

**EAST CORKSCREW PROPERTY
LEE COUNTY PROTECTED SPECIES SURVEY**

June 2000

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Project #98BBP300

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INTRODUCTION

Passarella and Associates, Inc. conducted a protected species survey on the East Corkscrew Property on July 27, 28, and 29, 1998 and September 8, 1999. The survey was conducted to meet Lee County Land Development Code (LDC) Chapter 10, Article III, Division 8 (Protection of Habitat) standards.

The 275.43± acre East Corkscrew Property is located on Corkscrew Road 1.7± miles east of the Corkscrew Road and Alico Road intersection. The property is in Section 25, Township 46 South, Range 26 East, Lee County, Florida (Figure 1). The parcel contains a man-made lake and a single-family home. The surrounding land use is agricultural land with scattered rural single-family residences to the east.

LAND USES AND VEGETATION ASSOCIATIONS

The vegetation associations for the property were delineated using 1996 unrectified Lee County blue-line aerials (scale 1" = 200') and on-site field surveys conducted on June 17 and 18, 1998 and September 8, 1999. During the surveys, lines were drawn on the aerial delineating the different vegetation associations. These delineations were classified based on the nomenclature of the Florida Land Use, Cover and Forms Classification System (FLUCFCS), Level III and IV (Florida Department of Transportation 1985). The mapping was later updated using 1999 Lee County rectified aerial photographs. The resulting FLUCFCS map with acreages is provided in Figure 2. A brief description of each of the FLUCFCS classifications is provided below, while the FLUCFCS delineations are depicted on a 1999 Lee County aerial provided in Appendix A.

Residential, Low Density (FLUCFCS Code 110)

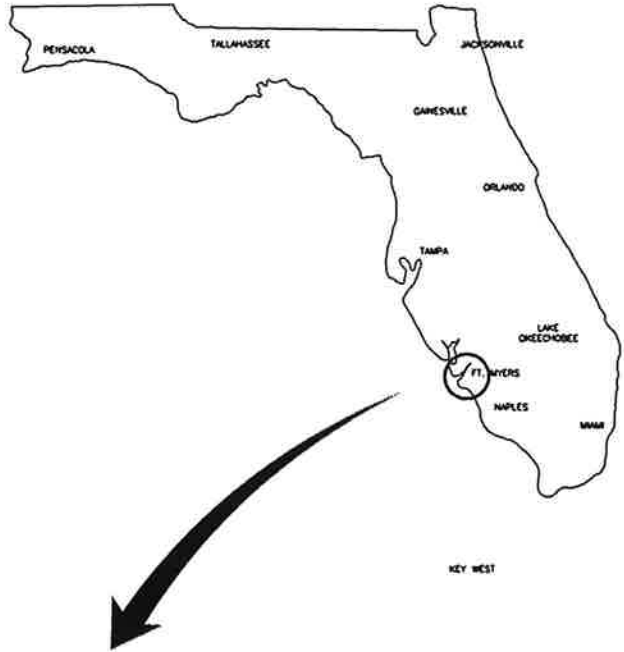
This area occupies 1.59± acres or 0.6 percent of the property. It is occupied by a single-family home.

Woodland Pasture (FLUCFCS Code 213)

This habitat occupies 81.50± acres or 29.6 percent of the property. This area was historically used for agricultural production. The agricultural fields have been left fallow and now have partially re-vegetated. The canopy contains scattered slash pine (*Pinus elliottii*), laurel oak (*Quercus laurifolia*), and live oak (*Quercus virginiana*). The sub-canopy includes slash pine, cabbage palm (*Sabal palmetto*), and wax myrtle (*Myrica cerifera*). The ground cover is made up of yellow-eyed grass (*Xyris* sp.), black-root (*Pterocaulon virgatum*), dwarf live oak (*Quercus minima*), blue paspalum (*Paspalum caepitosum*), little blue maidencane (*Amphicarpum muhlenbergianum*), thoroughwort (*Eupatorium* sp.), slash pine seedlings, pawpaw (*Asimina reticulata*), St. John's wort (*Hypericum tetrapetalum*), and widely scattered saw palmetto (*Serenoa repens*).



N.T.S.



R 25 E

R 26 E

T 46 S

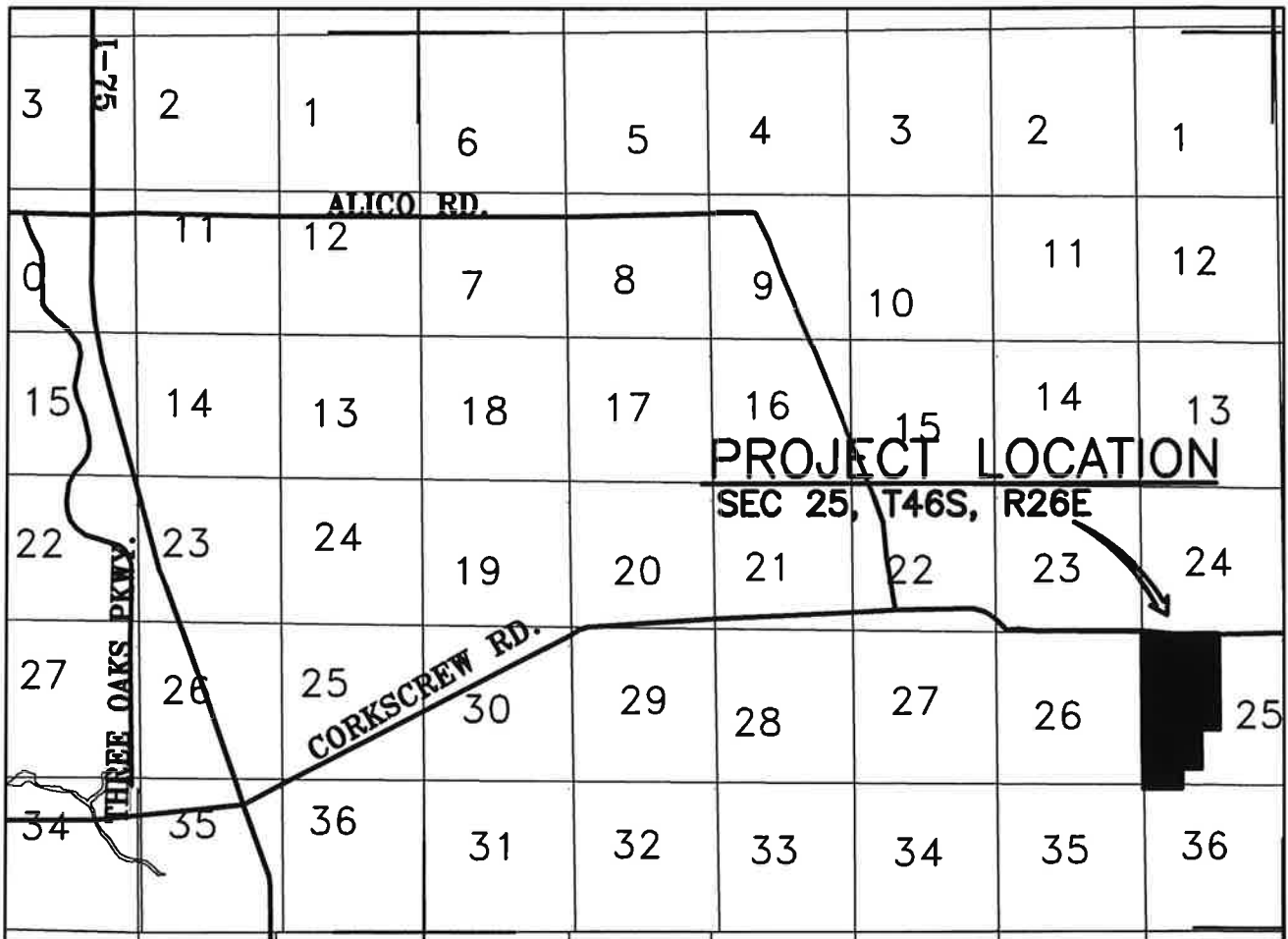


FIGURE 1. PROJECT LOCATION MAP

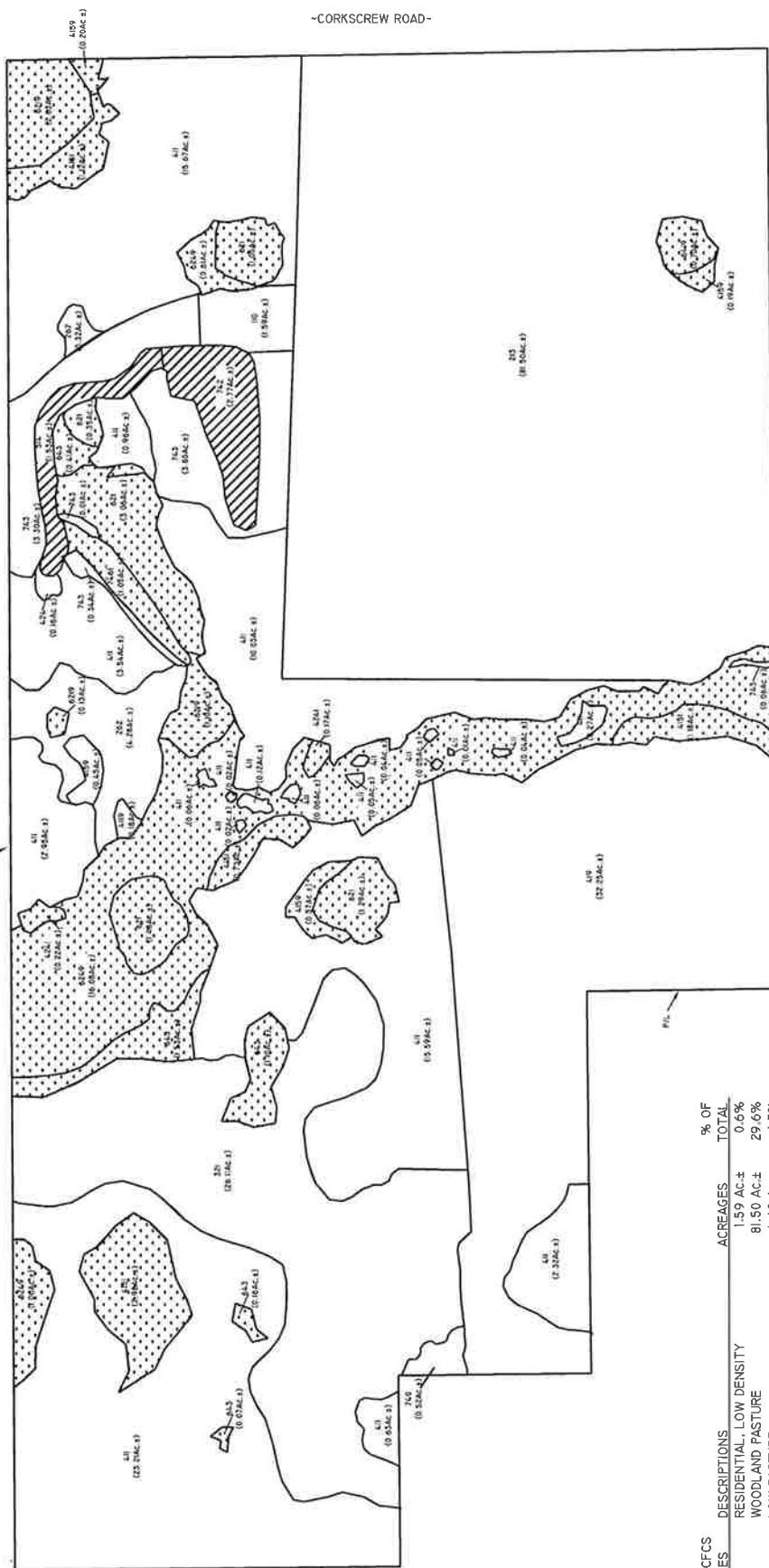
PASSARELLA and ASSOCIATES, INC.
Consulting Ecologists

DRAWN BY: SLO
REVISED BY: SLO

DATE: 8/10/98
DATE: 6/18/00



SCALE: 1" = 600'



FLUCFCS CODES	DESCRIPTIONS	ACREAGES	% OF TOTAL
110	RESIDENTIAL, LOW DENSITY	1.59 AC.±	0.6%
213	WOODLAND PASTURE	81.50 AC.±	29.6%
262	LOW PASTURE	4.60 AC.±	1.7%
321	PALMETTO PRAIRIE	26.11 AC.±	9.5%
411	PINE FLATWOODS	75.64 AC.±	27.5%
4119	PINE FLATWOODS, DISTURBED	0.18 AC.±	0.1%
4151	HYDRIC PINE FLATWOODS	6.01 AC.±	2.2%
4159	PINE, DISTURBED	1.41 AC.±	0.5%
419	PLANTED PINES	32.25 AC.±	11.7%
424	MELALEUCA	0.16 AC.±	0.1%
4241	MELALEUCA, HYDRIC	0.59 AC.±	0.2%
514	DITCH	1.53 AC.±	0.6%
621	CYPRESS	7.23 AC.±	2.6%
6219	CYPRESS, DISTURBED	3.26 AC.±	1.2%
6249	PINE-CYPRESS, DISTURBED	17.75 AC.±	6.4%
6419	FRESHWATER MARSH, DISTURBED	0.70 AC.±	0.3%
643	WET PRAIRIE	3.27 AC.±	1.2%
740	DISTURBED LAND	0.52 AC.±	0.2%
742	BORROW AREA	2.77 AC.±	1.0%
743	SPOIL AREA	7.51 AC.±	2.7%
7461	CLEARED AREA, HYDRIC	1.05 AC.±	0.4%
		275.43 AC.±	100.0%

LEGEND:

- SFWMD WETLANDS (40.62 Ac.±)
- SFWMD OTHER SURFACE WATERS (4.30 Ac.±)

NOTES:
 FLUCFCS LINES ESTIMATED FROM 1"-200' AERIAL PHOTOGRAPHS AND LOCATIONS APPROXIMATED.

FLUCFCS PER FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) (FDOOT 1985).

PROPERTY BOUNDARIES AND WETLAND LINES PER AQUILA ENGINEERING AND SURVEY, INC. DRAWING NO. KPASSA01.DWG DATED 4/14/00.

SFWMD WETLAND LINES SHOWN HAVE BEEN VERIFIED BY CRAIG SCHMIDTLE AND DATE OF SURVEY AND ARE SURVEY LOCATED.

PASSARELLA and ASSOCIATES, INC.
Consulting Ecologists

DRAWN BY: SLO DATE: 5/2/00
 REVISED BY: SLO DATE: 6/17/00

FIGURE 2. FLUCFCS AND WETLAND MAP

Low Pasture (FLUCFCS Code 262)

This community occupies 4.60± acres or 1.7 percent of the property. The canopy and sub-canopy consists of widely scattered slash pine. The ground cover includes big carpet grass (*Axonopus furcatus*), bahia grass (*Paspalum notatum*), rustweed (*Polypremum procumbens*), queen's-delight (*Stillingia sylvatica*), frog-fruit (*Phyla nodiflora*), dog fennel (*Eupatorium capillifolium*), pawpaw, blue paspalum, rush (*Juncus marginatus*), flatsedge (*Cyperus surinamensis*), wiregrass (*Aristida stricta*), dwarf crabgrass (*Digitaria serotina*), and pineland heliotrope (*Heliotropium polyphyllum*).

Palmetto Prairie (FLUCFCS Code 321)

This upland community occupies 26.11± acres or 9.5 percent of the property. The canopy in this habitat is mostly open with widely scattered slash pine. The sub-canopy contains scattered slash pine with staggerbush (*Lyonia fruticosa*). The ground cover consists of saw palmetto, dwarf live oak, pennyroyal (*Piloblephis rigida*), gopher apple (*Licania michauxii*), black-root, wiregrass, and pawpaw.

Pine Flatwoods (FLUCFCS Code 411)

This upland habitat occupies 75.64± acres or 27.5 percent of the property. The canopy is dominated by slash pine. The sub-canopy includes slash pine, wax myrtle, and staggerbush. The ground cover consists of saw palmetto, pawpaw, dwarf live oak, and wiregrass.

Pine Flatwoods, Disturbed (FLUCFCS Code 4119)

This habitat occupies 0.18± acre or 0.1 percent of the property. It is similar to the previous habitat (FLUCFCS Code 411) except the sub-canopy is dominated by Brazilian pepper (*Schinus terebinthifolius*).

Pine Flatwoods, Hydric (FLUCFCS Code 4151)

This community type occupies 6.01± acres or 2.2 percent of the property. The canopy consists of slash pine with widely scattered melaleuca (*Melaleuca quinquenervia*). Scattered melaleuca and wax myrtle make up the sub-canopy. Ground cover includes rosy camphorweed (*Pluchea rosea*), chocolate-weed (*Melochia corchorifolia*), wiregrass, yellowtop (*Flaveria* sp.), low panicum (*Dichanthelium* sp.), foxtail grass (*Setaria* sp.), umbrella-grass (*Fuirena* sp.), little blue maidencane, yellow-eyed grass, sedge (*Carex glaucescens*), and sand cordgrass (*Spartina bakeri*).

Pine, Disturbed (FLUCFCS Code 4159)

This habitat occupies 1.41± acres or 0.5 percent of the property. The canopy is made up of slash pine. The sub-canopy consists of Brazilian pepper. The ground cover includes bahia grass, Leavenworth's tickseed (*Coreopsis leavenworthii*), thoroughwort, and caesar-weed (*Urena lobata*).

Planted Pines (FLUCFCS Code 419)

This upland community occupies 32.25± acres or 11.7 percent of the property. The canopy consists of rows of planted slash pine. The sub-canopy is comprised of

staggerbush and wax myrtle. The ground cover contains saw palmetto, pennyroyal, black-root, wiregrass, and pawpaw.

Melaleuca (FLUCFCS Code 424)

This habitat occupies 0.16± acre or 0.1 percent of the property. The canopy and sub-canopy are dominated by melaleuca with a sparse ground cover.

Melaleuca, Hydric (FLUCFCS Code 4241)

This community type occupies 0.39± acre or 0.1 percent of the property. The canopy contains melaleuca and slash pine. Melaleuca dominates the sub-canopy. The ground cover is sparse with scattered little blue maidencane.

Ditch (FLUCFCS Code 514)

This area occupies 1.53± acres or 0.6 percent of the property. The canopy and sub-canopy are absent. The ground cover includes torpedo grass (*Panicum repens*) and spikerush (*Eleocharis interstincta*).

Cypress (FLUCFCS Code 621)

This wetland habitat occupies 7.23± acres or 2.6 percent of the property. Pond cypress (*Taxodium ascendens*) makes up the canopy. The sub-canopy consists of pond cypress with scattered Brazilian pepper and wax myrtle. The ground cover contains sedge (*Carex* sp.), chainfern (*Woodwardia virginica*), swamp fern (*Blechnum serrulatum*), and bog-hemp/false nettle (*Boehmeria cylindrica*).

Cypress, Disturbed (FLUCFCS Code 6219)

This community occupies 3.26± acres or 1.2 percent of the property. The canopy contains pond cypress. The sub-canopy consists of Brazilian pepper, wax myrtle, and cabbage palm. The ground cover includes asiatic pennywort (*Centella asiatica*), rosy camphorweed, and bahia grass.

Pine Cypress, Disturbed (FLUCFCS Code 6249)

This habitat type occupies 17.75± acres or 6.4 percent of the property. The canopy contains slash pine and pond cypress. Pond cypress, Brazilian pepper, cabbage palm, and wax myrtle make up the sub-canopy. The ground cover is composed of gulfdune paspalum (*Paspalum monostachyum*), asiatic pennywort, caesar-weed, yellow-eyed grass, rosy camphorweed, Leavenworth's tickseed, little blue maidencane, and swamp fern.

Freshwater Marsh, Disturbed (FLUCFCS Code 6419)

This community occupies 0.70± acre or 0.3 percent of the property. The canopy is open with a sub-canopy of wax myrtle along the outer edges. The ground cover includes frog-fruit, spikerush, American cupscale (*Sacciolepis striata*), water-hyssop (*Bacopa caroliniana*), asiatic pennywort, mermaid-weed (*Proserpinaca pectinata*), buttonweed (*Diodia virginiana*), red ludwigia (*Ludwigia repens*), smartweed (*Polygonum* sp.), shrubby camphorweed (*Pluchea odorata*), climbing hempvine (*Mikania scandens*), and pennywort (*Hydrocotyle* sp.).

Wet Prairie (FLUCFCS Code 643)

This wetland habitat occupies 3.27± acres or 1.2 percent of the property. The ground cover includes little blue maidencane, torpedo grass, rosy camphorweed, flatsedge (*Cyperus haspan*), sand cordgrass, yellow-eyed grass, wiregrass, queen's-delight, erect-leaf witchgrass (*Dichantheium erectifolium*), small-fruit seedbox (*Ludwigia microcarpa*), frog-fruit, pineland heliotrope, melochia (*Melochia hirsuta*), orange grass (*Hypericum gentianoides*), and blue paspalum.

Disturbed Land (FLUCFCS Code 740)

This area occupies 0.52± acres or 0.2 percent of the property. The ground cover is made up of ragweed (*Ambrosia artemisiifolia*), golden aster (*Pityopsis graminifolia*), crow-foot grass (*Dactyloctenium aegyptium*), pennyroyal, sandspur (*Cenchrus incertus*), and gopher apple (*Licania michauxii*).

Borrow Area (FLUCFCS Code 742)

This area occupies 2.77± acres or 1.0 percent of the property. The canopy and sub-canopy are absent. The ground cover is dominated by torpedo grass and spikerush.

Spoil Area (FLUCFCS Code 743)

This area occupies 7.51± acres or 2.7 percent of the property. The canopy is absent. The sub-canopy contains slash pine. The ground cover includes bahia grass, dog fennel, big carpet grass, caesar-weed, and slash pine seedlings.

Cleared Area, Hydric (FLUCFCS Code 7461)

This area occupies 1.05± acres or 0.4 percent of the property. The ground cover consists of marsh pink (*Sabatina grandiflora*), spikerush, baby tears (*Micranthemum* sp.), water pennywort, frog-fruit, red ludwigia (*Ludwigia repens*), and torpedo grass.

METHODOLOGY AND DISCUSSION

Surveys for various Lee County protected species are based on the presence of specific vegetation associations and habitat types noted on-site, as outlined in the LDC. The frequency of transects performed in these habitats were designed to meet, if not exceed, the 80 percent minimum coverage requirement. cursory surveys were also conducted in those habitats not technically required to be surveyed per the LDC. However, based on past experience and conversations with Lee County's Division of Environmental Sciences (DES) staff, these areas were reviewed for certain protected species as a precautionary measure. Table 1 outlines those protected species that may inhabit or utilize a particular vegetation association.

Table 1. Potential Lee County Protected Species by Habitat Type

FLUCFCS Code and Description	Potential Protected Species
110 Residential, Low Density	N/A
213 Woodland Pasture*	Big Cypress Fox Squirrel (<i>Sciurus niger avicennia</i>)
262 Low Pasture*	Florida Sandhill Crane (<i>Grus canadensis pratensis</i>)
	Little Blue Heron (<i>Egretta caerulea</i>)
	Reddish Egret (<i>Egretta rufescens</i>)
	Snowy Egret (<i>Egretta thula</i>)
	Tricolored Heron (<i>Egretta tricolor</i>)
321 Palmetto Prairie	Eastern Indigo Snake (<i>Drymarchon corais couperi</i>)
	Gopher Tortoise (<i>Gopherus polyphemus</i>)
	Gopher Frog (<i>Rana areolata</i>)
	Curtis Milkweed (<i>Asclepias curtissii</i>)
	Fakahatchee Burmannia (<i>Burmannia flava</i>)
	Florida Coontie (<i>Zamia floridana</i>)
	Beautiful Pawpaw (<i>Deeringothamnus pulchellus</i>)
	Southeastern American Kestrel (<i>Falco sparverius paulus</i>)
	Florida Sandhill Crane (<i>Grus canadensis pratensis</i>)
	Audubon's Crested Caracara (<i>Polyborus plancus audubonii</i>)
	Florida Black Bear (<i>Ursus americanus floridanus</i>)
	411 Pine Flatwoods 4119 Pine Flatwoods, Disturbed
Gopher Tortoise (<i>Gopherus polyphemus</i>)	
Gopher Frog (<i>Rana areolata</i>)	
Southeastern American Kestrel (<i>Falco sparverius paulus</i>)	
Red-Cockaded Woodpecker (<i>Picoides borealis</i>)	
Florida Panther (<i>Felis concolor coryi</i>)	
Big Cypress Fox Squirrel (<i>Sciurus niger avicennia</i>)	
Florida Black Bear (<i>Ursus americanus floridanus</i>)	
Fakahatchee Burmannia (<i>Burmannia flava</i>)	
Satinleaf (<i>Chrysophyllum olivaeforme</i>)	
Beautiful Pawpaw (<i>Deeringothamnus pulchellus</i>)	
Florida Coontie (<i>Zamia floridana</i>)	
4151 Hydric Pine Flatwoods*	Red-Cockaded Woodpecker (<i>Picoides borealis</i>)
4159 Pine, Disturbed*	Big Cypress Fox Squirrel (<i>Sciurus niger avicennia</i>)
419 Planted Pines*	Red-Cockaded Woodpecker (<i>Picoides borealis</i>)
	Big Cypress Fox Squirrel (<i>Sciurus niger avicennia</i>)
424 Melaleuca 4241 Melaleuca, Hydric	Big Cypress Fox Squirrel (<i>Sciurus niger avicennia</i>)
514 Ditch	American Alligator (<i>Alligator mississippiensis</i>)
	Roseate Spoonbill (<i>Ajaja ajaja</i>)

Table 1 (Continued)

FLUCFCS Code and Description	Potential Protected Species
514 Ditch (Continued)	Limpkin (<i>Aramus guarauna</i>)
	Little Blue Heron (<i>Egretta caerulea</i>)
	Reddish Egret (<i>Egretta rufescens</i>)
	Snowy Egret (<i>Egretta thula</i>)
	Tricolored Heron (<i>Egretta tricolor</i>)
	Everglades Mink (<i>Mustela vison evergladensis</i>)
621 Cypress 6219 Cypress, Disturbed	Little Blue Heron (<i>Egretta caerulea</i>)
	Snowy Egret (<i>Egretta thula</i>)
	Tricolored Heron (<i>Egretta tricolor</i>)
	American Alligator (<i>Alligator mississippiensis</i>)
	Limpkin (<i>Aramus guarauna</i>)
	Woodstork (<i>Mycteria americana</i>)
	Florida Panther (<i>Felis concolor coryi</i>)
	Florida Black Bear (<i>Ursus americanus floridanus</i>)
6249 Pine-Cypress, Disturbed	Little Blue Heron (<i>Egretta caerulea</i>)
	Snowy Egret (<i>Egretta thula</i>)
	Tricolored Heron (<i>Egretta tricolor</i>)
	American Alligator (<i>Alligator mississippiensis</i>)
	Limpkin (<i>Aramus guarauna</i>)
	Snail Kite (<i>Rostrhamus sociabilis</i>)
	Everglades Mink (<i>Mustela vison evergladensis</i>)
	Florida Sandhill Crane (<i>Grus canadensis pratensis</i>)
643 Wet Prairie	Little Blue Heron (<i>Egretta caerulea</i>)
	Snowy Egret (<i>Egretta thula</i>)
	Tricolored Heron (<i>Egretta tricolor</i>)
	Limpkin (<i>Aramus guarauna</i>)
	Snail Kite (<i>Rostrhamus sociabilis</i>)
	Everglades Mink (<i>Mustela vison evergladensis</i>)
740 Disturbed Area*	Gopher Tortoise (<i>Gopherus polyphemus</i>)
	Gopher Frog (<i>Rana areolata</i>)
	Curtis Milkweed (<i>Asclepias curtissii</i>)
742 Borrow Area*	American Alligator (<i>Alligator mississippiensis</i>)
743 Spoil Area	Gopher Tortoise (<i>Gopherus polyphemus</i>)
7461 Cleared Area, Hydric*	Little Blue Heron (<i>Egretta caerulea</i>)
	Snowy Egret (<i>Egretta thula</i>)
	Tricolored Heron (<i>Egretta tricolor</i>)

*Habitat surveyed for the species noted as a precautionary measure although not required per the LDC.

The protected species survey was conducted by Passarella and Associates, Inc. The type of survey utilized included meandering pedestrian transects, per Southern Biomes EIS methodology previously approved by Lee County. The survey was conducted July 27 through July 29, 1998 and on September 8, 1999. The weather was partly cloudy with temperatures in the mid 80's to low 90's for the July survey dates. The weather was cloudy with temperatures in the mid 80's and occasional light rain for the September survey.

Visibility in the surveyed habitats varied due to the density of vegetation. A summary of the limits of visibility, number, length of transects walked, and percent of coverage by habitat type is provided in Table 2.

Table 2. Summary of Habitat Coverage

FLUCFCS Code and Description	Total Area (Acres)	Transect Length (Feet)	Average Visibility (Feet)*	Percent Coverage
110 Residential, Low Density	1.59	N/A	N/A	N/A
213 Woodland Pasture**	81.50	65,000	25	92
262 Low Pasture**	4.60	2,700	35	93
321 Palmetto Prairie	26.11	20,500	25	90
411 Pine Flatwoods	75.64	53,700	27	88
4119 Pine Flatwoods, Disturbed	0.18	150	25	86
4151 Hydric Pine** Flatwoods	6.01	3,920	30	90
4159 Pine, Disturbed**	1.41	920	30	90
419 Planted Pines**	32.25	21,800	30	93
424 Melaleuca**	0.16	200	20	92
4241 Melaleuca, Hydric**	0.39	300	25	86
514 Ditch	1.53	470	60	87
621 Cypress	7.23	3,650	40	93
6219 Cypress, Disturbed	3.26	1,850	35	90
6249 Pine-Cypress, Disturbed	17.75	11,600	30	90
6419 Freshwater Marsh, Disturbed	0.70	520	25	86
643 Wet Prairie	3.27	2,130	30	89
740 Disturbed Area**	0.52	400	25	90

Table 2 (Continued)

FLUCFCS Code and Description	Total Area (Acres)	Transect Length (Feet)	Average Visibility (Feet)*	Percent Coverage
742 Borrow Area**	2.77	1,620	35	93
743 Spoil Area	7.51	3,900	35	84
7461 Cleared Area, Hydric**	1.05	470	45	89

N/A Not Applicable

* Average visibility to one side of transect

** Habitat surveyed as a precautionary measure although not required per the LDC

SURVEY RESULTS

On July 27, 1998, one Big Cypress fox squirrel (a Lee County protected species) was observed foraging near a dead pine in the Pine Flatwoods (FLUCFCS Code 411) habitat near the southwest property corner. On July 28, 1998, four Big Cypress fox squirrels were seen. One was found in a nest in a pine tree while another was observed near a nest in the Woodland Pasture (FLUCFCS Code 213) area. Twenty-two other squirrel nests were found (Figure 3). It can not be determined whether the other nests belong to the Big Cypress fox squirrel or the gray squirrel (not a Lee County protected species) since gray squirrels were also observed in the area.

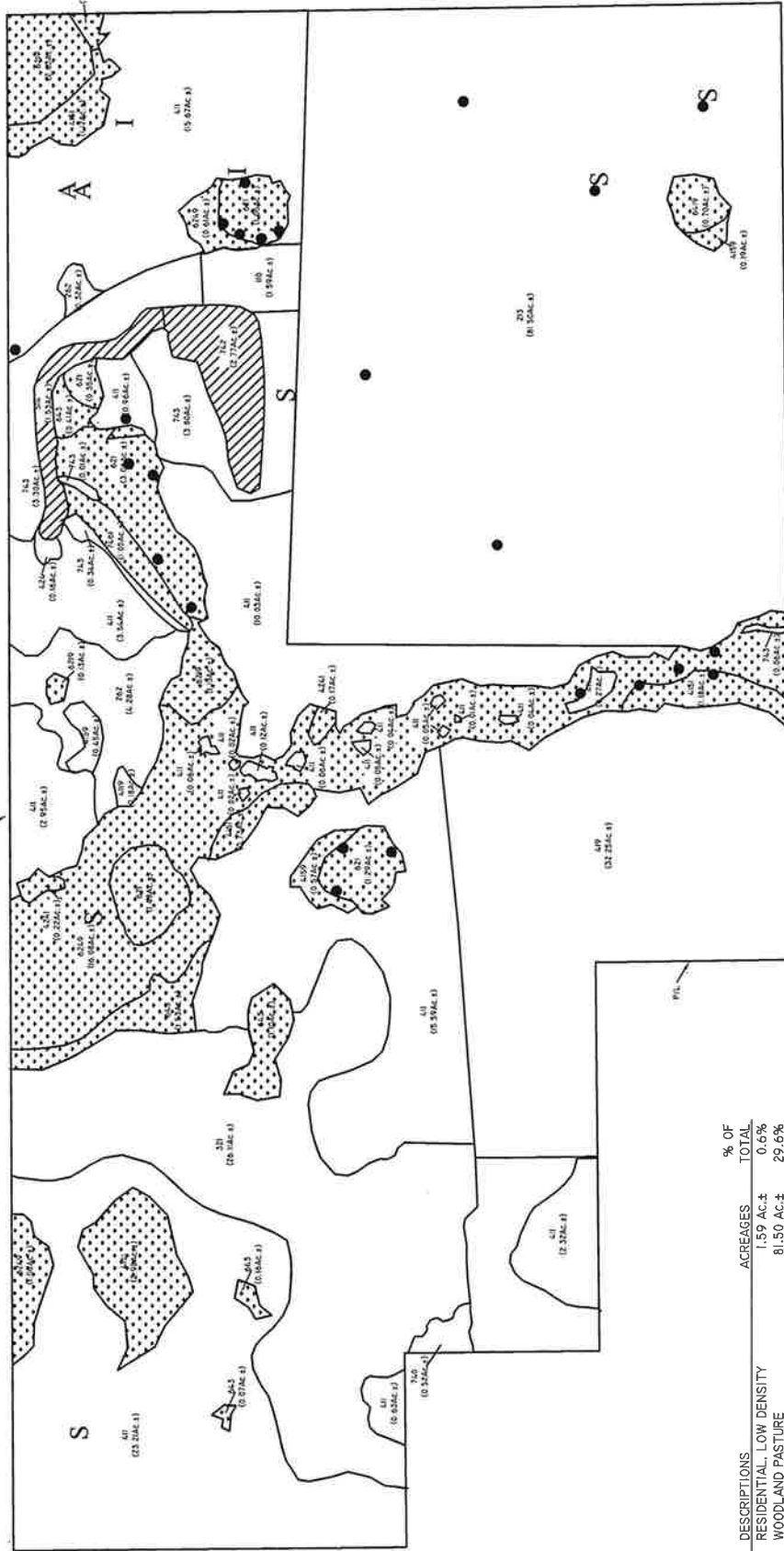
Two active and two inactive gopher tortoise burrows were identified on the property (Figure 3). These burrows were located in Pine Flatwoods (FLUCFCS Code 411).

ABUNDANCE OF PROTECTED SPECIES OBSERVED

Density calculations for the Big Cypress fox squirrel and the gopher tortoise were done in accordance with Step 8, Attachment 2 of the Lee County Survey Methodology adopted August 30, 1989. The gopher tortoise density is based on the number of active (A) and inactive (I) burrows found in the Pine Flatwoods (FLUCFCS Code 411) habitat. Based on past experience and conversations with Florida Fish and Wildlife Conservation Commission, a gopher tortoise conversion factor for Pine Flatwoods of 0.30 is acceptable for density determinations in Southwest Florida. The Lee County Protected Species abundance calculations are provided in Table 3, while Table 4 summarizes the protected species survey findings.



1"=600'



NOTES:
 FLUCFCS LINES ESTIMATED FROM
 1"=200' AERIAL PHOTOGRAPHS AND
 LOCATIONS APPROXIMATED.
 FLUCFCS PER FLORIDA LAND USE,
 COVER AND FORMS CLASSIFICATION
 SYSTEM (FLUCFCS) (FDOOT 1985).
 PROPERTY BOUNDARIES AND WETLAND
 LINES PER AGNOLI, BARBER AND
 BRUNDAGE, INC. DRAWING No.
 KPASSAINDL.DWG DATED 4/14/00.
 SFWMD WETLAND LINES SHOWN HAVE
 BEEN FIELD VERIFIED BY CRAIG
 SCHMITTLER ON MARCH 29, 2000
 AND ARE SURVEY LOCATED.

- LEGEND:
- A ACTIVE GOPHER TORTOISE BURROW
 - I INACTIVE GOPHER TORTOISE BURROW
 - SQUIRREL NEST
 - S BIG CYPRESS FOX SQUIRREL OBSERVATION
 - [] SFWMD WETLANDS (40.62 Ac.±)
 - [] SFWMD OTHER SURFACE WATERS (4.30 Ac.±)

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419	PINE FLATWOODS, DISTURBED	0.18 AC.±	0.1%
41S1	HYDRIC PINE FLATWOODS	6.01 AC.±	2.2%
41S9	PINE, DISTURBED	1.41 AC.±	0.5%
419	PLANTED PINES	32.25 AC.±	11.7%
424	MELALEUCA	0.16 AC.±	0.1%
4241	MELALEUCA, HYDRIC	0.39 AC.±	0.1%
514	DITCH	1.53 AC.±	0.6%
621	CYPRESS	7.23 AC.±	2.6%
6219	CYPRESS, DISTURBED	3.28 AC.±	1.2%
6249	PINE-CYPRESS, DISTURBED	17.75 AC.±	6.4%
6419	FRESHWATER MARSH, DISTURBED	0.70 AC.±	0.3%
643	WET PRAIRIE	3.27 AC.±	1.2%
740	DISTURBED LAND	0.52 AC.±	0.2%
742	BORROW AREA	2.77 AC.±	1.0%
743	SPOIL AREA	7.51 AC.±	2.7%
7461	CLEARED AREA, HYDRIC	1.05 AC.±	0.4%
		275.43 AC.±	100.0%

FIGURE 3. PROTECTED SPECIES MAP

Table 3. Lee County Protected Species Abundance Calculations

Protected Species Density:

$$= \{n/[L_1(W_1+W_2)]\} (43,560 \text{ ft}^2/\text{ac.}) (*C)$$

where n = number of individuals observed or active plus inactive GT burrows
L₁ = Length of transect (feet)
W₁ = Distance of visibility to the right of transect (feet)
W₂ = Distance of visibility to the left of transect (feet)
*C = Gopher tortoise conversation factor

*Only used for calculating gopher tortoise densities.

Big Cypress Fox Squirrel (*Sciurus niger avicennia*)

FLUCFCS Code 213

$$\begin{aligned} &= \{2/[65,000 \text{ ft. (25ft. + 25ft.)}]\} (43,560\text{ft}^2/\text{ac.}) \\ &= (6.15 \times 10^{-7}) (43,560) \\ &= 0.03 \text{ Big Cypress Fox Squirrels/acre} \end{aligned}$$

FLUCFCS Code 411

$$\begin{aligned} &= \{1/[53,700 \text{ ft. (27ft. + 27ft.)}]\} (43,560\text{ft}^2/\text{ac.}) \\ &= (3.44 \times 10^{-7}) (43,560) \\ &= 0.02 \text{ Big Cypress Fox Squirrels/acre} \end{aligned}$$

FLUCFCS Code 6249

$$\begin{aligned} &= \{1/[11,600 \text{ ft. (30ft. + 30ft.)}]\} (43,560\text{ft}^2/\text{ac.}) \\ &= (1.44 \times 10^{-6}) (43,560) \\ &= 0.06 \text{ Big Cypress Fox Squirrels/acre} \end{aligned}$$

FLUCFCS Code 743

$$\begin{aligned} &= \{1/[3,900 \text{ ft. (35 ft. + 35 ft.)}]\} (43,560\text{ft}^2/\text{ac.}) \\ &= (3.66 \times 10^{-6}) (43,560) \\ &= 0.16 \text{ Big Cypress Fox Squirrels/acre} \end{aligned}$$

Table 3 (Continued)

Gopher Tortoise (*Gopherus polyphemus*)

FLUCFCS Code 411

$$= \{4/[53,700 \text{ ft. } (27 \text{ ft. } + 27 \text{ ft.})]\} (43,560\text{ft}^2/\text{ac.}) (0.3)$$

$$= (1.38 \times 10^{-6}) (43,560) (0.3)$$

$$= (0.060/\text{ac.}) (0.3)$$

$$= 0.02 \text{ Gopher Tortoises/acre}$$

Table 4. Lee County Protected Species Survey Summary

Protected Species	FLUCFCS Code/Area	% Area Surveyed	Individuals Present	Individuals Absent	Density (Acre)
Reptiles					
American Alligator	514	87		X	
	621	93		X	
	6219	90		X	
	6419	86		X	
	742	93		X	
Eastern Indigo Snake	321	90		X	
	411	88		X	
	4119	86		X	
Gopher Frog	321	90		X	
	411	88		X	
	4119	86		X	
	740	90		X	
Gopher Tortoise	321	90		X	
	411	88	X		0.02
	4119	86		X	
	740	90		X	
	743	84		X	
Birds					
Audubon's Crested Caracara	32	90		X	
Florida Sandhill Crane	262	93		X	
	321	90		X	
	6419	86		X	
Limpkin	514	87		X	
	621	93		X	

Table 4 (Continued)

Protected Species	FLUCFCS Code/Area	% Area Surveyed	Individuals Present	Individuals Absent	Density (Acre)
Limpkin (Cont.)	6219	90		X	
	6419	86		X	
	643	89		X	
Little Blue Heron	262	93		X	
	514	87		X	
	621	93		X	
	6219	90		X	
	6249	90		X	
	6419	86		X	
	643	89		X	
Red-cockaded Woodpecker	7461	89		X	
	411	88		X	
	4119	86		X	
	4151	90		X	
	4159	90		X	
Reddish Egret	419	93		X	
	262	93		X	
Roseate Spoonbill	514	87		X	
	514	87		X	
Snail Kite	6419	86		X	
	643	89		X	
Snowy Egret	262	93		X	
	514	87		X	
	621	93		X	
	6219	90		X	
	6249	90		X	
	6419	86		X	
	643	89		X	
Southeastern American Kestrel	7461	89		X	
	321	90		X	
	411	88		X	
Tricolored Heron	4119	86		X	
	262	93		X	
	514	87		X	
	621	93		X	
	6219	90		X	
	6249	90		X	
	6419	86		X	
643	89		X		
7461	89		X		

Table 4 (Continued)

Protected Species	FLUCFCS Code/Area	% Area Surveyed	Individuals Present	Individuals Absent	Density (Acre)
Woodstork	621	93		X	
	6219	90		X	
Mammals					
Big Cypress Fox Squirrel	213	92	X		0.03
	411	88	X		0.02
	4119	86		X	
	4151	90		X	
	4159	90		X	
	419	93		X	
	424	92		X	
	4241	86		X	
	6249	90	X		0.06
	743	84	X		0.16
Everglades Mink	514	87		X	
	6419	86		X	
	643	89		X	
Florida Black Bear	321	90		X	
	411	88		X	
	4119	86		X	
	621	93		X	
	6219	90		X	
	6249	90		X	
Florida Panther	411	88		X	
	4119	86		X	
	621	93		X	
	6219	90		X	
	6249	90		X	
Plants					
Beautiful Pawpaw	321	90		X	
	411	88		X	
	4119	86		X	
Curtis Milkweed	321	90		X	
	740	90		X	
Fakahatchee Burmannia	321	90		X	
	411	88		X	
	4119	86		X	
Florida Coontie	321	90		X	
	411	88		X	
	4119	86		X	
Satinleaf	411	88		X	
	4119	86		X	

MANAGEMENT PLAN

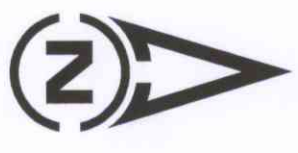
Following Lee County DES staff's review of this protected species survey, a management plan will be prepared to address conservation and/or management measures for the Lee County protected species observed within the project site.

REFERENCES

Florida Department of Transportation. 1985. Florida Land Use, Cover and Forms Classification System. Procedure No. 550-010-001-a. Second Edition.

APPENDIX A

**AERIAL PHOTOGRAPH WITH FLUCFCS MAPPING AND
SURVEY TRANSECTS**



SCALE: 1" = 200'



AERIAL DATE: 1999

FLUCFCS CODES	DESCRIPTIONS	ACREAGES	% OF TOTAL
110	RESIDENTIAL, LOW DENSITY	1.59 Ac.±	0.6%
213	WOODLAND PASTURE	81.50 Ac.±	30.7%
262	LOW PASTURE	4.60 Ac.±	1.7%
321	PALMETTO PRAIRIE	22.86 Ac.±	8.6%
411	PINE FLATWOODS	73.64 Ac.±	27.7%
4119	PINE FLATWOODS, DISTURBED	0.18 Ac.±	0.1%
4151	HYDRIC PINE FLATWOODS	6.01 Ac.±	2.3%
4159	PINE, DISTURBED	1.41 Ac.±	0.5%
419	PLANTED PINES	28.07 Ac.±	10.6%
424	MELALEUCA	0.16 Ac.±	0.1%
4241	MELALEUCA, HYDRIC	0.39 Ac.±	0.1%
514	DITCH	1.53 Ac.±	0.6%
621	CYPRESS	7.23 Ac.±	2.7%
6219	CYPRESS, DISTURBED	3.26 Ac.±	1.2%
6249	PINE-CYPRESS, DISTURBED	17.75 Ac.±	6.7%
6419	FRESHWATER MARSH, DISTURBED	0.70 Ac.±	0.3%
643	WET PRAIRIE	3.27 Ac.±	1.2%
742	BORROW AREA	2.77 Ac.±	1.0%
743	SPOIL AREA	7.51 Ac.±	2.8%
7461	CLEARED AREA, HYDRIC	1.05 Ac.±	0.4%
		265.48 Ac.±	100.0%

NOTES:
 FLUCFCS LINES ESTIMATED FROM 1"=200' AERIAL PHOTOGRAPHS AND LOCATIONS APPROXIMATED.
 FLUCFCS PER FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) (FDOT 1985).
 PROPERTY BOUNDARIES AND WETLAND LINES PER AGNOLI, BARBER AND BRUNDAGE, INC. DRAWING No. KPASSAJDL.DWG DATED 4/14/00.
 1999 AERIAL PHOTOGRAPHS FLOWN BY LEE COUNTY DOT.

REVISIONS	DATE	DESIGNED BY	DATE	HORIZONTAL SCALE
NEW BOUNDARY AND SURVEYED WETLAND LINES	4/18/00	K.C.P.	4/14/00	1"=200'
CORRECTED FLUCFCS LINE	4/19/00	CHECKED BY K.C.P.	DATE 4/14/00	VERTICAL SCALE N/A
		DRAWN BY S.L.O.	DATE 4/14/00	SEC./TWP./RNG.

PASSARELLA and ASSOCIATES, INC.
Consulting Ecologists
 4575 Via Royale Suite 201 Ft. Myers, FL 33919

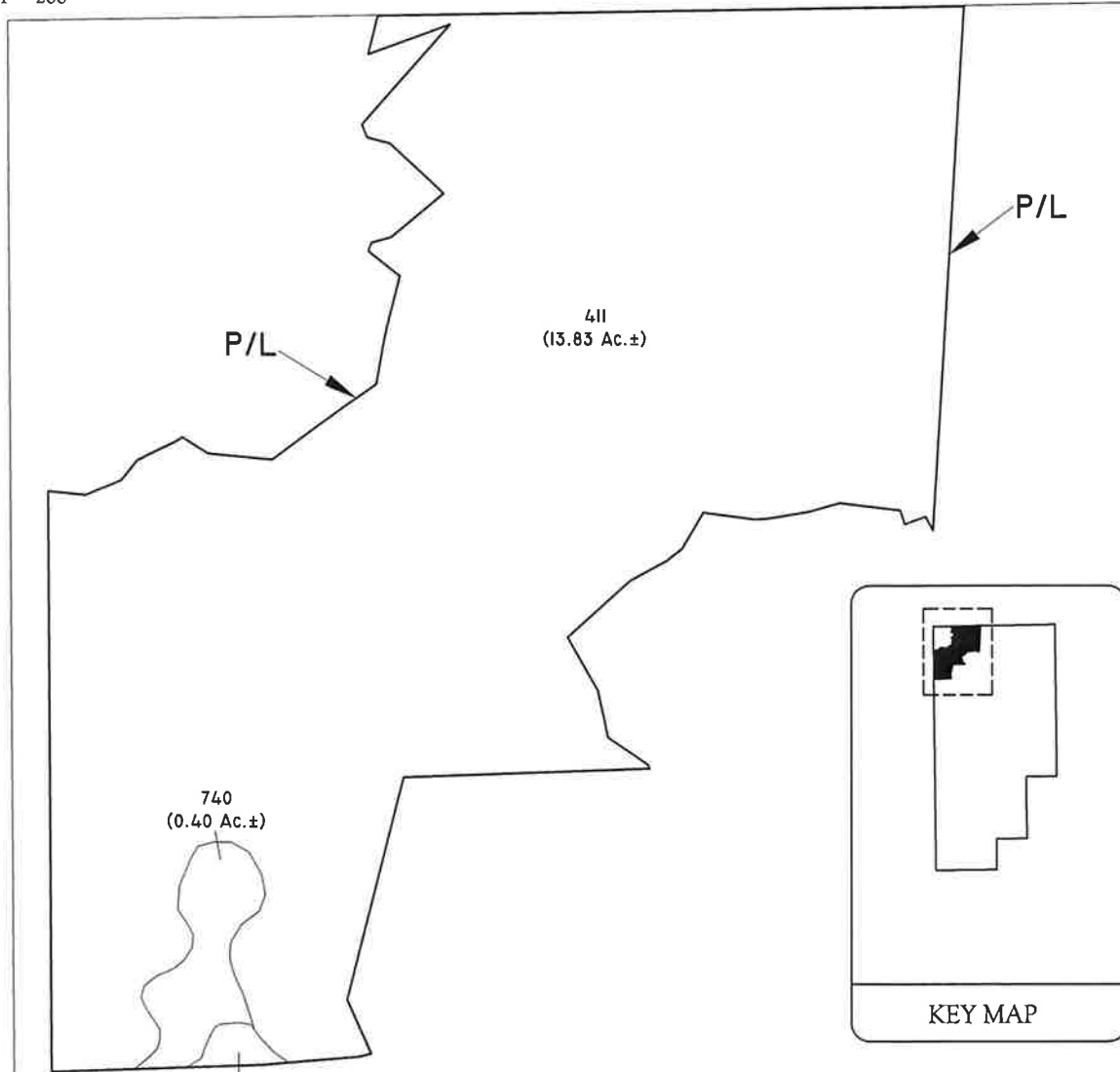
STANDERFER PROPERTY
 AERIAL PHOTOGRAPH WITH FLUCFCS OVERLAY

DRAWING No.:	98BBP300-3
SHEET No.:	3



-CORKSCREW ROAD-

SCALE: 1" = 200'



FLUCFCS CODES	DESCRIPTIONS	ACREAGES	% OF TOTAL
411	PINE FLATWOODS	13.83 Ac. ±	96.7%
740	DISTURBED LAND	0.40 Ac. ±	2.8%
742	BORROW AREA	0.07 Ac. ±	0.5%
		14.30 Ac. ±	100.0%

NOTES:

FLUCFCS LINES ESTIMATED FROM 1"=200' AERIAL PHOTOGRAPHS AND LOCATIONS APPROXIMATED.

FLUCFCS PER FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) (FDOT 1985).

PROPERTY BOUNDARY PER DELISI FITZGERALD, INC. DRAWING NO. OVERALL GC BOUNDARY.DWG DATED SEPTEMBER 29, 2009.

J:\1998\199809\2009\Comp Plan Amendment App\Exhibit 1 FLUCFCS AND WETLANDS MAP.DWG TAIL: 8/31/09 9:29 AM, 2009 - 3:17 PM PLOTTED BY: PAUL

EXHIBIT 1. FLUCFCS AND WETLANDS MAP
 OLD CORKSCREW GOLF CLUB
 RECEIVING AREA

DRAWN BY	H.H.	DATE	9/29/09
REVIEWED BY	J.E.	DATE	9/29/09
REVISED		DATE	



**OLD CORKSCREW GOLF CLUB
EXISTING LAND USE AND COVER SUMMARY TABLE
AND FLUCFCS DESCRIPTIONS AND POTENTIAL PROTECTED
SPECIES BY HABITAT TYPE**

September 29, 2009

The following table summarizes the FLUCFCS codes and provides an acreage breakdown of the habitat types found on the Old Corkscrew Golf Club property, while a description of each of the FLUCFCS classifications follows.

Table 1. Existing Land Use and Cover Summary

FLUCFCS Code	Description	Acreage	Percent of Total
411	Pine Flatwoods	13.83	96.70
740	Disturbed Land	0.40	0.03
742	Borrow Area	0.07	<0.01
Total		14.30	100.00

Pine Flatwoods (FLUCFCS Code 411)

This upland habitat type occupies 13.83± acres or 96.7 percent of the Receiving Area. The canopy is dominated by slash pine (*Pinus elliottii*). The sub-canopy includes slash pine, wax myrtle (*Myrica cerifera*), and staggerbush (*Lyonia fruticosa*). The ground cover consists of saw palmetto (*Serenoa repens*), pawpaw (*Asimina reticulata*), dwarf live oak (*Quercus minima*), and wiregrass (*Aristida stricta*).

Disturbed Land (FLUCFCS Code 740)

This upland habitat type occupies 0.40± acres or 0.03 percent of the Receiving Area. The canopy and sub-canopy consists of widely scattered slash pine. The ground cover includes big carpet grass (*Axonopus furcatus*), bahiagrass (*Paspalum notatum*), rustweed (*Polypremum procumbens*), queen's-delight (*Stillingia sylvatica*), frog fruit (*Phyla nodiflora*), dog fennel (*Eupatorium capillifolium*), pawpaw, blue paspalum (*Paspalum caepitosum*), rush (*Juncus marginatus*), flatsedge (*Cyperus surinamensis*), wiregrass, dwarf crabgrass (*Digitaria serotina*), and pineland heliotrope (*Heliotropium polyphyllum*).

Borrow Area (FLUCFCS Code 742)

This area occupies 0.07± acres or less than 0.01 percent of the Receiving Area. The canopy and sub-canopy are open. The ground cover is dominated by torpedograss (*Panicum repens*) and spikerush (*Eleocharis interstincta*).

The following table outlines the potential species by habitat type on the Old Corkscrew Golf Club property.

Table 2. Potential Protected Species by Habitat Type

FLUCFCS Code and Description		Potential Protected Species
411	Pine Flatwoods	Eastern Indigo Snake (<i>Drymarchon corais couperi</i>)
		Gopher Tortoise (<i>Gopherus polyphemus</i>)
		Gopher Frog (<i>Rana areolata</i>)
		Southeastern American Kestrel (<i>Falco sparverius paulus</i>)
		Bald Eagle (<i>Leucocephalus haliaetus</i>)
		Red-Cockaded Woodpecker (<i>Picoides borealis</i>)
		Florida Panther (<i>Puma concolor coryi</i>)
		Big Cypress Fox Squirrel (<i>Sciurus niger avicennia</i>)
		Florida Black Bear (<i>Ursus americanus floridanus</i>)
		Fakahatchee Burmannia (<i>Burmannia flava</i>)
		Satinleaf (<i>Chrysophyllum oliviforme</i>)
		Beautiful Pawpaw (<i>Deeringothamnus pulchellus</i>)
		Florida Coontie (<i>Zamia floridana</i>)
740	Disturbed Land	Gopher Tortoise (<i>Gopherus polyphemus</i>)
742	Borrow Area	American Alligator (<i>Alligator mississippiensis</i>)
		Roseate Spoonbill (<i>Ajaia ajaja</i>)
		Limpkin (<i>Aramus guarauna</i>)
		Little Blue Heron (<i>Egretta caerulea</i>)
		Reddish Egret (<i>Egretta rufescens</i>)
		Snowy Egret (<i>Egretta thula</i>)
		Tri-Colored Heron (<i>Egretta tricolor</i>)
		Snail Kite (<i>Rostrhamus sociabilis</i>)
		Everglades Mink (<i>Mustela vison evergladensis</i>)

OLD CORKSCREW GOLF CLUB GOPHER TORTOISE SURVEY SUMMARY REPORT

September 29, 2009

On September 28, 2009, Passarella & Associates, Inc. conducted an updated gopher tortoise (*Gopherus polyphemus*) survey on the 14.30± acre Receiving Area of the Old Corkscrew Golf Club (Project). The Project is located on Corkscrew Road, approximately 1.7 miles east of the Corkscrew Road and Alico Road intersection. The Project is located in Section 25, Township 46 South, Range 26 East, Lee County.

The 14.30± acre Receiving Area consists of Pine Flatwoods (FLUCFCS Code 411), Disturbed Land (FLUCFCS Code 740), and a Borrow Area (FLUCFCS Code 742). The northern portion of the pine flatwood area contains dense vegetation in the understory and may not be suitable gopher tortoise habitat.

The survey was conducted by a team of ecologists using meandering pedestrian transects (Figure 1). The transects were conducted in an east/west direction and were spaced at approximately 25 to 50 foot intervals for approximately 80 percent coverage. Gopher tortoise burrows, if found, were to be classified as potentially occupied (PO) or abandoned (AB) based on Florida Fish and Wildlife Conservation Commission (FWCC) recommended guidelines (FWCC 2009).

A protected species survey was previously conducted for the entire Old Corkscrew Golf Club property on July 27, 28, and 29, 1998 and September 8, 1999. During this previous survey, a total of two active and two inactive burrows were documented within the Receiving Area boundary. The results from the September 28, 2009 survey found no potentially occupied or abandoned gopher tortoise burrows within the Receiving Area. Four potentially occupied gopher tortoise burrows were identified approximately 80 feet south of the southern boundary of the Receiving Area. The gopher tortoise is listed as Threatened by the FWCC and is not listed by the U.S. Fish and Wildlife Service.

REFERENCE

Florida Fish and Wildlife Conservation Commission. 2009. Gopher Tortoise Permitting Guidelines.

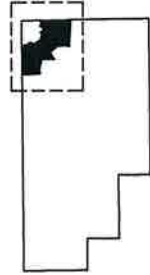


SCALE: 1" = 200'

~CORKSCREW ROAD~

P/L

P/L



KEY MAP

LEGEND:

— APPROXIMATE WALKED SURVEY TRANSECT

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH A FLIGHT DATE OF JANUARY 2008.

PROPERTY BOUNDARY PER DELISI FITZGERALD, INC. DRAWING No. OVERALL GC BOUNDARY.DWG DATED SEPTEMBER 29, 2009.

FIGURE 1. AERIAL WITH SURVEY TRANSECTS OLD CORKSCREW GOLF CLUB RECEIVING AREA

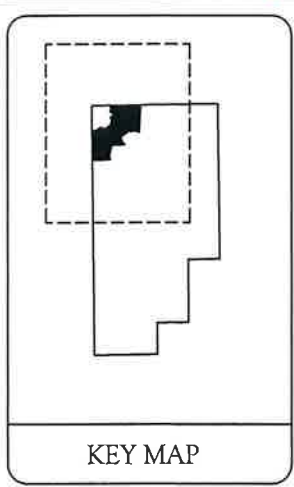
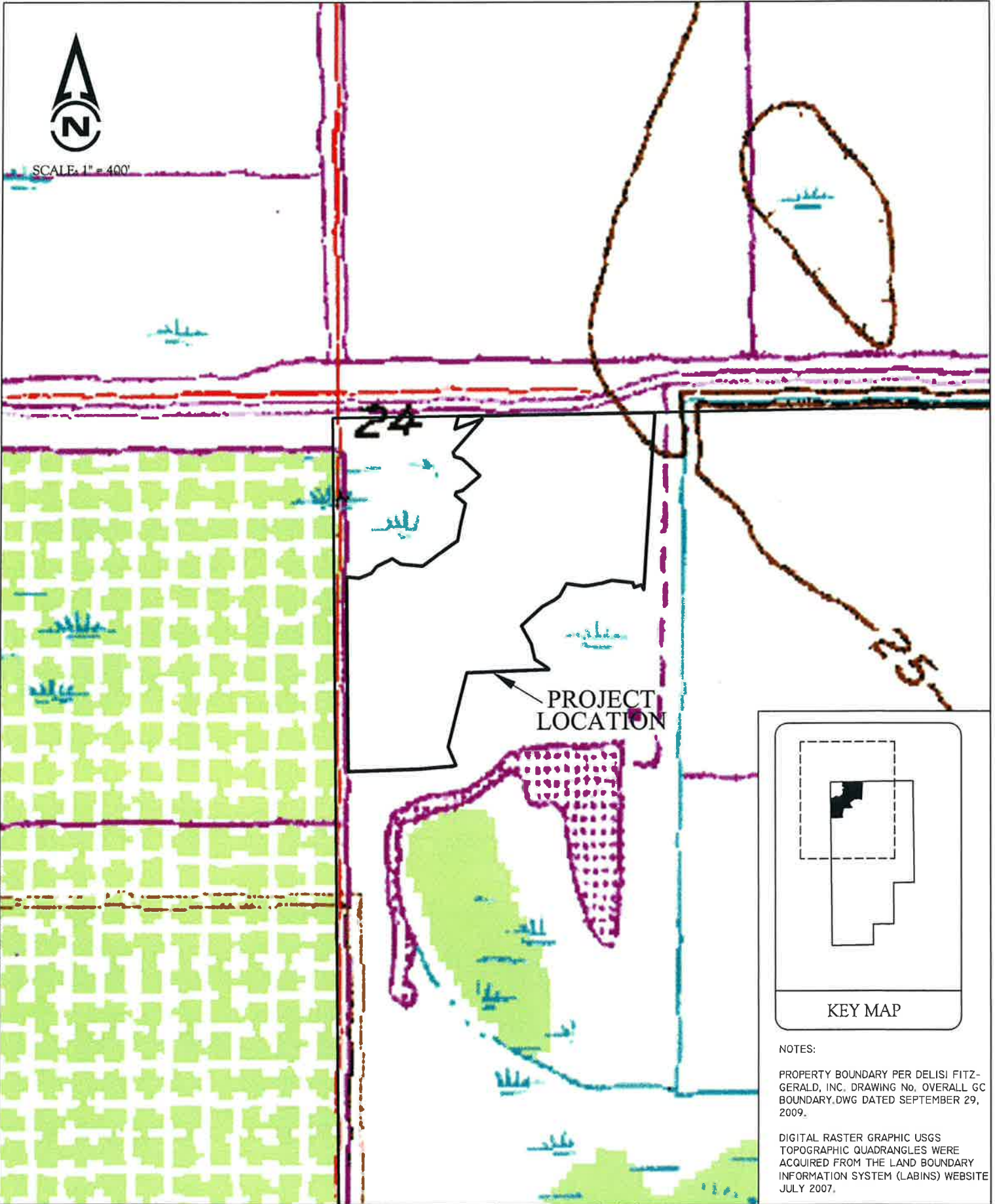
DRAWN BY	DATE
P.F.	9/29/09
REVIEWED BY	DATE
J.E.	9/29/09
REVISED	DATE



PASSARELLA
& ASSOCIATES ^{LLC}



SCALE: 1" = 400'



KEY MAP

NOTES:
PROPERTY BOUNDARY PER DELISI FITZGERALD, INC. DRAWING No. OVERALL GC BOUNDARY.DWG DATED SEPTEMBER 29, 2009.
DIGITAL RASTER GRAPHIC USGS TOPOGRAPHIC QUADRANGLES WERE ACQUIRED FROM THE LAND BOUNDARY INFORMATION SYSTEM (LABINS) WEBSITE JULY 2007.

EXHIBIT 3. QUAD MAP
OLD CORKSCREW GOLF CLUB
RECEIVING AREA

DRAWN BY	DATE
P.F.	9/29/09
REVIEWED BY	DATE
J.E.	9/29/09
REVISED	DATE

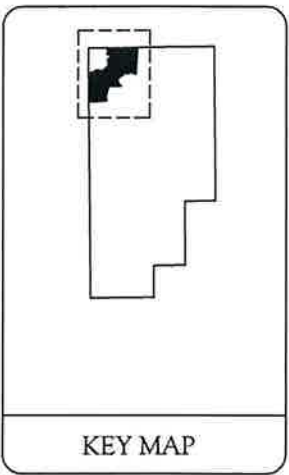


3:11098198mp300120091\Case Plan\Attachment_Ark\EXHIBIT 3 QUAD MAP.dwg Title: EXHIBIT 3 QUAD MAP.dwg Date: 9/29/09 2:26PM PLOTTED BY: PAULF



SCALE: 1" = 200'

~CORKSCREW ROAD~



KEY MAP

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH A FLIGHT DATE OF JANUARY 2008.

PROPERTY BOUNDARY PER DELISI FITZGERALD, INC. DRAWING No. OVERALL GC BOUNDARY.DWG DATED SEPTEMBER 29, 2009.

SOILS MAPPING WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE OCTOBER 2007 AND CREATED BY THE NATURAL RESOURCES CONSERVATION SERVICE 1990.

Soil Unit	Description
27	POMPANO FINE SAND, DEPRESSIONAL
28	IMMOKALEE SAND
33	OLDSMAR SAND
34	MALABAR FINE SAND

EXHIBIT 2. SOILS MAP
 OLD CORKSCREW GOLF CLUB
 RECEIVING AREA

DRAWN BY	DATE
P.F.	9/29/09
REVIEWED BY	DATE
J.E.	9/29/09
REVISED	DATE



J:\1928\1928p0012009\1\Comp Plan Attachment App\EXHIBIT 2 Soils Map.dwg, 2009 - 4:03pm, PLOTTED BY: RFL/PL