NOTE: THIS ATTACHMENT INCLUDES FLORIDA NATURAL AREAS INVENTORY (FNAI) ELEMENT OCCURRENCE MAPS AND DATA FOR THE CRYSTAL RIVER ENERGY COMPLEX SUBSTATION EXPANSION AREA, EXTRACTED FROM THE LEVY-CRYSTAL RIVER FNAI ELEMENT OCCURRENCE REPORT.

FLORIDA
Natural Areas
INVENTORY

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www.fnai.org

November 30, 2009

Stacy Rizzo
Golder Associates, Inc.
6026 NW 1st Place
Gainesville, FL 32607

Dear Ms. Rizzo,

Thank you for your request for information from the Florida Natural Areas Inventory (FNAI). We have compiled the following information for your project area.

Project: Proposed Citrus Substation – Crystal River Energy Complex

Date Received: November 24, 2009

Location: Citrus County

Element Occurrences

A search of our maps and database indicates that currently we have several Element Occurrences mapped within the vicinity of the study area (see enclosed map and element occurrence table). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

The Element Occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, Element Occurrences generally refer to more than a casual sighting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant.

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed Biodiversity Matrix Report). These species should be taken into consideration in field surveys, land management, and impact avoidance and mitigation.

FNAI habitat models indicate areas, which based on land cover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Habitat models have been developed for approximately 300 of the rarest species tracked by the Inventory, including all federally listed species.

FNAI species range models indicate areas that are within the known or predicted range of a species, based on climate variables, soils, vegetation, and/or slope. Species range models have been developed for approximately 340 species, including all federally listed species.

Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

The FNAI Biodiversity Matrix Geodatabase compiles Documented, Likely, and Potential species and natural communities for each square mile Matrix Unit statewide.

Florida Scrub-jay Survey – U.S. Fish and Wildlife Service
This survey was conducted by staff and associates of the Archbold Biological Station from 1992 to 1996. An attempt was made to record all scrub-jay (*Aphelocoma coerulescens*) groups, although most federal lands were not officially surveyed. Each map point represents one or more groups.

This data layer indicates that there are potential scrub-jay populations on or very near your site. For additional information:

Fitzpatrick, J.W., B. Pranty, and B. Stith, 1994, Florida scrub jay statewide map, 1992-1993. U. S. Fish and Wildlife Service Report, Cooperative Agreement no. 14-16-004-91-950.

The Inventory always recommends that professionals familiar with Florida's flora and fauna should conduct a site-specific survey to determine the current presence or absence of rare, threatened, or endangered species.

Please visit www.fnai.org/trackinglist.cfm for county or statewide element occurrence distributions and links to more element information.

The database maintained by the Florida Natural Areas Inventory is the single most comprehensive source of information available on the locations of rare species and other significant ecological resources. However, the data are not always based on comprehensive or site-specific field surveys. Therefore, this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. Inventory data are designed for the purposes of conservation planning and scientific research, and are not intended for use as the primary criteria for regulatory decisions.

Information provided by this database may not be published without prior written notification to the Florida Natural Areas Inventory, and the Inventory must be credited as an information source in these publications. FNAI data may not be resold for profit.

Thank you for your use of FNAI services. If I can be of further assistance, please give me a call at (850) 224-8207.

Sincerely,
Alicia C. Newberry

Alicia C. Newberry
Data Services Coordinator

Encl

Proposed Citrus Substation - Crystal River Energy Complex

Site boundaries are approximate.

Citrus County

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FLORIDA Natural Areas INVENTORY

Element Occurrences

- Animals
- Plants
- Communities
- Other
- Data Sensitive
- Point Indicates General Vicinity of Element
- U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96

Conservation Lands

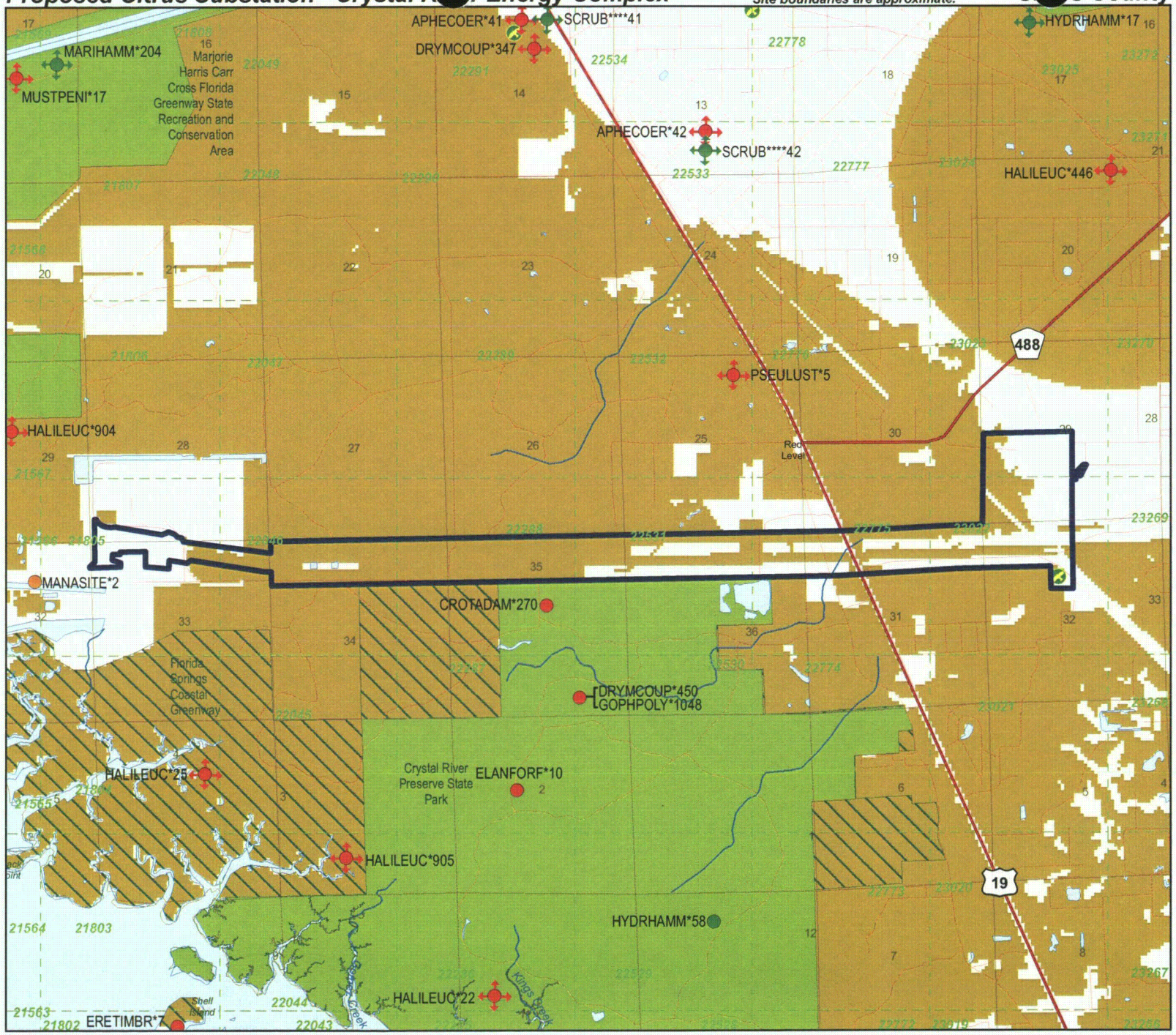
- Federal
- State
- Local
- Private
- State Aquatic Preserves

Land Acquisition Projects

- Florida Forever Board of Trustees Projects

- FNAI Rare Species Habitat
- FNAI Biodiversity Matrix Square Mile Units

- County Boundary
- Interstate
- Turnpike
- Major Highway
- Local Road
- Railroad [Inactive railroads shown in Gray]
- Water



NOTE
Map should not be interpreted without accompanying documents.

Map produced by ACN
Map Date: 30 NOV 2009

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

ELEMENT OCCURRENCES DOCUMENTED ON OR NEAR
Proposed Citrus Substation - Crystal River Energy Complex

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
APHECOER*42	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1981-02-21	GRASSY PALMETTO SCRUB	1981-02-21: 11 SCRUB JAYS
MARIHAMM*204	Maritime hammock		G3	S2	N	N	2004	SMALL REMNANT SURROUNDED BY ESTUARINE TIDAL MARSH.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991-10-10) (U05FNA02FLUS). REMNANT DOMINATED BY SABAL PALMETTO WITH PINUS ELLIOTTII, QUERCUS VIRGINIANA, JUNIPERUS SILICICOLA, DICHROMENA COLORATA, MYRIC
HYDRHAMM*17	Hydric hammock		G4	S4	N	N	2004	ISOLATED OCCURRENCE WITH LIMESTONE BOULDERS AT THE SURFACE; SOME DEEPER POOLS OF WATER.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991-11-12) (U05FNA02FLUS). DOMINATED BY SABAL PALMETTO AND ACER RUBRUM.
SCRUB****42	Scrub		G2	S2	N	N	2004	GRASSY PALMETTO SCRUB	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1981-02-21) (U05FNA02FLUS). OCCURRENCE AT SITE
SCRUB****41	Scrub		G2	S2	N	N	1981-02-21	PALMETTO SCRUB, SCATTERED PALMS	OCCURRENCE AT SITE
ERETIMBR*7	Eretmochelys imbricata	Hawksbill	G3	S1	LE	LE	1997-04-02	Coastal hammock island.	1997-04-02: One adult turtle found dead, decomposing (U97MAI01FLUS).
HYDRHAMM*58	Hydric hammock		G4	S4	N	N	1997-04-07	This hammock is deep in the woods. Crystal River marshes and swamps are its south and west border. The north and east edges are flatwoods and sandhills, also within the preserve.	1997-04-07: Completely canopied by mature trees reaching over 100 feet; understory and ground layer fairly open from lack of light; succession dominated by light gaps; enormous, clearly old growth. Hammock is interspersed with shallow running streams and
MANASITE*2	Manatee Aggregation Site		GNR	SNR	N	N	1988	WARM-WATER EFFLUENT INTO GULF OF MEXICO (CRYSTAL BAY).	UP TO 5 MANATEES UTILIZE THIS AREA FOR SHORT PERIODS OF COOL WEATHER; MOST HEAVILY IN SPRING AS INDIVIDUALS DISPERSE NORTHWARD FROM CRYSTAL RIVER.
DRYMCOUP*347	Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT	1973-10	No general description given	MUSEUM SPECIMEN: S. CHRISTMAN, OCT 1973, UF.
APHECOER*41	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1981-02-21	PALMETTO SCRUB, SCATTERED PINES	1981-02-21: 2 SCRUB JAYS

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

ELEMENT OCCURRENCES DOCUMENTED ON OR NEAR
Proposed Citrus Substation - Crystal River Energy Complex

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
MUSTPENI*17	Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N	1975-03-23	Coastal hammock.	1975-03-23: S.P. Christman, DEP, observation. Observed for several minutes as emerged from holes in hollow logs and ground in "peek-a-boo" fashion. See Fla. Game and Fresh Water Fish Comm., Cross Florida Barge Canal Restudy Rep. -Wildl. Study. Vol. IV, Ap
GOPHPOLY*1048	Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT	1997-04-08	Planted slash pine; includes some relic sandhill planted with slash pine and turkey oak (NW1/4 of section 2 T18SR16E).	1997-04-08: One individual sighted on dirt road in NW1/4 section 1 T18SR16E (S. Blitch et al.). 1995-1997: S. Blitch made several sightings of tortoises at three different locations within element occurrence boundaries (see attached map).
CROTADAM*270	Crotalus adamanteus	Eastern Diamondback Rattlesnake	G4	S3	N	N	1996	Planted pine.	1996: S. Blitch observed one individual once or twice near state buffer preserve's shop.
ELANFORF*10	Elanoides forficatus	Swallow-tailed Kite	G5	S2	N	N	1995-SPRING	No general description given	1995 Spring: One pair nested in planted slash pine (S. Blitch).
DRYMCOUP*450	Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT	1996-XX-XX	Planted slash pine and pine flatwoods (T17SR16E sec. 35); oak hammock and pasture (T18SR16E Sec. 1) (S. Blitch); mature slash pine plantation (G. Maidhoff).	1995-1996: Individuals observed at four different locations by S. Blitch (no specific dates). 1995-02-21: One snake observed by Ms. Yulee Commander basking in fire trail (U95MAI02).
HALILEUC*904	Haliaeetus leucocephalus	Bald Eagle	G5	S3	PS	N	2003	No general description given	Nest status 1995-2003: Continuously active. (U03FWC01FLUS). Previous data (note different format) Nest; 1995: Produced 1 young; 1994: Produced 2 young; 1993: Produced 2 young; 1992: No data; 1991: Active, productivity unknown; 1990: Produced 1 young; 198
HALILEUC*22	Haliaeetus leucocephalus	Bald Eagle	G5	S3	PS	N	1991	No general description given	Nest status 1999-2003: Inactive - 2003; Unknown/not assessed - 2002, 2001, 2000, 1999; Status 1995-98: Inactive - 1998, 1997, 1996, 1995; (U03FWC01FLUS). Previous data (note different format) NEST: 1995: GONE; 1994: INACTIVE; 1993: INACTIVE; 1992: NO DAT

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HALILEUC*446	Haliaeetus leucocephalus	Bald Eagle	G5	S3	PS	N	2003	No general description given	Nest status 1995-2003: Continuously active. (U03FWC01FLUS). Previous data (note different format) NEST: 1995: PRODUCED 1 YOUNG; 1994: GONE; 1993: PRODUCED 2 YOUNG; 1992-87: NO DATA; 1982-1986 ACTIVE; FLEDGED YOUNG 1982-1983, 1985.
HALILEUC*905	Haliaeetus leucocephalus	Bald Eagle	G5	S3	PS	N	2003	No general description given	Nest status 1995-2003: Continuously active. (U03FWC01FLUS). Previous data (note different format) Nest; 1995: Produced 1 young; 1994: Produced 1 young; 1993: Produced 1 young; 1992: No data; 1991: Produced 1 young; 1990: No data; 1989: Produced 1 young;
HALILEUC*25	Haliaeetus leucocephalus	Bald Eagle	G5	S3	PS	N	1991	No general description given	Nest status 1999-2003: Inactive - 2003; Unknown/not assessed - 2002, 2001, 2000, 1999; Status 1995-98: Inactive - 1998, 1997, 1996, 1995; (U03FWC01FLUS). Previous data (note different format) NEST: 1995-93: GONE; 1992: NO DATA; 1991: ACTIVE, PRODUCTIVITY
PSEULUST*5	Pseudobranchus striatus lustricolus	Gulf Hammock Dwarf Siren	G5T1	S1	N	N	1951-03-15	1951: habitat not described by Neill (1951) (A51NEI02FLUS).	1951-03-15: W. T. Neill collected at least eight adults (paratypes, ERA-WTN 14218-14225) (A51NEI02FLUS, B92MOL01FLUS).

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 21805					
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Manatee aggregation site		GNR	SNR	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	LT*
Potential					
Acipenser oxyrinchus desotoi	Gulf Sturgeon	G3T2	S2	LT	LS
Ammodramus maritimus peninsulae	Scott's Seaside Sparrow	G4T3Q	S3	N	LS
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Caretta caretta	Loggerhead	G3	S3	LT	LT
Chelonia mydas	Green Turtle	G3	S2	LE	LE
Cistothorus palustris marianae	Marian's Marsh Wren	G5T3	S3	N	LS
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Forestiera godfreyi	Godfrey's Swampprivet	G2	S2	N	LE
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Justicia cooleyi	Cooley's Water-willow	G2	S2	LE	LE
Leitneria floridana	Corkwood	G3	S3	N	LT
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Myotis austroriparius	Southeastern Bat	G3G4	S3	N	N
Neovison vison halilimnetes	Gulf Salt Marsh Mink	G5T3	S3	N	N
Nerodia clarkii clarkii	Gulf Salt Marsh Snake	G4T4	S3?	N	N
Phyllanthus leibmannianus ssp. platylepis	Pinewood Dainties	G4T2	S2	N	LE
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Rallus longirostris scottii	Florida Clapper Rail	G5T3?	S3?	N	N
Spigelia loganioides	Pinkroot	G2Q	S2	N	LE
Trichechus manatus	Manatee	G2	S2	LE	LE
Matrix Unit ID: 22046					
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Mesic flatwoods		G4	S4	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	LT*
Potential					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Forestiera godfreyi	Godfrey's Swampprivet	G2	S2	N	LE
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Justicia cooleyi	Cooley's Water-willow	G2	S2	LE	LE
Leitneria floridana	Corkwood	G3	S3	N	LT
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Myotis austroriparius	Southeastern Bat	G3G4	S3	N	N
Neovison vison halilimnetes	Gulf Salt Marsh Mink	G5T3	S3	N	N
Phyllanthus leibmannianus ssp. platylepis	Pinewood Dainties	G4T2	S2	N	LE
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Spigelia loganioides	Pinkroot	G2Q	S2	N	LE
Matrix Unit ID: 22288					
Documented					
Crotalus adamanteus	Eastern Diamondback Rattlesnake	G4	S3	N	N
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	LT*
Potential					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Forestiera godfreyi	Godfrey's Swampprivet	G2	S2	N	LE
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Justicia cooleyi	Cooley's Water-willow	G2	S2	LE	LE
Leitneria floridana	Corkwood	G3	S3	N	LT
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Myotis austroriparius	Southeastern Bat	G3G4	S3	N	N
Neovison vison halilimnetes	Gulf Salt Marsh Mink	G5T3	S3	N	N
Phyllanthus leibmannianus ssp. platylepis	Pinewood Dainties	G4T2	S2	N	LE
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS
Spigelia loganioides	Pinkroot	G2Q	S2	N	LE
Matrix Unit ID: 22531					
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Mesic flatwoods		G4	S4	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	LT*
Potential					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Forestiera godfreyi	Godfrey's Swampprivet	G2	S2	N	LE
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Justicia cooleyi	Cooley's Water-willow	G2	S2	LE	LE
Leitneria floridana	Corkwood	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Myotis austroriparius	Southeastern Bat	G3G4	S3	N	N
Neovison vison halilimnetes	Gulf Salt Marsh Mink	G5T3	S3	N	N
Phyllanthus leibmannianus ssp. platylepis	Pinewood Dainties	G4T2	S2	N	LE
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pseudobranchus striatus lustricolus	Gulf Hammock Dwarf Siren	G5T1	S1	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Spigelia loganioides	Pinkroot	G2Q	S2	N	LE
Stilosoma extenuatum	Short-tailed Snake	G3	S3	N	LT
Matrix Unit ID: 22775					
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Mesic flatwoods		G4	S4	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	LT*
Potential					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Forestiera godfreyi	Godfrey's Swampprivet	G2	S2	N	LE
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Justicia cooleyi	Cooley's Water-willow	G2	S2	LE	LE
Leitneria floridana	Corkwood	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Myotis austroriparius	Southeastern Bat	G3G4	S3	N	N
Phyllanthus leibmannianus ssp. platylepis	Pinewood Dainties	G4T2	S2	N	LE
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pseudobranchus striatus lustricolus	Gulf Hammock Dwarf Siren	G5T1	S1	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS
Spigelia loganioides	Pinkroot	G2Q	S2	N	LE
Stilosoma extenuatum	Short-tailed Snake	G3	S3	N	LT
Matrix Unit ID: 23022					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Mesic flatwoods		G4	S4	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	LE
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Forestiera godfreyi	Godfrey's Swampprivet	G2	S2	N	LE
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Justicia cooleyi	Cooley's Water-willow	G2	S2	LE	LE
Leitneria floridana	Corkwood	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Myotis austroriparius	Southeastern Bat	G3G4	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2S3	N	N

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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Phyllanthus leibmannianus ssp. platylepis	Pinewood Dainties	G4T2	S2	N	LE
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS
Spigelia loganioides	Pinkroot	G2Q	S2	N	LE
Stilosoma extenuatum	Short-tailed Snake	G3	S3	N	LT

Matrix Unit ID: 23023

Likely

Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Mesic flatwoods		G4	S4	N	N

Potential

Agrimonia incisa	Incised Groove-bur	G3	S2	N	LE
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	LS
Forestiera godfreyi	Godfrey's Swampprivet	G2	S2	N	LE
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Justicia cooleyi	Cooley's Water-willow	G2	S2	LE	LE
Leitneria floridana	Corkwood	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Myotis austroriparius	Southeastern Bat	G3G4	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2S3	N	N
Phyllanthus leibmannianus ssp. platylepis	Pinewood Dainties	G4T2	S2	N	LE
Pituophis melanoleucus mugitus	Florida Pine Snake	G4T3	S3	N	LS
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Rana capito	Gopher Frog	G3	S3	N	LS
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS
Spigelia loganioides	Pinkroot	G2Q	S2	N	LE
Stilosoma extenuatum	Short-tailed Snake	G3	S3	N	LT

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

GLOBAL AND STATE RANKS

Florida Natural Areas Inventory (FNAI) defines an **element** as any rare or exemplary component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature. FNAI assigns two ranks to each element found in Florida: the **global rank**, which is based on an element's worldwide status, and the **state rank**, which is based on the status of the element within Florida. Element ranks are based on many factors, including estimated number of occurrences, estimated abundance (for species and populations) or area (for natural communities), estimated number of adequately protected occurrences, range, threats, and ecological fragility.

GLOBAL RANK DEFINITIONS

G1	Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2	Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3	Either very rare and local throughout its range (21-100 occurrences or less than 10,0000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4	Apparently secure globally (may be rare in parts of range).
G5	Demonstrably secure globally.
G#?	Tentative rank (e.g., G2?)
G#G#	Range of rank; insufficient data to assign specific global rank (e.g., G2G3)
G#T#	Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)
G#Q	Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
G#T#Q	Same as above, but validity as subspecies or variety is questioned.
GH	Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
GNA	Ranking is not applicable because element is not a suitable target for conservation (e.g. as for hybrid species)
GNR	Not yet ranked (temporary)
GNRTNR	Neither the full species nor the taxonomic subgroup has yet been ranked (temporary)
GX	Believed to be extinct throughout range
GXC	Extirpated from the wild but still known from captivity/cultivation
GU	Unrankable. Due to lack of information, no rank or range can be assigned (e.g., GUT2).

STATE RANK DEFINITIONS

Definition parallels global element rank: substitute "S" for "G" in above global ranks, and "in Florida" for "globally" in above global rank definitions.

FEDERAL AND STATE LEGAL STATUSES (U.S. Fish and Wildlife Service – USFWS) PROVIDED BY FNAI FOR INFORMATION ONLY.

For official definitions and lists of protected species, consult the relevant state or federal agency.

FEDERAL LEGAL STATUS

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

LE Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.

LE,XN A non essential experimental population of a species otherwise Listed as an Endangered Species in the List of Endangered and Threatened Wildlife and Plants. LE,XN for Grus americana (Whooping crane), Federally listed as XN (Non essential experimental population) refers to the Florida experimental population only. Federal listing elsewhere for Grus americana is LE.

PE Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.

LT Listed as Threatened Species, defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

LT,PDL Species currently listed Threatened but has been proposed for delisting.

PT Proposed for listing as Threatened Species.

C Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants, Category 1. Federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.

SAT Threatened due to similarity of appearance to a threatened species.

SC Species of Concern, species is not currently listed but is of management concern to USFWS.

N Not currently listed, nor currently being considered for addition to the List of Endangered and Threatened Wildlife and Plants.

FLORIDA LEGAL STATUSES (Florida Fish and Wildlife Conservation Commission – FFWCC/ Florida Department of Agriculture and Consumer Services – FDACS)

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission - FFWCC, 1 August 1997, and subsequent updates.

LE Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.

LT Listed as Threatened Species by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.

LT* Indicates that a species has LT status only in selected portions of its range in Florida. LT* for Ursus americanus floridanus (Florida black bear) indicates that LT status does not apply in Baker and Columbia counties and in the Apalachicola National Forest. LT* for Neovison vison pop. 1 (Southern mink, South Florida population) state listed as Threatened refers to the Everglades population only (Note: species formerly listed as Mustela vison mink pop. 1. Also, priorly listed as Mustela evergladensis).

LS Listed as Species of Special Concern by the FFWCC, defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification,

environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species.

LS* Indicates that a species has LS status only in selected portions of its range in Florida. LS* for Pandion haliaetus (Osprey) state listed as LS (Species of Special Concern) in Monroe County only.

PE Proposed for listing as Endangered.

PT Proposed for listing as Threatened.

PS Proposed for listing as a Species of Special Concern.

N Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or please visit: http://DOACS.State.FL.US/PI/Images/Rule05b.pdf

LE Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.

PE Proposed by the FDACS for listing as Endangered Plants.

LT Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered. LT* indicates that a species has LT status only in selected portions of its range in Florida.

PT Proposed by the FDACS for listing as Threatened Plants.

N Not currently listed, nor currently being considered for listing.

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Tallahassee, FL 32303
(850) 224-8207
(850) 681-9364 Fax
www.fnai.org

FLORIDA
Natural Areas
INVENTORY

Tracking Florida's Biodiversity

FLORIDA
Natural Areas
INVENTORY

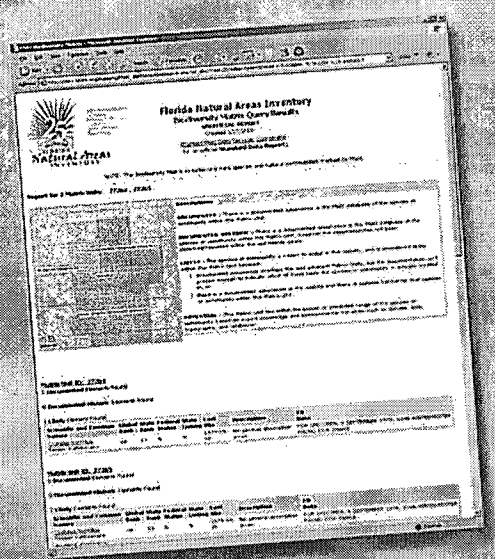
Technical Assistance Provided by:

FREAC
FLORIDA RESOURCES & ENVIRONMENTAL ANALYSIS CENTER
AT THE FLORIDA STATE UNIVERSITY

FOR IMMEDIATE RELEASE

FNAI's Biodiversity Matrix Online

The Biodiversity Matrix Map Server is a new **screening tool** from FNAI that provides **immediate, free access** to rare species occurrence information statewide. This tool allows you to zoom to your site of interest and create a report listing documented, likely, and potential occurrences of rare species and natural communities.



The FNAI Biodiversity Matrix offers **built-in interpretation** of the likelihood of species occurrence for each 1-square-mile Matrix Unit across the state. The report includes a site map and list of species and natural communities by occurrence status: Documented, Documented-Historic, Likely, and Potential.

Try it today:

www.fnai.org/biointro.cfm

Please note: FNAI will continue to offer our Standard Data Report service as always. The Standard Data Report offers the most comprehensive information available on rare species, natural communities, conservation lands, and other natural resources.

Progress Energy Florida
Levy Baseload Project
Crystal River Energy Complex Substation Expansion Wetland Impacts

Wetland ID	FLUCFCS Code	FLUCFCS Definition	Impact Acreage	Total Impact Acreage	UMAM	Mitigation Credits	Total Mitigation Credits
AC	641	Freshwater Marshes	0.09	0.09	0.40	0.04	0.04
AD	630	Wetland Forested Mixed	1.77	2.35	0.53	0.94	1.25
	643	Wet Prairie	0.58		0.53	0.31	
AE	630	Wetland Forested Mixed	0.82	0.82	0.53	0.43	0.43
AF	511	Ditches	0.14	0.14	0.53	0.07	0.07
AG	630	Wetland Forested Mixed	0.41	0.69	0.53	0.22	0.37
	643	Wet Prairie	0.28		0.53	0.15	
AH	641	Freshwater Marshes	0.44	0.44	0.40	0.18	0.18
AI	534	Reservoirs < 10 acres	0.81	0.81	0.40	0.32	0.32
		Total		5.34			2.66

Golder Associates

SUMTER COUNTY

PASCO COUNTY

POLK COUNTY

471

530

35A

54A

54

700

35

98

SITE LOCATION

Zephyrhills

PASCO COUNTY

POLK COUNTY

HILLSBOROUGH COUNTY

39

35A

582

4

Lakeland

N

W

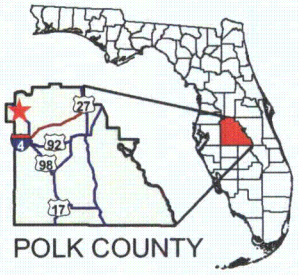
E

S

2 1 0 2 Miles

LEGEND

- Interstate
- US Road
- State Road
- County Road
- Railroad
- Property Boundary
- County Boundary



REFERENCE

Property Boundary: Progress Energy Florida, 2009; Roads: Florida Department of Transportation, 2010; Railroads: FDEP, 1992; County Boundaries: U.S. Census Bureau, 2000; BaseMap: StreetMap USA, 2007

PROGRESS ENERGY FLORIDA

KATHLEEN SUBSTATION GENERAL LOCATION MAP

Progress Energy

MXD File No. 093-89547D001			SCALE AS SHOWN	REV. 0
DESIGN	DLH	22 Sept 2009	**FIGURE 1**	
GIS	DLH	16 Mar 2010		
CHECK	SAR	16 Mar 2010		
REVIEW	KB	16 Mar 2010		

F:\PROJECTS\2009 PRO 547 PEFCF Wetland Delineation T&E Surveys\D - ERP Kathleen Substation\GIS\MXD\093-89547D001 Site Location

0.5 0.25 0 0.5 Miles

LEGEND

- Property Boundary
- Township-Range-Section

REFERENCE

Property Boundary & Substation: Progress Energy Florida, 2009; Roads: Florida Department of Transportation, 2010; USGS Topographic Map: National Geographic Society, 2009; Township-Range-Section: Florida Department of Environmental Protection, 1994

PROGRESS ENERGY FLORIDA

KATHLEEN SUBSTATION
USGS TOPOGRAPHIC MAP

Progress Energy

MXD File No. 093-89547D002			SCALE AS SHOWN	REV. 0
DESIGN	DLH	22 Sept 2009	**FIGURE 2**	
GIS	DLH	16 Mar 2010		
CHECK	SAR	16 Mar 2010		
REVIEW	KB	16 Mar 2010		

F:\PROJECTS\2009 PRO 547 PEFCF Wetland Delineation T&E Surveys\D - ERP Kathleen Substation\GIS\MXD\093-89547D002 USGS.mxd

LEGEND

Property Boundary

500 250 0 500 Feet

REFERENCE

Property Boundary and Substation: Progress Energy Florida , 2009;
Roads: Florida Department of Transportation, 2010; Aerials: FDOT 2008

PROGRESS ENERGY FLORIDA

KATHLEEN SUBSTATION AERIAL MAP

Progress Energy

MXD File No. 093-89547D003			SCALE AS SHOWN	REV. 0
DESIGN	DLH	22 Sept 2009	**FIGURE 3**	
GIS	DLH	16 Mar 2010		
CHECK	SAR	16 Mar 2010		
REVIEW	KB	16 Mar 2010		

F:\PROJECTS\2009 PR 547 PEFCF Wetland Delineation T&E Surveys\D - ERP Kathleen Substation\GIS\MXD\093-89547D003 Aerial.mxd

LEGEND

500 250 0 500 Feet

SOIL TYPES

- 6, EATON MUCKY FINE SAND/DEPRESSIONAL
- 7, POMONA FINE SAND
- 8, HYDRAQUENTS/CLAYEY
- 9, LYNNE SAND
- 19, FLORIDANA MUCKY FINE SAND/DEPRESSIONAL
- 26, LOCHLOOSA FINE SAND
- 32, KALIGA MUCK
- 35, HONTOON MUCK
- Property Boundary

REFERENCE

Property Boundary and Substation: Progress Energy Florida, 2009; Roads: Florida Department of Transportation, 2010; Soils: U.S. Department of Agriculture, Natural Resources Conservation Service, 2006; Aerials: FDOT, 2008

PROGRESS ENERGY FLORIDA

KATHLEEN SUBSTATION SOILS MAP

Progress Energy

MXD File No. 093-89547D004			SCALE AS SHOWN	REV. 0
DESIGN	DLH	22 Sept 2009	FIGURE 4	
GIS	DLH	16 Mar 2010		
CHECK	SAR	16 Mar 2010		
REVIEW	KB	16 Mar 2010		

F:\PROJECTS\2009 PR 9547 PEFCF Wetland Delineation T&E Surveys\D - ERP Kathleen Substation\GIS\MXD\093-89547D004 Soils.mxd

500 250 0 500 Feet

LEGEND

Property Boundary

LAND USE/LAND COVER CODES

- 110, RESIDENTIAL, LOW DENSITY
- 211, IMPROVED PASTURES
- 320, SHRUB AND BRUSHLAND
- 434, HARDWOOD - CONIFER MIXED
- 511, DITCHES
- 615, STREAM AND LAKE SWAMPS (BOTTOMLAND)
- 621, CYPRESS
- 630, WETLAND FORESTED MIXED
- 631, WETLAND SCRUB
- 641, FRESHWATER MARSHES
- 643, WET PRAIRIES
- 743, SPOIL AREAS
- 814, ROADS AND HIGHWAYS
- 831, ELECTRIC POWER FACILITIES

REFERENCE

Substation & Property Boundary: Progress Energy Florida, 2009; Roads: Florida Department of Transportation, 2010; FLUCCS Data: SWFWMD, 2007, Golder edited 2009; Aerials: FDOT 2008

PROGRESS ENERGY FLORIDA

KATHLEEN SUBSTATION HABITAT CLASSIFICATION MAP

Progress Energy

MXD File No. 093-89547D005			SCALE AS SHOWN	REV. 0
DESIGN	DLH	24 Sept 2009	**FIGURE 5**	
GIS	DLH	16 Mar 2010		
CHECK	SAR	16 Mar 2010		
REVIEW	KB	16 Mar 2010		

F:\PROJECTS\2009 PRO 547 PEFCF Wetland Delineation T&E Surveys\D - ERP Kathleen Substation\GIS\MXD\093-89547D005 FLUCCS.mx

LEGEND

Property Boundary

Florida Natural Areas Inventory Occurrence

1,000 500 0 1,000 Feet

NOTE: Entire Site lies within Wood Stork Core Foraging Areas.

PROGRESS ENERGY FLORIDA

KATHLEEN SUBSTATION LISTED SPECIES MAP

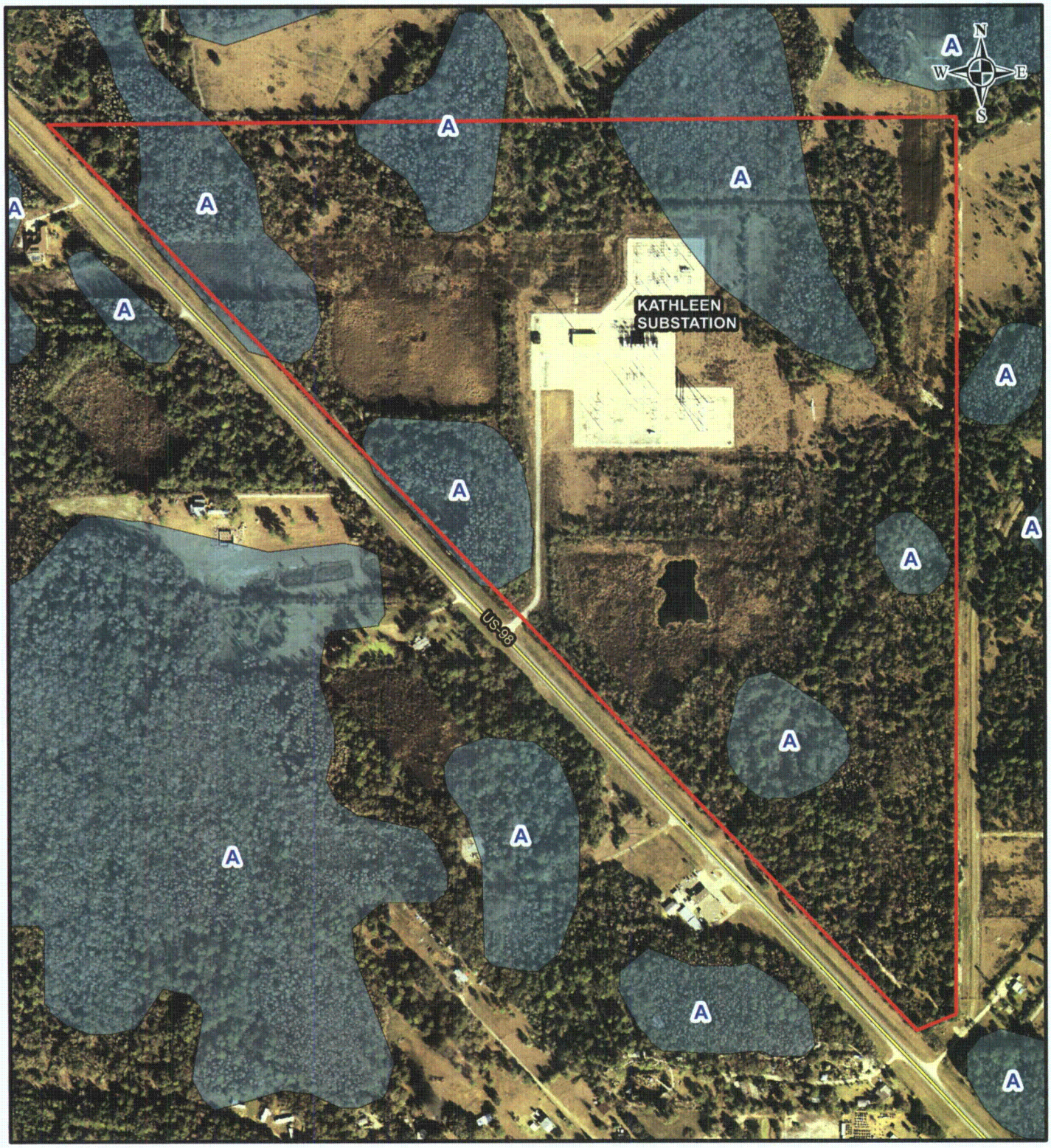
Progress Energy

MXD File No. 093-89547D006			SCALE AS SHOWN	REV. 0
DESIGN	DLH	24 Sept 2009	FIGURE 6	
GIS	DLH	16 Mar 2010		
CHECK	SAR	16 Mar 2010		
REVIEW	KB	16 Mar 2010		

REFERENCE

Substation & Property Boundary: Progress Energy Florida, 2009; Roads: Florida Department of Transportation, 2010; Listed Species Data: Florida Natural Areas Inventory, 2006 and Golder Observed, 2009; Wood Stork Colony Data: U.S. Fish & Wildlife Service, 2009; Aerials: FDOT, 2008

F:\PROJECTS\2009 PR 547 PEFCF Wetland Delineation T&E Surveys\D - ERP Kathleen Substation\GIS\MXD\093-89547D006 FNAI.mxd



LEGEND

Property Boundary

500 250 0 500 Feet

FEMA FLOOD ZONE

A 100-yr Floodplain (No Base Flood Elevations have been determined)

REFERENCE

Substation & Property Boundary: Progress Energy Florida, 2009; Roads: Florida Department of Transportation, 2010; Flood Zones: FEMA, 1996; County Boundary: U.S. Census Bureau, 2000; Aerials: FDOT, 2008

PROGRESS ENERGY FLORIDA

KATHLEEN SUBSTATION
FEMA 100 YEAR FLOODPLAIN MAP

Progress Energy

MXD File No. 093-89547D007			SCALE AS SHOWN	REV. 0
DESIGN	DLH	28 Sept 2009	FIGURE 7	
GIS	DLH	16 Mar 2010		
CHECK	SAR	16 Mar 2010		
REVIEW	KB	16 Mar 2010		

F:\PROJECTS\2009 PR 547 PEFCF Wetland Delineation T&E Surveys\D - ERP Kathleen Substation\GIS\MXD\093-89547D007 FEMA.mxd

TABLE A

Wetland Descriptions

Florida Power Corporation d/b/a Progress Energy Florida, Inc.

Kathleen Substation
Polk County, Florida

Wetland ID	FLUCFCS Code	Acreage	UMAM Score	Soil Type	Corps Jurisdictional	OFW	Wetland Description
Wetland A/B	621	18.29	0.83	Floridana mucky fine sand, depressional	Yes	No	Cypress domes are located north and southwest of the substation, and are dominated by *Taxodium ascendens* with an understory of *Woodwardia virginica* and *Osmunda regalis.*
	630	52.06	0.83	Pomona fine sand; Floridana mucky fine sand, depressional	Yes	No	Mixed forested wetlands surround the substation to the north, east, and southwest. These areas consist of *Taxodium* sp., *Pinus elliottii*, *Acer rubrum*, *Ulmus americana*, *Quercus laurifolia*, and *Quercus nigra.* Some of these areas are ditched.
	631	11.41	0.73	Pomona fine sand	Yes	No	Wetland scrub occurs directly south of the substation and northwest in the existing transmission line right-of-way. These areas consist of sapling *Acer rubrum*, sapling *Ulmus americana*, *Cephalanthus occidentalis,* and *Baccharis* sp.
	641	23.08	0.73	Pomona fine sand	Yes	No	Freshwater marshes are located south of substation and west in the existing transmission line right-of-way, and are dominated by *Eupatorium capillifolium*, *Panicum hemitomon*, *Andropogon glomeratus*, and, in wetter areas, *Typha* sp.
	643	3.09	0.73	Pomona fine sand	Yes	No	Wet prairie occurs near the western and eastern edges of the substation, and in the existing transmission line right-of-way, and contains a mixture of *Panicum hemitomon*, *Andropogon glomeratus*, *Rhynchospora* sp., and *Paspalum notatum.*

TABLE B

Florida Power Corporation d/b/a Progress Energy Florida, Inc.
Kathleen Substation

Protected Plants and Animals Potentially Occurring at the Kathleen Substation
Polk County, Florida

Species	Habitat of Occurrence	Likelihood of Occurrence on Property	Status		Observed
			USFWS	FWC	
BIRDS					
Aramus guarauna Limpkin	Freshwater marshes, swamps, springs, spring runs, pond, river, and lake margins	High	N	SSC	No
Egretta caerulea Little blue heron	Freshwater lakes, marshes, swamps, and streams, cypress	High	N	SSC	No
Egretta thula Snowy egret	Wetlands, streams, lakes, and swamps, manmade impoundments, ditches	High	N	SSC	No
Egretta tricolor Tricolored heron	Wetlands, ditches, pond and lake edges, coastal areas	High	N	SSC	No
Eudocimus albus White ibis	Freshwater and brackish marshes, salt flats, forested wetlands, wet prairies, swales, man-made ditches	High	N	SSC	No
Grus canadensis pratensis Florida sandhill crane	Prairies, freshwater marshes, and pastures	High	N	T	No
Haliaeetus leucocephalus Bald eagle	Coastal areas, bays, rivers, lakes, or other bodies of water	Medium	N	N	No
Mycteria americana Wood stork	Cypress strands and domes, mixed hardwood swamps, freshwater marshes	High	E	E	No
Platalea ajaja Roseate spoonbill	Tidal flats, coastal and freshwater marshes	High	N	SSC	No
Rostrhamus sociabilis plumbeus Snail kite	Large, open freshwater marshes and lakes with shallow open waters	Low	E	E	No
MAMMALS					
Ursus americanus floridanus Florida black bear	Large areas of forested uplands, forested wetlands	Low	N	T	No
REPTILES					
Alligator mississippiensis American alligator	Most permanent bodies of fresh water, including marshes, swamps, lakes, and rivers	High	T (SA)	SSC	No
Drymarchon couperi Eastern indigo snake	Broad range of habitats, from scrub and sandhill to wet prairies and mangrove swamps; often commensal with gopher tortoises	Medium	T	T	No

TABLE B

Florida Power Corporation d/b/a Progress Energy Florida, Inc.
Kathleen Substation

Protected Plants and Animals Potentially Occurring at the Kathleen Substation
Polk County, Florida

Species	Habitat of Occurrence	Likelihood of Occurrence on Property	Status		Observed
			USFWS	FWC	
PLANTS					
Coelorachis tuberculosa Piedmont jointgrass	Freshwater habitats	Medium	N	T	No
Drosera intermedia Spoon-leaved sundew	Freshwater habitats	Medium	N	T	No
Hartwrightia floridana Hartwrightia	Seepage slopes, edges of baygalls and springheads, wet prairies, flatwoods	Medium	N	T	No
Hypericum edisonianum Edison's ascyrum	Depressions in scrub, cutthroat seeps, flatwoods ponds, lake margins, wet prairies	Medium	N	E	No
Illicium parviflorum Star anise	Banks of spring-run or seepage streams, bottomland forest, hydric hammock, and baygall	Low	N	E	No
Nemastylis floridana Celestial lily	Freshwater habitats	Medium	N	E	No
Ophioglossum palmatum Hand fern	Old leaf bases of cabbage palms in maritime and wet hammocks	Low	N	E	No
Pecluma plumula Plume polypody	Tree branches or limestone in hammocks, wet woods, and limesinks	Low	N	E	No
Pecluma ptilodon Swamp plume polypody	Moist woods and hammocks	Low	N	E	No
Platanthera integra Yellow fringeless orchid	Wet pine flatwoods, wet prairies, depressions within pinelands	Medium	N	E	No
Salix floridana Florida willow	Springheads, edges of spring runs, hydric hammocks, floodplains	Low	N	E	No
Thelypteris serrata Toothed maiden fern	Cypress swamps, sloughs, floodplains	Medium	N	E	No

Notes:
N = Not Listed
T = Threatened
E = Endangered
SSC = Species of Special Concern
T(SA) = Threatened due to similarity in appearance to a federally listed species

SPECIFIC PURPOSE SURVEY OF WETLAND JURISDICTIONAL DELINEATION AND THREATENED AND ENDANGERED SPECIES

OF

PROGRESS ENERGY FLORIDA
KATHLEEN SUBSTATION

LOCATED IN
SECTION 7
TOWNSHIP 23 SOUTH, RANGE 23 EAST
POLK COUNTY, FLORIDA

WETLAND DESIGNATION	AREA WITHIN SUBSTATION square feet	ACRES ±
WLA, WLB, WLC, a, b and d	4,701,383	107.9

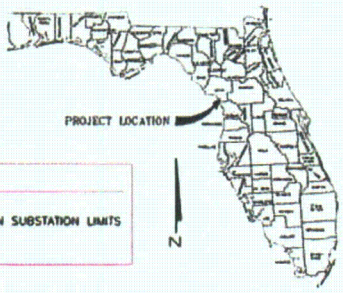
WETLAND FLAG LOCATIONS

WETLAND FLAG LOCATIONS

Desc.	Northing	Easting
WL A1	1414412	647180
WL B1	1414412	647230
WL A2	1414500	647183
WL A3	1414592	647176
WL A4	1414670	647172
WL A5	1414754	647170
WL B5	1414790	647223
WL A6	1414805	647162
WL A7	1414893	647140
WL A8	1414997	647140
WL B9	1414800	647810
WL B10	1414806	647918
WL B11	1414808	648018
WL B12	1414807	648064
WL B14	1414998	648085
WL B15	1415065	648094
WL B16	1415103	648096
WL B17	1415138	648026
WL B18	1415184	647997
WL B19	1415186	647936
WL B20	1415236	647943
WL B21	1415274	647866
B28	1415328	647741
B27	1415316	647783
B26	1415328	647810
WL B22	1415341	647870
WL B25	1415396	647920
WL B24	1415399	647933
WL B23	1415326	647936
WL A27	1415394	647896
WL A28	1415339	647807
WL A29	1415347	647783
WL A26	1415420	647938
WL A25	1415516	647936
WL A24	1415590	647934
WL A23	1415647	647940
WL A22	1415653	647837
WL A21	1415649	647706
WL A20	1415642	647615
WL A19	1415658	647556
WL A18	1415670	647512
WL A17	1415598	647509
WL A16	1415394	647506
WL A15	1415351	647464
WL A14	1415304	647418

WETLAND FLAG LOCATIONS

Desc.	Northing	Easting
WL C1	1415310	647310
WL C4	1415347	647311
WL C3	1415347	647245
WL C2	1415318	647247
WL A13	1415288	647327
WL A10	1415172	647132
a1-d	1414222	647123
a1-c	1414243	647147
a1-b	1414281	647160
a1-a	1414309	647171
a11	1415233	647143
a11-b	1415345	647138
a11-c	1415373	647169
a12	1415308	647181
a13	1415301	647327
b1-a	1414276	647232
b1-b	1414229	647215
b1-c	1414225	647182
b1-d	1414191	647153
b2	1414501	647231
b3	1414586	647271
b4	1414637	647334
b5	1414774	647341
b6	1414779	647432
b7	1414783	647542
b8	1414793	647679
b13	1414928	648082
d1	1415208	648676
d2	1415164	648608
d3	1415090	648559
d4	1415107	648526
d5	1415108	648487
d6	1415202	648468
d7	1415361	648440
d8	1415362	648509
d9	1415425	648578
d10	1415479	648615
d11	1415323	648603
d12	1415252	648585



HATCH LEGEND

DELINEATED WETLAND AREAS WITHIN SUBSTATION LIMITS

LEGEND:

	=	WETLANDS JURISDICTIONAL DELINEATION LINE WITHIN SUBSTATION LIMITS
PEF	=	PROGRESS ENERGY FLORIDA
WLA1, WLB2, WLC3, etc.	=	WETLAND FLAG DELINEATOR
DGPS	=	DIFFERENTIAL GLOBAL POSITIONING SYSTEM
N.	=	NORTHING (coordinate)
E.	=	EASTING (coordinate)
PL		PROPERTY LINE
GIS	=	GEOGRAPHIC INFORMATION SYSTEM
●	=	GOPHER TORTOISE BURROWS

SURVEYOR'S NOTES:

1) THIS SPECIFIC PURPOSE SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF THE SIGNING FLORIDA LICENSED SURVEYOR AND MAPPER.

2) THE SPECIFIC PURPOSE OF THIS SURVEY WAS TO LOCATE AND MAP WETLAND JURISDICTIONAL DELINEATIONS AND LOCATION OF THREATENED AND ENDANGERED SPECIES (AS DETERMINED BY OTHERS) IN RELATION TO THE APPROXIMATE SUBSTATION LIMITS, IN CONFORMANCE WITH U.S. ARMY CORPS OF ENGINEERS REQUIREMENTS.

3) LANDS SHOWN HEREON WERE NOT ABSTRACTED FOR OWNERSHIP, RIGHTS-OF-WAY, EASEMENTS OR OTHER MATTERS OF TITLE BY THIS FIRM, NOR WERE ANY SUCH DOCUMENTS PROVIDED BY CLIENT.

4) THE BOUNDARY DELINEATION OF THE PEF KATHLEEN SUBSTATION SHOWN HEREON IS BASED ON GIS SHAPE FILES PROVIDED BY GOLDER ASSOCIATES. THIS SPECIFIC PURPOSE SURVEY IS NOT A BOUNDARY SURVEY OF THE SUBSTATION PROPERTY.

5) THIS SURVEY WAS PERFORMED USING A COMBINATION OF GLOBAL POSITIONING SYSTEM AND CONVENTIONAL SURVEY METHODOLOGY. HORIZONTAL ACCURACY IS AT THE SUBMETER LEVEL.

6) COORDINATES OF WETLAND FLAGS SHOWN HEREON ARE RELATIVE TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, WEST ZONE (902), NORTH AMERICAN DATUM OF 1983/2007 ADJUSTMENT.

7) WETLAND JURISDICTIONAL DELINEATIONS AND THREATENED AND ENDANGERED SPECIES LOCATIONS WERE DETERMINED AND FLAGGED BY GOLDER ASSOCIATES, GAINESVILLE, FLORIDA.

8) THE WETLAND FLAG DESCRIPTIONS AND THREATENED AND ENDANGERED SPECIES LOCATIONS SHOWN HEREON CORRESPOND TO THE NUMBERS SHOWN ON EACH FLAG LOCATED IN THE FIELD.

9) THIS SURVEY IS CERTIFIED TO PROGRESS ENERGY FLORIDA AND GOLDER ASSOCIATES, INC..

10) EXCEPT AS SHOWN HEREON, INTERIOR IMPROVEMENTS WERE NOT LOCATED.

11) THE GEOREFERENCED AERIAL PHOTOGRAPHY DEPICTED HEREON WAS FLOWN IN 2008. SOURCE OF DATA: SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT.

THIS IS NOT A BOUNDARY SURVEY

COUNTY: POLK

SHEET INDEX:

SHEET	DESCRIPTION
1	COVER SHEET
2	LOCATION MAP WITH PHOTO

LAST DATE IN FIELD: 10/07/2009

Robert M. Jones

ROBERT M. JONES
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER
LICENSE No. LS 4201

PROJECT TITLE:
SPECIFIC PURPOSE SURVEY OF WETLAND JURISDICTIONAL DELINEATION AND THREATENED AND ENDANGERED SPECIES
OF
PROGRESS ENERGY FLORIDA
KATHLEEN SUBSTATION
Polk County, Florida

DATE	BY	DESCRIPTION
01/22/10	PEW	revised R/W & wetland area
12/09/09	PEW	revised wetland locations

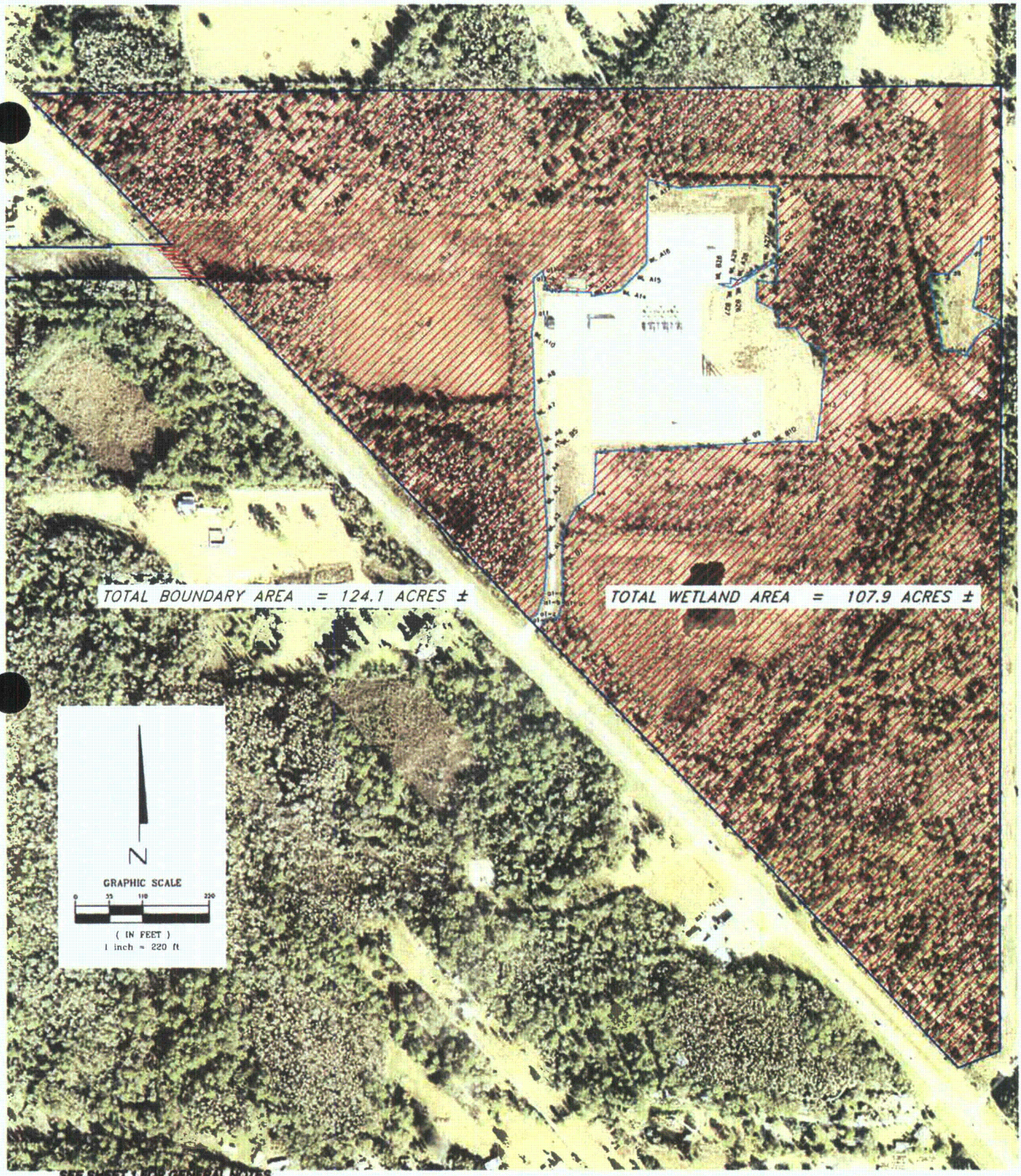
REVISION

DRAWN BY: P.E.W. DATE: 11/20/09
CHKD. BY: R.M.J. DATE: 11/20/09
JOB No. 6374090435
SCALE: n/a
SHT. 1 OF 2
DRAWING NAME: PHP Transmission Line.dwg

PREPARED BY:
MACTEC
MACTEC Engineering & Consulting, Inc.
4150 North John Young Parkway Orlando, Florida 32804-2620
Phone: 407.522.7570 Fax: 407.522.7576
CERTIFICATE OF AUTHORIZATION: LB 6969

PREPARED FOR:
Golder Associates
Gainesville, Florida

GOLDER ASSOCIATES
6026 NW 1st Place
GAINESVILLE, FLORIDA 32607



SEE SHEET 1 FOR GENERAL NOTES

PROJECT TITLE:
SPECIFIC PURPOSE SURVEY OF WETLAND JURISDICTIONAL DELINEATION AND THREATENED AND ENDANGERED SPECIES
OF
PROGRESS ENERGY FLORIDA
KATHLEEN SUBSTATION
Polk County, Florida

DATE	BY	DESCRIPTION

REVISION

DRAWN BY: P.E.W.	CHKD. BY: R.M.J.
DATE: 11/09/09	DATE: 11/09/09
JOB No. 63740090435	SCALE: 1"=200'
SHT. 2 OF 2	
DRAWING NAME: PHP Transmission Line.dwg	

PREPARED BY:
MACTEC
MACTEC Engineering & Consulting, Inc.
4150 North John Young Parkway Orlando, Florida 32804-3620
Phone: 407.522.7570 Fax: 407.522.7576
CERTIFICATE OF AUTHORIZATION: LB 6989

PREPARED FOR:
Golder Associates
Gainesville, Florida

GOLDER ASSOCIATES
6026 NW 1st Place
GAINESVILLE, FLORIDA 32607

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Kathleen Substation City/County: Polk Sampling Date: 9/17/09

Applicant/Owner: Progress Energy Florida, Inc. State: FL Sampling Point: A/B

Investigator(s): Blake Meinecke, Justin Styer Section, Township, Range: 26 23S 17E

Landform (hillslope, terrace, etc.): N/A Local relief (concave, convex, none): none Slope (%): _____

Subregion (LRR or MLRA): LRR U Lat: 28.227561 Long: -82.027462 Datum: WGS84

Soil Map Unit Name: Pomona fine sand NWI classification: Pond/emergent/forested wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks)

Are Vegetation_____, Soil_____, or Hydrology_____ significantly disturbed? Are circumstances normal? Yes ✓ No_____

Are Vegetation_____, Soil_____, or Hydrology_____ naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks: Depressional wetland, drought stress

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

✓ Surface Water (A1)	____Water-Stained Leaves (B9)	
____ High Water Table (A2)	____Aquatic Fauna (B13)	
✓ Saturation (A3)	____Marl Deposits (B15) **(LRR U)**	
____ Water Marks (B1)	____Hydrogen Sulfide Odor (C1)	
____ Sediment Deposits (B2)	____Oxidized Rhizospheres on Living Roots (C3)	
____ Drift Deposits (B3)	____Presence of Reduced Iron (C4)	
____ Algal Mat or Crust (B4)	____Recent Iron Reduction in Tilled Soils (C6)	
____ Iron Deposits (B5)	____Thin Muck Surface (C7)	
✓ Inundation Visible on Aerial Imagery (B7)	____Other (Explain in Remarks)	

Secondary Indicators (minimum of two required)

____Surface Soil Cracks (B6)
____Sparsely Vegetated Concave Surface (B8)
____Drainage Patterns (B10)
____Moss Trim Lines (B16)
____Dry-Season Water Table (C2)
____Crayfish Burrows (C8)
____Saturation Visible on Aerial Imagery (C9)
____Geomorphic Position (D2)
____Shallow Aquitard (D3)
____FAC Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 1-12
Water Table Present?	Yes ✓	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Adapted from U.S. Army Corps of Engineers
Atlantic and Gulf Coastal Plain Region- Interim Version

VEGETATION - Use scientific names of plants

Sampling Point: _____A/B

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	yes	OBL
2. Quercus nigra	5	no	FAC
3. Quercus laurifolia	5	no	FACW
4. Sapium sebiferum	2	no	FAC
5. Taxodium ascendens	30	yes	OBL
6. Ulmus americana	5	no	FACW
7. Pinus elliottii	10	no	FACW
	77	= Total Cover	
Sapling Stratum (Plot size:____)			
1. Salix caroliniana	10	yes	FACW
2. Schinus terebinthifolius	5	no	FAC
3.			
4.			
5.			
6.			
7.			
	15	= Total Cover	
Shrub Stratum (Plot size:_____)			
1. Myrica cerifera	10	yes	FAC
2. Baccharis glomeruliflora	10	yes	FAC
3.			
4.			
5.			
6.			
7.			
	20	= Total Cover	
Herb Stratum (Plot size:_____)			
1. Panicum hemitomon	35	yes	OBL
2. Andropogon glomeratus	20	yes	FACW
3. Amphicarpum muhlenbergianu	20	yes	FACW
4. Rhynchospora colorata	10	no	OBL
5. Juncus effusus	5	no	FACW
6. Phyla nodiflora	2	no	FACW
7. Polygonum punctatum	2	no	FACW
8. Pluchea odorata	2	no	FACW
9.			
10.			
11.			
12.			
	96	= Total Cover	
Woody Vine Stratum (Plot size:____)			
1. Vitus rotundifolia	10	yes	FAC
2. Ampelopsis arborea	10	yes	FAC
3.			
4.			
5.			
	20	= Total Cover	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	10	(A)
Total Number of Dominant Species Across All Strata:	10	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.00	(A/B)

Prevalance Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x1= _____
FACW species	_____	x2= _____
FAC species	_____	x3= _____
FACU species	_____	x4= _____
UPL species	_____	x5= _____
Column Totals:	_____ (A)	_____ (B)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators:

✓ Dominance Test is 50%

_____ Prevalence Index is ≤3.0[1]

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree- Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling- Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb- All herbaceous (non-woody)plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No_____.

Remarks: (If observed, list morphological adaptations below).
Percent cover estimates based on meandering survey of the broader community.

Adapted from U.S. Army Corps of Engineers
Atlantic and Gulf Coastal Plain Region- Interim Version

County/soil: Polk- Pomona

SOIL

Sampling Point: A/B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/1							dark grayish brown fine sand
6-12	10 YR 6/2							light gray fine sand
12-21	10 YR 7/2							yellow fine sand
21-26	5 YR 3/3		10 YR 5/6				common fine	grayish brown sandy clay loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___Histol (A1)
- ___Histic Epidon (A2)
- ___Black Histic (A3)
- ___Hydrogen Sulfide (A4)
- ___Stratified Layers (A5)
- ___Organic Bodies (A6) **(LRR P, T, U)**
- ___5 cm Mucky Mineral (A7) **(LRR P,T,U)**
- ✓ Muck Presence (A8) **(LRR U)**
- ___1 cm Muck (A9) **(LRR P,T)**
- ___Depleted Below Dark Surface (A11)
- ___Thick Dark Surface (A12)
- ___Coast Prairie Redox (A16) **(MLRA 150A)**
- ___Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___Sandy Gleyed Matrix (S4)
- ___Sandy Redox (S5)
- ___Stripped Matrix (S6)
- ___Dark Surface (S7) **(LRR P, S, T, U)**
- ___Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___Thin Dark Surface (S9) **(LRR S, T, U)**
- ___Loamy Mucky Mineral (F1) **(LRR O)**
- ___Loamy Gleyed Matrix (F2)
- ___Depleted Matrix (F3)
- ___Redox Dark Surface (F6)
- ___Depleted Dark Surface (F7)
- ___Redox Depressions (F8)
- ___Marl (F10) **(LRR U)**
- ___Depleted Orchric (F11) **(MLRA 151)**
- ___Iron-Manganese Masses (F12) **(LRR O, P,T)**
- ___Umbric Surface (F13) **(LRR P, T, U)**
- ___Delta Orchric (F17) **(MLRA 151)**
- ___Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils [3]:

- ___1 cm Muck (a9) **(LRR O)**
- ___2 cm Muck (A10) **(LRR S)**
- ___Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ___Red Parent Material (TF2)
- ___Very Shallow Dark Surface (TF12) **(LRR T, U)**
- ___Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____.

Remarks:

Adapted from U.S. Army Corps of Engineers
Atlantic and Gulf Coastal Plain Region- Interim Version

Project: **Progress Energy Florida, Inc. Kathleen Substation**

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **Florida** County/parish/borough: **Polk** City: **Kathleen**
Center coordinates of site (lat/long in degree decimal format): Lat. **28.226877°** N, Long. **-82.026558°** W.
Universal Transverse Mercator:
Name of nearest waterbody: **Withlacoochee River and tributaries**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Withlacoochee River**
Name of watershed or Hydrologic Unit Code (HUC): **Port Lonesome Ditches/03100205**

- ☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☒ Office (Desk) Determination. Date: **November 24, 2009.**
- ☒ Field Determination. Date(s): **September 17, 2009.**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There Are no "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There Are "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: linear feet: width (ft) and/or acres.
   Wetlands: **107.9** acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

Project: **Progress Energy Florida, Inc. Kathleen Substation**

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) **General Area Conditions:**
   Watershed size: **9,282acres**
   Drainage area: **9,282 acres**
   Average annual rainfall: **52** inches
   Average annual snowfall: **0** inches

   (ii) **Physical Characteristics:**
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **3** tributaries before entering TNW.

   Project waters are **5-10** river miles from TNW.
   Project waters are **1 (or less)** river miles from RPW.
   Project waters are **2-5** aerial (straight) miles from TNW.
   Project waters are **1 (or less)** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: **N/A.**

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: **Based on a desktop review, wetlands within the review area are hydrologically connected to two intermittent tributaries that flow into several unnamed tributaries before reaching the Withlacoochee River, a TNW.**
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: **Based on a review of aerial photography, portions of the stream bed appear to be ditched.**

Tributary properties with respect to top of bank (estimate):
Average width: **2.5** feet
Average depth: **2.5** feet
Average side slopes: **Vertical (1:1 or less).**

Primary tributary substrate composition (check all that apply):
☐ Silts ☒ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☒ Vegetation. Type/% cover: **Herbaceous/50%**
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **Stable - no erosion evident.**
Presence of run/riffle/pool complexes. Explain: **N/A.**
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): **2 %**

(c) Flow:
Tributary provides for: **Intermittent but not seasonal flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime: .
Other information on duration and volume: **Unknown.**

Surface flow is: **Confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):
☒ clear, natural line impressed on the bank
☐ changes in the character of soil
☐ shelving
☒ vegetation matted down, bent, or absent
☐ leaf litter disturbed or washed away
☒ sediment deposition
☐ water staining
☐ other (list):
☒ the presence of litter and debris
☐ destruction of terrestrial vegetation
☐ the presence of wrack line
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ tidal gauges
☐ other (list):
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

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[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: **Unknown.**
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):
☐ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☒ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☒ Aquatic/wildlife diversity. Explain findings: **Diverse due to location within and in proximity to Green Swamp Wildlife Management Area.**

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Wetland size: **109** acres
Wetland type. Explain: **Emergent and forested.**
Wetland quality. Explain: **Fair to good, due to location within and in proximity to Green Swamp Wildlife Management Area.**
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Intermittent flow**. Explain: .

Surface flow is: **Confined**
Characteristics: Both confined (within ditch banks) and sheetflow (non-ditched areas).

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting
☐ Not directly abutting
☐ Discrete wetland hydrologic connection. Explain: .
☐ Ecological connection. Explain: .
☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **5-10** river miles from TNW.
Project waters are **2-5** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) Chemical Characteristics:
Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **Water was moderately clear.**
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):
☐ Riparian buffer. Characteristics (type, average width): .
☒ Vegetation type/percent cover. Explain: **emergent and forested wetland/95%.**
☐ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

Project: **Progress Energy Florida, Inc. Kathleen Substation**

All wetland(s) being considered in the cumulative analysis: 1
Approximately (**109**) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Wetlands A/B - Yes	**109**		

Summarize overall biological, chemical and physical functions being performed: **Wetlands A/B provide hydrologic detention and attenuation while also filtering pollutants. These wetlands are also part of a larger network of wetlands and non-RPWs that form a contiguous connection to TNWs in the region. As part of a larger system, these wetlands provide some habitat, foraging, and refugia for wildlife utilization.**

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: Due to the distance from the Withlacoochee River and because the tributaries are intermittent, it is not expected that the tributaries or the wetlands that abut the tributaries within the review area have a significant effect on the chemical, physical, or biological integrity of the Withlacoochee River.

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .

☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: **According to the USGS National Hydrology Dataset for the state of Florida, there are two streams that intersect wetlands within the review area. Both of these streams are classified as intermittent by the USGS.**

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**

☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetlands within the review area directly abut intermittent streams that flow north to the Withlacoochee River, located within the Green Swamp Wildlife Management Area.**

Provide acreage estimates for jurisdictional wetlands in the review area: **107.9** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or

☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

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[8]See Footnote # 3.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☒ U.S. Geological Survey Hydrologic Atlas: USGS 2006; www.fgdl.org.
  - ☒ USGS NHD data.
  - ☒ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 & Leesburg West.
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☒ National wetlands inventory map(s). Cite name: USFWS, HRC 2008; www.fgdl.org.
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .

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[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Project: **Progress Energy Florida, Inc. Kathleen Substation**

- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): AerialExpress 2008.
  or ☐ Other (Name & Date): .
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Progress Energy Florida, Inc. Kathleen Substation		FLUCFCS 621, 630 - Wetland A/B

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
621 - Cypress and 630 - Mixed Forested Wetland		Impact	70.35 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Port Lonesome Ditches/03100205		None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Wetland areas surround the Kathleen Substation. Hydrologically connected to surrounding freshwater marshes and mixed forested wetlands, connecting to Green Swamp and Withlacoochee River through tributaries of Gator Creek.

Assessment area description

Forested cypress and mixed hardwood/conifer wetlands surrounding the existing substation area. Canopy dominated by pond cypress (*Taxodium ascendens*), laurel oak (*Quercus laurifolia*), slash pine (*Pinus elliottii*), red maple (*Acer rubrum*), American elm (*Ulmus americana*), water oak (*Quercus nigra*); shrub layer comprised of coastal plain willow (*Salix caroliniana*), wax myrtle (*Myrica cerifera*), silverling (*Baccharis glomeruliflora*), Brazilian pepper (*Schinus terebinthifolius*), buttonbush (*Cephalanthus occidentalis*); groundcover consists of Virginia chain fern (*Woodwardia virginica*), royal fern (*Osmunda regalis*), sawgrass (Cladium jamaicense), broomsedge bluestem (*Andropogon virginicus*), coinwort (*Centalla asiatica*), and marsh pennywort (*Hydrocotyle umbellata*).

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Kathleen Substation and transmission line ROW, US 98	Not unique

Functions	Mitigation for previous permit/other historic use
Widlife habitat, water storage, aquifer recharge	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, raccoon, white tailed deer, armadillo, various amphibians and herpetofauna	Potential foraging by wading birds such as white ibis (SSC), little blue heron (SSC), snowy egret (SSC), tricolored heron (SSC), sandhill crane (T), limpkin (SSC), wood stork (E).

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Black racer, green tree frog, leopard frog, black vulture

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
B. Meinecke, J. Styer	9/17/2009

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Progress Energy Florida, Inc. Kathleen Substation		FLUCFCS 621, 630 - Wetland A/B
Impact or Mitigation	Assessment conducted by:	Assessment date:
Impact - Fill	B. Meinecke, J. Styer	10/12/2009

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 8	with: 0	Location and landscape support variable is slightly reduced due to location of adjacent roadway and transmission line right-of-way. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 8, slightly reduced due to adjacent US 98; b) Invasive exotic species = 8, Brazilian pepper present, but not dominant; c) Wildlife access to and from outside = 8, slightly decreased due to limitations imposed by US 98; d) functions that benefit fish & wildlife downstream-distance or barriers = 8, area connected to large wetland complex associated with Green Swamp; e) Impacts to wildlife listed in Part 1 by outside land uses = 8, slightly reduced due to surrounding habitat loss; f) Hydrologically connected areas downstream of assessment area = 8, contiguous wetland system connecting to Green Swamp via tributaries of Gator Creek; g) Dependency of downstream areas on assessment area = 8, area provides benefits to downstream areas.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 8	with: 0	The water environment score is slightly reduced due to impacts from ditching, presence of US 98, and landclearing associated with the existing substation. Individual parameter scores: a) water levels and flows = 8, slight alterations in water level due to ditching, US 98, and existing substation; b) water level indicators = 9, consistent with expected; c) soil moisture = 8, consistent with expected; d) soil erosion or deposition = 8, minimal erosion; e) evidence of fire history = N/A; f) vegetation community zonation = 8, slightly altered in areas due to upland species encroachment; g) hydrologic stress on vegetation = 8, not apparent; h) use by animal species with specific hydrological requirements = 9, wading bird habitat; i) vegetative species tolerant of and associated with water quality degradation = 8, community consists of typical species; j) direct observation of water quality = 8, none noted; K) existing water quality data = N/A; l) water depth wave, wave energy, currents and light penetration = N/A.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 9	with: 0	The vegetative community structure is dominated by an assemblage of native wetland species, very slightly reduced due to limited presence of exotic species Brazilian pepper. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 10, dominated by desirable native wetland species; b) invasive exotics or other invasive plant species = 8, limited coverage; c) regeneration and recruitment = 9, somewhat impacted by existing transmission line right-of-way and substation; d) age & size distribution = 9, typical of system; e) density and quality of coarse woody debris, snag, den, and cavity = 9, typical of assessment area; f) plant condition = 9; g) land management practices = 7, due to adjacent US 98 and transmission line right-of-way; h) topographic features = 10, typical for assessment area; i) siltation or algal growth in submerged aquatic plant communities = N/A

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.83	0

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = -0.83 x 1 = 0.83

Delta = [with-current]
-0.83

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Progress Energy Florida, Inc. Kathleen Substation		FLUCFCS 631, 641, 643 - Wetland A/B

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
631 - Wetland Scrub, 641 - Freshwater Marshes and 643 - Wet Prairie		Existing Condition	37.58 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Port Lonesome Ditches/03100205		None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Wetland areas surround the Kathleen Substation. Hydrologically connected to surrounding freshwater marshes and mixed forested wetlands, connecting to Green Swamp and Withlacoochee River through tributaries of Gator Creek.

Assessment area description

Herbaceous and wetland scrub communities surrounding the existing substation area and connecting to adjacent forested wetlands. Shrub layer comprised of coastal plain willow (*Salix caroliniana*), wax myrtle (*Myrica cerifera*), silverling (*Baccharis glomeruliflora*), Brazilian pepper (*Schinus terebinthifolius*), buttonbush (*Cephalanthus occidentalis*); groundcover consists of sawgrass (Cladium jamaicense), broomsedge bluestem (*Andropogon virginicus*), maidencane (*Panicum hemitomon*), smartweed (*Polygonum punctatum*), cattail (*Typha latifolia*), yellow-eyed grass (*Xyris elliottii*), coinwort (*Centalla asiatica*), and marsh pennywort (*Hydrocotyle umbellata*).

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Kathleen Substation and transmission line ROW, US 98	Not unique

Functions	Mitigation for previous permit/other historic use
Widlife habitat, water storage, aquifer recharge	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, raccoon, white tailed deer, armadillo, various amphibians and herpetofauna	Potential foraging by wading birds such as white ibis (SSC), little blue heron (SSC), snowy egret (SSC), tricolored heron (SSC), sandhill crane (T), limpkin (SSC), wood stork (E).

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Black racer, green tree frog, leopard frog, black vulture

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
B. Meinecke, J. Styer	9/17/2009

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Progress Energy Florida, Inc. Kathleen Substation		FLUCFCS 631, 641, 643 - Wetland A/B
Impact or Mitigation	Assessment conducted by:	Assessment date:
Existing Condition	B. Meinecke, J. Styer	10/12/2009

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 8	with: 0

Location and landscape support variable is slightly reduced due to location of adjacent roadway and transmission line right-of-way. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 8, slightly reduced due to adjacent US 98; b) Invasive exotic species = 8, Brazilian pepper present, but not dominant; c) Wildlife access to and from outside = 8, slightly decreased due to limitations imposed by US 98; d) functions that benefit fish & wildlife downstream-distance or barriers = 8, area connected to large wetland complex associated with Green Swamp; e) Impacts to wildlife listed in Part 1 by outside land uses = 8, slightly reduced due to surrounding habitat loss; f) Hydrologically connected areas downstream of assessment area = 8, contiguous wetland system connecting to Green Swamp via tributaries of Gator Creek; g) Dependency of downstream areas on assessment area = 8, area provides benefits to downstream areas.

.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 7	with: 0

The water environment score is slightly reduced due to impacts from ditching, presence of US 98, and landclearing associated with the existing substation. Individual parameter scores: a) water levels and flows = 7, slight alterations in water level due to ditching and landclearing, US 98, and existing substation; b) water level indicators = 7, slightly less than typical; c) soil moisture = 8, consistent with expected; d) soil erosion or deposition = 8, minimal erosion; e) evidence of fire history = N/A; f) vegetation community zonation = 7, slightly altered in areas due to upland species encroachment; g) hydrologic stress on vegetation = 8, not apparent; h) use by animal species with specific hydrological requirements = 7, wading bird habitat; i) vegetative species tolerant of and associated with water quality degradation = 7, community consists of typical species, some upland encroachment; j) direct observation of water quality = 8, no indications of impacts noted; K) existing water quality data = N/A; l) water depth wave, wave energy, currents and light penetration = N/A.

.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 7	with: 0

The community structure variable is slightly reduced due to presence of exotic species Brazilian pepper. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 7, dominated by desirable native wetland species, but nuisance (cattail) and exotic (Brazilian pepper) species present; b) invasive exotics or other invasive plant species = 6, moderate coverage; c) regeneration and recruitment = 7, somewhat impacted by existing transmission line right-of-way and substation; d) age & size distribution = 7, typical of system; e) density and quality of coarse woody debris, snag, den, and cavity = 7, somewhat reduced compared to expected due to right-of-way maintenance; f) plant condition = 7; g) land management practices = 6, due to adjacent US 98 and transmission line right-of-way; h) topographic features = 7, modified due to right-of-way; i) siltation or algal growth in submerged aquatic plant communities = N/A

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: 0.73	with: 0

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = -0.73 x 0 = 0

Delta = [with-current]
-0.73

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

NOTE: THIS ATTACHMENT INCLUDES FLORIDA NATURAL AREAS INVENTORY (FNAI) ELEMENT OCCURRENCE MAPS AND DATA FOR THE KATHLEEN SUBSTATION, EXTRACTED FROM THE POLK-HILLSBOROUGH-PINELLAS FNAI ELEMENT OCCURRENCE REPORT.

FLORIDA
Natural Areas
INVENTORY

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Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
www.fnai.org

November 30, 2009

Stacy Rizzo
Golder Associates, Inc.
6026 NW 1st Place
Gainesville, FL 32607

Dear Ms. Rizzo,

Thank you for your request for information from the Florida Natural Areas Inventory (FNAI). We have compiled the following information for your project area.

Project: Pinellas-Hillsborough-Polk

Date Received: November 24, 2009

Location: Pinellas, Hillsborough, and Polk Counties

Element Occurrences

A search of our maps and database indicates that currently we have several Element Occurrences mapped within the vicinity of the study area (see enclosed maps and element occurrence tables). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

The Element Occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, Element Occurrences generally refer to more than a casual sighting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant.

Several of the species and natural communities tracked by the Inventory are considered ***data sensitive****. Occurrence records for these elements contain information that we consider sensitive due to collection pressures, extreme rarity, or at the request of the source of the information. The Element Occurrence Record has been labeled "Data Sensitive." We request that you not publish or release specific locational data about these species or communities without consent from the Inventory. If you have any questions concerning this please do not hesitate to call.*

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed Biodiversity Matrix Reports). These species should be taken into consideration in field surveys, land management, and impact avoidance and mitigation.

FNAI habitat models indicate areas, which based on land cover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Habitat models have been developed for approximately 300 of the rarest species tracked by the Inventory, including all federally listed species.

Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

FNAI species range models indicate areas that are within the known or predicted range of a species, based on climate variables, soils, vegetation, and/or slope. Species range models have been developed for approximately 340 species, including all federally listed species.

The FNAI Biodiversity Matrix Geodatabase compiles Documented, Likely, and Potential species and natural communities for each square mile Matrix Unit statewide.

Managed Areas
Portions of the site appear to be located within Lake Park and Cone Ranch, both managed by Hillsborough County. Portions of the site also appear to be located within the Lower Hillsborough Flood Detention Area and Upper Hillsborough, both managed by the Southwest Florida Water Management District.

The Managed Areas data layer shows public and privately managed conservation lands throughout the state. Federal, state, local, and privately managed conservation lands are included.

Land Acquisition Projects
This site appears to be located within the Green Swamp Florida Forever BOT Project, which is part of the State of Florida's Conservation and Recreation Lands land acquisition program. A description of this project is enclosed. For more information on this Florida Forever Project, contact the Florida Department of Environmental Protection, Division of State Lands.

Florida Forever Board of Trustees (BOT) projects are proposed and acquired through the Florida Department of Environmental Protection, Division of State Lands. The state has no regulatory authority over these lands until they are purchased.

The Inventory always recommends that professionals familiar with Florida's flora and fauna should conduct a site-specific survey to determine the current presence or absence of rare, threatened, or endangered species.

Please visit www.fnai.org/trackinglist.cfm for county or statewide element occurrence distributions and links to more element information.

The database maintained by the Florida Natural Areas Inventory is the single most comprehensive source of information available on the locations of rare species and other significant ecological resources. However, the data are not always based on comprehensive or site-specific field surveys. Therefore, this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. Inventory data are designed for the purposes of conservation planning and scientific research, and are not intended for use as the primary criteria for regulatory decisions.

Information provided by this database may not be published without prior written notification to the Florida Natural Areas Inventory, and the Inventory must be credited as an information source in these publications. FNAI data may not be resold for profit.

Thank you for your use of FNAI services. If I can be of further assistance, please give me a call at (850) 224-8207.

Sincerely,
Alicia C. Newberry

Alicia C. Newberry
Data Services Coordinator
Encl

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FLORIDA Natural Areas INVENTORY

Pinellas-Hillsborough-Polk (Map 7 of 7)

Site boundaries are approximate.

Hillsborough and Polk Counties

Element Occurrences

- Animals
- Plants
- Communities
- Other
- Data Sensitive
- Point Indicates General Vicinity of Element
- U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96

Conservation Lands

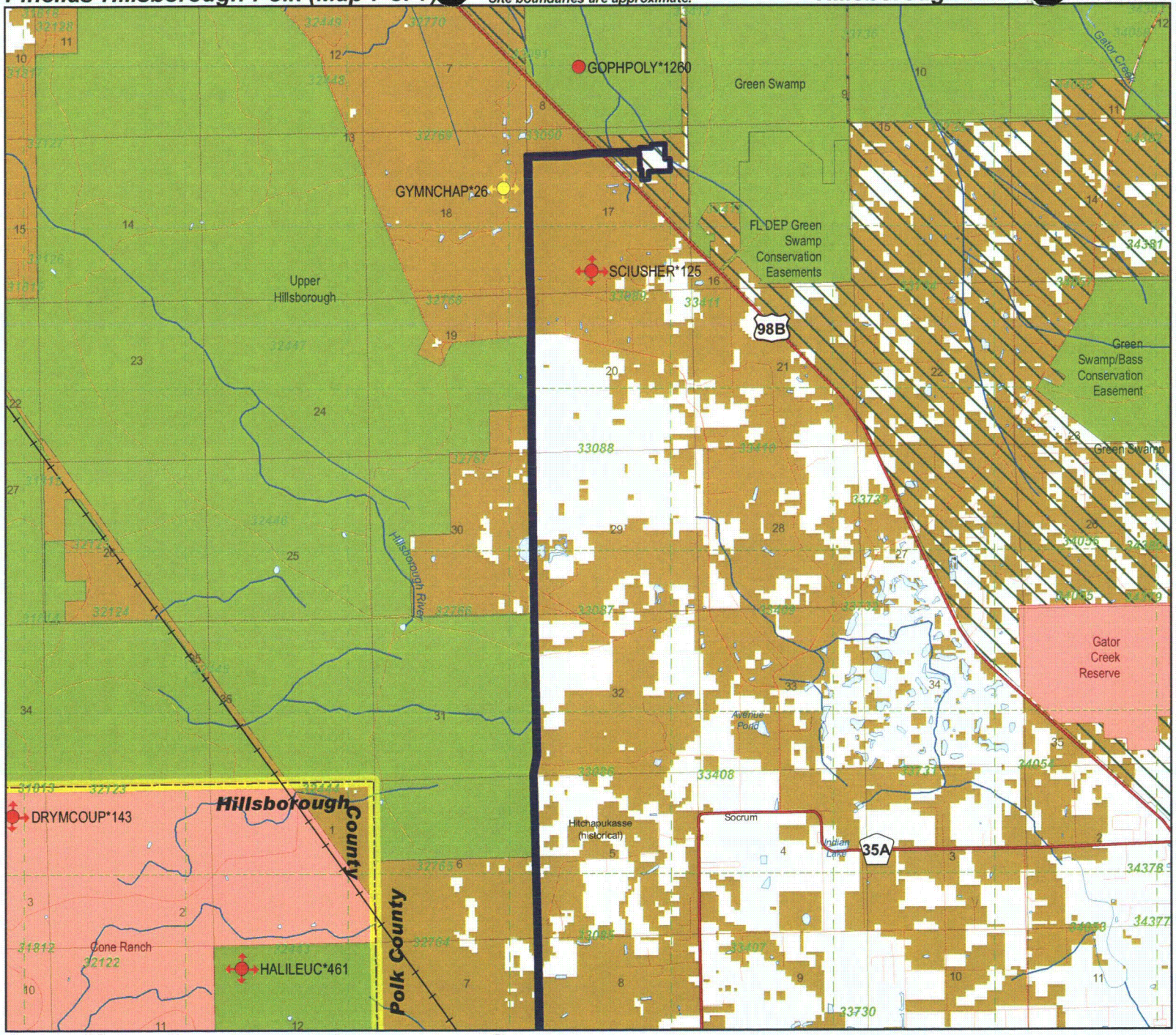
- Federal
- State
- Local
- Private
- State Aquatic Preserves

Land Acquisition Projects

- Florida Forever Board of Trustees Projects

- FNAI Rare Species Habitat
- FNAI Biodiversity Matrix Square Mile Units

- County Boundary
- Interstate
- Turnpike
- Major Highway
- Local Road
- Railroad [Inactive railroads shown in Gray]
- Water



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NOTE
Map should not be interpreted without accompanying documents.

Map produced by ACN
Map Date: 30 NOV 2009

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

ELEMENT OCCURRENCES DOCUMENTED ON OR NEAR

Pinellas-Hillsborough-Polk (Map 7 of 7)

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
DRYMCOUP*143	Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT	1970-	No general description given	INDIGO OBSERVED BY MARTY MARTIN IN 1970 (MOLER INTER- VIEW OF GODLEY & MARTIN, 1982-03-27).
SCIUSHER*125	Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS	1988-07-28	Cypress Swamp; Mesic Flatwoods.	1988-07-28: B.A. Millsap, GFC, observed 1 adult male.
GYMNCHAP*26	Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N	1987-11-02	1987-11-02: Flatwoods (Hall).	1987-11-02: Infrequent; scattered in flatwoods; specimen taken [leaves, inflor., and few roots] (Hall).
HALILEUC*461	Haliaeetus leucocephalus	Bald Eagle	G5	S3	PS	N	2003	No general description given	Nest status 1995-2003: Continuously active. (U03FWC01FLUS). Previous data (note different format) NEST: 1987-1988 ACTIVE; FLEDGED YOUNG 1987-1988.
GOPHPOLY*1260	Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT	2008-07-25	2008-07-25: one adult tortoise foraging in grassy road that passes through mesic flatwoods; area is moderately disturbed by a clearing and an ORV trail (PNDHER03FLUS).	2008-07-25: one adult tortoise foraging in grassy road that passes through mesic flatwoods (PNDHER03FLUS).

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report
Map 7 of 7

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 33085					
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Potential					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	LS
Bonamia grandiflora	Florida Bonamia	G3	S3	LT	LE
Calamintha ashei	Ashe's Savory	G3	S3	N	LT
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Carex chapmanii	Chapman's Sedge	G3	S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Chionanthus pygmaeus	Pygmy Fringe Tree	G3	S3	LE	LE
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Eriogonum longifolium var. gnaphalifolium	Scrub Buckwheat	G4T3	S3	LT	LE
Eumeces egregius lividus	Blue-tailed Mole Skink	G5T2	S2	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida Beargrass	G3	S3	N	LT
Nolina brittoniana	Britton's Beargrass	G3	S3	LE	LE
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Paronychia chartacea ssp. chartacea	Paper-like Nailwort	G3T3	S3	LT	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Pituophis melanoleucus mugitus	Florida Pine Snake	G4T3	S3	N	LS
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Polygala lewtonii	Lewton's Polygala	G3	S3	LE	LE
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Salix floridana	Florida Willow	G2	S2	N	LE
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS
Warea carteri	Carter's Warea	G3	S3	LE	LE
Zephyranthes simpsonii	Rain Lily	G2G3	S2S3	N	LT
Matrix Unit ID: 33086					
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE

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Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report
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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Potential					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	LS
Bonamia grandiflora	Florida Bonamia	G3	S3	LT	LE
Calamintha ashei	Ashe's Savory	G3	S3	N	LT
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Carex chapmanii	Chapman's Sedge	G3	S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Chionanthus pygmaeus	Pygmy Fringe Tree	G3	S3	LE	LE
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Eriogonum longifolium var. gnaphalifolium	Scrub Buckwheat	G4T3	S3	LT	LE
Eumeces egregius lividus	Blue-tailed Mole Skink	G5T2	S2	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Monotropsis reynoldsiae	Pygmy Pipes	G1Q	S1	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's Beargrass	G3	S3	LE	LE
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Pituophis melanoleucus mugitus	Florida Pine Snake	G4T3	S3	N	LS
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Polygala lewtonii	Lewton's Polygala	G3	S3	LE	LE
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Salix floridana	Florida Willow	G2	S2	N	LE
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS
Warea carteri	Carter's Warea	G3	S3	LE	LE
Zephyranthes simpsonii	Rain Lily	G2G3	S2S3	N	LT
Matrix Unit ID: 33087					
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Potential					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	LS
Bonamia grandiflora	Florida Bonamia	G3	S3	LT	LE
Calamintha ashei	Ashe's Savory	G3	S3	N	LT
Carex chapmanii	Chapman's Sedge	G3	S3	N	LE

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report
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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Eriogonum longifolium var. gnaphalifolium	Scrub Buckwheat	G4T3	S3	LT	LE
Eumeces egregius lividus	Blue-tailed Mole Skink	G5T2	S2	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Monotropsis reynoldsiae	Pygmy Pipes	G1Q	S1	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's Beargrass	G3	S3	LE	LE
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Paronychia chartacea ssp. chartacea	Paper-like Nailwort	G3T3	S3	LT	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Polygala lewtonii	Lewton's Polygala	G3	S3	LE	LE
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Salix floridana	Florida Willow	G2	S2	N	LE
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS
Warea carteri	Carter's Warea	G3	S3	LE	LE

Matrix Unit ID: 33088

Likely

Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS

Potential

Agrimonia incisa	Incised Groove-bur	G3	S2	N	LE
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	LS
Bonamia grandiflora	Florida Bonamia	G3	S3	LT	LE
Calamintha ashei	Ashe's Savory	G3	S3	N	LT
Carex chapmanii	Chapman's Sedge	G3	S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Eriogonum longifolium var. gnaphalifolium	Scrub Buckwheat	G4T3	S3	LT	LE
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Heterodon simus	Southern Hognose Snake	G2	S2	N	N

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report
Map 7 of 7

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Monotropsis reynoldsiae	Pygmy Pipes	G1Q	S1	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's Beargrass	G3	S3	LE	LE
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Paronychia chartacea ssp. chartacea	Paper-like Nailwort	G3T3	S3	LT	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Polygala lewtonii	Lewton's Polygala	G3	S3	LE	LE
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Salix floridana	Florida Willow	G2	S2	N	LE
Warea carteri	Carter's Warea	G3	S3	LE	LE

Matrix Unit ID: 33089

Likely

Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS

Potential

Agrimonia incisa	Incised Groove-bur	G3	S2	N	LE
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	LS
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Monotropsis reynoldsiae	Pygmy Pipes	G1Q	S1	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE

Matrix Unit ID: 33090

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Biodiversity Matrix Report
Map 7 of 7

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Documented					
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	LE
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Asplenium heteroresiliens	Wagner's Spleenwort	GNA	S1	N	N
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	LS
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Monotropsis reynoldsiae	Pygmy Pipes	G1Q	S1	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

GLOBAL AND STATE RANKS

Florida Natural Areas Inventory (FNAI) defines an **element** as any rare or exemplary component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature. FNAI assigns two ranks to each element found in Florida: the **global rank**, which is based on an element's worldwide status, and the **state rank**, which is based on the status of the element within Florida. Element ranks are based on many factors, including estimated number of occurrences, estimated abundance (for species and populations) or area (for natural communities), estimated number of adequately protected occurrences, range, threats, and ecological fragility.

GLOBAL RANK DEFINITIONS

G1	Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2	Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3	Either very rare and local throughout its range (21-100 occurrences or less than 10,0000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4	Apparently secure globally (may be rare in parts of range).
G5	Demonstrably secure globally.
G#?	Tentative rank (e.g., G2?)
G#G#	Range of rank; insufficient data to assign specific global rank (e.g., G2G3)
G#T#	Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)
G#Q	Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
G#T#Q	Same as above, but validity as subspecies or variety is questioned.
GH	Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
GNA	Ranking is not applicable because element is not a suitable target for conservation (e.g. as for hybrid species)
GNR	Not yet ranked (temporary)
GNRTNR	Neither the full species nor the taxonomic subgroup has yet been ranked (temporary)
GX	Believed to be extinct throughout range
GXC	Extirpated from the wild but still known from captivity/cultivation
GU	Unrankable. Due to lack of information, no rank or range can be assigned (e.g., GUT2).

STATE RANK DEFINITIONS

Definition parallels global element rank: substitute "S" for "G" in above global ranks, and "in Florida" for "globally" in above global rank definitions.

FEDERAL AND STATE LEGAL STATUSES (U.S. Fish and Wildlife Service – USFWS) PROVIDED BY FNAI FOR INFORMATION ONLY.

For official definitions and lists of protected species, consult the relevant state or federal agency.

FEDERAL LEGAL STATUS

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

LE Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.

LE,XN A non essential experimental population of a species otherwise Listed as an Endangered Species in the List of Endangered and Threatened Wildlife and Plants. LE,XN for Grus americana (Whooping crane), Federally listed as XN (Non essential experimental population) refers to the Florida experimental population only. Federal listing elsewhere for Grus americana is LE.

PE Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.

LT Listed as Threatened Species, defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

LT,PDL Species currently listed Threatened but has been proposed for delisting.

PT Proposed for listing as Threatened Species.

C Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants, Category 1. Federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.

SAT Threatened due to similarity of appearance to a threatened species.

SC Species of Concern, species is not currently listed but is of management concern to USFWS.

N Not currently listed, nor currently being considered for addition to the List of Endangered and Threatened Wildlife and Plants.

FLORIDA LEGAL STATUSES (Florida Fish and Wildlife Conservation Commission – FFWCC/ Florida Department of Agriculture and Consumer Services – FDACS)

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission - FFWCC, 1 August 1997, and subsequent updates.

LE Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.

LT Listed as Threatened Species by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.

LT* Indicates that a species has LT status only in selected portions of its range in Florida. LT* for Ursus americanus floridanus (Florida black bear) indicates that LT status does not apply in Baker and Columbia counties and in the Apalachicola National Forest. LT* for Neovison vison pop. 1 (Southern mink, South Florida population) state listed as Threatened refers to the Everglades population only (Note: species formerly listed as Mustela vison mink pop. 1. Also, priorly listed as Mustela evergladensis).

LS Listed as Species of Special Concern by the FFWCC, defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification,

environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species.

LS* Indicates that a species has LS status only in selected portions of its range in Florida. LS* for Pandion haliaetus (Osprey) state listed as LS (Species of Special Concern) in Monroe County only.

PE Proposed for listing as Endangered.

PT Proposed for listing as Threatened.

PS Proposed for listing as a Species of Special Concern.

N Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or please visit: http://DOACS.State.FL.US/PI/Images/Rule05b.pdf

LE Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.

PE Proposed by the FDACS for listing as Endangered Plants.

LT Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered. LT* indicates that a species has LT status only in selected portions of its range in Florida.

PT Proposed by the FDACS for listing as Threatened Plants.

N Not currently listed, nor currently being considered for listing.

FLORIDA
Natural Areas
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(850) 224-8207
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Tracking Florida's Biodiversity

Green Swamp

Lake and Polk Counties

Group A
Full Fee / Less-Than-Fee

Purpose for State Acquisition

The mosaic of cypress swamps, pine forests, and pastures known as the Green Swamp is a vital part of the water supply of central Florida. This project gives rise to four major river systems, has the highest groundwater elevation in the peninsula, and is important for maintaining the flow of water from the Floridan Aquifer. By preserving the mosaic of land use in this region, the Green Swamp Florida Forever project will protect the Floridan Aquifer and the several rivers; preserve a large area for wildlife; and provide areas for public recreation in the rapidly growing region between Tampa and Orlando. This project may also help complete the Florida National Scenic Trail, a statewide non-motorized trail that crosses a number of Florida Forever project sites.

Managers

The Fish and Wildlife Conservation Commission (FWC) is recommended as the manager for most of the project area. The Department of Environmental Protection's Division of Recreation and Parks (DRP) will manage the Overstreet Ranch and the area adjacent to Lake Louisa State Park, with Sections 3, 4, and 5, T24S, R26E being the southern extent of its management.

General Description

The project is a critical hydrological resource: it encompasses the headwaters of four major rivers; the Withlacoochee, Oklawaha, Hillsborough, and Peace; and has the highest ground water elevation in the Peninsula. It is therefore considered critical to the recharge of the Floridan Aquifer. For this reason, it has been designated an Area of Critical State Concern. The area is a complex mosaic of disturbed uplands and wetlands intermixed with higher quality swamps. It is estimated that 90% of the native upland vegetation in the project has been disturbed by agriculture and development, but the project does contain some uplands with natural communities such as flatwoods and sandhills. The project has a moderate potential for archaeological or historical sites. The wetlands are threatened by sand mining and the uplands are threatened by residential, commercial and high-intensity recreational development.

Green Swamp FNAI Elements - July 2009	
Gopher Tortoise	G3/S3
Eastern Indigo Snake	G3/S3
Florida Mouse	G3/S3
Swallow-tailed Kite	G5/S2
Celestial Lily	G2/S2
Florida Sandhill Crane	G5T2T3/S2S3
Short-tailed Hawk	G4G5/S1
Peninsular Floater	G3/S2
Scrub Plum	G3/S3
Florida Bonamia	G3/S3
30 rare species are associated with the project	

Public Use

The project will become a wildlife management area and a state park, providing for such activities as hunting, hiking and nature appreciation. The less than fee parcel qualifies as a wildlife management area. The amount and nature of public use will be negotiated with the landowners.

Acquisition Planning

On December 10, 1992, the Land Acquisition Advisory Council (LAAC) added the Green Swamp project to the CARL Priority list. This fee-simple & less-than-fee acquisition, sponsored by the Department of Environmental Regulations, consisted of approximately 230,000 acres, divided into Phase I (126,800 acres) and II (103,200 acres), multiple owners, and a 1991 taxable

Placed on list	**1992**
Project Area (Acres)	**233,598***
Acres Acquired	**69,447****
at a Cost of	**$115,321,102****
Acres Remaining	**164,151**
with Estimated (Tax Assessed) Value of	**$194,407,313**

*Previously only Phase 1 reported
**includes acreage acquired & funds expended by the Southwest Florida and St. Johns River Water Management Districts

value of $272,628,200. Two non-contiguous Phase I areas have been identified based on relative intactness of their natural communities. In general, priority areas are the relatively large contiguous parcels and strategic smaller parcels. In Lake County, the northern half of the western Phase I area extends south to the county line, less the subdivisions. Specifically in the Lake Louisa area, the Bradshaw ownership (acquired) is the most important tract.

The Black Bear Land Company, Ray, and Oswalt ownerships have also been acquired.Other large ownerships have been mapped and appraised.

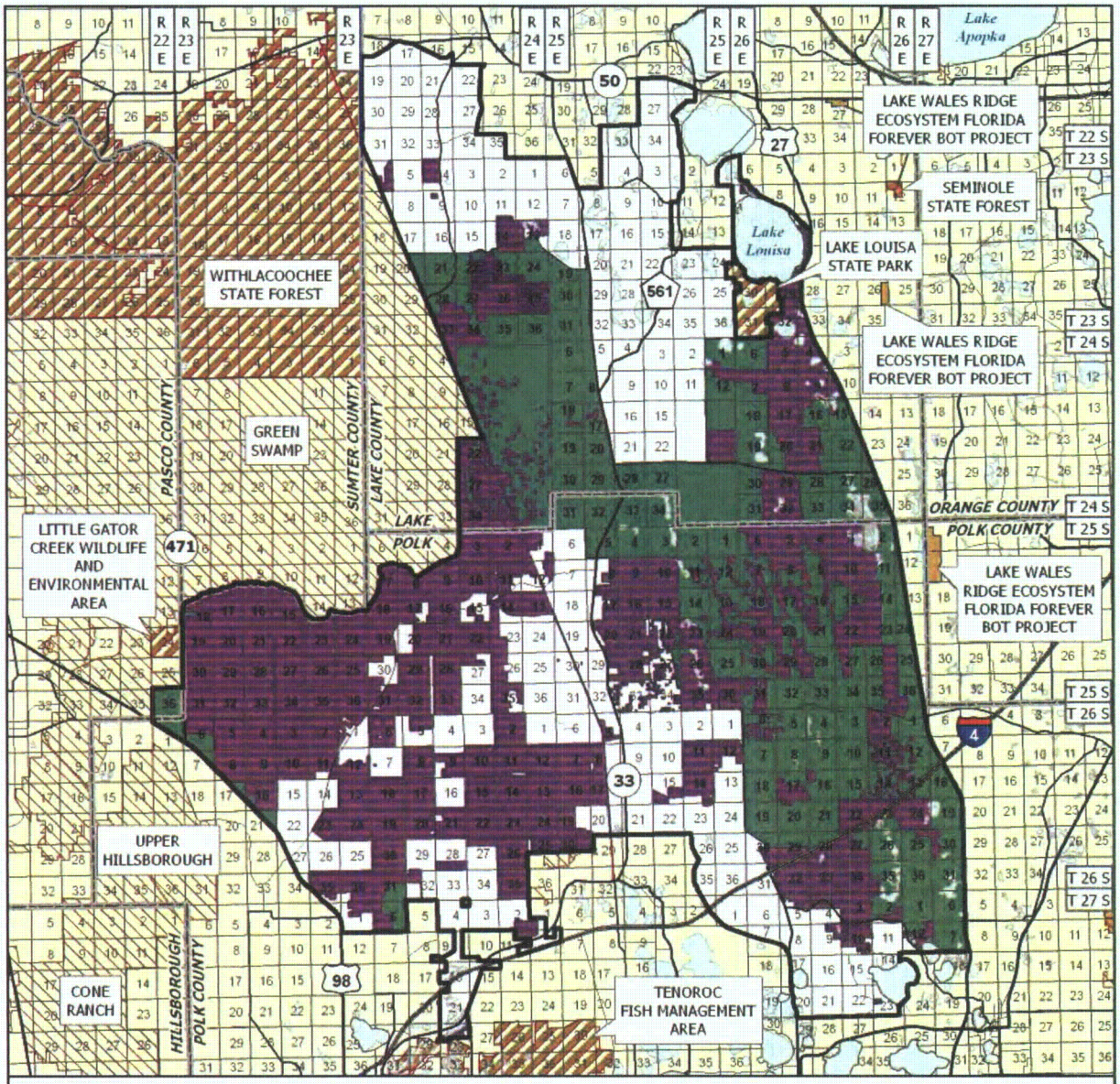
On October 30, 1996, the LAAC approved a fee-simple, 3,598-acre addition to the project boundary. The addition was distributed as follows: Phase I, 890 acres with a taxable value of $995,830 and Phase II, 2,708 acres with a taxable value of $3,030,000. The addition was sponsored by the DEP, consisted of multiple owners, and a total taxable value of $4,025,830. LAAC also moved 19,000 acres from Phase II to Phase I and approved the deletion of the priority areas designation within Phase I.
On December 15, 1996, the Overstreet (acquired in 2006) and portions of the Jahna (acquired in a conservation easement) ownerships (11,383 acres) were transferred to the CARL Less-Than-Fee category.
On April 6, 2001, the Acquisition & Restoration Council (ARC) established a Florida Forever (FF) priority list consisting of Groups A & B. The Green Swamp Less-Than-Fee acreage went to Group A and the Full-Fee acreage went to Group B.

On June 6, 2002, the ARC approved combining the Green Swamp full-fee and less-than-fee categories into one Group A Less-Than-Fee category. Parcels can still be acquired in full-fee if appropriate.

Coordination
The Green Swamp Land Authority has acquired 17,948 acres within the project boundary and expended $13,848,442. The SWFWMD has acquired considerable acreage adjacent to and partly within the overall project boundary. Section 51, ch. 99-2478, provided for the deletion of the provision setting out the membership of the Green Swamp Land Authority and that "[henceforth, the Green Swamp Land Authority shall mean the Department of Environmental Protection for purposes of [Section 380.0677, F.S.,] and statutes related thereto."

Management Policy Statement
The primary goals of management of the Green Swamp Florida Forever project are: to conserve and protect lands within areas of critical state concern; to conserve and protect significant habitat for native species or endangered and threatened species; to conserve, protect, manage, or restore important ecosystems, landscapes, and forests, in order to enhance or protect significant surface water, coastal, recreational, timber, fish or wildlife resources which local or state regulatory programs cannot adequately protect; and to provide areas, including recreational trails, for natural-resource-based recreation.

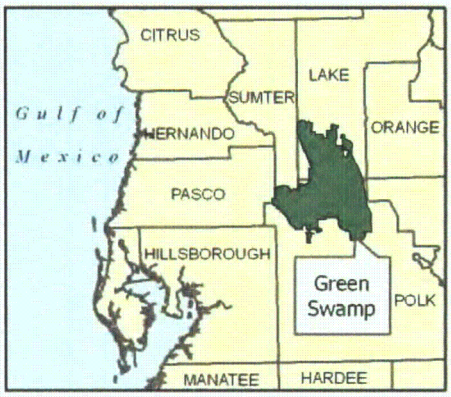
Management Prospectus
Qualifications for state designation The Green Swamp Florida Forever project has the size and wildlife resources to qualify as a wildlife management area.
Manager DEP has been recommended as manager.
Conditions affecting intensity of management The primary management tools in the area to be managed by FWC involve prescribed introduction of fire and control of human access. Some pine forests will require restoration. The portion of the project adjacent to Lake Louisa, to be managed by DRP, is a high-need management area with emphasis on public recreational use and development and major resource restoration. The majority of the properties in this area are or were citrus groves. The portion of the project known as the Overstreet Ranch to be managed by DRP is within the Department of Transportation's Hillsborough Watershed mitigation/restoration area. The southwest portion has been identified for potential mitigation.
Timetable for implementing management and provisions for security and protection of infrastructure
Within the first year after acquisition, FWC's management activities will concentrate on site security, natural and cultural resource protection, and the development of a plan for long-term public use and resource management that is consistent with the goals and objectives stated for this project. Long-term management will include restoration of natural pine forests. Growing-season fire will be important in this restoration. FWC will emphasize the provision of old-growth forest, but for game species will also provide areas of successional vegetation in pine areas adjacent to wetlands. FWC also plans to provide high-quality habitat and protection for listed wildlife species. FWC will keep public facilities to a minimum, hiking and horseback trail in upland areas, and perhaps interpretive centers and wildlife observation towers in selected areas.



GREEN SWAMP

LAKE AND POLK COUNTIES

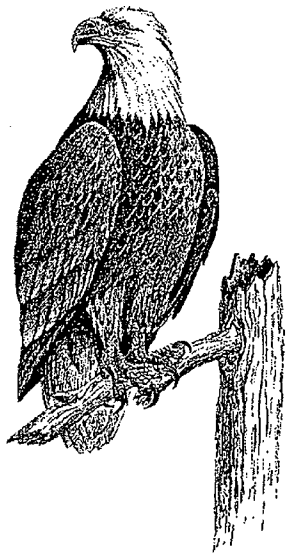
- Florida Forever BOT Project Boundary
- Acquired
- Essential Parcel(s) Remaining
- Other Florida Forever BOT Projects
- State Owned Lands
- Other Conservation Lands



0 2 4 8 Miles

APRIL 2009

Revenue-generating potential FWC expects no significant revenue from this project initially, but will continue to offer hunting opportunities. For the area next to Lake Louisa State Park, DRP also expects no significant revenue to be generated initially. After acquisition, it will probably be several years before any significant public use facilities are developed in the Lake Louisa area, and the amount of any revenue generated will depend on the nature and extent of public use and facilities.



Management Cost Summary/FWC

Category	1996/97	1997/98	1998/99
Source of Funds	CARL	CARL	CARL
Salary	$18,290	$43,100	$77,650
OPS	$0	$0	$1,000
Expense	$43,280	$37,900	$30,000
OCO	$0	$28,500	$29,200
FCO	$0	$0	$0
TOTAL	$61,570	$109,500	$137,850

Management Cost Summary/DRP

Category	1996/97	1997/98	1998/99
Source of Funds	SPTF/CARL	SPTF/CARL	SPTF/CARL
Salary	$103,834	$106,949	$110,157
OPS	$12,254	$12,000	$12,000
Expense	$19,268	$22,000	$22,000
OCO	$29,807	$0	$0
FCO	$0	$0	$0
TOTAL	$135,356	$140,949	$144,157

FLORIDA
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Technical Assistance Provided by:

FREAC
FLORIDA RESOURCES & ENVIRONMENTAL ANALYSIS CENTER
AT THE FLORIDA STATE UNIVERSITY

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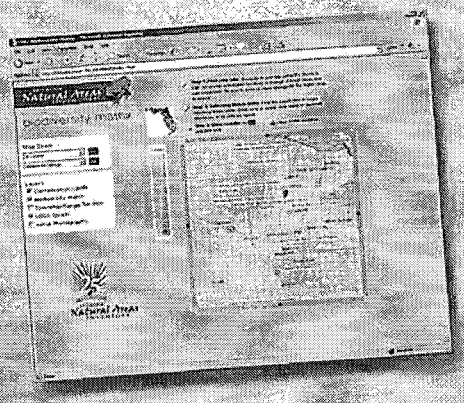
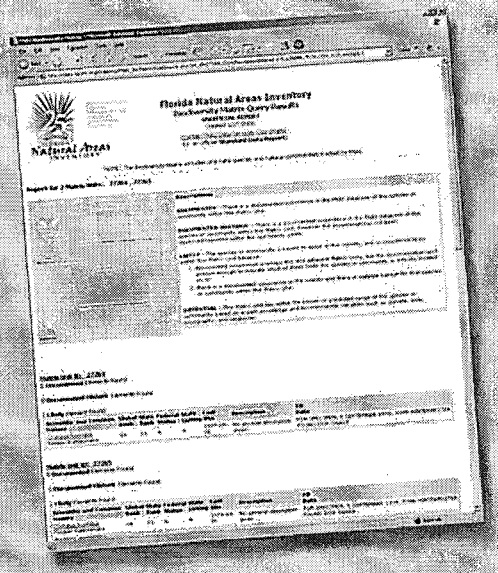


FNAI's Biodiversity Matrix Online

The Biodiversity Matrix Map Server is a new **screening tool** from FNAI that provides **immediate, free access** to rare species occurrence information statewide. This tool allows you to zoom to your site of interest and create a report listing documented, likely, and potential occurrences of rare species and natural communities.



The FNAI Biodiversity Matrix offers **built-in interpretation** of the likelihood of species occurrence for each 1-square-mile Matrix Unit across the state. The report includes a site map and list of species and natural communities by occurrence status: Documented, Documented-Historic, Likely, and Potential.

Try it today:

www.fnai.org/biointro.cfm

Please note: FNAI will continue to offer our Standard Data Report service as always. The Standard Data Report offers the most comprehensive information available on rare species, natural communities, conservation lands, and other natural resources.

Progress Energy Florida
Levy Baseload Project
Kathleen Substation Wetland Impacts

Wetland ID	FLUCFCS Code	FLUCFCS Definition	Impact Acreage	Total Impact Acreage	UMAM	Mitigation Credits	Total Mitigation Credits
A/B	630	Wetland Forested Mixed	1.00	1.00	0.83	0.83	0.83
		Total		1.00			0.83

Golder Associates