on use of the HQTs and managing the contract for this project. We thank Dan Sullivan for agreeing to have this work done as a Task under the master contract administered by his office within FWC's Division of Habitat and Species Conservation. NatureServe was a sub-recipient of this Task; their work on Rapid Assessments is the foundation of the HQT effort. Michael Lee (NatureServe) was the programmer for the HQT; his ecological knowledge was essential to the details of habitat scoring. Finally, we thank Susan Carr (Northeast Florida Land Trust), Glenn Bartolotti (FWC field technician), and Blair Hayman (FWC Regional Species Conservation Biologist) for their participation in field tests and helpful comments for improvement of the HQTs

CONTENTS

ABSTRACT	.iii
ACKNOWLEDGMENTS	.iii
CONTENTS	.iv
BACKGROUND	1
WORK UNDER THIS TASK	1
First Interim Period (August-September 2018)	1
Second Interim Period (October-December)	2
Third Interim Period (January-March 2019)	5
Final Interim period (April – June 2019)	7

BACKGROUND

NatureServe and Florida Natural Areas Inventory (FNAI), in collaboration with (Environmental Defense Fund's (EDF's) Habitat Team, initiated development of Habitat Quantification Tools (HQTs) to evaluate habitat quality for a core group of animal species that are characteristic of open pine systems. The tools compare site data characterizing canopy, mid-story, shrub, and ground cover vegetation, collected through on-the-ground rapid assessment. Reference values were based on species habitat needs and derived from sites in reference condition. The result is a set of values that reflect the ecosystem's composition, structure, function, and landscape context. HQT output values include a numeric score and a categorical excellent, good, fair, or poor score for the overall assessment as well as the individual strata and landscape scores.

The goal of this project was to continue to refine the quantification tool for rapid assessment of longleaf pine systems and to provide utility for a wide range of landowners, land managers, wildlife technicians, and other natural resource practitioners who are interested in habitat or system evaluations. The tools are not designed to accommodate detailed habitat monitoring data, but are rapid assessment tools expected to provide a score or measure of habitat quality and possibly guidance for improvement. Florida Fish and Wildlife Conservation Commission (FWC) with support from U.S. Fish and Wildlife Service has agreed to fund continued development of the HQT for possible use with landowner assistance programs. This work is being done as a Task Assignment under an existing FWC contract with FNAI. Leading up to this Task, NatureServe developed a prototype Sandhill HQT and, with assistance from FNAI, conducted an initial field test in north-central Florida. Revisions to several of the value ranges were proposed and then revised under this Task with additional field testing.

Specific items in this Task are refinement of a Sandhill HQT, development of a Florida Pine Snake HQT, and production of a user manual for employment of these tools. The Sandhill HQT is the foundation of the Pine Snake HQT with the addition of a few metrics that specifically address habitat features that support essential behaviors of the species. Although there is a great deal of overlap, a user manuals was produced for both the Sandhill and Florida pine snake HQT.

WORK UNDER THIS TASK

First Interim Period (August-September 2018)

Initial work under this task focused on the refinement of the sandhill HQT. New field forms with proposed changes to the value ranges were created for further field testing. A field trip was conducted September 4 through 6 in Clay County, Florida. Participants included staff from FNAI, NatureServe, and North Florida Land Trust with assistance from the staff at Gold Head Branch State Park and Camp Blanding Training Site. The team identified field sites of known quality and developed consensus on the perceived condition of specific strata. We then recorded the various habitat variables (metrics) describing vegetative structure and composition of each site. The values were translated to ratings of excellent, good, fair and poor (later revised to A, B, C, and D); which were evaluated against our initial judgment for each metric. Notes from the team are summarized for each metric in Appendix A. Copies of the field forms completed during the September field trip also are included in Appendix A.

Second Interim Period (October-December)

The recommended refinements from the September field test were reviewed, considered, and incorporated into version 2.0 of the Sandhill HQT. In order to test these refinements we conducted a one-day field test in Nassau County at Ralph E. Simmons State Forest. Participants included staff from FNAI (Dan Hipes), North Florida Land Trust (Susan Carr), and USFWS (Joe Prenger). Data was recorded at three sites of varying quality. Summarized notes from the October test are provided below along with follow-up consensus from the FNAI/NatureServe/EDF team. Many of these ideas were considered previously, but are included here for completeness.

Field comments from Dan Hipes, Joe Prenger and Susan Carr, October 17, 2018:

- 1. Regarding recording values for longleaf pine only in the canopy metrics it was mentioned in the field that although longleaf pine is characteristic of the sandhill system, other southern yellow pine provide a similar ecological role, or at least some benefit to the system.
 - Response: Although we recognize some benefit of other pine species, we want the tool to reflect the importance of longleaf pine to the sandhill system. This may encourage longleaf pine planting in restoration areas or sites receiving funds for wildlife habitat improvements. A reviewer also noted that "other pine species have difficulty regenerating under an appropriate prescribed burning regime needed to maintain habitat quality, making the other pines much less sustainable in providing long-term canopy benefits"
- 2. Consider adding canopy hardwood cover instead of or in addition to canopy hardwood basal area.
 - Response: Recording of canopy hardwood basal area along with the other basal area measurements is efficient. Goals of America's Longleaf (<u>http://www.americaslongleaf.org/</u>) specifically address canopy hardwood basal area.
- 3. Consider using a stem count (rather than cover estimate) for hardwood and pine midstory.

Response: Although stem counts are a reasonable approach to documenting the level of midstory components, the cover estimate method was chosen to be consistent with America's Longleaf.

4. Consider adding the 5 inch rule for differentiating between midstory and canopy rather than just the minimum height of 10 ft. Differentiating midstory and canopy oaks continues to be problematic.

- Response: Field assessors have the option to use the 5 inch rule if it seems suitable for a site, but not explicitly requiring it allows flexibility needed for varying sites.
- 5. The B range (formerly good) for Midstory Fire-Tolerant Hardwood Cover may allow too much hardwood midstory. The C range is comparatively narrow.

Response: Addressed; see also # 6

- 6. There is a mistake on the field form in the A range for Midstory Fire-Tolerant Cover; the value conflicts with the field guide. The values in the field guide are 2 to <10%, 10 to 20% or <2%; <20 to 25%; >25% which compresses the c (fair) range. Field team recommends the following: Midstory Fire-Tolerant Hardwood Cover (suggested cutoffs): 2 to 5%; 5 to 15% or <2%; 15 to 25; >25. The cuttoffs for Midstory Fire-Intolerant look fine.
 - Response: The discrepancy was corrected by accepting the field team recommended cutoffs. The changes are reflected in the latest version of the Xeric Longleaf Pine (Sandhill) HQT field forms, field guide, and web tool as well as the prototype for the Florida Pine Snake HQT.
- 7. Time since fire has a substantial effect on herbaceous ground cover (percent). We visited otherwise similar sites with vastly different estimates for cover resulting from a recent (6 months) fire (How is this accounted for?).
 - Response: We've considered adding a check box on the field form to indicate if a site has burned in the last 6 months. It has been proposed that this would bump the score up one category but has not been implemented pending additional field data to support the change.
- 8. We had difficulty in consistently estimating herbaceous groundcover using the "canopy" technique. It is particularly difficult for wiregrass, which can have a broad indistinct "canopy", but a very low cover. The idea of using a series of (virtual) subplots was brought up. We also talked about training examples (photos/figures).
 - Response: The "canopy" technique of estimating cover is a generally accepted and employed method and is consistent with Americas Longleaf based on the goal cover value ranges. We recognize that there is difficulty in assessing cover in a large plot but believe it takes into account heterogeneity within the plot and overall site.
- 9. Consider a check box for planted stands.
 - Response: A planted stand check box has been considered previously. We presume the structural data will "tell the story", but will continue to consider the value of this information.

In order to develop a list of potential metrics to evaluate Florida pine snake habitat we contacted Kevin Enge and Anna Farmer. Kevin provided the Status Assessments of the Southern Hognosed snake, Florida Pinesnake, Short-tailed Kingsnake and eastern Diamondback Rattlesnake in Florida (Enge et al. 2016). We also reviewed the Range-wide Habitat Suitability Models for At-Risk Species in the Longleaf Pine System (Crawford Maerz 2018), and the Species Action Plan for the Florida Pine Snake (FWC 2013). Although these documents provide some information on general habitat needs, their focus is on large-scale conservation and lacked the level of detail desired for development of site-specific metrics. The most useful reference was a study conducted at the Joseph W Jones Ecological Research Center in Baker County (southern) Georgia, where Miller et. al. (2012) described home range size and habitat use by Florida pine snake. That study showed that while at the surface, pine snakes selected sites with more shrub cover and less bare ground than generally available. It appears that grasses also were important in their study area, but the result was not significant. Southeastern pocket gopher burrows accounted for more than 60 percent of the below ground observations. Kevin Enge also recommended that we talk to Glenn Bartolotti, who is/was working for FWC on a Florida pine snake telemetry project at two sites in northern Florida and has insights on microhabitat use.

FNAI (Dan Hipes) contacted Blair Hayman, Glenn's supervisor, who is conducting research on habitat use by pine snakes. Blair provided a raw dataset that included a series of parameters recorded at specific sites where pine snakes were observed. Although the data were collected using a different protocol the parameters are very similar to those included in the sandhill HQT, emphasizing the importance of using the sandhill HQT as the foundation of the Florida pine snake HQT. Three parameters addressed in Blair's project that are not included in the sandhill HQT are bareground cover, litter cover, and coarse woody cover. These were given consideration for inclusion in the pine snake HQT, but Blair's initial analyses as well as the Miller et al. (2012) mentioned above showed no correlation with use.

FNAI (Dan Hipes) and USFWS (Joe Prenger) staff met with Glenn at Suwannee Ridge WEA to discuss and consider additional habitat features that are essential to Florida pine snakes. We tracked the location of 9 pine snakes. Most of them were underground in pocket gopher burrows (reinforcing their importance at sites that support pocket gophers), or gopher tortoise burrows. One pine snake was in an unidentified mammal burrow; one was presumed to be in a stump hole (rotted root cavity); and two were above ground under the cover of resprouting oak trees at separate locations. Glenn emphasized the importance of these tree resprouts (subsequent to prescribed fire) and dense wiregrass and bluestem patches, which has become apparent to him based on the high percentage of individuals observed in these situations. Glenn's observations are consistent with Miller et al (2012; mentioned above).

Following the field trip, taking into account the information presented in the recent documents mentioned above and insights from the field we developed the following list of parameters to include in Florida pine snake HQT:

Soil Suitability (based on USDA soil drainage class)

- Excessively drained to well drained soils cover more than 500 acres.
- Excessively drained to well drained soils cover 200 to 500 acres.
- Excessively drained to well drained soils cover 100 to 200 acres.

- Excessively drained to well drained soils cover 1 to 100 acres
- Excessively drained to well drained soils absent

Woody above-ground thermoregulation cover

- Two or more coppiced tree resprouts per acre
- Coppiced tree resprouts present, but less than two per acre
- Coppiced tree resprouts absent

Herbaceous above-ground thermoregulation cover

- Bunch grasses covering more than 10 percent of the ground
- Bunch grasses present but less than 10 percent of the ground
- Bunch grasses absent

Refugia (The below items are y/n check boxes in the prototype; we are considering how to further quantify these items.)

- Pocket gopher burrows
- Other mammal burrows
- Gopher tortoise burrows
- Stump holes (as indicated by remaining cut stumps and/or standing snags)

These parameters were added to the Sandhill HQT to produce the prototype Florida pine snake HQT, with the overall site score being calculated by multiplying the combined essential behaviors score (0 to 1) by the other overall habitat metric score (i.e. the pine snake HQT score cannot be better than the stand-alone sandhill score).

Third Interim Period (January-March 2019)

Following the delivery of the second interim report we once again requested feedback from Kevin Enge, who we felt had the most experience among our partners with pine snake habitat needs. Kevin confirmed that our selected parameters were important with some uncertainty about the relative importance of coppiced shrubs across the range of pine snakes. The tool's score calculations were adjusted to reflect the equal importance of bunch grasses for above-ground cover.

We also met with Tony Grossman (FWC, Office of Conservation Planning Services) to get his insights on the Pine Snake HQT as well as discuss considerations for implementation of the tool as part of a landowner incentive/assistance program. Tony's comments helped refine names and definitions of the metrics; he also provided helpful thoughts on scoring.

FNAI staff met with Joe Prenger, Blair Hayman and Glenn Bartolotti at Fort White Wildlife and Environmental Area to once again look at specific locations used by pine snakes and discuss habitat characteristics that are apparently important based on telemetry data and specific locations where pine snakes have been observed. We tracked a radioed pine snake to a gopher tortoise burrow and another to a small shrub under which it was "thermoregulating" (basking), again, reinforcing the need for this kind of structure. Some cursory data was collected to complete the Florida pine snake HQT field form to make sure the parameter values could be determined in the field.

FNAI staff also visited a location at Jennings State Forest that has multiple records for pine snake observations to complete the field form and later consider the appropriateness of the site score. We also revisited test locations for the sandhill HQT at Gold Head Branch State Park and Camp Blanding Training Site to record data for the essential behaviors section of the pine snake HQT and again consider how well the scores match the apparent habitat

With the series of revisions to the sandhill HQT and the Florida pine snake metrics, the scores seem to be appropriate for the sites that have been visited. The Pine Snake Habitat Quantification Tool (HQT) summarizes individual metric scores into 5 categories:

- 1. Essential Behaviors (required)
- 2. Canopy
- 3. Midstory
- 4. Ground
- 5. Landscape

The individual metrics that comprise each category are averaged by a simple arithmetic mean [sum(Scores)/count(Scores)]. The Essential Behaviors category requires the presence of each sub metric in order to be scored, so if any metric receives a score of zero, the overall score is also zero. The latter 4 category scores are averaged together via arithmetic mean to calculate a Vegetation/Landscape score. This is then averaged with the essential behaviors score via a geometric mean:

$\sqrt{(VegLandScapeScore \times EssentialBehaviorScore)}$

The geometric mean is a widely accepted mathematic summarization technique when all components are necessary in the final answer, or when one category's shortfall can't be addressed by increases in another category.

Because there is high variability (seasonal and spatial) in sites that support Florida pine snake, additional scrutiny is warranted in atypical or anthropogenic habitats. We expect the tool to be useful in atypical habitat, but testing focused on natural areas of varying quality and apparent suitability. An improvement may be needed for marginally suitable sites. Our incomplete knowledge of specific values representing pine snake essential behaviors prevented more than three categories for several of the metrics and a yes or no for refugia parameters. The result is a low level of discrimination toward the unsuitable end of the spectrum, with the score defaulting to 'poor' and an overall score of 0 (as described above). The final results of Blair Hayman's current project (or some follow-up research) may inform some additional refinement that would produce scores in a "fair" category.

A second focus of the third quarter was to produce draft of the user manuals for the sandhill and Florida pine snake HQTs. The document for use with sandhill is designed to be used with other system HQT's that may be developed (an early prototype mesic flatwoods HQT has been

developed and others may follow pending funding). Draft documents were submitted with the third interim report along with the revised prototype Florida Pine Snake HQT field form.

Final Interim period (April – June 2019)

The focus for the final period of this Task was finalizing the HQT user manuals and upload of all of the Florida pine snake test site data onto the HQT web site for review and reference. Revisions were made to the manuals based on comments received from FWC as well as internal review. The user manual for the sandhill HQT is provided as Appendix B. The user manual for the Florida pine snake HQT along with the revised prototype Florida Pine Snake HQT field form is provided as Appendix C. Summarized output scores for all of the pine snake test sites are included in Appendix D. These test data can be viewed in the Florida pine snake HQT by selecting one of the sites in the "select example site" menu. Users can add or adjust the "dummy data" for the essential behaviors to see the current functionality. This is the best way to learn and help further evaluate the tool. Although this current project is ending, further refinement of the essential behavior section would improve the utility of the tool. Future desired use of the tool may help direct refinement. As stated previously, additional metrics or modifications to existing metrics will be considered. We expect the tool to evolve and improve with use.

Appendix A: Summarized notes and field forms from September 4-6, 2018 Sandhill HQT field test:

A field trip was conducted September 4 through 6 in Clay County, Florida to evaluate the scoring of the Sandhill HQT. Locations for testing are shown in Figure 1 below. Participants included staff from FNAI, NatureServe, and North Florida Land Trust with assistance from the staff at Gold Head Branch State Park and Camp Blanding Training Site.

Summarized Notes and metric score cutoffs (from the field forms):

Basal Area of Southern Yellow Pine includes only longleaf pine in in the sandhill HQT. The ranges are consistent with recommendations for red-cockaded woodpecker. Our field scores generally were in the good range for most of our sites. We could see that most were lacking trees in the moderate to high DBH range, and thus had room for improvement. There was some concern that an excellent site (in terms of canopy tree size and age structure) might only score good, but no change is recommended at this time.

Basal Area of Southern Yellow Pine Canopy Trees	Xeric Longleaf Pine Barrens Rating Points	
25-80 ft2/acre basal area of longleaf pine (Pinus palustris)	4	Rating
>15 to <25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris)	3	(1-4):
10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)	2	Raw Value:
<10 or ≥100 ft2/acre basal area of longleaf pine (Pinus palustris)	1	
readings		F

Southern Yellow Pine Canopy Cover scores were similar to the basal area scores and seemed appropriate for the sites. No recommended change.

Southern Yellow Pine Canopy Cover	Xeric Longleaf Pine Barrens Rating Points		
>20 to 55% canopy cover of longleaf pine (Pinus palustris)	4	Rating	٦
>15 to 20% canopy cover or >55 to 70% canopy cover of longleaf pine (Pinus palustris)	3	(1-4):	
5-15% canopy cover or >70 to 80% canopy cover of longleaf pine (Pinus palustris)	2	Raw Value:	
<5% canopy cover or >80% canopy cover of longleaf pine (Pinus palustris)	1		

Based on field data during the August field test (not included in this Task) we revised (reduced) the threshold for Canopy Hardwood Basal Area: initial draft values were as follows: poor = >35; fair = >25-35; good = >20-25; excellent = up to 20. The revised values are shown below. They seem to work as long as the trees were turkey oak or some other fire tolerant hardwood characteristic of sandhill. There was some concern that fire-intolerant hardwoods could make up all or part of this cover, so an additional metric was added to capture that data (see next).

≤5 ft2/acre basal area of hardwood trees	
	4 Rating
>5 to 15 ft2/acre basal area of hardwood trees	3 (1-4):
>15 to 25 ft2/acre basal area of hardwood trees	2 Raw Value
>25 ft2/acre basal area of hardwood trees	1

The draft ranges for fire-intolerant hardwood basal area are shown below. There is concern that this allows too much fire-intolerant hardwoods in the good and excellent ranges. This was not a problem with most of our sites, but may be at other locations. We should address this in future field tests.

Canopy Hardwood Basal Area - Fire-Intolerant	Xeric Longleaf Pine Barrens Rating Points	
≤5 ft2/acre basal area of fire intolerant hardwood trees	4	Rating
>5 to 10 ft2/acre basal area of fire intolerant hardwood trees	3	(1-4):
>10 to 20 ft2/acre basal area of fire intolerant hardwood trees	2	Raw Value:
>20 ft2/acre basal area of fire intolerant hardwood trees	1	
readings		

Based on field data during the August field test (again, not included in this Task) we revised the Midstory Fire-tolerant hardwood metric to account for the fact that some fire-tolerant hardwoods are desirable and should be present in sandhill midstory; we revised the excellent category so that if there was <2% cover the score dropped to good.

We also added a mid-story fire <u>intolerant</u> hardwood cover metric with the value ranges shown below. These seem to allow too much fire-intolerant hardwoods in the midstory, which is detrimental sandhill. Based on values recorded during the September field test, The FNAI recommendation for this metric is excellent = 0; good = <5%, fair = 5-15%, poor = >15%.

Based on field data from the August field test we revised (reduced) the cover values for overall woody cover. Rather than allowing an additional 10% for each category, we allow 5%. This still needs further consideration.

Midstory Fire-Tolerant Hardwood Cover	Xeric Longleaf Pine Barrens Rating Points	
2 to 10% cover of midstory fire-tolerant hardwoods	4	Rating
10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	3	(1-4):
>20 to 25% cover of midstory fire-tolerant hardwoods	2	Raw Value:
>25% cover of midstory fire-tolerant hardwoods	1	
Midstory Fire-Intolerant Hardwood Cover	Xeric Longleaf Pine Barrens Rating Points	
<5% cover of fire-intolerant hardwood midstory	4	Rating
5 to 10% cover of fire-intolerant hardwood midstory	3	(1-4):
>10 to 20% cover of fire-intolerant hardwood midstory	2	Raw Value:
>20% cover of fire-intolerant hardwood midstory	1	1
Midstory Overall Woody Cover	Xeric Longleaf Pine Barrens Rating Points	
2 to <15% cover of woody midstory	4	Rating
15 – 25%, or <2% cover of woody midstory	3	(1-4):
>25 to 35% cover of woody midstory	2	Raw Value:
>35% cover of woody midstory	1	

Based on field data during the September field test, the team recommended that we should consider reducing the cover ranges for good and excellent tall shrubs to better reflect our general assessment of the sites. The team also mentioned that we should considered weighting tall shrub more than short because it is more indicative of fire history than short shrub cover.

The field team further noted that high mid-story and canopy covers can shade the shrub cover and lead to good or excellent scores. This may not be a problem, because the undesirable site conditions will be reflected in other metrics.

all Shrub (3-10 feet tall) Cover Rating Points Barrens Rating Points		
Shrubs 3-10 feet in height average <10% cover.	4	Rating
Shrubs 3-10 feet in height average 10 to <20% cover.	3	(1-4):
Shrubs 3-10 feet in height average 20 to 30% cover.	2	Raw Value:
Shrubs 3-10 feet in height average >30% cover.	1	

Based on field data during the September field test the team noted high variability in the short shrub covers that did not reflect the site quality (e.g. moderate to high cover of gopher apple). This nevertheless seems to be accounted for in the wide ranges in the values for scoring (see below).

Short Shrub (<3 feet tall) Cover	Xeric Longleaf Pine Barrens Rating Points	
Shrubs < 3 feet in height average <25% cover in the assessment area	4	Rating
Shrubs < 3 feet in height average 25 to 35% cover in the assessment area	3	<mark>(1-4)</mark> :
Shrubs < 3 feet in height average >35 to 45% cover in the assessment area	2	Raw Value:
Shrubs < 3 feet in height average >45% cover in the assessment area	1	

The longleaf pine regeneration value ranges and corresponding scores were consistent with our field judgment. No recommended changes.

Longleaf Pine Regeneration Rapid Assessment Location	Rating Points		
Longleaf pine regeneration (<2" DBH) cover is \geq 1% at rapid assessment location	4	Rating	
Longleaf pine regeneration (<2" DBH) cover is <1% at rapid assessment location	3	(1-4):	
No Longleaf pine regeneration (<2" DBH) cover seen, but cone producing longleaf pine or longleaf pine >10" present rapid assessment location	DBH are 2	Raw Val	ue:
Longleaf pine regeneration (<2" DBH) cover is apparently absent, and no cone producing longleaf pine or any longleaf pine >10" DBH are present at the rapid assessment location	mature 1		

>10" DBH or cone-producing longleaf present

The Overall Native Herbaceous Ground Cover value ranges and corresponding scores were consistent with our field judgment. No recommended changes for the field scoring, but because of the importance of herbaceous ground cover the team recommends a higher weighting in the HQT for at least one of the components.

Overall Native Herbaceous Ground Cover	Xeric Longleaf Pine Barrens Rating Points	
40-100% herbaceous cover	4	Rating
>25 to <40% herbaceous cover	3	(1-4):
>15 to 25% herbaceous cover	2	Raw Value:
0-15% herbaceous cover	1	

No changes were recommended for Native Warm Season Grass Cover

Native Warm Season Grass Cover Rating Points		
25-95% cover of all native warm season grasses	4	Rating
15 to <25% or >95% cover of all native warm season grasses	3	(1-4):
10 to <15% cover of all native warm season grasses	2	Raw Value:
<10% cover of all native warm season grasses	1	

Based on field data during the August field test we revised the threshold covers for wiry graminoid: The previous score ranges were as follows: poor = <5%; fair = 5-<15%; good = 15-<25%, or >95%; excellent =

20-95%. The revised value ranges provided below were consistent with our field determination of site conditions. No further changes were recommended.

Native Wiry Graminoid Cover	Xeric Longleaf Pine Barrens Rating Points	
20-95% cover of all wiry graminoids	4	Rating
10 to <20% or >95% cover of all wiry graminoids	3	(1-4):
2 to <10% cover of all wiry graminoids	2	Raw Value:
<2% cover of all wiry graminoids	1	

Although we observed essentially no invasive plants in our field test sites, the value ranges for Invasive Plant Presence/Distribution and corresponding scores seem appropriate. No recommended changes.

Invasive Plant Presence/Distribution	Rating Points	
Invasive nonnative plant species absent	4	Rating
Invasive nonnative plant species present in any stratum but sporadic (<5% cover)	3	<mark>(1-4</mark>):
Invasive nonnative plant species in any stratum uncommon (5-10% cover)	2	Raw Value:
Invasive nonnative plant species in any stratum common (>10% cover)	1	

Based on field data during the August field test we added a metric for indicators of soil disturbance. The value ranges and corresponding scores seem appropriate. No recommended changes.

Herbaceous Indicators of Soil Disturbance	Rating Points		
Total cover for herbaceous indicators of soil disturbance <2%	4	Rating	
Total cover for herbaceous indicators of soil disturbance 2-5%	3	(1-4):	
Total cover for herbaceous indicators of soil disturbance >5-10%	2	Raw Valu	e:
Total cover for herbaceous indicators of soil disturbance >10%	1		

These notes and ideas for changes to HQT value ranges were discussed during multiple meetings between FNAI and NatureServe staff ecologist (Carl Nordman) and programmer (Michael Lee). The results of these discussions were shared with EDF staff on Sept 20, 2018 during a regularly scheduled (biweekly) update. All of the specific recommendations from the field team for changes to the cutoff values were implemented and are reflected in version 2.0 of the field forms (datasheets). Copies of the field forms completed during the September field trip, including notes from which the above was transcribed, are included below.



Figure 1. Locations of sample plots for the September 4-6, 2018 Sandhill HQT field test.

State/Prov: FL Site: Gold Head Branch State Park

ObsArea Name:

Project: FLCounty:Observers: Dan Hipes, Michael Lee, Susan Carr, Tracy Sleek

ObsArea Code: GH1 Analysis Obs Code: ObsDate: 2018/09/04 ObsID: 9936

General Type: Xeric Longleaf Pine Barrens

Protocol:	Open Pine 2018 (metrics ver1.9)	Wt	Field Rating	Field Pts	Calc Pts	Calc Rating
Ecologica	I Integrity				3.61	A-
Rank Fac	tor: CONDITION	0.7			3.61	A-
MEF:	VEGETATION	0.55			3.53	A-
	Basal Area of Southern Yellow Pine Canopy Trees	1	С	2		
	Southern Yellow Pine Canopy Cover	1	С	2		
	rating 4 too high!					
	Southern Yellow Pine Stand Age Structure (12" cutoff)	1	С	2		
	flat-top present					
	Canopy Hardwood Basal Area	1	А	4		
	Canopy Hardwood Basal Area - Fire-Intolerant	1	А	4		
	Stand Density Index	1				
	Canopy Overall Ecological Assessment	1				
	there was a comment regarding the high end being too high of with BA of 20 of cover of 15%	a BA; c	an have	excellent q	uality s	andhill
	Midstory Fire-Tolerant Hardwood Cover	1	А	4		
	Midstory Fire-Intolerant Hardwood Cover	1	А	4		
	rating 4 too high					
	Midstory Overall Woody Cover	1	А	4		
	Midstory Overall Ecological Assessment	1				
	see note					
	Short Shrub (<3 feet tall) Cover	1	А	4		
	Tall Shrub (3-10 feet tall) Cover	1	А	4		
	Shrub Overall Ecological Assessment	1				
	Overall Native Herbaceous Ground Cover	1	А	4		
	Longleaf Pine Regeneration	1	А	4		
	>10" dbh or cone-producing longleaf present					
	Native Warm Season Grass Cover	1	А	4		
	Native Wiry Graminoid Cover	1	В	3		
	Invasive Plant Presence/Distribution	1	А	4		
	Groundcover Overall Ecological Assessment	1				
MEF:	SOIL	0.1			4.00	A+
	Herbaceous Indicators of Soil Disturbance <1%	1	А	4		

	1					a	Note: M	veedle dro	p .
Xeric Longleaf Pine B	<u>Barrens</u> (XLP	<u>B)</u> EIA data	asheet	<u>Open Pin</u> e	<u>e 2018 (</u> r	<u>netrics v</u> ei	<u>1.9)</u>	117 1	1
Plot ID: GH 1		 Dat	te: 9	14/2018			<i>L</i>	140 °	
Event details			/	///			· · · ·		
Site Name:	neat State	Perfor 1	Гeam:	$\hat{\mathbf{n}}$	lines <	, ,	Car Tr	acen Sla	rety 1
GPS Unit:	(0			1/97 (njes, J	4597 (Mil Mod	harl lee	
Datum: b (C				Ecolo	ogical Sys	tem:			
		LAT				(V	A a l		
UTIVI-L. 29°	5.03.06	DAS	12	Jan	4711	C P c	th cent	w// 1-L)
-5105	t' 15.50° t	meters Mhc	5						
PDOP:		171							
Number of Satellites:									X.
ACLING	youn	Į.	Assessr	nent Area/	Site Desc	ription:			· ·
Directions to plot:	X		5	in Mill	' cm 1	ith i	n that 1	Infire	
The the por	Ke west		510	under	v -	barne	15 min	the pro	10-
of the man	in. No	V CF	Conside	er for EO (c	heck box)?	EO Comme	nts:	
							· ·	-	
Comping Loop	9								
Basal Area of Southern	Yellow Pine	Canopy Tre	es			x	eric Longleaf Pine Barrens	ting Points	
25-80 ft2/acre basal area	of longleaf pin	e (Pinus palu	stris)					4	Rating
>15 to <25 or >80 to 90 ft	2/acre basal ar	ea of longlea	f pine (F	inus palustri	s)			3	(1-4): 2
10 to 15 or > 90 to <100 ft	:2/acre basal a	rea of longles	af pine (Pinus palustr	is)			2	Raw Value:
<10 or ≥100 ft2/acre basa	l area of longle	af pine (Pinu	s palusti	ris)				1	12.5
readings	10	20		0		20			/
Southern Yellow Pine C	anopy Cover		•		·	×	eric Longleaf Pine Barrens	ting Points	· · · · · ·
>20 to 55% canopy cover	of longleaf pin	e (Pinus palu	stris)	700	G	۱ ۱		4	Rating 7
>15 to 20% canopy cover	or >55 to 70%	canopy cover	of long	leaf pine (Pir	ius palusti	ris)		. 3	(1-4):
5-15% canopy cover or >7	0 to 80% cano	py cover of lo	ongleaf p	oine (Pinus p	alustris)			2	Raw Value:
<5% canopy cover or >80%	6 canopy cover	r of longleaf	oine (Pin	ius palustris)				1	3/2
Southern Yellow Pine S	tand Age Str	ucture (12"	cutoff)				eric Longleaf Pine Borrens	ting Points	
Basal area ≥20 ft2/acre of	Iongleaf pine t	trees ≥ 12" D	BH class	or flat-top lo	ongleaf pir	ne is present		4	Rating 7
Basal area ≥10 ft2/acre of	longleaf pine t	trees ≥ 12″ D	BH class					3	(1-4):
Longleaf pine trees ≥12″ [)BH class are p	resent, but <	10 ft2/a	cre basal are	a of those	e large trees		2	Raw Value:
No longleaf pine trees ≥12	2" DBH nor flat	-top longleaf	pine are	e present			_	1	2.5
readings	10	0		6		0	edic Longlauf Dieg	flat-top	pine present 📝
Canopy Hardwood Bas	al Area					. X	Borrens	ting Points	
≤5 ft2/acre basal area of h	ardwood tree:	s						4	Rating 4
>5 to 15 ft2/acre basal are	a of hardwood	d trees						3	
>15 to 25 ft2/acre basal an	rea of hardwoo	od trees					· · · ·	2	Raw Value:
>25 Tt2/acre basal area of	narowood tre	es F					7	1	2.5
readings	D I	10	1		11	O	1		

<u>Xeric Longleaf Pine Barrens (XLPB)</u> EIA datasheet <u>Open Pine 2018 (metrics ver1.9)</u>	
Plot ID: G / 1 Date: 9/4/18	
Canopy Hardwood Basal Area - Fire-Intolerant Xeric Longleof Pine Barrens Rating Points	
≤5 ft2/acre basal area of fire intolerant hardwood trees 4	Rating
>5 to 10 ft2/acre basal area of fire intolerant hardwood trees 3	(1-4): 4
>10 to 20 ft2/acre basal area of fire intolerant hardwood trees 2	Raw Value:
>20 ft2/acre basal area of fire intolerant hardwood trees 1	0
readings O O O	
Stand Density Index Xeric Longleof Pine Barrens Rating Points	
SDI = 50 – 120 (13-30% of Maximum SDI of 400) 4	Rating
SDI = 30 – 50 or 120 -160 (8-13% or 30-40% of Maximum SDI of 400, 35 – 40% SDI is near maximum of stand growth) 3	(1-4):
SDI = 20 – 30 or 160 - 180 (5-8% or 40-45% of Maximum SDi, 240 is 60% of Maximum SD of 400, which is the onset of self-thinning)	Raw Value:
SDI <20 or >180 (<5% or > 45%, 240 is 60% of Maximum SD of 400, the onset of self-thinning) 1	
list of DBHS There was a connect Berejarding the high and being too wigh it a BA. Can have excelled	-
quality Sandhill with BA of 20 of cover of 15%	
Canopy Overall Ecological Assessment	
Also some concern regarding the number of fire-intolerat hardwoods allowed	
Midstory Fire-Tolerant Hardwood Cover	a lan is a co
2 to 10% cover of midstory fire-tolerant hardwoods 4	Rating 7
10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods 3	(1-4):
>20 to 25% cover of midstory fire-tolerant hardwoods 2	Raw Value:
>25% cover of midstory fire-tolerant hardwoods 1	- ¥
Midstory Fire-Intolerant Hardwood Cover	118 1
Sorrens	Pating
5 to 10% cover of fire-intolerant hardwood midstory	(1-4): 4
>10 to 20% cover of fire-intolerant hardwood midstory 2	Raw Value:
>20% cover of fire-intolerant hardwood midstory	Ø
Midstory Overall Woody Cover Xeric Longle of Pine Barrens Rating Points	
2 to <15% cover of woody midstory 4	Rating 1
15 - 25%, or <2% cover of woody midstory	(1-4): 7
	Raw Value:

Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine 2018 (metrics ver1.9)

Plot ID: $\bigcirc 141$ Date: $9141/8$		
Midstory Overall Ecological Assessment	· · · ·	
Sec note unde fire-	in f el erart	
Short Shrub (<3 feet tall) Cover	Xeric Longle of Pine Rating Points	l
Shrubs < 3 feet in height average <25% cover in the assessment area	Borrens	Rating .
Shrubs < 3 feet in height average 25 to 35% cover in the assessment area		(1-4): 4
Shrubs < 3 feet in height average >35 to 45% cover in the assessment area	2	Raw Value:
Shrubs < 3 feet in height average >45% cover in the assessment area	1	16
Tall Shrub (3-10 feet tall) Cover	Xeric Longleof Pine Barrens Rating Points	
Shrubs 3-10 feet in height average <10% cover.	4	Rating
Shrubs 3-10 feet in height average 10 to <20% cover.	3	(1-4): 7
Shrubs 3-10 feet in height average 20 to 30% cover.	2	Raw Value:
Shrubs 3-10 feet in height average >30% cover.	1	1
Shrub Overall Ecological Assessment comments		·
Shrub Overall Ecological Assessment comments		
Shrub Overall Ecological Assessment	Xeric Longleof Pine Rating Points	
Shrub Overall Ecological Assessment	Xeric longleof Pine Borrens Rating Points	Rating
Shrub Overall Ecological Assessment comments C × C & Africand Overall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover	Xeric Longleof Pine Borrens 4	Rating (1-4):
Shrub Overall Ecological Assessment comments Comments Coverall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover >15 to 25% herbaceous cover	Xedc Longleof Pine Barrens 4 3	Rating (1-4): Raw Value:
Shrub Overall Ecological Assessment comments Comments Coverall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover >25 to 25% herbaceous cover 0-15% herbaceous cover	Xerc longleof Pine Borrens Rating Points 4 3 2 1	Rating (1-4): Raw Value:
Shrub Overall Ecological Assessment comments C × < future	Xeric longleof Pine Barrens 4 3 2 1 Rapid Assessment Location Rating Points	Rating (1-4): Raw Value:
Shrub Overall Ecological Assessment comments C>< ← // front	Xeric Longleof Pine Borrens 4 3 2 1 Ropid Assessment Location Rating Points 4	Rating (1-4): Raw Value: 45 Rating
Shrub Overall Ecological Assessment comments Comments Coverall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover	Xeric Longleof Pine Borrens 4 3 2 1 Ropid Assessment Location 4 3 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Rating (1-4): Raw Value: 45 Rating (1-4):
Shrub Overall Ecological Assessment comments Comments Coverall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover	Xeric longleof Pine Barrens 4 3 2 1 Rapid Assessment Location 4 3 1 0ngleaf pine >10" DBH are 2	Rating (1-4): Raw Value: Rating (1-4):
Shrub Overall Ecological Assessment comments & × < ↓ / / with formal	Xeric longleof Pine Barrens 4 3 2 1 Rogid Assessment Location 4 3 longleaf pine >10" DBH are 2	Rating (1-4): Raw Value: 95 Rating (1-4): Raw Value:

"Scens really good have"

Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine 2018 (metrics ver1.9)

Plot ID:	641	Dat	:e:	2/4/18	_					· .
Longleaf	Pine Regeneration						Stand Level R	ating Points	i	
Longleaf p 1/6 of the	ine regeneration is present stand)	in patches acro	ss the	e stand, these	pat	ches	es are 5-15 % of the stand (abou	t 1/20 to 4	Rating (1-4):	
Longleaf p stand (less	ine regeneration is present than 1/20 or more than 1/6	in patches acro 5 of the stand)	ss the	e stand, these	pat	ches	es are 1-5 % of the stand or >159	6 of the 3	Raw Va	alue:
Longleaf p producing	ine regeneration is very spa longleaf pine or longleaf pin	rse across stand ne >10" DBH ard	d, pat e pre	tches of longle sent	eaf p	ine	e regeneration are <1% of stand,	or cone 2		
Longleaf p longleaf pi	ine regeneration is apparen ne >10" DBH are present in	tly absent in sta the stand	and, a	and apparentl	y no) cor	one producing longleaf pine or a	ny mature 1		
							>10" DBH or cor	e-producing lo	ngleaf pre	esent
Native W	arm Season Grass Cover						Xeric Longleaf Pine Barrens	ating Points		
25-95% со	ver of all native warm seaso	n grasses						4	Rating	
15 to <25%	% or >95% cover of all native	warm season g	grasse	es				3	(1-4):	4
10 to <15%	6 cover of all native warm se	eason grasses						2	Raw Va	alue:
<10% cove	er of all native warm season	grasses						1	2	6
Native W	iry Graminoid Cover						Xeric Longleaf Pine Barrens	ating Points		
20-95% со	ver of all wiry graminoids						···	4	Rating	
10 to <20%	% or >95% cover of all wiry g	raminoids	-					3	(1-4):	3
2 to <10%	cover of all wiry graminoids	-						2	Raw Va	alue:
<2% cover	of all wiry graminoids							1		9
Invasive	Plant Presence/Distribut	ion			-		R	ating Points		
Invasive no	onnative plant species absei	nt						4	Rating	
Invasive no	onnative plant species prese	ent in any stratu	ım bu	ut sporadic (<	5% c	over	er)	3	(1-4):	
Invasive no	onnative plant species in an	y stratum unco	mmo	on (5-10% cove	er)			2	Raw Va	alue:-
Invasive no	onnative plant species in an	y stratum comn	non (>10% cover)				1] C)
Herbaced	ous Indicators of Soil Dist	urbance					R	ating Points		
Total cove	r for herbaceous indicators	of soil disturba	nce <	:2%			- , . <u></u>	4	Rating	10
Total cove	r for herbaceous indicators	of soil disturba	nce 2	-5%		•		3	(1-4):	14
Total cove	r for herbaceous indicators	of soil disturbai	nce >	·5-10%				2	Raw Va	alue:
Total cove	r for herbaceous indicators	of soil disturbaı	1ce >	10%				1	<	/
Groundco	over Overall Ecological A	ssessment		· <u></u>					رد (د رو ا ۱۹۹۹ - ۲۰۰۱ ۱۹۹۹ - ۲۰۰۱ - ۲۰۰۱ ۱۹۹۹ - ۲۰۰۱ - ۲۰۰۱ - ۲۰۰۱	

Groundcover Overall Ecological Assessment

comments

somewhat sparse because of relatively recent fire



State/Prov: FL Site: Gold Head Branch State Park

Project: FLCounty:Observers: Dan Hipes, Michael Lee, Susan Carr

ObsArea Code: GH2 Analysis Obs Code: ObsDate: 2018/09/04 ObsID: 9937

General Type: Xeric Longleaf Pine Barrens

Protocol:	Open Pine 2018 (metrics ver1.9)	Wt	Field Rating	Field Pts	Calc Pts	Calc Rating
Ecologica	al Integrity				3.45	B+
Rank Fac	tor: CONDITION	0.7			3.45	B+
MEF:	VEGETATION	0.55			3.53	A-
	Basal Area of Southern Yellow Pine Canopy Trees	1	А	4		
	Southern Yellow Pine Canopy Cover 18+	1	В	3		
	Southern Yellow Pine Stand Age Structure (12" cutoff) flat-top present	1	С	2		
	Canopy Hardwood Basal Area	1	А	4		
	Canopy Hardwood Basal Area - Fire-Intolerant	1	А	4		
	Stand Density Index	1				
	Canopy Overall Ecological Assessment	1				
	Midstory Fire-Tolerant Hardwood Cover	1	В	3		
	Midstory Fire-Intolerant Hardwood Cover	1	А	4		
	Midstory Overall Woody Cover	1	В	3		
	Midstory Overall Ecological Assessment	1				
	Short Shrub (<3 feet tall) Cover 45+	1	С	2		
	Tall Shrub (3-10 feet tall) Cover	1	А	4		
	Shrub Overall Ecological Assessment is 5% tall shrub good or excellent	1				
	Overall Native Herbaceous Ground Cover	1	А	4		
	Longleaf Pine Regeneration	1	А	4		
	>1; >10" dbh or cone-producing longleaf present; arguably too easily remedied by fire	much i	egenera	ation at thi	is locatio	n but
	Native Warm Season Grass Cover	1	А	4		
	Native Wiry Graminoid Cover	1	А	4		
	Invasive Plant Presence/Distribution	1	А	4		
	Groundcover Overall Ecological Assessment Eupatorium	1				
MEF:	SOIL	0.1			3.00	B+
	Herbaceous Indicators of Soil Disturbance	1	В	3		

Xeric Longleaf Pine Barrens (XLPB) EIA da	tasheet <u>Open Pine 2018 (metrics ver1.9)</u>	
Plot ID: GHZ D	ate: 9/1/18	
Event details		
Site Name: Cild Hear Bouch St	Team: Hipes, Lee, Car	
GPS Unit: Tomble Geo 70		
Datum: 1.65 dl U	Ecological System:	
UTM-E: 29 50 48.97 meters+t	Sandhill (North Control A	$\overline{2}$
UTM-N: (1 17 17 12 meters "		
PDOP:		
Number of Satellites:		
	Assessment Area/Site Description:	
Directions to plot:	Good Sandhill a few older	trees
harth side at ante	but missing in age class	/
XA Guy L	Consider for EO (check box)? EO Comments:	
12 it miles from		
gite		
Paral Area of Southern Vollow Bing Canony Tr	Xeric Longleof Pine Dating Dating	
Basal Area of Southern Fellow File Callopy 1	Borrens Rating Foil	
25-80 ft2/acre basal area of longlear pine (rinus par	us(IIs)	$\frac{4}{2}$ Rating $\dot{4}$
10 to 15 or > 90 to < 100 ft 2/3 created area of longing to the set of the	ear pine (Pinus palustris)	
$10 \text{ or } > 100 \text{ ft}^2/acre basal area of longlest ping (Pin$	ear pine (rinus paiusuis)	
readings	Xeric Longleof Pine Daving Daving Daving	+
20 to EEV concert of longloof nine (Dinus no	Borrens Rating Point	
>20 to 55% canopy cover of longlear pine (Pinus par	ustris) 	$\frac{4}{2} Rating 3 3 3 3 3 3 3 3 3 $
>15 to 20% carlopy cover or >55 to 70% carlopy cov	er of longleaf pine (Pinus palustris)	
5-15% canopy cover or >70 to 80% canopy cover of	fonglear pine (Pinus parustris)	2 Raw value:
<5% canopy cover of >80% canopy cover of longical		1 /8 +
Southern Yellow Pine Stand Age Structure (12	" cutoff) Xeric Longleof Pine Rating Poin Barrens	ts
Basal area ≥20 ft2/acre of longleaf pine trees ≥ 12"	DBH class or flat-top longleaf pine is present	4 Rating
Basal area ≥10 ft2/acre of longleaf pine trees ≥ 12″	DBH class	3 ⁽¹⁻⁴⁾ : 人
Longleaf pine trees ≥12" DBH class are present, but	<10 ft2/acre basal area of those large trees	2 Raw Value:
No longleaf pine trees ≥12″ DBH nor flat-top longlea	of pine are present	1 5
readings	ن flat-	top pine present 🔽
Canopy Hardwood Basal Area	Xeric Longleof Pine Rating Poin Barrens	ts
≤5 ft2/acre basal area of hardwood trees		4 Rating
>5 to 15 ft2/acre basal area of hardwood trees		3 (1-4): Y
>15 to 25 ft2/acre basal area of hardwood trees		2 Raw Value:
>25 ft2/acre basal area of hardwood trees	-	1 2.5
readings 10 O		

Xeric Longleaf Pin	<u>e Barrens (XLPB)</u> EIA datasheet <u>Open Pine 2018 (metrics ver1.9)</u>			
Plot ID: 6//	² Date: <u>9</u> / <u>1</u> / <u>1</u> 4			
Canopy Hardwood B	asal Area - Fire-Intolerant Kenc Longleof Pine Barrens Rating	Points		
≤5 ft2/acre basal area	of fire intolerant hardwood trees	4	Rating	\mathbf{L}_{I}
>5 to 10 ft2/acre basal	area of fire intolerant hardwood trees	3	(1-4):	(
>10 to 20 ft2/acre basa	al area of fire intolerant hardwood trees	2	Raw Va	lue:
>20 ft2/acre basal area	of fire intolerant hardwood trees	1	0	,
readings	$\bigcirc \qquad \bigcirc \qquad$			
Stand Density Index	Xeric Longleof Pine Rating	Points		
SDI = 50 - 120 (13-30%	of Maximum SDI of 400)	4	Rating	
SDI = 30 - 50 or 120 -1	60 (8-13% or 30-40% of Maximum 5DI of 400, 35 – 40% SDI is near maximum of stand growth)	3	(1-4):	
SDI = 20 – 30 or 160 - 1 self-thinning)	80 (5-8% or 40-45% of Maximum SDI, 240 is 60% of Maximum SD of 400, which is the onset of	2	Raw Val	lue:
SDI <20 or >180 (<5% o	or > 45%, 240 is 60% of Maximum SD of 400, the onset of self-thinning}	1	L	
	·			
Capony Overall Eco	nginal Accessment			
Callopy Overall Looi				<u></u>
	Good! Thissing Thige Trees			
Midstory Fire-Tolera	ant Hardwood Cover Xeric Longleof Pine Rating	Points	· · · · · · · ·	
2 to 10% cover of mids	tory fire-tolerant hardwoods	4	Rating	
10 to 20% cover, or <2	% cover of midstory fire-tolerant hardwoods	3	(1-4):	3
>20 to 25% cover of m	idstory fire-tolerant hardwoods	2	Raw Va	lue:
>25% cover of midstor	y fire-tolerant hardwoods	1	1	2
Midstory Fire-Intole	rant Hardwood Cover	Points	, ·	्र (दूर्श्व)
<5% cover of fire-intol	erant hardwood midstory	4	Rating	<u>r Hitting</u>
5 to 10% cover of fire-i	ntolerant hardwood midstory	3	(1-4):	14
>10 to 20% cover of fir	e-intolerant hardwood midstory	2	Raw Val	lue:
>20% cover of fire-into	lerant hardwood midstory	1	Ć	2
Midstory Overall W	oodv Cover Xeric Longleof Pine Rating	Points	<u> </u>	
2 to <15% cover of wo	ody midstory	Δ	Rating	
15 – 25%, or <2% cove	r of woody midstory		(1-4):	3
>25 to 35% cover of w	oody midstory	2	Raw Va	lue:
>35% cover of woody	midstory	1	Ī	

Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine 2018 (metrics ver1.9)	
Plot ID: G / 2 Date: 7/4/18	
Midstory Overall Ecological Assessment	
comments Sparse mid story. One more turker out would have moved it to "excellent"	
Short Shrub (<3 feet tall) Cover Rating Points	
Shrubs < 3 feet in height average <25% cover in the assessment area 4	Rating
Shrubs < 3 feet in height average 25 to 35% cover in the assessment area 3	(1-4):
Shrubs < 3 feet in height average >35 to 45% cover in the assessment area 2	Raw Value:
Shrubs < 3 feet in height average >45% cover in the assessment area 1	45+
Tall Shrub (3-10 feet tall) Cover Xeric Langle of Pline Barrens Rating Points	· · · · ·
Shrubs 3-10 feet in height average <10% cover. 4	Rating
Shrubs 3-10 feet in height average 10 to <20% cover. 3	(1-4):
Shrubs 3-10 feet in height average 20 to 30% cover.2	Raw Value:
Shrubs 3-10 feet in height average >30% cover.1	5
Shrub Overall Ecological Assessment	· ·
comments is 5% good or excellent A full shrub	
Overall Native Herbaceous Ground Cover	
40-100% herbaceous cover 4	Rating
>25 to <40% herbaceous cover 3	(1-4):
>15 to 25% herbaceous cover 2	Raw Value:
0-15% herbaceous cover 1	58
Longleaf Pine Regeneration Rating Points	
Longleaf pine regeneration (<2" DBH) cover is ≥1% at rapid assessment location 4	Rating (
Longleaf pine regeneration (<2" DBH) cover is <1% at rapid assessment location 3	(1-4):
No Longleaf pine regeneration (<2" DBH) cover seen, but cone producing longleaf pine or longleaf pine >10" DBH are present rapid assessment location 2	Raw Value:
Longleaf pine regeneration (<2" DBH) cover is apparently absent, and no cone producing longleaf pine or any mature 1 longleaf pine >10" DBH are present at the rapid assessment location	
>10" DBH or cone-producing ion	gleaf present 🕻

arguably too much regar at this location, but easily remedied by fire

, .

Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine 2018 (metrics ver1.9)

Plot ID:	CH2	Date:	9/4/18			
Longleaf	Pine Regeneration	•		Stand Level Rating Poir	its	t a t
Longleaf pi 1/6 of the	ine regeneration is present in patche stand)	s across th	e stand, these pat	ches are 5-15 % of the stand (about $1/20$ to	4 Rating (1-4);	
Longleaf pi stand (less	ine regeneration is present in patche than 1/20 or more than 1/6 of the s	s across th tand)	e stand, these pat	ches are 1-5 % of the stand or >15% of the	3 Raw Va	lue:
Longleaf pi producing	ine regeneration is very sparse acros longleaf pine or longleaf pine >10" D	s stand, pa BH are pro	atches of longleaf p esent	ine regeneration are <1% of stand, or cone	2	
Longleaf pi Iongleaf pi	ine regeneration is apparently absen ne >10" DBH are present in the stand	t in stand, I	and apparently no	cone producing longleaf pine or any mature	1	
				>10" DBH or cone-producing	longleaf pre	sent
Native W	arm Season Grass Cover			Xeric Longleof Pine Barrens Rating Poir	its	
25-95% cov	ver of all native warm season grasses	;	· ·		4 Rating	
15 to <25%	6 or >95% cover of all native warm se	ason grass	ses		3 (1-4):	4
10 to <15%	cover of all native warm season gra	sses			2 Raw Va	ilue:
<10% cove	r of all native warm season grasses				1 50)
Native W	iry Graminoid Cover			Xeric Longleof Pine Rating Poir	its	
20-95% co	ver of all wiry graminoids				4 Rating	
10 to <20%	6 or >95% cover of all wiry graminoid	s			2 (1-4)	PS.

Invasive Plant Presence/Distribution	Rating Points	
Invasive nonnative plant species absent	4	Rating
Invasive nonnative plant species present in any stratum but sporadic (<5% cover)	3	(1-4): 4
Invasive nonnative plant species in any stratum uncommon (5-10% cover)	2	Raw Value:
Invasive nonnative plant species in any stratum common (>10% cover)	1	0
Herbaceous Indicators of Soil Disturbance	Rating Points	
, 같은 것은 것은 방법을 위해 가장 가장 이 가지 않는 것 같은 것을 가지 않는 것을 수 있다. 이 가지 않는 것이 있는 것이 없는 것이 없 않이 않이 않이 않는 것이 없는 것이 것이 않는 것이 없는 것이 않는 것이 않 것이 것이 것이 것이 않는 것이 않는 것이 없는 것이 없는 것이 없는 것이 없는 것이 않는 것이 없다. 것이 않 않 않이 않는 것이 않이 않이 않이 않이 않이 않이 않이 않이 않이 않는 것이 않이	in the second se	
Total cover for herbaceous indicators of soil disturbance <2%	4	Rating ,
Total cover for herbaceous indicators of soil disturbance <2%	4	Rating (1-4): う
Total cover for herbaceous indicators of soil disturbance <2%	4 3 2	Rating (1-4): 3 Raw Value:

Groundcover Overall Ecological Assessment

2 to <10% cover of all wiry graminoids

<2% cover of all wiry graminoids

comments

Eupeline a little high; otherwise would be excellent.

Raw Value:

48

2

1

- -----



State/Prov: ObsArea Nar Project: FL	FL Site: Gold Head Branch State Park ne: County:	ObsArea Analysis (ObsDate:	Code: G Dbs Cod 2018/0	H3 e: 9/06 Obsl	D: 9938	
Observers:	Dan Hipes					
General Type	e: Xeric Longleaf Pine Barrens					
Protocol: Op	pen Pine 2018 (metrics ver1.9)	Wt	Field Rating	Field Pts	Calc Pts	Calc Rating
Ecological I	ntegrity				2.42	C+
Rank Factor	r: CONDITION	0.7			2.42	C+
MEF: VE	GETATION	0.55			2.13	C+
E	Basal Area of Southern Yellow Pine Canopy Trees	1	С	2		
S	Southern Yellow Pine Canopy Cover	1	В	3		
S	Southern Yellow Pine Stand Age Structure (12" cutoff)	1	В	3		
	flat-top present					
C	Canopy Hardwood Basal Area	1	D	1		
C	Canopy Hardwood Basal Area - Fire-Intolerant	1	D	1		
S	Stand Density Index	1				
C	Canopy Overall Ecological Assessment	1				
Π	Midstory Fire-Tolerant Hardwood Cover	1	В	3		
Ν	Midstory Fire-Intolerant Hardwood Cover	1	С	2		
Ν	Midstory Overall Woody Cover	1	В	3		
Γ	Midstory Overall Ecological Assessment	1				
	addition fire-tolerant & intolerant covers problematic; sit	e scores goo	d but is	not		
S	Short Shrub (<3 feet tall) Cover	1	А	4		
ד	Fall Shrub (3-10 feet tall) Cover	1	А	4		
S	Shrub Overall Ecological Assessment	1				
	site scores excellent but because shrubs are suppressed b	oy canopy				
C	Overall Native Herbaceous Ground Cover	1	D	1		
L	ongleaf Pine Regeneration	1	С	2		
	>10" dbh or cone-producing longleaf present					

score for lack of ground cover should be weighted high to reflect its importance to the system

1

1

1

4

4.00 A+

1

1

1

1

0.1

1

D

D

D

А

Native Warm Season Grass Cover

Invasive Plant Presence/Distribution

Groundcover Overall Ecological Assessment

Herbaceous Indicators of Soil Disturbance

Native Wiry Graminoid Cover

MEF: SOIL

Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine	<u>2018 (metrics ver1.9)</u>
Plot ID: $(11/2)$ Date: $9/6/18$]
Event details	
Site Name: Cold Hand Band S. Team: Hay	nes
GPS Unit:	
Datum: Ecolo	ogical System:
UTM-E: 29 49 21.45 Meters Success	ional Hard and Forest on
UTM-N: - 61 56 47.82 motors furmer	Sandhill
PDOP:	
Number of Satellites:	
Assessment Area/	Site Description:
Directions to plot:	Swad Sandhill
South of camp ground	
Cubin s Consider for EO (c	heck box)? 🔲 EO Comments:
1	
Basal Area of Southern Yellow Pine Canopy Trees	Xeric Longleaf Pine Rating Points
25-80 ft2/acre basal area of longleaf pine (Pinus palustris)	A Rating
>15 to <25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustri	is) 3 (1-4): 2
10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustr	is) 2 Raw Value:
<10 or ≥100 ft2/acre basal area of longleaf pine (Pinus palustris)	1 /4
readings 20 19 0	10
Southern Yellow Pine Canopy Cover	Xeric Longleof Pine Barrens Rating Points
>20 to 55% canopy cover of longleaf pine (Pinus palustris)	4 Rating
>15 to 20% canopy cover or >55 to 70% canopy cover of longleaf pine (Pir	ius palustris) 3 (1-4): 3
5-15% canopy cover or >70 to 80% canopy cover of longleaf pine (Pinus p	alustris) 2 Raw Value:
<5% canopy cover or >80% canopy cover of longleaf pine (Pinus palustris)	1 / 6
Southern Yellow Pine Stand Age Structure (12" cutoff)	Xeric Longleaf Pine Barrens
Basal area ≥20 ft2/acre of longleaf pine trees ≥ 12" DBH class or flat-top lo	ongleaf pine is present 4 Rating
Basal area ≥ 10 ft2/acre of longleaf pine trees $\geq 12''$ DBH class	3 (1-4): 3
Longleaf pine trees ≥12" DBH class are present, but <10 ft2/acre basal are	a of those large trees 2 Raw Value:
No longleaf pine trees ≥12" DBH nor flat-top longleaf pine are present	1 / <i>O</i>
readings 2 0 10 0	10 flat-top pine present
Canopy Hardwood Basal Area	Xeric Longleof Pine Rating Points Barrens
≤5 ft2/acre basal area of hardwood trees	4 Rating
>5 to 15 ft2/acre basal area of hardwood trees	3 (1-4):
>15 to 25 ft2/acre basal area of hardwood trees	2 Raw Value:
>25 ft2/acre basal area of hardwood trees	1 37.5
readings 30 40 60	20 37,5

<u>Xeric Longleaf Pine Barrens (XLPB)</u> EIA datasheet <u>Open Pine 2018 (metrics ver1.9)</u>	
Plot ID: 6/43 Date: 9/6/18	
Canopy Hardwood Basal Area - Fire-Intolerant Xeric Longleof Pine Barrens	Rating Points
≤5 ft2/acre basal area of fire intolerant hardwood trees	4 Rating
>5 to 10 ft2/acre basal area of fire intolerant hardwood trees	3 (1-4):
>10 to 20 ft2/acre basal area of fire intolerant hardwood trees	2 Raw Value:
>20 ft2/acre basal area of fire intolerant hardwood trees	1 27.50
readings 30 40 40 20	
Stand Density Index Xeric Longleof Pine Barrens	Rating Points
SDI = 50 – 120 (13-30% of Maximum SDI of 400)	4 Rating
SDI = 30 – 50 or 120 -160 (8-13% or 30-40% of Maximum SDI of 400, 35 – 40% SDI is near maximum of stand a	growth) 3 (1-4):
SDI = 20 – 30 or 160 - 180 (5-8% or 40-45% of Maximum SDI, 240 is 60% of Maximum SD of 400, which is the self-thinning)	onset of 2 Raw Value:
SDI <20 or >180 (<5% or > 45%, 240 is 60% of Maximum SD of 400, the onset of self-thinning)	<u>1</u>
list of DBHs	
Canopy Overall Ecological Assessment	ter ter ter
Low Congra Cover - Scores appropri For ald trees about hardwood Comp 6/017	7 y miel
Midstory Fire Tolerant Hardwood Cover	Rating Points
2 to 10% cover of midstory fire-tolerant hardwoods	4 Rating
10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	3 (1-4): 3 5
>20 to 25% cover of midstory fire-tolerant hardwoods	2 Raw Value:
>25% cover of midstory fire-tolerant hardwoods	
Midstory Fire-Intolerant Hardwood Cover Xeric Longleaf Pine	Rating Points
<pre></pre>	4 Rating
5 to 10% cover of fire-intolerant hardwood midstory	3 (1-4): 2
>10 to 20% cover of fire-intolerant hardwood midstory	2 Raw Value:
>20% cover of fire-intolerant hardwood midstory	1 / 8
Midstory Overall Woody Cover Xeric Longleof Pine	Rating Points
2 to <15% cover of woody midstory	4 Rating
15 – 25%, or <2% cover of woody midstory	3 (1-4): 3
>25 to 35% cover of woody midstory	2 Raw Value:
>35% cover of woody midstory	1 18

¢

.

Plot ID: C/+3 Date: 9/6/18 Midstory Overall Ecological Assessment comments ddd: tim firetolerail & Fer intolerant Cours problematic. Site scores good but is not.	
Midstory Overall Ecological Assessment comments ddd: tim firetolerail & Erintolerait Covers problematic. Sete scores good but is not.	
comments Addition firetolerail & terintolerait Cours problematic. Site scores good but is not.	
1	
Short Shrub (<3 feet tall) Cover	oints
Shrubs < 3 feet in height average <25% cover in the assessment area	A Bation
Shrubs < 3 feet in height average 25 to 35% cover in the assessment area	
Shrubs < 3 feet in height average >35 to 45% cover in the assessment area	2 Raw Value:
Shrubs < 3 feet in height average >45% cover in the assessment area	1 7
Tall Shrub (3-10 feet tall) Cover	oints
Shrubs 3-10 feet in height average <10% cover.	A Pating
Shrubs 3-10 feet in height average 10 to <20% cover.	(1-4):
Shrubs 3-10 feet in height average 20 to 30% cover.	2 Raw Value:
Shrubs 3-10 feet in height average >30% cover.	1 8
comments gifes scores excellent, but because shrubs are suppressed by Conopy	
Overall Native Herbaceous Ground Cover Rating Po	oints
Overall Native Herbaceous Ground Cover Xeric Longleof Pine Barrens Rating Pc Barrens	olnts 1 Rating
Automatical Cover Xeric Longleaf Pine Barrens Rating Pc 40-100% herbaceous cover >25 to <40% herbaceous cover	olnts 4 Rating 3 (1-4): /
Overall Native Herbaceous Ground Cover Xeric Longleaf Pine Barrens Rating Pc 40-100% herbaceous cover 25 to <40% herbaceous cover	bl hts 4 Rating 3 (1-4): 2 Raw Value:
Autive Herbaceous Ground Cover Xeric Longleaf Pine Barrens Rating Pc 40-100% herbaceous cover 25 to <40% herbaceous cover	olnts 4 Rating 3 (1-4): 2 Raw Value: 1 /
Autive Herbaceous Ground Cover Xeric Longleaf Pine Barrens Rating Pc 40-100% herbaceous cover 25 to <40% herbaceous cover	olnts 4 Rating 3 (1-4): / 2 Raw Value: 1 / pints
Overall Native Herbaceous Ground Cover Xeric Longleaf Pine Barrens Rating Pc 40-100% herbaceous cover >25 to <40% herbaceous cover	olnts 4 3 (1-4): 2 Raw Value: 1 / olnts 4 Rating
Overall Native Herbaceous Ground Cover Xeric Longleaf Pine Barrens Rating Pc 40-100% herbaceous cover >25 to <40% herbaceous cover	01015 4 Rating (1-4): / 2 Raw Value: 1 / 2 Raw Value: 1 / 2 (1-4): 2 Raw Value: 1 / 2 (1-4): 2 (1-4):
Overall Native Herbaceous Ground Cover Xeric Longleaf Pine Barrens Rating Pole 40-100% herbaceous cover >25 to <40% herbaceous cover	olnts 4 Rating (1-4): 2 Raw Value: 1 / olnts 4 Rating (1-4): 2 Raw Value: 1 / 2 Raw Value: 2 (1-4): 2 Raw Value: 1 / 2 Raw Value: 2 / 2 Raw Value: 2 (1-4): 2 Raw Value: 2 (1-4): 2 Raw Value: 2 (1-4): 2 (1-4): (

Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine 2018 (metrics ver1.9)

Plot ID: 6/4 3 Date: 9/6/18			
Longleaf Pine Regeneration	Stond Level Rat	ting Points	
Longleaf pine regeneration is present in patches across the stand, these patches a 1/6 of the stand)	re 5-15 % of the stand (about 1	L/20 to 4	Rating (1-4):
Longleaf pine regeneration is present in patches across the stand, these patches a stand (less than 1/20 or more than 1/6 of the stand)	are 1-5 % of the stand or >15% o	of the ' 3	Raw Value:
Longleaf pine regeneration is very sparse across stand, patches of longleaf pine re producing longleaf pine or longleaf pine >10" DBH are present	generation are <1% of stand, o	r cone 2	
Longleaf pine regeneration is apparently absent in stand, and apparently no cone longleaf pine >10" DBH are present in the stand	producing longleaf pine or any	[,] mature 1	
	>10" DBH or cone	-producing lon	gleaf present
Native Warm Season Grass Cover	Xeric Longleaf Pine Barrens	ting Points	
25-95% cover of all native warm season grasses		4	Rating
15 to <25% or >95% cover of all native warm season grasses		3	(1-4): (
10 to <15% cover of all native warm season grasses		2	Raw Value:
<10% cover of all native warm season grasses		1	0
Native Wiry Graminoid Cover	Xeric Longleof Pine Ra Barrens	ting Points	7 yî
20-95% cover of all wiry graminoids		4	Rating
10 to <20% or >95% cover of all wiry graminoids		3	(1-4):
2 to <10% cover of all wiry graminoids		2	Raw Value:
<2% cover of all wiry graminoids		1	0
Invasive Plant Presence/Distribution	Ra	ting Points	
Invasive nonnative plant species absent		4	Rating
Invasive nonnative plant species present in any stratum but sporadic (<5% cover)	<u>.</u>	3	(1-4):
Invasive nonnative plant species in any stratum uncommon (5-10% cover)		2	Raw Value:
Invasive nonnative plant species in any stratum common (>10% cover)		1	0
Herbaceous Indicators of Soil Disturbance	Ra	ting Points	
Total cover for herbaceous indicators of soil disturbance <2%		4	Rating
Total cover for herbaceous indicators of soil disturbance 2-5%		3	(1-4): ٵ
Total cover for herbaceous indicators of soil disturbance >5-10%		2	Raw Value:
Total cover for herbaceous indicators of soil disturbance >10%	· · ·	1	0

Groundcover Overall Ecological Assessment

comments

Thack of growt cover should be weighted high. to reflex its importance score for to the system



State/Prov: FL	Site: Gold Head Branch State Park Obs	sArea (Code: G	H4		
ObsArea Name	: Ana	alysis C	Obs Cod	e:		
Project: FL	County: Obs	Date:	2018/0	9/06 ObsID:	9939	
Observers: Da	ו Hipes					
General Type:	Xeric Longleaf Pine Barrens					
Protocol: Ope	ו Pine 2018 (metrics ver1.9)	Wt	Field Rating	Field Pts	Calc Pts	Calc Rating
Ecological Inte	egrity				3.61	A-
Rank Factor: (CONDITION	0.7			3.61	A-
MEF: VEGI	TATION	0.55			3.53	A-
Bas Sou	al Area of Southern Yellow Pine Canopy Trees Ithern Yellow Pine Canopy Cover	1 1 1	B B C	3 3 2		
500	flat-top present	T	C	2		
Car	iopy Hardwood Basal Area	1	В	3		
Car	iopy Hardwood Basal Area - Fire-Intolerant	1	А	4		
Sta	nd Density Index	1				
Car	opy Overall Ecological Assessment could have a couple more older/larger pine trees; canopy hardv	1 vood is	about r	right		
Mie	Istory Fire-Tolerant Hardwood Cover	1	А	4		
Mie	Istory Fire-Intolerant Hardwood Cover	1	А	4		
Mie	Istory Overall Woody Cover	1	А	4		
Mie	Istory Overall Ecological Assessment	1				
	works because no fire-intolerant					
Sho	rt Shrub (<3 feet tall) Cover	1	А	4		
Tal	Shrub (3-10 feet tall) Cover	1	А	4		
Shr	ub Overall Ecological Assessment	1				
	expect to see a few tall shrubs (turkey oak) again; 10% would be	e too n	nuch for	excellent		
Ove	erall Native Herbaceous Ground Cover	1	В	3		
Lor	gleaf Pine Regeneration <1%; >10" dbh or cone-producing longleaf present	1	В	3		
Nat	ive Warm Season Grass Cover	1	А	4		
Nat	ive Wiry Graminoid Cover	1	А	4		
Inv	asive Plant Presence/Distribution	1	А	4		
Gro	undcover Overall Ecological Assessment	1				
	works even for this recently burned site					
MEF: SOIL		0.1			4.00	A+
Hei	baceous Indicators of Soil Disturbance	1	А	4		

Xeric Longleaf Pine Barrens (XLPB) EIA dat	asheet <u>Open Pine 2018 (metrics ver1.9)</u>
Plot ID: CI+ 4 Da	te: $9/c/18$
Event details	
Site Name: CILV-I Ac. SP	Team: 14 Locs
GPS Unit:	
Datum: 6584	Ecological System:
UTM-E: 29 19 51, 20 meters	< 14
UTM-N: <(57 // 64 meters	
PDOP: <u>+ 45cm</u>	Southill (North control FL)
Number of / / / / / / / / / / / / / / / / / /	
•	Assessment Area/Site Description:
Directions to plot:	4 months sime growing season burn
wet of day use are	excelle margaiss cour
	Consider for EO (check box)? EO Comments:
"Comparound Loop"	
. ,	
Basal Aroa of Southern Vollow Bing Conony Tro	Xeric Longleof Pine Dating Dating
Dasal Area of Southern Fellow Pine Callopy Fre	Borrens Rating Points
25-50 ft2/acre basal area of longlear pine (Pinus paru	f nino (Pinus nalustric) 4 Rating 3
10 to 15 or > 90 to <100 ft2/acre basal area of longle.	af pine (Pinus palustris)
10 or \geq 100 ft2/acre basal area of longleaf pine (Pinu	is palustris)
readings 7 0 /0	
Southern Yellow Pine Canopy Cover	Xeric Longle of Pine Rating Points
>20 to 55% canopy cover of longleaf pine (Pinus palu	Barrens A Deting
>15 to 20% canopy cover or >55 to 70% canopy cover	r of longleaf pine (Pinus palustris)
5-15% canopy cover or >70 to 80% canopy cover of lo	ongleaf pine (Pinus palustris)
<5% canopy cover or >80% canopy cover of longleaf p	pine (Pinus palustris)
Southern Yellow Pine Stand Age Structure (12"	cutoff) Xeric Longleof Pine Rating Points
Basal area ≥ 20 ft2/acre of longleaf pine trees $\geq 12^{\circ}$ D	BH class or flat-top longleaf pine is present
Basal area ≥ 10 ft2/acre of longleaf pine trees $\geq 12^{\circ}$ D	Holds Holds <th< td=""></th<>
Longleaf pine trees ≥12" DBH class are present, but <	10 ft2/acre basal area of those large trees 2 Raw Value:
No longleaf pine trees ≥12″ DBH nor flat-top longleaf	pine are present
readings I (2 ()	flat-top pine present
Canopy Hardwood Basal Area	Xeric Longleof Pine Rating Points
≤5 ft2/acre basal area of hardwood trees	Borrens
>5 to 15 ft2/acre basal area of hardwood trees	
>15 to 25 ft2/acre basal area of hardwood trees	2 Raw Value:
>25 ft2/acre basal area of hardwood trees	
readings 10 10	

ļ.
Xeric Longleaf Pin	<u>e Barrens (XLPB)</u> EIA datasheet <u>Open Pine 2018 (metrics ver1.9)</u>		
Plot ID:	14 Date: 9/6/18		
Canopy Hardwood I	asal Area - Fire-Intolerant (Xeric Longle of Pine Barrens Rating Po	ints	
≤5 ft2/acre basal area	of fire intolerant hardwood trees	4	Rating
>5 to 10 ft2/acre basa	area of fire intolerant hardwood trees	3	(1-4): 7
>10 to 20 ft2/acre bas	al area of fire intolerant hardwood trees	_2	Raw Value:
>20 ft2/acre basal area	a of fire intolerant hardwood trees	_1	0
readings	0 1 2 0		
Stand Density Index	Xeric Longleof Pine Rating Po Barrens	ints	
SDI = 50 - 120 (13-309	of Maximum SDI of 400)	4	Rating
SDI = 30 - 50 or 120 -1	60 (8-13% or 30-40% of Maximum SDI of 400, 35 – 40% SDI is near maximum of stand growth)	3	(1-4):
SD1 = 20 – 30 or 160 - self-thinning)	L80 (5-8% or 40-45% of Maximum SDI, 240 is 60% of Maximum SD of 400, which is the onset of	2	Raw Value:
SDI <20 or >180 (<5%	or > 45%, 240 is 60% of Maximum SD of 400, the onset of self-thinning}	_1	L
Canopy Overall Eco	logical Assessment		
	Primetrices. Commy hard used is about right		
Midstory Fire-Tole	ant Hardwood Cover Xeric Longleof Pine Rating Pc	pints	
2 to 10% cover of mid	story fire-tolerant hardwoods	4	Rating 11
10 to 20% cover, or <	2% cover of midstory fire-tolerant hardwoods	3	(1-4): 7
>20 to 25% cover of n	nidstory fire-tolerant hardwoods	2	Raw Value:
>25% cover of midsto		1	4
Midstory Fire-Intol	ry fire-tolerant hardwoods		
<pre> </pre>	ry fire-tolerant hardwoods Yeric Longleaf Pine Parent Hardwood Cover Rating Po	oints	
5 to 10% cover of fire	ry fire-tolerant hardwoods erant Hardwood Cover lerant hardwood midstory	oints 4	Rating
1	ry fire-tolerant hardwoods erant Hardwood Cover lerant hardwood midstory intolerant hardwood midstory	oints 4 3	Rating (1-4): 4
>10 to 20% cover of f	ry fire-tolerant hardwoods erant Hardwood Cover lerant hardwood midstory -intolerant hardwood midstory re-intolerant hardwood midstory	oints 4 3 2	Rating (1-4):
>10 to 20% cover of f >20% cover of fire-int	ry fire-tolerant hardwoods erant Hardwood Cover lerant hardwood midstory intolerant hardwood midstory re-intolerant hardwood midstory olerant hardwood midstory	2	Rating (1-4): 4 Raw Value:
>10 to 20% cover of f >20% cover of fire-int Midstory Overall V	ry fire-tolerant hardwoods erant Hardwood Cover lerant hardwood midstory intolerant hardwood midstory re-intolerant hardwood midstory olerant hardwood midstory	oints 4 3 2 1 oints	Rating (1-4): 4 Raw Value:
>10 to 20% cover of f >20% cover of fire-int Midstory Overall V 2 to <15% cover of w	ry fire-tolerant hardwoods erant Hardwood Cover lerant hardwood midstory intolerant hardwood midstory re-intolerant hardwood midstory olerant hardwood midstory /oody Cover Serie Longleaf Pine Borrens Rating Pe	oints 4 3 2 1 oints 4	Rating (1-4): 4 Raw Value:
>10 to 20% cover of f >20% cover of fire-int Midstory Overall V 2 to <15% cover of w 15 – 25%, or <2% cov	ry fire-tolerant hardwoods erant Hardwood Cover Reting Pole Barrens Rating Pole Barrens Rating Pole Barrens Rating Pole Barrens Rating Pole Cover Coody Cover Coody Cover Cover Coody midstory Er of woody midstory	oints 4 3 2 1 oints 4 3	Rating (1-4): 4 Raw Value:
>10 to 20% cover of f >20% cover of fire-int Midstory Overall V 2 to <15% cover of w 15 - 25%, or <2% cov >25 to 35% cover of w	ry fire-tolerant hardwoods erant Hardwood Cover Reting Pole Barrens Rating Pole Barrens Rating Pole Barrens Rating Pole Barrens Rating Pole Sody midstory Pole Pole Sody midstory Pre-intolerant hardwood midstory Pole Pole Barrens Rating Pole Ratin	2 2 1 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	Rating (1-4): 4 Raw Value: Rating (1-4): 4 Raw Value:
>10 to 20% cover of f >20% cover of fire-int Midstory Overall V 2 to <15% cover of w 15 - 25%, or <2% cov >25 to 35% cover of w >35% cover of woody	ry fire-tolerant hardwoods erant Hardwood Cover lerant Hardwood midstory intolerant hardwood midstory re-intolerant hardwood midstory olerant hardwood midstory /oody Cover Xeric Longleaf Pine Borrens Rating Po	2 2 2 2 2 1 2 2 1 2 1 2 1 2 1	Rating (1-4): 4 Raw Value: 0 Rating (1-4): 4 Raw Value: 4

_

-

Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine 2018 (metrics ver1.9)			
Plot ID: 64 4 Date: 9/6/18			
Midstory Overall Ecological Assessment		-	
comments works because no intollernt			
Short Shrub (<3 feet tall) Cover	ints		
Shrubs < 3 feet in height average <25% cover in the assessment area	4	Rating	
Shrubs < 3 feet in height average 25 to 35% cover in the assessment area	3	(1-4):	9
Shrubs < 3 feet in height average >35 to 45% cover in the assessment area	2	Raw Val	ue:
Shrubs < 3 feet in height average >45% cover in the assessment area	1	20	
Tall Shrub (3-10 feet tall) Cover Xeric Longle of Pine Rating Po	oints		
Shrubs 3-10 feet in height average <10% cover.	4	Rating	
Shrubs 3-10 feet in height average 10 to <20% cover.	3	(1-4):	9
Shrubs 3-10 feet in height average 20 to 30% cover.	2	Raw Val	ue:
Shrubs 3-10 feet in height average >30% cover.	1	0	
Shrub Overall Ecological Assessment	i de la fe Generation		
comments expent 20 bec a few tall shruis (turke Da again, 10% windt be too much for excelle	k) 		
Overall Native Herbaceous Ground Cover Xeric Longleaf Pine Barrens Rating Pc	vints		un Art.
40-100% herbaceous cover	4	Rating	-7
>25 to <40% herbaceous cover	3	(1-4):	9
>15 to 25% herbaceous cover	2	Raw Val	ue:
0-15% herbaceous cover	1	26	-
Longleaf Pine Regeneration Rating Po	vints		
Longleaf pine regeneration (<2" DBH) cover is ≥1% at rapid assessment location	4	Rating	~
Longleaf pine regeneration (<2" DBH) cover is <1% at rapid assessment location	_3	(1-4):	5
No Longleaf pine regeneration (<2" DBH) cover seen, but cone producing longleaf pine or longleaf pine >10" DBH are present rapid assessment location	2	Raw Val	ue:
Longleaf pine regeneration (<2" DBH) cover is apparently absent, and no cone producing longleaf pine or any mature longleaf pine >10" DBH are present at the rapid assessment location	1		10
		alaafarar	ont T

•

Plot ID: $\mathcal{O} \mathcal{H} \mathcal{H}$ Date: $9/6/18$	
ongleaf Pine Regeneration	oints
ongleaf pine regeneration is present in patches across the stand, these patches are 5-15 % of the stand (about 1/20 to 1/6 of the stand)	4 Rating (1-4):
ongleaf pine regeneration is present in patches across the stand, these patches are 1-5 % of the stand or >15% of the stand (less than 1/20 or more than 1/6 of the stand)	3 Raw Value
ongleaf pine regeneration is very sparse across stand, patches of longleaf pine regeneration are <1% of stand, or cone producing longleaf pine or longleaf pine >10" DBH are present	2
ongleaf pine regeneration is apparently absent in stand, and apparently no cone producing longleaf pine or any matur ongleaf pine >10" DBH are present in the stand	^{re} 1
>10" DBH or cone-produce	ing longleaf presen
Native Warm Season Grass Cover Xeric Longleof Pine Rating Po	oints
25-95% cover of all native warm season grasses	4 Rating
15 to <25% or >95% cover of all native warm season grasses	3 (1-4):
10 to <15% cover of all native warm season grasses	2 Raw Value
<10% cover of all native warm season grasses	1 25
Native Wiry Graminoid Cover	oints
20-95% cover of all wiry graminoids	4 Rating
10 to <20% or >95% cover of all wiry graminoids	3 (1-4):
2 to <10% cover of all wiry graminoids	2 Raw Value
<2% cover of all wiry graminoids	1 34
Invasive Plant Presence/Distribution Rating Pc	oints
Invasive nonnative plant species absent	4 Rating
Invasive nonnative plant species present in any stratum but sporadic (<5% cover)	<u> </u>
Invasive nonnative plant species in any stratum uncommon (5-10% cover)	2 Raw Value
Invasive nonnative plant species in any stratum common (>10% cover)	_ 1
Herbaceous Indicators of Soil Disturbance Rating Po	oints
Total cover for herbaceous indicators of soil disturbance <2%	4 Rating
Total cover for herbaceous indicators of soil disturbance 2-5%	3 (1-4):
Total cover for herbaceous indicators of soil disturbance >5-10%	2 Raw Value
Total cover for herbaceous indicators of soil disturbance >10%	<u>1</u>
Groundcover Overall Ecological Assessment	
comments works own for this recently sure site	



State/Prov ObsArea N	v: FL Site: Gold Head Branch State Park lame:	ObsArea Analysis (Code: G Obs Code	H5 e:		
Project: Fl	L County:	ObsDate:	2018/0	9/06 Obs	ID: 9940	
Observers	: Dan Hipes					
General Ty	/pe: Xeric Longleaf Pine Barrens					
Protocol:	Open Pine 2018 (metrics ver1.9)	Wt	Field Rating	Field Pts	Calc Pts	Calc Rating
Ecologica	l Integrity				3.83	A+
Rank Fact	tor: CONDITION	0.7			3.83	A+
MEF:	VEGETATION	0.55			3.80	A+
_	Basal Area of Southern Yellow Pine Canopy Trees	1	В	3		
	Southern Yellow Pine Canopy Cover	1	А	4		
	Southern Yellow Pine Stand Age Structure (12" cutoff)	1	В	3		

IEF: VEGETATION	0.55			3.80	A+
Basal Area of Southern Yellow Pine Canopy Trees	1	В	3		
Southern Yellow Pine Canopy Cover	1	А	4		
Southern Yellow Pine Stand Age Structure (12" cutoff)	1	В	3		
flat-top present					
Canopy Hardwood Basal Area	1	А	4		
Canopy Hardwood Basal Area - Fire-Intolerant	1	А	4		
Stand Density Index	1				
Canopy Overall Ecological Assessment	1				
Midstory Fire-Tolerant Hardwood Cover	1	А	4		
Midstory Fire-Intolerant Hardwood Cover	1	А	4		
Midstory Overall Woody Cover	1	А	4		
Midstory Overall Ecological Assessment	1				
Short Shrub (<3 feet tall) Cover	1	А	4		
Tall Shrub (3-10 feet tall) Cover	1	А	4		
Shrub Overall Ecological Assessment	1				
Overall Native Herbaceous Ground Cover	1	А	4		
Longleaf Pine Regeneration	1	В	3		
<1; >10" dbh or cone-producing longleaf present					
Native Warm Season Grass Cover	1	А	4		
Native Wiry Graminoid Cover	1	А	4		
Invasive Plant Presence/Distribution	1	А	4		
Groundcover Overall Ecological Assessment	1				
F: SOIL	0.1			4.00	A+
Herbaceous Indicators of Soil Disturbance	1	А	4		

Xeric Longleaf Pin	<u>e Barrens (XLP</u>	<u>B)</u> EIA datashee	t <u>Open Pi</u>	<u>ne 2018</u>	(metrics	ver1.9)			
Plot ID: GH	5	Date:	9/6/19	2					
Canopy Hardwood B	asal Area - Fire	-Intolerant	/ /			Xeric Longleof Pine Rati	ing Points		
≤5 ft2/acre basal area	of fire intolerant h	nardwood trees					4	Rating	
>5 to 10 ft2/acre basal	area of fire intole	erant hardwood tree	25				3	(1-4):	19
>10 to 20 ft2/acre basa	al area of fire into	lerant hardwood tre	ees				2	Raw Val	ue:
>20 ft2/acre basal area	of fire intolerant	hardwood trees					1	د)
readings	0	0	0		0				
Stand Density Index					2	Xeric Longleof Pine Barrens	ing Points		
SDI = 50 - 120 (13-30%	of Maximum SDI	of 400)					4	Rating	
SD! = 30 - 50 or 120 -10	60 (8-13% or 30-4	0% of Maximum SD	l of 400, 35	– 40% SD	l is near ma	aximum of stand grow	th) 3	(1-4):	
SDI = 20 - 30 or 160 - 1 self-thinning)	.80 (5-8% or 40-45	5% of Maximum SDI	, 240 is 60%	6 of Maxim	num SD of 4	400, which is the onse	t of 2	Raw Val	ue:
SDI <20 or >180 (<5% o	or > 45%, 240 is 60)% of Maximum SD	of 400, the	onset of s	elf-thinning	g)	1		
list of DBHs	ì								
Canopy Overall Ecolo comments	ogical Assessme	ent							
	la-30	trees	((() () (~ >	ac na trans			
Midstory Fire-Tolera	int Hardwood C	over	na taitir	line en e	n e si n Georgia e	Xeric Longleof Pine Borrens	ng Points		
2 to 10% cover of mids	tory fire-tolerant	hardwoods					4	Rating	
10 to 20% cover, or <29	% cover of midsto	ry fire-tolerant hard	lwoods				3	(1-4):	4
>20 to 25% cover of mi	dstory fire-tolera	nt hardwoods					2	Raw Val	ue:
>25% cover of midstor	y fire-tolerant har	dwoods					1	4	
Midstory Fire-Intole	rant Hardwood	Cover			···.	Xeric Langleof Pine Rati	ng Points		
<5% cover of fire-intole	erant hardwood m	nidstory					4	Rating	
5 to 10% cover of fire-i	ntolerant hardwo	od midstory					3	(1-4):	4
>10 to 20% cover of fire	e-intolerant hard	wood midstory					2	Raw Val	ue:
>20% cover of fire-into	lerant hardwood	midstory					1	Ð	
Midstory Overall Wo	oody Cover					Xeric Longleaf Pine Rati Borrens	ng Points	4	
2 to <15% cover of woo	ody midstory						4	Rating	
15 – 25%, or <2% cover	r of woody midsto	ory					3	(1-4):	Ľ
>25 to 35% cover of wo	oody midstory						2	Raw Val	ue:
>35% cover of woody r	nidstory						1	<u> </u>	

i

Plot ID: $\bigcirc H \\ S$ Date: $\boxed{4/2/19}$ Event details Site Name: $\bigcirc IIA \\ Accil \\ C \\ Site Site Name: \\ \bigcirc IIA \\ C \\ C \\ Site Site Name: \\ \bigcirc IIA \\ C \\ C \\ Site Site Name: \\ \bigcirc IIA \\ C \\ Site Site Name: \\ \bigcirc IIA \\ C \\ Site Site Name: \\ \bigcirc IIA \\ Site Site Name: \\ \hline IIA \\ Site Site Name: \\ \hline IIA \\ Site Site Name: \\ \hline IIA \\ \hline IIA \\ Site Name: \\ \hline IIA \\ \hline IIA \\ Site Name: \\ \hline IIA \\ Site Name: \\ \hline IIA \\ \hline IIA \\ \hline IIA \\ Site Name: \\ \hline IIA $	<u>Xeric Longleaf Pi</u>	<u>ine Barrens (XL</u>	<u>.PB)</u> EIA dat	tasheet	<u>Open Pine</u>	<u>2018 (m</u>	netrics ve	e r1.9)						
Event details Site Name: G, I, L, H, c, L, B, rest, L, S, C GPS Unit: G, S, A L 5, 5, 64 Ecological System: UTM-E: 24, 52, 41, 35 MITM-N: (B, S, T, L, 24) Basal S - 1, 6, 24 Number of 1, 4 Satelliter: Assessment Area/Site Description: Directions to plot: Reference Basal Area of Southern Vellow Pine Canopy Trees Xex Langed Piner Southern Vellow Pine Canopy Trees Xex Langed Piner Directions to plot: Reference Directions to 10 of 200 r/2/arce basal area of longleaf pine (Pinus palustris) 3 10 to 15 or > 90 to 100 ft/2/arce basal area of longleaf pine (Pinus palustris) 3 10 to 15 or > 90 to 100 ft/2/arce basal area of longleaf pine (Pinus palustris) 1 20 to 25% canopy cover of longleaf pine (Pinus palustris) 1 2 Southern Vellow Pine Canopy Cover Xext Langed Pine Rating 20 to 25% canopy cover or > 70 to 80% canopy cover of longleaf pine (Pinus palustris) 1 2 20 to 55% canopy cover or > 70 to 80% canopy cover of longleaf pine (Pinus palustris) 1 2 Southern Vellow Pine Stand Age Str	Plot ID: GH	5	Di	ate: 🔽	1/6/18	7								
Site Name: G: J. J. C. J. Dr. L. S. Team: //. / < G	Event details		_		((—	· .	· · · · · · · · · · · · · · · · · · ·						
GPS Unit: C C Ecological System: Datum: UTM-E: 24 52 41.35 meters Sand h.H. FMAT refuents's UTM-N: G1 57 1 (L.24) meters Sand h.H. FMAT refuents's Directions to plot: I 42 c n Assessment Area/Site Description: If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) Directions to plot: I 42 composition is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set of longiest pine (Pinus palustris) If An interest is a set o	Site Name:	d Head Br	meh SP	Team:	H	ecs								
Datum: L 5 5 8 4 UTM-E: 2 G 5 2 41.35 UTM-N: §1 5 1 (J.21) PDOP: 1 4 62 cm Number of satellies: 1 4 Directions to plot: Resessment Area/Site Description: Directions to plot: Resessment Area/Site Description: Directions to plot: Resessment Area/Site Description: Basal Area of Southern Vellow Pine Canopy Trees Resessment Area/Site Description: Basal Area of Southern Vellow Pine Canopy Trees Resessment Area/Site Description: Basal Area of Southern Vellow Pine Canopy Trees Resting Points Consider for EO (check box)? EO Comments: 10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)	GPS Unit:	$\frac{1}{2}$,			-								
UTM-E: 25 52 41.35 meters Number of 1 4 61.5 1 1.6.24 PDOP: 1 4 62.5 c.m. 1.4 Directions to plot: Resessment Area/Site Description: Reference 1.4 Directions to plot: Reference Reference 1.4 Basal Area of Southern Yellow Pine Canopy Trees Xonc Longber/Pine Rating Points 25:80 ft2/acre basal area of longleaf pine (Pinus palustris) 3 1 1.44 3 10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)	Datum:	1-15 84	rI	 	Ecolo	ogical Syste	em:							
UTM.N: Image: Standard Standa	UTM-E: o G	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	meters		50	Jull	/	FMAI	(efer	ele				
Off Number of Satellites: I U Directions to plot: I Reference Directions to plot: Reference Directions to plot: Reference Directions to plot: Reference Directions to solution to plot: Reference Directions to plot: Reference Directions to solution to plot: Reference Direction to solution to plot: Reference Direction to solution to plot: Reference Solution: Yell Direction to plot: Reference		54 71.53	meters		<i>Jci</i>	- , (- (, - ,		1.	10,000-	5. PC				
Link I I I Assessment Area/Site Description: Directions to plot: Reference Reference See J MAN Directions to plot: Reference See J MAN Basal Area of Southern Yellow Pine Canopy Trees See Southern Yellow Pine Canopy Trees See Southern Yellow Pine Canopy Trees 25-80 ft2/acre basal area of longleaf pine (Pinus palustris) 4 Rating 1(-4): >10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)		51 16.29	1											
Number of 14 Assessment Area/Site Description: Directions to plot: Referent Consider for EO (check box)? EO Comments: Basal Area of Southern Yellow Pine Canopy Trees Sector Consider for EO (check box)? EO Comments: Basal Area of Southern Yellow Pine Canopy Trees Sector Consider for EO (check box)? EO Comments: Basal Area of Southern Yellow Pine Canopy Trees Sector Consider for EO (check box)? EO Comments: 25-80 ft2/acre basal area of longleaf pine (Pinus palustris) 3 Itating 3 10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)	±	6) cm	1											
Assessment Area/Site Description: Directions to plot:	Number of Satellites:	14												
Directions to plot: Refain Control of Plots Basal Area of Southern Yellow Pine Canopy Trees Xeric LongNet/Pine Rating Points 25-80 ft2/acre basal area of longleaf pine (Pinus palustris) 4 >15 to <25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris) 3 10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)				Assessr	nent Area/	Site Descri	iption:							
Basal Area of Southern Yellow Pine Canopy Trees Xeric Longbol Fries Rating Points 25-80 ft2/acre basal area of longleaf pine (Pinus palustris) 4 >>15 to <25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris) 3 10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)	Directions to plot:				Refin	- Co,	11 film	Smill	<u> 1</u> И					
Consider for EO (check box)? EO Comments: Basal Area of Southern Yellow Pine Canopy Trees Xecic Longled Fine Berreins Xecic Longled Fine Rating Points 25-80 ft2/acre basal area of longleaf pine (Pinus palustris) 4 Rating (1-4): 3 >10 to 15 or >90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)														
Basal Area of Southern Yellow Pine Canopy Trees Xet Longled Pine Borreiss Rating Points 25-80 ft2/acre basal area of longleaf pine (Pinus palustris) 4 Rating 3 1(1-4): 3 >15 to <25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris) 3 1(1-4): 3 10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)				Conside	er for EO (c	neck box)7	?	EO Com	nents:					
Basal Area of Southern Yellow Pine Canopy Trees Keric Longleof Pine Barrens Rating Points Barrens 25-80 ft2/acre basal area of longleaf pine (Pinus palustris) 4 Rating (1-4): 3 15 to <25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris) 3 1-4): 3 10 to 15 or >90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)														
Basal Area of Southern Yellow Pine Canopy Trees Keric Longleof Pine Barrens Rating Points 25-80 ft2/acre basal area of longleaf pine (Pinus palustris) 4 Rating (1-4): 3 > 15 to <25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris) 2 Raw Value: > 10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)														
25-80 ft2/acre basal area of longleaf pine (Pinus palustris) 4 Rating (1-4): 25-80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris) 3 (1-4): 3 210 to 25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris) 1 2 Raw Value: 210 or 2100 ft2/acre basal area of longleaf pine (Pinus palustris) 1 2 Raw Value: 20 or 2100 ft2/acre basal area of longleaf pine (Pinus palustris) 1 2 C Southern Yellow Pine Canopy Cover Xerk tongled/Pine Rating Points 8 210 to 55% canopy cover of longleaf pine (Pinus palustris) 4 Rating (1-4): 2 25.15% canopy cover or >50 to 70% canopy cover of longleaf pine (Pinus palustris) 3 8 1 2 25.15% canopy cover or >70 to 80% canopy cover of longleaf pine (Pinus palustris) 3 1 2 2 Southern Yellow Pine Stand Age Structure (12" cutoff) Xerk tongleaf Pine Rating Points 8 2 2 2 Southern Yellow Pine trees 212" DBH class or flat-top longleaf pine is present 4 Rating 1 2 2 Southern Yellow Pine trees 212" DBH nor flat-top longleaf pine are present 1 7 7	Basal Area of South	hern Yellow Pin	e Canony Tr					Xeric Longleof Pine	Rating Points					
>15 to <25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris) 3 >10 to 15 or >90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)	25-80 ft2/acre basal	area of longleaf pi	ne (Pinus pali	ustris)				Borrens	A	Detter I				
10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)	>15 to <25 or >80 to	90 ft2/acre basal :	area of longle	af pine (P	'inus palustri	 s)			4	(1-4):	3			
<10 or ≥100 ft2/acre basal area of longleaf pine (Pinus palustris)	10 to 15 or > 90 to <1	100 ft2/acre basal	area of longle	eaf pine (F	Pinus palustr	is)				Raw Valu	ue:			
readings 40 / 2 / 2 Xerk Longled Pine Burrens Rating Points >20 to 55% canopy cover of longleaf pine (Pinus palustris) 4 Rating (1-4): Rating (1-4): 4 >15 to 20% canopy cover or >55 to 70% canopy cover of longleaf pine (Pinus palustris) 3 8 1 5-15% canopy cover or >70 to 80% canopy cover of longleaf pine (Pinus palustris) 2 Raw Value: 55% canopy cover or >80% canopy cover of longleaf pine (Pinus palustris) 1 2 Southern Yellow Pine Stand Age Structure (12" cutoff) Xerk Longleaf Pine Barrens Rating Points Barrens 1 Southern Yellow Pine Stand Age Structure (12" cutoff) Xerk Longleaf Pine Barrens Rating Points 1 Basal area ≥20 ft2/acre of longleaf pine trees ≥ 12" DBH class or flat-top longleaf pine is present 4 Rating (1-4): 3 Longleaf pine trees ≥12" DBH class are present, but <10 ft2/acre basal area of those large trees	<10 or ≥100 ft2/acre	basal area of long	leaf pine (Pin	us palustr	ris)				1	20	,			
Southern Yellow Pine Canopy Cover Xeric tongleof Pine Barrens Rating Points >20 to 55% canopy cover of longleaf pine (Pinus palustris) 4 Rating (1-4): Rating (1-4): </td <td>readings</td> <td>40</td> <td>1 / 2</td> <td>></td> <td>[0</td> <td></td> <td>20</td> <td></td> <td></td> <td></td> <td></td>	readings	40	1 / 2	>	[0		20							
>>20 to 55% canopy cover of longleaf pine (Pinus palustris)4 Rating (1-4):Rating (1-4):4 (1-4):Rating (1-4):4 (1-4):Rating (1-4):4 (1-4):Rating (1-4):4 (1-4):Rating (1-4):4 (1-4):Rating (1-4):4 (1-4):Rating (1-4):4 (1-4):Rating (1-4):4 (1-4):Rating (1-4):4 (1-4):Rating (1-4):4 (1-4):Rating (1-4):4 (1-4):Rating (1-4):7<	Southern Yellow Pi	ine Canopy Cove) 	Keric Longleaf Pine Barrens	Rating Points					
>15 to 20% canopy cover or >55 to 70% canopy cover of longleaf pine (Pinus palustris) (1-4): 4 (1-4): 2 Canopy cover or >70 to 80% canopy cover of longleaf pine (Pinus palustris) Southern Yellow Pine Stand Age Structure (12" cutoff) <i>Xerk tongleaf Pine Barrens</i> Rating Points Basal area ≥20 ft2/acre of longleaf pine trees ≥ 12" DBH class or flat-top longleaf pine is present A rating (1-4): 3 Rating Points Basal area ≥10 ft2/acre of longleaf pine trees ≥ 12" DBH class or flat-top longleaf pine is present A rating (1-4): 3 Rating Points Basal area ≥10 ft2/acre of longleaf pine trees ≥ 12" DBH class Southern trees ≥12" DBH class are present, but <10 ft2/acre basal area of those large trees No longleaf pine trees ≥12" DBH nor flat-top longleaf pine are present 1 (-0)	>20 to 55% canopy co	over of longleaf pi	ne (Pinus palı	ustris)		· · ·		:	4	Rating	7.1			
5-15% canopy cover or >70 to 80% canopy cover of longleaf pine (Pinus palustris) 2 <5% canopy cover or >80% canopy cover of longleaf pine (Pinus palustris) 1 2 2 Southern Yellow Pine Stand Age Structure (12" cutoff) Southern Yellow Pine Stand Age Structure (12" cutoff) Xeric tongleof Pine Barrens Basal area ≥20 ft2/acre of longleaf pine trees ≥ 12" DBH class or flat-top longleaf pine is present 4 Basal area ≥10 ft2/acre of longleaf pine trees ≥ 12" DBH class 3 Longleaf pine trees ≥12" DBH class are present, but <10 ft2/acre basal area of those large trees	>15 to 20% canopy co	over or >55 to 70%	6 сапору соvе	er of long	eaf pine (Pin	us palustri:	s)		3	(1-4):	٦			
Southern Yellow Pine Stand Age Structure (12" cutoff) Southern Yellow Pine Stand Pine Trees > 12" DBH class Southern Yellow Pine Fine Rating Points Southern Yellow Pine Barrens Southern Yellow Pine	5-15% canopy cover of	or >70 to 80% can	opy cover of I	longleaf p	ine (Pinus pa	lustris)	_		2	Raw Valu	ne:			
Southern Yellow Pine Stand Age Structure (12" cutoff) Xeric Longleof Pine Barrens Rating Points Basal area ≥20 ft2/acre of longleaf pine trees ≥ 12" DBH class or flat-top longleaf pine is present 4 Rating (1-4): 3 Basal area ≥10 ft2/acre of longleaf pine trees ≥ 12" DBH class 3 (1-4): 3 Longleaf pine trees ≥12" DBH class are present, but <10 ft2/acre basal area of those large trees	<5% canopy cover or	>80% canopy cov	er of longleaf	[:] pine (Pin	uș palustris)				1	<u> 22</u>	-			
Basal area ≥20 ft2/acre of longleaf pine trees ≥ 12" DBH class or flat-top longleaf pine is present 4 Rating 3 Basal area ≥10 ft2/acre of longleaf pine trees ≥ 12" DBH class 3 8 1-4): 3 Longleaf pine trees ≥12" DBH class are present, but <10 ft2/acre basal area of those large trees	Southern Yellow Pi	ine Stand Age St	ructure (12;	" cutoff)		······································	, ,	Keric Longleof Pine Barrens	Rating Points					
Basal area ≥10 ft2/acre of longleaf pine trees ≥ 12" DBH class 3 (1-4): 3 Longleaf pine trees ≥12" DBH class are present, but <10 ft2/acre basal area of those large trees	Basal area ≥20 ft2/ac	re of longleaf pine	e trees ≥ 12″ [DBH class	or flat-top lo	ngleaf pine	e is present	t	4	Rating				
Longleaf pine trees ≥12" DBH class are present, but <10 ft2/acre basal area of those large trees	Basal area ≥10 ft2/ac	re of longleaf pine	e trees ≥ 12″ [DBH class					3	(1-4):	S			
No longleaf pine trees ≥12" DBH nor flat-top longleaf pine are present 1 / 0 readings / 0 0 / 2 flat-top pine present 7 Canopy Hardwood Basal Area Xeric tongleof Pine Borrens Rating Points ≤5 ft2/acre basal area of hardwood trees 4 Rating (1-4): 4 >15 to 25 ft2/acre basal area of hardwood trees 2 8 8 >25 ft2/acre basal area of hardwood trees 2 8 8 >25 ft2/acre basal area of hardwood trees 2 1 0	Longleaf pine trees ≥	12" DBH class are	present, but •	<10 ft2/a	cre basal are	a of those l	arge trees		2	Raw Valu	le:			
readings /O /O <th o<="" th=""> <th o<="" th=""> /O <th o<="" th=""></th></th></th>	<th o<="" th=""> /O <th o<="" th=""></th></th>	/O <th o<="" th=""></th>		No longleaf pine tree	s ≥12" DBH nor fla	at-top longlea	of pine are	e present			_	1	10	
Canopy Hardwood Basal Area Xeric Longled Pine Borrens Rating Points <5 ft2/acre basal area of hardwood trees	readings	10		Ø	10		12		flat-top	o pine prese	ent 🗹			
≤5 ft2/acre basal area of hardwood trees >5 to 15 ft2/acre basal area of hardwood trees >15 to 25 ft2/acre basal area of hardwood trees ≥5 ft2/acre basal area of hardwood trees ≥2 ft2/acre basal area of hardwood trees 2 Raw Value: >2 ft2/acre basal area of hardwood trees 1 0	Canopy Hardwood	Basal Area			· · · ·			seric Longleaf Pine Barrens	Rating Points	1				
>5 to 15 tt2/acre basal area of hardwood trees 3 (1-4): (1-4): >15 to 25 ft2/acre basal area of hardwood trees 2 Raw Value: >25 ft2/acre basal area of hardwood trees 1 0	≤5 ft2/acre basal area	a of hardwood tre	es .						4	Rating	ч			
>25 ft2/acre basal area of hardwood trees 2 Raw Value:	>5 to 15 ft2/acre basa	al area of hardwoo	od trees				· · · · · · ·		3	(1-4):				
	>15 to 25 It2/acre ba	sal area of hardwood	ooa trees			·			2	Kaw Valu	ie:			
			ees 1				0		1	၂ <u>ပ</u>				

	<u>,3 ver 1.57</u>	
Plot ID: 645 Date: 9/1/18		
Midstory Overall Ecological Assessment		
comments excellent - scores are App	proprio te	
Short Shrub (<3 feet tall) Cover	Xeric Longleaf Pine Barcens Rating Points	· · ··
Shrubs < 3 feet in height average <25% cover in the assessment area	4	Rating
Shrubs < 3 feet in height average 25 to 35% cover in the assessment area	3	(1-4):
Shrubs < 3 feet in height average >35 to 45% cover in the assessment area	2	Raw Value:
Shrubs < 3 feet in height average >45% cover in the assessment area		17
Tall Shrub (3-10 feet tall) Cover	Xeric Longleof Pine Rating Points	
Shrubs 3-10 feet in height average <10% cover.	Barrens	Rating
Shrubs 3-10 feet in height average 10 to <20% cover.	3	(1-4):
Shrubs 3-10 feet in height average 20 to 30% cover.	2	Raw Value:
Shrubs 3-10 feet in height average >30% cover.	1	1
Shrub Overall Ecological Assessment		. 1945 - X
Shrub Overall Ecological Assessment comments 5 Cores appropriate		
Shrub Overall Ecological Assessment comments 5 Cores Coperation Overall Native Herbaceous Ground Cover	Xere Longleof Pine Barrens Rating Points	2.5,42 + 2.4 +
Shrub Overall Ecological Assessment comments 5 Cores Coverall Native Herbaceous Ground Cover 40-100% herbaceous cover	Xeric Longleof Pine Barrens Rating Points	Rating
Shrub Overall Ecological Assessment comments \$ Cores \$ Cores Copper operation Overall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover	Xéric Longleof Pine Barrens Rating Points 4	Rating (1-4):
Shrub Overall Ecological Assessment comments \$ (> r < s) c < p > r r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < r < p < p	Xenc Longleof Pine Barrens Rating Points 4 3	Rating (1-4):
Shrub Overall Ecological Assessment comments 5 Cores Scores coperation Overall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover	Vienc Longleof Pine Barrens 4 3 2 1	Rating (1-4): 4 Raw Value: 7 0
Shrub Overall Ecological Assessment comments Scores Scores cyperoperiods Overall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover	Xeric Longleof Pine Barrens Rating Points 4 3 2 1 80pid Assessment Location Rating Points	Rating (1-4): 4 Raw Value: 70
Shrub Overall Ecological Assessment comments 5 Cores 5 Cores Cores Overall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover	Xeric Longleof Pine Barrens 4 3 2 1 80pid Assessment Location 4	Rating (1-4): 70 Raw Value:
Shrub Overall Ecological Assessment comments 5 Corres Stores Generation Overall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover	Action Longleof Pine Rating Points Barrens 4 3 2 1 Ropid Assessment Rating Points Location 4 3	Rating (1-4): Raw Value: 70 Rating (1-4): 3
Shrub Overall Ecological Assessment comments Scores Scores appropriate Overall Native Herbaceous Ground Cover 40-100% herbaceous cover >25 to <40% herbaceous cover	Acric Longleof Pine Barrens 4 3 2 1 Repid Assessment Location 4 3 ongleaf pine >10" DBH are 2	Rating (1-4): Raw Value: 70 Rating (1-4): 3 Raw Value:

Plot ID:	645	Date:	9/6/18]			
Longleaf	Pine Regeneration				Stand Level Rating Poir	nts	
Longleaf pi 1/6 of the s	ne regeneration is present in pat stand)	ches across th	ne stand, these pa	tches are 5-15 % of	the stand (about 1/20 to	4	Rating (1-4):
Longleaf pi stand (less	ne regeneration is present in pat than 1/20 or more than 1/6 of th	ches across th ie stand)	he stand, these pa	tches are 1-5 % of t	he stand or >15% of the	3	Raw Value:
Longleaf pi producing	ne regeneration is very sparse ac longleaf pine or longleaf pine >10	ross stand, pa)" DBH are pre	atches of longleaf esent	pine regeneration a	are <1% of stand, or cone	2	
Longleaf pi longleaf pi	ine regeneration is apparently ab ne >10" DBH are present in the st	sent in stand, tand	, and apparently n	o cone producing lo	ongleaf pine or any mature	1	
					>10" DBH or cone-producing	g lon	gleaf present
Native W	arm Season Grass Cover			· · · · · · · · · · · · · · · · · · ·	Xeric Longleaf Pine Barrens Rating Poir	nts	
25-95% cov	ver of all native warm season gra	sses	·	·	······································	4	Rating
15 to <25%	6 or >95% cover of all native warn	n season gras	ses			3	(1-4): 4
10 to <15%	cover of all native warm season	grasses				2	Raw Value:
<10% cove	r of all native warm season grass	es				1	68
Native W	iry Graminoid Cover		<u>·</u>		Xeric Longleaf Pine Barrens Rating Poin	nts	·····
20-95% co	ver of all wiry graminoids					4	Rating J
10 to <20%	6 or >95% cover of all wiry gramir	noids			_	3	(1-4):
2 to <10%	cover of all wiry graminoids					2	Raw Value:
<2% cover	of all wiry graminoids					1	68
Invasive I	Plant Presence/Distribution	· · ·	·		Rating Poi	nts	
Invasive no	onnative plant species absent					4	Rating (/
Invasive no	onnative plant species present in	any stratum t	but sporadic (<5%	cover)		3	(1-4): ។
Invasive no	onnative plant species in any stra	tum uncomm	on (5-10% cover)			2	Raw Value:
Invasive no	onnative plant species in any stra	tum common	(>10% cover)			1	0
Herbaced	ous Indicators of Soil Disturba	nce		······································	Rating Pol	nts	- 1120-11-11-11-11-11-11-11-11-11-11-11-11-11
Total cove	r for herbaceous indicators of soi	l disturbance	<2%			4	Rating
Total cove	r for herbaceous indicators of soi	l disturbance	2-5%	-		3	(1-4):
Total cove	r for herbaceous indicators of soi	l disturbance	>5-10%			2	Raw Value:
Total cove	r for herbaceous indicators of soi	l disturbance	>10%			1	0
Groundco	over Overall Ecological Assess	ment		· · · · · · ·			

comments

Scores appropriate



State/Prov: FL	Site: Cam	p Blanding	Joint Trainin	g Center

ObsArea Name:	ObsArea	Name:
---------------	---------	-------

Project: FLCounty:Observers: Dan Hipes, Michael Lee, Susan Carr

ObsArea Code: CB1 Analysis Obs Code: ObsDate: 2018/09/05 ObsID: 9941

General Type: Xeric Longleaf Pine Barrens

Protocol: Open Pine 2018 (metrics ver1.9)	Wt	Field Rating	Field Pts	Calc Pts	Calc Rating
Ecological Integrity				3.77	A-
Rank Factor: CONDITION	0.7			3.77	A-
MEF: VEGETATION	0.55			3.73	A-
Basal Area of Southern Yellow Pine Canopy Trees	1	А	4		
Southern Yellow Pine Canopy Cover	1	В	3		
Southern Yellow Pine Stand Age Structure (12" cutoff) flat-top present	1	A	4		
Canopy Hardwood Basal Area	1	В	3		
Canopy Hardwood Basal Area - Fire-Intolerant	1	А	4		
Stand Density Index	1				
Canopy Overall Ecological Assessment	1				
Midstory Fire-Tolerant Hardwood Cover	1	А	4		
Midstory Fire-Intolerant Hardwood Cover	1	А	4		
Midstory Overall Woody Cover	1	А	4		
Midstory Overall Ecological Assessment	1				
2x3 = 1%; too many turkey oak					
Short Shrub (<3 feet tall) Cover	1	В	3		
Tall Shrub (3-10 feet tall) Cover	1	А	4		
Shrub Overall Ecological Assessment	1				
"too many turkey oak" (Susan Carr and Dan)					
Overall Native Herbaceous Ground Cover	1	А	4		
Longleaf Pine Regeneration	1	В	3		
<1%; >10" dbh or cone-producing longleaf present					
Native Warm Season Grass Cover	1	А	4		
Native Wiry Graminoid Cover	1	А	4		
Invasive Plant Presence/Distribution	1	А	4		
Groundcover Overall Ecological Assessment	1				
MEF: SOIL	0.1			4.00	A+
Herbaceous Indicators of Soil Disturbance <2%	1	А	4		

Xeric Longleaf Pine Barrens (XLPB) EIA	datasheet <u>Open Pine 2018 (metrics ver1.9)</u>
Plot ID: CBI	Date: $9/5/18$
Event details	
Site Name: Care Blankam	Team: Hips, Lee Carr
GPS Unit:	
Datum:	Ecological System:
UTM-E: 29 50 02 0 meters	Sachill
UTM-N:	
PDOP: + 15	
Number of	
Satellites:	
	Assessment Area/Site Description:
Directions to plot:	pretty good Sandkill
South Since of	
Greble RX	Consider for EO (check box)? EO Comments:
Basal Area of Southern Vellow Pine Canony	
25-80 ft2/acre basal area of longleaf nine (Pinus	nalustris)
>15 to <25 or >80 to 90 ft2/acre basal area of lor	releaf nine (Pinus palustris)
10 to 15 or > 90 to <100 ft2/acre basal area of lo	ngleaf pine (Pinus palustris)
<10 or ≥100 ft2/acre basal area of longleaf pine (Pinus palustris)
readings 7.0	
Southern Yellow Pine Canopy Cover	Xeric Longleaf Pine Rating Points
>20 to 55% canopy cover of longleaf pine (Pinus	palustris)
>15 to 20% canopy cover or >55 to 70% canopy of	cover of longleaf pine (Pinus palustris) 3 (1-4): 3
5-15% canopy cover or >70 to 80% canopy cover	of longleaf pine (Pinus palustris) 2 Raw Value:
<5% canopy cover or >80% canopy cover of long	eaf pine (Pinus palustris) 1
Southern Yellow Pine Stand Age Structure	12" cutoff) Xeric Longleof Pine Rating Points
Basal area ≥20 ft2/acre of longleaf pine trees ≥ 1	2" DBH class or flat-top longleaf pine is present 4 Rating
Basal area ≥10 ft2/acre of longleaf pine trees ≥ 1	2" DBH class 3 (1-4):
Longleaf pine trees ≥12" DBH class are present, b	ut <10 ft2/acre basal area of those large trees 2 Raw Value:
No longleaf pine trees ≥12" DBH nor flat-top long	gleaf pine are present 1
readings O	O O O flat-top pine present
Canopy Hardwood Basal Area	Xeric Longleof Pine Rating Points Barrens
≤5 ft2/acre basal area of hardwood trees	4 Rating
>5 to 15 ft2/acre basal area of hardwood trees	3 (1-4):
>15 to 25 ft2/acre basal area of hardwood trees	2 Raw Value:
>25 ft2/acre basal area of hardwood trees	1
readings O	30 0 30 75

Ł

; ;

<u>Keric Longleaf Pine Barrens (XLPB)</u> EIA datasheet <u>Open Pine 2018 (metrics ver1.9)</u>		
Plot ID: C/S Date: $9/5//8$		
anopy Hardwood Basal Area - Fire-Intolerant Xeric Longle of Pine Rating Poi	ints	
5 ft2/acre basal area of fire intolerant hardwood trees	4 I	Rating
5 to 10 ft2/acre basal area of fire intolerant hardwood trees	3	(1-4): 4
10 to 20 ft2/acre basal area of fire intolerant hardwood trees	2	Raw Value:
20 ft2/acre basal area of fire intolerant hardwood trees	1	0
eadings O O O		
tand Density Index Xeric Longleof Pine Rating Poi	ints	
DI = 50 – 120 (13-30% of Maximum SDI of 400)	4	Rating
DI = 30 – 50 or 120 -160 (8-13% or 30-40% of Maximum SDI of 400, 35 – 40% SDI is near maximum of stand growth)	3	(1-4):
DI = 20 – 30 or 160 - 180 (5-8% or 40-45% of Maximum SDI, 240 is 60% of Maximum SD of 400, which is the onset of elf-thinning)	2	Raw Value:
DI <20 or >180 (<5% or > 45%, 240 is 60% of Maximum SD of 400, the onset of self-thinning)	_1 ^L	
Canopy Overall Ecological Assessment		
ommonte		
High Cover of Conony Hardwoods borterline fair	A	
Vidstory Fire-Tolerant Hardwood Cover	ints	
Vidstory Fire-Tolerant Hardwood Cover to 10% cover of midstory fire-tolerant hardwoods	ints	Rating
Wo Image: trees(712") Scores Seem appropriation Minc AbH Jinc AbH High Cover of Conorry Hardwoods Borterline fair Vidstory Fire-Tolerant Hardwood Cover Xerk Longleof Pine Borrens Rating Pol L to 10% cover of midstory fire-tolerant hardwoods 0 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	ints	Rating (1-4): (
We large trees (712 ⁿ) Mo large trees (712 ⁿ) Scores seem appropri- dbH High Cover of Conory Hardwoods Vidstory Fire-Tolerant Hardwood Cover 2 to 10% cover of midstory fire-tolerant hardwoods 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods -20 to 25% cover of midstory fire-tolerant hardwoods	ints 4 3 2	Rating (1-4): (Raw Value:
Wis /wsic freus (712 ^N) Scores Score appropriation Mission Abit princ dbit Scores Score appropriation High Cover of Concert Hardwoods Borrens Rating Pole Vidstory Fire-Tolerant Hardwood Cover Score of midstory fire-tolerant hardwoods Score of midstory fire-tolerant hardwoods 2 to 10% cover of midstory fire-tolerant hardwoods 20 to 25% cover of midstory fire-tolerant hardwoods 20 to 25% cover of midstory fire-tolerant hardwoods	ints 4 3 2 1	Rating (1-4): (Raw Value:
Wo /urgin trens(712 m) Schich Schi	ints 4 3 2 1	Rating (1-4): (Raw Value: 3
Wo /wight freedo (712 m) Schield Schie	ints 4 3 2 1 1 4	Rating (1-4): (Raw Value: 3 Rating (
Wo /wight freese (712 M) Schrieb Schrib Schrib Schrieb	ints 4 3 2 1 1 3 3	Rating (1-4): (Raw Value: 3 Rating (1-4): (
iomments	ints 4 3 2 1 1 3 3 2	Rating (1-4): (Raw Value: 3 Rating (1-4): (Raw Value:
Image: Somments Image: Somments Image: Somments Image: Somments Image: Somments Somments <td>ints 4 3 2 1 1 3 2 1 1</td> <td>Rating (1-4): (Raw Value: 3 Rating (1-4): (Raw Value:</td>	ints 4 3 2 1 1 3 2 1 1	Rating (1-4): (Raw Value: 3 Rating (1-4): (Raw Value:
icomments IVo /wight from (712 m) Schift Schi	ints 4 3 2 1 1 3 2 1 1 1 1 1	Rating (1-4): (Raw Value: 3 Rating (1-4): (Raw Value:
image: comments Image: comments <tdo< td=""><td>ints 4 3 2 1 1 1 1 1 1 1 1</td><td>Rating (1-4): (Raw Value: 3 Rating (1-4): (Raw Value: 0 Rating (1-4): (Raw Value:</td></tdo<>	ints 4 3 2 1 1 1 1 1 1 1 1	Rating (1-4): (Raw Value: 3 Rating (1-4): (Raw Value: 0 Rating (1-4): (Raw Value:
iomments IVS Iwset Freus (212 M) Scirits Sciri	Ints 4 3 2 1 3 2 1 3 2 1 3 3 3 3 3 3 3 3 3 3 3 3 3	Rating (1-4): (Raw Value: 3 Rating (1-4): (Raw Value: 0 Rating (1-4): (Rating (1-4): (Rati
iomments Image: track(712 ^M) SCMPA Seem Gygresen ipinc Abit Ipinc Abit High Comment Connerg Hardwoods Dertains Vidstory Fire-Tolerant Hardwood Cover Xeric Longleof Prine Borrens Rating Poil 2 to 10% cover of midstory fire-tolerant hardwoods Scover of midstory fire-tolerant hardwoods 20 to 25% cover of midstory fire-tolerant hardwoods Scover of midstory fire-tolerant hardwoods Vidstory Fire-Intolerant Hardwood Cover Xerk Longleof Prine Borrens Yidstory Fire-Intolerant Hardwood Cover Xerk Longleof Prine Borrens Sover of fire-Intolerant hardwood midstory Scover of fire-intolerant hardwood midstory >10 to 20% cover of fire-Intolerant hardwood midstory Xerk Longleof Prine Borrens >20% cover of fire-Intolerant hardwood midstory Xerk Longleof Prine Borrens >20% cover of fire-Intolerant hardwood midstory Xerk Longleof Prine Borrens >20% cover of fire-Intolerant hardwood midstory Xerk Longleof Prine Borrens >20% cover of fire-Intolerant hardwood midstory Xerk Longleof Prine Borrens >20% cover of fire-Intolerant hardwood midstory Xerk Longleof Prine Borrens >20% cover of woody midstory Xerk Longleof Prine Borrens 20% cover of woody	ints 4 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Rating (1-4): (Raw Value: 3 Rating (1-4): (Raw Value: (1-4): (Rating (1-4): (Rating (1-4): (Raw Value:

<u>Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine 2018 (metrics ver1.9)</u>			
Plot ID: CD 01 Date: 9/5/18			7
Midstory Overali Ecological Assessment		110	
comments 2 × 3 = 1 " "Too may tarke oak", Sound OK-gud			
Short Shrub (<3 feet tall) Cover Xeric Longleaf Pine Barrens Rating Points			
Shrubs < 3 feet in height average <25% cover in the assessment area 4	Rating		,
Shrubs < 3 feet in height average 25 to 35% cover in the assessment area 3	(1-4):	3	
Shrubs < 3 feet in height average >35 to 45% cover in the assessment area 2	Raw Va	lue:	
Shrubs < 3 feet in height average >45% cover in the assessment area	33	5	
Tall Shrub (3-10 feet tall) Cover			-
Shrubs 3-10 feet in height average <10% cover.	Rating		ر ر
Shrubs 3-10 feet in height average 10 to <20% cover. 3	(1-4):	4	
Shrubs 3-10 feet in height average 20 to 30% cover. 2	Raw Va	lue:	
Shrubs 3-10 feet in height average >30% cover.	4		
Shrub Overall Ecological Assessment	÷		
comments "Two many tarkey oak" (Susan Corr) and Dun projesse to reduce the excellent a good value ranges			
Overall Native Herbaceous Ground Cover	· 목숨 문	51.	
40-100% herbaceous cover 4	Rating	\mathbf{r}	
>25 to <40% herbaceous cover 3	(1-4):	4	
>15 to 25% herbaceous cover 2	Raw Va	lue:	
0-15% herbaceous cover 1	65	-	
Longleaf Pine Regeneration Rating Points			
Longleaf pine regeneration (<2" DBH) cover is ≥1% at rapid assessment location 4	Rating	2	
Longleaf pine regeneration (<2" DBH) cover is <1% at rapid assessment location 3	(1-4):	2	
No Longleaf pine regeneration (<2" DBH) cover seen, but cone producing longleaf pine or longleaf pine >10" DBH are present rapid assessment location 2	Raw Va	lue:	
Longleaf pine regeneration (<2" DBH) cover is apparently absent, and no cone producing longleaf pine or any mature longleaf pine >10" DBH are present at the rapid assessment location			/

Plot ID: 01 Date: 9518	
Longleaf Pine Regeneration Stand Level Rating Points	14
Longleaf pine regeneration is present in patches across the stand, these patches are 5-15 % of the stand (about 1/20 to 1/6 of the stand)	Rating (1-4):
Longleaf pine regeneration is present in patches across the stand, these patches are 1-5 % of the stand or >15% of the stand (less than 1/20 or more than 1/6 of the stand)	Raw Value:
Longleaf pine regeneration is very sparse across stand, patches of longleaf pine regeneration are <1% of stand, or cone producing longleaf pine or longleaf pine >10" DBH are present	
Longleaf pine regeneration is apparently absent in stand, and apparently no cone producing longleaf pine or any mature 1 longleaf pine >10" DBH are present in the stand	
>10" DBH or cone-producing lor	igleaf present 🗌
Native Warm Season Grass Cover Xeric Longled Pine Rating Points	NGC TO MUMBER
25-95% cover of all native warm season grasses 4	Rating //
15 to <25% or >95% cover of all native warm season grasses 3	(1-4): 4
10 to <15% cover of all native warm season grasses 2	Raw Value:
<10% cover of all native warm season grasses 1	63
Native Wiry Graminoid Cover Xeric Longle of Pine Rating Points	
20-95% cover of all wiry graminoids 4	Rating
10 to <20% or >95% cover of all wiry graminoids 3	(1-4):
2 to <10% cover of all wiry graminoids 2	Raw Value:
<2% cover of all wiry graminoids 1	60
Invasive Plant Presence/Distribution	
Invasive nonnative plant species absent 4	Rating
Invasive nonnative plant species present in any stratum but sporadic (<5% cover) 3	(1-4):
Invasive nonnative plant species in any stratum uncommon (5-10% cover) 2	Raw Value:
Invasive nonnative plant species in any stratum common (>10% cover) 1	0
Herbaceous Indicators of Soil Disturbance	
Total cover for herbaceous indicators of soil disturbance <2% 4	Rating 1
Total cover for herbaceous indicators of soil disturbance 2-5% 3	(1-4): 9
Total cover for herbaceous indicators of soil disturbance >5-10% 2	Raw Value:
Total cover for herbaceous indicators of soil disturbance >10% 1	<2
Groundcover Overall Ecological Assessment	

comments

jour groud com scores appropriate



State/Prov: FL ObsArea Name:	Site: Camp Blanding Joint Training Center Ob	sArea alvsis (Code: C Obs Cod	B2 e:		
Project: FL	County: Ob	sDate:	2018/0	9/05 C	bsID: 9942	2
Observers: Dan	, Hipes		, -	- /		
General Type:	Xeric Longleaf Pine Barrens					
Protocol: Open	Pine 2018 (metrics ver1.9)	Wt	Field Rating	Field Pts	Calc Pts	Calc Rating
Ecological Integ	grity		_		3.61	A-
Rank Factor: CO	ONDITION	0.7			3.61	A-
MEF: VEGET	ATION	0.55			3.53	A-
Basa	Area of Southern Yellow Pine Canopy Trees	1	В	3		
Sout	hern Yellow Pine Canopy Cover	1	С	2		
Sout	hern Yellow Pine Stand Age Structure (12" cutoff)	1	В	3		
Canc	py Hardwood Basal Area	1	А	4		
Canc	py Hardwood Basal Area - Fire-Intolerant	1	А	4		
Stan	d Density Index	1				
Canc	py Overall Ecological Assessment	1				
Mids	tory Fire-Tolerant Hardwood Cover	1	В	3		
Mids	tory Fire-Intolerant Hardwood Cover	1	А	4		
Mids	tory Overall Woody Cover	1	А	4		
Mids	tory Overall Ecological Assessment	1				
S	ome concern regarding amount of oak needed or allowed; ma	ybe 1%	6 is exce	llent		
Shor	t Shrub (<3 feet tall) Cover	1	В	3		
Tall S	Shrub (3-10 feet tall) Cover	1	А	4		
Shru	b Overall Ecological Assessment	1				
Over	all Native Herbaceous Ground Cover	1	А	4		
Long	leaf Pine Regeneration	1	В	3		
<	<1%; >10" dbh or cone-producing longleaf present					
Nativ	e Warm Season Grass Cover	1	А	4		
Nativ	e Wiry Graminoid Cover	1	А	4		
Invas	sive Plant Presence/Distribution	1	А	4		
Grou	indcover Overall Ecological Assessment	1				
MEF: SOIL		0.1			4.00	A+
Herb	aceous Indicators of Soil Disturbance <2%	1	А	4		

Xeric Longleaf Pin	e Barrens (XLF	<u>PB)</u> EIA datashe	eet <u>Open Pine 2</u>	018 (metrics ver	<u>1.9)</u>	
Plot ID:	2	Date:	9/5/18			
Event details		· · · · · ·				
Site Name:		Tear	n:			
GPS Unit:	in he Geo	7				
Datum:	C 84		Ecologie	cal System:		
UTM-E: 29 4 UTM-N: 8 3	19 71,31 9 42,90	maters- meters	Son	1 4:11	Kestri	(
PDOP:	40 cm				Buchma	ins spara
Satemites:		Ass	essment Area/Site	Description:		
Directions to plot		1.55				
South	of Cree	Con Con	- sider for EO (cheo	:k box)?	EO Comments:	
		I		Xe		
Basal Area of South	ern Yellow Pine	Canopy Trees			Borrens Rating Points	
25-80 ft2/acre basal at	ea of longleat pin	e (Pinus palustris)			4	Rating
>15 to <25 or >80 to 9	0 ft2/acre basal a	rea of longleat pin	e (Pinus paiustris)			
10(0130) > 90(0<10)	atal area of longle	aaf nine (Pinus nal	le (Fillus palustris)		2	Naw Varue.
readings				1 9 0	1	
Southern Yellow Pir	e Canopy Cover	r r		 	Lengle of Pine Bating Points	
>20 to 55% canopy cov	ver of longleaf nin	e (Pinus nalustris)			Barrens	
>15 to 20% canopy cov	/er or >55 to 70%	canopy cover of l	ongleaf pine (Pinus	palustris)	4	(1-4): 2
5-15% canopy cover or	>70 to 80% cano	py cover of longle	af pine (Pinus palus	tris)		Raw Value:
<5% canopy cover or >	80% canopy cove	r of longleaf pine	(Pinus palustris)	,	1	
L Southern Yellow Pin	e Stand Age Str	ucture (12" cuto	off)	Xe	ric Longleof Pine Rating Points	⊔ ∟]
Basal area ≥20 ft2/acre	e of longleaf pine	trees ≥ 12" DBH c	ass or flat-top long	eaf pine is present	Barrens	Rating
Basal area ≥10 ft2/acre	e of longleaf pine	trees ≥ 12" DBH cl	ass		3	(1-4): 3
Longleaf pine trees ≥1:	2" DBH class are p	oresent, but <10 ft	2/acre basal area o	f those large trees	2	Raw Value:
No longleaf pine trees	≥12" DBH nor flat	t-top longleaf pine	are present		1	7.5
readings	.Ø	20	0	10	flat-to	p pine present 🔲
Canopy Hardwood E	Basal Area			Xe	ric Longleof Pine Barreas Rating Points	·
≤5 ft2/acre basal area	of hardwood tree	S		•	4	Rating
>5 to 15 ft2/acre basal	area of hardwoo	d trees			3	(1-4): 4
>15 to 25 ft2/acre base	al area of hardwo	od trees			2	Raw Value:
>25 ft2/acre basal area	of hardwood tre	es			1	0
readings	Ð	0	0	0]	

				<u> </u>		
Xeric Longleaf Pin	e Barrens (XLPB)	EIA datasheet	t Open Pine 201	8 (metrics ver1.9)		
Plot ID: C/S	2	Date:	9/5/18	Xeric Lonaleaf Pi	R Dating Dainte	
Canopy Hardwood E		itolerant	· · · · · · ·	Borre		
≤5 ft2/acre basal area	of fire intolerant has	rowood trees			4	Rating 4
>5 to 10 ft2/acre basa	area of fire intolera	Int hardwood tree			3	
>10 to 20 ft2/acre basel orac	a of fire intelerent b	ant narowood tre	.es		2	
20 It2/acre basararea						
readings		Ċ		Xeric Longleof Pil	¹⁰ Pating Points	ε
Stand Density Index	6 of Maximum SDL of	F 400)		Barre		
301 - 30 - 120 (13 - 30 /	60 (8-13% or 30-40°	6 of Maximum SD		DI is near maximum of stan	d growth) 2	(1-4):
SDI = 20 - 30 or 160 - 100 or 160 - 100 or 100	180 (5-8% or 40-45%	of Maximum SDL	. 240 is 60% of Maxi	mum SD of 400, which is th	e onset of 7	Raw Value:
self-thinning)					Z	
SDl <20 or >180 (<5% o	or > 45%, 240 is 60%	of Maximum SD o	of 400, the onset of	self-thinning)	1	
list of DBHs						
					ļ	
Canopy Overall Ecol	logical Assessmen	t		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		
Canopy Overall Ecol	logical Assessmen	t. Jaris	or at	reast matters	en en der Geschichtetetetetetetetetetetetetetetetetetete	
Canopy Overall Ecol comments	iogical Assessmen	t	or at 1	east mature	pincs	
Canopy Overall Ecol comments	iogical Assessmen	t Ne large Scores	or at 1 appropri	least mature	pincs	
Canopy Overall Ecol comments	logical Assessmen	t Scores	or at a appropri	least mature	pines	
Canopy Overall Ecol comments	iogical Assessmen	t Scures	or it i cyppropr	least mature	Pincs	
Canopy Overall Ecol comments	iogical Assessmen	t Scures	or at 1 appropri	east mature inte	pincs	<u>.</u>
Canopy Overall Ecol comments Midstory Fire-Toler	ant Hardwood Cov	t Scores Ver	or at a oppropro	Xeric Longleof Pi Borre	Princs	
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mid	ant Hardwood Cov	t SCurcs ver ardwoods	er et p er et p	xeric Löngleof Pi Borre	Primes Rating Points	Rating
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mid 10 to 20% cover, or <2	ant Hardwood Cov % cover of midstory	t SCurcs SCurcs ver ardwoods (fire-tolerant hard	or it i oppropro	Least mature At Xeric Longicof Pi Star Borre	ne Rating Points	Rating 3 (1-4): 3
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mid 10 to 20% cover, or <2 >20 to 25% cover of m	ant Hardwood Cov story fire-tolerant ha	t SCORES ver ardwoods fire-tolerant hard hardwoods	or et p oppropro	Venst imature inte Xeric Longleof Pi Borre	ne Rating Points 4 3	Rating (1-4): 3 Raw Value:
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mid 10 to 20% cover, or <2 >20 to 25% cover of midstor >25% cover of midstor	ant Hardwood Cou story fire-tolerant hardword	t SCURCS Ver ardwoods fire-tolerant hard hardwoods woods	er it i cypropropro	Xane Longleof Pi Xane Longleof Pi Borre	ne Rating Points	Rating (1-4): 3 Raw Value:
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mids 10 to 20% cover, or <2 >20 to 25% cover of midstor >25% cover of midstor Midstory Fire-Intole	ant Hardwood Con story fire-tolerant hardwood Con idstory fire-tolerant hardwood Con story fire-tolerant hardwood Con	t SCURCS Ver ardwoods fire-tolerant hard hardwoods woods over	er et e	Xeric Longleof Pi Xeric Longleof Pi Xeric Longleof Pi Barra	Rating Points 4 3 2 1 ne Rating Points	Rating (1-4): 3 Raw Value:
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mid 10 to 20% cover, or <2 >20 to 25% cover of midstor >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol	ant Hardwood Cov story fire-tolerant hardwood C ry fire-tolerant hardwood C ry fire-tolerant hardwood C erant Hardwood C	t SCU.CS SCU.CS ver ardwoods fire-tolerant hard hardwoods woods over dstory	in it i or it i cyppersport	Xeric Longleof Pi Xeric Longleof Pi Xeric Longleof Pi Barra	Rating Points	Rating 3 (1-4): 3 Raw Value:
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mids 10 to 20% cover, or <2 >20 to 25% cover of midstor >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol	logical Assessmen	t SCURCS SCURCS ver ardwoods rfire-tolerant hard hardwoods woods woods over dstory d midstory	or it i appropropro	Xeric Longleof Pi Xeric Longleof Pi Borre Borre	Rating Points 4 3 2 1 ne Rating Points 4 3 2 1 ne Rating Points 4 3	Rating (1-4): 3 Raw Value: / Rating (1-4): 4
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mids 10 to 20% cover, or <2 >20 to 25% cover of midstor >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20% cover of fire-	Iogical Assessmen	t SCU.CS SCU.CS ver ardwoods fire-tolerant hard hardwoods woods over dstory d midstory bod midstory	in it i cyppersiper in militations in milit	Xeric Longleof Pi Borra	Rating Points 4 3 2 1 ne Rating Points 4 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Rating (1-4): Raw Value: / Rating (1-4): / Raw Value:
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mid 10 to 20% cover, or <2 >20 to 25% cover of midstor >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20% cover of fire- >10 to 20% cover of fire- intol	logical Assessmen	t SCURCS SCURCS ver ardwoods r fire-tolerant hard hardwoods woods over dstory d midstory bod midstory idstory	in it is in the second	Xeric Longleof Pi Barra	Princs Rating Points 4 3 2 1 1 Rating Points 4 3 2 1	Rating (1-4): 3 Raw Value: / Rating (1-4): 4 Raw Value:
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mids 10 to 20% cover, or <2 >20 to 25% cover of midston >25% cover of midston Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20% cover of fire- >10 to 20% cover of fire- into Midstory Overall W	Iogical Assessmen	t SCURCS Ver ardwoods fire-tolerant hard hardwoods woods over dstory d midstory bod midstory idstory	in it i	Xeric Longleof Pi Xeric Longleof Pi Xeric Longleof Pi	Rating Points 4 3 2 1 ne Rating Points 4 3 2 1 ne Rating Points 4 3 2 1 ne Rating Points 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Rating 3 (1-4): 3 Raw Value: / Rating 4 (1-4): 4 Raw Value:
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mid 10 to 20% cover, or <2 >20 to 25% cover of midstor >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20%	logical Assessmen	t SCURCS Ver ardwoods r fire-tolerant hard hardwoods woods over dstory d midstory bod midstory idstory	in it i ar it i ayoproportion ivertified	Xeric Longleof Pi Barra	Rating Points 4 3 2 1 ne A	Rating 3 (1-4): 3 Raw Value: (1-4): 4 Rating 4 Raw Value: 0 Raw Value:
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mids 10 to 20% cover, or <2 >20 to 25% cover of midstor >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20% cover of fire- >10 to 20% cover of fire- >10 to 20% cover of fire- intol 20% cover of fire-intol 20% cover of fire-intol	logical Assessmen	t SCURCS Ver ardwoods rfire-tolerant hard hardwoods woods over dstory d midstory idstory idstory	in it i in it i ini	Xeric Longleof Pi Xeric Longleof Pi Xeric Longleof Pi Barra	Rating Points 4 3 2 1 res Rating Points 4 3 2 1	Rating [] (1-4):] Raw Value:] Rating [] (1-4):] Raw Value:] C Rating [] Rating [] (1-4):] Rating [] (1-4):] Rating []
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mid 10 to 20% cover, or <2 >20 to 25% cover of midstor >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20%	Iogical Assessmen	t SCU.CS Ver ardwoods r fire-tolerant hard hardwoods woods over dstory d midstory pod midstory idstory	in at a comparison of the comp	Xeric Longleof Pi Barra	Rating Points 4 3 2 1 ne Rating Points 4 3 2 1 1 2 1 2 1 2 2 1 2 2 2 2 2 2 2 2 2	Rating 3 (1-4): 3 Raw Value: (1-4): 4 Raw Value: (1-4): 4 Rating (1-4): 4 Raw Value:
Canopy Overall Ecol comments Midstory Fire-Toler 2 to 10% cover of mid 10 to 20% cover, or <2 >20 to 25% cover of midstor >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20% cover of fire- >10 to 25%, or <2% cover >25 to 35% cover of woody	logical Assessmen	t SCURCS Ver ardwoods vfire-tolerant hard hardwoods woods over dstory d midstory pod midstory idstory	in it i or it i cypropropro liwoods	Xeric Longleof Pi Xeric Longleof Pi Xeric Longleof Pi Barra	Rating Points 4 3 2 1 ne Rating Points 4 3 2 1 ne Rating Points 4 3 2 1 ne Rating Points 4 3 2 1 1 ne Rating Points 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Rating (1-4): 3 Raw Value: / Rating (1-4): 4 Raw Value: (1-4): 4 Raw Value: (1-4): 4 Raw Value:

	Date: 9/5/18		
Midstory Overall Ecold	gical Assessment		
comments	Some Concer reguling amount of oak Acched or alload, maybe 1% is created	L.	
Short Shrub (<3 feet ta	III) Cover Xeric Longleof Pine Rating Po	oints	
Shrubs < 3 feet in height	average <25% cover in the assessment area	4 Rating	
Shrubs < 3 feet in height :	average 25 to 35% cover in the assessment area	3 (1-4):	3
Shrubs < 3 feet in height :	average >35 to 45% cover in the assessment area	2 Raw Valu	Je:
Shrubs < 3 feet in height :	average >45% cover in the assessment area	1 30	-
Tall Shrub (3-10 feet ta	Xeric Longleof Pine Rating Po	oints	
Shrubs 3-10 feet in heigh	t average <10% cover.	A Rating	
Shrubs 3-10 feet in heigh	t average 10 to <20% cover.	1 (1-4):	4
Shrubs 3-10 feet in heigh	t average 20 to 30% cover.	2 Raw Valu	Je:
Shrubs 3-10 feet in heigh	t average >30% cover.		
Shrub Overall Ecologic	al Assessment		
comments	good-excellent Scores appropriate		
Overall Native Herbac	eous Ground Cover Xeric Longleof Pine Burrens	oints	
40-100% herbaceous cov	er	4 Rating	
• • • • • • • • • • • • • • • • • • • •	cover	3 (1-4):	4
>25 to <40% herbaceous		2 Raw Valu	ıe:
>25 to <40% herbaceous >15 to 25% herbaceous c	over		-
>25 to <40% herbaceous >15 to 25% herbaceous co 0-15% herbaceous cover		1 75	
>25 to <40% herbaceous >15 to 25% herbaceous c 0-15% herbaceous cover Longleaf Pine Regener	ation Repid Assessment Rating Po	$\frac{1}{75}$	
>25 to <40% herbaceous >15 to 25% herbaceous c 0-15% herbaceous cover Longleaf Pine Regener Longleaf pine regeneratio	ation Ropid Assessment Location Ropid Assessment Location Rating Pc Location Rating Pc Location	$\frac{1}{75}$	
>25 to <40% herbaceous >15 to 25% herbaceous c 0-15% herbaceous cover Longleaf Pine Regener Longleaf pine regeneratic Longleaf pine regeneratic	ation Repid Assessment Location Rating Pc In (<2" DBH) cover is ≥1% at rapid assessment location In (<2" DBH) cover is <1% at rapid assessment location	$\frac{1}{2} \int \frac{5}{5}$ Dints $\frac{4}{3}$ Rating (1-4):	3

Longleaf pine regeneration (<2" DBH) cover is apparently absent, and no cone producing longleaf pine or any mature longleaf pine >10" DBH are present at the rapid assessment location

af Pine Barrens (XI PB) FIA datasheet Onen Pine 2018 (metrics ver1 9) Varialanal

<u>Xenc Longiear Fine Barrens (XLPB)</u> Ela datasneet <u>Open Fine Zoto (metrics vert.5)</u>	
Plot ID: C/32 Date: 9/5/18	
Longleaf Pine Regeneration Stand Level Rating Points	
Longleaf pine regeneration is present in patches across the stand, these patches are 5-15 % of the stand (about 1/20 to 4) 1/6 of the stand)	Rating (1-4):
Longleaf pine regeneration is present in patches across the stand, these patches are 1-5 % of the stand or >15% of the stand (less than 1/20 or more than 1/6 of the stand)	Raw Value:
Longleaf pine regeneration is very sparse across stand, patches of longleaf pine regeneration are <1% of stand, or cone producing longleaf pine or longleaf pine >10" DBH are present	·
Longleaf pine regeneration is apparently absent in stand, and apparently no cone producing longleaf pine or any mature 1 longleaf pine >10" DBH are present in the stand	
>10" DBH or cone-producing for	gleaf present
Native Warm Season Grass Cover Xeric Longleaf Pine Barrens Rating Points	
25-95% cover of all native warm season grasses 4	Rating (
15 to <25% or >95% cover of all native warm season grasses 3	(1-4):
10 to <15% cover of all native warm season grasses 2	Raw Value:
<10% cover of all native warm season grasses 1	70
Native Wiry Graminoid Cover Rating Points	
20-95% cover of all wiry graminoids 4	Rating //
10 to <20% or >95% cover of all wiry graminoids 3	(1-4): 9
2 to <10% cover of all wiry graminoids 2	Raw Value:
<2% cover of all wiry graminoids 1	60
Invasive Plant Presence/Distribution Rating Points	
Invasive nonnative plant species absent 4	Rating
Invasive nonnative plant species present in any stratum but sporadic (<5% cover) 3	(1-4):
Invasive nonnative plant species in any stratum uncommon (5-10% cover) 2	Raw Value:
Invasive nonnative plant species in any stratum common (>10% cover) 1	0
Herbaceous Indicators of Soil Disturbance	
Total cover for herbaceous indicators of soil disturbance <2% 4	Rating (1
Total cover for herbaceous indicators of soil disturbance 2-5% 3	(1-4):
Total cover for herbaceous indicators of soil disturbance >5-10% 2	Raw Value:
Total cover for herbaceous indicators of soil disturbance >10% 1	<2
Groundcover Overall Ecological Assessment	

comments

Exalle groudcom - scores genopriste



State/Prov:	FL	Site:	Camp	Blanding	Joint	Training	Center
State/1104. 1		Site.	cump	Dianang	30111	1 i anning	, center

ObsArea	Name:
OBSAICU	nume.

Project: FLCounty:Observers: Dan Hipes, Michael Lee, Susan Carr

General Type: Xeric Longleaf Pine Barrens

Protocol:	Open Pine 2018 (metrics ver1.9)	Wt	Field Rating	Field Pts	Calc Pts	Calc Rating
Ecologica	l Integrity				2.87	B-
Rank Fac	tor: CONDITION	0.7			2.87	B-
MEF:	MEF: VEGETATION				2.67	B-
	Basal Area of Southern Yellow Pine Canopy Trees	1	D	1		
	Southern Yellow Pine Canopy Cover	1	С	2		
	Southern Yellow Pine Stand Age Structure (12" cutoff)	1	В	3		
	Canopy Hardwood Basal Area	1	D	1		
	Canopy Hardwood Basal Area - Fire-Intolerant	1	D	1		
	Stand Density Index	1				
	Canopy Overall Ecological Assessment	1				
	some concern that it scores too low and that it might score sin	milar to a	a site wi	th sand pine		
	Midstory Fire-Tolerant Hardwood Cover	1	В	3		
	Midstory Fire-Intolerant Hardwood Cover	1	А	4		
	Midstory Overall Woody Cover	1	А	4		
	Midstory Overall Ecological Assessment	1				
	fire killed most of midstory; score seems right					
	Short Shrub (<3 feet tall) Cover	1	В	3		
	Tall Shrub (3-10 feet tall) Cover	1	А	4		
	Shrub Overall Ecological Assessment	1				
	may be too high for tall shrubs					
	Overall Native Herbaceous Ground Cover	1	С	2		
	Longleaf Pine Regeneration	1	С	2		
	>10" dbh or cone-producing longleaf present					
	Native Warm Season Grass Cover	1	В	3		
	Native Wiry Graminoid Cover	1	В	3		
	Invasive Plant Presence/Distribution	1	А	4		
	Groundcover Overall Ecological Assessment	1				
MEF:	SOIL	0.1			4.00	A+
	Herbaceous Indicators of Soil Disturbance	1	А	4		

Xeric Longleat	f Pine Barrens (XLPB)	EIA datasheet	: <u>Open Pine 2</u>	<u>018 (metrics v</u>	<u>/er1.9)</u>	
Plot ID:	BZ	Date:	9/5/18			
Event details			•			
Site Name:	June Blandin	Team:	HAU	Lee Cor		
GPS Unit:	FANL Geo Z	•	, 	/		
Datum: /	-65 av		Ecologi	cal System:		
UTM-E:		ers	5	anthill		
	<u>1 99 70,26</u> / 56 To met	ers		// -/ // /		
8008	51 51.70					
Number of	57cm					
Satellites:	4					
		Assess	ment Area/Site	e Description:		
Directions to plo	ot:	^	, 16	, <i>//</i> 1		, , , <i>.</i>
	of Locali AM		ever 5	w. Itigh	cover of	Scal live Oak
garin 1		Consid	ler for EO (che	ck box)? 🔲	EO Comment	:s:
her 1	ost pana					
Basal Area of Sc					Xeric Longleof Pine Bati	ng Points
Dasal Area Or Su	cal area of longloof nine (0	inus polustris)			Barrens	
>15 to <25 or >80	to 90 ft2/acre basal area /	f longleaf nine (i	Pinus nalustris)			4 Rating 1
10 to 15 or > 90 to	o <100 ft2/acre basal area	of longleaf nine ((Pinus nalustris)			3 (* ',''
$<10 \text{ or } >100 \text{ ft}^2/a$	cre basal area of longleaf r	ine (Pinus palust	tris)		- - / -	
readings						<u> </u>
Southern Yellov	w Pine Canopy Cover		(*		Xeric Longleof Pine Rati	ng Points
>20 to 55% canon	v cover of longleaf nine (P	inus nalustris)			Borrens	
>15 to 20% canon	\sim v cover or >55 to 70% can	opy cover of long	leaf nine (Pinus	nalustris)		$\frac{4}{2}$ (1-4); 2
5-15% canopy cov	$\sqrt{\frac{1}{2}}$ ver or >70 to 80% canopy c	over of longleaf i	pine (Pinus palu	stris)		2 Raw Value:
<5% canopy cover	r or > 80% canopy cover of	longleaf pine (Pir	nus palustris)			
Southern Yellov	v Pine Stand Age Struct	Jre (12" cutoff)		11	Borrens	ng Points
Basal area ≥20 ft2	/acre of longleat pine tree	$s \ge 12^{"}$ DBH class	s or flat-top long	leaf pine is prese	nt	4 Rating
Basal area ≥10 ft2	/acre of longleaf pine tree	$s \ge 12^{"}$ DBH class	<u> </u>	<u></u>		3
Longleaf pine tree	25 212" DBH class are prese	nt, but <10 ft2/a	icre basal area o	f those large tree	25	2 Raw Value:
No longlear pine t	rees ≥12" DBH nor flat-top	longlear pine ard	e present	-		
readings		טן	0		Yedo Logologi Dieg	flat-top pine present
Canopy Hardwo	od Basal Area				Barrens Barrens	ng Points
≤5 ft2/acre basal :	area of hardwood trees					4 Rating
>5 to 15 ft2/acre	basal area of hardwood tre	es.				3 (1-4):
>15 to 25 ft2/acre	basal area of hardwood t	rees				2 Raw Value:
>25 ft2/acre basa	I area of hardwood trees					1 40
re adings	80	10	60	1 /0	1	

Plot ID: CA2	I.								
	<u> </u>	Date:	9/	5/18					
Canopy Hardwood E	lasal Area - Fire-I	ntolerant		·		Xeric Longleaf Pine Rating Poin Barrens	ts		
≤5 ft2/acre basal area	of fire intolerant ha	ardwood trees					4 Ra	ting J	
>5 to 10 ft2/acre basal	area of fire intoler	ant hardwood	trees				3 (1	-4); !	2
>10 to 20 ft2/acre base	al area of fire intole	erant hardwoo	d trees				2 Ra	w Value:	_
>20 ft2/acre basal area	of fire intolerant h	hardwood tree	S	: •:			1	4Q	
readings	80	10		60	//0				
Stand Density Index		·			-	Xeric Longleaf Pine Barrens Rating Poin	ts		
SDI = S0 - 120 (13-30%	of Maximum SDI o	of 400)				. <u> </u>	4 Ra	ting	
SDI = 30 – 50 or 120 -1	60 (8-13% or 30-40	% of Maximum	n SDI of 4	00, 35 - 40%	SDI is near m	aximum of stand growth)	<u>3</u> ⁽¹⁾	-4):	
SDI = 20 - 30 or 160 - 1 self-thinning)	.80 (5-8% or 40-459	% of Maximum	SDI, 240	is 60% of Max	kimum SD of	400, which is the onset of	2 Ra	w Value:	:
SDl <20 or >180 (<5% o	or > 45%, 240 is 60%	% of Maximum	SD of 40	0, the onset o	f self-thinnin	g)	<u>1</u>		
Canopy Overall Ecol	ogical Assessme	nt			iener in der	an a		. :	
2 	unt with	## it 5-1	pin	5600	s'm	i'r t- a sita			
Midstory Fire-Toler									
2 to 10% cover of mid	ant Hardwood Co	vēr			1 - 2 - 4 - 1 - 2 - 2 - 4 - 1 - 2 - 3 - 2 - 2 - 2 - 2 - 3 - 2 - 2 - 2 - 2 - 2	Xeric Longleof Pine Barrans Rating Poin	lts		
1	ant Hardwood Co story fire-tolerant h	over hardwoods				Xeric Longleof Pine Barrens Rating Poin	ts 4 Ra	ting	
10 to 20% cover, or <2	ant Hardwood Cc story fire-tolerant h % cover of midstor	over hardwoods y fire-tolerant	hardwoo		- 11-11-11-11-11-11-11-11-11-11-11-11-11	Xeric Longleof Pine Borrens	ts 4 Ra 3 (1	ting	>
10 to 20% cover, or <2 >20 to 25% cover of m	ant Hardwood Cc story fire-tolerant h % cover of midstor idstory fire-toleran	over hardwoods y fire-tolerant htardwoods	hardwoo	nds	्रिकेट इन्हें के स्थित से के समय मिला	Xeric Longleof Pine Borrens Anting Poin	ts 4 Ra 3 (1 2 Ra	ting -4):	>
10 to 20% cover, or <2 >20 to 25% cover of m >25% cover of midstor	ant Hardwood Co story fire-tolerant h % cover of midstor idstory fire-toleran y fire-tolerant hard	over hardwoods y fire-tolerant hardwoods dwoods	hardwoo	nds	1 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	Xeric Longleof Pine Barrens Rating Poin	ts 4 Ra 3 (1 2 Ra 1	ting -4): W Value:	
10 to 20% cover, or <2 >20 to 25% cover of m >25% cover of midstor Midstory Fire-Intole	ant Hardwood Cc story fire-tolerant h % cover of midstor idstory fire-toleran y fire-tolerant hard	over hardwoods y fire-tolerant It hardwoods Iwoods Cover	hardwoo	nds		Xeric Longleof Pine Barrens Rating Poin Veric Longleof Pine Borrens Rating Poin	ts 4 Ra 3 (1 2 Ra 1	ting -4): W Value:	
10 to 20% cover, or <2 >20 to 25% cover of m >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol	ant Hardwood Cc story fire-tolerant h % cover of midstor idstory fire-toleran y fire-tolerant harc rant Hardwood (erant hardwood m	over hardwoods y fire-tolerant it hardwoods dwoods Cover idstory	hardwoo	ids		Xeric Longleof Pine Borrens Auting Poin Borrens Xeric Longleof Pine Borrens Rating Poin	ts 4 Ra 3 (1 2 Ra 1 ts 4 Ra	ting -4): W Value:	
10 to 20% cover, or <2 >20 to 25% cover of m >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire-	ant Hardwood Cc story fire-tolerant H % cover of midstor idstory fire-toleran y fire-tolerant hard rant Hardwood M intolerant hardwood m	over hardwoods y fire-tolerant it hardwoods dwoods Cover idstory od midstory	hardwoo	ods		Xeric Longleof Pine Borrens Rating Poin Veric Longleof Pine Borrens Rating Poin	tts 4 Ra 3 (1 2 Ra 1 tts 4 Ra 1 1 1 1 1 1 1 1 1 1	ting -4): 3 W Value: 3 1 -4):	>
10 to 20% cover, or <2 >20 to 25% cover of m >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20% cover of fi	ant Hardwood Co story fire-tolerant h % cover of midstor idstory fire-toleran y fire-tolerant hard rant Hardwood m intolerant hardwood e-intolerant hardwood	over hardwoods y fire-tolerant ht hardwoods dwoods Cover idstory od midstory vood midstory	hardwoo	ods		Xeric Longleof Pine Borrens Rating Poin Xeric Longleof Pine Borrens Rating Poin	tts 4 Ra 3 (1 2 Ra 1 1 4 Ra 3 (1 2 Ra 1 1 1 2 Ra 1 1 1 2 Ra	ting w Value: ting -4): U w Value:	
10 to 20% cover, or <2 >20 to 25% cover of m >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20% cover of fire-intol	ant Hardwood Co story fire-tolerant h % cover of midstor idstory fire-toleran y fire-tolerant hard rant Hardwood (erant hardwood m intolerant hardwood e-intolerant hardwood r	over hardwoods y fire-tolerant it hardwoods dwoods Cover idstory od midstory vood midstory nidstory	hardwoo	ods		Xeric Longleof Pine Barrens Xeric Longleof Pine Barrens Rating Poin	ts 4 Ra 3 (1 2 Ra 1 4 Ra 3 (1 2 Ra 1 1 1	ting -4): W Value: U ting -4): Value: -4)	
10 to 20% cover, or <2 >20 to 25% cover of m >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20% cover of fire-into 20% cover of fire-into Midstory Overall W	ant Hardwood Co story fire-tolerant h % cover of midstor idstory fire-toleran y fire-tolerant hard rant Hardwood (erant hardwood m intolerant hardwood m intolerant hardwood m oody Cover	over hardwoods y fire-tolerant it hardwoods dwoods Cover idstory od midstory vood midstory nidstory	hardwoo	ods		Xeric Longleof Pine Barrens Xeric Longleof Pine Barrens Xeric Longleof Pine Barrens Xeric Longleof Pine Barrens Xeric Longleof Pine Barrens	ts 4 Ra 3 (1 2 Ra 1 4 Ra 3 (1 2 Ra 1 1 1 1 1 1 1 1 1 1	ting -4): W Value: U ting -4): W Value: -4): -	> - -
10 to 20% cover, or <2 >20 to 25% cover of m >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20% cover of fire- >20% cover of fire-into Midstory Overall W 2 to <15% cover of wo	ant Hardwood Co story fire-tolerant h % cover of midstor idstory fire-toleran y fire-tolerant hard erant Hardwood m intolerant hardwood m intolerant hardwood m olerant hardwood m olerant hardwood r oody Cover ody midstory	over hardwoods y fire-tolerant it hardwoods dwoods Cover idstory od midstory vood midstory midstory	hardwoo	nds		Xeric Longleof Pine Borrens Xeric Longleof Pine Borrens Rating Poin Borrens Xeric Longleof Pine Borrens Rating Poin	tts 4 Ra 3 (1 2 Ra 1 1 4 Ra 3 (1 2 Ra 1 1 4 Ra 1 4 Ra 1 4 Ra 1 4 Ra 1 4 Ra 1 4 Ra 1 4 Ra 1 4 Ra 1 4 Ra 4 Ra	ting W Value: W Value: W Value: J ting L U	
10 to 20% cover, or <2 >20 to 25% cover of m >25% cover of midstor Midstory Fire-Intole <5% cover of fire-intol 5 to 10% cover of fire- >10 to 20% cover of fire- >20% cover of fire-into Midstory Overall W 2 to <15% cover of wo 15 – 25%, or <2% cover	ant Hardwood Co story fire-tolerant h % cover of midstor idstory fire-toleran y fire-tolerant hard erant Hardwood m intolerant hardwood m intolerant hardwood m oody Cover ody midstory r of woody midstor	over hardwoods y fire-tolerant it hardwoods dwoods Cover idstory od midstory vood midstory nidstory	hardwoo	ids		Xeric Longleof Pine Borrens Xeric Longleof Pine Borrens Xeric Longleof Pine Borrens Xeric Longleof Pine Borrens Rating Poin	tts 4 Ra 3 (1 2 Ra 1 4 Ra 3 (1 2 Ra 1 1 4 Ra 3 (1 4 Ra 3 (1 4 Ra 3 (1 1 4 Ra 1 1 1 1 1 1 1 1 1 1	ting 4): W Value: 4): 4): 4): 1 4): 1 1 1 1 1 1 1 1 1 1 1 1 1	>
10 to 20% cover, or <2 >20 to 25% cover of m >25% cover of midstor Midstory Fire-Intole <5% cover of fire-Intole 5 to 10% cover of fire- >10 to 20% cover of fire- >10 to 20% cover of fire- >20% cover of fire-intole Midstory Overall W 2 to <15% cover of wo 15 – 25%, or <2% cover >25 to 35% cover of wo	ant Hardwood Co story fire-tolerant h % cover of midstor idstory fire-toleran y fire-tolerant hard rant Hardwood (erant hardwood m intolerant hardwood m intolerant hardwood r e-intolerant hardwood r oody Cover ody midstory r of woody midstory oody midstory	over hardwoods y fire-tolerant it hardwoods dwoods Cover idstory od midstory vood midstory midstory	hardwoo	ods		Xeric Longleof Pine Barrens Xeric Longleof Pine Borrens Xeric Longleof Pine Borrens Xeric Longleof Pine Barrens Rating Poin	tts 4 Ra 3 (1 2 Ra 1 1 1 1 4 Ra 3 (1 1 1 1 1 1 1 1 1 1 1	ting 4): W Value: W Value: 4): U ting 4): U w Value: 2 ting 4): U w Value: 2 ting 4): U w Value: 4 V 4 Value: 4 Value:	

Ì

-

,

,

Varia Longlest Pine Barrens (XLPB) FLA datasheet Open Pine 2018 (metrics yer1.9)

	$\frac{Open rine 2018 (metrics vert.3)}{\sigma/-/10}$	
Plot ID: Date: Date:		
	· · · · · · · · · · · · · · · · · · ·	
Fin Killer M	ostat milstory	
Total SCore	seem right.	
Short Shrub (<3 feet tall) Cover	Xeric Longleof Pine Rating Points Barrens	
Shrubs < 3 feet in height average <25% cover in the assess	ment area4 Ra	ating 🔒
Shrubs < 3 feet in height average 25 to 35% cover in the as	ssessment area 3	1-4): ク
Shrubs < 3 feet in height average >35 to 45% cover in the a	assessment area 2 R	aw Value:
Shrubs < 3 feet in height average >45% cover in the assess	ment area 1	35
Tall Shrub (3-10 feet tall) Cover	Xeric Longleaf Pine Barrens Rating Points	
Shrubs 3-10 feet in height average <10% cover.	4 Ra	ating 📊
Shrubs 3-10 feet in height average 10 to <20% cover.	3) (2	1-4):
Shrubs 3-10 feet in height average 20 to 30% cover.	2 <u>Ra</u>	aw Value:
Shrubs 3-10 feet in height average >30% cover.	1	1
Shrup Overall Ecological Assessment	· · · · · · · · · · · · · · · · · · ·	
comments NO may Se to.	, high for tell shrugs	
Overall Native Herbaceous Ground Cover	Xeric Longleof Pine Rating Points	
40-100% herbaceous cover	4 Ra	ating
>25 to <40% herbaceous cover	3 (1	1-4): 🎾
>15 to 25% herbaceous cover	2 <u>Ra</u>	aw Value:
0-15% herbaceous cover	1	15
Longleaf Pine Regeneration	Ropid Assessment Rating Points	
Longleaf pine regeneration (<2" DBH) cover is ≥1% at rapid	assessment location 4 Ra	ating 2
Longleaf pine regeneration (<2" DBH) cover is <1% at rapid	assessment location 3	1-4):
No Longleaf pine regeneration (<2" DBH) cover seen, but or present rapid assessment location	cone producing longleaf pine or longleaf pine >10" DBH are 2	aw Value:
Longleaf pine regeneration (<2" DBH) cover is apparently a longleaf pine >10" DBH are present at the rapid assessment	absent, and no cone producing longleaf pine or any mature ${f 1}$ L	
	N10" DBH or consumoducing longle	of present 🗗

>10" DBH or cone-producing long

Plot ID: CB3 Date: 9/5/18		
Longleaf Pine Regeneration '/ / Stand Level Rating Point	5	
Longleaf pine regeneration is present in patches across the stand, these patches are 5-15 % of the stand (about 1/20 to 1/6 of the stand)	Rating (1-4):	Π
Longleaf pine regeneration is present in patches across the stand, these patches are 1-5 % of the stand or >15% of the stand (less than 1/20 or more than 1/6 of the stand)	Baw Va	alue:
Longleaf pine regeneration is very sparse across stand, patches of longleaf pine regeneration are <1% of stand, or cone producing longleaf pine or longleaf pine >10" DBH are present	2	
Longleaf pine regeneration is apparently absent in stand, and apparently no cone producing longleaf pine or any mature longleaf pine >10" DBH are present in the stand	L	
>10" DBH or cone-producing in	ongleaf pre	esent 🗖
Native Warm Season Grass Cover Zeric Longleof Pine Barrens Rating Point	5	
25-95% cover of all native warm season grasses	l Rating	2
15 to <25% or >95% cover of all native warm season grasses	3 (1-4):	3
10 to <15% cover of all native warm season grasses	Raw Va	alue:
<10% cover of all native warm season grasses	15	ī
Native Wiry Graminoid Cover Xeric Longleaf Pine Barrens Rating Point	5	
20-95% cover of all wiry graminoids	Rating	
10 to <20% or >95% cover of all wiry graminoids	<u>3</u> (1-4):	
2 to <10% cover of all wiry graminoids	Raw Va	alue:
<2% cover of all wiry graminoids	L <u>L</u>	3
Invasive Plant Presence/Distribution Rating Point	5	
Invasive nonnative plant species absent	I Rating	
Invasive nonnative plant species present in any stratum but sporadic (<5% cover)	3 (1-4):	Ϋ́
Invasive nonnative plant species in any stratum uncommon (5-10% cover)	Raw Va	alue:
Invasive nonnative plant species in any stratum common (>10% cover)	<u>l C</u>)
Herbaceous Indicators of Soil Disturbance Rating Point	5	$\leq 1/\tilde{\xi}_{1}$
Total cover for herbaceous indicators of soil disturbance <2%	Rating	
Total cover for herbaceous indicators of soil disturbance 2-5%	3 (1-4):	7
Total cover for herbaceous indicators of soil disturbance >5-10%	Raw Va	alue:
Total cover for herbaceous indicators of soil disturbance >10%	<u>u o</u>	
Groundcover Overall Ecological Assessment		
comments nords improvement; = 5 coses apropriote		

site



State/Prov:	FL Site: Camp Blanding Joint Training Center C	ObsArea Code: CB5					
ObsArea Nar	ne:	Analysis C	Obs Cod	e:			
Project: FL	County: C	ObsDate:	2018/0	9/05 ObsiD	9944		
Observers: D	Dan Hipes, Michael Lee						
General Type	2: Xeric Longleaf Pine Barrens						
Protocol: Op	pen Pine 2018 (metrics ver1.9)	Wt	Field Rating	Field Pts	Calc Pts	Calc Rating	
Ecological In	ntegrity				3.07	B+	
Rank Factor	: CONDITION	0.7			3.07	B+	
MEF: VE	GETATION	0.55			3.27	B+	
B	asal Area of Southern Yellow Pine Canopy Trees	1	D	1			
S	outhern Yellow Pine Canopy Cover	1	С	2			
S	outhern Yellow Pine Stand Age Structure (12" cutoff)	1	С	2			
C	Canopy Hardwood Basal Area	1	А	4			
C	Canopy Hardwood Basal Area - Fire-Intolerant	1	А	4			
S	tand Density Index	1					
C	Canopy Overall Ecological Assessment	1					
Ν	Aidstory Fire-Tolerant Hardwood Cover	1	А	4			
Ν	Aidstory Fire-Intolerant Hardwood Cover	1	А	4			
Ν	Aidstory Overall Woody Cover	1	А	4			
Ν	Aidstory Overall Ecological Assessment	1					
	maybe not allow any or 2% for excellent and use the same cu	itoffs in n	nidstory	overall as fi	re-tole	rant	
S	hort Shrub (<3 feet tall) Cover	1	А	4			
Т	all Shrub (3-10 feet tall) Cover	1	D	1			
S	hrub Overall Ecological Assessment	1					
C	Overall Native Herbaceous Ground Cover	1	А	4			
L	ongleaf Pine Regeneration	1	В	3			
_	<1%; >10" dbh or cone-producing longleaf present						
Ν	Jative Warm Season Grass Cover	1	А	4			
Ν	lative Wiry Graminoid Cover	1	А	4			
li	nvasive Plant Presence/Distribution	1	А	4			
e	Groundcover Overall Ecological Assessment	1					

MEF: SOIL

Herbaceous Indicators of Soil Disturbance

2.00 C+

0.1

1

С

2

Xeric Longleaf Pir	<u>1e Barrens (XLF</u>	<u>PB)</u> EIA datashee	t <u>Open Pine 20:</u>	L <mark>8 (metrics ver</mark> 1	<u>1.9)</u>	
Plot ID: C-B	5	Date:	9/5/18			I.
Event details		•	- <i>; </i>			·
Site Name:	Black	Team:	14ires .	lex		/
GPS Unit:	Trinsle Ger	7				
Datum:	-65 QU		Ecologica	l System:		
UTM-E: 29	50 1510	meters?	Sam	лиц		
UTM-N:	68 49 79	meters				
PDOP:	<u>, , , , , , , , , , , , , , , , , , , </u>	· · ·				
Number of Satellites:						
		Asses	sment Area/Site	Description:		
Directions to plot:		51	aubli 50	-2411.	- unburned	
North of	Greble				Planth LLP:	nterold trees
		Consi	der for EO (check	box)?	EO Comments:	
			.*			
Basal Area of South	ern Yellow Pine	Canopy Trees		Xer	ic Longleaf Pine Rating Points	
25-80 ft2/acre basal a	rea of longleaf pin	e (Pinus palustris)		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	Barrens	Poting
>15 to <25 or >80 to 9	0 ft2/acre basal ar	rea of longleaf pine	(Pinus palustris)			(1-4);
10 to 15 or > 90 to <10)0 ft2/acre basal a	rea of longleaf pine	(Pinus palustris)	-		Raw Value:
<10 or ≥100 ft2/acre b	asal area of longle	eaf pine (Pinus palus	tris)			75
readings	10	10	10	D	ſ¯	
Southern Yellow Pir	e Canopy Cover	· • · · · · · · ·		Xen	ic Longleof Pine Rating Points	
>20 to 55% canopy co	ver of longleaf pin	e (Pinus palustris)	····		Borrens4	Rating
>15 to 20% canopy co	ver or >55 to 70%	canopy cover of lon	gleaf pine (Pinus pa	alustris)	3	(1-4): ん
5-15% canopy cover o	r >70 to 80% canor	py cover of longleaf	pine (Pinus palustr	is)	2	Raw Value:
<5% canopy cover or >	-80% canopy cover	r of longleaf pine (Pi	nus palustris)		1	7
Southern Yellow Pir	e Stand Age Str	ucture (12" cutofi)	Xen	k Longleaf Pine Rating Points	:
Basal area ≥20 ft2/acr	e of longleaf pine I	trees ≥ 12" DBH clas	s or flat-top longlea	of pine is present	<u>Borrens</u>	Rating
Basal area ≥10 ft2/acr	e of longleaf pine t	trees ≥ 12" DBH clas	s		3	(1-4): 2
Longleaf pine trees ≥1	2" DBH class are p	resent, but <10 ft2/	acre basal area of t	hose large trees	2	Raw Value:
No longleaf pine trees	≥12" DBH nor flat	-top longleaf pine a	re present		1	5
readings	10	10	0.	0	flat-top	pine present
Canopy Hardwood I	Basal Area			Xeri	ic Longleof Pine Rating Points	
≤5 ft2/acre basal area	of hardwood trees	S			4	Rating
>5 to 15 ft2/acre basa	area of hardwood	d trees			3	(1-4):
>15 to 25 ft2/acre bas	al area of hardwoo	od trees			2	Raw Value:
>25 ft2/acre basal area	a of hardwood tree	es			1	D
readings	б	• D	0	0		

• •

٠,

Plot ID: CB5 Date: 9/6/16	
Canopy Hardwood Basal Area - Fire-Intolerant Yeric Longleaf Pine Barrens Rating	Points
≤5 ft2/acre basal area of fire intolerant hardwood trees	4 Rating
>5 to 10 ft2/acre basal area of fire intolerant hardwood trees	3 (1-4): "
>10 to 20 ft2/acre basal area of fire intolerant hardwood trees	2 Raw Value:
>20 ft2/acre basal area of fire intolerant hardwood trees	1 0
readings ()))))	
Stand Density Index Xeric Longle of Pine Rating	Points debuild
SDI = 50 – 120 (13-30% of Maximum SDI of 400)	4 Rating
SDI = 30 – 50 or 120 -160 (8-13% or 30-40% of Maximum SDI of 400, 35 – 40% SDI is near maximum of stand growth)	3 (1-4):
SDI = 20 – 30 or 160 - 180 (5-8% or 40-45% of Maximum SDI, 240 is 60% of Maximum SD of 400, which is the onset of self-thinning)	2 Raw Value:
SDI <20 or >180 (<5% or > 45%, 240 is 60% of Maximum SD of 400, the onset of self-thinning)	<u>1</u>
list of DBHs	
Canopy Overall Ecological Assessment	
nect more moture pines e Scares approprie	te.
Midstory Fire-Tolerant Hardwood Cover	Points
Midstory Fire-Tolerant Hardwood Cover 2 to 10% cover of midstory fire-tolerant hardwoods	Points 4 Rating
Midstory Fire-Tolerant Hardwood Cover 2 to 10% cover of midstory fire-tolerant hardwoods 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating 3 (1-4): 4
Midstory Fire-Tolerant Hardwood Cover Xeric Longle of Pine Barrens Rating 2 to 10% cover of midstory fire-tolerant hardwoods 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating (1-4): 4 Raw Value:
Midstory Fire-Tolerant Hardwood Cover Xeric Longleaf Pine Borreis Rating 2 to 10% cover of midstory fire-tolerant hardwoods 2 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating 3 (1-4): 2 Raw Value: 1
Midstory Fire-Tolerant Hardwood Cover Xeric Longleof Pine Barrens Rating 2 to 10% cover of midstory fire-tolerant hardwoods 2 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating 3 (1-4): 2 Raw Value: 1 4 Points
Midstory Fire-Tolerant Hardwood Cover Xeric Longleof Pine Barrens Rating 2 to 10% cover of midstory fire-tolerant hardwoods 2 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating 3 (1-4): 4 Raw Value: 1 4 Points 4 Rating
Midstory Fire-Tolerant Hardwood Cover Xeric Longleof Pine Barrens Rating 2 to 10% cover of midstory fire-tolerant hardwoods 2 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating 3 (1-4): 2 Raw Value: 1 9 Points 4 Rating (1-4): 4 (1-4): 4 (1-4):
Midstory Fire-Tolerant Hardwood Cover Xeric Longleof Pine Borreits Rating 2 to 10% cover of midstory fire-tolerant hardwoods 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating 3 (1-4): 4 Raw Value: 1 4 Points 4 Rating (1-4): 4 Rating (1-4): 4 Rating (1-4): 4 Rating 4 Rating (1-4): 4 Rating 4 Rating 4 Rating 5 Raw Value: 4 Rating 5 Raw Value: 4 Rating 5 Raw Value: 5 Raw Value:
Midstory Fire-Tolerant Hardwood Cover Xeric Longleaf Pline Barrens Rating 2 to 10% cover of midstory fire-tolerant hardwoods	Points 4 Rating 3 (1-4): 2 Raw Value: 1 9 Points 4 Rating (1-4): 4 Rating 4 Rating 4 Rating 4 Rating 4 Rating 4 Rating 4 Rating 4 Raw Value: 4 Rating 4 Rati
Midstory Fire-Tolerant Hardwood Cover Xeric Longleof Pine Barrens Rating 2 to 10% cover of midstory fire-tolerant hardwoods 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating 3 (1-4): 1 2 Raw Value: 1 1 1 1 Points 1 1 3 (1-4): 1 4 Rating 1 7 1 1 1 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Midstory Fire-Tolerant Hardwood Cover Xeric Longleaf Pine Borrens Rating 2 to 10% cover of midstory fire-tolerant hardwoods 3 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating (1-4): 4 2 Raw Value: 1 4 Points 4 Rating (1-4): 4 7 Points 2 Raw Value: 1 4 Raw Value: 1 4 Points 4 Rating (1-4): 4 7 Points 2 Raw Value: 1 4 Points 2 Raw Value: 1 4 Points 1 4 Points P
Midstory Fire-Tolerant Hardwood Cover Xeric Longleaf Prine Barrenis Rating 2 to 10% cover of midstory fire-tolerant hardwoods 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating (1-4): 4 3 (1-4): 4 2 Raw Value: 4 1 4 Rating (1-4): 4 3 Rating (1-4): 4 1 4 Rating (1-4): 4 Points 4 Rating (1-4): 4 3 (1-4): 4 4 3 (1-4): 4 4 4 Rating (1-4): 4 4
Midstory Fire-Tolerant Hardwood Cover Xeric Longleof Pine Barrens Rating 2 to 10% cover of midstory fire-tolerant hardwoods 10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	Points 4 Rating (1-4): 4 2 Raw Value: 4 1 4 4 2 Rating (1-4): 4 3 (1-4): 4 1 4 4 2 Raw Value: 4 1 4 4 2 Raw Value: 4 1 4 4 2 Rating (1-4): 4 3 (1-4): 4 3 (1-4): 4 3 (1-4): 4 3 (1-4): 4 3 (1-4): 4 3 (1-4): 4 3 (1-4): 4 3 (1-4): 4 4 Rating 4 5 (1-4): 4 6 (1-4): 4 7 7 7 8 (1-4): 7 9 7 7

зÍ

Keric Longleaf Pine Barrens (XLPI) EIA datasheet Oper	n Pine 2018 (metrics ver1.9)
-----------------------------------	----------------------	------------------------------

Plot ID: C	5 Date: 2/5/18	
Midstory Overall Ec	ological Assessment	
comments	Maybe not allow ANY or 2% for excelled and not all use the som cutotts in Mill overall as fore tollerant	¥ Lsfore
Short Shrub (<3 fee	t tall) Cover Xeric Longleof Pine Rating	Points
Shrubs < 3 feet in heig	ht average <25% cover in the assessment area	4 Rating
Shrubs < 3 feet in heig	ht average 25 to 35% cover in the assessment area	3 (1-4); 4
Shrubs < 3 feet in heig	ht average >35 to 45% cover in the assessment area	2 Raw Value:
Shrubs < 3 feet in heig	ht average >45% cover in the assessment area	1 20
Tall Shrub (3-10 fee	t tall) Cover	Points
Shrubs 3-10 feet in he	ight average <10% cover.	4 Rating
Shrubs 3-10 feet in he	ight average 10 to <20% cover.	3 (1-4): /
Shrubs 3-10 feet in he	ight average 20 to 30% cover.	2 Raw Value:
Shrubs 3-10 feet in he	ight average >30% cover.	1 33
Shrub Overall Ecolo	gical Assessment	
comments	Lots of tall shrabs. Scores appropriate	
Overall Native Herb	aceous Ground Cover Xeric Longleaf Pine Rating	Points
40-100% herbaceous	over	4 Rating
>25 to <40% herbaced	us cover	3 (1-4): <i>4</i>
>15 to 25% herbaceou	is cover	2 Raw Value:
0-15% herbaceous cov	rer	1 50
Longleaf Pine Reger	neration Rating Location Rating	Points
Longleaf pine regener	ation (<2″ DBH) cover is ≥1% at rapid assessment location	4 Rating
Longleaf pine regener	ation (<2" DBH) cover is <1% at rapid assessment location	3 (1-4): 7
No Longleaf pine rege present rapid assessm	neration (<2" DBH) cover seen, but cone producing longleaf pine or longleaf pine >10" DBH are ent location	2 Raw Value:
Longleaf pine regener longleaf pine >10″ DB	ation (<2" DBH) cover is apparently absent, and no cone producing longleaf pine or any mature H are present at the rapid assessment location	1
		. .

Plot ID:	CB5	Date:	9/5/18			
Longleaf P	ine Regeneration		<i>' '</i>	Stand Level Rating Poi	ints	
Longleaf pi 1/6 of the s	ne regeneration is present in pre	patches across the	stand, these pate	ches are 5-15 % of the stand (about 1/20 to	4	Rating (1-4):
Longleaf pi stand (less	ne regeneration is present in p than 1/20 or more than 1/6 o	patches across the f the stand)	e stand, these pate	ches are 1-5 % of the stand or >15% of the	3	Raw Value:
Longleaf pi producing l	ongleaf pine regeneration is very sparse across stand, patches of longleaf pine regeneration are <1% of stand, or cone roducing longleaf pine or longleaf pine >10" DBH are present		2			
Longleaf pi Iongleaf pir	ne regeneration is apparently 1e >10" DBH are present in th	absent in stand, a e stand	ind apparently no	cone producing longleaf pine or any mature	1	

	>10" DBH or (cone-producing long	gleaf pres	ent
Native Warm Season Grass Cover	Xeric Longleaf Pine Barren	Rating Points	· · · · ·	
25-95% cover of all native warm season grasses	<u> </u>	4	Rating	
15 to <25% or >95% cover of all native warm season grasses		3	(1-4):	v
10 to <15% cover of all native warm season grasses		2	Raw Val	ue:
<10% cover of all native warm season grasses		1	42	1.
Native Wiry Graminoid Cover	Xeric Longleof Pine Barren	, Rating Points		
20-95% cover of all wiry graminoids		4	Rating	
10 to <20% or >95% cover of all wiry graminoids		3	(1-4):	4
2 to <10% cover of all wiry graminoids		2	Raw Val	ue:
<2% cover of all wiry graminoids		1	40	
Invasive Plant Presence/Distribution	1 4 	Rating Points		
Invasive nonnative plant species absent	· · ·	4	Rating	
Invasive nonnative plant species present in any stratum but sporadic (<5% cover)	3	(1-4):	9
Invasive nonnative plant species in any stratum uncommon (5-10% cover)		2	Raw Val	ue:
Invasive nonnative plant species in any stratum common (>10% cover)		1	0	
Herbaceous Indicators of Soil Disturbance	515-153	Rating Points		er t. Gigel
Total cover for herbaceous indicators of soil disturbance <2%		4	Rating	
Total cover for herbaceous indicators of soil disturbance 2-5%		3	(1-4):	$\boldsymbol{\boldsymbol{\wedge}}$
Total cover for herbaceous indicators of soil disturbance >5-10%		2	Raw Val	ue:
Total cover for herbaceous indicators of soil disturbance >10%		1	6	

Groundcover Overall Ecological Assessment

comments

good groundcourt ; Scores appropriate

12-57.1



State/Prov: FL Site: Little Rain Lake

ObsArea Name:

Project: FLCounty:Observers: Dan Hipes, Michael Lee, Susan Carr

ObsArea Code: LRL1 Analysis Obs Code: ObsDate: 2018/09/05 ObsID: 9945

General Type: Xeric Longleaf Pine Barrens

Protocol:	Open Pine 2018 (metrics ver1.9)	Wt	Field Rating	Field Pts	Calc Pts	Calc Rating
Ecologica	l Integrity				2.70	В-
Rank Fac	tor: CONDITION	0.7			2.70	B-
MEF:	VEGETATION	0.55			2.47	C+
	Basal Area of Southern Yellow Pine Canopy Trees	1	D	1		
	Southern Yellow Pine Canopy Cover	1	D	1		
	Southern Yellow Pine Stand Age Structure (12" cutoff)	1	D	1		
	Canopy Hardwood Basal Area	1	С	2		
	Canopy Hardwood Basal Area - Fire-Intolerant	1	А	4		
	Stand Density Index	1				
	Canopy Overall Ecological Assessment	1				
	Midstory Fire-Tolerant Hardwood Cover	1	В	3		
	Midstory Fire-Intolerant Hardwood Cover	1	С	2		
	Midstory Overall Woody Cover	1	В	3		
	Midstory Overall Ecological Assessment	1				
	still possibly allowing too much midstory cover					
	Short Shrub (<3 feet tall) Cover	1	А	4		
	Tall Shrub (3-10 feet tall) Cover	1	А	4		
	Shrub Overall Ecological Assessment	1				
	same tall shrub % problem					
	Overall Native Herbaceous Ground Cover	1	D	1		
	Longleaf Pine Regeneration	1	С	2		
	>10" dbh or cone-producing longleaf present					
	Native Warm Season Grass Cover	1	С	2		
	Native Wiry Graminoid Cover	1	В	3		
	Invasive Plant Presence/Distribution	1	А	4		
	Groundcover Overall Ecological Assessment	1				
MEF:	SOIL	0.1			4.00	A+
	Herbaceous Indicators of Soil Disturbance	1	А	4		

Xeric Longle	eaf Pine Barrens (XL	<u>PB)</u> EIA datashee	t <u>Open Pine 20</u>	18 (<u>metrics ver</u> :	<u>1.9)</u>	
Plot ID:	.RL 1	Date:	5/5/18			
Event details						
Site Name:	1 HIL D.	L.Kr Team:	Hujes	Lee, Cerr		
GPS Unit:	Cico 7	LPIC	. ,			
Datum			Ecologica	l System:		
	ucs 81	motors	o. 17	. //		
	29 44 24.23	lineters	Sand	111		
UTM-N:	59 30.15	meters				
PDOP:	+ 60 Cm		· · · ·			
Number of Satellites:	8	,				
		Assess	ment Area/Site	Description:		
Directions to plot:						
		2 14)	U		-
Cast	or County P		ier for FO (check	box)?	FO Comments:	
			<u> </u>	· · · · · · · · · · · · · · · · · · ·	and a set of the set of	
Basal Area of Southern Yellow Pine Canopy Trees Xeric Longleof Pine Bating Points Borrens						
25-80 ft2/acre basal area of longleaf pine (Pinus palustris)						
>15 to <25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris) 3 (1-4):						
10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)						2 Raw Value:
L O or 2100 π2/acre basal area of longlear pine (Pinus palustris)						
Southern Yellow Pine Canopy Cover						
>20 to 55% canopy cover of longleaf pine (Pinus palustris)						4 Rating
>15 to 20% canopy cover or >55 to 70% canopy cover of longleat pine (Pinus palustris) 3 5 455% 3						3 (1-4):
15-15% canopy cover or >/U to 80% canopy cover of longleat pine (Pinus palustris) 2 Raw Value: 2						
<pre><>% canopy cover or >80% canopy cover or ionglear pine (Pinus palustris)</pre> 1 2.%						
Southern Yellow Pine Stand Age Structure (12" cutoff) Xeric Longleof Pine Barrens Barrens						
Basal area \geq 20 ft2/acre of longleaf pine trees \geq 12" DBH class or flat-top longleaf pine is present 4 Rating						
Basal area ≥10 ft2/acre of longleaf pine trees ≥ 12" DBH class 3 (1-4):						
Longleaf pine trees ≥12" DBH class are present, but <10 ft2/acre basal area of those large trees 2 Raw Value:						
No longleaf pir	ne trees ≥12" DBH nor fla	it-top longleaf pine a	re present	_ 	¶	10
readings		Ú	0	0	flat	-top pine present 🗖
Canopy Hardwood Basal Area						
≤5 ft2/acre basal area of hardwood trees 4 Rating						
>5 to 15 ft2/acre basal area of hardwood trees 3 (1-4):						
>15 to 25 ft2/acre basal area of hardwood trees 2 Raw Value: >21 ft2/com basal area of hardwood trees 2						
>25 ft2/acre basal area of hardwood trees						
readings		H 20 L	40	1 20	1	22.5
Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine 2018 (metrics ver1.9)						
---	----------------------	--	------			
Plot ID: LRL1 Date: 9/5/18						
Canopy Hardwood Basal Area - Fire-Intolerant Xeric Longleaf Pine Rating Po	oints					
≤5 ft2/acre basal area of fire intolerant hardwood trees	4	Rating				
>5 to 10 ft2/acre basal area of fire intolerant hardwood trees	3	(1-4):	4			
>10 to 20 ft2/acre basal area of fire intolerant hardwood trees	2	Raw Valu	e:			
>20 ft2/acre basal area of fire intolerant hardwood trees	1	p				
readings 0 0 0		L				
Stand Density Index Xeric Longleof Pine Rating Po	oints					
SDI = 50 – 120 (13-30% of Maximum SDI of 400)	4	Rating				
SDI = 30 – 50 or 120 -160 (8-13% or 30-40% of Maximum SDI of 400, 35 – 40% SDI is near maximum of stand growth)	3	(1-4):				
SDI = 20 – 30 or 160 - 180 (5-8% or 40-45% of Maximum SDI, 240 is 60% of Maximum SD of 400, which is the onset of self-thinning)	2	Raw Value	e:			
SDI <20 or >180 (<5% or > 45%, 240 is 60% of Maximum SD of 400, the onset of self-thinning)	1	<u>i</u>				
list of DBHs						
Canopy Overall Ecological Assessment						
comments Few pines scores appropriate						
	- 1					
	1					
Midstory Fire-Tolerant Hardwood Cover	oints					
2 to 10% cover of midstory fire-tolerant hardwoods	4	Rating				
10 to 20% cover, or <2% cover of midstory fire-tolerant hardwoods	3	(1-4):	Э			
>20 to 25% cover of midstory fire-tolerant hardwoods	2	Raw Valu	e:			
>25% cover of midstory fire-tolerant hardwoods	1	17	•			
Midstory Fire-Intolerant Hardwood Cover Xeric Longleof Pine Rating Po	oints	· ····································				
<5% cover of fire-intolerant hardwood midstory	<u>.</u>		2. *			
5 to 10% cover of fire-intolerant hardwood midstory		(1-4):	2			
>10 to 20% cover of fire-intolerant hardwood midstory	2	Raw Valu	e:			
>20% cover of fire-intolerant hardwood midstory	1	JY				
			3			
Midstory Overall Woody Cover Xeric Longleof Pine Rating Po	ints	-	3			
Midstory Overall Woody Cover Xeric Langleof Pine Barrens Rating Po 2 to <15% cover of woody midstory	oints 4	Rating [3			
Midstory Overall Woody Cover Xeric Longleof Pine Barrens Rating Port 2 to <15% cover of woody midstory	oints 4 3	Rating (1-4):	3			
Midstory Overall Woody Cover Xeric Longleof Pine Barrens Rating Por Barrens 2 to <15% cover of woody midstory	oints 4 3 2	Rating (1-4):	3			
Midstory Overall Woody Cover Xeric Langleof Pine Barrens Rating Por Barrens 2 to <15% cover of woody midstory	2 1	Rating (1-4): Raw Value	3			

1

Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine 2018 (metric	<u>s ver1.9)</u>			
Plot ID: LRL / Date: 9/5/18				
Midstory Overall Ecological Assessment				
Still orssille alluing too much	milstory Cour			
Short Shrub (<3 feet tall) Cover	Xeric Longleaf Pine Barrens Rating Points			
Shrubs < 3 feet in height average <25% cover in the assessment area	4	Rating U		
Shrubs < 3 feet in height average 25 to 35% cover in the assessment area	3	(1-4): 7		
Shrubs < 3 feet in height average >35 to 45% cover in the assessment area	2	Raw Value:		
Shrubs < 3 feet in height average >45% cover in the assessment area	1	6		
Tall Shrub (3-10 feet tall) Cover	Xeric Longleaf Pine Barrens Rating Points	an a		
Shrubs 3-10 feet in height average <10% cover.	4	Rating		
Shrubs 3-10 feet in height average 10 to <20% cover.	3	(1-4):		
Shrubs 3-10 feet in height average 20 to 30% cover. 2				
Shrubs 3-10 feet in height average >30% cover.	1	િ ૭		
Shrub Overall Ecological Assessment				
Same fell shrow % problem				
Overall Native Herbaceous Ground Cover	Xeric Longleof Pine Rating Points Barrens			
40-100% herbaceous cover	4	Rating		
>25 to <40% herbaceous cover	3	(1-4):		
>15 to 25% herbaceous cover	2	Raw Value:		
0-15% herbaceous cover	1			
	Rapid Assessment Dotting Dotate			
Longleaf Pine Regeneration	Location			
Longleaf Pine Regeneration Longleaf pine regeneration (<2" DBH) cover is ≥1% at rapid assessment location	Location Rating Points	Rating		
Longleaf Pine Regeneration Longleaf pine regeneration (<2" DBH) cover is ≥1% at rapid assessment location Longleaf pine regeneration (<2" DBH) cover is <1% at rapid assessment location	<u>Location</u> 4	Rating (1-4): 2		
Longleaf Pine Regeneration Longleaf pine regeneration (<2" DBH) cover is ≥1% at rapid assessment location Longleaf pine regeneration (<2" DBH) cover is <1% at rapid assessment location No Longleaf pine regeneration (<2" DBH) cover seen, but cone producing longleaf pine or l present rapid assessment location	longleaf pine >10" DBH are	Rating (1-4): Raw Value:		

>10" DBH or cone-producing longleaf present

Xeric Longleaf Pine Barrens (XLPB) EIA datasheet Open Pine 2018 (metrics ver1.9)

Plot ID: LALI Date: 7/5/18			
Longleaf Pine Regeneration Stand Level Ratin	ıg Points		
Longleaf pine regeneration is present in patches across the stand, these patches are 5-15 % of the stand (about $1/2$ 1/6 of the stand)	20 to 4	Rating (1-4):	\square
Longleaf pine regeneration is present in patches across the stand, these patches are 1-5 % of the stand or >15% of stand (less than 1/20 or more than 1/6 of the stand)	^{the} 3	Raw Val	ue:
Longleaf pine regeneration is very sparse across stand, patches of longleaf pine regeneration are <1% of stand, or o producing longleaf pine or longleaf pine >10" DBH are present	;one 2		
Longleaf pine regeneration is apparently absent in stand, and apparently no cone producing longleaf pine or any m longleaf pine >10" DBH are present in the stand	^{ature} 1		
>10" DBH or cone-pr	oducing lon	gleaf pres	ent 🔲
Native Warm Season Grass Cover	ıg Points		
25-95% cover of all native warm season grasses	4	Rating	
15 to <25% or >95% cover of all native warm season grasses	3	(1-4):	ン
10 to <15% cover of all native warm season grasses	2	Raw Val	ue:
<10% cover of all native warm season grasses	1	10)
Native Wiry Graminoid Cover Xeric Longle of Pine Barrens Ratin	g Points	_,	
20-95% cover of all wiry graminoids	4	Rating	h_{1}
10 to <20% or >95% cover of all wiry graminoids	3	(1-4):	1/2
2 to <10% cover of all wiry graminoids	2	Raw Val	ue:
<2% cover of all wiry graminoids	1	10)
Invasive Plant Presence/Distribution Ratin	g Points		
Invasive nonnative plant species absent	4	Rating	u
Invasive nonnative plant species present in any stratum but sporadic (<5% cover)	3	(1-4):	1
Invasive nonnative plant species in any stratum uncommon (5-10% cover)	2	Raw Val	ue:
Invasive nonnative plant species in any stratum common (>10% cover)	1	0	
Herbaceous Indicators of Soil Disturbance Ratin	g Points		
Total cover for herbaceous indicators of soil disturbance <2%	4	Rating	
Total cover for herbaceous indicators of soil disturbance 2-5%	3	(1-4):	4
Total cover for herbaceous indicators of soil disturbance >5-10%	2	Raw Val	ue:
Total cover for herbaceous indicators of soil disturbance >10%	1	0	
			· · · ·

Groundcover Overall Ecological Assessment

comments

Low covers but still good cover at nirægness. Score is sporeprinte.



Appendix B. User Manual for the Sandhill Habitat Quantification Tool (HQT).

Note: The following user manual is for any of the open pine systems described in NatureServe's Field Guide to Southern Open Pine Rapid Assessment Metrics

(http://www.natureserve.org/sites/default/files/projects/files/natureserve_field_guide_of_souther n_open_pine_rapid_assessment_metrics_v2.0_september_28_2018.pdf).

On-line HQTs are located at

 $\underline{https://tranxfer.natureserve.org/download/Longterm/SE_office/EDF/prototype-webcalc/HQT-Menu.html.}$

Habitat Quantification Tool User Manual

This manual was developed to guide the collection of rapid assessment field data for use with a Habitat Quantification Tool (HQT). The tool uses a series of metrics describing canopy, mid-story, shrub, and ground cover to document the structure and composition of a given stand. This manual describes the plot layout and steps for recording data. Detailed definitions for each metric along with rationale for their inclusion can be found in <u>Nature-Serve's Field Guide to Southern Open Pine Rapid Assessment Metrics</u>.

Before the Field

1. Select a site	2
2. Prepare materials	2
Equipment Checklist	2

Field Assessment Steps

3
4
5
5
6
6
7
7
8
D





Before the Field

1. Select a site

Assessment locations should be representative of the stand or unit being evaluated. Plot locations may be chosen in the field at locations that appear to represent the stand. This should be considered acceptable only when the person or team selecting the location is familiar with the entire stand. Alternatively, a series of random locations may be chosen to represent the stand; this method removes any bias (good or bad) from the process. There are a variety of random sampling methods, several of which may be appropriate for a given site. One of these methods to consider is Generalized Random Tessellation Stratified sampling (GRTS), which is a spatially balanced random design that ensures spatial coverage of the entire survey area (i.e. prevents random locations from clustering in one area). The number of plot locations needed to represent or accurately depict the stand will vary from stand to stand depending on the size of and variability within the stand (Guidelines may be presented in later versions of this document).

2. Prepare materials

The equipment needed for rapid assessment can vary, but the recommended equipment is listed to the right. Photos, descriptions, and links for how to use each item are provided at the end of this document.

2.1 Field Data Collection Forms

To print the appropriate field data collection form for your site, you'll need to know the system or natural community type for your site. Refer to Nature-Serve Field Guide mentioned above or FNAI's <u>Guide</u> to the Natural Communites of Florida. The full set of data forms are located at the <u>HQT development</u> website.



1. Setting up your plot

1.1 Establish a center point

Establish a center point for your plot and place the chaining pin.

1.2 Collect a GPS point

At the center point, collect a GPS point. Ideally you will transfer this point into your GIS system to complete further evaluation of the site and its context. You shoud also manually write down the GPS coordinates in case of data loss.

1.3 Photographs

Take a photgraph in each cardinal direction from the centerpoint. Note the photograph numbers for later achiving.

1.4 Establish the plot layout

From the center chaining pin, pull the measuring tape in each cardinal direction (North, East, South, West), stopping at the suggested 83 feet (25.4 meters) for a 0.5 acre area circle and placing a pin flag, or flagging tape. This creates the boundaries for a circular plot that has a radius of 83 ft (25.4 m) and an area of 0.5 acre (0.2 hectare).

Then measure back 33 feet (10 meters), toward the center chaining pin, and place another pin flag or flagging tape. These are the four locations where basal area is measured for multiple metircs.

Tip: leave 1 or 2 tapes out while working in the plot to stay oriented.

Tip: There are other sizes of circle that can be used: A 1-acre plot has a 118 ft (36 meter) radius; a .25acre plot has a 59 ft (18 m) radius. The 0.5 acre (0.2 hectare) circles are manageable for a rapid assessment, and large enough to encompass some of the variation typical at small scales in longleaf pine and other southern open pine ecosystems.



Figure 1. (Above) A sample diagram of a 25.4 m radius plot. The points indicate where pin flags should be placed, and the plot boundary is imagined.



2. Measuring Basal Area

2.1 Basal area of southern yellow pine canopy trees

Measure basal area of pine >5 in DBH (defined as canopy trees) using a prism positioned over the 4 basal area points (Figure 2). Record each value on the field form. Calculate the average and record it as the raw value, then select the corresponding rating. We recommend a 10 factor prism for most Southeastern U.S. open pine systems.

2.2 Basal area of southern yellow pine canopy trees ≥14" DBH (and ≥12" DBH)

Follow the same procedure for pines greater than 14" DBH and 12" DBH. All of the basal area values are typically done at the same time at each point to save time walking back to the points. It helps to have a second person who can measure trees as needed while the basal area is being recorded.

Note: The 14" DBH cutoff is specified by <u>Amer-icas Longleaf Restoration Initiative</u>. Many sites in Florida cannot achieve this lofty goal. In order to capture sites that have older aged trees, we also include a metric with a 12" DBH cutoff.

2.3 Canopy hardwood basal area

Measure basal area of hardwood trees that reach canopy height as well as the subset of **fire-intolerant hardwoods** by using the same process outlined in 2.1. This can be done at the same time as the pines as long a care is taken to record each value in the correct location.

Fire tolerant hardwoods include turkey oak, sand post oak, bluejack oak, blackjack oak, black oak, post oak, southern red oak, black hickory, and flowering dogwood. Fire-intolerant hardwoods are all others, but typically include sweetgum, water oak, and laurel oak.



Figure 2. The diagram of a sample plot shows the four inner points where basal area is measured. Those points are indicated by blue X's.



3. Southern Yellow Pine Canopy Cover

Estimate the percent cover of the canopy. This may be done using a densiometer, ocular estimate, or your organizations' typical protocol.

It may be helpful to know that a 4 m by 5 m box is equal to 1% of the area of the (25.4 m) plot. Walk around the plot and "add up" cover of each yellow pine in the canopy (defined as 5" DBH or greater). Count the entire cover of the tree, not the foliage—the space between leaves and branches counts. There are many metrics that require a percent cover estimation, these should be assigned after exploring the entire plot.



Figure 3. (Above) A plot diagram with yellow circles to represent canopy cover being shown from above.



4. Stand Density Index (SDI) (optional for rapid assessments)

Record the diameter (DBH) of each of the southern yellow pine trees (or species appropriate for the ecosystem), by species in the rapid assessment area. This will typically take 20 minutes for a 0.5 acre rapid assessment area. The calculation for the SDI metric can be done in the office after the site visit. The equation can be found in <u>NatureServe's Field</u> <u>Guide to Southern Open Pine Rapid Assessment Metrics</u>.

Note: This step is optional because of the time it takes, but can provide useful timber volume information.



Figure 4. Sandhill, Ocala National Forest.

Midstory, shrub, and herbaceous cover are calculated in the same way as canopy cover in step 3. Keep in mind that you are measuring aerial cover (as viewed from above). Walk around the plot and estimate cover. The space between stems and leaves counts as cover. It is possible to exceed 100% if adding the canopy, midstory, and shrub layers because of overlap.

5. Midstory Cover

The midstory includes woody stems that are greater than 10 ft (3 m) in height but do not reach canopy height.

5.1 Fire-tolerant hardwood cover

Record the cover values for the midstory fire-tolerant hardwoods (defined on page 4) in box labeled "Raw Value" then circle the rating and enter the appropriate rating score in the rating box.

5.2 Fire-intolerant hardwood cover

Record the cover values for the midstory fire-intolerant hardwoods as decribed above.

5.3 Overall Woody Cover

Record the cover values for all midstory woody cover (including pines and vines) as above.

6. Shrub Cover

Shrubs include all woody growth, single- or multi-stemmed, including small broad-leaf trees, woody seedlings, tree saplings, short shrubs, saw palmetto, scrub palmetto and woody vining plants, less than 10 ft (3 m) in height.

6.1 Tall shrub cover (3-10ft height)

Record the cover values for tall shrubs as described above.



Figure 5. A grass stage longleaf pine seedling among wiregrass. Small longleaf pines like this are counted in longleaf pine regeneration cover.

6.2 Short shrub cover (<3ft height)

Record the cover values for short shrubs as described above.

6.3 Longleaf Pine regeneration cover (<2 inches DBH)

Record the cover of grass stage longleaf pine and small longleaf pine regeneration less than 2" DBH, the select the appropriate rating.

7. Herbaceous Cover

7.1 Overall Native Herbaceous Ground Cover

Visually assess the percentage of the ground within the plot covered by the general extent of native herbaceous plants. Native herbaceous ground cover includes all native non-woody, soft-tissued plants, regardless of height. This includes non-woody vines, legumes, composites, and graminoids (grasses, sedges, and rushes).

7.2 Native Warm Season Grass Cover

This is generally native non-weedy grasses that are considered characteristic of the natural groundcover. If field personnel are unfamiliar with these species, a detailed description of this metric and species list is included in the <u>Field Guide</u>.

7.3 Native Wiry Graminoid Cover

Native wiry graminoids are grasses or grass-like plants that have very narrow, wiry leaves. Native wiry graminoid plants include grasses, and beakrushes that resemble wiregrass.

8. Invasives & Soil Disturbance

8.1 Invasive Plant Presence/Distribution

Select the rating that corresponds to the matching extent and distribution of invasive exotic plants within the site and/or along the perimeter of the site.

When determining invasive species, use Florida EPPC category I and II listed species:

NatureServe.

http://www.fleppc.org/list/list.htm

8.2 Herbaceous Indicators of Soil Disturbance

Estimate the total percent cover for herbaceous indicators of soil distrubance. The list of indicator species is in Table 1 to the right. If there are plants that are thought to be indicators of soil disturbance, but are not listed in the metric documentation, note the species and collect separate percent cover estimates for the species.

Herbaceous Indicators of Soil Disturbanc	e
Scientific Name	Common Name
Bulbostylis barbata	water-grass
Bulbostylis ciliatifolia	capillary hairsedge
Chrysoma pauciflosculosa	woody goldenrod
Cynodon dactylon	bermuda grass
Cyperus croceus	Baldwin's flatsedge
Dichanthelium aciculare	needleleaf witchgrass
Diodia teres	rough buttonweed
Eragrostis curvula	weeping lovegrass
Eragrostis refracta	meadow lovegrass
Eremochloa ophiuroides	centipede grass
Eupatorium capillifolium	dog-fennel thoroughwart
Eupatorium compositifolium	yankeeweed
Froelichia gracilis	slender cottonweed
Haplopappus divaricatus	slender scratch-daisy
Hypericum gentianoides	orange-grass St. John's-wort
Lespedeza cuneata	Chinese bushclover
Liatris elegans	pink-scale gayfeather
Mollugo verticillata	green carpetweed
Panicum verrucosum	warty panicgrass
Paronychia patula	pineland nailwort
Paspalum notatum	Bahia grass
Polypremum procumbens	juniper-leaf
Rubus cuniefolius, Rubus argutus	prickly Florida blackberry
Triplasis purpurea	purple sandgrass

Table 1. List of herbaceous indicators of soil disturbance. Names in bold are exotic species. This list is a work in progress; additions can be made to the list based on the results of fieldwork, literature, or Floristic Quality Assessment plant lists.



9. Landscape Level Metrics

Landscape level metrics are typically calculated using GIS during or following the field assessment.

9.1 Absolute Patch Size

Absolute size is a measure of the current size of the landcover patch being evaluated, which may be larger than the assessment area. It can be measured in GIS using aerial photographs, International Vegetation Classification, the Florida Land Cover Classification System, or other data layers on which the extent of the site can be identified. Size may also be estimated in the field using 7.5 minute topographic quads or a global positioning system. Delineate the boundary and calculate the size.

9.2 Contiguous Natural Land Cover

Use the most recent aerial photography available of a 500 m radius envelope (~200 acrecircle) of the assessment area. When possible, walk through portions of the 500 m envelope to ground truth the photo. Identify the largest unfragmented block that contains the assessment area and estimate its percentage of the total area within the 500 m envelope.

Note: For this assessment, unfragmented land can have small inclusions of altered areas. Major roads, well-traveled dirt roads, and major canals count as fragmentation, but hiking paths, fire breaks, and small ditches do not.

9.3 Land Use Index

The land use index metric measures the intensity of human dominated land uses in the 500 m radius envelope (~200 acre- circle) of the plot center. This metric relies on a set of standard landuse coeficient values for a given landcover classification. These values (from 1 to 10 or 0 to 1, depending on the system) reflect the degree of natural system function.

The Land Use Index assessment can be done in the office using using the <u>International Vegeta-</u> <u>tion Classification</u>, the <u>Florida Land Cover Classi-</u> <u>fication System</u> or the <u>LANDFIRE Dataset</u>. If not already available, a landuse coeficient will need to be developed for the landcover classification system used. Landuse coeficients used during development of this HQT are based on <u>Faber-Lan-</u> <u>gendoen et al, 2011</u>.

To calculate Land Use Index, estimate the percent of each land use category within the 500 m radius, then calculate the corresponding sub-score for each category using the following equation:

Land Use category score = \sum LU x PC LU = Land use coefficient for each category PC = % area of class in each category

Sum each category score to calculate the Total Land Use Index Score.

Example: Figure 6 depicts the delineated lancover types within the 500 m envelope of a plot center. The area and percent of the envelope are shown for each type along with the corresponding land use coeficient and calculated sub-score summed to produce the Land Use Index score.



Figure 6. Land Use Index classes witin 500 m of a plot location.

Table	2.	Land	use	sub-score	and	overall	Land	Use
Index	fo	r exar	nple	e site.				

	1			
landcover	acres	% (PC)	LU	sub-score
baygall	29.53	15%	10.00	1.51
dome swamp	4.51	2%	10.00	0.23
sandhill	121.02	62%	10.00	6.17
clearing	4.69	2%	6.00	0.14
planted pine	18.86	10%	5.00	0.48
pasture	11.09	6%	4.00	0.23
residential	2.41	1%	1.00	0.01
road	4.07	2%	0.00	0.00
		Land Lic	a Inday -	0 77

Land Use Index =

9.4 Perimeter with Natural Buffer

Calculate the total length of the perimeter of the assessment area. Subtract the lenght of the perimeter that is determined to be adjacent (at least within 5 m) to a non-natural system. Divide the result by the the total length to get the percentage of the perimeter buffered by natural area. In the example below there is 3032 meters of natural buffer divided by the 3677 total meters of perimeter resulting in a score of 82%. The portion in red is a road that is greater than 5 m wide and also bordered by non-natural landcover.



Figure 7. An assessment area with the perimeter bordered by natural area depicted in green and the perimeter bordered by non-natural area depicted in red. Perimeter measurements are easily calculated in GIS.

Materials

Basal Area Prism

The basal area prism, or wedge prism, is used to estimate basal area of the plot. It can come in different "factors", shapes. sizes, and colors, so it is best to be familiar with the one you have.



Resources: https://bit.ly/2FwSHMH

Biltmore Stick

The Biltmore stick can be used to measure the diameter of a tree without having to walk around it. This can be useful for trees that have a vine such as poison ivy growing on it, or for measuring fallen logs.

Resources: https://bit.ly/2FtfNUg

Chaining Pin

The chaining pin is used to mark the center of the plot. Chaining pins are sturdy enough to secure measuring tape as you layout your plot.

Compass

The compass is used during plot setup to determine each cardinal direction. It can also be used to estimate height if it has a clinometer like the one pictured here.



Calibrated Diameter Tape

Calibrated diameter tape is used to measure the diameter of a tree. The hook in the end allows you to hook it into the tree and walk around it without dropping the tape.



GPS Unit

The GPS unit is used to provide spatial data for your plot. Brand is not important, but should be familiar with device you are using.



Resources:

https://www.fs.fed.us/database/gps/

Pin Flag

Pin flags are used to mark plot points while you are assessing the area, such as the basal area points.



A large tape measure like the one pictured (right) is essential for accurate plot setup.





Appendix C. Florida Pine Snake Habitat Quantification Tool (HQT) User Manual.

Note: The habitat features supporting essential behavior differentiate the Pine Snake HQT from the Sandhill HQT. The structure and composition metrics are identical to those in the Sandhill HQT Manual.

Florida Pine Snake Habitat Quantification Tool User Manual

This manual was developed to guide the collection of rapid assessment field data for use with a Habitat Quantification Tool (HQT). The tool uses a series of metrics describing canopy, mid-story, shrub, and ground cover to document the structure and composition of a given stand. This manual describes the plot layout and steps for recording data. Detailed definitions for each metric along with rationale for their inclusion can be found in <u>Nature-Serve's Field Guide to Southern Open Pine Rapid Assessment Metrics</u>.

Before the Field

1. Select a site	2
2. Prepare materials	2
Equipment Checklist	2

Field Assessment Steps

1. Setting up your plot	3
2. Essential behavior	4
3. Measuring Basal Area	5
4. Southern Yellow Pine Canopy Cover	6
5. Stand Density Index (SDI)	6
6. Midstory Cover	7
7. Shrub Cover	7
8. Herbaceous Cover	8
9. Invasives & Soil Disturbance	8
10. Landscape Level Metrics	9
Materials	11





Before the Field

1. Select a site

Assessment locations should be representative of the stand or unit being evaluated. Plot locations may be chosen in the field at locations that appear to represent the stand. This should be considered acceptable only when the person or team selecting the location is familiar with the entire stand. Alternatively, a series of random locations may be chosen to represent the stand; this method removes any bias (good or bad) from the process. There are a variety of random sampling methods, several of which may be appropriate for a given site. One of these methods to consider is Generalized Random Tessellation Stratified sampling (GRTS), which is a spatially balanced random design that ensures spatial coverage of the entire survey area (i.e. prevents random locations from clustering in one area). The number of plot locations needed to represent or accurately depict the stand will vary from stand to stand depending on the size of and variability within the stand (Guidelines may be presented in later versions of this document).

2. Prepare materials

The equipment needed for rapid assessment can vary, but the recommended equipment is listed to the right. Photos, descriptions, and links for how to use each item are provided at the end of this document.

2.1 Field Data Collection Forms

A field data collection form for the Florida pine snake HQT is provided at the back of this document. The latest version of the form can be found at the <u>HQT development website</u>.

Equipment Checklist 🗹
Field Data Collection Forms
Chaining pins
Pin flags and flagging tape
50-meter measuring tapes
Compass
Basal area prism
Diameter (dbh) tape
GPS unit
Camera
Reference materials



1. Setting up your plot

1.1 Establish a center point

Establish a center point for your plot and place the chaining pin.

1.2 Collect a GPS point

At the center point, collect a GPS point. Ideally you will transfer this point into your GIS system to complete further evaluation of the site and its context. You shoud also manually write down the GPS coordinates in case of data loss.

1.3 Photographs

Take a photgraph in each cardinal direction from the centerpoint. Note the photograph numbers for later achiving.

1.4 Establish the plot layout

From the center chaining pin, pull the measuring tape in each cardinal direction (North, East, South, West), stopping at the suggested 83 feet (25.4 meters) for a 0.5 acre area circle and placing a pin flag, or flagging tape. This creates the boundaries for a circular plot that has a radius of 83 ft (25.4 m) and an area of 0.5 acre (0.2 hectare).

Then measure back 33 feet (10 meters), toward the center chaining pin, and place another pin flag or flagging tape. These are the four locations where basal area is recorded for multiple metircs.

Tip: leave 1 or 2 tapes out while working in the plot to stay oriented.

Tip: There are other sizes of circle that can be used: A 1-acre plot has a 118 ft (36 meter) radus; a .25acre plot has a 59 ft (18 m) radius. The 0.5 acre (0.2 hectare) circles are manageable for a rapid assessment, and large enough to encompass some of the variation typical at small scales in longleaf pine and other southern open pine ecosystems.



Figure 1. (Above) A sample diagram of a 25.4 m radius plot. The points indicate where pin flags should be placed, and the plot boundary is imagined.



2. Essential Behavior

2.1 Soil Suitability (based on USDA soil drainage class)

The soil suitability metric includes land outside of the stand being evaluated, likely extending into neighboring ownerships. The most accurate method for determining the extent of excessively drained to well drained soils is using a desktop computer and a GIS program; however it can be estimated in the field if the user does not have access to GIS soil layers and the knowledge to query the data. The NRCS SoilWeb app for mobile devices can be helpful in identifying soil types, but user will still have to estimate acreage based on their knowledge of the site. For those using ArcGIS, the general steps are as follows: Add the NRCS soil data (https://sdmdataaccess. nrcs.usda.gov/) to your project. Zoom to the general extent of the evaluation site. Select the soils that intersect the site boundary. Within that selection and within the "drainage" data field select the "excessively drained" + the "somewhat excessively drained" + the "well drained" soils. Sum the acres field for that selection. Then check the box of the corresponding acreage on the field form.

2.2 Woody above-ground thermoregulation cover

If you are using a .5 acre plot, simply count the number of coppiced tree resprouts (typically turkey oak) and multiply by two to get the number per acre. Check the box of the corresponding choice.

2.3 Herbaceous above-ground thermoregulation cover

Bunch grasses are the primary herbaceous cover used by pine snakes. Wiregrass and bluestem grasses (including broomsedge) are typical. Estimate the percent of the ground covered by these grasses. One method is to count the number of 4 m x 5m boxes (= 1% of a .5 acre plot) that can be "filled" by the extent of bunch grasses. Select the corresponding box.

2.4 Refugia

Undergound refugia is a stand or site-level metric. They do not have to be observed in the plot, but must be observed on the evaluation site in order to be recorded and thus require knowledge of the larger area. Select all that apply to the site.



3. Measuring Basal Area

3.1 Basal area of southern yellow pine canopy trees

Measure basal area of pine >5 in DBH (defined as canopy trees) using a prism positioned over the 4 basal area points (Figure 2). Record each value on the field form. Calculate the average and record it as the raw value, then select the corresponding rating. We recommend a 10 factor prism for most Southeastern U.S. open pine systems.

3.2 Basal area of southern yellow pine canopy trees ≥14" DBH (and ≥12" DBH)

Follow the same procedure for pines greater than 14" DBH and 12" DBH. All of the basal area values are typically done at the same time at each point to save time walking back to the points. It helps to have a second person who can measure trees as needed while the basal area is being recorded.

Note: The 14" DBH cutoff is specified by <u>Amer-icas Longleaf Restoration Initiative</u>. Many sites in Florida cannot achieve this lofty goal. In order to capture sites that have older aged trees, we also include a metric with a 12" DBH cutoff.

3.3 Canopy hardwood basal area

Measure basal area of hardwood trees that reach canopy height as well as the subset of **fire-intolerant hardwoods** by using the same process outlined in 2.1. This can be done at the same time as the pines as long a care is taken to record each value in the correct location.

Fire tolerant hardwoods include turkey oak, sand post oak, bluejack oak, blackjack oak, black oak, post oak, southern red oak, black hickory, and flowering dogwood. Fire-intolerant hardwoods are all others, but typically include sweetgum, water oak, and laurel oak.



Figure 2. The diagram of a sample plot shows the four inner points where basal area is measured. Those points are indicated by blue X's.



4. Southern Yellow Pine Canopy Cover

Estimate the percent cover of the canopy. This may be done using a densiometer, ocular estimate, or your organizations' typical protocol.

It may be helpful to know that a 4 m by 5 m box is equal to 1% of the area of the (25.4 m) plot. Walk around the plot and "add up" cover of each yellow pine in the canopy (defined as 5" DBH or greater). Count the entire cover of the tree, not the foliage—the space between leaves and branches counts. There are many metrics that require a percent cover estimation, these should be assigned after exploring the entire plot.



Figure 3. (Above) A plot diagram with yellow circles to represent canopy cover being shown from above.



5. Stand Density Index (SDI) (optional for rapid assessments)

Record the diameter (DBH) of each of the southern yellow pine trees (or species appropriate for the ecosystem), by species in the rapid assessment area. This will typically take 20 minutes for a 0.5 acre rapid assessment area. The calculation for the SDI metric can be done in the office after the site visit. The equation can be found in <u>NatureServe's Field</u> <u>Guide to Southern Open Pine Rapid Assessment Metrics</u>.

Note: This step is optional because of the time it takes, but can provide useful timber volume information.



Figure 4. Sandhill, Ocala National Forest.

Midstory, shrub, and herbaceous cover are calculated in the same way as canopy cover in step 3. Keep in mind that you are measuring aerial cover (as viewed from above). Walk around the plot and estimate cover. The space between stems and leaves counts as cover. It is possible to exceed 100% if adding the canopy, midstory, and shrub layers because of overlap.

6. Midstory Cover

The midstory includes woody stems that are greater than 10 ft (3 m) in height but do not reach canopy height.

6.1 Fire-tolerant hardwood cover

Record the cover values for the midstory fire-tolerant hardwoods (defined on page 4) in box labeled "Raw Value" then circle the rating and enter the appropriate score in the rating box.

6.2 Fire-intolerant hardwood cover

Record the cover values for the midstory fire-intolerant hardwoods as decribed above.

6.3 Overall Woody Cover

Record the cover values for all midstory woody cover (including pines and vines) as above.

7. Shrub Cover

Shrubs include all woody growth, single- or multi-stemmed, including small broad-leaf trees, woody seedlings, tree saplings, short shrubs, saw palmetto, scrub palmetto and woody vining plants, less than 10 ft (3 m) in height.

7.1 Tall shrub cover (3-10ft height)

Record the cover values for tall shrubs as described above.

7.2 Short shrub cover (<3ft height)

Record the cover values for short shrubs as described above.

7.3 Longleaf Pine regeneration cover (<2 inches DBH)

Record the cover of grass stage longleaf pine and small longleaf pine regeneration less than 2" DBH, the select the appropriate rating.



Figure 5. A grass stage lonleaf pine seedling among wiregrass. Small longleaf pines like this are counted in longleaf pine regeneration cover.

8. Herbaceous Cover

8.1 Overall Native Herbaceous Ground Cover

Visually assess the percentage of the ground within the plot covered by the general extent of native herbaceous plants. Native herbaceous ground cover includes all native non-woody, soft-tissued plants, regardless of height. This includes non-woody vines, legumes, composites, and graminoids (grasses, sedges, and rushes).

8.2 Native Warm Season Grass Cover

This is generally native non-weedy grasses that are considered characteristic of the natural groundcover. If field personnel are unfamiliar with these species, a detailed description of this metric and species list is included in the <u>Field Guide</u>.

8.3 Native Wiry Graminoid Cover

Native wiry graminoids are grasses or grass-like plants that have very narrow, wiry leaves. Native wiry graminoid plants include grasses, and beakrushes that resemble wiregrass.

9. Invasives & Soil Disturbance

9.1 Invasive Plant Presence/Distribution

Select the rating that corresponds to the matching extent and distribution of invasive exotic plants within the site and/or along the perimeter of the site.

When determining invasive species, use Florida EPPC category I and II listed species:

NatureServe.

http://www.fleppc.org/list/list.htm

9.2 Herbaceous Indicators of Soil Disturbance

Estimate the total percent cover for herbaceous indicators of soil distrubance. The list of indicator species is in Table 1 to the right. If there are plants that are thought to be indicators of soil disturbance, but are not listed in the metric documentation, note the species and collect separate percent cover estimates for the species.

Herbaceous Indicators of Soil Disturbanc	e
Scientific Name	Common Name
Bulbostylis barbata	water-grass
Bulbostylis ciliatifolia	capillary hairsedge
Chrysoma pauciflosculosa	woody goldenrod
Cynodon dactylon	bermuda grass
Cyperus croceus	Baldwin's flatsedge
Dichanthelium aciculare	needleleaf witchgrass
Diodia teres	rough buttonweed
Eragrostis curvula	weeping lovegrass
Eragrostis refracta	meadow lovegrass
Eremochloa ophiuroides	centipede grass
Eupatorium capillifolium	dog-fennel thoroughwart
Eupatorium compositifolium	yankeeweed
Froelichia gracilis	slender cottonweed
Haplopappus divaricatus	slender scratch-daisy
Hypericum gentianoides	orange-grass St. John's-wort
Lespedeza cuneata	Chinese bushclover
Liatris elegans	pink-scale gayfeather
Mollugo verticillata	green carpetweed
Panicum verrucosum	warty panicgrass
Paronychia patula	pineland nailwort
Paspalum notatum	Bahia grass
Polypremum procumbens	juniper-leaf
Rubus cuniefolius, Rubus argutus	prickly Florida blackberry
Triplasis purpurea	purple sandgrass

Table 1. List of herbaceous indicators of soil disturbance. Names in bold are exotic species. This list is a work in progress; additions can be made to the list based on the results of fieldwork, literature, or Floristic Quality Assessment plant lists.



10. Landscape Level Metrics

Landscape level metrics are typically calculated using GIS during or following the field assessment.

10.1 Absolute Patch Size

Absolute size is a measure of the current size of the landcover patch being evaluated, which may be larger than the assessment area. It can be measured in GIS using aerial photographs, <u>International Vegetation Classification</u>, the <u>Florida Land Cover Classification System</u>, or other data layers on which the extent of the site can be identified. Size may also be estimated in the field using 7.5 minute topographic quads or a global positioning system. Delineate the boundary and calculate the size.

10.2 Contiguous Natural Land Cover

Use the most recent aerial photography available of a 500 m radius envelope (~200 acrecircle) of the assessment area. When possible, walk through portions of the 500 m envelope to ground truth the photo. Identify the largest unfragmented block that contains the assessment area and estimate its percentage of the total area within the 500 m envelope.

Note: For this assessment, unfragmented land can have small inclusions of altered areas. Major roads, well-traveled dirt roads, and major canals count as fragmentation, but hiking paths, fire breaks, and small ditches do not.

10.3 Land Use Index

The land use index metric measures the intensity of human dominated land uses in the 500 m radius envelope (~200 acre- circle) of the plot center. This metric relies on a set of standard landuse coeficient values for a given landcover classification. These values (from 1 to 10 or 0 to 1, depending on the system) reflect the degree of natural system function.

The Land Use Index assessment can be done in the office using using the <u>International Vegeta-</u> <u>tion Classification</u>, the <u>Florida Land Cover Classi-</u> <u>fication System</u> or the <u>LANDFIRE Dataset</u>. If not already available, a landuse coeficient will need to be developed for the landcover classification system used. Landuse coeficients used during development of this HQT are based on <u>Faber-Lan-</u> <u>gendoen et al, 2011</u>.

To calculate Land Use Index, estimate the percent of each land use category within the 500 m radius, then calculate the corresponding sub-score for each category using the following equation:

Land Use category score = \sum LU x PC LU = Land use coefficient for each category PC = % area of class in each category

Sum each category score to calculate the Total Land Use Index Score.

Example: Figure 6 depicts the delineated lancover types within the 500 m envelope of a plot center. The area and percent of the envelope are shown for each type along with the corresponding land use coeficient and calculated sub-score summed to produce the Land Use Index score.



Figure 6. Land Use Index classes witin 500 m of a plot location.

Table 2. Land use sub-score and	overall Land Use
Index for example site.	

landcover	acres	% (PC)	LU	sub-score
baygall	29.53	15%	10.00	1.51
dome swamp	4.51	2%	10.00	0.23
sandhill	121.02	62%	10.00	6.17
clearing	4.69	2%	6.00	0.14
planted pine	18.86	10%	5.00	0.48
pasture	11.09	6%	4.00	0.23
residential	2.41	1%	1.00	0.01
road	4.07	2%	0.00	0.00
		Land Us	e Index =	8.77

10.4 Perimeter with Natural Buffer

Calculate the total length of the perimeter of the assessment area. Subtract the lenght of the perimeter that is determined to be adjacent (at least within 5 m) to a non-natural system. Divide the result by the the total length to get the percentage of the perimeter buffered by natural area. In the example below there is 3032 meters of natural buffer divided by the 3677 total meters of perimeter resulting in a score of 82%. The portion in red is a road that is greater than 5 m wide and also bordered by non-natural landcover.



Figure 7. An assessment area with the perimeter bordered by natural area depicted in green and the perimeter bordered by non-natural area depicted in red. Perimeter measurements are easily calculated in GIS.



Materials

Basal Area Prism

The basal area prism, or wedge prism, is used to estimate basal area of the plot. It can come in different "factors", shapes. sizes, and colors, so it is best to be familiar with the one you have.



Resources: https://bit.ly/2FwSHMH

Biltmore Stick

The Biltmore stick can be used to measure the diameter of a tree without having to walk around it. This can be useful for trees that have a vine such as poison ivy growing on it, or for measuring fallen logs.

Resources: https://bit.ly/2FtfNUg

Chaining Pin

The chaining pin is used to mark the center of the plot. Chaining pins are sturdy enough to secure measuring tape as you layout your plot.

Compass

The compass is used during plot setup to determine each cardinal direction. It can also be used to estimate height if it has a clinometer like the one pictured here.



Calibrated Diameter Tape

Calibrated diameter tape is used to measure the diameter of a tree. The hook in the end allows you to hook it into the tree and walk around it without dropping the tape.



GPS Unit

The GPS unit is used to provide spatial data for your plot. Brand is not important, but should be familiar with device you are using.



Resources:

https://www.fs.fed.us/database/gps/

Pin Flag

Pin flags are used to mark plot points while you are assessing the area, such as the basal area points.



A large tape measure like the one pictured (right) is essential for accurate plot setup.





Plot ID:		Date:				
			Event detai	ls		
Site Name:		Team	:			
GPS Unit:						
Latitude:	decimal		Ecologi	cal System:		
	degrees					
Longitude:	degrees					
Accuracy:						
		Asse	ssment Area/Sit	e Description:		
Directions to	plot:			· · · ·		
		Cons	ider for FO (che	ck box)?	FO Comments:	
						_
		Es	sential Beha	ivior		
Soil Suitabil	ity (based on USDA soil drainag	ge class)			Check boxes	
Excessively dr	rained to well drained soils cover r	nore than 5	00 acres			
Excessively dr	rained to well drained soils cover 2	00 to 500 a	acres			
Excessively dr	rained to well drained soils cover 1	.00 to 200 a	acres			
Excessively dr	rained to well drained soils cover 1	. to 100 acr	es			
Excessively of		.				
Woody Abo	ve-Ground Inermoregulation (Lover				
Connicod tro	coppiced tree resprouts per acre	wo por acr	0		 	
Coppiced tree	a resprouts absent	two per acr	C		 	
coppiced free	ב ובשווטענג מטגפוונ					

Herbaceous Above-Ground Thermoregulation Cover	Check boxes
Bunch grasses covering more than 10 percent of the ground	
Bunch grasses present but less than 10 percent of the ground	
Bunch grasses absent	

Refugia	Check boxes
Pocket gophers burrows	
Other mammal burrows	
Gopher tortoise burrows	
Cut tree stumps or standing snags	

Date:	
Basal Area of Southern Yellow Pine Canopy Trees	Rating
25-80 ft2/acre basal area of longleaf pine (Pinus palustris)	A Raw Value:
>15 to <25 or >80 to 90 ft2/acre basal area of longleaf pine (Pinus palustris)	В
10 to 15 or > 90 to <100 ft2/acre basal area of longleaf pine (Pinus palustris)	C Rating:
<10 or ≥100 ft2/acre basal area of longleaf pine (Pinus palustris)	
readings	
Southern Yellow Pine Stand Age Structure (14" cutoff)	Rating
Basal area \geq 20 ft2/acre of longleaf pine trees \geq 14" DBH class or flat-top longleaf pine is present in plot	A Raw Value:
Basal area ≥ 10 to < 20 ft2/acre of longleaf pine trees $\geq 14''$ DBH class	В
Longleaf pine trees ≥14" DBH class are present, but <10 ft2/acre basal area of those large trees	C Rating:
No longleaf pine trees ≥14" DBH nor flat-top longleaf pine are present	ightarrow $ ightarrow$ $ ightarrow$
readings	flat-top pine present
Southern Yellow Pine Stand Age Structure (12" cutoff)	Rating
Basal area \geq 20 ft2/acre of longleaf pine trees \geq 12" DBH class or flat-top longleaf pine is present in plot	A Raw Value:
Basal area ≥ 10 to < 20 ft2/acre of longleaf pine trees $\geq 12''$ DBH class	B
Longleaf pine trees ≥12" DBH class are present, but <10 ft2/acre basal area of those large trees	C Rating:
No longleaf pine trees ≥12" DBH nor flat-top longleaf pine are present	$D \rightarrow $
readings	flat-top pine present
Canopy Hardwood Basal Area	Rating
≤5 ft2/acre basal area of hardwood trees	A Raw Value:
>5 to 15 ft2/acre basal area of hardwood trees	В
>15 to 25 ft2/acre basal area of hardwood trees	C Rating:
>25 ft2/acre basal area of hardwood trees	$\Box \rightarrow $
readings	
Canopy Hardwood Basal Area - Fire-Intolerant	Rating
0 ft2/acre basal area of fire intolerant hardwood trees	A Raw Value:
>0 to 5 ft2/acre basal area of fire intolerant hardwood trees	В
>5 to 10 ft2/acre basal area of fire intolerant hardwood trees	C Rating:
>10 ft2/acre basal area of fire intolerant hardwood trees	$D \rightarrow $
readings	
Southern Yellow Pine Canopy Cover	Rating
>20 to 55% canopy cover of longleaf pine (Pinus palustris)	A Raw Value:
>15 to 20% canopy cover or >55 to 70% canopy cover of longleaf pine (Pinus palustris)	В
5-15% canopy cover or >70 to 80% canopy cover of longleaf pine (Pinus palustris)	C Rating:
<5% canopy cover or >80% canopy cover of longleaf pine (Pinus palustris)	D

Date:			
Stand Der	nsity Index	Rati	ing
SDI = 50 -	120 (13-30% of Maximum SDI of 400)	Α	Raw Value:
SDI = 30 -	50 or 120 -160 (8-13% or 30-40% of Maximum SDI of 400, 35 – 40% SDI is near maximum of stand growth)	В	
SDI = 20 – self-thinnir	30 or 160 - 180 (5-8% or 40-45% of Maximum SDI, 240 is 60% of Maximum SD of 400, which is the onset of ng)	С	$\stackrel{\text{Rating:}}{\rightarrow}$
SDI <20 or	>180 (<5% or > 45%, 240 is 60% of Maximum SD of 400, the onset of self-thinning)	D	
list of DBH	Is		
Canopy O	verall Ecological Assessment		
comment	5		

Date:							
Midstory							
Midstory Fire-Tolerant Hardwood Cover	Rating						
2 to 5% cover of midstory fire-tolerant hardwoods	A Raw Value:						
5 to 15% cover, or <2% cover of midstory fire-tolerant hardwoods	В						
>15 to 25% cover of midstory fire-tolerant hardwoods	C Rating:						
>25% cover of midstory fire-tolerant hardwoods	$D \rightarrow$						
Midstory Fire-Intolerant Hardwood Cover Rating							
0% cover of fire-intolerant hardwood midstory	A Raw Value:						
>0 to 5% cover of fire-intolerant hardwood midstory	В						
>5 to 15% cover of fire-intolerant hardwood midstory	C Rating:						
>15% cover of fire-intolerant hardwood midstory	$D \rightarrow$						
Midstory Overall Woody Cover	Rating						
2 to <15% cover of woody midstory	A Raw Value:						
15 – 25%, or <2% cover of woody midstory	В						
>25 to 35% cover of woody midstory	C Rating:						
>35% cover of woody midstory	D						

Midstory Overall Ecological Assessment

comments

Date:	
Tall Shrub (3-10 feet tall) Cover	Rating
Shrubs 3-10 feet in height average <5% cover.	A Raw Value:
Shrubs 3-10 feet in height average 5 to <15% cover.	В
Shrubs 3-10 feet in height average 15 to <30% cover.	C Rating:
Shrubs 3-10 feet in height average ≥30% cover.	$D \rightarrow$
Short Shrub (<3 feet tall) Cover	Rating
	U
Shrubs < 3 feet in height average <25% cover in the assessment area	A Raw Value:
Shrubs < 3 feet in height average 25 to 35% cover in the assessment area	A Raw Value:
Shrubs < 3 feet in height average <25% cover in the assessment area	A Raw Value:
Shrubs < 3 feet in height average <25% cover in the assessment area	A Raw Value: B C Rating: D →

Longleaf pine regeneration (<2" DBH) cover is ≥1% at the rapid assessment location	Α	Raw Value:
Longleaf pine regeneration (<2" DBH) cover is <1% at the rapid assessment location	В	
No Longleaf pine regeneration (<2" DBH) cover seen, but cone-producing longleaf pine or longleaf pine >10" DBH are present at the rapid assessment location	С	Rating:
Longleaf pine regeneration (<2" DBH) cover is apparently absent, and no cone-producing longleaf pine or any mature longleaf pine >10" DBH are present at the rapid assessment location	D	

>10" DBH or cone-producing longleaf present

Longleaf pine regeneration is present in patches across the stand, these patches are 5-15 % of the stand (about 1/20 to 1/6 of the stand) Longleaf pine regeneration is present in patches across the stand, these patches are 1-5 % of the stand or >15% of the stand (less than 1/20 or more than 1/6 of the stand) Longleaf pine regeneration is very sparse across stand, patches of longleaf pine regeneration are <1% of stand, or	A Raw V	alue
Longleaf pine regeneration is present in patches across the stand, these patches are 1-5 % of the stand or >15% of the stand (less than 1/20 or more than 1/6 of the stand) Longleaf pine regeneration is very sparse across stand, patches of longleaf pine regeneration are <1% of stand, or		aiue.
Longleaf pine regeneration is very sparse across stand, patches of longleaf pine regeneration are <1% of stand, or	B Ratin	ıg:
cone-producing longleaf pine or longleaf pine >10" DBH are present	$_{\rm c}$ \rightarrow	
Longleaf pine regeneration is apparently absent in stand, and apparently no cone-producing longleaf pine or any mature longleaf pine >10" DBH are present in the stand	D	
>10" DBH or cone-produci	ing longleaf pr	esent

Shrub Overall Ecological Assessment

comments

Date:							
Ground							
Overall Na	ative Herbaceous Ground Cover				Rat	ing	
40-100% he	erbaceous cover				Α	Raw Value:	
>25 to <40	% herbaceous cover				В		
>15 to 25%	herbaceous cover				С	Rating:	
0-15% hert	baceous cover				D	\rightarrow	
Native Wa	arm Season Grass Cover				Rat	ing	
25-95% cov	ver of all native warm season grasses				Α	Raw Value:	
15 to <25%	or >95% cover of all native warm sea	ason grasses			В		
10 to <15%	cover of all native warm season gras	ses			С	Rating:	
<10% cove	r of all native warm season grasses				D	\rightarrow $\ $	
Native Wi	ry Graminoid Cover				Rat	ing	
20-95% cov	ver of all wiry graminoids				Α	Raw Value:	
10 to <20%	or >95% cover of all wiry graminoids				В		
2 to <10% o	cover of all wiry graminoids				C	Rating:	
<2% cover	of all wiry graminoids				D	\rightarrow	
Invasive P	lant Presence/Distribution				Rat	ing	
Invasive no	nnative plant species absent				Α	Raw Value:	
Invasive no	nnative plant species present in any	stratum but sporadic (<	5% c	cover)	В		
Invasive no	nnative plant species in any stratum	uncommon (5-10% cove	er)		C	Rating:	
Invasive no	nnative plant species in any stratum	common (>10% cover)			D	\rightarrow	
Herbaceo	us Indicators of Soil Disturbance				Rat	ing	
Total cover	for herbaceous indicators of soil dist	urbance <2%			Α	Raw Value:	
Total cover	for herbaceous indicators of soil dist	urbance 2-5%			В		
Total cover	for herbaceous indicators of soil dist	urbance >5-10%			С	Rating:	
Total cover	for herbaceous indicators of soil dist	urbance >10%			D	\rightarrow [

Groundcover Overall Ecological Assessment

comments

Date:					
		Landscape	2		
Absolute	Patch Size			Rat	ing SIZ1
≥10000 aci	es			Α	Raw Value:
≥2000 - <1	0000 acres			В	
≥500 - <20	00 acres			С	Rating:
<500 acres				D	\rightarrow
Contiguo	us Natural Land Cover			Rat	ing LAN1
Intact: Eml	pedded in 90-100% natural habitat aroun	d Assessment Area.		Α	Raw Value:
Variegated	: Embedded in 60-<90% natural habitat.			В	
Fragmente	d: Embedded in 20-<60% natural habitat			С	Rating:
Relictual: E	mbedded in <20% natural habitat.			D	\rightarrow
Land Use	Index			Rat	ing LAN2
Average La	nd Use Score = 9.5-10			Α	Raw Value:
Average La	nd Use Score = 8.0-9.4			В	
Average La	nd Use Score = 4.0-7.9			С	Rating:
Average La	nd Use Score < 4.0			D	\rightarrow
Perimeter	with Natural Buffer			Rat	ing BUF1
Natural bu	ffer is 100% of perimeter			Α	Raw Value:
Buffer is 75	5-99% of perimeter			В	
Buffer is 25	5-<75% of perimeter			С	Rating:
Buffer is <2	25% of perimeter			D	\rightarrow

Appendix D. Florida Pine Snake HQT test site summarized output.

Note: These data can also be viewed at the <u>Florida pine snake HQT</u> by selecting one of the sites in the "select example site" menu. Users can add or adjust the "dummy data" for the essential behaviors to see the current functionality.

Florida Pine Snake Habitat Quantification Tool

version 2.4 2019-06-03.



Overall Score: 0.902 excellent							
Category	Parameters, Metrics	Field Data	Functional Value				
Essential Behaviors (required) 1 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent				
	Woody Above-Ground Thermoregulation Cover	 Two of Copp per acre Copp 	or more coppiced tree resprouts per acre iced tree resprouts present but less than two iced tree resprouts absent	1 excellent			
--------------------	--	--	---	-----------------			
	Herbaceous Above-Ground Thermoregulation Cover	 Bunc the grour Bunc the grour Bunc 	h grasses covering more than 10 percent of id h grasses present but less than 10 percent of id h grasses absent	1 excellent			
	Refugia	 Pocket Other Goph Cut tr None 	et gophers burrows mammal burrows er tortoise burrows ee stumps or standing snags of the above present	1 excellent			
	Basal Area of Southern Yellow Pine Canopy Trees	30		1 excellent			
	Southern Yellow Pine Stand Age Structure (14" cutoff)	0		0.35 poor			
Canopy 0.664	Southern Yellow Pine Stand Age Structure (12" cutoff)	0		0.35 poor			
good	Canopy Hardwood Basal Area	15		0.615 fair			
	Canopy Hardwood Basal Area - Fire- Intolerant	0		1 excellent			
	Southern Yellow Pine Canopy Cover	15		0.67 good			
	Stand Density Index						
	Midstory Fire-Tolerant Hardwood Cover	3		1 excellent			
	Midstory Fire-Intolerant Hardwood Cover	0		1 excellent			
Mr. Laterary	Midstory Overall Woody Cover	3		0.943 excellent			
0.851	Tall Shrub (3-10 feet tall) Cover	4		0.91 excellent			
good	Short Shrub (<3 feet tall) Cover	35		0.625 good			
	Longleaf Pine Regeneration (Rapid Assessment)	0.9		0.63 good			
	Longleaf Pine Regeneration (Stand Level)						
	Overall Native Herbaceous Ground Cover	65		1 excellent			
Cround	Native Warm Season Grass Cover	63		1 excellent			
0.981	Native Wiry Graminoid Cover	60		1 excellent			
excellent	Invasive Plant Presence/Distribution	0		1 excellent			
	Herbaceous Indicators of Soil Disturbance	1		0.907 excellent			
	Absolute Patch Size (acres)	577.18		0.374 poor			
Landscape 0.761	Contiguous Natural Land Cover	80.67		0.886 excellent			
good	Land Use Index	8.5		0.785 good			
	Perimeter with Natural Buffer	100		1 excellent			

version 2.4 2019-06-03.

Camp Blanding 3



Overall Score: 0.772 good					
Category	Parameters, Metrics	Field Data	Functional Value		
Essential Behaviors (required) 1 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent		

	Woody Above-Ground Thermoregulation Cover	 Two of Copp. Copp. per acre Copp. 	or more coppiced tree resprouts per acre iced tree resprouts present but less than two iced tree resprouts absent	1 excellent
	Herbaceous Above-Ground Thermoregulation Cover	 Buncl the groun Buncl the groun Buncl 	h grasses covering more than 10 percent of d h grasses present but less than 10 percent of d h grasses absent	1 excellent
	Refugia	 Pocke Other Gophe Cut tr None 	et gophers burrows mammal burrows er tortoise burrows ee stumps or standing snags of the above present	1 excellent
	Basal Area of Southern Yellow Pine Canopy Trees	7.5		0.315 poor
	Southern Yellow Pine Stand Age Structure (14" cutoff)	5		0.485 fair
Canopy 0.319	Southern Yellow Pine Stand Age Structure (12" cutoff)	5		0.485 fair
poor	Canopy Hardwood Basal Area	40		0.141 poor
	Canopy Hardwood Basal Area - Fire- Intolerant	40		0.02 poor
	Southern Yellow Pine Canopy Cover	9		0.468 fair
	Stand Density Index			
	Midstory Fire-Tolerant Hardwood Cover	1		0.794 good
	Midstory Fire-Intolerant Hardwood Cover	3		0.757 good
MC Later	Midstory Overall Woody Cover	4		0.997 excellent
0.718	Tall Shrub (3-10 feet tall) Cover	1		0.981 excellent
good	Short Shrub (<3 feet tall) Cover	34.5		0.638 good
	Longleaf Pine Regeneration (Rapid Assessment)	0.2		0.14 poor
	Longleaf Pine Regeneration (Stand Level)			
	Overall Native Herbaceous Ground Cover	15		0.383 fair
Ground	Native Warm Season Grass Cover	14		0.554 fair
0.722	Native Wiry Graminoid Cover	13		0.676 good
good	Invasive Plant Presence/Distribution	0		1 excellent
	Herbaceous Indicators of Soil Disturbance	0		0.999 excellent
	Absolute Patch Size (acres)	76.49		0 poor
Landscape 0.628	Contiguous Natural Land Cover	57.22		0.611 fair
good	Land Use Index	9.2		0.899 excellent
	Perimeter with Natural Buffer	100		1 excellent

version 2.4 2019-06-03.

Camp Blanding 5



Overall Score: 0.809 good					
Category	Parameters, Metrics	Field Data	Functional Value		
Essential Behaviors (required) 0.906 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent		

	Woody Above-Ground Thermoregulation Cover	 Two or more coppiced tree resprouts per acre Coppiced tree resprouts present but less than two per acre Coppiced tree resprouts absent 	0.625 good
	Herbaceous Above-Ground Thermoregulation Cover	 Bunch grasses covering more than 10 percent of the ground Bunch grasses present but less than 10 percent of the ground Bunch grasses absent 	1 excellent
	Refugia	 Pocket gophers burrows Other mammal burrows Gopher tortoise burrows Cut tree stumps or standing snags None of the above present 	1 excellent
	Basal Area of Southern Yellow Pine Canopy Trees	7.5	0.315 poor
	Southern Yellow Pine Stand Age Structure (14" cutoff)	5	0.485 fair
Canopy	Southern Yellow Pine Stand Age Structure (12" cutoff)	5	0.485 fair
fair	Canopy Hardwood Basal Area	0	1 excellent
	Canopy Hardwood Basal Area - Fire- Intolerant	0	1 excellent
	Southern Yellow Pine Canopy Cover	7	0.408 fair
	Stand Density Index		
	Midstory Fire-Tolerant Hardwood Cover	4	1 excellent
	Midstory Fire-Intolerant Hardwood Cover	4	0.689 good
	Midstory Overall Woody Cover	8	1 excellent
Midstory 0.768	Tall Shrub (3-10 feet tall) Cover	33	0.33 poor
good	Short Shrub (<3 feet tall) Cover	20	0.96 excellent
	Longleaf Pine Regeneration (Rapid Assessment)	0.9	0.63 good
	Longleaf Pine Regeneration (Stand Level)		
	Overall Native Herbaceous Ground Cover	50	1 excellent
Ground	Native Warm Season Grass Cover	42	1 excellent
0.912	Native Wiry Graminoid Cover	40	1 excellent
excellent	Invasive Plant Presence/Distribution	0	1 excellent
	Herbaceous Indicators of Soil Disturbance	6	0.558 fair
	Absolute Patch Size (acres)	25.44	0 poor
Landscape	Contiguous Natural Land Cover	55.36	0.594 fair
fair	Land Use Index	8.5	0.785 good
	Perimeter with Natural Buffer	100	1 excellent



Overall Score: 0.827 good					
Category	Parameters, Metrics	Field Data	Functional Value		
Essential Behaviors (required) 1 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent		

	Woody Above-Ground Thermoregulation Cover	 Two c Coppi per acre Coppi 	or more coppiced tree resprouts per acre iced tree resprouts present but less than two iced tree resprouts absent	1 excellent
	Herbaceous Above-Ground Thermoregulation Cover	 Buncl the groun Buncl the groun Buncl 	n grasses covering more than 10 percent of d n grasses present but less than 10 percent of d n grasses absent	1 excellent
	Refugia	 Pocke Other Gophe Cut tro None 	t gophers burrows mammal burrows er tortoise burrows ee stumps or standing snags of the above present	1 excellent
	Basal Area of Southern Yellow Pine	25		1 excellent
	Southern Yellow Pine Stand Age Structure (14" cutoff)	0		0.35 poor
Canopy 0.561	Southern Yellow Pine Stand Age Structure (12" cutoff)	0		0.35 poor
fair	Canopy Hardwood Basal Area	25		0.375 fair
	Canopy Hardwood Basal Area - Fire- Intolerant	2.5		0.788 good
	Southern Yellow Pine Canopy Cover	10		0.5 fair
	Stand Density Index			
	Midstory Fire-Tolerant Hardwood Cover	5		0.922 excellent
	Midstory Fire-Intolerant Hardwood Cover	10		0.479 fair
Midstory	Midstory Overall Woody Cover	15		0.958 excellent
0.71	Tall Shrub (3-10 feet tall) Cover	10		0.759 good
good	Short Shrub (<3 feet tall) Cover	10		1 excellent
	Longleaf Pine Regeneration (Rapid Assessment)	0.2		0.14 poor
	Longleaf Pine Regeneration (Stand Level)			
	Overall Native Herbaceous Ground Cover	25		0.619 fair
Ground	Native Warm Season Grass Cover	22		0.797 good
0.731	Native Wiry Graminoid Cover	15		0.734 good
good	Invasive Plant Presence/Distribution	0		1 excellent
	Disturbance	7		0.507 fair
	Absolute Patch Size (acres)	548.43		0.362 poor
Landscape 0.733	Contiguous Natural Land Cover	74.52		0.804 good
good	Land Use Index	9		0.865 good
	Perimeter with Natural Buffer	91.2		0.903 excellent

version 2.4 2019-06-03.

Goldhead Branch 3 🔹



Overall Score: 0 poor					
Category	Parameters, Metrics	Field Data	Functional Value		
Essential Behaviors (required) 0 poor	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent		

	Woody Above-Ground Thermoregulation Cover	 Two of Copp per acre Copp 	or more coppiced tree resprouts per acre iced tree resprouts present but less than two iced tree resprouts absent	0 poor
	Herbaceous Above-Ground Thermoregulation Cover	 Bunc the grour Bunc the grour mathematical Bunc mathematical Bunc 	h grasses covering more than 10 percent of nd h grasses present but less than 10 percent of nd h grasses absent	0 poor
	Refugia	 Pocket Other Goph Cut tr None 	 Pocket gophers burrows Other mammal burrows Gopher tortoise burrows Cut tree stumps or standing snags None of the above present 	
	Basal Area of Southern Yellow Pine Canopy Trees	10		0.397 fair
	Southern Yellow Pine Stand Age Structure (14" cutoff)	10		0.62 fair
Canopy 0.423	Southern Yellow Pine Stand Age Structure (12" cutoff)	10		0.62 fair
fair	Canopy Hardwood Basal Area	37.5		0.17 poor
	Canopy Hardwood Basal Area - Fire- Intolerant	37.5		0.026 poor
	Southern Yellow Pine Canopy Cover	16		0.706 good
	Stand Density Index			
	Midstory Fire-Tolerant Hardwood Cover	0		0.629 good
	Midstory Fire-Intolerant Hardwood Cover	18		0.308 poor
	Midstory Overall Woody Cover	18		0.87 good
0.626	Tall Shrub (3-10 feet tall) Cover	8		0.81 good
good	Short Shrub (<3 feet tall) Cover	7		1 excellent
	Longleaf Pine Regeneration (Rapid Assessment)	0.2		0.14 poor
	Longleaf Pine Regeneration (Stand Level)			
	Overall Native Herbaceous Ground Cover	0		0 poor
Ground	Native Warm Season Grass Cover	0		0.019 poor
0.474	Native Wiry Graminoid Cover	0		0.353 poor
fair	Invasive Plant Presence/Distribution	0		1 excellent
	Herbaceous Indicators of Soil Disturbance	0]	0.999 excellent
	Absolute Patch Size (acres)	1.52		0 poor
Landscape 0.494	Contiguous Natural Land Cover	62.19		0.661 good
fair	Land Use Index	7.3		0.622 fair
	Perimeter with Natural Buffer	73.5		0.693 good



Overall Score: 0.875 excellent					
Category	Parameters, Metrics	Field Data	Functional Value		
Essential Behaviors (required) 1 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent		

	Woody Above-Ground Thermoregulation Cover	 Two of Copp per acre Copp 	or more coppiced tree resprouts per acre iced tree resprouts present but less than two iced tree resprouts absent	1 excellent
	Herbaceous Above-Ground Thermoregulation Cover	 Bunclette Bunclette Bunclette Bunclette Bunclette 	h grasses covering more than 10 percent of ad h grasses present but less than 10 percent of ad h grasses absent	1 excellent
	Refugia	 Pocket Other Goph Cut tr None 	 Pocket gophers burrows Other mammal burrows Gopher tortoise burrows Cut tree stumps or standing snags None of the above present 	
	Basal Area of Southern Yellow Pine Canopy Trees	20		0.888 excellent
	Southern Yellow Pine Stand Age Structure (14" cutoff)	7.5		0.553 fair
Canopy 0 766	Southern Yellow Pine Stand Age Structure (12" cutoff)	7.5		0.553 fair
good	Canopy Hardwood Basal Area	10		0.751 good
	Canopy Hardwood Basal Area - Fire- Intolerant	0		1 excellent
	Southern Yellow Pine Canopy Cover	20		0.848 good
	Stand Density Index			
	Midstory Fire-Tolerant Hardwood Cover	4		1 excellent
	Midstory Fire-Intolerant Hardwood Cover	0		1 excellent
Midstowy	Midstory Overall Woody Cover	4		0.997 excellent
0.931	Tall Shrub (3-10 feet tall) Cover	0		1 excellent
excellent	Short Shrub (<3 feet tall) Cover	20		0.96 excellent
	Longleaf Pine Regeneration (Rapid Assessment)	0.9		0.63 good
	Longleaf Pine Regeneration (Stand Level)			
	Overall Native Herbaceous Ground Cover	30		0.722 good
Ground	Native Warm Season Grass Cover	28		0.949 excellent
0.934	Native Wiry Graminoid Cover	25		1 excellent
excellent	Invasive Plant Presence/Distribution	0		1 excellent
	Herbaceous Indicators of Soil Disturbance	0		0.999 excellent
	Absolute Patch Size (acres)	20.54		0 poor
Landscape 0.432	Contiguous Natural Land Cover	17.87		0.328 poor
fair	Land Use Index	7.9		0.698 good
	Perimeter with Natural Buffer	74.5		0.703 good

version 2.4 2019-06-03.

Goldhead Branch 5



Overall Score:
0.917

Category	Parameters, Metrics	Field Data	Functional Value	
Essential Behaviors (required) 1 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent	

	Woody Above-Ground Thermoregulation Cover	 Two of Copp per acre Copp 	or more coppiced tree resprouts per acre iced tree resprouts present but less than two iced tree resprouts absent	1 excellent
	Herbaceous Above-Ground Thermoregulation Cover	 Bunclette Bunclette Bunclette Bunclette Bunclette 	h grasses covering more than 10 percent of nd h grasses present but less than 10 percent of nd h grasses absent	1 excellent
	Refugia	 Pocket Other Goph Cut tr None 	et gophers burrows mammal burrows er tortoise burrows ee stumps or standing snags of the above present	1 excellent
	Basal Area of Southern Yellow Pine Canopy Trees	20		0.888 excellent
	Southern Yellow Pine Stand Age Structure (14" cutoff)	10.5		0.634 good
Canopy 0.846	Southern Yellow Pine Stand Age Structure (12" cutoff)	10.5		0.634 good
good	Canopy Hardwood Basal Area	0		1 excellent
U U	Canopy Hardwood Basal Area - Fire- Intolerant	0		1 excellent
	Southern Yellow Pine Canopy Cover	22		0.917 excellent
	Stand Density Index			
	Midstory Fire-Tolerant Hardwood Cover	4		1 excellent
	Midstory Fire-Intolerant Hardwood Cover	0		1 excellent
Militar	Midstory Overall Woody Cover	4		0.997 excellent
0.923	Tall Shrub (3-10 feet tall) Cover	4		0.91 excellent
excellent	Short Shrub (<3 feet tall) Cover	17		0.998 excellent
	Longleaf Pine Regeneration (Rapid Assessment)	0.9		0.63 good
	Longleaf Pine Regeneration (Stand Level)			
	Overall Native Herbaceous Ground Cover	70		1 excellent
Ground	Native Warm Season Grass Cover	68		1 excellent
1	Native Wiry Graminoid Cover	68		1 excellent
excellent	Invasive Plant Presence/Distribution	0		1 excellent
	Herbaceous Indicators of Soil Disturbance	0		0.999 excellent
	Absolute Patch Size (acres)	69.66		0 poor
Landscape 0.593	Contiguous Natural Land Cover	60.21		0.641 good
fair	Land Use Index	9.1		0.882 excellent
	Perimeter with Natural Buffer	86.9		0.847 good



Overall Score: 0.897 excellent				
Category	Parameters, Metrics	Field Data	Functional Value	
Essential Behaviors (required) 1 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent	

	Woody Above-Ground Thermoregulation Cover	 Two of Copp per acre Copp 	or more coppiced tree resprouts per acre iced tree resprouts present but less than two iced tree resprouts absent	1 excellent
	Herbaceous Above-Ground Thermoregulation Cover	 Bunclethe ground Bunclethe ground Bunclethe ground Bunclethe ground 	h grasses covering more than 10 percent of d h grasses present but less than 10 percent of d h grasses absent	1 excellent
	Refugia	 Pocket Other Goph Cut tr None 	et gophers burrows mammal burrows er tortoise burrows ee stumps or standing snags of the above present	1 excellent
	Basal Area of Southern Yellow Pine Canopy Trees	15		0.609 fair
Canopy 0.663	Southern Yellow Pine Stand Age Structure (14" cutoff)	0		0.35 poor
	Southern Yellow Pine Stand Age Structure (12" cutoff)	2.5		0.418 fair
good	Canopy Hardwood Basal Area	0		1 excellent
	Canopy Hardwood Basal Area - Fire- Intolerant	0		1 excellent
	Southern Yellow Pine Canopy Cover	13		0.6 fair
	Stand Density Index			
	Midstory Fire-Tolerant Hardwood Cover	5		0.922 excellent
	Midstory Fire-Intolerant Hardwood Cover	0		1 excellent
Maria	Midstory Overall Woody Cover	5		1 excellent
0.902	Tall Shrub (3-10 feet tall) Cover	6		0.861 good
excellent	Short Shrub (<3 feet tall) Cover	7		1 excellent
	Longleaf Pine Regeneration (Rapid Assessment)	0.9		0.63 good
	Longleaf Pine Regeneration (Stand Level)			
	Overall Native Herbaceous Ground Cover	85		1 excellent
Ground	Native Warm Season Grass Cover	83		1 excellent
0.99	Native Wiry Graminoid Cover	80		1 excellent
excellent	Invasive Plant Presence/Distribution	0		1 excellent
	Herbaceous Indicators of Soil Disturbance	0.5		0.952 excellent
	Absolute Patch Size (acres)	28.89		0 poor
Landscape 0.66	Contiguous Natural Land Cover	59.93		0.638 good
good	Land Use Index	10		1 excellent
	Perimeter with Natural Buffer	100		1 excellent



Overall Score: 0.93 excellent				
Category	Parameters, Metrics	Field Data	Functional Value	
Essential Behaviors (required) 1 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent	
	Woody Above-Ground Thermoregulation Cover	 Two or more coppiced tree resprouts per acre Coppiced tree resprouts present but less than two per acre Coppiced tree resprouts absent 	1 excellent	

	Herbaceous Above-Ground Thermoregulation Cover	 Bunch grasses covering more than 10 percent of the ground Bunch grasses present but less than 10 percent of the ground Bunch grasses absent 	1 excellent
	Refugia	 Pocket gophers burrows Other mammal burrows Gopher tortoise burrows Cut tree stumps or standing snags None of the above present 	1 excellent
	Basal Area of Southern Yellow Pine Canopy Trees	30	1 excellent
	Southern Yellow Pine Stand Age Structure (14" cutoff)	15	0.755 good
Canopy 0.896	Southern Yellow Pine Stand Age Structure (12" cutoff)	10	0.62 fair
excellent	Canopy Hardwood Basal Area	0	1 excellent
	Canopy Hardwood Basal Area - Fire- Intolerant	0	1 excellent
	Southern Yellow Pine Canopy Cover	26	1 excellent
<u> </u>	Stand Density Index		
	Midstory Fire-Tolerant Hardwood Cover	1	0.794 good
	Midstory Fire-Intolerant Hardwood Cover	0	1 excellent
Midstory	Midstory Overall Woody Cover	2	0.881 excellent
0.882	Tall Shrub (3-10 feet tall) Cover	0	1 excellent
excellent	Short Shrub (<3 feet tall) Cover	18	0.987 excellent
	Longleaf Pine Regeneration (Rapid Assessment)	0.9	0.63 good
	Longleaf Pine Regeneration (Stand Level)		
	Overall Native Herbaceous Ground Cover	60	1 excellent
Ground	Native Warm Season Grass Cover	55	1 excellent
0.981	Native Wiry Graminoid Cover	50	1 excellent
excellent	Invasive Plant Presence/Distribution	0	1 excellent
	Herbaceous Indicators of Soil Disturbance	1	0.907 excellent
	Absolute Patch Size (acres)	603.45	0.384 fair
Landscape	Contiguous Natural Land Cover	69.18	0.739 good
0.7 good	Land Use Index	9.2	0.899 excellent
	Perimeter with Natural Buffer	81.2	0.777 good



Overall Score: 0.816 good				
Category	Parameters, Metrics	Field Data	Functional Value	
Essential Behaviors (required) 0.906 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent	
	Woody Above-Ground Thermoregulation Cover	 Two or more coppiced tree resprouts per acre Coppiced tree resprouts present but less than two per acre Coppiced tree resprouts absent 	0.625 good	

	Herbaceous Above-Ground Thermoregulation Cover	 Bunch grasses covering more than 10 percent of the ground Bunch grasses present but less than 10 percent of the ground Bunch grasses absent 	1 excellent
	Refugia	 Pocket gophers burrows Other mammal burrows Gopher tortoise burrows Cut tree stumps or standing snags None of the above present 	1 excellent
	Basal Area of Southern Yellow Pine Canopy Trees	22.5	1 excellent
	Southern Yellow Pine Stand Age Structure (14" cutoff)	0	0.35 poor
Canopy 0.752	Southern Yellow Pine Stand Age Structure (12" cutoff)	0	0.35 poor
good	Canopy Hardwood Basal Area	0	1 excellent
	Canopy Hardwood Basal Area - Fire- Intolerant	0	1 excellent
	Southern Yellow Pine Canopy Cover	19	0.813 good
<u> </u>	Stand Density Index		
	Midstory Fire-Tolerant Hardwood Cover	0	0.629 good
	Midstory Fire-Intolerant Hardwood Cover	0	1 excellent
Midstory	Midstory Overall Woody Cover	18	0.87 good
0.771	Tall Shrub (3-10 feet tall) Cover	0	1 excellent
good	Short Shrub (<3 feet tall) Cover	40	0.496 fair
	Longleaf Pine Regeneration (Rapid Assessment)	0.9	0.63 good
	Longleaf Pine Regeneration (Stand Level)		
	Overall Native Herbaceous Ground Cover	55	1 excellent
Ground	Native Warm Season Grass Cover	35	1 excellent
0.829 good	Native Wiry Graminoid Cover	30	1 excellent
	Invasive Plant Presence/Distribution	0	1 excellent
	Herbaceous Indicators of Soil Disturbance	20	0.144 poor
	Absolute Patch Size (acres)	18.17	0 poor
Landscape	Contiguous Natural Land Cover	92.81	1 excellent
fair	Land Use Index	9.1	0.882 excellent
	Perimeter with Natural Buffer	48	0.473 fair

version 2.4 2019-06-03.

Simmons SF 1



Overall Score: 0.874 good				
Category	Parameters, Metrics	Field Data	Functional Value	
Essential Behaviors (required) 1 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent	

	Woody Above-Ground Thermoregulation Cover	 Two c Coppi per acre Coppi 	or more coppiced tree resprouts per acre iced tree resprouts present but less than two iced tree resprouts absent	1 excellent
	Herbaceous Above-Ground Thermoregulation Cover	 Buncl the groun Buncl the groun Buncl 	n grasses covering more than 10 percent of d n grasses present but less than 10 percent of d n grasses absent	1 excellent
	Refugia	 Pocke Other Gophe Cut tr None 	t gophers burrows mammal burrows er tortoise burrows ee stumps or standing snags of the above present	1 excellent
	Basal Area of Southern Yellow Pine Canopy Trees	15		0.609 fair
	Southern Yellow Pine Stand Age Structure (14" cutoff)	2.5		0.418 fair
Canopy 0.56	Southern Yellow Pine Stand Age Structure (12" cutoff)	5		0.485 fair
fair	Canopy Hardwood Basal Area	30		0.28 poor
	Canopy Hardwood Basal Area - Fire- Intolerant	0		1 excellent
	Southern Yellow Pine Canopy Cover	12		0.566 fair
	Stand Density Index			
	Midstory Fire-Tolerant Hardwood Cover	3		1 excellent
	Midstory Fire-Intolerant Hardwood Cover	0		1 excellent
Midstowy	Midstory Overall Woody Cover	4		0.997 excellent
0.849	Tall Shrub (3-10 feet tall) Cover	2		0.958 excellent
good	Short Shrub (<3 feet tall) Cover	5		0.998 excellent
	Longleaf Pine Regeneration (Rapid Assessment)	0.2		0.14 poor
	Longleaf Pine Regeneration (Stand Level)			
	Overall Native Herbaceous Ground Cover	40		0.898 excellent
Ground	Native Warm Season Grass Cover	35		1 excellent
0.961	Native Wiry Graminoid Cover	34		1 excellent
excellent	Invasive Plant Presence/Distribution	0		1 excellent
	Herbaceous Indicators of Soil Disturbance	1		0.907 excellent
	Absolute Patch Size (acres)	47.93		0 poor
Landscape 0.687	Contiguous Natural Land Cover	98.28		1 excellent
good	Land Use Index	8.7		0.816 good
	Perimeter with Natural Buffer	93.3		0.932 excellent



Overall Score: 0.876 excellent				
Category	Parameters, Metrics	Field Data	Functional Value	
Essential Behaviors (required) 1 excellent	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent	

	Woody Above-Ground Thermoregulation Cover	 Two or more coppiced tree resprouts per acre Coppiced tree resprouts present but less than two per acre Coppiced tree resprouts absent 	1 excellent
	Herbaceous Above-Ground Thermoregulation Cover	 Bunch grasses covering more than 10 percent of the ground Bunch grasses present but less than 10 percent of the ground Bunch grasses absent 	1 excellent
	Refugia	 Pocket gophers burrows Other mammal burrows Gopher tortoise burrows Cut tree stumps or standing snags None of the above present 	1 excellent
	Basal Area of Southern Yellow Pine Canopy Trees	12.5	0.495 fair
	Southern Yellow Pine Stand Age Structure (14" cutoff)	7.5	0.553 fair
Canopy 0.639	Southern Yellow Pine Stand Age Structure (12" cutoff)	7.5	0.553 fair
good	Canopy Hardwood Basal Area	0	1 excellent
	Canopy Hardwood Basal Area - Fire- Intolerant	0	1 excellent
	Southern Yellow Pine Canopy Cover	0	0.234 poor
	Stand Density Index		
	Midstory Fire-Tolerant Hardwood Cover	1	0.794 good
	Midstory Fire-Intolerant Hardwood Cover	1	0.911 excellent
	Midstory Overall Woody Cover	12	1 excellent
0.841	Tall Shrub (3-10 feet tall) Cover	0.5	0.992 excellent
good	Short Shrub (<3 feet tall) Cover	12	1 excellent
	Longleaf Pine Regeneration (Rapid Assessment)	0.5	0.35 poor
	Longleaf Pine Regeneration (Stand Level)		
	Overall Native Herbaceous Ground Cover	55	1 excellent
Crownd	Native Warm Season Grass Cover	50	1 excellent
0.981	Native Wiry Graminoid Cover	40	1 excellent
excellent	Invasive Plant Presence/Distribution	0	1 excellent
	Herbaceous Indicators of Soil Disturbance	1	0.907 excellent
	Absolute Patch Size (acres)	49.41	0 poor
Landscape 0.607	Contiguous Natural Land Cover	68.42	0.73 good
fair	Land Use Index	7.9	0.698 good
	Perimeter with Natural Buffer	100	1 excellent



Overall Score: 0 poor					
Category	Parameters, Metrics	Field Data	Functional Value		
Essential Behaviors (required) 0 poor	Soil Suitability (based on USDA soil drainage class)	 Excessively drained to well drained soils cover more than 500 acres Excessively drained to well drained soils cover 200 to 500 acres Excessively drained to well drained soils cover 100 to 200 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils cover 1 to 100 acres Excessively drained to well drained soils absent 	1 excellent		

	Woody Above-Ground Thermoregulation Cover		 Two or more coppiced tree resprouts per acre Coppiced tree resprouts present but less than two per acre Coppiced tree resprouts absent 	
	Herbaceous Above-Ground Thermoregulation Cover	 Bunch grasses covering more than 10 percent of the ground Bunch grasses present but less than 10 percent of the ground Bunch grasses absent Pocket gophers burrows Other mammal burrows Gopher tortoise burrows Cut tree stumps or standing snags None of the above present 		0.625 good
	Refugia			1 excellent
	Basal Area of Southern Yellow Pine Canopy Trees	12.5		0.495 fair
	Southern Yellow Pine Stand Age Structure (14" cutoff)	0		0.35 poor
Canopy 0.692	Southern Yellow Pine Stand Age Structure (12" cutoff)	0		0.35 poor
good	Canopy Hardwood Basal Area	0		1 excellent
	Canopy Hardwood Basal Area - Fire- Intolerant	0		1 excellent
	Southern Yellow Pine Canopy Cover	50		0.96 excellent
	Stand Density Index			
	Midstory Fire-Tolerant Hardwood Cover	1		0.794 good
	Midstory Fire-Intolerant Hardwood Cover	1		0.911 excellent
Midstory 0.795	Midstory Overall Woody Cover	2		0.881 excellent
	Tall Shrub (3-10 feet tall) Cover	7		0.836 good
good	Short Shrub (<3 feet tall) Cover	10		1 excellent
	Longleaf Pine Regeneration (Rapid Assessment)	0.5		0.35 poor
	Longleaf Pine Regeneration (Stand Level)			
	Overall Native Herbaceous Ground Cover	4		0.078 poor
Crownd	Native Warm Season Grass Cover	0.5		0.04 poor
Ground 0.494	Native Wiry Graminoid Cover	0		0.353 poor
fair	Invasive Plant Presence/Distribution	0		1 excellent
	Herbaceous Indicators of Soil Disturbance	0		0.999 excellent
	Absolute Patch Size (acres)	6.99		0 poor
Landscape 0 477	Contiguous Natural Land Cover	56.66		0.606 fair
fair	Land Use Index	5.5		0.438 fair
	Perimeter with Natural Buffer	88.2		0.864 good