FLORIDA SOUTHEAST CONNECTION PROJECT

RESOURCE REPORT 3

Fish, Wildlife, and Vegetation

September 2014

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

RESOURCE REPORT 3—Fish, Wildlife, and Vegetation	
Filing Requirement	**Location in Environmental Report**
☒ Describe commercial and recreational warmwater, coldwater, and saltwater fisheries in the affected area and associated significant habitats (§380.12 (e) (1)).	Section 3.2 and Table 2.3-1 in Resource Report 2
☒ Describe terrestrial and wetland wildlife and habitats that might be affected by the Project; describe typical species that have commercial, recreational, or aesthetic value. (§ 380.12 (e) (2)).	Section 3.4 and Table 3.4-1
☒ Describe the major vegetative cover types that would be crossed and provide the acreage of each vegetative cover type that would be affected by construction. (§ 380.12 (e) (3)).	Section 3.3 and Table 3.3-1
☒ Describe the effects of construction, operation, maintenance, clearing, and treatment of the project area on aquatic and terrestrial species and their habitats. (§ 380.12 (e) (4)).	Section 3.4.2
☒ Evaluate the potential for short-term, long-term, and permanent impact on the wildlife resources and state-listed endangered or threatened species caused by construction and operation of the Project and proposed mitigation measures. (§ 380.12(e) (4)).	Sections 3.4.2, 3.4.4, and 3.5.4
☒ Identify all federally listed or proposed endangered or threatened species that potentially occur in the vicinity of the Project and discussion results of consultations with other agencies regarding those potential species. (§ 380.12 (e) (5)).	Section 3.5
☒ Identify all federally listed essential fish habitat (“EFH”) that potentially occur in the vicinity of the Project; identify the result of abbreviated consultations with the National Maritimes and Fisheries Service (“NMFS”); and identify any resulting EFH assessments (§§ 380.12(e)(4) & (7)).	N/A
☒ Describe any significant biological resources that would be affected. Describe any impacts and any associated mitigation proposed to avoid or minimize that impact (§§ 380.12(e)(4) & (7)).	Sections 3.2.3, 3.3.2, 3.4.3 and 3.5

FEDERAL ENERGY REGULATORY COMMISSION COMMENTS ON RESOURCE REPORT 3—Fish, Wildlife, and Vegetation	
Filing Requirement	**Location in Environmental Report**
☒ Include data sources, citations, or correspondence from agencies that no waters identified as significant fisheries habitat, included in special state fishery management regulations, having fish stocking programs, commercial fisheries, tribal harvest, or having important recreational value are present along the FSC Project route with the exception of the Kissimmee River.	Section 3.2.3
☒ Include in section 3.2.4.3 a discussion regarding the potential to transfer invasive aquatic species during equipment washing and hydrostatic test water appropriations and discharges, and the measures that would be implemented to minimize invasive aquatic species between waters.	Section 3.2.4.3
☒ Confirm that FSC would obtain seeding recommendations from local soil conservation authorities, landowners, and land management agencies.	Section 3.3.8
☒ Include a discussion of the potential for wildlife and/or livestock to be injured by construction activities (e.g., falling into an open trench). Also, include a description of how FSC would attempt to avoid or mitigate for these impacts (e.g., inspecting the trench prior to daily construction activities for wildlife or livestock, installing ramps in the trench at regular intervals, leaving gaps in the spoil piles and pipe stringing).	Section 3.4.2
☒ Identify and describe the measures that FSC would implement to identify and protect migratory birds. Include any proposed seasonal restrictions, breeding bird surveys, survey protocols, monitoring, or nest avoidance measures that would be implemented. In addition, include copies of any correspondence with the FWS regarding potential impacts on migratory birds.	Section 3.4.4; Appendix C (to be submitted upon submittal to FWS – expected October 2014)
☒ To allow Section 7 consultation to be completed in sufficient timeframe to meet the planned in-service date of the FSC Project:	
☒ Complete sensitive species surveys and file habitat or sensitive species survey reports as soon as possible.	To Be Completed

FEDERAL ENERGY REGULATORY COMMISSION COMMENTS ON RESOURCE REPORT 3—Fish, Wildlife, and Vegetation	
Filing Requirement	**Location in Environmental Report**
☒ For those species where presence is assumed within the FSC Project area, include measures, developed in consultation with the appropriate resource agencies, to avoid, minimize, or mitigate construction and operation impacts on those species.	Section 3.5
☒ Within 30 days of the issuance of the letter, provide additional details regarding the FSC sensitive species survey plans. Specifically:	Section 3.5.4; Appendix A
☒ Consult with the U.S. Fish and Wildlife Service (FWS) and Florida Fish and Wildlife Conservation Commission (FWC) to determine which species-specific surveys should be completed as soon as possible, and which species-specific surveys should be completed prior to initiating construction of the Florida Southeast Connection Project (FSC Project).	Appendix B
☒ Verify and determine the survey protocols that should be implemented for each sensitive species.	Appendices A and B
☒ Provide documentation of consultations with the FWS and the FWC to develop the survey plans.	Appendix B
☒ Include, in tabular form, proposed survey dates for each species and the locations where surveys would be completed for each species.	Appendix A

ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
BOs	Biological Opinions
Certificate	Certificates of Public Convenience and Necessity
CFR	Code of Federal Regulations
EFH	essential fish habitat
ESA	Endangered Species Act
EI	Environmental Inspector
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FERC	Federal Energy Regulatory Commission
FPL	Florida Power & Light Company
FLUCFCS	Florida Land Use, Cover and Forms Classification System
FNAI	Florida Natural Areas Inventory
FSC	Florida Southeast Connection, LLC
FWC	Florida Fish and Wildlife Conservation Commission
GPS	global positioning system
HDD	horizontal directional drill
MBTA	Migratory Bird Treaty Act
MMcf/d	million cubic feet per day
NMFS	National Marine Fisheries Service
Sabal Trail	Sabal Trail Transmission Pipeline Project
SFWMD	South Florida Water Management District
SPC Plan	Spill Prevention Control Plan
T&E	threatened or endangered
USACE	U.S Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

3.0 RESOURCE REPORT 3 – FISH, WILDLIFE, AND VEGETATION

3.1 INTRODUCTION

Florida Southeast Connection, LLC ("FSC"), a subsidiary of NextEra Energy, Inc., is seeking a Certificate of Public Convenience and Necessity ("Certificate") from the Federal Energy Regulatory Commission ("FERC") pursuant to Section 7(c) of the Natural Gas Act ("NGA") authorizing the construction and operation of an approximately 126.4 mile natural gas pipeline known as the Florida Southeast Connection Project ("FSC Project"). The FSC Project is designed to meet the increased demand for natural gas by the electric generation, distribution, and end use markets in Florida. The FSC Project will also provide additional natural gas supply diversity through a connection to the new Sabal Trail Transmission Pipeline Project ("Sabal Trail") via a new interconnection hub in central Florida ("Central Florida Hub"). The Sabal Trail Project is the subject of a separate, but related, certificate filing to the FERC.

The FSC Project will increase natural gas transportation capacity and availability to southern Florida by adding a new third pipeline in central and southern Florida. Upon the anticipated in-service date of May 2017, the FSC Project will be capable of providing a minimum of 640 million cubic feet per day ("MMcf/d") of natural gas to a delivery point at an existing gas yard at Florida Power & Light Company's ("FPL") Martin Clean Energy Center in Martin County, Florida.

The proposed FSC Project consists of the construction and operation of approximately 77.1 miles of 36-inch diameter pipeline (MP 0.0 to MP 77.1) and 49.3 miles of 30-inch diameter pipeline (MP 77.1 to MP 126.4) and the construction and operation of the Martin Meter Station. The FSC Project pipeline will start in Osceola County, Florida at the interconnection with Sabal Trail within the Central Florida Hub. The pipeline will traverse Polk, Osceola, Okeechobee, St. Lucie, and Martin Counties, and terminate at the Martin Meter Station. In addition, FSC will install a pig launcher and receiver on the 36-inch diameter segment and on the 30-inch diameter segment of the FSC Project. Resource Report 1 provides a complete summary of the FSC Project facilities (Table 1.2-1) and a location map of the FSC Project facilities (Figure 1.2-1).

This Resource Report 3 describes the fishery resources associated with the waterbodies crossed by the FSC Project (Section 3.2), the existing vegetation resources along the FSC Project route (Section 3.3), the wildlife habitat along the FSC Project route (Section 3.4), and the federally and state-protected wildlife species that are known to occur or may potentially occur along the FSC Project route (Section 3.5). The following sections identify existing resources, FSC Project impacts on those resources, and measures to avoid, minimize or mitigate impacts. A checklist showing the status of the FERC filing requirements for this Resource Report is included in the table of contents.

3.2 FISHERY RESOURCES

Fishery resources are surface water areas that provide habitat for fish and are typically characterized according to water temperature (warmwater or coldwater), salinity (freshwater, marine, or estuarine), types of fishing uses (commercial or recreational), and utilization by open water marine fishes that require freshwater upstream areas to spawn (anadromous species) or freshwater species that migrate to marine waters for reproduction (catadromous species). Significant fisheries resources are defined by the FERC as waterbodies that either (1) provide important habitat for foraging, rearing, or spawning of fish species; (2) represent important commercial or recreational fishing areas; or (3) support large populations of commercially or recreationally valuable fish species or species listed for protection at the federal, state, or local level.

3.2.1 Fisheries Habitat Classification

All fisheries within the FSC Project study region are classified as warmwater fisheries, which are defined as capable of supporting fish able to tolerate water temperatures above 80 degrees Fahrenheit (°F). Warmwater fish include such species as crappies, largemouth bass, sunfish, and catfish. Table 2.3-1 in Resource Report 2 lists the waterbodies crossed by the FSC Project along with their fisheries habitat classifications.

3.2.2 Existing Fishery Resources

None of the waterbodies affected by the FSC Project contain or have the potential to contain species managed by the National Marine Fisheries Service ("NMFS"), nor do they support essential fish habitat ("EFH") as defined under the Magnuson-Stevens Fishery Conservation and Management Act (Public Law 94-265 as amended through January 12, 2007). As the FSC Project occurs well inland of saltwater or tidal waters, there are no saltwater marine or estuarine fisheries habitats, and no anadromous or diadromous fish runs that occur within waterbodies along the FSC Project route. Also there are no known state or federally-listed threatened or endangered ("T&E"), or candidate species fish that occur within waterbodies along the FSC Project route. Fish known to occur within waterbodies along the FSC Project route are summarized in Table 3.2-1.

3.2.3 Fisheries of Special Concern

Waterbodies with fisheries of special concern include those that have fisheries with important recreational value, support coldwater fisheries, are included in special state fishery management regulations, or provide habitat for federally or state-listed T&E, or candidate species. Waterbodies that have significant economic value because of fish stocking programs, commercial fisheries, EFH, or tribal harvest, are also considered fisheries of special concern.

As previously discussed, no listed T&E fish species (federal or state), EFH, or coldwater fisheries are known to occur within any of the waters crossed by the FSC Project. No waters identified as significant fisheries habitat, included in special state fishery management regulations, having fish stocking programs, commercial fisheries, tribal harvest, or having important recreational value are present along the FSC Project route with the exception of Lake Kissimmee (NMFS, 2014; FWC, 2013; FWC 2014; USFWS, 2013; FGDC, 2013; FGDC, 2010; Florida Senate, 2012). The Project will not impact Lake Kissimmee as the crossing of this lake will be accomplished with the use of horizontal direction drilling ("HDD").

3.2.4 Fisheries Impacts and Mitigation

This section describes potential impacts and measures that will be implemented to minimize impacts on fisheries resources along the FSC Project route. The FSC Project crosses no marine or estuarine environments, so fisheries and recreation associated with those habitats will not be affected. The FSC Project will be constructed across some freshwater habitats or near lakes (e.g., areas not designated as fisheries of special concern), but fishing or recreational activities near these resources will experience only minor and temporary nuisances due to the presence of construction equipment and workers.

Short-term impacts on fisheries associated with pipeline construction activities may be caused by temporary increases in sedimentation and turbidity, temperature changes due to removal of vegetation cover over streams, introduction of water pollutants, or entrainment of fish. However, no long-term effects on water temperature, dissolved oxygen, pH, benthic invertebrates, or fish communities are expected to occur due to the construction or operation of the FSC Project facilities. FSC will use both its Plan and Procedures to avoid increasing sedimentation of downstream habitats and to minimize impacts on fishery resources.

Construction impacts on fishery resources may include direct contact by construction equipment with food resources in the form of relatively immobile prey, increased sedimentation and water turbidity immediately downstream of the construction work area, alteration or removal of aquatic habitat cover and vegetation on adjacent banks, and introduction of contaminants. FSC will implement its Plan and Procedures to minimize potential impacts associated with loss of riparian shade and vegetation cover. Clearing of trees and other vegetation will be restricted to only what is necessary to safely construct and operate the FSC Project. Once construction is complete, streambeds and banks will be restored to preconstruction conditions to the fullest extent practicable. Restoration, bank stabilization, and revegetation efforts, which are defined in the FSC Plan and Procedures, will minimize the potential for erosion from the surrounding landscape. Adherence to the FSC Plan and Procedures will also maximize the potential for re-growth of riparian vegetation, thereby minimizing the potential for any long-term impacts associated with lack of shade and cover.

3.2.4.1 Waterbody Construction Methods

Construction across waterbodies will be conducted in accordance with all of the measures set forth in the FSC Procedures. Smaller water bodies will be crossed by dry crossing, fluming, or dam-and-pump, with the final determination made at the time of the crossing depending on the existing flow in the water body. Agricultural ditches will be crossed by dry-crossing methods. Lake Kissimmee will be crossed by HDD to avoid fisheries impacts and navigational issues.

To minimize potential impacts, waterbodies, streams, and rivers will be crossed as quickly and as safely as possible. Adherence to FSC's Procedures will ensure stream flow will be maintained throughout construction. Most stream crossings will be completed using conventional trackhoe-type equipment and dry-crossing techniques.

3.2.4.2 Vegetation Clearing

Removal of trees and other streamside vegetation from the edges of waterbodies at the crossing may reduce shading of the waterbody, diminish escape cover, and can result in locally elevated water temperatures. Elevated water temperatures can, in turn, lead to reductions in levels of dissolved oxygen. This can negatively influence habitat quality and reduce availability of habitat for certain fish species. Impacts resulting from tree clearing will be minimized due to the use of existing cleared rights-of-way and previously developed corridors for the majority of the FSC Project route. In general, impacts to forested vegetation have been minimized to the extent practicable.

To further minimize potential impacts associated with loss of riparian shade and vegetation cover, clearing of trees and other vegetation will be restricted to only what is necessary to safely construct and operate the pipeline. Once construction is complete, streambeds and banks will be restored to preconstruction conditions to the fullest extent practicable. Restoration, bank stabilization, and revegetation efforts, which are defined in the FSC Plan and Procedures, will minimize the potential for erosion from the surrounding landscape. Adherence to the FSC Plan and Procedures will also maximize the potential for re-growth of riparian vegetation, thereby minimizing the potential for long-term impacts associated with lack of shade and cover.

Implementation of the FSC Plan and Procedures during construction will minimize the short-term impacts on fishery resources, and the aquatic habitats upon which these fishery resources depend. After construction, invertebrate populations will recolonize the crossing area and all temporary workspaces will revert to their original condition, including re-establishment of any riparian cover. Furthermore, operation and routine maintenance of the pipeline rights-of-way and aboveground facilities, which will be restricted to clearing and mowing vegetation on the

permanent rights-of-way, are not expected to have any noticeable impact on fishery resources along the FSC Project route.

3.2.4.3 Hydrostatic Test Water

Once installation and backfilling are completed, and before the proposed FSC Project begins operation, the pipeline will be hydrostatically pressure-tested in accordance with U.S. Department of Transportation minimum federal safety standards (49 CFR Part 192 Transportation of Natural and other Gas by Pipeline) to verify its integrity and ensure its ability to withstand the maximum allowable operating pressure.

Prior to construction, FSC will obtain applicable water withdrawal and discharge permits required, as well as consult with applicable regulatory agencies to determine general and site-specific requirements to avoid transporting aquatic invasive species. The test water will be released adjacent to the construction right-of-way through an energy-dissipating device such as a splash plate and a straw bale structure and in accordance with any other requirements specified by the applicable agencies in the permit conditions. The rate of discharge flow will be controlled to prevent erosion. Hydrostatic test waters will be discharged in level, upland areas at sufficient distances from surface waters to prevent the overland transport of any aquatic invasive species into a water feature. Therefore, no treatment of hydrostatic test water for aquatic invasive species is required.

At the request of the applicable Water Management Districts, the hydrostatic test water may be returned to the source. Hydrostatic test water will be returned to the same watershed(s) from which they were collected, where possible. If local sources of water are used, withdrawal intake hoses will be fitted with intake screen devices to prevent the entrainment of fingerlings and small fish during water withdrawal. Discharges will comply with regulatory permit conditions and will be controlled to prevent scour and sedimentation, flooding, or the introduction of foreign or toxic substances into the aquatic system. Sampling of discharge water will be conducted in accordance with the FSC Procedures to document water quality at the time of discharge.

Additional protective measures that will be implemented during hydrostatic testing operations include:

- During the filling of the pipeline, the water intake at the location where water is being taken will be screened with 0.1-inch mesh screen (or as recommended by state agencies) to prevent entrainment of invasive vegetation.
- The intake rate/volume will be low enough to prevent impingement of aquatic species or debris on the screen.
- The intake hose and screen will be kept off the bottom of the waterbody to prevent uptake of sediment.
- No equipment will enter the waterbody, except the pump withdrawal apparatus, which will be cleaned and dried before being used at each waterbody.

Due to mitigation and regulatory requirements, hydrostatic test water withdrawals and discharges will not result in a significant entrainment of fish, loss of habitat, or an adverse effect to water quality. Hydrostatic test water will be obtained and discharged in accordance with applicable permit conditions.

3.2.4.4 Spill Prevention Control

Accidental spills of construction-related fluids (*e.g.,* oil, gasoline, or hydraulic fluids) on the landscape or directly into waterbodies could result in water quality impacts affecting fish and

other organisms. Impacts to fisheries would depend on the type and quantity of the spill, and the dispersal and attenuation characteristics of the waterbody. Minimization and mitigation procedures related to water quality are discussed in detail in FSC's Spill Prevention Control Plan ("SPC Plan"). The implementation of the SPC Plan will minimize the potential for adverse effects on fish species from the accidental or unintended release of contaminants.

To minimize spill risk, refueling or other handling of hazardous materials will not occur within 100 feet of wetland and waterbody resources. If the 100-foot setback cannot be met, these activities will be performed under the supervision of an Environmental Inspector.

3.3 VEGETATION

This section describes the vegetation resources that could be affected by the construction and operation of the proposed FSC Project. Included are descriptions of the various plant communities found in the Project area, descriptions of any unique or protected vegetation, and the methods FSC will employ to minimize impacts on these vegetation resources.

3.3.1 Ecoregions

Ecoregions are areas with generally similar ecosystems and with similar types, qualities, and quantities of environmental resources (National Atlas of the United States, 2013). Ecoregion boundaries are determined by examining patterns of vegetation, animal life, geology, soils, water quality, climate, and human land use, as well as other living and non-living ecosystem components (National Atlas of the United States, 2013). The proposed FSC Project traverses two ecoregions: the Central Florida Ridges and Uplands and the Eastern Florida Flatwoods. The following descriptions of these ecoregions are derived from the Florida Regionalization Project (Griffith et al., 1994).

The Central Florida Ridges and Uplands consists of the area from the Lake Wales Ridge/Intraridge Valley in the south, through the highland dune area of the Ocala National Forest, and into the Trail Ride area in the north. The sand hill karst area characterized by xeric hills and solution basins is the principle recharge area of the Floridan aquifer. The soils tend to be thick, acidic, sandy, and excessively to moderately drained. The natural vegetation consists of forests of longleaf pine, turkey oak, and wiregrass. The current land uses include citrus groves, herbaceous rangeland, cropland and pasture, and urban/built-up land.

The Eastern Florida Flatwoods is ribbed by sand ridges and some intervening swampy lowlands. Sand, silt, and clay soils are mostly of poor drainage, but it is a diverse area of coastal strips, valleys, ridges, and plains. The current land uses include cropland and pasture, pine plantations, non-forested wetlands, and urban/suburban.

3.3.2 Existing Vegetation

Plant community types along the FSC Project route were determined based on a review of aerial photography, existing land use classifications, and field surveys. Descriptions of existing typical vegetative cover types along the FSC Project route are based on the natural community classification systems described in the Florida Land Use, Cover and Forms Classification System ("FLUCFCS") (FDOT, 1999).

FSC consulted with the U.S. Fish and Wildlife Service ("USFWS") and the FWCC to identify rare, sensitive, or unique natural communities and/or plant species along the FSC Project route. Field surveys for identified natural communities and/or species were conducted by qualified scientists between July 22, 2013 and January 24, 2014, and March 31 and April 1, 2014 (ECT, 2014; Cardno Entrix, 2014). The USFWS, Vero Beach office, reviewed and concurred with FSC's list of federally listed plant species that could potentially occur along the Project. A table

identifying agency correspondence and contacts is located in Appendix 1F of Resource Report 1.

Developed or managed land uses/land covers mapped along the FSC Project route consist of residential, commercial and services, industrial, mining, institutional, recreational, open land, agricultural, disturbed land, transportation, communication, and utilities. According to the FLUCFCS, these categories include low-density residential, medium-density residential, commercial and services, industrial, extractive, institutional, recreational, open land, cropland and pastureland, tree crops, nurseries and vineyards, specialty farms, other open lands, sands and other lands, disturbed land, transportation, communication, utilities, and solid waste disposal.

The vegetation cover classes present include 300, 400, and 600 FLUCFCS series classifications. Included in the 300 series are herbaceous/dry prairie, palmetto prairies, other shrub and brush, and mixed rangeland.

The 400 series includes pine flatwoods, sand pine, longleaf pine-xeric oak, sand pine, pine-mesic oak, mixed pine, xeric oak, Brazilian pepper, temperate hardwoods, tropical hardwoods, live oak, cabbage palm, sand live oak, hardwood-conifer mixed, upland scrub/pine/hardwoods, Australian pine, and coniferous plantations. The wetland (600) series consists of bay swamp, gum swamp, stream and lake, swamp/bottomland, mixed wetland hardwoods, willow and elderberry, exotic wetland hardwoods, cypress, cypress/pine/cabbage palm, wet pinelands/hydric pine, wetland forested mixed, shrub wetland, freshwater marshes, wet prairies, shoreline, and intermittent ponds.

Upland nonforested communities are the dominant community, followed by nonforested wetland communities, upland forests, forested wetland communities, and open waters. See Table 3.3-1 for calculations of vegetation community impacts along the FSC Project route. The following paragraphs provide a description by ecosystem type of each vegetation type along the FSC Project route (i.e., upland, wetland, or aquatic).

3.3.3 Open Land

Open land includes utility rights-of-way, open fields, pasture, vacant land, herbaceous and scrub-shrub uplands, non-forested lands, emergent wetland, scrub-shrub wetland, golf courses, and municipal land.

3.3.3.1 Upland Open Land

Five types of naturally vegetated upland nonforested communities occur along the FSC Project route. They include herbaceous dry prairie, palmetto prairie, pastureland, shrubs and brushland, and mixed rangeland. The dominant community is herbaceous dry prairie, which is located primarily along roadsides and within transmission line corridors. This plant association is dominated by a variety of herbs and may include scattered clumps of shrubs. Typical herbs include broomsedges (*Andropogon spp*.), bluestems (*Schizachyrium spp*.), Bahia grass (*Paspalum notatum*), wiregrass (*Aristida stricta*), crabgrasses (*Digitaria spp*.), love grasses (*Eragrostis spp*.), dogfennel (*Eupatorium capillifolium*), sweet broom (*Cytisus spachianus*), slender goldenrod (*Solidago erecta)*, smutgrass (*Sporobolus indicus*), finger grass (*Eustachys petraea*), buttonweeds (*Spermacoce spp*.), paspalums (*Paspalum sp*., especially *Paspalum setaceum*), witchgrasses (*Dichanthelium spp*.), and blackberries (*Rubus spp*.). Shrubs are often present but not dominant. They include Brazilian pepper (*Schinus terebinthifolius*), saw palmetto (*Serenoa repens*), wax myrtle (*Myrica cerifa*), and groundsel tree (*Baccharis halimifolia*).

Palmetto prairie is dominated primarily by saw palmetto with wax myrtle, gallberry (*Ilex glabra*), muscadine grape (*Vitis rotundifolia*), fetterbush (*Lyonia lucida*), shiny blueberry (*Vaccinium*

myrsinites), coastal plain staggerbush (*Lyonia fruticosa*), winged sumac (*Rhus copallinum*), tar flower (*Bejaria racemosa*), and four-petal St. John's wort (*Hypericum tetrapetalum*). Wiregrass and broomsedge are the most common ground-layer species. Other ground-layer components include narrowleaf silkgrass (*Pityopsis graminifolia*) and chaffheads (*Carphephorus paniculatus*, *C. corymbosus*). Widely scattered trees include slash pine (*Pinus elliottii*), longleaf pine (*Pinus palustris*), live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), and water oak (*Quercus nigra*).

Open Land includes pastureland typically associated with cattle grazing on open fields of pasture grasses. These improved and unimproved pastures have a dominant cover of pasture grasses such as Bahia grass, limpograss (*Hemarthria altissima*), Bermuda grass (*Cynodon dactylon*), smutgrass, pangola grass (*Digitaria eriantha*), and carpetgrass (*Axonopus spp*.), among others. Depending on the degree of improvement, old field species such as dog fennel, sweet broom, common ragweed (*Ambrosia artemisiifolia*), slender goldenrod, slender flattop goldenrod (*Euthamia caroliniensis*), spadeleaf (*Centella asiatica*), tropical soda apple (*Solanum viarum*), cogongrass (*Imperata cylindrica*), pokeweed (*Phytolacca americana*), manyflower marshpennywort (*Hydrocotyle umbellata*), blackberry, and other weedy herbaceous species, as well as occasional shrubs of saw palmetto, wax myrtle, Brazilian pepper, or netted pawpaw (*Asimina reticulata*) often inhabit these communities.

Other shrubs and brushland and mixed rangeland are also present along the FSC Project route. There are a combination of herbaceous and shrub species mentioned previously, as well as a few scattered trees.

A total of 944.23 acres of upland open land will be affected for construction of the FSC Project and 370.62 acres will be affected for operation of the FSC Project, as shown in Table 3.3-1.

3.3.3.2 Herbaceous and Scrub-Shrub Wetlands

Nonforested wetlands are primarily comprised of freshwater marshes, with shrub wetland and wet prairie accounting for only a small fraction along the FSC Project route. There are two types of marshes within the FSC Project area: those that are natural and those associated with linear roadside and agricultural conveyances.

The vegetation cover of the natural marshes varies considerably. Undisturbed natural marshes tend to have a plant cover consisting of a mixture of plants where no single species is dominant. Common species noted in the natural marshes include little carpetgrass (*Axonopus fissifolius*), narrowfruited horned beakrush (*Rhynchospora inudata*), spadeleaf, southern cutgrass (*Leersia hexandra*), maidencane (*Panicum hemitomon*), lemon bacopa (*Bacopa caroliniana*), dotted smartweed (*Polygonum punctatum*), bluejoint panicum (*Panicum tenerum*), road-grass (*Eleocharis baldwinii*), Virginia chain fern (*Woodwardia virginica*), and others. Natural marshes disturbed by human activity or cattle grazing tend to have few species and are dominated by weedy native and exotic species, including torpedo grass (*Panicum repens*), Cuban bulrush (*Oxycaryum cubense*), and limpograss.

Roadside and agricultural conveyances generally support a large number of species, but only a few species are dominant, including torpedo grass, paragrass (*Urochloa mutica*), Mexican seedbox (*Ludwigia octovalvis*), and bulltongue arrowhead (*Sagittaria lancifolia*). Soft rush (*Juncus effuses*) is a dominant only in the agricultural (pasture) conveyances. Many of the conveyences, especially the roadside conveyances, have scattered to locally dense shrubs, including Peruvian primrose-willow (*Ludwigia peruviana*) and Carolina willow (*Salix carolininana*).

Shrub wetlands are comprised of similar species as the marsh but also have a dominant shrub component of either buttonbush (*Cephalanthus occidentalis*) or coastal plain willow (*Salix caroliniana*).

Wet prairies are also comprised of similar vegetation species but tend to be shallower and have a shorter hydroperiod.

As shown in Table 3.3-1, a total of 132.85 acres of herbaceous wetlands will be temporarily affected for construction of the FSC Project and no herbaceous wetlands will be affected for operation of the FSC Project, as these wetlands will revert to their pre-construction state. Also shown in Table 3.3-1, a total of 19.22 acres of scrub-shrub wetlands will be temporarily affected for construction of the FSC Project and 2.48 acres will be affected for operation of the FSC Project, as shown in Table 3.3-1.

3.3.4 Agricultural

Within the agricultural land use types, active or abandoned citrus tree groves is the most prevalent followed by field crops, row crops, and various specialty farms.

A total of 292.02 acres of agricultural land will be temporarily affected for construction of the FSC Project and 121.07 acres of agricultural land will be affected for operation of the FSC Project, as shown in Table 3.3-1.

3.3.5 Forest and Woodlands

3.3.5.1 Pine Plantation

There are approximately six and one half million acres of pure natural and planted longleaf and slash pine stands in Florida (FDOT, 1999). These are almost exclusively artificially generated by planting seedling stock or seeds (FDOT, 1999). These stands are characterized by high numbers of trees per acre and their uniform appearance (FDOT, 1999).

A total of 1.40 acres of pine plantation will be affected for construction of the FSC Project and 0.49 acres of pine plantation will be affected for operation of the FSC project, as shown in Table 3.3-1.

3.3.5.2 Upland Forest

A variety of forested upland vegetation communities are present along the FSC Project route. The dominant type is mixed hardwood-conifer mixed, followed by xeric oak and then pine flatwoods.

Mixed hardwood-conifer is dominated by a canopy consisting of a mixture of live oak, laurel oak, water oak, slash pine, and occasionally longleaf pine, cabbage palm (*Sabal palmetto*), sweetgum (*Liquidambar styraciflora*), common persimmon (*Diospyros virginiana*), and red maple (*Acer rubrum*). Usually the understory in this type of plant community, if it has not been cleared, is saw palmetto with scattered gallberry. Shrubs typically consist of saw palmetto, wax myrtle, groundsel tree, and/or American beautyberry (*Callicarpa americana*).

Xeric oak is prevalent in the northern portion of the FSC Project route. Dominant species include sand live oak (*Quercus geminata*), bluejack oak (*Quercus incana*), turkey oak (*Quercus laevis*), sand post oak (*Quercus margaretta*), live oak, and scattered longleaf or sand pine (*Pinus clausa*).

Pine flatwoods along the FSC Project route are dominated by scattered to locally dense slash pine, longleaf pine, or a combination of both. The understory is dominated by saw palmetto with scattered fetterbush, tarflower, wax myrtle, gallberry, American beautyberry, live oak, and sand live oak. Herbs are restricted to openings in the shrub cover and can include a large number of

species such as wiregrass, roadgrass, broomsedges, pale meadowbeauty (*Rhexia mariana*), hemlock witchgrass (*Dichanthelium portoricensis*), pinebarren (*Solidago fistulosa*), and Carolina elephantsfoot (*Elephantopus carolinianus*).

A total of 236.60 acres of upland forest will be affected for construction of the FSC Project and 83.28 acres of upland forest will be affected for operation of the FSC Project, as shown in Table 3.3-1.

3.3.5.3 Wetland Forest

A variety of wetland forest communities are observed along the FSC Project route: bay swamp, gum swamp, stream and lake swamp (bottomland), mixed wetland hardwood, willow and elderberry, exotic hardwoods, cypress, cypress-pine-cabbage palm, hydric pine flatwoods, and mixed wetland forest. Mixed wetland hardwoods community is the most dominant type followed by wetland forested mixed. The remaining forested vegetation community types comprise a small percentage of the FSC Project route.

Mixed wetland hardwoods are dominated by laurel oak, often with water oak and live oak around the outer edges. Some of the mixed wetland hardwood areas have scattered saw palmetto, small sweetbay (*Magnolia virginiana*), red maple, and dahoon holly (*Ilex cassine*) in the understory. Other hardwoods areas are virtually devoid of shrubs and herbs, especially those areas where cattle were present. Cinnamon fern (*Osmunda cinnamomea*) is the only notable herb noted in most of the mixed wetland hardwood areas.

Wetland forested mixed community is dominated by a canopy composed of hardwoods and conifers including sweetbay, laurel oak, loblolly bay (*Gordonia lasianthus*), bald cypress (*Taxodium distichum*), pond cypress (*Taxodium asendens*), slash pine, and swamp tupelo (*Nyssa sylvatica* var*. biflora*) with an understory of wax myrtle and root sprouts of sweetbay. The herbaceous layer is mostly ferns, including toothed midsorus fern (*Blechnum serrulatum*), Virginia chain fern, and royal fern (*Osmunda regalis*).

A total of 104.02 acres of wetland forest will be temporarily affected for construction of the FSC Project while 34.47 acres of wetland forest will be permanently affected for operation of the FSC Project, as shown in Table 3.3-1.

3.3.6 Industrial, Commercial, and Residential Uses

Industrial, commercial, and residential land uses are defined in Resource Report 8, which does not include "open water" land use (i.e. water crossings greater than 100 feet wide and streams visible on aerial photography but less than 100 feet in width). Identified as “Other” in Table 3.3-1, a total of 166.26 acres of industrial, commercial, and residential land will be affected for construction of the FSC Project and 33.43 acres of industrial, commercial, and residential land will be affected for operation of the FSC Project.

3.3.7 Non-Native/Invasive Species

The USFWS defines invasive species as organisms that are “not native to an ecosystem and which causes, or is likely to cause, economic or environmental harm or harm to human health” (USFWS, 2012). Most commonly they are exotic species that have been introduced from another part of the United States, another region, or another continent, although native species that exhibit rapid growth and spread are sometimes considered invasive. Invasive plant species can change or degrade natural vegetation communities, which can reduce the quality of habitat for wildlife and native plant species. Based on the Florida Exotic Pest Plant Council Invasive Plant List, non-native/invasive plant species potentially occurring along the FSC Project route are listed in Table 3.3-2.

Subsequent to ground disturbance from construction, vegetation communities may be susceptible to infestations of exotic and invasive vegetative species. These species are usually most prevalent in areas of prior surface disturbance such as agricultural areas, roadsides, existing utility rights-of-way, and wildlife concentration areas. Despite efforts to prevent the spread of exotic and invasive vegetation, it is possible that pipeline construction, operation, and maintenance activities will increase the prevalence of such vegetation along the pipeline route right-of-way, or that exotic and invasive vegetation will be transported into areas that were relatively free of such vegetation prior to construction. Seed recommendation and control measures for nuisance species provided by the Natural Resources Conservation Service will be taken under consideration dependent on site specific conditions, seasonality, and land owner requests. When conducting restoration efforts only native or local seed sources based upon agency recommendations will be used.

3.3.8 Vegetation Impacts and Mitigation

This section summarizes the FSC Project construction and operation impacts on the vegetative cover types. The clearing for the project will consist of an approximately 100-foot wide area within the construction right-of-way except in wetlands where clearing is reduced to 75 feet. Once the pipeline is installed, a 50-foot wide permanent right-of-way will remain.

Construction of the FSC pipeline will include temporary and permanent impacts on the vegetation cover types previously described. A significant portion of the approximate 126 miles of the proposed pipeline facilities will be within or adjacent to existing rights-of-way and existing linear features. This includes public roadways, railways, and/or other utility rights-of-way. Construction of the pipeline facilities within or adjacent to existing rights-of-way will limit impacts on vegetation by reducing land use change, and tree clearing and stump removal activities.

The pipeline right-of-way and temporary workspaces in non-paved areas will be cleared of vegetation prior to construction to provide a safe working area. The limits of clearing will be identified and flagged in the field prior to the start of clearing operations. Where the right-of-way needs to be cleared for construction, any trees will be cut into lengths, chipped, or removed to an approved site. Except where they would interfere with trenching or pipeline construction, tree stumps and rootstock will be left in place wherever possible to stabilize soils and facilitate natural revegetation. As described in the FSC Plan and Procedures, FSC will install erosion control measures following initial disturbance of the soil.

Following construction, the entire right-of-way will be restored and a 50-foot wide permanent right-of-way will be maintained by FSC for the pipeline. Routine maintenance of the right-of-way is required to allow continued access for routine pipeline patrols, maintaining access in the event of emergency repairs, and visibility during aerial patrols.

In upland areas, maintenance of the right-of-way will involve clearing the entire 50-foot permanent right-of-way of woody vegetation. Trees or deep-rooted shrubs that could damage the pipeline's protective coating, obscure periodic surveillance, or interfere with potential repairs will not be permitted to grow within the permanent right-of-way. As such, the maintained permanent rights-of-way will be subjected to mowing as needed. This maintenance will result in permanent conversion of some areas of existing upland forested vegetation to herbaceous or scrub vegetation; however, FSC has routed the pipeline facilities to use or be adjacent to existing utility rights-of-way and road corridors to the extent possible, to minimize the effects on forested vegetation. Within wetlands and adjacent waterbodies, FSC will maintain vegetation in a 10-foot corridor centered over the pipeline in an herbaceous state, and will reserve the right to selectively cut and remove trees larger than 15 feet in height that are located within 15 feet of the pipeline. Vegetation maintenance will not normally be required in agricultural or grazing areas.

Clearing for construction of the pipeline will not result in any permanent impacts on wetland vegetation communities located outside of the permanent right-of-way. Forested wetlands within the permanent right-of-way will be converted to nonforested wetland but will still continue to perform wetland functions.

The frequency of the vegetation maintenance will depend on vegetation growth rate. Routine vegetation maintenance clearing will typically be performed on a sectionalized basis with higher regrowth areas receiving right-of-way maintenance necessary to adequately patrol the pipeline consistent with 49 CFR §192.705. However, to facilitate periodic corrosion and leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline will typically be maintained annually in an herbaceous state.

Impacts to vegetation within additional temporary work spaces and at aboveground facilities will be similar to those described above for the pipeline facilities. The temporary workspace areas used during construction (other than areas already existing as gravel or pavement), will be seeded and allowed to revegetate with no further maintenance or disturbance associated with operation of the pipeline. Disturbed upland areas may be seeded as required by the FSC Plan, and written recommendations for seed mixes, rates, and dates may be obtained from the local soil conservation authority or as requested by the landowner or land management agency, consistent with permit conditions.

FSC has selected several locations for contractor yards and staging/storage areas. These areas consist of open land, industrial, or commercial land, and no forest clearing will be required to use these sites. Additional maintenance may be required to remove brush, prune trees, and remove other herbaceous vegetation for safe passage of equipment and to prepare a work surface for the storage of pipe and other construction materials. Vegetative impacts will be minimal due to the existing conditions at these locations.

To the extent practicable, existing public and private road crossings along the FSC Project route will be used as the primary means of accessing the right-of-way. In addition, the proposed pipeline facilities have been sited adjacent to or within existing utility rights-of-way. These established rights-of-way typically have existing access roads that can be used during construction of the pipeline facilities. FSC will use the existing access roads during construction to the maximum extent practicable, minimizing major impacts on vegetation communities. The majority of the roads identified by FSC has existing gravel, asphalt or concrete surfaces and can be used with little or no improvement. In a few locations, upgrades may be required, such as brush removal and tree trimming, to allow safe access along the existing access roads.

3.4 WILDLIFE

The FSC Project will cross a variety of terrestrial and wetland habitats that support a diversity of wildlife species. The composition, structure, and distribution of the plant community in an area constitute a large part of the cover and food components of wildlife habitat. As a result, areas with similar vegetative characteristics tend to have similar assemblages of wildlife species. Some wildlife species have specific habitat requirements and are found in only a few habitats, while other species have broader habitat requirements and occur more commonly. Habitat types were identified on the basis of FLUCFCS mapping combined with interpretation of aerial photography. Subsequent field reconnaissance confirmed seven major habitat types: upland open land, herbaceous wetlands, scrub-shrub wetlands, agricultural, pine plantation, upland forest, and wetland forest. Table 3.4-1 lists the common wildlife species potentially occurring along the FSC Project route.

3.4.1 Existing Resources

The FSC Project will be located in several types of upland habitats, including agricultural lands, pastures, scrub, and upland coniferous and hardwood forests.

Agricultural lands dominate much of the route and as described in Section 3.3.4, consist of pasturelands (both improved and unimproved), citrus groves, and specialty agricultural uses. Wildlife species found in agricultural areas represent open land breeding and nesting species such as ground dove, mourning dove, mockingbird, tree swallow, kestrel, black vulture, eastern bluebird, common crow, gopher tortoise, nine-banded armadillo, eastern cottontail, white-tailed deer, and eastern mole. The endangered Florida grasshopper sparrow may also be found in certain pasturelands along the route.

Scrub habitats, characterized by dry, well-drained sandy soils, contain vegetation and wildlife that are well adapted to xeric conditions where runoff and percolation rates are extremely high. Typical species include the gopher tortoise, gopher frog, fence lizard, mole skink, eastern coachwhip, pine snake, and eastern diamondback rattlesnake. Bird and mammal species include the bobwhite, ground dove, red-headed woodpecker, rufous-sided towhee, fox squirrel, and southeastern pocket gopher.

Forest communities are habitat for such mammal species as the white-tailed deer, gray fox, gray squirrel, nine-banded armadillo, striped skunk, southeastern pocket gopher, cotton rat, and least shrew. Typical bird species include the red-headed woodpecker, loggerhead shrike, eastern kingbird, hairy woodpecker, eastern bluebird, brown-headed nuthatch, pine warbler, bobwhite, and the wild turkey. The box turtle, six-lined racerunner, black racer, eastern diamondback rattlesnake, and oak toad are typical reptiles and amphibians.

The FSC Project would cross three major freshwater wetland types: forest swamps, scrub-shrub swamps, and marshes. Typical aquatic and wetland wildlife in forest and scrub-shrub swamps include the white-tailed deer, raccoon, river otter, cotton mouse, white ibis and glossy ibis, wood duck, prothonotary warbler, wild turkey, lesser siren, mud snake, and cottonmouth. Freshwater marshes provide habitat for many aquatic wildlife species, including those found in forest and scrub-shrub swamps, as well as the rice rat, least bittern, green heron, common yellowthroat, red-winged blackbird, leopard frog, pinewoods tree frog, bullfrog, green water snake, mud turtle, cooter, chicken turtle, and pygmy rattlesnake.

Certain of these wildlife species, as well as other wildlife furbearers and migratory birds, are important game animals hunted along the FSC Project route. They include the white-tailed deer, bobcat, gray squirrel, raccoon, cottontail rabbit, opossum, wild turkey, bobwhite, mourning dove, and various waterfowl (ducks and geese).

3.4.2 Wildlife Impacts and Mitigation

Temporary wildlife impacts are those associated with disturbance to habitats during construction, while permanent impacts are those associated with conversion of forested wetland habitats to scrub-shrub and herbaceous habitats, resulting from periodic maintenance of the permanent right-of-way. Indirect wildlife impacts associated with construction noise and increased activity should be temporary, and could include abandoned reproductive efforts, displacement, and avoidance of work areas. Direct mortality to small mammals, reptiles and amphibians that are less mobile could occur during clearing and grading operations.

The majority of the pipeline route is located within or adjacent to existing roadway, railway, and/or utility rights-of-way. These existing rights-of-way are routinely maintained as part of regular facility operations to control vegetative growth, thus establishing open habitat types.

Many species of resident and migratory wildlife along the FSC Project route use these existing utility corridors as preferred habitat.

Construction and operation of the FSC Project may result in short- and long-term impacts on wildlife. Although some wildlife species will be affected, the FSC Project will not likely have a significant impact on local populations or habitats of any species. The extent and duration of impacts will vary depending on the species present in each affected habitat type and their individual life history. Because the FSC Project will not permanently alter the characteristic of a majority of the available habitats, most FSC Project-related impacts are anticipated to be temporary. Because the FSC Project route is located primarily along or adjacent to existing rights-of-way and roads, and in a previously developed highly fragmented urban landscape, little forested habitat will be affected by the Project. The majority of the forested areas that are present along the FSC Project route already exist as edge habitat, not interior forested habitat.

Construction activities, especially clearing of the right-of-way, will reduce feeding, nesting, and cover habitat components until vegetation has become re-established. Mobile species may be temporarily disturbed or displaced from portions of their habitats, and mortality of individuals of less mobile species, such as some small mammals, reptiles, or amphibians may occur. However, direct impacts on wildlife along the FSC Project route and associated work spaces will generally be of short duration and limited to the period of construction activities. Indirect wildlife impacts associated with construction noise and increased activity will be short term but could result in the temporary displacement of wildlife species from the construction areas.

During construction there is a potential for wildlife and/or livestock to be injured by falling into the open trench. FSC will protect livestock from falling into the open trench through installation of temporary fencing, the use of alternative locations for livestock to cross the construction corridor, and/or alternate feeding arrangements, as negotiated with the landowner. To protect wildlife from injury from the open trench, FSC's EI's will inspect the trench daily prior to construction for wildlife (or livestock). Additionally, in locations where wildlife activity is anticipated, FSC will install ramps in the trench at regular intervals to provide an exit for wildlife that may fall into the trench and will provide gaps in spoil piles and pipe stringing to allow wildlife to exit the construction corridor. Fencing, ramps and gaps will all be assessed on a site-specific basis, with the landowner, and will be applied based on the presence or absence of livestock and the amount of wildlife activity in a given area. FSC will implement its Plan and Procedures and will minimize the amount and time of open trench to minimize impacts on wildlife and livestock.

Effects on non-forested upland habitat disturbed by construction will be temporary, and these areas are expected to recover quickly once construction is completed. Similarly, FSC Project-related impacts on scrub-shrub and emergent wetland habitats will be relatively short term. The temporary effects on these habitats will have little or no impact on individual wildlife species or wildlife populations. Forested communities, both upland and wetland, will be affected to a greater extent because of the long-term conversion of these wooded habitats to earlier successional stages in the temporary right-of-way and the permanent conversion to scrub-shrub and/or non-woody herbaceous species in the permanent, maintained right-of-way.

The permanent, maintained right-of-way may function as a travel corridor for some wildlife species and may provide food, cover, and breeding habitat for those species that use open and emergent habitats. In addition, maintained utility right-of-way can provide important early successional habitats for several important game species and migratory birds.

Implementing FSC's Plan and Procedures will minimize permanent impacts on wildlife and promote the rapid stabilization and revegetation of disturbed areas. Re-vegetation will be completed in accordance with permit requirements and in consultation with agency and non-

agency stakeholders affected by the FSC Project. Construction and operation of the FSC Project facilities is not expected to adversely affect the distribution or regional abundance of wildlife species given the amount and distribution of similar habitat types available in the immediate vicinity of the FSC Project route.

3.4.3 Significant or Sensitive Wildlife Habitat

FSC has identified a number of wildlife resources that may be affected by the FSC Project, including conservation lands.

Based on database searches and agency consultation, none of the FSC Project facilities would be located within a National Wildlife Refuge; however, the Lake Wales Ridge National Wildlife Refuge abuts the east side of the FSC Project limits in Polk County. The FSC Project does cross some private and state-managed conservation lands, including the North Walk-In-Water Creek, Lake Wales Ridge State Forest, and Tiger Lake Ranch Conservation Easement. The FSC Project will also cross Lake Kissimmee, which is considered a valuable fishery and wildlife resource; however, the FSC Project will use HDD to cross the lake, so no permanent impacts are proposed to occur to wildlife resources using the lake and surrounding habitats.

3.4.4 Migratory Birds

Migratory birds are species that nest in the U.S. and Canada during the summer, and then migrate south to the tropical regions of Mexico, Central and South America, and the Caribbean for the non-breeding season. Migratory birds are protected under the Migratory Bird Treaty Act (16 U.S.C. §§ 703-711; ["MBTA"]). Bald and Golden Eagles are additionally protected under the Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668-668d). Executive Order No. 13,186 ("EO 13,186") (66 Federal Register 3853) directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse effects on migratory birds through enhanced collaboration with the USFWS. EO 13,186 states that emphasis should be placed on species of concern, priority habitats, and key risk factors and that particular focus should be given to addressing population-level impacts.

According to the USFWS *Birds of Conservation Concern 2008*, the project is located within Bird Conservation Region 31 (Peninsular Florida). Typical species within this region are noted in Table 3.4-2.

On March 30, 2011, the USFWS and the Commission entered into a Memorandum of Understanding that focuses on avoiding or minimizing adverse effects on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies. This voluntary Memorandum of Understanding does not waive legal requirements under the MBTA, BGEPA, ESA, Federal Power Act, Natural Gas Act, or any other statutes and does not authorize the take of migratory birds.

Construction activities that occur during the nesting season for migratory birds (generally April 1- August 31) could result in direct and indirect effects on non-sensitive migratory birds. Examples of potential effects include habitat loss, disruption of foraging adults, and abandonment or destruction of active nests. These potential impacts are short-term and will be minimized or mitigated as discussed below.

The proposed construction areas represent a small portion of the available nesting habitat in the vicinity and therefore the impact on nesting habitat is minimal. FSC has designed the Project in a manner so as to minimize potential effects to migratory birds and will take other measures during Project construction and operation to limit migratory bird effects. These measures include:

- routing Project facilities to avoid sensitive resources where possible;
- maximizing the use of existing pipeline and utility rights-of-way;
- limiting the construction and operation right-of-way widths to the minimum necessary;
- conducting mitigation for effects to sensitive resources (e.g., wetlands) through agency permit conditions;
- adherence to the measures outlined in the FSC's Plan and Procedures; and
- limiting routine right-of-way maintenance clearing and prohibiting maintenance clearing during the migratory bird nesting season (April 15 to August 1).

A significant portion of the Project facilities will be directly adjacent to existing pipeline corridors, and other utility rights-of-way. Tree clearing activities will be minimal, limited in scope, and spread over the entire Project area. Given the limited amount of disturbance and the predominance of open areas associated with construction of the Project facilities, it is unlikely that construction would have an adverse effect on migratory birds.

FSC has consulted with the USFWS to identify migratory bird species of conservation concern along the FSC Project route. The Southeast Market Pipelines Project Migratory Bird Conservation Plan in Appendix C outlines FSC's avoidance, minimization and mitigation measures implemented to address the potential project impacts to migratory birds.

3.5 ENDANGERED, THREATENED AND SPECIAL CONCERN SPECIES

The Endangered Species Act of 1973 ("ESA") (16 USCA 1535-1543, P.L. 93-205) protects federally listed T&E species. The ESA states that T&E plant and animal species are of aesthetic, ecological, educational, historic, and scientific value to the United States and protection of these species and their habitats is required. The ESA protects fish, wildlife, plants, and invertebrates that are federally listed as T&E. A federally listed endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A federally listed threatened species is a species that is likely to become endangered in the foreseeable future throughout all or a significant portion of its range. The USFWS, which is responsible for terrestrial and freshwater species, and NMFS, which is responsible for marine species, jointly administer the law. Protection is also afforded under the ESA to "critical habitat," which the USFWS defines as specific areas both within and outside the geographic area occupied by a species on which are found those physical and biological features essential to its conservation.

In addition to federal law, Florida also has a state Endangered and Threatened Species Act (Section 372.072, Florida Statutes), which affords protection to fish and wildlife designated as state T&E. Under the Florida statute, endangered species means any species of fish and wildlife naturally occurring in Florida, whose prospects of survival are in jeopardy due to modification or loss of habitat; overutilization for commercial, sporting, scientific, or educational purposes; disease; predation; inadequacy of regulatory mechanisms; or other natural or manmade factors affecting its continued existence. Threatened species means any species of fish and wildlife naturally occurring in Florida which may not be in immediate danger of extinction, but which exists in such small populations as to become endangered if it is subjected to increased stress as a result of further modification of its environment. The overall goal of the state T&E statute is to provide for research and management to conserve and protect these species as a natural resource.

FSC consulted with the USFWS and FWC to identify wildlife species listed as endangered, threatened, or of special concern along the FSC Project route. Field surveys for identified species habitat were conducted by qualified scientists between July 22, 2013 and January 24,

2014, and between March 31 and May 30, 2014 (ECT, 2014; Cardno Entrix, 2014). Agency correspondence regarding T&E species is located in Appendix B.

Habitat field surveys were conducted along the FSC Project route, which encompassed up to a 300-foot-wide area ("corridor area"). Surveys were conducted by teams consisting of a qualified biologist/botanist and global positioning system ("GPS") technician. Listed species or signs thereof, such as tracks, scats, dens, burrows, nests, etc., were recorded. GPS coordinates were taken when the species or sign was stationary, and photographs of representative habitats were also taken.

FSC has agreed to perform listed species surveys along the route in appropriate habitats, according to currently accepted USFWS and FWC survey protocols. Species found will be reported to those agencies, and additional avoidance or mitigation measures may be employed. These may include such measures as relocation (gopher tortoises and certain listed plants), seasonal avoidance (construction timed to nonbreeding season), spatial avoidance (buffers applied near nesting areas), or mitigation in the form of habitat mitigation or purchase of certain listed species credits from approved mitigation banks. Details on mitigation are provided further below.

3.5.1 Protected Aquatic and Marine Species

No protected aquatic or marine species were identified during review of USFWS, NMFS, and Florida Natural Areas Inventory ("FNAI") records. As such, protected aquatic and marine species are not discussed further.

3.5.2 Protected Plant Species

Although the five counties crossed by the proposed corridor are home to dozens of listed plant species, many of these are associated with the endemic scrub region of the Lake Wales Ridge, which predominantly lies west of the proposed pipeline route. Table 3.5-1 summarizes the status and likelihood of occurrence for these plant species. A total of 35 plant species from Table 3.5-1 are listed by the Florida Department of Agriculture and Consumer Services ("FDACS"). Most of these are listed to prevent over-collection. A total of 25 plant species was identified as USFWS-listed species potentially occurring in the proposed corridor area, of which only scrub mint was documented during the preliminary field reconnaissance of the FSC Project ESA. Those federally-listed species are discussed below including information about the species, proposed survey protocol, impacts, and mitigation.

The likelihood of all other potential species to occur along the right-of-way ranges from unlikely to moderately likely. Plants listed as unlikely to occur lacked suitable habitat within the Project ESA. USFWS has concurred, during FSC Project planning meetings, that these species can be excluded from further survey efforts. A total of 19 plant species were identified as having a low to moderately likely chance to occur and also have potential habitat identified within the current FSC Project ESA. These species will be documented during species specific field surveys conducted during the seasons in which they are most conspicuous.

3.5.2.1 Survey Methodology for All Plant Species

Individual patches of identified potential habitat are relatively small. The entirety of the potential habitat will be surveyedby a team of biologists who have been trained to recognize the species by walking meandering transects across each habitat during the time period when the species, if present, should be visible. In all cases, transects will cover 100 percent of the identified potential habitat within the proposed Project right-of-way. Surveys will be documented using GPS tracking, and GPS locations of listed plants will be recorded and mapped. Representative photographs of all federally-listed plant species will be taken. Survey methods and timing will

vary by species based upon the approved protocol. The following information outlines the approved species specific surveys and schedules that will be followed for the FSC Project.

Surveys for the Florida bonamia (*Bonamia grandiflora*), scrub mint, scrub buckwheat (*Eriogonum longifolium* Nutt. Var. *gnaphalifolium*), scrub hypericum (*Hypericum cumulicola*), Florida blazing star (*Liatris ohlingerae*), papery whitlow-wort (*Paronychia chartacea*), wide-leaf warea (*Warea amplexifolia*), Carter's mustard (*Warea carteri*), and Florida jointweed (*Polygonella basiramia*) are planned to be conducted in September and October 2014.

Florida bonamia is a perennial trailing vine that prefers to colonize habitats of open or disturbed scrub, sand pine, and scrub oak with records in Polk County. Only marginal habitat to support this species exists within the right-of-way boundaries. Surveys for this species will include approximately 54 acres of habitat within Polk and Osceola Counties. The survey will be conducted in September 2014, when the plant is producing fruit.

Scrub mint is a low-growing shrub, endemic to Florida, and grows in sand pine, scrub, and sandhill habitats of the Lake Wales Ridge, with records in Polk County. Surveys for scrub mint will include approximately 8 acres of suitable habitat within the Project right-of-way, and will be conducted during the plant's flowering period (September and October 2014).

Scrub buckwheat is a perennial herb, recorded in Polk and Osceola Counties. It occurs in habitats intermediate between scrub and sandhills (high pine) and in turkey oak barrens. Surveys will be conducted September and October 2014, while the plant is in bloom. Surveys will focus on approximately 80 acres of potentially suitable habitat identified within the species' range.

Scrub hypericum is a perennial herb found in sunny areas within oak and rosemary scrub. It is endemic to the Lake Wales Ridge of Polk County. Flowering and fruiting of this species typically occurs during the late summer, so surveys are proposed for September 2014. Surveys will focus on approximately 39 acres of potentially suitable habitat identified within the species' range.

Florida blazing star is a perennial herb, which grows on rosemary balds, especially those balds with edges transitional to oak scrub, scrubby flatwoods, and disturbed scrub. Records exist in Polk County. The Project right-of-way contains approximately 5 acres of suitable habitat for this species. Surveys will be conducted in September and October 2014, when the plant is typically in bloom.

Paper nailwort is a short-lived dioecious herb, forming small mats. Paper nailwort was recorded in Polk and Osceola Counties, associated with Lake Wales Ridge. The natural habitat for this species is rosemary scrub, also known as the rosemary phase of sand pine. Within this scrub community, paper nailwort is more abundant in disturbed, sandy habitats, such as road rights-of-way and recently cleared or disturbed sites, such as along fire lanes or trails. This species produces flowers and fruits in the late summer or fall, so surveys are proposed for September and October 2014. The FSC Project right-of-way contains approximately 54 acres of suitable habitat for this species.

Wide-leaf warea is a summer annual herb found within long-leaf pine, sandhill, or scrubby oak forests along the Lake Wales Ridge. Wide-leaf warea has been recorded in Polk and Osceola Counties. Surveys will be conducted in September and October 2014, when the plant is in bloom. There are approximately 51 acres of suitable habitat for this species within the Project right-of-way.

Carter's mustard is an annual herb that grows in pinelands, scrubby flatwoods, scrub, and sandhill habitats along the Lake Wales Ridge and was recorded in Polk County. Although none

were observed during the field survey, there are approximately 55 acres of potential habitat to support this species within the right-of-way. Surveys for this species will be conducted in September and October 2014.

Florida jointweed is a perennial herb and a member of the Florida scrub plant community. It occurs in openings in the scrubs dominated by rosemary, sand pine, other pines, and oaks and was recorded in Polk County. Although none were observed during the field survey, there are approximately 6 acres of potential habitat to support this species within the right-of-way boundaries. Surveys will be conducted in September and October 2014, to coincide with the flowering period for this species.

Surveys for the pygmy fringe tree (*Chionanthes pygmaeus*), perforate reindeer lichen (*Cladonia perforate*), scrub pigeon-wing (*Clitoria fragrens*), short-leaved rosemary (*Conradina brevifolia*), scrub lupine (*Lupinus aridorum*), Britton's beargrass (*Nolina brittoniana*), Lewton's polygala (*Polygala lewtonii*), Small's jointweed (*Polygonella myriophylla*), scrub plum (*Prunus geniculata*), and Florida ziziphus (*Ziziphus celata*) are planned to be conducted March and April 2015.

Pygmy fringe tree is a shrub or small tree, usually less than 10 ft tall, and is recorded in Polk and Osceola Counties. It prefers scrub, sandhill, high pineland, xeric hammock, and transitional habitats, primarily associated with Lake Wales Ridge. Surveys will focus on the approximately 80 acres of suitable habitat for this species present within the Project right-of-way. Surveys for pygmy fringe tree will commence in March 2015, while the plant is in bloom.

Perforate reindeer lichen is known from the high rosemary scrub habitats of Central Florida. It has been reported in Polk, Osceola, and coastal scrubs of Martin County. This lichen is usually conspicuous on white sand patches within scrub areas, dominated by scrub oaks and sand pines. Approximately 36 acres of suitable habitat for this species are present within the right-of-way. Surveys for this species are proposed to be conducted in March and April 2015.

Scrub pigeon-wing is a perennial herb belonging to the pea family. Its preferred habitat includes turkey oak barrens with wire grass, bluejack and turkey oak, scrub hickory, and scrub and scrubby high pine. There are approximately 55 combined acres of these habitat types within the Project right-of-way boundaries. Surveys for scrub pigeon-wing will commence in April 2015 at the start of the flowering season.

Short-leaved rosemary is a perennial shrub reaching up to 3.5 ft in height, which grows on the Lake Wales Ridge in Polk County. It inhabits white sand scrub with scattered overstory of sand pine and scrub oak in clearings with other endemic shrubs and herb scrub vegetation. The species is visible year-round, but most individuals flower in spring. Surveys will focus on the 42 acres of potentially suitable habitat identified within the species' range during March and April 2015.

Scrub lupine is a biennial or perennial herb, recorded in Polk and Osceola Counties. This plant prefers open patches in sand pine and rosemary scrub and grows primarily in well-drained sandy white or occasionally yellow soils where the turkey oak woods have invaded the sand pine scrub. Surveys will focus on the approximately 19 acres of suitable habitat for this species present within the FSC Project right-of-way. Scrub lupine plants typically bloom in March and April; therefore, the surveys will be conducted in March and April 2015.

Britton's bear-grass occurs in Florida within dry pinewoods, sandhill, and sand pine scrub. This survey will be conducted between March and April 2015, when the plant is in bloom. Surveys will focus on the approximately 51 acres of potentially suitable habitat identified within the species' range.

Lewton's polygala occurs in Florida within oak scrub, sandhills, and transition zones between high pine and turkey oak barrens. Surveys will be conducted in March and April 2015, while the plant is flowering. Surveys will focus on the approximately 51 acres of potentially suitable habitat identified within the species' range.

Small's jointweed is a mat-forming sub-shrub that spreads along the ground and forms low mats. It occurs in association with the Lake Wales Ridge and is recorded in Polk and Osceola Counties. Small's jointweed is a member of the Florida scrub plant community and prefers dry white-sand scrub dominated by Florida rosemary, as well as oak scrub, flatwoods, roadsides, and occasionally sandhills. The Project right-of-way contains approximately 19 acres of potential habitat for this species. Surveys will be conducted during March and April 2015, when this species in is flower.

Scrub plum occurs in sandhill and oak scrub in Central Florida. The species typically fruits in March and April, but the species is recognizable year-round. Spring (March and April 2015) surveys will focus on the approximately 51 acres of potentially suitable habitat identified within the Project right-of-way.

Florida ziziphus is a spiny shrub growing up to 6.5 ft tall. Florida ziziphus is a shrub that is endemic to the Lake Wales Ridge in Central Florida and occurs in Polk County. This plant, which was believed extinct until 1987, occurs on the periphery of turkey oak sandhills or yellow sand oak-hickory scrub communities. Surveys will be conducted in March 2015, while the plant is flowering. Surveys will focus on the approximately 26 acres of potentially suitable habitat identified within the Project right-of-way.

Candidate Species

In addition to the federally-listed plant species the area also potentially contains one candidate plant species, the Florida bristle fern.

Florida bristle fern (*Trichomanes punctatum floridanum*)

The Florida bristle fern (filmy fern) is a small endemic fern found in a few Central Florida counties and Miami-Dade County. The plant is currently listed in Florida by the FDACS as endangered. The fern inhabits tree trunks in hammocks or edges of limesinks. Limestone mining, logging, and draining of wetlands are the principal reasons for its rarity. No specimens were observed during wetland surveys of the project area. The closest documented location to the FSC Project route is Sumter County to the northwest. It is unlikely it occurs along the proposed right-of-way. Surveys are not proposed for this species due to currently known locations and lack of preferred habitat. However, if incidental observations are made during species specific surveys it will be documented.

3.5.3 Impacts and Mitigation

The areal extent of impacts, if any, to federally-listed plant species will be quantified upon completion of the above referenced surveys. To the extent a species does exist in the work area, FSC will work to avoid impacts to that plant species via the following mitigation measures:

- avoidance of plant locations and associated habitat as feasible, including "necking-in" or reducing construction footprint; and
- transplanting and seed banking (only after all other options are considered).

3.5.3.1 Federally Listed Wildlife Species

Based on review of the literature and USFWS websites, a total of ten federally-listed wildlife species could be potentially affected by the project if they were found to be present in the

proposed right-of-way area (100 feet for temporary construction, reduced to 50 feet for permanent right-of-way). These include:

- Florida scrub jay
- Crested caracara
- Red-cockaded woodpecker
- Eastern indigo snake
- Florida Sand skink
- Blue-tailed mole skink
- Florida grasshopper sparrow
- Wood stork
- Everglades Snail kite
- Florida bonneted bat

The following provides a description of each species, along with the proposed survey protocol, impacts, and mitigation.

FLORIDA SCRUB-JAY (*Aphelocoma coerulescens*)

Description

Florida scrub jays have been documented within one mile of the proposed project in at least one location in the 1980s. Scrub jay life histories are provided in several recent Biological Opinions ("BOs") (USFWS, 2013(a); USFWS, 2013(b); USFWS, 2013(c)).

Potential scrub jay habitat is found in a few areas along the right-of-way, primarily along US 17/92 in Polk County and along SR 60 and US 441 in Osceola County. According to the FNAI (2013), scrub jay colonies historically were recorded just north of MP 3 and around MP 75.4. However, no scrub jays were seen or heard during general wildlife surveys conducted along the right-of-way. Generally scrub jays are conspicuous and can be found if present. Scrub jay habitat with brushy corridors connecting habitats are preferred, so areas along highways that the pipeline will use could potentially be used by the birds. Primary scrub jay habitat within the project area centers along the Lake Wales Ridge generally west of the right-of-way. Optimal habitat is oak scrub (less than 15-percent canopy cover) with 10 to 50 percent of the area made up of bare sand patches. Oaks that become too tall (taller than 10 feet) generally diminish habitat value.

Survey Methodology (Planned for September - October 2014 and March 2015)

The USFWS Scrub-Jay Survey Guidelines (June) (2004a) will be used as the basis for the field survey methodology summarized in the following paragraphs.

Based on the available Florida Land Use Cover and Forms Classification System ("FLUCFCS") data within the current Project right-of-way, a total of approximately 904 acres of potentially suitable Florida scrub jay habitat have been identified within the species consultation area. Within these areas, a centerline transect will be established, and playback stations will be plotted spaced 150 meters apart to ensure coverage of all potentially suitable scrub-jay habitats. Surveys will occur at these locations using a high-quality tape recording of Florida scrub-jay territorial scolding in an attempt to attract the jays. The recording will include clear examples of all typical scolds.

Per the guidelines, field surveys will be carried out on calm, clear days beginning approximately one hour after sunrise and will terminate before midday heat or wind. Surveys will not be conducted in winds stronger than a moderate breeze, in mist or fog, or in precipitation exceeding a light, intermittent drizzle. Surveys will not be conducted if accipiters or other scrub-jay predators are present in the area; in the event this is the case, the surveyor will either wait until the predator is gone or come back on another day.

It is anticipated that surveys for this species will be conducted in the fall (September and October 2014 and also in March 2015) when territorial displays are most frequent and vigorous. Experienced biologists will broadcast the calls at each station for at least one minute in all four cardinal directions around the playback station, emphasizing any direction in which low-growing oak scrub is the predominant vegetation. If a scrub-jay is observed, tape playback will be halted, and all jay activity will be observed and recorded. On the vegetation map, surveyors will plot the locations and indicate group size of all Florida scrub-jays where they are first seen or heard. Whenever possible, a distinction will be made between adult- and juvenile-plumaged jays. To establish an accurate count of jay groups and appropriate territorial boundaries, stations will be surveyed for a minimum of five survey days.

The key end-products of this survey will include a complete count of any jay groups in the FSC Project right-of-way and an approximate territory map or home range center for each group. The following data will be provided to USFWS and the FERC:

- Information sheet(s), including field survey dates, start and end times, survey daily weather information, total number of jay groups found, number of jays in each group, and number of juvenile-plumaged jays in each group.
- Aerial photograph(s) depicting the current FSC Project right-of-way, potentially suitable mapped habitat and playback station locations, locations of all jays observed while conducting the survey or any other time including flight directions, and approximated territory boundaries or home range center for any group of jays.

Impacts

The proposed action may remove some scrub jay habitat, given the fact that the 50-foot permanent right-of-way will be kept free of trees. However, if in scrub habitat, the right-of-way will provide open sand patches that could be used by the birds. The pipeline right-of-way will be kept free of trees, but fire maintenance can be conducted along the pipeline. Recorded call surveys, in accordance with USFWS protocol, will be conducted in potential habitats along the right-of-way. If birds are found inhabiting the right-of-way, the USFWS will be consulted for potential additional mitigation.

Direct effects of the project could include individual mortality to adults, young, and eggs, loss of nests, and some permanent loss of scrub oak species. Indirect effects could potentially include harassment from nearby noise, human presence, and machinery, during nesting season that could affect nesting. Current land uses and prescribed burning would be allowed to continue after construction.

Cumulative effects should be minimal, since the project will not cause other development that would further impact the species. However, any loss of suitable habitat from construction of this project could be mitigated elsewhere or through enhancement of adjoining habitats.

Mitigation

Protection measures may include avoidance of documented scrub jay habitat, temporal avoidance of nearby scrub jays during nesting season, and the use of environmental monitoring staff during construction. Other options include:

- Reducing temporary construction workspace by 25 feet in areas documented with scrub jays which would reduce the construction corridor from 100 to 75 feet;
- Limit the disturbance of soil to only what would be required to establish the pipeline trench, e.g. surface movement of construction equipment, clearing trench area, excavating trench and placing spoils alongside, backfilling the trench after laying pipe, and grading the trench and spoil storage areas to original contours;
- Clear the construction corridor with vegetation mulching equipment;
- Preclear scrub, scrubby flatwoods, and citrus areas within occupied Florida scrub jay territories prior to the nesting season (March to June) to avoid the potential take of an active nest site. FSC would not preclear scrub jay territories where construction is not scheduled to occur within the nesting season.
- If no other options exist for minimizing permanent impacts to scrub jay territories, FSC would consult with USFWS to develop a plan to purchase scrub jay habitat credits from an approved mititgation bank.

The referenced mitigation will be confirmed and or refined based on further consultation with the USFWS, and with this mitigation we expect that the FSC Project will not adversely impact this species.

CRESTED CARACARA (*Polyborus plancus audubonii*)

Description

The crested caracara is a conspicuous bird of prey that uses a variety of habitats found along the proposed project pastures (both improved and unimproved, agricultural fields, citrus groves, open woodlots, and wetlands). They cover large territories in foraging and typically nest in cabbage palms, although they have been observed nesting in live oaks, cypress, and even old citrus trees. The key feature is that their preferred habitats are open lands with scattered trees or tree clumps. More details on life history can be found in recent BOs (USFWS, 2007; USFWS, 2013(a); USFWS, 2013(b)), referenced herein.

The proposed action traverses caracara habitat, especially in Polk, Osceola, and St. Lucie Counties. The FNAI has historical records within one mile of the route, and wildlife surveys yielded several observations of birds, generally east of the Kissimmee River. However, no nests were observed. Many of the bird observations were made along roadways, which serve as a food source (carrion road-kill) for the birds.

Survey Methodology (Planned for February and March 2015)

Survey methods will be based on the USFWS South Florida Ecological Services' Survey Protocol for Finding Caracara Nests (April) (2004b), as summarized in the following paragraphs.

Based on FLUCFCS data, there are approximately 387 acres of potentially occupied nesting habitat within the Project right-of-way. Field surveys will determine whether or not the site contains active caracara nests or suitable nesting habitat (e.g., mature cabbage palms).

Experienced biologists will perform a combination of vehicular transects and pedestrian spot checks in all previously identified potentially suitable habitats to locate and perform a single inspection of any mature cabbage palms within the Project ESA. This survey will take place between February and March 2015, depending on parcel access, and will cover the time when most birds are feeding and nestlings are more visible. Surveys will start at least 15 minutes prior

to sunrise and will occur during good weather conditions (not to be conducted in rain or fog). During midday, potential nest trees can be examined close up for evidence of nests (Morrison, 2001). Any caracara activity (including flight patterns) will be recorded on data sheets and marked on maps with details including time of day, number of birds, and, if possible, if the birds were juveniles or adults. Any potential or confirmed nesting locations within the FSC Project ESA will be collected with a handheld global positioning system ("GPS") and approximate locations marked on field maps. In South Florida, USFWS defines a primary (985 ft) and secondary (4,920 ft) protection zone outward from any active crested caracara nest tree with restrictions during the nesting season. Biologists will attempt to document any caracara nesting sites that occur outside the Project ESA where possible, noting approximate locations on field maps. Potential nesting locations will be revisited within two weeks from the initial observation if additional checks are needed to confirm active nesting.

The key end-products of this methodology will include the following data to be provided to USFWS and the FERC:

- Information sheet(s), including field survey dates, start and end times, survey daily weather information, total number caracara observations.
- Aerial photograph(s) depicting the current Project ESA, potentially suitable mapped habitat locations, and locations of all caracara observed while conducting the survey or any other time including flight directions and GPS locations of any documented nests.

Impacts

The proposed action will result in a temporary disturbance to caracara foraging habitat, but that habitat type will remain over the pipeline right-of-way after construction is completed. The project may remove tree species that could be suitable nesting or roosting habitat. Surveys in the nesting season prior to construction will be performed using standard USFWS survey protocol. If nests are found within or near the right-of-way, FSC will consult with the USFWS for further avoidance or mitigation measures.

Direct effects of the action will be the temporary loss of foraging habitat and permanent loss of potential nest trees. Indirect effects of the proposed action will be the potential loss of some prey species and potential harassment of nearby birds due to noise, human presence, and machinery. Construction traffic may also serve to provide more road-kill to the birds, but at the same time increase the risk of foraging birds being hit by vehicles. The pipeline right-of-way will be kept free of trees and shrubs, which presents a minor positive benefit to caracara foraging habitat.

Cumulative effects are expected to be minimal due to the fact that this project will not create other developments that would increase potential habitat loss or disruption. Much of the right-of-way already exists in pasture and agricultural areas, and those land uses are not expected to change as a result of this project. Traffic on nearby roadways will only see a temporary increase during construction; otherwise, there will be no permanent increase in vehicular traffic on adjacent roadways due to the project.

Mitigation

In addition to the nest surveys, other protection measures include preservation of as many cabbage palms as possible within or adjacent to the right-of-way, temporal avoidance of known nest sites during construction, and use of environmental monitoring staff during construction. If nesting is observed during construction, the USFWS will be consulted for further mitigation/avoidance measures. Any dead or sick caracara found within the construction area will be reported to the USFWS. The referenced mitigation will be confirmed and or refined based

on further consultation with the USFWS, and with this mitigation we expect that the FSC Project will not adversely impact this species.

RED-COCKADED WOODPECKER (*Picoides borealis*)

Description

This species is widely distributed in Florida, but substantial populations now occur only in the Panhandle (accounting for approximately 75 percent of the total population in Florida). Elsewhere, populations are relatively small and disjunct (USFWS, 1999). Pine-dominated pine/hardwood stands, with a low or sparse understory and ample old-growth pines, constitute primary red-cockaded woodpecker nesting and roosting habitat. Nest and roost cavities are almost always excavated in old-age living pines, particularly longleaf and slash pines. This species has a low likelihood of occurrence within the proposed ESA area, as no records are found within FNAI (2013) databases, and suitable old-growth pine stands are lacking.

Survey Methodology (Planned for September and October 2014)

Survey methods will be based on the USFWS Red-cockaded Woodpecker South Florida Survey Protocol (2003), as summarized in the following paragraphs.

For the purpose of surveying, USFWS defines suitable foraging habitat as pine or pine/hardwood stand of forest, woodland, or savannah in which 50 percent or more of the dominant trees are pines, and the dominant pine trees are generally 60 years in age or older. Pines 60 years in age or older may be scattered or clumped within younger stands. Based on FLUCFCS data, a total of approximately 75 acres of potentially suitable nesting or foraging habitat were identified along the entire length of the FSC Project right-of-way.

The first step in the survey procedure will consist of field reconnaissance of the potentially suitable habitats within the right-of-way to determine whether the areas are suitable for nesting (i.e., containing long-leaf pines more than 10 inches in diameter and/or slash pines greater than 6 inches in diameter). If no suitable nesting habitat exists upon initial visit, further assessment will not be conducted. Representative photographs and detailed field notes will be recorded in any area determined to be unsuitable.

If suitable nesting pine trees are present, pedestrian transects will be conducted by experienced biologists throughout the potentially occupied area to survey for any cavity trees. Transects will be spaced so that each mature pine tree within the Project right-of-way is inspected. Per the protocol, necessary spacing between transects will vary with habitat structure and season from a maximum of 300 ft in open pine stands to 150 ft or less in areas with a dense midstory. Transects will run north-south, as cavity entrances are primarily oriented in a westerly direction. Transect locations will be tracked using a handheld GPS unit. Biologists will record any observations of the species including calls, locations, and behavior. If cavity trees are located within an area, their locations will be recorded using a handheld GPS unit and marked on an aerial field map. Activity status, cavity stage, and any entrance enlargement will be assessed and recorded.

The key end-products of this methodology will include the following data to be provided to USFWS and the FERC:

- Information sheet(s), including field survey dates, start and end times, survey daily weather information, total number of red-cockaded woodpeckers observed, and behavior.
- Aerial photograph(s) depicting the Project right-of-way, locations of any field-verified suitable nesting habitat with pedestrian transects, locations of any documented cavity

trees, and all red-cockaded woodpeckers observed while conducting the survey or any other time, including flight directions.

Impacts

This species has a low likelihood of occurrence within the proposed ESA area, as no records are found within FNAI (2013) databases, and suitable old-growth pine stands are lacking. Therefore impacts are not expected.

Mitigation

Given the low likelihood of occurrence, mitigation is not anticipated to be required. If survey work indicates an occurrence, FSC will consult with the USFWS to develop appropriate mitigation.

EASTERN INDIGO SNAKE (*Drymarchon couperi*)

Description

The eastern indigo snake's life history has been well documented in recent BOs issued by the USFWS in Florida (USFWS, 2007; USFWS, 2012), referenced herein. Often associated with gopher tortoise burrows for thermal refugia, this snake is diverse in habitat types it uses. Wildlife surveys conducted along the majority of the pipeline study corridor found a total of 318 gopher tortoise burrows, and that was without the 100-percent visual survey efforts that will be required preconstruction. Therefore, it is assumed there is the possibility the indigo snake occurs within the proposed right-of-way, although the 100-foot-wide right-of-way would not likely serve all the snakes' habitat requirements. Critical habitat has not been designated for this species.

Survey Protocol

No specific surveys for indigo snakes are proposed, although incidental observations of this species during the course of other field surveys will be noted, coordinates of the siting will be recorded, and photographs will be taken if possible. These sightings will be reported to the USFWS South Florida Ecological Services Field Office.

Impacts

The proposed action will result in the disturbance of approximately 100-foot-wide right-of-way along a 126-mile route through five counties where the snake could occur. This 100-foot disturbance is temporary for pipe construction. Once installed, the FSC Project will require only a 50-foot permanent easement for operation and maintenance of the pipeline. This 50-foot area will be allowed to revegetate with grasses, herbs, and low-growing, shallow-rooted vegetation. The FWC requires avoidance and relocation of gopher tortoises when present. Since they are confirmed present, prior to clearing and construction, FSC will be required to perform 100-percent visual surveys of all burrows within the 100-foot construction area. A permit will have to be obtained to verify avoidance of burrows (25-foot buffer from all construction) or temporary and permanent relocation. Any eastern indigo snakes discovered inhabiting burrows will be allowed to leave the area on their own during relocation of tortoises prior to clearing and construction.

Direct effects of the proposed action could possibly include injury or death to individual animals, loss of gopher tortoise burrows for refuge, and some minimal loss of linear habitat. Indirect effects could include the loss of prey species; harassment due to noise, vibration, and human presence; or exposure to additional vehicular traffic from maintenance and operation.

Cumulative effects are expected to be minimal, due to the fact that vegetative cover and habitat types/current land uses would remain the same after installation of the pipe. Gopher tortoises

will potentially reoccupy the right-of-way and serve to provide refugia for the snake. Minimal additional vehicular traffic will be necessary for pipeline maintenance.

Mitigation

Due to the temporary nature of the habitat impacts proposed for the project, and based on initial discussion with USFWS's Vero Beach office, FSC will follow the USFWS Standard Protection Measures for the Eastern Indigo Snake (August 2013).

The eastern indigo snake protection/education plan developed by USFWS in Florida for all construction and survey personnel will be used for the FSC Project. At least 30 days prior to any clearing or land alteration activities, FSC will notify the USFWS South Florida Ecological Services Field Office that the detailed protection/education plan will be implemented. With the notification of compliance with the plan as described in detail in the referenced document (including the use of the provided poster and brochure), it is understood that no written confirmation or approval from USFWS is needed, and FSC can move forward with the project upon sending this notice.

The protection/education plan materials will consist of a combination of posters and pamphlets and verbal educational instructions to construction personnel by supervisory or management personnel before any clearing or land alteration activities are initiated. The plan is summarized in the following paragraphs.

Informational posters will be placed at strategic locations along the construction right-of-way and along any proposed access roads. Posters will be sized 11 by 17 inches, laminated, and will be identical to those provided by USFWS. Posters will provide detailed information, including a physical description of the eastern indigo snake and any similar snake species; life history of the eastern indigo snake, including habitats and breeding information; protections afforded to eastern indigo snakes under federal and state law, including information on the penalties for violating these laws; specific instructions for what to do if a live or dead eastern indigo snake is observed on the site; and telephone numbers for the USFWS South Florida Ecological Services Field Office to be contacted if a live or dead eastern indigo snake is encountered.

Before construction, these educational posters will be posted by Environmental Inspector ("EI") in the construction offices and throughout the construction right-of-way, including access roads. Prior to construction the EI will conduct a meeting with all construction staff and on an annual basis (if needed) to discuss the information contained in the poster. Construction staff will be informed of the proper field and reporting procedures in the event that live or dead eastern indigo snakes are observed.

During construction and initial site clearing, an onsite observer may be used to determine whether existing habitat conditions suggest a reasonable probability of an eastern indigo snake sighting. Periodically during the construction activities, the EI will visit the project areas to observe the condition of all posters and all other plan materials and replace them as necessary. Construction personnel will continually be reminded of the detailed instructions on what is expected of them if any eastern indigo snakes are observed.

As part of the protection/education plan, a post-construction monitoring report will be submitted to USFWS within 60 days of Project completion. This report will be submitted regardless of whether or not eastern indigo snakes are observed. The referenced mitigation will be confirmed and or refined based on further consultation with the USFWS, and with this mitigation we expect that the FSC Project will not adversely impact this species.

FLORIDA SAND SKINK (*Plestiodon reynoldsi*) AND BLUETAIL MOLE SKINK (*Plestiodon egregius lividus*)

The bluetail mole and Florida sand skink's life history has been well described in recent BOs issued by USFWS (USFWS, 2012; USFWS, 2013), referenced herein. Since their habitat requirements are similar, they will be discussed together here.

Skink habitat is primarily associated with the Lake Wales Ridge scrub areas located west of the project corridor. Some scrub habitats do exist along the route, however, and FNAI has historical records of both skinks within one mile of the route. Skink habitat is being depleted due to residential and agricultural development of upland, xeric habitats. No skink surveys were conducted for the FSC Project other than incidental inspections of the sand skinks' tell-tale burrowing pattern in open sandy patches along the study corridor. No observations were made.

Survey Protocol

According to USFWS, the primary factors in determining skink presence within the Florida sand skink consultation area are soil type, soil "swimmability" (i.e., noncompacted), and land elevations. In accordance with this determination, the following "skink soil" types along the FSC Project ESA within Osceola and Polk Counties were targeted to identify potentially suitable habitat: Archbold, Astatula, Candler, Duette, Millhopper, Paola, Pomello, Satellite, St. Lucie, and Tavares. Soil types were then limited to elevations 82 ft above sea level or higher. Based on this analysis, a total of approximately 312 acres of potentially suitable habitat was identified within the Project right-of-way. FSC intends to conduct a field analysis in September and October of 2014 to determine the extent of this area that could be classified as "swimmable," and, therefore, suitable habitat for skinks. Documentation for swimmability determinations for each area of otherwise suitable habitat would include vegetation type and density, visual estimates of soil compaction, and site photographs. This assessment would be conducted in conjunction with field assessments by the USFWS South Florida Ecological Field Services Office, to the extent practicable, and swimmability determinations would be subject to agency concurrence. Further coordination with USFWS regarding the necessity of conducting field surveys for skinks will be required following this exercise. Should they ultimately be deemed necessary, the USFWS (October 2011) Sand Skink and Blue-tail Mole Skink Survey Protocol for Peninsular Florida will be followed for pedestrian surveys to determine presence of skinks or FSC can opt to concede their presence. Surveys for both species would occur simultaneously.

Impacts

Much of the proposed right-of-way that traverses potential skink habitat is following existing highway rights-of-way (U.S. Highway ["US"] 17/92 or State Road ["SR"] 60). Bare sandy patches crossed by construction activities and pipe placement will be replaced with the preexisting sand that was removed. Low-growing, shallow-rooted vegetation will be allowed to recolonize the right-of-way.

Direct effects of the project on skinks could be incidental mortality of individuals or eggs, loss of habitat (at least temporary), and harassment due to vibration of equipment. Indirect effects of the proposed action would be a minor increase in vehicular traffic along the right-of-way due to maintenance vehicles and the resultant soil compaction. Since much of the potential skink habitat crossed is along major roadways, the project will not further fragment any habitats.

No additional cumulative impacts of project development are anticipated, since the pipeline right-of-way will continue to be of a similar habitat and land use to preconstruction conditions. The pipeline will not increase the need for additional development along its route.

Mitigation

If skinks are identified during surveys, FSC will consult with the USFWS for any required mitigation measures that may be required including the following options:

- Reducing temporary construction workspace by 25 feet in areas with sand skink habitat which would reduce the construction corridor from 100 to 75 feet;
- Limit the disturbance of soil to only what would be required to establish the pipeline trench, e.g. surface movement of construction equipment, clearing trench area, excavating trench and placing spoils alongside, backfilling the trench after laying pipe, and grading the trench and spoil storage areas to original contours;
- Clear the construction corridor with vegetation mulching equipment.
- Limit grading to areas where the construction corridor is not level to provide a safe working surface;
- Segregate topsoil during trench excavation and remove trench overburden deposited on suitable skink habitats to the level of natural soil during the backfilling of the trench. Replace the topsoil that occurred prior to excavation of the trench.
- Where appropriate, recontoured areas within the permanent right-of-way and high traffic areas within the temporary and extra work spaces would be decompacted to ensure that soils are sufficiently loose to be utilized by skinks;
- Revegetate with non-mat-forming vegetation species, such as bermudagrass, where skinks have been identified; and
- For unavoidable impacts to documented skink habitat, FSC would consult with the USFWS to provide a mitigation plan for purchasing sand skink credits from an approved mitigation bank.

The referenced mitigation will be confirmed and or refined based on further consultation with the USFWS, and with this mitigation we expect that the FSC Project will not adversely impact this species.

FLORIDA GRASSHOPPER SPARROW (*Ammodramus savannarum floridanus*)

Description

Florida grasshopper sparrows are endemic to dry prairie habitats within Central and Southern Florida and are strongly habitat-specific, occupying only the native, fire-maintained dry prairie vegetation community and a few unimproved or overgrown pasture sites that resemble the dry prairie community and were presumably dry prairie prior to conversion to pasture. Barriers to movement include forested edges and even sparsely stocked pine flatwoods. Habitat characteristics that are important for Florida grasshopper sparrows include a high percentage of bare ground cover and low vegetation height (30 to 70 centimeters) (Delany *et al.*, 1985). Both of these characteristics are maintained by frequent fire. Large areas of prairie habitat, possibly greater than 4,000 hectares (9,884 acres), are needed to maintain self-sustaining populations of Florida grasshopper sparrows (Perkins, 1999; Perkins and Vickery, 2001).

Within the study corridor, the FNAI has two historical records within one mile of the route. These locations are MP 66 and near MP 59. No observations were made during wildlife surveys. According to the FWC (Personal Communication, 2014), Florida grasshopper sparrows reportedly do occur on property along a large stretch of SR 60 just east of the Kissimmee River crossing. However recent surveys along the pipeline route did not find presence of the bird and

wetland permits obtained previously for that property did not address the presence of the bird (Cardno-Entrix, 2014). Much of the area where suitable pasture exists along the route is adjacent to major highways, thereby minimizing the fire maintenance necessary to sustain ideal habitat for the bird. Additional information about the Florida grasshopper sparrow life history has been well described in recent BOs issued by USFWS (USFWS, 2013(a); USFWS, 2013(b)), referenced herein.

Survey Methodology (Planned for April and May 2015)

Surveys for this species will be conducted in accordance with the USFWS (June) (2004c) Florida Grasshopper Sparrow Survey Protocol.

Habitat for this species was presumed to be any unforested open land, including pastures. Based on FLUCFCS data within the Project ESA, a total of approximately 340 acres of potentially occupied nesting habitat was mapped. This habitat is located alongside major roadways where the pipeline will be collocated. Field surveys will identify the presence of a population of sparrows that may be utilizing an area.

Surveys will be conducted in the spring of 2015 by experienced personnel familiar with the Florida grasshopper sparrow habitat needs and are capable of identifying and locating sparrows based on either song or sighting. Surveys will be performed only on relatively calm days (wind speeds of less than 15 miles per hour ["mph"]) and will start no earlier than 30 minutes before sunrise and end no later than 3 hours after sunrise.

Sampling stations will be established every 200 meters within all available habitats along the linear Project right-of-way. Upon arrival at each station, observers will watch and listen for 1 minute for grasshopper sparrow activity. If no sparrows are observed or heard, a high-quality tape recording containing clear examples of all typical territorial calls will be played at each station for 30 seconds in each cardinal direction. If no sparrows are documented at the conclusion of the recording playback, the survey will be repeated at that station a maximum of two additional sampling events.

The key end-products of this methodology will include the following data to be provided to USFWS and the FERC:

- Information sheet, including field survey dates, start and end times, survey daily weather information, sampling station coordinates, presence or absence of sparrows, total number of grasshopper sparrows found, and number of territories.
- Aerial photograph depicting the FSC Project ESA, mapped habitat locations, and any grasshopper sparrow observations or nest locations.

Impacts

The proposed action may temporarily alter suitable habitat until the pipe is installed and the pipeline has restored to its previous state. Removal of tall woody vegetation may, in some cases, increase potential suitable habitat. Pasture land uses along the right-of-way will be allowed to continue even with the use of prescribed burning. The 50-foot right-of-way will be maintained in an herbaceous or low-growing shrub state. Prior to clearing, FSC has agreed to perform protocol based wildlife surveys for listed species. Presence of grasshopper sparrows can be confirmed in springtime using call surveys. If birds are confirmed in a given locale, FSC will consult with the USFWS for any additional mitigation measures that may be necessary, such as no clearing in the area until after nesting season.

Direct effects of the project include mortality of individuals, loss of nests and eggs, and temporary loss of some habitat. Indirect effects may include increased predation due to flushing

of birds near the construction area and harassment in the form of human presence, machinery and vehicles, and noise/vibrations may occur in a given area for short periods of time.

No cumulative effects from pipeline construction are expected, as the completed project will not cause further development along the right-of-way, nor will management of potential habitat crossed be affected (grazing and fire maintenance can continue).

Mitigation

Additional protection measures include avoidance of confirmed bird habitats, temporal avoidance during the nesting season, and possibly mitigation of any documented habitat loss. The referenced mitigation will be confirmed and or refined based on further consultation with the USFWS, and with this mitigation we expect that the FSC Project will not adversely impact this species.

WOOD STORK (*Mycteria americana*)

Description

The American wood stork is a large conspicuous white bird with a black head. The bird is found throughout Florida and much of the Southeast. It forages in shallow wetlands and is noted for a tactile foraging method. More complete life history information is presented in several BOs written over the past few years (USFWS, 2010; USFWS, 2013(a); USFWS, 2013(b)), referenced herein.

The wood stork would be considered likely to be found foraging in most shallow wetlands along the proposed project, including roadside ditches and swales, which are numerous. They nest in colonies, often with other wading birds, and generally prefer larger-diameter trees in the colony. Many of the wood stork colonies in Florida are already known due to previous aerial surveys.

The birds typically use the same colony year after year, depending on hydrology and availability of foraging wetlands. No colonies are known to occur within 1 mile of the right-of-way, but there are nine colonies within 16 miles. The USFWS has established Core Foraging Areas ("CFAs") around these colonies. A CFA is an 18.6-mile radius (South Florida) circle from a colony site that is generally considered to be potential foraging habitat. There are nine CFAs intersected for the total of nine colonies referenced herein.

Survey Methodology (Planned for February 2015)

The proposed survey methodology will use an aerial helicopter survey of the freshwater wetlands along the entire Project ESA. All flights will be conducted on days with little or no wind or rain and good visibility at elevations of approximately 300 ft. Two experienced biologists will fly the established route (one on either side of the helicopter). At each wetland, the pilot will be asked to maintain adequate altitude as to not disturb any water birds that are present and to circle the wetland as necessary to get an accurate count and identification of species.

A GPS unit will be used to record each survey route, and a location point will be recorded for each colony observed. Nests will be counted, and locations of colonies will be mapped on a current color aerial. For wetlands with foraging wood storks, individuals will be counted and recorded on a per-wetland basis.

Impacts

The proposed action is not expected to directly affect any colony site. The proposed action will traverse portions of nine CFAs and cross several wetlands within the right-of-way. However, many of the types of wetlands preferred for foraging by the birds are herbaceous wetlands, swales, and ditches, which will remain as herbaceous wetlands after temporary construction

impacts are completed. Prior to clearing, FSC will conduct aerial/ground surveys for any new colony sites that might occur along the route.

Direct effects of the proposed action would include temporary loss of foraging habitats and noise and human presence, which may preclude birds from foraging in nearby wetlands. Since herbaceous wetland type and hydrology will be restored after construction, no net loss of these types of wetlands is expected. There will be a loss of forested wetlands, since trees will be removed and kept free of the 50-foot permanent right-of-way. However, this will be a change from forested to herbaceous wetland and a resulting similar hydrology. Foraging habitat, therefore, may actually increase; however, loss of forested wetlands represents a potential loss of future colony sites.

Cumulative project effects will be minimal, because the project will not cause any additional development along the pipeline and the corresponding loss of habitat that such development may affect. Herbaceous wetlands will remain herbaceous wetlands, and forested wetlands will be converted to herbaceous wetlands, potentially resulting in a net increase in foraging habitat within the CFAs.

Mitigation

Additional protection measures may include surveys for active colonies in the project vicinity, monitoring of the USFWS's Website for colony locations, use of environmental monitoring staff during construction, and post-construction review and inspection by wetland agencies for any water quality or quantity changes. FSC will provide USFWS with an assessment of the wetland types before and after construction to document the fact there will be no loss of herbaceous wetlands or changes to hydrology.

The referenced mitigation will be confirmed and or refined based on further consultation with the USFWS, and with this mitigation we expect that the FSC Project will not adversely impact this species.

EVERGLADES SNAIL KITE (*Rostrhamus sociabilis plumbeus*)

Description

The Everglade snail kite is a raptor inhabiting wetland systems with a specific prey requirement: the Florida apple snail. Therefore, key to the kite's habitat requirements are shallow wetlands and littoral zones around lakes where the apple snail lives and reproduces. Foraging is highly dependent on water levels and snail breeding success. Hydrology is also a key to nesting by the birds. They prefer to nest over water presumably to reduce predation. Nest sites are usually tree islands or clumps of trees surrounded by water. The birds typically build nests in trees or shrubs less than 30 feet in height. Critical habitat has been designated by the USFWS for the Everglade snail kite, but that occurs south and west of the project area (west shore of Lake Okeechobee and further south into the Everglades). However, all the counties crossed by the project do fall within the USFWS-designated consultation area for the kite. More detailed life history information is available in recent BOs (USFWS, 2013(d); USFWS, 2010(a); USFWS, 2013(b)), referenced herein.

Survey Methodology (Planned for March and April 2015)

Surveys for this species will be conducted in accordance with the USFWS (May) (2004d) Snail Kite Survey Protocol.

The snail kite is habitat-specific, requiring a combination of herbaceous emergent marshes for foraging, shrubs or small trees for nesting and perching, and nesting substrates both at appropriate water depths (0.6 to 4.3 ft) and at adequate distances (greater than 500 ft) from

uplands. Based on these criteria, there are approximately 127 acres of potentially suitable snail kite habitat present within Okeechobee, Martin, Polk, and Osceola Counties. A one-time pedestrian visual survey for nests and birds will be conducted during the breeding season (March and April 2015). Nest locations, if any are found, will be recorded with a GPS device and their locations will be marked on an aerial field map.

The key end-products of this methodology will include the following data to be provided to USFWS and the FERC:

- Information sheet, including field survey dates, start and end times, and survey daily weather information.
- Aerial photograph depicting the Project ESA, mapped habitat locations, and any snail kite observations or nest locations.

Impacts

The proposed action will result in temporary disturbance to herbaceous wetlands crossed by the construction right-of-way. A conversion of forested wetlands to herbaceous wetlands will occur where forested wetlands are crossed by the proposed right-of-way. No net loss of wetlands will occur due to the project. All permanent wetland impacts will be mitigated. No snail kites were observed during general wildlife surveys conducted for the project. The FNAI indicates the closest record of snail kites as being eight miles away. FSC will conduct surveys for the bird in suitable habitat along the right-of-way using USFWS protocol. Any nesting within or adjacent to the right-of-way will be documented, and if nesting is documented within 500 feet of the right-of-way, the USFWS will be consulted.

Direct effects of the proposed action would be the possible loss/mortality of nests, eggs, or young or loss of suitable nesting substrate. Indirect effects would be possible elimination of prey species or temporary loss of prey habitat. Harassment of the birds may occur from construction if too close to nesting areas. This could result in abandonment of the nest site.

Cumulative effects of the project are expected to be minimal. No development will occur as a result of this project that could further impact snail kite nesting or foraging habitat. Hydrology of wetlands crossed will be restored to preconstruction levels, such that foraging and nesting habitat will remain and long-term effects on snail reproduction will not be impacted. No increased human presence will result after construction of the project except for occasional routine maintenance along the right-of-way.

Mitigation

In addition to the surveys for nesting birds, other protection measures that may be employed include environmental monitoring staff assigned to construction areas near snail kite habitat, snail kite education briefings to construction crews, and maintenance of hydrological regime during and after construction to preconstruction levels. If nest sites are documented near the right-of-way, temporal avoidance will be considered for construction in that area, depending on proximity to the nest areas. The referenced mitigation will be confirmed and or refined based on further consultation with the USFWS, and with this mitigation we expect that the FSC Project will not adversely impact this species.

FLORIDA BONNETED BAT (*Eumops floridanus*)

Description

Once considered to be a subspecies (*Eumops glaucinus floridanus*), recent scientific research indicates that the Florida bonneted bat is distinct from other *Eumops* outside Florida and should

be classified as a full species (McDonough, et al., 2008). Alternative common names include mastiff bat, Florida mastiff bat, and Wagner's mastiff bat.

The Florida bonneted bat is of medium size compared to other species in the genus *Eumops (*Timm and Genoways, 2004); however it is the largest of Florida's native bats.

The Florida bonneted bat inhabits semitropical forests, particularly pineland, tropical hardwood, and mangrove habitat. Suitable roosting areas may include a variety of natural and man-made structures including chimneys, limestone outcroppings, tree cavities, bat houses, and under tiles of Spanish-style roofs (USFWS, 2008). The Florida bonneted bat roosts singly or in harem-like colonies composed of a male and several females (Best, et al., 1997). It has low fecundity, gives birth to only one offspring, and is thought to be polyestrous with an extensive summer breeding season and perhaps additional offspring born in January/February. The Florida bonneted bat is not migratory, but there may be seasonal shifts in roosting sites *(*Timm and Genoways, 2004).

The Florida bonneted bat forages for flying insects in open, uncluttered areas and often flies >10 m above the ground. Humans can hear the loud, low-frequency echolocation calls of bonneted bats and can recognize the bats as they fly nearby (Belwood, 1992).

The Florida bonneted bat is known to roost in trees, and loss of forest habitat is a likely threat to this species. The bats also roost in buildings, but little is known about the relative importance of trees versus buildings as roost sites or about the relative availability of different roost types. Availability of suitable roosts may be a limiting factor for populations of bonneted bats. Small population size and restricted extent of occurrence makes the species highly vulnerable to a number of potential impacts including inbreeding depression, genetic drift, disease, hurricanes, and other chance events (USFWS, 2008).

In 2008, biologists, conducting surveys in the Kissimmee River area, recorded Florida bonneted bat calls at two locations. This is the first time the species has been found north of Lake Okeechobee except in fossil records (FWC, 2011).

Survey Methodology (Planned for March and April 2015)

There are currently no official USFWS survey protocols for the Florida bonneted bat. FSC will survey the Florida bonneted bat focal area in March or April 2015 for existing or possible roosting locations in large hollow trees per direction from USFWS. No artificial nesting structures will be affected by the FSC Project. Based on FLUCFCS data within the FSC Project right-of-way, approximately 73 acres of potentially occupied nesting habitat was mapped within the focal area. If potential roosting sites are found, the trees will be closely inspected for indications of bat presence. Florida bonneted bat roosting sites found within the Project right-of-way will be recorded via handheld GPS units.

The key end-products of this methodology will include the following data to be provided to USFWS and the FERC:

- Information sheet(s), including field survey dates, start and end times, and survey daily weather information.
- Aerial photograph(s) depicting the Project right-of-way, locations of any field-verified suitable roosting habitat with pedestrian transects, locations of any documented cavity trees, and all bats observed or heard while conducting the survey or any other time including flight directions.

Impacts

The proposed action will have minimal impact to any man-made structures or buildings that could be used as roost or nest sites by the bat. In the few instances where abandoned sheds or homes may have to be removed, they will first be inspected to ensure no bats are roosting in the structure. Since numbers of bats found in the project area are likely to be low, there is a small potential that removal of any hollow trees could directly impact the bat. Direct effects therefore could be death or injury to roosting bats, loss of potential roost/nest sites, and temporary disturbance due to noise, vibration, and human presence. Indirect effects could be exposure of the bats to predators, temporary loss of foraging habitat, and disruption to breeding. Once constructed, the pipeline right-of-way will continue to serve as potential foraging areas for bats.

Cumulative effects to the bat are not expected since this project will not lead to additional development and further habitat impacts. Maintenance activities along the route will not further eliminate any foraging habitat.

Mitigation

Given the low likelihood of occurrence, mitigation is not anticipated to be required. If survey work indicates an occurrence, FSC will consult with the USFWS to develop appropriate mitigation.

Candidate Species

There are several species identified as candidate species for listing in Florida (Federal Register, 2013), but only two that potentially could occur within the along the FSC Project route:

- Striped newt
- Gopher tortoise

Descriptions of the candidate species, survey protocols, impacts and mitigation are provided below:

STRIPED NEWT (*Notophthalmus perstriatus*)

Description

The striped newt is a small salamander that inhabits xeric upland communities, primarily sandhill, scrub, and pine flatwoods that contain ephemeral wetlands for breeding (FNAI, 2001). The range of this animal is generally considered to be Southern Georgia and Northern and Central Florida. It is not currently listed in Florida by FWC. It may possibly occur in Osceola and Polk Counties. If it does occur, the habitats in which it breeds (ephemeral wetlands) would only be temporarily affected during construction, and would recover and remain after construction. Tree canopy associated with the sandhill, scrub, or flatwoods areas it occupies will be lost if located within the right-of-way.

Survey Methodology

The striped newt is a candidate species and not formally listed at this time. Therefore, no survey methodology is currently proposed. If the striped newt is listed by FWC or USFWS prior to issuance of the FERC Certificate, FSC will coordinate with the appropriate agency to determine if additional action is required.

Impacts

Direct effects of the project on the striped newt could be incidental mortality of adults or juveniles, temporary loss of habitat, and harassment due to vibration of equipment. Indirect

effects of the proposed action would be a minor increase in vehicular traffic in uplands along the right-of-way due to maintenance vehicles and the resultant soil compaction.

No additional cumulative impacts of project development are anticipated, since the pipeline right-of-way will continue to be of a similar habitat and land use to preconstruction conditions. The pipeline will not increase the need for additional development along its route.

Mitigation

No mitigation is proposed at this time for the striped newt. If the striped newt is listed by FWC or USFWS prior to issuance of the FERC Certificate, FSC will coordinate with the appropriate agency to determine if mitigation will be required.

GOPHER TORTOISE (*Gopherus polyphemus*)

Description

Gopher tortoises can be found in nearly all upland habitats in Florida. They are typically found in dry upland habitats including sandhills, scrub, xeric oak hammock and dry pine flatwoods; and commonly utilize disturbed habitat such as pasture, old fields and road shoulders. Gopher tortoises excavate deep burrows for refuge from predators, weather and fire and more than 300 other species have been recorded sharing these burrows. There are a number of FNAI gopher tortoise records within the proposed ESA. Additionally, field crews recorded 318 gopher tortoise burrow observations during preliminary field surveys. Tortoise burrows were identified along the Project ESA in each of the five counties during these surveys. The gopher tortoise is a Candidate Species for the USFWS and listed as Threatened by FWC.

Survey Methodology (Planned to be conducted within 90 days prior to construction)

According to FWC Gopher Tortoise Permitting Guidelines (April 2013), all potentially occupied burrows (active and inactive) within the construction right-of-way and burrows within 25 ft of any proposed construction disturbance will need to be excavated and the tortoise safely relocated from the FSC Project right-of-way. As a part of the gopher tortoise relocation permitting process for the Project, FWC will require detailed surveys for tortoise burrows to be conducted in accordance with FWC guidelines.

FLUCFCS data indicate that approximately 512 acres of potentially suitable gopher tortoise habitat is present within the Project ESA. Specific field surveys within the Project right-of-way will be conducted by FWC-authorized gopher tortoise agents and designated assistants. Per FWC requirements, a 100-percent coverage survey will be completed and submitted within 90 days of the start of clearing for construction within a given segment of the FSC Project ESA. Belt transects will be distributed across all potentially occupied tortoise habitat. Maximum transect widths will be 16 meters (52 ft), and, in areas with heavy vegetative cover, the width of each transect will be reduced to allow for the detection of burrows within the transect.

Burrows will be categorized as either potentially occupied or abandoned. Each burrow will be staked and marked with highly visible flagging tape in the field for future identification. The location of each flagged burrow will be recorded using a handheld GPS unit.

The key end-products of this methodology will include the following data to be provided to FWC to support permit applications, including:

- All mapped potentially suitable and/or potentially occupied habitat within the Project right-of-way.
- Locations of all pedestrian transects.
- GPS locations of burrows with an associated activity status.

For each transect, the raw data will be summarized in a table (transect dimensions, number of burrows by activity class, number of burrows by size class, and burrow density per acre).

Impacts

Potential impacts include temporary loss of burrows during construction and associated temporary or permanent relocation of tortoises from the ROW. However, vegetative cover and habitat types/current land uses would remain the same after installation of the pipe and gopher tortoises will potentially reoccupy the right-of-way.

Mitigation

The FWC requires avoidance and relocation of gopher tortoises when present. Since they are confirmed present, prior to clearing and construction, FSC will be required to perform 100-percent visual surveys of all burrows within the 100-foot construction area. A permit will have to be obtained to verify avoidance of burrows (25-foot buffer from all construction) or temporary and permanent relocation. Through this mitigation, which will be developed in consultation with the FWC, we expect that the FSC Project will not adversely impact this species.

3.5.3.2 State-Listed Wildlife Species

To the extent practicable, the FSC Project has avoided known sensitive habitats and listed species locations. The project has been located along and through existing disturbances such as roads and highways, electric transmission lines, other utility pipelines, and through agriculturally-dominated land uses. The pipeline has been located to minimize impacts on forested wetlands and will only produce temporary impacts in herbaceous wetlands. Permanent wetland impacts will be mitigated as required.

State-listed species or species of concern that may occur in the Project area include:

- Gopher Tortoise (ST) – discussed above
- Southern American Kestrel (ST)
- Florida Borrowing Owl (FL -SSC)
- Florida Sandhill Crane (ST)
- Limpkin (FL-SSC)
- Little Blue Heron (FL-SSC)
- Snowy Egret (FL-SSC)
- Tricolored Heron (FL-SSC)
- White Ibis (FL-SSC)
- Roseate Spoonbill (FL-SSC)
- Florida Mouse (FL-SSC)
- Sherman's Fox Squirrel (FL-SSC)

SOUTHEASTERN AMERICAN KESTREL (*Falco sparverius paulus*)

Description

No kestrels of the southeastern subspecies have been observed within the FSC Project ESA, but it has been recorded by FNAI to be present within all five of the counties affected by the Project.

According to Stys (1993), cavity availability appears to be the main factor limiting southeastern American kestrels across their range. As secondary cavity nesters, they use cavities that have already been created, generally in dead pines. The following habitats are considered to have potential to support southeastern American kestrels: recreational land; improved, unimproved, or woodland pasture; specialty farms; other open lands; herbaceous rangeland; coniferous forest; pine flatwoods; longleaf xeric-, pine-mesic, or xeric oak; hardwood-conifer mixed; mixed hardwood; forest regeneration areas; rural land in transition without positive indication of intended activity; and burned areas.

Survey Methodology (Planned for April through June 2015)

The FWC Ecology and Habitat Protection Needs of the Southeastern American Kestrel (*Falco sparverius paulus*) on Large-Scale Development Sites in Florida, Nongame Wildlife Technical Report No. 13 (Stys, 1993), will be used as the basis for the survey effort. Proposed methodologies are summarized in the following paragraphs.

The primary goal of the proposed methodology is to determine the number, if any, of southeastern American kestrels or kestrel pairs within the FSC Project right-of-way and mapping of nest sites. A single occurrence of a combination of vehicular and pedestrian transects will be conducted throughout the previously identified potentially suitable habitat. Transect length and distance between transects will vary based on existing vegetative conditions.

Surveys will be conducted during the spring and early summer (April through June 2015) during the morning hours on calm, clear days. For driving transects, a driving speed of 10 to 25 mph will be maintained, varying in response to terrain, road condition, and visibility. Pedestrian transects will be walked at a steady pace. Biologists will look for and record any signs of kestrel activity including kestrels perched on fencerows, telephone poles and lines, and trees; kestrels flying or hovering; or where kestrels were exhibiting courtship, breeding, or territorial defense behaviors. Biologists will locate and investigate potential nest sites on foot. Although longleaf pine snags are the most utilized for nesting, biologists will examine possible nest sites in various types of trees or utility structures. Measurements at a nest site will include tree species, stage of decay, and nest tree health. If the nest site is in a man-made structure, the type of structure, physical state of the structure, and location of the nest within or on the structure will be noted.

Kestrel sightings will be recorded on field maps, and GPS coordinates will be collected. Flight paths and landing locations will also be recorded, along with behavioral and vocalization notes.

The key end-products of this methodology will include the following data to be provided to FWC:

- Information sheet(s), including field survey dates, start and end times, survey daily weather information, total number of kestrel observations, and all kestrel observations.
- Aerial photograph depicting the Project ESA, potentially suitable mapped habitat locations, pedestrian and vehicular survey tracks, any kestrels observed while conducting the survey or any other time including flight directions, and confirmed nest sites.

Impacts

Impacts may include direct loss of the individual birds and eggs and loss of nesting cavities.However the right-of-way cover created by establishment and maintenance of the pipeline will provide foraging habitat for the bird. Permanent impacts may include the loss of potential cavity nest trees.

Mitigation

Mitigation will consist of seasonal or spatial avoidance of documented nest trees. If unavoidable loss of nest trees occurs, FSC may provide mitigation in the form of providing artificial nest boxes along the right-of-way, subject to landowner approval.

FLORIDA BURROWING OWL (*Athene cunicularia floridana*)

Description

The burrowing owl prefers xeric pastures with low vegetation. The FSC Project ESA crosses some dry pastures and croplands. Two records exist within the FSC Project ESA (one each in Polk and Osceola Counties) according to FNAI. In addition, the animal has been observed in Lake Wales State Forest by FSC representatives during field reconnaissance for the proposed pipeline route and in Polk County during preliminary field surveys for the ESA.

Survey Methodology (Planned for March and April 2015)

According to Wood (2001), determining presence or absence and abundance of the Florida burrowing owl can be effectively achieved via widely-spaced walking transects. Surveys will be conducted during daylight hours when weather is conducive to observing owls outside their burrow, avoiding surveys during heavy rain, high winds, or dense fog.

As stated by Wood (2001), the accuracy of survey data can be affected by the time of year and time of day that surveys occur. Though Florida burrowing owls can be active year-round, the species is more active during the breeding season (February 15 to July 10), and surveys are intended to be completed during this time frame for the most effective results. Individual burrows will be classified as active when owls are in attendance but also when observed burrows are decorated with shredded paper, tinfoil, or other debris. Locations of all observed burrows will be obtained with a handheld GPS unit. Additional notes will include numbers of breeding pairs and any juveniles, flight paths, and behavior.

Impacts

Impacts may include loss of the animal or eggs through pipeline construction. Indirect impacts may include temporary harassment of the birds during construction. However construction and maintenance of the project will not decrease habitat for this bird and may in fact, increase habitat through removal of forest and brushy habitats for more open herbaceous uplands.

Mitigation

Mitigation will consist of temporal avoidance of any burrows within the right-of-way during nesting season. The Project's environmental inspector will advise of any burrowing owl presence prior to start of construction in any areas documented as having burrowing owls. In the event they cannot be avoided with construction activities, inactive burrows can be collapsed with a FWC issued nest removal permit during the non-nesting season. If it becomes necessary to take an occupied burrow during nesting season, FSC will also obtain a permit from the USFWS. In either case, typical mitigation will include installation of perch structures in cleared areas nearby to encourage the owls to remain in the vicinity after construction.

SHERMAN'S FOX SQUIRREL (*Sciurus niger shermani*)

Description

This species inhabits dry pine flatwoods, xeric oak, or sandhill communities, which are common within the ESA. There are no FNAI records of this species within the ESA, but it was observed during preliminary wildlife surveys. Habitat for Sherman's fox squirrel includes open, mature, upland pine-oak communities in addition to bottomland, upland forests, and cypress dome and

strands when adjacent to or interspersed within a pine-oak community. Suburban parks and golf courses and a number of pine-oak improved pastures may also be used by the species (Wood, 2001). FNAI data indicates this species is known to occur within all five of the counties affected by the FSC Project.

Survey Methodology (Planned for March and April 2015)

According to Wood (2001), due to the fox squirrel's size and striking color patterns in combination with the fact that they occupy relatively open habitats, the animals are typically conspicuous when present. Surveys for fox squirrels will be conducted along a series of belt transects within suitable habitat. In open habitats, transects will be spaced approximately 300 ft apart, and in denser habitats, transects will be spaced with regard to range of visibility.

Sherman's fox squirrels can be observed year-round, but peak periods of breeding activity occur between May and July and again in December and January. During this time, vocalizations are frequent, and male and female individuals interact with one another during mating chases. If Sherman's fox squirrels are present during the breeding season, and in areas where the species has previously been documented, experienced biologists will locate any nest sites within the Project right-of-way utilizing foot investigations.

Locations of all Sherman's fox squirrels will be obtained with a handheld GPS unit. Additional notes will include numbers of individuals or breeding pairs and any observed behaviors. Verified nest site locations within the right-of-way will also be recorded using a handheld GPS unit.

Impacts

Impacts to the squirrel may include loss of nests and young during construction. Adult animals are highly mobile and likely would escape any construction activities. Loss of nest trees may be a permanent impact, however the squirrels would be able to build new nests in similar nearby habitat.

Mitigation

Mitigation would consist of seasonal avoidance during nesting season for any active documented nests within the right-of-way.

FLORIDA MOUSE (*Podomys floridanus*), FLORIDA PINE SNAKE (*Pituophis melanoleucus mugitus*), AND GOPHER FROG (*Rana capito*)

The Florida mouse inhabits fire-maintained, xeric upland habitats occurring on deep, well-drained soils, especially scrub and sandhill habitats (Jones and Layne, 1993). There are FNAI records of this species from Polk, Osceola, St. Lucie, and Martin Counties. The Florida mouse digs small burrows inside the burrows of other species, primarily the gopher tortoise, where they will prepare a nest.

The Florida pine snake inhabits areas that feature well-drained sandy soils with a moderate to open canopy (Franz, 1992; Ernst and Ernst, 2003). There are FNAI records for this species within Polk, Okeechobee, St. Lucie, and Martin Counties. This species often utilizes pocket gopher and gopher tortoise burrows for shelter.

The gopher frog shelters in stump holes and burrows of other species, particularly those created by the gopher tortoise. Their habitat includes sandy uplands within about one mile of wetlands or ponds. FNAI records exist for this animal for all five counties crossed by the FSC Project, and two records occur near the Project ESA in Polk County.

These three state-listed animals are considered to be gopher tortoise burrow commensal species by FWC. Commensals are species strongly associated with tortoise burrows because of

the burrow's constant microhabitat and protection from fire, weather, and predators. FWC does not currently require surveys for these species to be completed prior to site development. However, in accordance with their Interim Policy on the Relocation of Priority Commensals (FWC, 2013), FWC authorizes the relocation of these species when incidentally captured during authorized gopher tortoise capture methods. As such, if these species are encountered during tortoise relocations, they will be released within suitable habitat as close to the original habitat as possible. FWC will be provided with a report detailing the numbers and types of commensals encountered and their capture dates and locations.

Impacts

Although some direct loss of individuals may occur during construction, the FWC required gopher tortoise relocation guidelines will also serve to assist in relocating (actively or passively) these commensal species as well.

Mitigation

No additional mitigation besides relocation of these animals along with gopher tortoises will occur, or is generally required by FWC.

FLORIDA SANDHILL CRANE

Description

Florida sandhill cranes inhabit freshwater marshes, prairies, and pastures (Florida Natural Areas Inventory 2001). They occur throughout peninsular Florida north to the Okefenokee Swamp in southern Georgia; however, they are less common at the northernmost and southernmost portions of this range. Florida's Kissimmee and Desoto prairie regions are home to the state's most abundant populations (Meine and Archibald 1996).

Survey Methodology (Planned for March and April 2015)

The proposed survey methodology utilizes aerial helicopter surveys of the freshwater wetlands along the entire Project ESA. Florida sandhill crane nests are usually large and conspicuous, making them easy to locate and identify from the air. Prior to sampling, potential habitats will be identified and mapped and flight paths will be established to provide as close to 100% coverage as possible.

Aerial surveys will be conducted during the sandhill crane breeding season (i.e., January-February) and will take place on calm clear days with good visibility. Two experienced biologists will fly the established route (one on either side of the helicopter) with the pilot maintaining an optimal altitude of about 300 feet. When sandhill crane nests or foraging cranes are spotted, the pilot will be asked to maintain adequate altitude and circle the area as necessary to get an accurate count.

Impacts

Sandhill cranes may be impacted through loss of nests and eggs during construction through marshy habitats along the Project. The adult birds would tend to flee any nearby construction activities. Nearby human presence and noise of equipment may provide indirect impacts to nesting or foraging birds.

Mitigation

Since pre-construction surveys will serve to identify marshes with nesting birds, these can be seasonally avoided with construction activities. Sandhill cranes generally change nest sites from year to year based on hydrology and weather conditions. Since construction activities in potential nesting marshes will lead to restoration of those marshes and no net loss of marsh

habitat will occur, impacts to sandhill cranes will be minimal and temporary. No other mitigation is proposed.

LIMPKIN

Description

The limpkin inhabits shallows along rivers, streams, lakes, and in marshes, swamps and sloughs in Florida. In the U.S., the limpkin is found only in the Florida. Limpkins are fairly widespread in peninsular Florida, but rarer in the Panhandle and Keys. Outside of the U.S., they are found in the Caribbean, Central America, and most of South America east of the Andes Mountains.

Survey Methodology (Planned for March and April 2015)

The proposed survey methodology utilizes aerial helicopter surveys of the freshwater wetlands along the entire Project right-of-way. Prior to sampling, potential habitats will be identified and mapped and flight paths will be established to provide as close to 100% coverage as possible.

Aerial surveys will be conducted during the limpkin breeding season (i.e., February-June) and will take place on calm clear days with good visibility. Two experienced biologists will fly the established route (one on either side of the helicopter) with the pilot maintaining an optimal altitude of about 300 feet. When limpkins are spotted, the pilot will be asked to maintain adequate altitude and circle the area as necessary to get an accurate count.

Impacts

Impacts to limpkins may include direct loss of individual nests and eggs and loss of nesting habitat. Adult birds will flee nearby construction activities.

Mitigation

Temporal avoidance of known nesting pairs may occur during construction. However the Project will result in no net loss of wetlands so habitat for this bird will not be diminished.

LITTLE BLUE HERON

Description

Little blue herons inhabit fresh, salt, and brackish water environments in Florida including swamps, estuaries, ponds, lakes, and rivers (Rodgers et al. 1995). In the U.S., the little blue heron can be found from Missouri, east to Virginia, down to Florida, and west to Texas. In peninsular Florida they are relatively common and widespread but somewhat rare in the Panhandle. Outside of the U.S, the little blue heron can be found in Cuba, both coasts of Mexico and Central America, down into central South America.

Survey Methodology (Planned for March and April 2015)

Colonial nesting wading birds will be documented if observed during the aerial helicopter surveys conducted for bald eagles and wood storks. Preferred foraging and nesting habitat for wading birds has been identified within the Project ESA including wetlands, ponds, lakes, and marshes.

Impacts

If nesting colonies of wading birds occur in the right-of-way, direct impacts would include the loss of individual animals of nests. Depending on the nesting substrate, there may be a permanent loss of nesting habitat.

Mitigation

Aerial flyovers and agency records will document any rookery sites. If these cannot be avoided with sufficient buffer, then spatial or temporal avoidance will be required. No net loss of wetlands will occur, but forested and shrub wetlands will be converted to herbaceous wetlands. This impact will be mitigated through an approved mitigation bank.

SNOWY EGRET

Description

Snowy egrets commonly prefer shallow estuarine areas including mangroves, shallow bays, saltmarsh pools, and tidal channels (Parsons and Master 2000). This species can be found in the U.S. from northern California, east to South Dakota, and south to Florida where they are widespread year-round residents. Snowy egrets are also found in Chile, Argentina, and the Greater Antilles. This species is found throughout Florida.

Survey Methodology (Planned for March and April 2015)

Colonial nesting wading birds will be documented if observed during the aerial helicopter surveys conducted for bald eagles and wood storks. Preferred foraging and nesting habitat for wading birds has been identified within the Project ESA including wetlands, ponds, lakes, and marshes.

Impacts

If nesting colonies of wading birds occur in the right-of-way, direct impacts would include the loss of individual animals of nests. Depending on the nesting substrate, there may be a permanent loss of nesting habitat.

Mitigation

Aerial flyovers and agency records will document rookery sites. If these cannot be avoided with sufficient buffer, then spatial or temporal avoidance will be required. No net loss of wetlands will occur, but forested and shrub wetlands will be converted to herbaceous wetlands. This impact will be mitigated through an approved mitigation bank.

TRICOLORED HERON

Description

Tricolored herons inhabit fresh and saltwater marshes, estuaries, mangrove swamps, lagoons, and river deltas (Frederick 1997). They can be found from Massachusetts, down through the Gulf of Mexico and Caribbean, to northern Brazil. Breeding sites can also be found on the Pacific Coast from Baja California down to Ecuador. Tricolored herons are widespread, permanent residents in Florida, although they are less common in some parts of the Panhandle.

Survey Methodology (Planned for March and April 2015)

Colonial nesting wading birds will be documented if observed during the aerial helicopter surveys conducted for bald eagles and wood storks. Preferred foraging and nesting habitat for wading birds has been identified within the Project ESA including wetlands, ponds, lakes, and marshes.

Impacts

If nesting colonies of wading birds occur in the right-of-way, direct impacts would include the loss of individual animals of nests. Depending on the nesting substrate, there may be a permanent loss of nesting habitat.

Mitigation

Aerial flyovers and agency records will document any rookery sites. If these cannot be avoided with sufficient buffer, then spatial or temporal avoidance will be required. No net loss of wetlands will occur, but forested and shrub wetlands will be converted to herbaceous wetlands. This impact will be mitigated through an approved mitigation bank.

WHITE IBIS

Description

White ibis prefer coastal marshes and wetlands, feeding in fresh, brackish, and saltwater environments. They range from Baja California and Sinaloa, Mexico, east through south Texas, Louisiana, Alabama, Georgia, coastal North Carolina, south throughout the Greater Antilles, and South America to Peru, and French Guiana. This species is found throughout most of Florida.

Survey Methodology (Planned for March and April 2015)

Colonial nesting wading birds will be documented if observed during the aerial helicopter surveys conducted for bald eagles and wood storks. Preferred foraging and nesting habitat for wading birds has been identified within the Project ESA including wetlands, ponds, lakes, and marshes.

Impacts

If nesting colonies of wading birds occur in the right-of-way, direct impacts would include the loss of individual animals of nests. Depending on the nesting substrate, there may be a permanent loss of nesting habitat.

Mitigation

Aerial flyovers and agency records will document any rookery sites. If these cannot be avoided with sufficient buffer, then spatial or temporal avoidance will be required. No net loss of wetlands will occur, but forested and shrub wetlands will be converted to herbaceous wetlands. This impact will be mitigated through an approved mitigation bank.

ROSEATE SPOONBILL

Description

Prior to the 1850s, there were probably thousands of spoonbills along the Gulf Coast in Texas, Louisiana and Florida. By 1920, plume hunting and colony disturbance largely depleted the spoonbill population in the United States. A 1999 survey of nesting populations estimated 408 pairs in Florida Bay in the Florida Keys, Merritt Island, Tampa Bay and at two freshwater sites in the Everglades. The Florida Bay population represents the majority of the spoonbills that nest in the state. During the summer, roseate spoonbills are also found in Louisiana, Texas, Mexico, and Central and South America. Though plume hunting has ceased, spoonbills are still vulnerable today to habitat loss and alteration. In Florida Bay, freshwater inflows from the Everglades adversely affect the salinities of coastal wetlands and the population of fish and other prey. The roseate spoonbill is listed as a Species of Special Concern.

Survey Methodology (Planned for March and April 2015)

Colonial nesting wading birds will be documented if observed during the aerial helicopter surveys conducted for bald eagles and wood storks. Preferred foraging and nesting habitat for wading birds has been identified within the Project ESA including wetlands, ponds, lakes, and marshes.

Impacts

If nesting colonies of wading birds occur in the right-of-way, direct impacts would include the loss of individual animals of nests. Depending on the nesting substrate, there may be a permanent loss of nesting habitat.

Mitigation

Aerial flyovers and agency records will document any rookery sites. If these cannot be avoided with sufficient buffer, then spatial or temporal avoidance will be required. No net loss of wetlands will occur, but forested and shrub wetlands will be converted to herbaceous wetlands. This impact will be mitigated through an approved mitigation bank.

3.6 REFERENCES

Cardno Entrix. 2014. Listed Species Survey Report, Latt Maxcy Property. April 2014.

Environmental Consulting and Technology, Inc. (ECT). 2014. Field surveys along FSC Project route, conducted between July 22, 2013 and January 24, 2014.

Federal Register. 2013. Endangered and Threatened Wildlife and Plants; Review of Native Species That are Candidates for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions. Proposed Rule, USFWS. November 22, 2013. Reviewed online at: https://www.federalregister.gov/articles/2013/11/22/2013-27391/endangered-and-threatened-wildlife-and-plants-review-of-native-species-that-are-candidates-for#.

Florida Department of Transportation (FDOT). 1999. Florida Land Use, Cover and Forms Classification System. Department of Transportation, Surveying and Mapping, Geographic Mapping Section. January 1999.

Florida Fish and Wildlife Conservation Commission (FWC). 2014. Florida Freshwater Fish Hatcheries – Stocking Programs. Reviewed online at: http://myfwc.com/fishing/freshwater/stocking/.

FWC. 2013. Florida's Endangered and Threatened Species. Updated January 2013. Reviewed online at: http://myfwc.com/media/1515251/threatened_endangered_species.pdf.

Florida Geographic Data Committee (FGDC). 2013. Watersheds Containing Rare and Imperiled Fish in Florida – 2013. Reviewed online at: http://www.fgdl.org/metadataexplorer/full_metadata.jsp?docId={759A8AC2-B518-4134-AD0F-8EFE5B7073BF}&loggedIn=false.

FGDC. 2010. Fish Management Areas of Florida – 2010. Reviewed online at: http://www.fgdl.org/metadataexplorer/full_metadata.jsp?docId={740D054B-7A93-4777-9F2E-755D718D4C0A}&loggedIn=false.

Florida Natural Areas Inventory (FNAI). 2001. Striped Newt. Field Guide to the Rare Animals of Florida. Reviewed online at: http://www.fnai.org/FieldGuide/pdf/Notophthalmus_perstriatus.pdf.

FNAI. 2013. Florida State University, Florida Resources and Environmental Analysis Center at the Institute of Science and Public Affairs.

Florida Senate. 2012. Chapter 285, Section 09. Rights of Miccosukee and Seminole Tribes with respect to hunting, fishing, and frogging. Reviewed online at: http://www.flsenate.gov/Laws/Statutes/2012/285.09.

Griffith, G.E., Omernik, J.M., Rohm, C.W., and Pierson, S.M. 1994. Florida Regionalization Project: Corvallis, Oregon, U.S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory. EPA/600/Q-95/002.

National Atlas of the United States. 2013. Map Layer Info; Omernik's Level III Ecoregions of the Continental United States. United States Department of the Interior. Reviewed online at: http://nationalatlas.gov/mld/ecoomrp.html. Last updated May 29, 2013.

National Marine Fisheries Service (NMFS). 2014. Essential Fish Habitat Mapper, version 3.0. Reviewed online at: http://www.habitat.noaa.gov/protection/efh/habitatmapper.html

USFWS. 2012. What is an Invasive Species? Reviewed online at: http://www.fws.gov/invasives/. Last updated October 17, 2012.

USFWS. 2013. Environmental Conservation Online System. Reviewed online at: http://ecos.fws.gov/tess_public/pub/stateListingAndOccurrenceIndividual.jsp?state=FL&s8fid=112761032792&s8fid=112762573902.

TABLES

Table 3.2-1

Fish Species with the Potential to Occur along the FSC Project Route

Common Name	Scientific Name
White bullhead	*Ameiurus catus*
Yellow bullhead	*Ameiurus natalis*
Brown bullhead	*Ameiurus nebulosus*
Bowfin	*Amia calva*
Pirate perch	*Aphredoderus sayanus*
Oscar	*Astronotus ocellatus*
Silver perch	*Bairdiella chrysoura*
Walking catfish	*Clarias batrachus*
Blackfin pacu	*Colossoma macropomum*
Grass carp	*Ctenopharyngodon idella*
Common carp	*Cyprinus carpio*
Eastern gizzard shad	*Dorosoma cepedianum*
Threadfin shad	*Dorosoma petenense*
Everglades pygmy sunfish	*Elassoma evergladei*
Okefenokee pygmy sunfish	*Elassoma okefenokee*
Lake chubsucker	*Erimyzon sucetta sucetta*
Grass pickerel	*Esox americanus*
Chain pickerel	*Esox niger*
Swamp darter	*Etheostoma fusiforme*
Golden topminnow	*Fundulus chrysotus*
Seminole killifish	*Fundulus seminolis*
Western mosquitofish	*Gambusia holbrooki*
Least killifish	*Heterandria formosa*
Brown hoplo	*Hoplosternum littorale*
Suckermouth catfish	*Hypostomus plecostomus*
Channel catfish	*Ictalurus punctatus*
Flagfish	*Jordanella floridae*
Longnose gar	*Lepisosteus osseus*
Florida gar	*Lepisosteus platyrhincus*
Redbreast sunfish	*Lepomis auritus*
Warmouth	*Lepomis gulosus*
Bluegill	*Lepomis macrochirus*

Table 3.2-1

Fish Species with the Potential to Occur along the FSC Project Route

Common Name	Scientific Name
Dollar sunfish	*Lepomis marginatus*
Redear sunfish	*Lepomis microlophus*
Spotted sunfish	*Lepomis punctatus*
Bluefin killifish	*Lucania goodei*
Largemouth bass	*Micropterus salmoides*
Japanese weatherfish	*Misgurnus anguillicaudatus*
White bass	*Morone chrysops*
Rockfish	*Morone saxatilis*
Golden shiner	*Notemigonus crysoleucas*
Taillight shiner	*Notropis maculatus*
Pugnose minnow	*Opsopoeodus emiliae*
Blue tilapia	*Oreochromis aureus*
Nile tilapia	*Oreochromis niloticus*
Pirapatinga	*Piaractus brachypomus*
Sailfin molly	*Poecilia latipinna*
Southern sailfin catfish	*Pterygoplichthys anisitsi*
Vermiculated sailfin catfish	*Pterygoplichthys disjunctivus*
Spotted tilapia	*Tilapia mariae*
Redbelly tilapia	*Tilapia zillii*
Hogchoker	*Trinectes maculatus*
Green swordtail	*Xiphophorus hellerii*

Sources:
FNAI, 2014. http://www.fnai.org/biodiversitymatrix/index.html
NatureServe.org, 2014. http://explorer.natureserve.org/servlet/NatureServe?init=Ecol
USGS Biodiversity Information Serving Our Nation, 2014. http://bison.usgs.ornl.gov/

Table 3.3-1

Acres of Vegetation Affected by the FSC Project

Facility	Open Land a/						Agricultural b/		Forest/Woodland c/						Other d/		Total	
	Upland Open Land		Herbaceous Wetlands		Scrub-Shrub Wetlands				Pine Plantation		Upland Forest		Wetland Forest					
	Construction	Operation e/	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation
Pipeline Right-of-Way	369.08	369.08	70.99	0.00	12.73	2.49	120.80	120.80	0.49	0.49	83.07	83.07	56.10	34.47	29.19	29.19	**742.45**	**639.59**
Temporary Easement	326.80	0.00	31.15	0.00	5.30	0.00	117.8	0.00	0.64	0.00	99.23	0.00	30.58	0.00	24.34	0.00	**635.84**	**0.00**
Additional Temporary Workspace	73.70	0.00	12.17	0.00	0.93	0.00	46.82	0.00	0.26	0.00	19.76	0.00	7.77	0.00	10.39	0.00	**171.80**	**0.00**
Launcher Site (MP 0.0) f/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**
Launcher / Receiver (MP 77.1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.26	**0.26**	**0.26**
Receiver Site (MP 126.3) g/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**
Main Line Valves h/	0.39	0.39	0.00	0.00	0.00	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.48**	**0.48**
Martin Meter Station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.92	**0.92**	**0.92**
Contractor Yards	141.39	0.00	14.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.37	0.00	9.28	0.00	27.19	0.00	**223.81**	**0.00**
Staging Area	0.88	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	0.00	0.00	0.00	1.79	0.00	**4.31**	**0.00**
Access Roads	31.99	1.15	3.86	0.00	0.29	0.00	6.51	0.18	0.01	0.00	1.55	0.21	0.34	0.00	72.18	3.06	**116.73**	**4.60**
PROJECT TOTALS	**944.23**	**370.62**	**132.77**	**0.00**	**19.25**	**2.49**	**292.02**	**121.07**	**1.40**	**0.49**	**236.60**	**83.28**	**104.07**	**34.47**	**166.26**	**33.43**	**1896.60**	**645.85**

a/ Utility rights-of-way, open fields, vacant land, herbaceous and scrub uplands, non-forested lands, emergent wetland, scrub-shrub wetland, golf courses, and municipal land.

b/ Cultivated land and citrus groves.

c/ Upland and wetland forest, and pine plantation.

d/ Industrial, commercial, and residential land uses as defined in Resource Report 8. Does not include "open water" land use, i.e. water crossings greater than 100 feet wide and streams visible on aerial photography but less than 100 feet in width.

e/ Vegetation affected during operation of the pipeline includes only the new 50-foot permanent right-of-way, except for the permanent right-of-way in wetlands as detailed in Resource Report 2.

f/ The pig launcher at MP 0.0 is located within the boundary of the Sabal Trail Reunion Compressor Station site; therefore, vegetation affected for the launcher at MP 0.0 is accounted for in the Sabal Trail draft ER [PF14-1-000].

g/ The pig receiver at MP 126.3 is located within the boundaries of the Martin Meter Station; therefore, the vegetation affected for the receiver at MP 126.3 is included in the vegetation affected for the Martin Meter Station.

h/ 0.92 acres is required for construction and operation of the new meter station. The new meter station is located within the existing the FPL Martin Clean Energy Center property which consists of approximately 528 acres.

i/ The MLV at MP 0.0 is located within the boundary of the Sabal Trail Reunion Compressor Station site; therefore, vegetation affected for the MLV at MP 0.0 is accounted for in the Sabal Trail draft ER [PF14-1-000]. The MLV at MP 126.3 is located within the boundaries of the Martin Meter Station; therefore, the vegetation affected for the MLV at MP 126.3 is included in the vegetation affected for the Martin Meter Station.

Table 3.3-2

Non-native/Invasive Plant Species with the Potential to Occur Along the FSC Project Route

Scientific Name	Common Name
Category I Species	
Cinnamomum camphora	Camphor tree
Colocasia esculenta	Wild taro
Dioscorea bulbifera	Air-potato
Eichlornia crassipes	Water-hyacinth
Imperata cylindrica	Cogon grass
Lantana camara	Lantana
Ludwigia peruviana	Peruvian primrose willow
Lygodium japonicum	Japanese climbing fern
Lygodium micrphyllum	Old world climbing fern
Melinis repens	Natal grass
Panicum repens	Torpedo grass
Pistia stratiotes	Water lettuce
Salvinia minima	Water spangles
Sapium sebiferum	Chinese tallow
Schinus terebinthifolius	Brazilian pepper
Solanum viarum	Tropical soda apple
Urena lobata	Ceaser's weed
Urochloa mutica	Para grass
Category II Species	
Alternanthera philoxeroides	Alligator weed
Hemarthria altissima	Limpo grass
Source: FLEPPC. 2013. List of Invasive Plant Species. Florida Exotic Pest Plant Council. http://www.fleppc.org/list/list.htm	

Table 3.4-1

Wildlife Species with the Potential to Occur Along the FSC Project Route

Common Name	Scientific Name
Amphibians	
Barking treefrog	*Hyla gratiosa*
Bullfrog	*Rana catesbeiana*
Chorus frog	*Pseudacris nigrita*
Cricket frog	*Acris gryllus*
Cuban treefrog	*Osteopilus septentrionalis*
Eastern narrow-mouthed toad	*Gastrophyrne carolinensis*
Gopher frog	*Lithobates capito*
Green treefrog	*Hyla cinerea*
Greenhouse frog	*Eleutherodactylus planirostris*
Little grass frog	*Pseudacris ocularis*
Oak toad	*Bufo quercicus*
Pig frog	*Rana grylio*
Pinewoods treefrog	*Hyla femoralis*
Southern leopard frog	*Rana sphenocephala*
Southern toad	*Bufo terrestris*
Squirrel treefrog	*Hyla squirella*
Reptiles	
American alligator	*Alligator mississippiensis*
Black racer	*Coluber constrictor*
Brown anole	*Anolis sagrei*
Chicken turtle	*Deirochelys reticularia*
Dusky pygmy rattlesnake	*Sistrurus miliarius barbouri*
Eastern diamondback rattlesnake	*Crotalus adamanteus*
Eastern garter snake	*Thamnophis sirtalis*
Eastern indigo snake	*Drymarchon corais couperi*
Five-lined skink	*Eumeces fascatus*
Florida box turtle	*Terrapene carolina bauri*
Florida cooter	*Chrysemys floridana*
Florida cottonmouth	*Agkistrodon piscivorous*
Florida soft-shell turtle	*Trionyx ferox*

Table 3.4-1

Wildlife Species with the Potential to Occur Along the FSC Project Route

Common Name	Scientific Name
Florida water snake	*Natrix fasciata pictiventris*
Gopher tortoise	*Gopherus polyphemus*
Green anole	*Anolis carolinensis*
Ground skink	*Scinella lateralis*
Six-lined racerunner	*Cnemidophorus sexlineatus*
Southeastern five lined skink	*Eumeces inexpectatus*
Yellow rat snake	*Elaphe obsolete*
Birds	
American anhinga	*Anhinga anhinga*
American bittern	*Botaurus lentiginosus*
American coot	*Fulica americana*
American goldfinch	*Carduelis tristis*
American kestrel	*Falco sparverius*
American redstart	*Setophaga ruticilla*
American robin	*Turdus migratorius*
American white pelican	*Pelecanus erythrorhynchos*
Bachman's sparrow	*Aimophila aestivalis*
Bald eagle	*Haliaeetus leucocephalus*
Barn swallow	*Hirundo rustica*
Barred owl	*Strix varia*
Belted kingfisher	*Ceryle alcyon*
Black and white warbler	*Mniotilta varia*
Black vulture	*Coragyps atratus*
Black-bellied whistling duck	*Dendrocygna autumnalis*
Black-crowned night heron	*Nycticorax nycticorax*
Black-necked stilt	*Himantopus mexicanus*
Blue jay	*Cyanocitta cristata*
Blue-gray gnatcatcher	*Polioptila caerulea*
Boat-tailed grackle	*Quiscalus major*
Brown thrasher	*Toxostoma rufum*
Bobwhite	*Colinus virginianus*
Brown-headed cowbird	*Molothrus ater*

Table 3.4-1

Wildlife Species with the Potential to Occur Along the FSC Project Route

Common Name	Scientific Name
Burrowing owl	*Athene cunicularia floridana*
Carolina chickadee	*Parus carolinensis*
Carolina wren	*Thryothorus ludovicianus*
Cattle egret	*Bubulcus ibis*
Cedar waxwing	*Bombycilla cedrorum*
Chimney swift	*Chaetura pelagica*
Chuck-will's-widow	*Caprimulgus carolinensis*
Common crow	*Corvus brachyrhynchos*
Common gallinule	*Gallinula chloropus*
Common grackle	*Quiscalus quiscula*
Common nighthawk	*Chordeiles minor*
Common snipe	*Capella gallinago*
Common yellowthroat	*Geothlypis trichas*
Cooper's hawk	*Accipiter cooperii*
Crested caracara	*Polyborus plancus*
Double-crested cormorant	*Phalacrocorax auritus*
Downy woodpecker	*Picoides pubescens*
Eastern bluebird	*Sialia sialis*
Eastern kingbird	*Tyrannus tyrannus*
Eastern meadowlark	*Sturnella magna*
Eastern phoebe	*Sayornis phoebe*
Eastern wood pewee	*Contopus virens*
Eurasian collared dove	*Streptopelia decaocto*
Field sparrow	*Spizella pusilla*
Fish crow	*Corvus ossifragus*
Florida duck	*Anas fulvigula*
Florida sandhill crane	*Grus canadensis pratensis*
Glossy ibis	*Plegadis falcinellus*
Gray catbird	*Dumetella carolinensis*
Great blue heron	*Ardea herodias*
Great egret	*Casmerodius albus*
Great horned owl	*Bubo virginianus*

Table 3.4-1

Wildlife Species with the Potential to Occur Along the FSC Project Route

Common Name	Scientific Name
Great-crested flycatcher	*Myiarchus crinitus*
Greater yellowlegs	*Tringa melanoleuca*
Green heron	*Butorides striatus*
Ground dove	*Columbina passerina*
Hairy woodpecker	*Picoides villosus*
House wren	*Troglodytes aedon*
Killdeer	*Charadrius vociferous*
Little blue heron	*Egretta caerulea*
Loggerhead shrike	*Lanius ludovicianus*
Merlin	*Falco columbarius*
Mourning dove	*Zenaida macroura*
Northern bobwhite	*Colinus viginiana*
Northern cardinal	*Cardinalis cardinalis*
Northern flicker	*Colaptes auratus*
Northern harrier	*Circus cyaneus*
Northern mockingbird	*Mimus polyglottos*
Northern parula	*Parula americana*
Osprey	*Pandion haliaetus*
Palm warbler	*Dendroica palmarum*
Pied-billed grebe	*Podilymbus podiceps*
Pigeon (Rock dove)	*Columba livia*
Pileated woodpecker	*Dryocopus pileatus*
Pine warbler	*Dendroica pinus*
Prairie warbler	*Dendroica discolor*
Red-bellied woodpecker	*Melanerpes carolinus*
Red-cockaded woodpecker	*Picoides borealis*
Red-headed woodpecker	*Melanerpes erythrocephalus*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Roseate spoonbill	*Ajaia ajaja*
Ruby-crowned kinglet	*Regulus calendula*

Table 3.4-1

Wildlife Species with the Potential to Occur Along the FSC Project Route

Common Name	Scientific Name
Rufous-sided towhee	*Pipilo erythrophthalmus*
Savannah sparrow	*Passerculus sandwichensis*
Sharp-shinned hawk	*Accipiter striatus*
Short-tailed hawk	*Buteo brachyurus*
Snowy egret	*Egretta thula*
Song sparrow	*Melospiza melodia*
Southeastern American kestrel	*Falco sparverius paulus*
Starling	*Sturnus vulgaris*
Summer tanager	*Piranga rubra*
Swallow-tailed kite	*Elanoides forficatus*
Tree swallow	*Iridoprocne bicolor*
Tricolored heron	*Egretta tricolor*
Tufted titmouse	*Parus bicolor*
Turkey vulture	*Cathartes aura*
White ibis	*Eudocimus albus*
White-eyed vireo	*Vireo griseus*
Wild turkey	*Meleagris gallopavo*
Wood duck	*Aix sponsa*
Wood stork	*Mycteria americana*
Wood thrush	*Hylocichla mustelina*
Yellow-bellied sapsucker	*Sphyrapicus varius*
Yellow-billed cuckoo	*Coccyzus americanus*
Yellow-crowned night heron	*Nyctanassa violacea*
Yellow–rumped warbler	*Dendroica coronata*
Yellow-shafted flicker	*Colaptes auratus*
Yellow-throated warbler	*Dendroica dominica*
Mammals	
Bobcat	*Felis rufus*
Cotton mouse	*Peromyscus gossypinus*
Coyote	*Canis latrans*
Eastern cottontail	*Sylvilagus floridanus*
Eastern gray squirrel	*Sciurus carolinensis*

Table 3.4-1

Wildlife Species with the Potential to Occur Along the FSC Project Route

Common Name	Scientific Name
Eastern mole	*Scalopus aquaticus*
Feral hog	*Sus scrofa*
Florida mouse	*Podomys floridanus*
Gray fox	*Urocyon cinereoargenteus*
Hispid cotton rat	*Sigmodon hispidus*
Marsh rabbit	*Sylvilagus palustris*
Nine-banded armadillo	*Dasypus novemcinctus*
Old field mouse	*Peromyscus polionotus*
Opossum	*Didelphis virginiana*
Raccoon	*Procyon lotor*
River otter	*Lutra canadensis*
Round-tailed muskrat	*Neofiber alleni*
Sherman's fox squirrel	*Sciurus niger shermani*
Southeastern pocket gopher	*Geomys pinetus*
Striped skunk	*Mephitis mephitis*
White-tailed deer	*Odocoileus virginianus*

Sources:
Environmental Consulting & Technology (ECT), Inc., 2014.
FNAI, 2014. http://www.fnai.org/biodiversitymatrix/index.html

Table 3.4-2

USFWS Birds of Conservation Concern

Bird Conservation Region 31 (Polk, Osceola, Okeechobee, St. Lucie, and Martin Counties, FL)

Common Name	Scientific Name
Black-capped Petrel (nb)	*Pterodroma hasitata*
Audubon's Shearwater (nb)	*Puffinus lherminieri*
Brown Booby (nb)	*Sula leucogaster*
Magnificent Frigatebird	*Fregata magnificens*
American Bittern (nb)	*Botaurus lentiginosus*
Least Bittern	*Ixobrychus exilis*
Reddish Egret	*Egretta rufescens*
Roseate Spoonbill	*Platalea ajaja*
Swallow-tailed Kite	*Elanoides forficatus*
Bald Eagle (b)	*Haliaeetus leucocephalus*
Short-tailed Hawk	*Buteo brachyurus*
American Kestrel (*paulus* ssp.)	*Falco sparverius*
Peregrine Falcon (b)	*Falco peregrinus*
Yellow Rail (nb)	*Coturnicops noveboracensis*
Black Rail	*Laterallus jamaicensis*
Limpkin	*Aramus guarauna*
Snowy Plover (c)	*Charadrius nivosus*
Wilson's Plover	*Charadrius wilsonia*
American Oystercatcher	*Haematopus palliatus*
Solitary Sandpiper (nb)	*Tringa solitaria*
Lesser Yellowlegs (nb)	*Tringa flavipes*
Whimbrel (nb)	*Numenius phaeopus*
Long-billed Curlew (nb)	*Numenius americanus*
Marbled Godwit (nb)	*Limosa fedoa*
Red Knot (*rufa* ssp.) (a) (nb)	*Calidris canutus*
Semipalmated Sandpiper (Eastern) (nb)	*Calidris pusilla*
Buff-breasted Sandpiper (nb)	*Tryngites subruficollis*
Short-billed Dowitcher (nb)	*Limnodromus griseus*
Least Tern (c)	*Sternula antillarum*
Black Skimmer	*Rynchops niger*
White-crowned Pigeon	*Patagioenas leucocephala*
Common Ground-Dove	*Columbina passerina*
Mangrove Cuckoo	*Coccyzus minor*
Smooth-billed Ani	*Crotophaga ani*

Table 3.4-2

USFWS Birds of Conservation Concern

Bird Conservation Region 31 (Polk, Osceola, Okeechobee, St. Lucie, and Martin Counties, FL)

Common Name	Scientific Name
Chuck-will's-widow	*Antrostomus carolinensis*
Red-headed Woodpecker	*Melanerpes erythrocephalus*
Loggerhead Shrike	*Lanius ludovicianus*
Black-whiskered Vireo	*Vireo altiloquus*
Brown-headed Nuthatch	*Sitta pusilla*
Yellow Warbler (*gundlachi* spp.)	*Setophaga petechia*
Prairie Warbler	*Setophaga discolor*
Prothontary Warbler	*Protonotaria citrea*
Bachman's Sparrow	*Peucaea aestivalis*
Grasshopper Sparrow	*Ammodramus savannarum*
Henslow's Sparrow (nb)	*Ammodramus henslowii*
Nelson's Sharp-tailed Sparrow (nb)	*Ammodramus nelsoni*
Saltmarsh Sharp-tailed Sparrow (nb)	*Ammodramus caudacutus*
Seaside Sparrow (c)	*Ammodramus maritimus*
Painted Bunting (nb)	*Passerina ciris*

(a): ESA candidate, (b): ESA delisted, (c): non-listed subspecies or population of Threatened or Endangered species, (nb): non-breeding in this BCR

Table 3.5-1

Federally and State-Listed Plant Species Potentially Occurring in Osceola, Okeechobee, Polk, Martin, and St. Lucie Counties, Florida with the Potential to Occur Along the FSC Project Route

Scientific Name	Common Name	Status a/		FNAI Observation Within 1 Mile	MP	Likelihood of Occurrence
		Federal	State			
Andropogon arctatus	Pinewoods bluestem	NL	LT	Not Observed	N/A	Low
Asimina tetramera	Four-petal pawpaw	LE	NL	Not Observed	N/A	Unlikely
Bonamia grandiflora	Florida bonamia	LT	LE	10/21/1998	35	Low
Calamintha ashei	Ashe's savory	NL	LT	Not Observed	N/A	Low
Calopogon multiforus	Many-flowered grass-pink	NL	LE	Not Observed	N/A	Low
Carex chapmanii	Chapman's sedge	NL	LT	Not Observed	N/A	Low
Centrosema arenicola	Sand butterfly pea	NL	LE	09/04/1960	30	Low
Chamaesyce cumulicola	Sand-dune spurge	NL	LE	Not Observed	N/A	Low
Chionanthus pygmaeus	Pygmy fringe tree	LE	LE	04/11/2012	9	Low
Cladonia perforata	Perforate reindeer lichen	LE	LE	Not Observed	N/A	Low
Clitoria fragrans	Scrub pigeon-wing	LT	LE	05/29/1983	4	Moderate
Coelorachis tuberculosa	Piedmont jointgrass	NL	LT	Not Observed	N/A	Low
Conradina brevifolia	Short-leaved rosemary	LE	LE	Not Observed	N/A	Low
Conradina grandiflora	Large-flowered rosemary	NL	LT	05/11/1963	73	Low
Crotalarioa avonensis	Avon park hare-bells	LE	LE	Not Observed	N/A	Low
Dicerandra frutescens	Scrub mint	LE	LE	07/30/2010	9	Moderate
Dicerandra immaculate	Lakela's mint	LE	LE	Not Observed	N/A	Low
Drosera intermedia	Spoon-leaved sundew	NL	LT	Not Observed	N/A	Low
Eriogonum longifolium var.gnaphalifolium	Scrub buckwheat	LT	LE	02/12/1998	35	Moderate
Harrisia fragrans/Cereus eriophorus var. fragrans	Fragrant prickly apple	LE	LE	Not Observed	N/A	Unlikely
Hartwrightia floridana	Hartwrightia	NL	LT	Not Observed	N/A	Observed MP 37, 42, 49
Hypericum cumulicola	Highlands scrub hypericum	LE	LE	Not Observed	N/A	Low
Hypericum edisonianum	Edison's ascyrum	NL	LE	Not Observed	N/A	Low

Table 3.5-1

Federally and State-Listed Plant Species Potentially Occurring in Osceola, Okeechobee, Polk, Martin, and St. Lucie Counties, Florida with the Potential to Occur Along the FSC Project Route

Scientific Name	Common Name	Status a/		FNAI Observation Within 1 Mile	MP	Likelihood of Occurrence
		Federal	State			
Illicium parviflorum	Star anise	NL	LE	08/21/1996	12	Observed MP 9, 12
Lechea cernua	Nodding pinweed	NL	LT	11/17/1987	1	Moderate
Lechea divaricata	Pine pinweed	NL	LE	Not Observed	N/A	Low
Liatris ohlingerae	Florida blazing star	LE	LE	Not Observed	N/A	Low
Lupinus aridorum	Scrub lupine	LE	LE	Not Observed	N/A	Low
Matelea floridana	Florida spiny-pod	NL	LE	Not Observed	N/A	Low
Najas filifolia	Narrowleaf naid	NL	LT	Not Observed	N/A	Low
Nemastylis floridana	Celestial lily	NL	LE	09/04/1977	1	Low
Nolina atopocarpa	Florida beargrass	NL	LT	Not Observed	N/A	Low
Nolina brittoniana	Britton's beargrass	LE	LE	08/21/1998	9	Moderate
Ophioglossum palmatum	Hand fern	NL	LE	09/18/2001	80	Moderate
Panicum abscissum	Cutthroat grass	NL	LE	Not Observed	N/A	Low
Paronychia chartacea ssp.chartacea	Paper-like nailwort/Papery whitlow-wort	LT	LE	11/24/1987	35	High
Pecluma plumula	Plume polypody	NL	LE	Not Observed	N/A	Low
Pecluma ptilodon	Swamp plume polypody	NL	LE	Not Observed	N/A	Low
Peperomia humilis	Terrestrial peperomia	NL	LE	08/21/1996	12	Moderate
Peperomia obtusifolia	Blunt-leaved peperomia	NL	LE	05/12/1997	108	Low
Platanthera integra	Yellow fringeless orchid	NL	LE	Not Observed	N/A	Low
Polygala lewtonii	Lewton's polygala	LE	LE	04/11/2012	9	Moderate
Polygala smallii	Tiny polygala	LE	LE	Not Observed	N/A	Unlikely
Polygonella basiramia	Florida jointweed/wireweed	LE	LE	09/26/2012	35	Low
Polygonella myriophylla	Small's jointweed/ Sandlace	LE	LE	11/17/1987	1	Moderate
Prunus geniculata	Scrub plum	LE	LE	08/19/1989	35	Moderate
Pteroglossaspis ecristata	Giant orchid	NL	LT	Not Observed	N/A	Low

Table 3.5-1

Federally and State-Listed Plant Species Potentially Occurring in Osceola, Okeechobee, Polk, Martin, and St. Lucie Counties, Florida with the Potential to Occur Along the FSC Project Route

Scientific Name	Common Name	Status a/		FNAI Observation Within 1 Mile	MP	Likelihood of Occurrence
		Federal	State			
Rhynchospora megaplumosa	Large-plumed beaksedge	NL	LE	Not Observed	N/A	Low
Salix floridana	Florida willow	NL	LE	03/28/1989	9	Moderate
Sarracenia minor	Hooded pitcher plant	NL	LT	Not Observed	N/A	Observed MP 77
Schizachyrium niveum	Scrub bluestem	NL	LE	10/10/1986	35	Moderate
Stylisma abdita	Scrub stylisma	NL	LE	10/21/1998	35	Moderate
Tephrosia angustissima var.curtissii	Coastal hoary-pea	NL	LE	Not Observed	N/A	Low
Thelypteris serrata	Toothed maiden fern	NL	LE	Not Observed	N/A	Low
Tillandsia utriculata	Giant air plant	NL	LE	Not Observed	N/A	Observed MP 36, 103, 126
Warea amplixifolia	Clasping warea/Wide-leaf warea	LE	LE	Not Observed	N/A	Low
Warea carteri	Carter's warea	LE	LE	09/22/1967	15	Moderate
Zephyranthes simpsonii	Redmargin zephyrlily	NL	LT	Not Observed	N/A	Low
Ziziphus celata	Scrub ziziphus, Florida ziziphus	LE	LE	Not Observed	N/A	Low

a/ LE = Listed Endangered
LT = Listed Threatened
NL = Not Listed

Sources:

USFWS, 2014. http://ecos.fws.gov/tess_public/pub/stateListingAndOccurrenceIndividual.jsp?state=FL&s8fid=112761032792&s8fid=112762573902
FDACS, 2013, 2014. http://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Our-Forests/Forest-Health/Florida-Statewide-Endangered-and-Threatened-Plant-Conservation-Program/Florida-s-Federally-Listed-Plant-Species
FNAI, 2014. http://www.fnai.org/biodiversitymatrix/index.html
ECT, 2014.

Table 3.5-2

Federally and State-Listed Wildlife Species Known to Occur in Osceola, Okeechobee, Polk, Martin, and St. Lucie Counties, Florida with the Potential to Occur along the FSC Project Route

Scientific Name	Common Name	Status		FNAI Observation Within 1 Mile	Likelihood of Occurrence
		Federal a/	State b/		
Amphibians					
Rana capito	Gopher frog	NL	SSC	08/21/1998	Moderate
Reptiles					
Alligator mississippiensis	American alligator	FT(S/A)	NL	02/1992	Observed, multiple
Caretta caretta	Loggerhead sea turtle	LT	NL	Not Observed	Unlikely
Chelonia mydas	Green sea turtle	LE	NL	Not Observed	Unlikely
Crocodylus acutus	American crocodile	LT	NL	Not Observed	Unlikely
Dermochelys coriacea	Leatherback sea turtle	LE	NL	Not Observed	Unlikely
Drymarchon couperi	Eastern indigo snake	LT	FT	11/24/1998	Moderate
Eretmochelys imbricata	Hawksbill sea turtle	LE	NL	Not Observed	Unlikely
Eumeces egregius lividus	Blue-tailed mole skink	LT	FT	11/17/1987	Low
Gopherus polyphemus	Gopher tortoise	C	ST	09/09/2003	Observed, multiple
Neoseps reynoldsi	Sand skink	LT	FT	11/17/1987	Moderate
Pituophis melanoleucus mugitus	Florida pine snake	NL	SSC	Not Observed	Low
Stilosoma extenuatum	Short-tailed snake	NL	ST	Not Observed	Low
Birds					
Ammodramus savannarum floridanus	Florida grasshopper sparrow	LE	FE	1984	Low
Aphelocoma coerulescens	Florida scrub-jay	LT	FT	06/08/1982	Moderate
Aramus guarauna	Limpkin	NL	SSC	Not Observed	Moderate

Table 3.5-2

Federally and State-Listed Wildlife Species Known to Occur in Osceola, Okeechobee, Polk, Martin, and St. Lucie Counties, Florida with the Potential to Occur along the FSC Project Route

Scientific Name	Common Name	Status		FNAI Observation Within 1 Mile	Likelihood of Occurrence
		Federal a/	State b/		
Athene cunicularia floridana	Florida burrowing owl	NL	SSC	06/21/1989	Observed MP 46
Calidris canutus rufa	Red knot	PT	NL	Not Observed	Unlikely
Campephilus principalis	Ivory-billed woodpecker	LE	NL	Not Observed	Unlikely, presumed extinct
Charadrius melodus	Piping plover	LT	NL	Not Observed	Unlikely
Dendroica kirtlandii	Kirtland's warbler	LE	NL	Not Observed	Unlikely
Egretta caerulea	Little blue heron	NL	SSC	04/21/1988	High
Egretta thula	Snowy egret	NL	SSC	Not Observed	High
Egretta tricolor	Tricolored heron	NL	SSC	Not Observed	Observed MP 66
Eudocimus albus	White ibis	NL	SSC	Not Observed	High
Falco sparverius paulus	Southeastern American kestrel	NL	ST	Not Observed	High
Grus americana	Whooping crane	Experimental population	NL	Not Observed	Unlikely
Grus canadensis pratensis	Florida sandhill crane	NL	ST	02/1992	Observed MP 6, 36, 68, 72, and 123; Nest observed near MP 62
Haliaeetus leucocephalus	Bald eagle	NL	NL	2003	High
Mycteria americana	Wood stork	LE	FE	Not Observed	Observed MP 66
Picoides borealis	Red-cockaded woodpecker	LE	FE	Not Observed	Low
Platalea ajaja	Roseate spoonbill	NL	SSC	Not Observed	Low
Polyborus plancus audubonii	Crested caracara	LT	FT	1978	Observed MP 58, 63, 66, 67, 78, 97,112, and 121

Table 3.5-2

Federally and State-Listed Wildlife Species Known to Occur in Osceola, Okeechobee, Polk, Martin, and St. Lucie Counties, Florida with the Potential to Occur along the FSC Project Route

Scientific Name	Common Name	Status		FNAI Observation Within 1 Mile	Likelihood of Occurrence
		Federal a/	State b/		
Rostrhamus sociabilis plumbeus	Snail kite	LE	FE	Not Observed	Low
Mammals					
Eumops floridanus	Florida bonneted bat	LE	NL	Not Observed	Low
Peromyscus polionotus niveiventris	Southeastern beach mouse	LT	NL	Not Observed	Unlikely
Podomys floridanus	Florida mouse	NL	SSC	Not Observed	Moderate
Puma concolor coryi	Florida panther	LE	FE	Not Observed	Unlikely
Sciurus niger shermanii	Sherman's fox squirrel	NL	SSC	Not Observed	Observed MP 111, 121
Trichechus mantaus	West Indian manatee	LE	NL	Not Observed	Unlikely

a/ LE = Listed Endangered
LT = Listed Threatened
PT = Proposed Threatened
C = Candidate for Listing
FT(S/A) = Federally-designated Threatened Due to Similarity of Appearance
NL = Not Listed

b/ FE = Federally Endangered
FT = Federally Threatened
ST = State Threatened
SSC = State Species of Special Concern
NL = Not Listed

Sources:
USFWS, 2014. http://ecos.fws.gov/tess_public/pub/stateListingAndOccurrenceIndividual.jsp?state=FL&s8fid=112761032792&s8fid=112762573902
FWC, 2014. http://myfwc.com/wildlifehabitats/imperiled/profiles/
FNAI, 2014. http://www.fnai.org/biodiversitymatrix/index.html
ECT, 2014.
Cardno-Entrix, 2014. Latt Maxcy Property-Florida Southeast Connection Listed Species Survey Report, prepared for Florida Southeast Connection.

APPENDIX 3A

COMPREHENSIVE LISTED SPECIES SURVEY PROTOCOLS

FLORIDA SOUTHEAST CONNECTION PROJECT
OSCEOLA, POLK, ST. LUCIE, OKEECHOBEE, AND MARTIN COUNTIES, FLORIDA

COMPREHENSIVE LISTED SPECIES SURVEY PROTOCOLS

Prepared for:

Florida Southeast Connection, LLC
Juno Beach, Florida

Prepared by:

3701 Northwest 98th Street
Gainesville, Florida 32606

ECT No. 120591-0300

August 2014

TABLE OF CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS

ESA	environmental study area
F.A.C.	Florida Administrative Code
FLUCFCS	Florida Land Use, Cover and Forms Classification System
FNAI	Florida Natural Areas Inventory
FSC	Florida Southeast Connection, LLC
ft	foot
FWC	Florida Fish and Wildlife Conservation Commission
GPS	global positioning system
mph	mile per hour
Project	Florida Southeast Connection natural gas pipeline project
USFWS	U.S. Fish & Wildlife Service

1.0 INTRODUCTION

Florida Southeast Connection, LLC (FSC), a subsidiary of NextEra Energy, is proposing to construct and operate a natural gas pipeline known as the Florida Southeast Connection Project (FSC Project). The FSC Project is designed to meet the growing demand for natural gas by the electric generation, distribution, and end-use markets in Florida. The FSC Project covers the construction and operation of approximately 126.4 miles of up to 36-inch diameter pipeline and the construction and operation of one meter station (known as the Martin Meter Station). The FSC Project will start in northwestern Osceola County, Florida, and will traverse Polk, Osceola, Okeechobee, St. Lucie, and Martin Counties, terminating at the Martin Meter Station located at the Martin Clean Energy Center in western Martin County, Florida.

The Project has the potential to affect a number of plant and animal species that are listed and regulated by the U.S. Fish and Wildlife Service (USFWS) and the Florida Fish and Wildlife Conservation Commission (FWC). This document describes the field survey protocols that FSC intends to use for conducting species-specific surveys prior to construction of the Project. The status and potential for occurrence of wildlife species listed as endangered, threatened, or of special concern in the Project Environmental Study Area (ESA) were determined by literature survey; agency records; agency Websites; the Florida Natural Areas Inventory (FNAI) database; field surveys conducted by qualified scientists between July 22, 2013, and May 23, 2014; and several meetings with representatives from USFWS and FWC. A total of 44 listed species, including 1 amphibian, 5 reptiles, 16 birds, 3 mammals, and 23 plants, were identified as occurring or possibly occurring in or adjacent to the FSC Project ESA (Appendix A). FSC has requested concurrence from USFWS and FWC that this species list and information (described in detail herein) is complete and accurate.

The tables in Appendix A summarize, by major taxonomic groups, the species (common and scientific name), listing status (state and federal), counties where the species is known or suspected to be present, preferred habitats and likelihood of occurrence in the Project area, known survey windows, notes, and general source(s) of the data. Only fed-

erally-listed plant species are included in Table 1, as state law (Chapter 5B-40, Florida Administrative Code [F.A.C.]) only applies to commercial exploitation.

Based on the assumption that agency concurrence will be forthcoming with only minor changes to Table 1, FSC has utilized this potential list as the baseline document in developing species-specific survey protocols for the Project. The need for species-specific surveys at this time is based on initial conversations with USFWS and FWC, analysis of best available habitat information within the current Project ESA, known species distribution and range, known occurrences, and any initial identification of potential habitat in field survey observations. Where appropriate, protocols have been developed for groups of species (e.g., surveys for colonial nesting water birds). All protocols cite the best available scientific and commercial survey methods, including any daily, seasonal, or weather restrictions and recommendations; survey frequency; specific habitats or counties requiring surveys; and the quality assurance/control procedures that will be employed to ensure the accuracy and adequacy of the surveys. If the critical distance for a species extends beyond the Project right-of-way (e.g., bald eagle nests within 660 feet [ft] of the FSC Project right-of-way), the action area for surveys is defined.

FSC submits this comprehensive listed species survey protocol document for review and written concurrence to its completeness and effectiveness in determining listed species presence within the Project ESA and to assist with future permitting needs. Based on the assumption that agency concurrence will be forthcoming on these protocols without substantial change, limited surveys will be initiated as early as September 2014 (e.g., scrub jay, fall-flowering plants) to capture certain survey windows. Surveys included within this document are anticipated to be completed within 1 year on properties available for survey. Each survey protocol provides the proposed date of survey initiation based on survey window and Project needs. Upon completion of surveys, data will be submitted for each species as detailed in the protocols. Proposed survey methodologies are described in detail in the following sections. Survey types are divided into ground-based and aerial surveys, depending on the most appropriate and effective techniques for the individual species.

2.0 GROUND-BASED SURVEYS

2.1 WILDLIFE

FLORIDA SCRUB-JAY (*Aphelocoma coerulescens*)

Description

According to USFWS, suitable scrub-jay habitat includes classic scrub types, including xeric oak scrub, scrubby pine flatwoods, scrubby coastal strand, and sand pine scrub. Additional habitats to be considered includes pine-mesic oak; xeric oak; sand live oak; improved, unimproved, and woodland pastures; citrus groves; rangeland; pine flatwoods; longleaf pine xeric oak; sand pine; sand pine plantations; forest regenerations areas; sand other than beaches; and disturbed rural lands and burned areas.

The Florida scrub jay prefers xeric scrub habitats generally found along the Lake Wales Ridge of Florida, which is located close to the proposed pipeline route. It has been found in all five counties crossed by the proposed pipeline. FNAI revealed six recorded observations near the proposed pipeline route: two in Osceola County and four in Polk County. Florida scrub jays have been documented within 1 mile of the proposed project in at least one location in the 1980s. Further, the FSC Project intersects the consultation area for this species in Polk, Osceola, and Okeechobee Counties.

Survey Methodology (Planned for September and October 2014)

The USFWS Scrub-Jay Survey Guidelines (June) (2004a) will be used as the basis for the field survey methodology summarized in the following paragraphs.

Based on the available Florida Land Use Cover and Forms Classification System (FLUCFCS) data within the current Project right-of-way, a total of approximately 904 acres of potentially suitable Florida scrub jay habitat have been identified within the species consultation area. Within these areas, a centerline transect will be established, and playback stations will be plotted spaced 150 meters apart to ensure coverage of all potentially suitable scrub-jay habitats. Surveys will occur at these locations using a high-quality tape recording of Florida scrub-jay territorial scolding in an attempt to attract the jays. The recording will include clear examples of all typical scolds.

Per the guidelines, field surveys will be carried out on calm, clear days beginning approximately one hour after sunrise and will terminate before midday heat or wind. Surveys will not be conducted in winds stronger than a moderate breeze, in mist or fog, or in precipitation exceeding a light, intermittent drizzle. Surveys will not be conducted if accipiters or other scrub-jay predators are present in the area; in the event this is the case, the surveyor will either wait until the predator is gone or come back on another day.

It is anticipated that surveys for this species will be conducted in the fall (September and October 2014) when territorial displays are most frequent and vigorous. Experienced biologists will broadcast the calls at each station for at least 1 minute in all four cardinal directions around the playback station, emphasizing any direction in which low-growing oak scrub is the predominant vegetation. If a scrub-jay is observed, tape playback will be halted, and all jay activity will be observed and recorded. On the vegetation map, surveyors will plot the locations and indicate group size of all Florida scrub-jays where they are first seen or heard. Whenever possible, a distinction will be made between adult- and juvenile-plumaged jays. To establish an accurate count of jay groups and appropriate territorial boundaries, stations will be surveyed for a minimum of five survey days.

The key end-products of this survey will include a complete count of any jay groups in the FSC Project right-of-way and an approximate territory map or home range center for each group. The following data will be provided to USFWS:

- Information sheet(s), including field survey dates, start and end times, survey daily weather information, total number of jay groups found, number of jays in each group, and number of juvenile-plumaged jays in each group.
- Aerial photograph(s) depicting the current FSC Project right-of-way, potentially suitable mapped habitat and playback station locations, locations of all jays observed while conducting the survey or any other time including flight directions, and approximated territory boundaries or home range center for any group of jays.

CRESTED CARACARA (*Polyborus plancus audubonii*)

Description

There are seven FNAI records for caracaras within the proposed pipeline area in Okeechobee, Polk, and Osceola Counties. Field surveys also recorded eight observations along the Project ESA in Osceola, Okeechobee, and St. Lucie Counties. The Project right-of-way intersects the USFWS consultation area for this species in Osceola, Polk, Okeechobee, St. Lucie, and Martin Counties.

Survey Methodology (Planned for February and March 2015)

Survey methods will be based on the USFWS South Florida Ecological Services' Survey Protocol for Finding Caracara Nests (April) (2004b), as summarized in the following paragraphs.

Based on FLUCFCS data, there are approximately 387 acres of potentially occupied nesting habitat within the Project right-of-way. Field surveys will conclude whether or not the site contains active caracara nests or suitable nesting habitat (e.g., mature cabbage palms).

Experienced biologists will perform a combination of vehicular transects and pedestrian spot checks in all previously identified potentially suitable habitats to locate and perform a single inspection of any mature cabbage palms within the Project ESA. This survey will take place between February and March 2015, depending on parcel access, and will cover the time when most birds are feeding and nestlings are more visible. Surveys will start at least 15 minutes prior to sunrise and will occur during good weather conditions (not to be conducted in rain or fog). During midday, potential nest trees can be examined close up for evidence of nests (Morrison, 2001). Any caracara activity (including flight patterns) will be recorded on data sheets and marked on maps with details including time of day, number of birds, and, if possible, if the birds were juveniles or adults. Any potential or confirmed nesting locations within the FSC Project ESA will be collected with a handheld global positioning system (GPS) and approximate locations marked on field maps. In South Florida, USFWS defines a primary (985 ft) and secondary (4,920 ft) protection zone outward from any active crested caracara nest tree with restrictions during

the nesting season. Biologists will attempt to document any caracara nesting sites that occur outside the Project ESA where possible, noting approximate locations on field maps. Potential nesting locations will be revisited within 2 weeks from the initial observation if additional checks are needed to confirm active nesting.

The key end-products of this methodology will include the following data to be provided to USFWS:

- Information sheet(s), including field survey dates, start and end times, survey daily weather information, total number caracara observations.
- Aerial photograph(s) depicting the current Project ESA, potentially suitable mapped habitat locations, and locations of all caracara observed while conducting the survey or any other time including flight directions and GPS locations of any documented nests.

RED-COCKADED WOODPECKER (*Picoides borealis*)

Description

This species is widely distributed in Florida, but substantial populations now occur only in the Panhandle (accounting for approximately 75 percent of the total population in Florida). Elsewhere, populations are relatively small and disjunct (USFWS, 1999). Pine-dominated pine/hardwood stands, with a low or sparse understory and ample old-growth pines, constitute primary red-cockaded woodpecker nesting and roosting habitat. Nest and roost cavities are almost always excavated in old-age living pines, particularly longleaf and slash pines. This species has a low likelihood of occurrence within the proposed ESA area, as no records are found within FNAI (2013) databases, and suitable old-growth pine stands are lacking.

Survey Methodology (Planned for September and October 2014)

Survey methods will be based on the USFWS Red-cockaded Woodpecker South Florida Survey Protocol (2003), as summarized in the following paragraphs.

For the purpose of surveying, USFWS defines suitable foraging habitat as pine or pine/hardwood stand of forest, woodland, or savannah in which 50 percent or more of the

dominant trees are pines, and the dominant pine trees are generally 60 years in age or older. Pines 60 years in age or older may be scattered or clumped within younger stands. Based on FLUCFCS data, a total of approximately 75 acres of potentially suitable nesting or foraging habitat were identified along the entire length of the FSC Project right-of-way.

The first step in the survey procedure will consist of field reconnaissance of the potentially suitable habitats within the right-of-way to determine whether the areas are suitable for nesting (i.e., containing long-leaf pines more than 10 inches in diameter and/or slash pines greater than 6 inches in diameter). If no suitable nesting habitat exists upon initial visit, further assessment will not be conducted. Representative photographs and detailed field notes will be recorded in any area determined to be unsuitable.

If suitable nesting pine trees are present, pedestrian transects will be conducted by experienced biologists throughout the potentially occupied area to survey for any cavity trees. Transects will be spaced so that each mature pine tree within the Project right-of-way is inspected. Per the protocol, necessary spacing between transects will vary with habitat structure and season from a maximum of 300 ft in open pine stands to 150 ft or less in areas with a dense midstory. Transects will run north-south, as cavity entrances are primarily oriented in a westerly direction. Transect locations will be tracked using a handheld GPS unit. Biologists will record any observations of the species including calls, locations, and behavior. If cavity trees are located within an area, their locations will be recorded using a handheld GPS unit and marked on an aerial field map. Activity status, cavity stage, and any entrance enlargement will be assessed and recorded.

The key end-products of this methodology will include the following data to be provided to USFWS:

- Information sheet(s), including field survey dates, start and end times, survey daily weather information, total number of red-cockaded woodpeckers observed, and behavior.
- Aerial photograph(s) depicting the Project right-of-way, locations of any field-verified suitable nesting habitat with pedestrian transects, locations of

any documented cavity trees, and all red-cockaded woodpeckers observed while conducting the survey or any other time, including flight directions.

EASTERN INDIGO SNAKE (*Drymarchon couperi*)

Description

The eastern indigo snake uses of a broad range of habitats, and it potentially may occur within the FSC Project ESA. Post-2000 occurrence records compiled by Enge *et al.* (2013) indicate that this snake is present within all five of the counties affected by the FSC Project. In Central and Coastal Florida, they are found mainly on higher elevation sandy ridges, where they use gopher tortoise burrows for refugia when available. On the sandy central ridge of South Florida, eastern indigo snakes use gopher tortoise burrows more (62 percent) than other underground refugia (Layne and Steiner, 1996). Subterranean refugia used in these areas include burrows of armadillos (*Dasypus novemcinctus*), cotton rats (*Sigmodon hispidus*), and land crabs (*Cardisoma* spp.); burrows of unknown origin; natural ground holes; hollows at the base of trees or shrubs; ground litter; trash piles; and crevices of rock-lined ditch walls (Layne and Steiner, 1996). Eastern indigo snakes also inhabit some agricultural lands (e.g., sugar cane fields and associated canal banks). FNAI has one record of this animal within the proposed ESA area in Polk County; however, no individuals have been documented during the preliminary field surveys of the Project ESA.

Protection Measures Protocol

Due to the temporary nature of the habitat impacts proposed for the project, and based on initial discussion with USFWS's Vero Beach office, FSC will follow the USFWS Standard Protection Measures for the Eastern Indigo Snake (August 2013). No specific surveys for indigo snakes are proposed, although incidental observations of this species during the course of other field surveys will be noted, coordinates of the siting will be recorded, and photographs will be taken if possible. These sightings will be reported to the USFWS South Florida Ecological Services Field Office.

The eastern indigo snake protection/education plan developed by USFWS in Florida for all construction and survey personnel will be used for the FSC Project. At least 30 days

prior to any clearing or land alteration activities, FSC will notify the USFWS South Florida Ecological Services Field Office that the detailed protection/education plan will be implemented. With the notification of compliance with the plan as described in detail in the referenced document (including the use of the provided poster and brochure), it is understood that no written confirmation or approval from USFWS is needed, and FSC can move forward with the project upon sending this notice.

The protection/education plan materials will consist of a combination of posters and pamphlets and verbal educational instructions to construction personnel by supervisory or management personnel before any clearing or land alteration activities are initiated. The plan is summarized in the following paragraphs.

Informational posters will be placed at strategic locations along the construction right-of-way and along any proposed access roads. Posters will be sized 11 by 17 inches, laminated, and will be identical to those provided by USFWS. Posters will provide detailed information, including a physical description of the eastern indigo snake and any similar snake species; life history of the eastern indigo snake, including habitats and breeding information; protections afforded to eastern indigo snakes under federal and state law, including information on the penalties for violating these laws; specific instructions for what to do if a live or dead eastern indigo snake is observed on the site; and telephone numbers for the USFWS South Florida Ecological Services Field Office to be contacted if a live or dead eastern indigo snake is encountered.

Before construction, these educational posters will be posted by the designated agent in the construction offices and throughout the construction right-of-way, including access roads. Prior to construction the designated agent will conduct a meeting with all construction staff and on an annual basis (if needed) to discuss the information contained in the poster. Construction staff will be informed of the proper field and reporting procedures in the event that live or dead eastern indigo snakes are observed.

During construction and initial site clearing, an onsite observer may be used to determine whether existing habitat conditions suggest a reasonable probability of an eastern indigo

snake sighting. Periodically during the construction activities, the designated agent will visit the project areas to observe the condition of all posters and all other plan materials and replace them as necessary. Construction personnel will continually be reminded of the detailed instructions on what is expected of them if any eastern indigo snakes are observed.

As part of the protection/education plan, a post-construction monitoring report will be submitted to USFWS within 60 days of Project completion. This report will be submitted regardless of whether or not eastern indigo snakes are observed.

FLORIDA SAND SKINK (*Plestiodon reynoldsi*) AND BLUETAIL MOLE SKINK (*Plestiodon egregius lividus*)

Both of these species have a similar geographic range and habitat use in Florida. Preferred habitats include xeric uplands with sandy soils, including rosemary scrub, scrubby flatwoods, and oak scrub (FWC, 2001). FNAI records exist for the bluetail mole skink in Polk and Osceola Counties, and there is one FNAI record of this species within the FSC Project ESA. There are four FNAI records of the Florida sand skink in Polk and Osceola Counties near the proposed ESA. Neither species was documented during the preliminary field surveys for the Project. The FSC Project ESA intersects the consultation area for these species in Polk and Osceola Counties.

According to USFWS, the primary factors in determining skink presence within the Florida sand skink consultation area are soil type, soil "swimmability" (i.e., noncompacted), and land elevations. In accordance with this determination, the following "skink soil" types along the FSC Project ESA within Osceola and Polk Counties were targeted to identify potentially suitable habitat: Archbold, Astatula, Candler, Duette, Millhopper, Paola, Pomello, Satellite, St. Lucie, and Tavares. Soil types were then limited to elevations 82 ft above sea level or higher. Based on this analysis, a total of approximately 312 acres of potentially suitable habitat was identified within the Project right-of-way. FSC intends to conduct a field analysis in September or October of 2014 to determine the extent of this area that could be classified as "swimmable," and therefore suitable habitat for skinks. Documentation for swimmability determinations for each area of otherwise

suitable habitat would include vegetation type and density, visual estimates of soil compaction, and site photographs. This assessment would be conducted in conjunction with field assessments by the USFWS South Florida Ecological Field Services Office, to the extent practicable, and swimmability determinations would be subject to agency concurrence. Further coordination with USFWS regarding the necessity of conducting field surveys for skinks will be required following this exercise. Should they ultimately be deemed necessary, the USFWS (October 2011) Sand Skink and Blue-tail Mole Skink Survey Protocol for Peninsular Florida will be followed for pedestrian surveys to determine presence of skinks. Surveys for both species would occur simultaneously.

FLORIDA GRASSHOPPER SPARROW (*Ammodramus savannarum floridanus*)

Description

This is a subspecies of grasshopper sparrow that is endemic to the dry prairies of Central and South Florida. Their habitat consists of large, treeless, relatively poorly drained grasslands that have a history of frequent fires. The Florida grasshopper sparrow occurs in prairies dominated by saw palmetto and dwarf oaks. Bluestem grasses, St. John's wort, and wiregrasses are also typically found within Florida grasshopper sparrow habitat. Their breeding season extends from mid-March to July (Wood, 2001). Nests are placed on the ground in shallow depressions sheltered by shrubs, clumps of grass, or other vegetation. FNAI has two historical records within 1 mile of the FSC Project ESA, although this species was not observed during preliminary wildlife surveys.

Survey Methodology (Planned for April and May 2015)

Surveys for this species will be conducted in accordance with the USFWS (June) (2004c) Florida Grasshopper Sparrow Survey Protocol.

Habitat for this species was presumed to be any unforested open land, including pastures. Based on FLUCFCS data within the Project ESA, a total of approximately 340 acres of potentially occupied nesting habitat was mapped. This habitat is located alongside major roadways where the pipeline will be collocated. Field surveys will identify the presence of a population of sparrows that may be utilizing an area.

Surveys will be conducted in the spring of 2015 by experienced personnel familiar with the Florida grasshopper sparrow habitat needs and are capable of identifying and locating sparrows based on either song or sighting. Surveys will be performed only on relatively calm days (wind speeds of less than 15 miles per hour [mph]) and will start no earlier than 30 minutes before sunrise and end no later than 3 hours after sunrise.

Sampling stations will be established every 200 meters within all available habitats along the linear Project right-of-way. Upon arrival at each station, observers will watch and listen for 1 minute for grasshopper sparrow activity. If no sparrows are observed or heard, a high-quality tape recording containing clear examples of all typical territorial calls will be played at each station for 30 seconds in each cardinal direction. If no sparrows are documented at the conclusion of the recording playback, the survey will be repeated at that station a maximum of two additional sampling events.

The key end-products of this methodology will include the following data to be provided to USFWS:

- Information sheet, including field survey dates, start and end times, survey daily weather information, sampling station coordinates, presence or absence of sparrows, total number of grasshopper sparrows found, and number of territories.
- Aerial photograph depicting the FSC Project ESA, mapped habitat locations, and any grasshopper sparrow observations or nest locations.

EVERGLADES SNAIL KITE (*Rostrhamus sociabilis plumbeus*)

Description

The Everglade snail kite is a raptor inhabiting wetland systems with a specific prey requirement: the Florida apple snail. Therefore, key to the kite's habitat requirements are shallow wetlands and littoral zones around lakes where the apple snail lives and reproduces. Foraging is highly dependent on water levels and snail breeding success. Hydrology is also a key to nesting by the birds. They prefer to nest over water presumably to reduce predation. Nest sites are usually tree islands or clumps of trees surrounded by water. The birds typically build nests in trees or shrubs less than 30 ft in height. Critical habitat

has been designated by USFWS for the Everglades snail kite, but that occurs south and west of the Project area (west shore of Lake Okeechobee and further south into the Everglades). However, all the counties crossed by the FSC Project do fall within the USFWS-designated consultation area for the kite. In addition, data provided by USFWS indicate that snail kites have historically nested along the Project ESA between mileposts 52.9 and 53.5, within the Lake Kissimmee marshlands.

Survey Methodology (Planned for March and April 2015)

Surveys for this species will be conducted in accordance with the USFWS (May) (2004d) Snail Kite Survey Protocol.

The snail kite is habitat-specific, requiring a combination of herbaceous emergent marshes for foraging, shrubs or small trees for nesting and perching, and nesting substrates both at appropriate water depths (0.6 to 4.3 ft) and at adequate distances (greater than 500 ft) from uplands. Based on these criteria, there are approximately 127 acres of potentially suitable snail kite habitat present within Okeechobee, Martin, Polk, and Osceola Counties. A one-time pedestrian visual survey for nests and birds will be conducted during the breeding season (March and April 2015). Nest locations, if any are found, will be recorded with a GPS device and their locations will be marked on an aerial field map.

The key end-products of this methodology will include the following data to be provided to USFWS:

- Information sheet, including field survey dates, start and end times, and survey daily weather information.
- Aerial photograph depicting the Project ESA, mapped habitat locations, and any snail kite observations or nest locations.

FLORIDA BONNETED BAT (*Eumops floridanus*)

Description

The Florida bonneted bat is the largest of the 18 native bat species in Florida, and the only bat species which is endemic to Florida (Wood, 2001). This species inhabits semitropical forests, particularly pineland, tropical hardwood, and mangrove habitat. Suitable

roosting areas may include a variety of natural and man-made structures, including chimneys, limestone outcroppings, tree cavities, bat houses, and under tiles of Spanish-style roofs. The Florida bonneted bat roosts singly or in harem-like colonies composed of a male and several females (Best *et al.*, 1997). It has low fecundity, gives birth to only one offspring, and is thought to be polyestrous with an extensive summer breeding season and perhaps additional offspring born in January or February. The Florida bonneted bat is not migratory, but there may be seasonal shifts in roosting sites (Timm and Genoways, 2004). Florida bonneted bat breeding season extends from January through March and June through October.

Endangered wherever found, the final rule for listing of the Florida bonneted bat was recently adopted in October 2013. Critical habitat for this species has yet to be established; however, the FSC Project intersects the USFWS consultation area and focal areas in Polk, Osceola, and Okeechobee Counties.

Survey Methodology (Planned for March and April 2015)

There are currently no official USFWS survey protocols for the Florida bonneted bat. FSC will survey the Florida bonneted bat focal area in March or April 2015 for existing or possible roosting locations in large hollow trees. No artificial nesting structures will be affected by the FSC Project. Based on FLUCFCS data within the FSC Project right-of-way, approximately 73 acres of potentially occupied nesting habitat was mapped within the focal area. If potential roosting sites are found, the trees will be closely inspected for indications of bat presence. Florida bonneted bat roosting sites found within the Project right-of-way will be recorded via handheld GPS units.

The key end-products of this methodology will include the following data to be provided to USFWS:

- Information sheet(s), including field survey dates, start and end times, and survey daily weather information.
- Aerial photograph(s) depicting the Project right-of-way, locations of any field-verified suitable roosting habitat with pedestrian transects, locations of

any documented cavity trees, and all bats observed or heard while conducting the survey or any other time including flight directions.

GOPHER TORTOISE (*Gopherus polyphemus*)

Description

Gopher tortoises can be found in nearly all upland habitats in Florida. There are a number of FNAI gopher tortoise records within the proposed ESA. Additionally, field crews recorded 318 gopher tortoise burrow observations during preliminary field surveys. Tortoise burrows were identified along the Project ESA in each of the five counties during these surveys.

Survey Methodology (Planned to be Conducted within 90 Days of Construction)

According to FWC Gopher Tortoise Permitting Guidelines (April 2013), all potentially occupied burrows (active and inactive) within the construction right-of-way and burrows within 25 ft of any proposed construction disturbance will need to be excavated and the tortoise safely relocated from the FSC Project right-of-way. As a part of the gopher tortoise relocation permitting process for the Project, FWC will require detailed surveys for tortoise burrows to be conducted in accordance with FWC guidelines.

FLUCFCS data indicate that approximately 512 acres of potentially suitable gopher tortoise habitat is present within the Project ESA. Specific field surveys within the Project right-of-way will be conducted by FWC-authorized gopher tortoise agents and designated assistants. Per FWC requirements, a 100-percent coverage survey will be completed and submitted within 90 days of the start of clearing for construction within a given segment of the FSC Project ESA. Belt transects will be distributed across all potentially occupied tortoise habitat. Maximum transect widths will be 16 meters (52 ft), and, in areas with heavy vegetative cover, the width of each transect will be reduced to allow for the detection of burrows within the transect.

Burrows will be categorized as either potentially occupied or abandoned. Each burrow will be staked and marked with highly visible flagging tape in the field for future identification. The location of each flagged burrow will be recorded using a handheld GPS unit.

The key end-products of this methodology will include the following data to be provided to FWC to support permit applications, including:

- All mapped potentially suitable and/or potentially occupied habitat within the Project right-of-way.
- Locations of all pedestrian transects.
- GPS locations of burrows with an associated activity status

For each transect, the raw data will be summarized in a table (transect dimensions, number of burrows by activity class, number of burrows by size class, and burrow density per acre).

SOUTHEASTERN AMERICAN KESTREL (*Falco sparverius paulus*)

Description

No kestrels of the southeastern subspecies have been observed within the FSC Project ESA, but it has been recorded by FNAI to be present within all five of the counties affected by the Project.

According to Stys (1993), cavity availability appears to be the main factor limiting southeastern American kestrels across their range. As secondary cavity nesters, they use cavities that have already been created, generally in dead pines. The following habitats are considered to have potential to support southeastern American kestrels: recreational land; improved, unimproved, or woodland pasture; specialty farms; other open lands; herbaceous rangeland; coniferous forest; pine flatwoods; longleaf xeric-, pine-mesic, or xeric oak; hardwood-conifer mixed; mixed hardwood; forest regeneration areas; rural land in transition without positive indication of intended activity; and burned areas.

Survey Methodology (Planned for April through June 2015)

The FWC Ecology and Habitat Protection Needs of the Southeastern American Kestrel (*Falco sparverius paulus*) on Large-Scale Development Sites in Florida, Nongame Wildlife Technical Report No. 13 (Stys, 1993), will be used as the basis for the survey effort. Proposed methodologies are summarized in the following paragraphs.

The primary goal of the proposed methodology is to determine the number, if any, of southeastern American kestrels or kestrel pairs within the FSC Project right-of-way and mapping of nest sites. A single occurrence of a combination of vehicular and pedestrian transects will be conducted throughout the previously identified potentially suitable habitat. Transect length and distance between transects will vary based on existing vegetative conditions.

Surveys will be conducted during the spring and early summer (April through June 2015) during the morning hours on calm, clear days. For driving transects, a driving speed of 10 to 25 mph will be maintained, varying in response to terrain, road condition, and visibility. Pedestrian transects will be walked at a steady pace. Biologists will look for and record any signs of kestrel activity including kestrels perched on fencerows, telephone poles and lines, and trees; kestrels flying or hovering; or where kestrels were exhibiting courtship, breeding, or territorial defense behaviors. Biologists will locate and investigate potential nest sites on foot. Although longleaf pine snags are the most utilized for nesting, biologists will examine possible nest sites in all types of trees or utility structures. Measurements at a nest site will include tree species, stage of decay, and nest tree health. If the nest site is in a man-made structure, the type of structure, physical state of the structure, and location of the nest within or on the structure will be noted.

Kestrel sightings will be recorded on field maps, and GPS coordinates will be collected. Flight paths and landing locations will also be recorded, along with behavioral and vocalization notes.

The key end-products of this methodology will include the following data to be provided to FWC:

- Information sheet(s), including field survey dates, start and end times, survey daily weather information, total number of kestrel observations, and all kestrel observations.
- Aerial photograph depicting the Project ESA, potentially suitable mapped habitat locations, pedestrian and vehicular survey tracks, any kestrels ob-

served while conducting the survey or any other time including flight directions, and confirmed nest sites.

FLORIDA BURROWING OWL (*Athene cunicularia floridana*)

Description

The burrowing owl prefers xeric pastures with low vegetation. The FSC Project ESA crosses some dry pastures and croplands. Two records exist within the FSC Project ESA (one each in Polk and Osceola Counties) according to FNAI. In addition, the animal has been observed in Lake Wales State Forest by FSC representatives during field reconnaissance for the proposed pipeline route and in Polk County during preliminary field surveys for the ESA.

Survey Methodology (Planned for March and April 2015)

According to Wood (2001), determining presence or absence and abundance of the Florida burrowing owl can be effectively achieved via widely-spaced walking transects. Surveys will be conducted during daylight hours when weather is conducive to observing owls outside their burrow, avoiding surveys during heavy rain, high winds, or dense fog.

As stated by Wood (2001), the accuracy of survey data can be affected by the time of year and time of day that surveys occur. Though Florida burrowing owls can be active year-round, the species is more active during the breeding season (February 15 to July 10), and surveys are intended to be completed during this time frame for the most effective results. Individual burrows will be classified as active when owls are in attendance but also when observed burrows are decorated with shredded paper, tinfoil, or other debris. Locations of all observed burrows will be obtained with a handheld GPS unit. Additional notes will include numbers of breeding pairs and any juveniles, flight paths, and behavior.

SHERMAN'S FOX SQUIRREL (*Sciurus niger shermani*)

Description

This species inhabits dry pine flatwoods, xeric oak, or sandhill communities, which are common within the ESA. There are no FNAI records of this species within the ESA, but

it was observed during preliminary wildlife surveys. Habitat for Sherman's fox squirrel includes open, mature, upland pine-oak communities in addition to bottomland, upland forests, and cypress dome and strands when adjacent to or interspersed within a pine-oak community. Suburban parks and golf courses and a number of pine-oak improved pastures may also be used by the species (Wood, 2001). FNAI data indicates this species is known to occur within all five of the counties affected by the FSC Project.

Survey Methodology (Planned for March and April 2015)

According to Wood (2001), due to the fox squirrel's size and striking color patterns in combination with the fact that they occupy relatively open habitats, the animals are typically conspicuous when present. Surveys for fox squirrels will be conducted along a series of belt transects within suitable habitat. In open habitats, transects will be spaced approximately 300 ft apart, and in denser habitats, transects will be spaced with regard to range of visibility.

Sherman's fox squirrels can be observed year-round, but peak periods of breeding activity occur between May and July and again in December and January. During this time, vocalizations are frequent, and male and female individuals interact with one another during mating chases. If Sherman's fox squirrels are present during the breeding season, and in areas where the species has previously been documented, experienced biologists will locate any nest sites within the Project right-of-way utilizing foot investigations.

Locations of all Sherman's fox squirrels will be obtained with a handheld GPS unit. Additional notes will include numbers of individuals or breeding pairs and any observed behaviors. Verified nest site locations within the right-of-way will also be recorded using a handheld GPS unit.

FLORIDA MOUSE (*Podomys floridanus*), FLORIDA PINE SNAKE (*Pituophis melanoleucus mugitus*), AND GOPHER FROG (*Rana capito*)

The Florida mouse inhabits fire-maintained, xeric upland habitats occurring on deep, well-drained soils, especially scrub and sandhill habitats (Jones and Layne, 1993). There are FNAI records of this species from Polk, Osceola, St. Lucie, and Martin Counties. The

Florida mouse digs small burrows inside the burrows of other species, primarily the gopher tortoise, where they will prepare a nest.

The Florida pine snake inhabits areas that feature well-drained sandy soils with a moderate to open canopy (Franz, 1992; Ernst and Ernst, 2003). There are FNAI records for this species within Polk, Okeechobee, St. Lucie, and Martin Counties. This species often utilizes pocket gopher and gopher tortoise burrows for shelter.

The gopher frog shelters in stump holes and burrows of other species, particularly those created by the gopher tortoise. Their habitat includes sandy uplands within about 1 mile of wetlands or ponds. FNAI records exist for this animal for all five counties crossed by the FSC Project, and two records occur near the Project ESA in Polk County.

These three state-listed animals are considered to be gopher tortoise burrow commensal species by FWC. Commensals are species strongly associated with tortoise burrows because of the burrow's constant microhabitat and protection from fire, weather, and predators. FWC does not currently require surveys for these species to be completed prior to site development. However, in accordance with their Interim Policy on the Relocation of Priority Commensals (FWC, 2013), FWC authorizes the relocation of these species when incidentally captured during authorized gopher tortoise capture methods. As such, if these species are encountered during tortoise relocations, they will be released within suitable habitat as close to the original habitat as possible. FWC will be provided with a report detailing the numbers and types of commensals encountered and their capture dates and locations.

2.2 FEDERALLY-LISTED PLANT SPECIES

Description

Based on initial desktop analysis, 23 federally-listed plant species were identified as having the potential to occur within the Project ESA based on general range information. Of these 23 federally-listed plants, only one was documented during the preliminary field reconnaissance of the FSC Project ESA. This species, scrub mint (*Dicerandra frutescens*), was observed at one location along the Project ESA in Polk County. The likeli-

hood of all other potential species to occur along the right-of-way ranges from unlikely to moderately likely. Plants were listed as unlikely to occur based on the lack of suitable habitat within the Project ESA. USFWS has concurred during Project planning meetings that these species can be excluded from further survey efforts. A total of 19 species were identified as having a low to moderately likely chance to occur and also have potential habitat identified within the current FSC Project ESA. These species will be documented during field surveys conducted during the seasons in which they are most conspicuous.

Survey Methodology

Individual patches of identified potential habitat are relatively small, so the entirety of it will be surveyed (by a team of biologists who have been trained to recognize the species) by walking meandering transects across each habitat during the time period when the species should be visible, if present. In all cases, transects will cover 100 percent of the identified suitable habitat within the proposed Project right-of-way. All surveys will be documented using GPS tracking, and GPS locations of any of listed plants will be recorded and mapped. Representative photographs of all federally-listed plant species will be taken. Survey methods and timing will vary by species. The following information outlines the species surveys and schedules that will be followed for the FSC Project.

Surveys for the Florida bonamia (*Bonamia grandiflora*), scrub mint, scrub buckwheat (*Eriogonum longifolium Nutt.* Var. *gnaphalifolium*), scrub hypericum (*Hypericum cumulicola*), Florida blazing star (*Liatris ohlingerae*), papery whitlow-wort (*Paronychia chartacea*), wide-leaf warea (*Warea amplexifolia*), Carter's mustard (*Warea carteri*), and Florida jointweed (*Polygonella basiramia*) are planned to be conducted in September and October 2014.

Florida bonamia is a perennial trailing vine that prefers to colonize habitats of open or disturbed scrub, sand pine, and scrub oak with records in Polk County. Only marginal habitat to support this species exists within the right-of-way boundaries. Surveys for this species will include approximately 54 acres of habitat within Polk and Osceola Counties. The survey will be conducted in September 2014, when the plant is in bloom or fruit.

Scrub mint is a low-growing shrub, endemic to Florida, and grows in sand pine, scrub, and sandhill habitats of the Lake Wales Ridge, with records in Polk County. Surveys for scrub mint will include approximately 8 acres of suitable habitat within the Project right-of-way, and will be conducted during the plant's flowering period (September and October 2014).

Scrub buckwheat is a perennial herb, recorded in Polk and Osceola Counties. It occurs in habitats intermediate between scrub and sandhills (high pine) and in turkey oak barrens. Surveys will be conducted September and October 2014, while the plant is in bloom. Surveys will focus on approximately 80 acres of potentially suitable habitat identified within the species' range.

Scrub hypericum is a perennial herb found in sunny areas within oak and rosemary scrub. It is endemic to the Lake Wales Ridge of Polk County. Flowering and fruiting of this species typically occurs during the late summer, so surveys are proposed for September 2014. Surveys will focus on approximately 39 acres of potentially suitable habitat identified within the species' range.

Florida blazing star is a perennial herb, which grows on rosemary balds, especially edges transitional to oak scrub, scrubby flatwoods, and disturbed scrub with records in Polk County. The Project right-of-way contains approximately 5 acres of suitable habitat for this species. Surveys will be conducted in September and October 2014, when the plant is typically in bloom.

Paper nailwort is a short-lived dioecious herb, forming small mats. Paper nailwort was recorded in Polk and Osceola Counties, associated with Lake Wales Ridge. The natural habitat for this species is rosemary scrub, also known as the rosemary phase of sand pine. Within this scrub community, paper nailwort is more abundant in disturbed, sandy habitats, such as road rights-of-way and recently cleared or disturbed sites, such as along fire lanes or trails. This species produces flowers and fruits in the late summer or fall, so surveys are proposed for September and October 2014. The FSC Project right-of-way contains approximately 54 acres of suitable habitat for this species.

Wide-leaf warea is a summer annual herb found within long-leaf pine, sandhill, or scrub-by oak forests along the Lake Wales Ridge. Wide-leaf warea has been recorded in Polk and Osceola Counties. Surveys will be conducted in September and October 2014, when the plant is in bloom. There are approximately 51 acres of suitable habitat for this species within the Project right-of-way.

Carter's mustard is an annual herb that grows in pinelands, scrubby flatwoods, scrub, and sandhill habitats along the Lake Wales Ridge and was recorded in Polk County. Although none were observed during the field survey, there are approximately 55 acres of potential habitat to support this species within the right-of-way. Surveys for this species will be conducted in September and October 2014.

Florida jointweed is a perennial herb and a member of the Florida scrub plant community. It occurs in openings in the scrubs dominated by rosemary, sand pine, other pines, and oaks and was recorded in Polk County. Although none were observed during the field survey, there are approximately 6 acres of potential habitat to support this species within the right-of-way boundaries. Surveys will be conducted in September and October 2014, to coincide with the flowering period for this species.

Surveys for the pygmy fringe tree (*Chionanthes pygmaeus*), perforate reindeer lichen (*Cladonia perforate*), scrub pigeon-wing (*Clitoria fragrens*), short-leaved rosemary (*Conradina brevifolia*), scrub lupine (*Lupinus aridorum*), Britton's beargrass (*Nolina brittoniana*), Lewton's polygala (*Polygala lewtonii*), Small's jointweed (*Polygonella myriophylla*), scrub plum (*Prunus geniculata*), and Florida ziziphus (*Ziziphus celata*) are planned to be conducted March and April 2015.

Pygmy fringe tree is a shrub or small tree, usually less than 10 ft tall, and is recorded in Polk and Osceola Counties. It prefers scrub, sandhill, high pineland, xeric hammock, and transitional habitats, primarily associated with Lake Wales Ridge. Surveys will focus on the approximately 80 acres of suitable habitat for this species present within the Project

right-of-way. Surveys for pygmy fringe tree will commence in March 2015, while the plant is in bloom.

Perforate reindeer lichen is known from the high rosemary scrub habitats of Central Florida. It has been reported in Polk, Osceola, and coastal scrubs of Martin County. This lichen is usually conspicuous on white sand patches within scrub areas, dominated by scrub oaks and sand pines. Approximately 36 acres of suitable habitat for this species are present within the right-of-way. Surveys for this species are proposed to be conducted in March and April 2015.

Scrub pigeon-wing is a perennial herb belonging to the pea family. Its preferred habitat includes turkey oak barrens with wire grass, bluejack and turkey oak, scrub hickory, and scrub and scrubby high pine. There are approximately 55 combined acres of these habitat types within the Project right-of-way boundaries. Surveys for scrub pigeon-wing will commence in April 2015 at the start of the flowering season.

Short-leaved rosemary is a perennial shrub reaching up to 3.5 ft in height, which grows on the Lake Wales Ridge in Polk County. It inhabits white sand scrub with scattered overstory of sand pine and scrub oak in clearings with other endemic shrubs and herb scrub vegetation. The species is visible year-round, but most individuals flower in spring. Surveys will focus on the 42 acres of potentially suitable habitat identified within the species' range during March and April 2015.

Scrub lupine is a biennial or perennial herb, recorded in Polk and Osceola Counties. This plant prefers open patches in sand pine and rosemary scrub and grows primarily in well-drained sandy white or occasionally yellow soils where the turkey oak woods have invaded the sand pine scrub. Surveys will focus on the approximately 19 acres of suitable habitat for this species present within the FSC Project right-of-way. Scrub lupine plants typically bloom in March and April; therefore, the surveys will be conducted in March and April 2015.

Britton's bear-grass occurs in Florida within dry pinewoods, sandhill, and sand pine scrub. This survey will be conducted between March and April 2015, when the plant is in bloom. Surveys will focus on the approximately 51 acres of potentially suitable habitat identified within the species' range.

Lewton's polygala occurs in Florida within oak scrub, sandhills, and transition zones between high pine and turkey oak barrens. Surveys will be conducted in March and April 2015, while the plant is flowering. Surveys will focus on the approximately 51 acres of potentially suitable habitat identified within the species' range.

Small's jointweed is a mat-forming sub-shrub that spreads along the ground and forms low mats. It occurs in association with the Lake Wales Ridge and is recorded in Polk and Osceola Counties. Small's jointweed is a member of the Florida scrub plant community and prefers dry white-sand scrub dominated by Florida rosemary, as well as oak scrub, flatwoods, roadsides, and occasionally sandhills. The Project right-of-way contains approximately 19 acres of potential habitat for this species. Surveys will be conducted during March and April 2015, when this species in is flower.

Scrub plum occurs in sandhill and oak scrub in Central Florida. The species typically fruits in March and April, but the species is recognizable year-round. Spring (March and April 2015) surveys will focus on the approximately 51 acres of potentially suitable habitat identified within the Project right-of-way.

Florida ziziphus is a spiny shrub growing up to 6.5 ft tall. Florida ziziphus is a shrub that is endemic to the Lake Wales Ridge in Central Florida and occurs in Polk County. This plant, which was believed extinct until 1987, occurs on the periphery of turkey oak sandhills or yellow sand oak-hickory scrub communities. Surveys will be conducted in March 2015, while the plant is flowering. Surveys will focus on the approximately 26 acres of potentially suitable habitat identified within the Project right-of-way.

3.0 AERIAL SURVEYS

BALD EAGLE (*Haliaeetus leucocephalus*)

Description

Bald eagles are protected under the Bald and Golden Eagle Protection Act. The provisions of the Act require that a 660-ft nest protection zone be established during the nesting season for any active nests. In Florida, nesting season occurs between October 1 and May 15, with most clutches of eggs being laid between December and early January. In Florida eagles strongly prefer living pines to other substrates as nest locations (FWC unpublished data). According to the FWC Bald Eagle Nest Locater Database (FWC, 2012), 14 bald eagle nest locations are known to occur within 1 mile of the Project ESA, all within Polk County. In addition, during the preliminary field reconnaissance of the Project ESA, one active bald eagle nest was observed near Milepost 99 in Okeechobee County.

Survey Methodology (Planned for February 2015)

Aerial helicopter surveys of the entire Project ESA will take place in February, during the peak of the nesting season, on calm, clear days, with good visibility. Flights will not be conducted during inclement weather or winds stronger than 20 knots. Experienced biologists will conduct the surveys, while an experienced pilot maintains an air speed of 60 to 80 knots, an altitude of approximately 300 ft, and an appropriate distance to avoid disturbance. Where tree cover is dense and/or in areas where nests have been previously identified within close proximity of the pipeline route, the pilot may be asked to circle and make additional passes until the area is covered thoroughly. Biologists will use binoculars and a camera that features substantial optical and digital zoom. This technique minimizes disturbance to the birds by allowing for nest photographs to be examined in much closer detail on the computer rather than with binoculars.

Nest locations will be documented with a photograph, approximate GPS coordinates obtained in the helicopter, and nesting status will be recorded.

The key end products of the proposed survey will include the following data:

- Information sheet(s) including field survey dates, start and end times, and survey daily weather information.
- Aerial photograph of the Project ESA with aerial helicopter survey flight path, all nest locations, and activity status.
- Photographic documentation.
- General observational notes at each nest, including number of adult eagles, fledglings, and/or juveniles.

WOOD STORK (*Mycteria americana*)

Description

The wood stork is primarily associated with freshwater and estuarine habitats for nesting, roosting, and foraging. Wood storks typically construct their nests in medium to tall trees that occur in stands located either in swamps or on islands surrounded by relatively broad expanses of open water (Ogden, 1991). They are found across much of peninsular Florida. Wood storks tend to use the same colony sites over many years, as long as the sites remain undisturbed and sufficient feeding habitat remains in the surrounding wetlands. There are no known wood stork nesting colonies in the FSC Project ESA or within 1 mile, though wood storks can potentially utilize all wetlands habitats along the FSC Project ESA for foraging. Preliminary field surveys resulted in two observations near the Project ESA. The wood stork core foraging area is an 18.6-mile radius (in South Florida) around active nesting colonies where storks may likely forage. The FSC Project intersects with nine individual core foraging areas.

Survey Methodology (Planned for February 2015)

The proposed survey methodology will use an aerial helicopter survey of the freshwater wetlands along the entire Project ESA. All flights will be conducted on days with little or no wind or rain and good visibility at elevations of approximately 300 ft. Two experienced biologists will fly the established route (one on either side of the helicopter). At each wetland, the pilot will be asked to maintain adequate altitude as to not disturb any water birds that are present and to circle the wetland as necessary to get an accurate count and identification of species.

A GPS unit will be used to record each survey route, and a location point will be recorded for each colony observed. Nests will be counted, and locations of colonies will be mapped on a current color aerial. For wetlands with foraging wood storks, individuals will be counted and recorded on a per-wetland basis.

OTHER STATE-LISTED COLONIAL NESTING WADING BIRDS

Other state-listed colonial nesting wading birds in Florida include the little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*), tricolored heron (*Egretta tricolor*), white ibis (*Eudocimus albus*), and roseate spoonbill (*Ajaja ajaja*).

FWC records indicate that there are four colonial wading bird colonies within 1 mile of the FSC Project: two in Okeechobee County and one each in Osceola and St. Lucie Counties. Colonial nesting wading birds will be documented if observed during the aerial helicopter surveys conducted for bald eagles and wood storks. Preferred foraging and nesting habitat for wading birds has been identified within the Project ESA, including wetlands, ponds, lakes, and marshes.

The key end-products of this aerial survey will include the following data:

- List of known colonies within a critical distance of the FSC Project ESA.
- Information sheet(s), including field survey dates, start and end times, and survey daily weather information.
- Aerial photograph of the current Project with survey flight path, locations of any colonies, and nest counts.
- Observations and counts of foraging individuals on a per-wetland basis.

FLORIDA SANDHILL CRANE (*Grus canadensis pratensis*) AND LIMPKIN (*Aramus guarauna*)

Description

Florida sandhill cranes forage in a variety of upland habitat types (e.g., pasture, open forests, croplands) but roost and nest in shallow freshwater marshes (Stys, 1997). Nest initiation for this species typically initiates in January (Walkinshaw, 1973). There is one known FNAI record for this species in Okeechobee County within the vicinity of the FSC

Project. Two sandhill crane observations were also made by field crews in Polk County, and an active nest was found near Milepost 61 in Osceola County.

The limpkin is generally common in Central and South Florida, where it inhabits freshwater marshes, swamps, lake and river margins, swales, strand swamps, sloughs, and impoundments. This species has a wide range of nesting sites, including mounds of marsh grasses and high in trees. Nesting typically occurs between February and June (Cornell Lab of Ornithology, 2014). It has been documented to occur in all five counties crossed by the FSC Project, although no limpkins were recorded during preliminary wildlife surveys.

Survey Methodology (Planned for February 2015)

The proposed survey methodology uses aerial helicopter surveys of the freshwater wetlands along the entire Project ESA. Florida sandhill crane nests are usually large and conspicuous, making them easy to locate and identify from the air. Prior to sampling, potential habitats will be identified and mapped, and flight paths will be established to provide as close to 100-percent coverage as possible.

Aerial surveys will be conducted during the sandhill crane and limpkin breeding season (i.e., February) and will take place on calm, clear days with good visibility. Two experienced biologists will fly the established route (one on either side of the helicopter), with the pilot maintaining an optimal altitude of approximately 300 ft. When sandhill crane nests or foraging cranes or limpkins are spotted, the pilot will be asked to maintain adequate altitude and circle the area as necessary to get an accurate count.

A GPS unit will be used to record the survey path and locations of Florida sandhill crane and limpkin individuals or nest sites. Biologists will note any observations that can be used to help determine the extent of utilization of the surveyed area. A map will be provided showing the helicopter route for each survey and counts of nests and individuals observed.

4.0 REFERENCES

Best, T.L., W.M. Kiser, and J.C. Rainey. 1997. *Eumops glaucinus*. Mammalian Species 551:1-6.

Cornell Lab of Ornithology. 2014. Limpkin. Retrieved August 5, 2014, from All About Birds. http://www.allaboutbirds.org/guide/limpkin.

Enge, K.M., D.J. Stevenson, M.J. Elliott, and J.M. Bauder. 2013. The historical distribution of the Eastern indigo snake (*Drymarchon couperi*). Herptetological Conservation and Biology 8(2): 288-307.

Ernst, C.H., and M. Ernst. Snakes of the United States and Canada. Smithsonian Books, Washington, DC, USA. 668 pp.

Franz, R. 1992. Florida pine snake, *Pituophis melanoleucus mugitus*. Barbour. Pages 254-258 in P.E. Moler, ed. Rare and Endangered Biota of Florida. Volume III. Amphibians and Reptiles. Univ. Press of Florida, Gainesville, Florida, USA.

Florida Fish and Wildlife Conservation Commission (FWC). 2012. Bald Eagle Nest Locator Database. https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx. Accessed 2014.

———. 2013. Gopher Tortoise Permitting Guidelines. Tallahassee, Florida.

Jones, C.A., and J.N. Layne. 1993. *Podomys floridanus*. Mammalian Species 427:1-5.

Layne, J.N., and T.M. Steiner. 1996. Eastern indigo snake (*Drymarchon corais couperi*): summary of research conducted on Archbold Biological Station. Report prepared under Order 43910-6-0134 to the U.S. Fish and Wildlife Service; Jackson, Mississippi.

Morrison, J.L. 2001. Recommended management practices and survey protocols for Audubon's crested caracaras (*Caracara cheriway audubonii*) in Florida. Technical Report No. 18. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida.

Ogden, J.C. 1991. Nesting by wood storks in natural, altered, and artificial wetlands in central and northern Florida. Colonial Waterbirds 14:39-45.

Stys, B. 1993. Ecology and Habitat Protection Needs of the Southeastern American Kestrel on Large-Scale Development Sites in Florida. Nongame Wildlife Technical Report No. 13. Office of Environmental Services Florida Game and Freshwater Fish Commission. Tallahassee, Florida.

Stys, B. 1997. Ecology of the Florida Sandhill Crane. Florida Game and Freshwater Fish Commission Nongame Technical Report No. 15, p. 1-20.

Timm, R.M., and H.H. Genoways. 2004. The Florida Bonneted Bat, *Eumops floridanus* (Chiroptera: Molossidae): Distribution, Morphometrics, Systematics, and Ecology. Journal of Mammalogy 85:852-865.

U.S. Fish & Wildlife Service (USFWS). 2003. Red-cockaded Woodpecker Recovery Plan, Appendix 4. Survey Protocol.

———. 2004a. Florida Scrub-Jay Survey Guidelines. South Florida Ecological Services Office.

———. 2004b. Survey Protocol for Finding Caracara Nests. South Florida Ecological Services Office.

———. 2004c. Florida Grasshopper Sparrow Survey Protocol. South Florida Ecological Services Office.

———. 2004d. Snail Kite Survey Protocol. South Florida Ecological Services Office.

———. 2011. Peninsular Florida Species Conservation and Consultation Guide. Sand Skink and Blue-tailed (Bluetail) Mole Skink.

———. 2013. Standard Protection Measures for the Eastern Indigo Snake. Jacksonville, Florida.

Walkinshaw, L.H. 1973. Cranes of the World. Winchester Press, New York, N.Y. 370 pp.

Wood, D.A. 2001. Florida's Fragile Wildlife Conservation and Management. University Press of Florida. Gainesville, Florida.

APPENDIX A

LISTED WILDLIFE AND PLANT SPECIES TABLES

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			**Total Acreage = 5,512.3 acres**	**Total Acreage = 1,785.8 acres**		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Amphibians																		
Gopher frog *Rana capito* *(FL – SSC)*													**Proposed protocol:** No surveys are proposed for this species. Incidental observations will be reported to FWC. Gopher frogs encountered during gopher tortoise burrow excavations will be relocated to suitable habitat as close as possible to their original location.	**Osceola, Polk, Okeechobee, St. Lucie, and Martin Counties** Longleaf pine, xeric oak, and sandhills preferentially, but also occurs in upland pine forest, scrub, xeric hammock, mesic and scrubby flatwoods, dry prairie, mixed hardwood-pine communities, and a variety of disturbed habitats. • 212—Unimproved pastures. • 213—Woodland pastures. • 310—Herbaceous. • 320—Shrub and brushland. • 321—Palmetto prairies. • 330—Mixed rangeland. • 411—Pine flatwoods. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 414—Pine-mesic oak. • 415—Longleaf pine-upland oak. • 419—Other pine. • 420—Upland hardwood forests. • 421—Xeric oak. • 423—Oak-pine-hickory. • 425—Temperate hardwood hammock. • 427—Live oak hammock. • 432—Sand live oak • 434—Hardwood-conifer mixed. • 436—Upland scrub, pine, and hardwoods. • 438—Mixed hardwoods. • 441—Coniferous tree plantations. • 442—Hardwoods.	*	*	**Moderate** likelihood of occurrence	Not applicable

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination • Unlikely to affect. • May affect, but not likely to adversely affect. • May affect, and is likely to adversely affect.
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			**Total Acreage = 5,512.3 acres**	**Total Acreage = 1,785.8 acres**		
Reptiles																		
Eastern indigo snake *Drymarchon couperi* *(LT/FT)*	X	X	X	X						X	X	X	**Agency protocol:** http://www.fws.gov/northflorida/IndigoSnakes/20110930_NFESO_eastern_indigo_snake_survey_protocol.pdf http://www.fws.gov/verobeach/ReptilesPDFs/20130813_ltr_Update%20addendum_2010%20COE%20Programmatic%20EIS%20Key.pdf **Proposed protocol:** Presence assumed. Due to the temporary impact proposed from this project, FSC will follow the USFWS Standard Protection Measures for the Eastern Indigo Snake (2013). A protection/education plan will be developed for all FSC construction and survey personnel. Thirty days prior to any clearing, FSC will notify the Vero Beach Office of the implementation of the plan. **Proposed survey period:** Incidental to all other plant/wildlife surveys. March – April 2015	**Okeechobee, St. Lucie, Martin, Osceola, and Polk Counties** • 212—Unimproved pastures. • 213—Woodland pastures. • 310—Herbaceous. • 320—Shrub and brushland. • 321—Palmetto prairies. • 330—Mixed rangeland. • 411—Pine flatwoods. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 414—Pine-mesic oak. • 415—Longleaf pine-upland oak. • 419—Other pine. • 420—Upland hardwood forests. • 421—Xeric oak. • 423—Oak-pine-hickory. • 425—Temperate hardwood hammock. • 427—Live oak hammock. • 432—Sand live oak. • 434—Hardwood-conifer mixed. • 436—Upland scrub, pine, and hardwoods. • 438—Mixed hardwoods. • 441—Coniferous tree plantations. • 442—Hardwoods. • 510—Streams and waterway edges. • 560—Sloughs. • 610—Wetland hardwood forests. • 611—Bay swamps. • 613—Gum swamps. • 620—Wetland coniferous forests. • 621—Cypress. • 624—Hydric pine flatwoods. • 630—Wetland forested mixed. • 640—Vegetated nonforested. • 641—Freshwater marshes. • 643—Wet prairies.	2,157.7	686.9	**Seasonal occurrence:** Active nearly year-round in southern Florida but winters underground farther north. Lays eggs in May and June. Breeding occurs from November through April. **Survey period:** Timing for transect surveys and inspection of refugia should coincide with the increased likelihood of finding eastern indigo snakes in or near refugia, and while the snake's home range is reduced in winter months. In Florida, eastern indigo snakes will generally concentrate their activities near refugia during the cooler months; however we also recognize the differences in temperature regimes within the State. Therefore, we recommend conducting surveys for eastern indigo snakes from October 1 through April 30. If cold weather prevails outside of these dates, please contact the nearest USFWS Ecological Services Field Office for the potential to work outside of the designated time window. **Moderate** likelihood of occurrence; **historical observation** within 1 mile of ESA.	May affect, but not likely to adversely affect.

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			**Total Acreage = 5,512.3 acres**	**Total Acreage = 1,785.8 acres**		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Blue-tailed mole skink *Eumeces egregius lividus* *(LT/FT)*			X	X	X								**Agency protocol:** http://www.fws.gov/northflorida/Skink/20120206_Skink_Conservation_Consultation_Guide_Final.pdf (Appendix A) FWC Standardized Protocol for Drift-fence Surveys USFWS Skink Protocol SCP required for most surveys **Proposed protocol:** Survey protocol identical to sand skink, see entry for sand skink. Assumed present if sand skink detected. **Proposed survey period:** March – April 2015 http://fwcg.myfwc.com/docs/Blue_tailed_MoleSkink_profile.pdf	**Osceola and Polk Counties** Well-drained sandy uplands above 100-ft in elevation, usually with an abundance of scattered shrubs and lichens, favors rosemary, oak and sand pine scrubs; occasional in turkey oak barrens, sandhill and xeric hammock ; requires loose sand for burrowing with patches of sparse to no ground cover or canopy. • 310—Rosemary scrub. • 411—Xeric pine. • 412—Xeric hammock. • 413—Sand pine scrub. • 421—Oak scrub. • 436—Upland scrub, pine, and hardwoods.	929.94	312.45	**Seasonal occurrence:** Present but difficult to observe year-round. **Important factors** in determining presence of skinks: • Location (County=Highlands, Lake, Marion, Orange, Osceola, Polk, Putnam) • Elevation (≥82 feet above MSL) • Suitable Soils (Apopka, Arredondo, Archbold, Astatula, Candler, Daytona, Duette, Florahome, Gainesville, Hague, Kendrick, Lake, Millhopper, Orsino, Paola, Pomello, Satellite, St. Lucie, Tavares, and Zuber) • Xeric uplands in the FSS consultation area but generally > 16.6 km (10 miles) from the Mount Dora Ridge or the Lake Wales Ridge; presumed to be unoccupied. **Low** likelihood of occurrence; found in Polk and Osceola Counties along the Lake Wales Ridge; **historical observation** within 1 mile of ESA.	May affect, but not likely to adversely affect.

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			Total Acreage = 5,512.3 acres	Total Acreage = 1,785.8 acres		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Gopher tortoise *Gopherus polyphemus* *(C/ST)*				X	X	X	X	X	X	X			**Agency protocol:** 100% Visual surveys will be conducted in all suitable habitats prior to clearing. Relocation permits will be acquired. Gopher Tortoise Permitting Guidelines http://www.fws.gov/southeast/candidateconservation/pdf/gtsurveyhandbook.pdf **Proposed protocol:** FWC Gopher Tortoise Permitting Guidelines will be followed. GT's have been identified in several areas already along the route.100% GT surveys will be conducted prior to clearing in order to receive a GT relocation permit. **Proposed survey period:** March – April 2016	**Okeechobee, St. Lucie, Martin, Osceola and Polk Counties** • 212—Unimproved pastures. • 213—Woodland pastures. • 310—Herbaceous. • 320—Shrub and brushland. • 321—Palmetto prairies. • 330—Mixed rangeland. • 411—Pine flatwoods. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 414—Pine-mesic oak. • 415—Longleaf pine-upland oak. • 419—Other pine. • 420—Upland hardwood forests. • 421—Xeric oak. • 423—Oak-pine-hickory. • 425—Temperate hardwood hammock. • 427—Live oak hammock. • 432—Sand live oak • 434—Hardwood-conifer mixed. • 436—Upland scrub, pine, and hardwoods. • 438—Mixed hardwoods. • 441—Coniferous tree plantations. • 442—Hardwoods.	1,419.7	512.0	**Survey season:** April through October (preferred) **Survey protocol:** Gopher Tortoise Permitting Guidelines • Methodology for development and recipient sites: see Appendix 4 • All surveys must be completed by authorized agents and are subject to field verification by FWC **Likely** to occur; **multiple observations** along the ESA. Typically found in dry upland habitats including sandhills, scrub, xeric oak hammock and dry pine flatwoods; commonly utilize disturbed habitat such as pasture, old fields and road shoulders; tortoise excavate deep burrows for refuge from predators, weather and fire; more than 300 other species have been recorded sharing these burrows.	May affect, but not likely to adversely affect.

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			**Total Acreage = 5,512.3 acres**	**Total Acreage = 1,785.8 acres**		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Sand skink *Neoseps reynoldsi* *(LT/FT)*			X	X	X	X							**Agency protocol:** http://www.fws.gov/northflorida/Skink/20120206_Skink_Conservation_Consultation_Guide_Final.pdf (Appendix A) FWC Standardized Protocol for Drift-fence Surveys USFWS Skink Protocol SCP required for most surveys http://www.fws.gov/verobeach/ReptilesPDFs/20120206_Skink%20CCG_Final.pdf **Proposed protocol:** Using appropriate FLUCCs Cover Types, soil types, elevations above 82 ft. and such locations within 10 miles of the Lake Wales Ridge, FSC will perform pedestrian surveys in those habitats looking for the associated "S" tracks in the sand. All surveys will be documented and results presented to USFWS. If tracks are found, FSC will propose conservation measures. Cover board surveys are not proposed due to the temporary nature of the impact. No permanent above ground facilities are proposed. **Proposed survey period:** March – April 2015	**Osceola and Polk Counties** Pine flatwoods, scrub, sandhill, wetlands, grassland, agriculture • 310—Rosemary scrub. • 411—Xeric (scrubby) pine. • 412—Xeric hammock. • 413—Sand pine scrub. • 421—Oak scrub. • 436—Upland scrub, pine, and hardwoods.	929.94	312.45	**Seasonal occurrence:** Present year-round, but difficult to observe. Most active March - June. **Important factors in determining presence of skinks** • Location (County= Osceola, Polk) • Elevation (≥82 feet above MSL) • Suitable Soils (Apopka, Arredondo, Archbold, Astatula, Candler, Daytona, Duette, Florahome, Gainesville, Hague, Kendrick, Lake, Millhopper, Orsino, Paola, Pomello, Satellite, St. Lucie, Tavares, and Zuber) • Xeric uplands in the FSS consultation area generally > 16.6 km (10 miles) from the Mount Dora Ridge or the Lake Wales Ridge; presumed to be unoccupied. **Protection and management:** Protect all remaining patches of Central Ridge scrub. Management may entail infrequent prescribed fire. **Moderate** likelihood of occurrence; **historical observation** within 1 mile of ESA.	May affect, but not likely to adversely affect.
Florida pine snake *Pituophis melanoleucus mugitus* *(FL - SSC)*													**Proposed protocol:** No surveys are proposed for this species. Incidental observations will be reported to FWC. Florida pine snakes encountered during gopher tortoise burrow excavations will be relocated to suitable habitat as close as possible to their original location.	**Polk, Okeechobee, St. Lucie, and Martin Counties** Prefers well-drained soils with a moderate to open canopy. • 310—Herbaceous. • 320—Shrub and brushland. • 321—Palmetto prairies. • 329—Other shrubs and brush. • 330—Mixed rangeland. • 410—Upland Coniferous forests • 420—Upland hardwood forests • 434—Hardwood-coniferous mixed	*	*	**Low** likelihood of occurrence	Not applicable.

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			Total Acreage = 5,512.3 acres	Total Acreage = 1,785.8 acres		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Birds																		
Florida Grasshopper Sparrow *Ammodramus savannarum floridanus* *(LE/FE)*				X	X	X							**Agency protocol:** http://www.fws.gov/verobeach/BirdsPDFs/FloridaGrasshopperSparrowSurveyProtocol.pdf **Proposed protocol:** Acreage suitable for FGS habitat has already been identified. Since all habitat occurs along major roadways where the pipeline will be collocated, it is unlikely to contain nesting sparrows. However in these areas, surveys will be conducted along the route, using recorded call surveys at recorded points in a line along the 100-ft. construction R/W. Due to access limitations, multiple surveys may not be possible but since most areas may be accessed by road R/W, multiple surveys will be conducted from public R/W. Any positive responses of FGS will be recorded. For any such areas, FSC will consult with USFWS for temporal avoidance conservation measures. **Proposed survey period:** March – April 2015	**Okeechobee, Osceola, and Polk Counties** • 190—Open land. • 212—Unimproved pastures. • 310—Herbaceous. • 320—Shrub and brushland. • 321—Palmetto prairies. • 329—Other shrubs and brush. • 330—Mixed rangeland. • 443—Forest regeneration areas. • 641—Freshwater marshes. • 643—Wet prairies.	1,120.4	339.7	**Habitat:** Requires large areas of frequently burned dry prairie habitat, with patchy open areas sufficient for foraging. May persist in pasture lands that have not been intensively managed so as to remove all vegetation clumps. **Low** likelihood of occurrence; **historical observation** within 1 mile of ESA.	May affect, but not likely to adversely affect.
Florida Scrub-Jay *Aphelocoma coerulescens* *(LT/FT)*			X			X	X		X	X			**Agency protocol:** http://www.fws.gov/verobeach/BirdsPDFs/FSJConservationGuidelinesALLINCLUSIVE1.pdf **Proposed protocol:** USFWS Survey Protocol will be followed in those areas identified as potential habitat along the proposed route. **Proposed survey period:** September - October 2014	**Okeechobee, St. Lucie, Martin, Osceola, and Polk Counties** • 213—Woodland pasture. • 221—Citrus groves. • 310-330—Rangeland. • 411—Pine flatwoods. • 412—Longleaf pine/xeric oak. • 413—Sand pine. • 436—Upland scrub, pine, and hardwoods. • 443—Forest regeneration areas. • 720—Sand other than beaches. • 741—Disturbed rural land. • 745—Disturbed burn areas.	2,253.8	904.4	**Seasonal occurrence:** Extremely sedentary. **Moderate** likelihood of occurrence; **historical observation** (FNAI) within 1 mile of ESA.	May affect, but not likely to adversely affect.

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			**Total Acreage = 5,512.3 acres**	**Total Acreage = 1,785.8 acres**		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Bald Eagle *Haliaeetus leucocephalus* *(Not listed – Protected by Federal/State Management Guidelines)*	X	X	X	X							X	X	**Agency protocol:** http://www.fws.gov/northflorida/BaldEagles/Documents/2007-BE-Monitoring-Guidelines-without-figures.htm http://myfwc.com/media/427567/Eagle_Plan_April_2008.pdf **Proposed protocol:** FSC will first record all previously known eagle nests within one mile of the route. FSC will then conduct aerial (helicopter) survey of the entire route in late winter-early spring of 2015. Ground surveys will be conducted incidental to other on ground surveys for wildlife and plants. Any previously unrecorded nests will be identified, GPS point taken, activity noted, photographs taken, and report provided to USFWS and FWC. **Proposed survey period:** Flyovers February - March 2015	**Okeechobee, St. Lucie, Martin, Osceola, and Polk Counties** Bald eagles will utilize most natural habitats in Florida. A mosaic of FLUCFCS types (100s to 700s) too numerous to list comprise the foraging and nesting habitats. Generally any forested systems such as pines or cypress within a mile of water should be evaluated for nesting. Existing nests are found on FWC's Eagle Nest Locator Web site (https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx). All Natural Habitats • 165 • 166 • 180—700s	5,049.5	1,691.5	**Seasonal occurrence:** In extreme southern Florida, most adults are resident, but most birds in northern and central Florida migrate north out of state after breeding season (late May - July). Juveniles and younger birds mostly migrate north in summer and May range as far as Canada. Also, in winter, some birds from northern populations migrate to northern Florida. **High** Likelihood; in close proximity to bodies of water along the ESA; **historical observation** (FNAI) within 1 mile of ESA.	May affect, but not likely to adversely affect.
Wood Stork *Mycteria americana* *(LE/FE)*		X	X	X	X	X	X	X					**Agency protocol:** http://www.fws.gov/northflorida/WoodStorks/Documents/19970127_rpp_Wood-stork-recovery-plan-1997.pdf **Proposed protocol:** FSC will first identify all wood stork colonies within the study area using USFWS website for colony sites. FSC will conduct aerial (helicopter) survey of the entire route in late winter-early spring of 2015. Ground surveys will be conducted incidental to other on ground surveys for wildlife and plants. All wading bird roosting/nesting colonies will be identified within one mile of the route. GPS coordinates will be taken, and approximate numbers of birds of each species will be identified. Results will be reported to USFWS and FWC. Based on discussions with USFWS, FSC will not be required to run the USFWS foraging model. FSC will describe how no herbaceous wetlands will be lost and forested wetlands will be converted to herbaceous wetlands. **Proposed survey period:** Flyovers February - March 2015	**Okeechobee, St. Lucie, Martin, Osceola, Polk Counties** • 510—Streams and waterways. • 540—Bays and estuaries. • 560—Slough waters. • 610—Wetland hardwood forests. • 621—Cypress. • 630—Wetland forested mixed. • 641—Freshwater marshes. • 643—Wet prairies. • 644—Emergent aquatic vegetation. • 650—Non-vegetated. • 742—Borrow areas.	749.5	166.4	**Presence/absence survey protocol**: The breeding season (depending on the regional location) is Feb.-Aug. **Seasonal occurrence:** Post-breeding dispersal carries large numbers from more southern locales to more northern parts of range; in winter, northern birds move south. Annual and long-term use of nesting sites is very dependent on feeding conditions, which may be affected dramatically by altered hydrologic patterns. Colonies may form late November - early March in south Florida and February - March in central and northern Florida. **Likely**; fairly widespread and can be found foraging in agricultural areas and roadside ditches. **Recorded observation at MP 66.**	May affect, but not likely to adversely affect.

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			Total Acreage = 5,512.3 acres	Total Acreage = 1,785.8 acres		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Red-cockaded Woodpecker *Picoides borealis* *(LE/FE)*				X	X	X							**Agency protocol:** http://www.fws.gov/verobeach/BirdsPDFs/RedCockadedWoodpeckerSurveyProtocol.pdf **Proposed protocol:** Within the few acres potentially containing pine flatwoods along the pipeline route, FSC will identify through aerial photography, the likelihood of presence of old growth pine trees. Any such areas identified will be visited, and pedestrian transects will be conducted. Birds or cavities found will be recorded and locations recorded using GPS. Photographs of cavity tree, if found, will be made. Reports will be provided to USFWS for further consultation. **Proposed survey period:** September-October 2014 If suitable nesting pine trees are present, follow-up surveys will be completed in the nesting season (April-May 2015).	**Martin, Osceola, and Polk Counties** Inhabits open, mature pine woodlands that have a diversity of grass, forb, and shrub species. Generally occupies longleaf pine flatwoods in north and central Florida, mixed longleaf pine and slash pine in south-central Florida, and slash pine in south Florida outside the range of longleaf pine. Forage in several forested habitat types that include pines of various ages, but prefer more mature pines. • 410—Coniferous Forests. • 411—Pine flatwoods. • 412—Longleaf pine/xeric oak. • 414—Pine-mesic oak. • 434—Hardwood-conifer mixed. • 620—Mixed pine-cypress. • 624—Hydric slash pine flatwoods. • 741—Rural Land in Transition. • 745—Burned areas.	176.3	74.7	**Seasonal occurrence:** Nonmigratory Nesting typically occurs April – May, with a typical nest having three to four eggs. Renesting attempts may result in eggs in the nest as late as June. **Preferred habitat parameters:** • Canopy hardwoods < 10% of canopy trees • Hardwood midstory <10% cover, and < 7'(2.1 m) high • Native grass/forbs groundcover > 40% • Older pines (typically > 60 years) • Pine BA 40-80 ft^2/acre Possible but **low** likelihood to occur within range; inhabits mature pines which are lacking along the ESA. Survey window year round for cavity trees.	Unlikely to affect; no evidence of suitable old age pines within ESA.
Crested Caracara *Polyborus plancus audubonii* *(LT/FT)*	X	X	X	X									**Agency protocol:** http://www.fws.gov/verobeach/BirdsPDFs/CaracaraSurveyProtocol.pdf?spcode=A003 **Proposed protocol:** Prior to surveys, based on the available GIS FLUCFCS within the current Project ESA and an aerial photograph review of the existing habitats by experienced biologists, the potentially occupied nesting habitat will be mapped within the species Consultation Area and in areas where the birds were previously observed during 2013-2014 surveys by FSC. Field surveys will conclude whether or not the site contains active caracara nests or suitable nesting habitat (i.e., mature cabbage palms). Experienced biologists will perform a combination of vehicular transects and pedestrian spot checks in all previously identified potentially suitable habitats to locate and perform a single inspection of any mature cabbage palms within the Project ESA. This survey will take place between February and March 2015, depending on parcel access and will cover the time when most birds are feeding and nestlings are more visible. Surveys will start at least 15 minutes prior to sunrise and will occur during good weather conditions (not to be conducted in rain or fog). During midday potential nest	**Okeechobee, St. Lucie, Martin, Osceola, and Polk Counties** • 190—Open land. • 212—Unimproved pastures. • 213—Woodland pastures. • 310—Herbaceous. • 320—Shrub and brushland. • 321—Palmetto prairie. • 322—Coastal scrub. • 329—Other shrubs and brush. • 330—Mixed rangeland. • 411—Pine flatwoods. • 412—Open longleaf pine/xeric oak. • 428—Cabbage palm. • 443—Forest regeneration areas. • 624—Hydric pine flatwoods.	1,064.0	386.7	**Timing of surveys:** • Best during peak nesting season within overall population—January, February, March. • Surveys are best conducted early in the morning or late in the afternoon. Species is found throughout south central Florida in open pastures and wet prairies usually concurrent with agricultural operations; nests can be found along roadways. **Likely** to occur; recorded as observed near MP 58, 63, 66, 67,78, 97, 112, and 121.	May affect, but not likely to adversely affect.

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols
Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination • Unlikely to affect. • May affect, but not likely to adversely affect. • May affect, and is likely to adversely affect.
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			**Total Acreage = 5,512.3 acres**	**Total Acreage = 1,785.8 acres**		
													trees can be examined close up for evidence of nests (Morrison 2001). Any caracara activity (including flight patterns) will be recorded on data sheets and marked on maps with details including time of day, number of birds, and if possible if the birds were juveniles or adults. Any potential or confirmed nesting locations within the Project ESA will be collected with a handheld GPS and approximate locations marked on field maps. The key end products of this survey will include the following data to be provided to the USFWS: • Information sheet(s) including field survey dates, start and end times, survey daily weather information, total number caracara observations; and • Aerial photograph(s) depicting the current Project ESA, potentially suitable mapped habitat locations, and locations of all caracara observed while conducting the survey or any other time including flight directions, and GPS locations of any documented nests. **Proposed survey period:** February - March 2015					
Snail Kite *Rostrhamus sociabilis plumbeus* *(LE/FE)*	X	X	X	X									**Agency protocol:** http://www.fws.gov/verobeach/BirdsPDFs/SnailKiteSurveyProtocol.pdf **Proposed protocol:** A one-time pedestrian visual survey of suitable habitat will be made for birds and nests. FSC will check small trees, such as, willow, melaleuca, and pond cypress along the open water edge for nests or perching birds. If snail kites are observed, then nests can be located through the bird's behavior. For any confirmed presence, FSC will consult with USFWS for temporal avoidance conservation measures. **Proposed survey period:** March – April 2015	**Okeechobee, Martin, Osceola, and Polk Counties** Large open freshwater marshes and lakes with shallow water, < 4 ft. (1.2 m) deep, and a low density of emergent vegetation are preferred foraging habitat. Dependent upon apple snails • 631—Wetland scrub. • 640—Vegetated nonforested wetlands. • 641—Freshwater marshes. • 643—Wet prairies. • 644—Emergent aquatic vegetation.	598.8	127.2	**Seasonal occurrence:** Nonmigratory. Nomadic dispersal in response to habitat changes (e.g., water level, food availability, hydroperiod). http://www.fws.gov/verobeach/BirdsPDFs/SnailKiteConsultationArea.pdf Because of the secretive nature of the snail kite and the need to differentiate breeding and nonbreeding behavior surveys require specialized training. A qualified avian biologist/ecologist should be used to be to obtain acceptable results. **Suggested survey window:** January – April. **Low** likelihood of occurrence.	May affect, but not likely to adversely affect.

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			**Total Acreage = 5,512.3 acres**	**Total Acreage = 1,785.8 acres**		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Southeastern American Kestrel *Falco sparverius paulus* *(ST)*				X	X	X	X						http://myfwc.com/wildlifehabitats/imperiled/profiles/birds/southeastern-american-kestrel/ **Proposed protocol:** One-time pedestrian or vehicular survey within suitable kestrel habitat. Biologists will look for and record any signs of kestrel activity including kestrels perched on fencerows, telephone poles and lines, and trees, kestrels flying or hovering or where kestrels were exhibiting courtship, breeding, or territorial defense behaviors. Biologists will locate and investigate potential nest sites on foot. Although longleaf pine snags are the most utilized for nesting, biologists will examine possible nest sites in all types of trees or utility structures. **Proposed survey period:** April – June 2015	**Osceola, Polk, Okeechobee, St. Lucie, and Martin Counties** Open pastures and farms, rangeland, pine and hardwood forests. Typically nests within existing cavities in pines and old tree snags. • 211—Improved pastures • 212—Unimproved pastures • 213—Woodland pastures • 260—Other open lands, rural • 310—Herbaceous (dry prairie) • 330—Mixed rangeland • 410—Upland coniferous forest • 411—Pine flatwoods • 412—Longleaf pine—xeric oak • 414—Pine-mesic oak • 421—Xeric oak • 434—Hardwood—coniferous mixed	*	*	**Seasonal occurrence:** Can be found throughout Florida year-round. Surveys best performed during morning hours on calm, clear days. **Likely** to occur. Fairly widespread species, and considerable habitat exists along the ESA.	Not applicable
Florida Burrowing Owl *Athene cunicularia floridana* *(FL – SSC)*			X	X	X	X							http://myfwc.com/wildlifehabitats/imperiled/profiles/birds/burrowing-owl/ **Proposed protocol:** One-time pedestrian survey along belt transects in suitable habitat. **Proposed survey period:** March – April 2015	**Osceola, Polk, Okeechobee, St. Lucie, and Martin Counties** Xeric pastures with low vegetation, dry pastures, and agricultural areas. • 211—Improved pastures • 212—Unimproved pastures • 260—Other open lands, rural • 310—Herbaceous (dry prairie) • 330—Mixed rangeland	*	*	**Seasonal occurrence:** Can be found year-round but more active during the breeding season (15 Febuary – July 10) **Likely** to occur. Reported as observed along the ESA.	Not applicable

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			**Total Acreage = 5,512.3 acres**	**Total Acreage = 1,785.8 acres**		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Florida sandhill crane *Grus canadensis pratensis* *(ST)*	X	X	X										http://myfwc.com/wildlifehabitats/imperiled/profiles/birds/florida-sandhill-crane/ **Proposed protocol:** The proposed survey methodology utilizes aerial helicopter surveys of the freshwater wetlands along the entire Project ESA. Florida sandhill crane nests are usually large and conspicuous, making them easy to locate and identify from the air. Prior to sampling, potential habitats will be identified and mapped and flight paths will be established to provide as close to 100% coverage as possible. Aerial surveys will be conducted during the sandhill crane breeding season (i.e., January-February) and will take place on calm clear days with good visibility. Two experienced biologists will fly the established route (one on either side of the helicopter) with the pilot maintaining an optimal altitude of about 300 feet. When sandhill crane nests or foraging cranes are spotted, the pilot will be asked to maintain adequate altitude and circle the area as necessary to get an accurate count. **Proposed survey period:** February 2015	**Osceola, Polk, Okeechobee, St. Lucie, and Martin Counties** Forages in open pastures and woodlands, and croplands, but roosts and nests in shallow freshwater marshes. • 641—Freshwater marsh • 643—Wet prairie • 644—Emergent aquatic vegetation	*	*	**Seasonal occurrence:** Birds are present year-round but nesting typically is initiated in January. **Likely** to occur. Reported as observed along the ESA, active nest observed near milepost 61 in Osceola County.	Not applicable
Limpkin *Aramus guarana* *(FL – SSC)*		X	X	X	X	X							http://myfwc.com/wildlifehabitats/imperiled/profiles/birds/limpkin/ **Proposed protocol:** The proposed survey methodology utilizes aerial helicopter surveys of the freshwater wetlands along the entire Project right-of-way. Prior to sampling, potential habitats will be identified and mapped and flight paths will be established to provide as close to 100% coverage as possible. Aerial surveys will be conducted during the limpkin breeding season (i.e, February-June) and will take place on calm clear days with good visibility. Two experienced biologists will fly the established route (one on either side of the helicopter) with the pilot maintaining an optimal altitude of about 300 feet. When limpkins are spotted, the pilot will be asked to maintain adequate altitude and circle the area as necessary to get an accurate count. **Proposed survey period:** February 2015	**Osceola, Polk, Okeechobee, St. Lucie, and Martin Counties** Freshwater marshes, swamps, lake and river margins, swales, sloughs, and impoundments. • 511—Natural river, stream or waterway • 512—Channelized waterways • 611—Bay swamps • 613—Gum swamps • 615—Streams and lake swamps • 617—Mixed wetland hardwoods • 621—Cypress • 630—Wetland forested mixed • 631—Wetland shrub • 641—Freshwater marsh • 644—Emergent aquatic vegetation • 652—Shorelines • 653—Intermittent ponds	*	*	**Seasonal occurrence:** Birds are present year-round but nesting season is February to June. **Moderate** likelihood of occurrence	Not applicable

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			**Total Acreage = 5,512.3 acres**	**Total Acreage = 1,785.8 acres**		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Little blue heron, snowy egret, tricolored heron, white ibis, roseate spoonbill *Egretta caerulea, Egretta thula, Egretta tricolor, Eudocimus albus, Ajaja ajaja* *(FL – SSC)*		X	X	X	X	X							http://fwcg.myfwc.com/docs/Bird_survey_guidelines_01Mar09_clean.pdf **Proposed protocol:** Colonial nesting wading birds will be documented if observed during the aerial helicopter surveys conducted for bald eagles and wood storks. Preferred foraging and nesting habitat for wading birds has been identified within the Project ESA including wetlands, ponds, lakes, and marshes. **Proposed survey period:** February 2015	**Osceola, Polk, Okeechobee, St. Lucie, and Martin Counties** Freshwater marshes, swamps, lake and river margins, swales, sloughs, and impoundments. • 511—Natural river, stream or waterway • 512—Channelized waterways • 611—Bay swamps • 613—Gum swamps • 615—Streams and lake swamps • 617—Mixed wetland hardwoods • 621—Cypress • 630—Wetland forested mixed • 631—Wetland shrub • 641—Freshwater marsh • 644—Emergent aquatic vegetation • 652—Shorelines • 653—Intermittent ponds	*	*	**Seasonal occurrence:** Birds are present year-round but colonial nesting of these species occurs from March to June. **Low** likelihood of occurrence. Individual birds likely to utilize the project ESA but no colonial nesting sites are reported within a critical distance of the project.	Not applicable
Mammals																		
Florida Bonneted Bat *Eumops floridanus* *(LE)*				X				X					**Agency protocol:** In draft form only; suggested survey window of Mid-April and Mid-August (nocturnal) http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0JB **Proposed protocol:** FSC will overlay focal area over ESA map. Since most of the focal area occurs along the portion of the proposed route following major roadways, FSC will perform vehicular/ground surveys for presence of trees potentially containing holes or hollows for bat roosting. If observed, trees will be inspected for any indication of bat presence. **Proposed survey period:** March – April 2015	**Okeechobee, Osceola, and Polk Counties** Roosts in palms and hollow trees and in buildings; forages high in the air over natural as well as human-altered landscapes	219.2	73.2	**Low** likelihood of occurrence. Agency Protocol and Conservation recommendations are currently being developed by USFWS.	Unlikely to affect; no evidence of bat roosts/ colonies within the ESA.
Florida mouse *Podomys floridanus* *(FL – SSC)*				X				X					**Proposed protocol:** No surveys are proposed for this species. Incidental observations will be reported to FWC. Florida mice encountered during gopher tortoise burrow excavations will be relocated to suitable habitat as close as possible to their original location.	**Osceola, Polk, St. Lucie, and Martin Counties** Xeric oak and sandhills • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 421—Xeric oak. • 423—Oak-pine-hickory. • 432—Sand live oak • 434—Hardwood-conifer mixed. • 436—Upland scrub, pine, and hardwoods.	*	*	**Low** likelihood of occurrence	Not applicable

Table 1. Federally- and State-Listed Wildlife Species Survey Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Protocol	Species Preferred Habitat (FLUCCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			**Total Acreage = 5,512.3 acres**	**Total Acreage = 1,785.8 acres**		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
Sherman's fox squirrel *Sciuris niger shermani* *(FL – SSC)*			X	X	X	X	X						http://myfwc.com/wildlifehabitats/imperiled/profiles/mammals/shermans-fox-squirrel/ **Proposed protocol:** Due to the fox squirrel's size and striking color patterns in combination with the fact that they occupy relatively open habitats, the animals are typically conspicuous when present. For this reason, the initial belt transects to locate gopher tortoise burrows will also be effective in documenting the presence of Sherman's fox squirrels. In open habitats transects will be spaced approximately 300 feet apart and in denser habitats, transects will be spaced according with regard to range of visibility. **Proposed survey period:** March – April 2015	**Osceola, Polk, Okeechobee, St. Lucie, and Martin Counties** Dry pine flatwoods, xeric oak, turkey oak, sandhill communities • 410—Upland coniferous forests • 411—Pine flatwoods • 412—Longleaf pine—xeric oak • 414—Pine-mesic oak • 415—Mixed pine • 421—Xeric oak • 427—Live oak • 434—Hardwood-coniferous mixed	*	*	**Seasonal occurrence:** Sherman's fox squirrels can be observed year round, but peak periods of breeding activity occur between May-July and again December-January. During this time vocalizations are frequent and male and female individuals interact with one another during mating chases. **Moderate** likelihood of occurrence	Not applicable

*Acreages provided for federally listed species only.

Table 2. Federally-Listed Plant Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Fall Flowering/ Spring Flowering/ Survey Period	Species Preferred Habitat (FLUCFCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
															Total Acreage = 5,512.3 acres	Total Acreage = 1,785.8 acres		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
	GENERAL PROTOCOL: Individual patches of identified potential habitat are relatively small, so the entirety of it will be surveyed (by a team of biologists who have been trained to recognize the species) by walking meandering transects across each habitat during the time period when the species should be visible, if present. In all cases, transects will cover 100 percent of the identified suitable habitat within the current Project right-of-way. All surveys will be documented using GPS tracking and GPS locations of any of listed plants will be recorded and mapped. Representative photographs of all federally listed plant species will be taken. Survey methods and timing need to vary by species. The following information outlines the specific species surveys and schedules that will be followed for the Project.																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec						
Florida Bonamia *Bonamia grandiflora* *(LT)*					X	X	X	X	X				May – September **Proposed survey period:** September 2014.	**Osceola and Polk Counties** Prefers sandy soil, scrub; occurs within openings or disturbed areas in white sand scrub on Central Florida ridges with scrub oaks, sand pines and lichens. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 414—Pine-mesic oak. • 415—Longleaf pine-upland oak. • 419—Other pine. • 421—Xeric oak. • 432—Sand live oak • 436—Upland scrub, pine, and hardwoods.	141.8	54.4	**Low** likelihood of occurrence; **historical observation** near MP 35. http://www.fws.gov/northflorida/Species-Accounts/PDFVersions/Fla-Bonamia-2005.pdf	May affect, but not likely to adversely affect.
Pygmy fringe tree *Chionanthus pygmaeus* (LE)			X	X									Flowering- early; budding occurs in March, and anthesis is from late March to early April. **Proposed survey period:** March - April 2015.	**Osceola and Polk Counties** Occurs primarily in scrub as well as high pine, dry hammocks, and transitional habitats. • 411—Pine flatwoods. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 414—Pine-mesic oak. • 415—Longleaf pine-upland oak. • 419—Other pine. • 421—Xeric oak. • 423—Oak-pine-hickory. • 432—Sand live oak. • 436—Upland scrub, pine, and hardwoods.	207.5	79.5	**Low** likelihood of occurrence; **historical observation** near MP 9. http://www.fws.gov/verobeach/msrppdfs/pygmy.pdf	May affect, but not likely to adversely affect.
Perforate reindeer lichen *Cladonia perforate* *(LE)*	X	X	X	X	X	X	X	X	X	X	X	X	Possible year-round. **Proposed survey period:** September - October 2014 March - April 2015	**Martin and Polk Counties** Sandhills; sandy openings in stabilized sand dunes with Florida scrub and vegetation • 212—Unimproved pastures. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 432—Sand live oak. • 436—Upland scrub, pine, and hardwoods.	95.3	35.8	**Low** likelihood of occurrence. http://www.fws.gov/verobeach/msrppdfs/flperforate.pdf	May affect, but not likely to adversely affect.

Table 2. Federally-Listed Plant Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Fall Flowering/ Spring Flowering/ Survey Period	Species Preferred Habitat (FLUCFCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
															Total Acreage = 5,512.3 acres	Total Acreage = 1,785.8 acres		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
	GENERAL PROTOCOL: Individual patches of identified potential habitat are relatively small, so the entirety of it will be surveyed (by a team of biologists who have been trained to recognize the species) by walking meandering transects across each habitat during the time period when the species should be visible, if present. In all cases, transects will cover 100 percent of the identified suitable habitat within the current Project right-of-way. All surveys will be documented using GPS tracking and GPS locations of any of listed plants will be recorded and mapped. Representative photographs of all federally listed plant species will be taken. Survey methods and timing need to vary by species. The following information outlines the specific species surveys and schedules that will be followed for the Project.																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec						
Scrub pigeon-wing *Clitoria fragrans* *(LT)*					X	X							May-June **Proposed survey period:** April – May 2015	**Polk County** Sandhills, scrub, scrubby flatwoods ● 411—Pine flatwoods. ● 412—Longleaf pine-xeric oak. ● 413—Sand pine scrub. ● 414—Pine-mesic oak. ● 415—Longleaf pine-upland oak. ● 419—Other pine. ● 421—Xeric oak. ● 423—Oak-pine-hickory. ● 432—Sand live oak ● 436—Upland scrub, pine, and hardwoods.	159.7	54.8	**Moderate** likelihood of occurrence; **historic observation** near MP 4. http://www.fws.gov/verobeach/msrppdfs/pigeon.pdf	May affect, but not likely to adversely affect.
Short-leaved rosemary *Conradina brevifolia* *(LE)*			X	X									Visible all year, most individuals flower in spring. **Proposed survey period:** March - April 2015	**Polk County** Sand pine scrub; inhabits white sand scrub with a scattered overstory of sand pine (*Pinus clausa*), interspersed with evergreen scrub oaks (*Quercus* spp.). *C. brevifolia* is usually found interspersed in clearings with other small shrubs and herbs; occurs in Central Florida in sand pine scrub. ● 412—Longleaf pine-xeric oak. ● 413—Sand pine scrub. ● 414—Pine-mesic oak. ● 415—Longleaf pine-upland oak. ● 421—Xeric oak. ● 432—Sand live oak ● 436—Upland scrub, pine, and hardwoods.	119.7	42.0	**Low** likelihood of occurrence. http://www.fws.gov/verobeach/MSRPPDFs/ShortLeaved.PDF	May affect, but not likely to adversely affect.
Avon park hare-bells *Crotalaria avonensis* *(LE)*			X	X	X	X							March-June; Flowering begins in mid-March and continues profusely until June. **Proposed survey period:** No surveys proposed.	**Polk County** White sand scrub; scrub communities found on the Lake Wales Ridge where it typically grows in full sun, on bare white sand. However, may also occur in the partial shade of other plants. May also grow along trails, open edges, or previously disturbed roadbeds. Soils associated with this species have been classified as **Archbold and Satellite sands.** ● 412—Longleaf pine-xeric oak. ● 413—Sand pine scrub. ● 415—Longleaf pine-upland oak. ● 421—Xeric oak. ● 432—Sand live oak ● 436—Upland scrub, pine, and hardwoods.	0.0	0.0	**Low** likelihood of occurrence due to lack of suitable habitat in study area. We do not propose surveys for this species. http://www.fws.gov/verobeach/msrppdfs/avon.pdf	Unlikely to affect.

Table 2. Federally-Listed Plant Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Fall Flowering/ Spring Flowering/ Survey Period	Species Preferred Habitat (FLUCFCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
															Total Acreage = 5,512.3 acres	Total Acreage = 1,785.8 acres		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
	GENERAL PROTOCOL: Individual patches of identified potential habitat are relatively small, so the entirety of it will be surveyed (by a team of biologists who have been trained to recognize the species) by walking meandering transects across each habitat during the time period when the species should be visible, if present. In all cases, transects will cover 100 percent of the identified suitable habitat within the current Project right-of-way. All surveys will be documented using GPS tracking and GPS locations of any of listed plants will be recorded and mapped. Representative photographs of all federally listed plant species will be taken. Survey methods and timing need to vary by species. The following information outlines the specific species surveys and schedules that will be followed for the Project.																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec						
Scrub mint *Dicerandra frutescens* *(LE)*								X	X	X	X		Flowering occurs from August through winter, and fruit production occurs from September through winter. **Proposed survey period:** September – October 2014	**Polk County** Mostly restricted to excessively drained, yellow sandy soils of the **Astatula and Paola soil types**. However, has been found on a moderately well-drained, yellow sand of the **Orsino type**. In these soil types, scrub mint occurs adjacent to or within disturbed areas in sand pine scrub, oak scrub and sandhill habitats. • 212—Unimproved pastures. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 414—Pine-mesic oak. • 415—Longleaf pine-upland oak. • 421—Xeric oak. • 432—Sand live oak. • 436—Upland scrub, pine, and hardwoods.	23.7	8.3	**Observed** near MP 9. http://www.fws.gov/verobeach/MSRPPDFs/ScrubMint.PDF	May affect, but not likely to adversely affect.
Lakela's mint *Dicerandra immaculata* *(LE)*									X	X	X		Flowering occurs primarily from September to November and sporadically throughout the year. Fruiting occurs primarily from October to December and sporadically throughout the year. **Proposed survey period:** No surveys proposed.	**Martin and St Lucie Counties.** Found in light shade or clearings in scrub along the Atlantic coastal ridge. Occupies sites with varying degrees of litter, from partly covered to bare sand. These bare sands are probably created through a combination of wind action and fires. *Dicerandra immaculata* has been observed growing on both white and yellow sands of the following soil series: **Astatula, Paola, and St. Lucie sands**. These soils are deep, nearly level to sloping, occur **on high, dune-like ridges, and are acidic**. • 413—Sand pine scrub. • 432—Sand live oak. • 436—Upland scrub, pine, and hardwoods.	0.0	0.0	**Low** likelihood of occurrence due to lack of suitable habitat in study area. We do not propose surveys for this species. http://www.fws.gov/verobeach/MSRPPDFs/Lakela.PDF	Unlikely to affect.
Scrub buckwheat *Erigonnum longifolium* var. *gnaphalifolium* *(LT)*					X	X	X	X	X	X			May-October, or following a fire; observed with immature flower stalks between April and mid-July and bloom from May to mid-October. **Proposed survey period:** September – October 2014	**Osceola and Polk Counties** Occurs in high pine and turkey oak barrens habitats, sandhills, and turkey oak barrens. • 411—Pine flatwoods. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 415—Longleaf pine-upland oak. • 421—Xeric oak. • 423—Oak-pine-hickory. • 432—Sand live oak. • 436—Upland scrub, pine, and hardwoods.	207.0	79.5	**Moderate** likelihood of occurrence; **historical observation** near MP 35. http://www.fws.gov/verobeach/msrppdfs/scrubbuck.pdf	May affect, but not likely to adversely affect.

Table 2. Federally-Listed Plant Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Fall Flowering/ Spring Flowering/ Survey Period	Species Preferred Habitat (FLUCFCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
															Total Acreage = 5,512.3 acres	Total Acreage = 1,785.8 acres		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
	GENERAL PROTOCOL: Individual patches of identified potential habitat are relatively small, so the entirety of it will be surveyed (by a team of biologists who have been trained to recognize the species) by walking meandering transects across each habitat during the time period when the species should be visible, if present. In all cases, transects will cover 100 percent of the identified suitable habitat within the current Project right-of-way. All surveys will be documented using GPS tracking and GPS locations of any of listed plants will be recorded and mapped. Representative photographs of all federally listed plant species will be taken. Survey methods and timing need to vary by species. The following information outlines the specific species surveys and schedules that will be followed for the Project.																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec						
Fragrant prickly apple *Harrisia fragrans/Cereus eriophorus* var. *fragrans* *(LE)*				X	X	X	X	X	X				Plants flower from April to September with two distinct peaks. First peak is in the spring with flowering starting in April and reaching a peak in May. Some sporadic flowering occurs in the summer. In September and October, another minor peak in flowering occurs. **Proposed survey period:** No surveys proposed.	**St. Lucie County** Prefers early-successional sand pine scrub habitat. The known sites are limited to St. Lucie sand, which is excessively well drained. • 413—Sand pine scrub. • 436—Upland scrub, pine, and hardwoods.	0.0	0.0	**Low** likelihood of occurrence due to lack of suitable habitat in study area. We do not propose surveys for this species. http://www.fws.gov/verobeach/msrppdfs/fragrant.pdf	Unlikely to affect.
Highlands scrub hypericum *Hypericum cumulicola* *(LE)*						X	X	X	X				Year-round; June-September (flowering); reproduction in this species takes place between April and October, but most flowering and fruiting occurs between June and September, coinciding with the rainy season and daily thunder-storms typical of the region. New flowers open early in the morning and the petals curl up by noon depending on the weather. **Proposed survey period:** September 2014	**Polk County** Open patches in white sand scrubs and rosemary balds; occasionally in openings in scrubby flatwoods and oak scrubs over yellow sands. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 421—Xeric oak. • 432—Sand live oak • 436—Upland scrub, pine, and hardwoods.	112.7	38.9	**Low** likelihood of occurrence. http://www.fws.gov/verobeach/MSRPPDFs/Highland.PDF	May affect, but not likely to adversely affect.
Florida blazing star *Liatris ohlingerae* *(LE)*						X	X	X	X				June-September **Proposed survey period:** September 2014	**Polk County** Sand pine scrub • 413—Sand pine scrub.	9.2	5.1	**Low** likelihood of occurrence. http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q1XZ	May affect, but not likely to adversely affect.
Scrub lupine *Lupinus aridorum* *(LE)*			X	X	X								Visible January-August; March- May (flowering). **Proposed survey period:** March - April 2015	**Osceola and Polk Counties** Occurs in openings in sand pine and rosemary scrub. • 413—Sand pine scrub. • 436—Upland scrub, pine, and hardwoods.	39.3	18.7	**Low** likelihood of occurrence. http://www.fws.gov/verobeach/msrppdfs/scrublupine.pdf	May affect, but not likely to adversely affect.
Britton’s beargrass *Nolina brittoniana* *(LE)*			X	X	X								Flowering March - May; visible most of the year. **Proposed survey period:** March - April 2015	**Osceola and Polk Counties** Dry pinewoods, sandhill, and sand pine scrub. • 411—Pine flatwoods. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 414—Pine-mesic oak. • 415—Longleaf pine-upland oak. • 436—Upland scrub, pine, and hardwoods.	120.6	50.6	**Moderate** likelihood of occurrence; **historical observation** near MP 9. http://www.fws.gov/verobeach/msrppdfs/britton.pdf	May affect, but not likely to adversely affect.

Table 2. Federally-Listed Plant Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window	Fall Flowering/ Spring Flowering/ Survey Period	Species Preferred Habitat (FLUCFCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
				Total Acreage = 5,512.3 acres	**Total Acreage = 1,785.8 acres**		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
	GENERAL PROTOCOL: Individual patches of identified potential habitat are relatively small, so the entirety of it will be surveyed (by a team of biologists who have been trained to recognize the species) by walking meandering transects across each habitat during the time period when the species should be visible, if present. In all cases, transects will cover 100 percent of the identified suitable habitat within the current Project right-of-way. All surveys will be documented using GPS tracking and GPS locations of any of listed plants will be recorded and mapped. Representative photographs of all federally listed plant species will be taken. Survey methods and timing need to vary by species. The following information outlines the specific species surveys and schedules that will be followed for the Project.						
	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec						
Paper-like nailwort/ Papery whitlow-wort *Paronychia chartacea* ssp *chartacea* *(LT)*	X X X	Short-lived perennial; flowering and fruiting occur in late summer or fall and the seeds mature in September or October. **Proposed survey period:** September 2014	**Osceola and Polk Counties** Scrub; rosemary scrub, which is also known as the rosemary phase of sand pine scrub; papery whitlow-wort is more abundant in disturbed, sandy habitats such as road rights-of-way and recently cleared high pine. In rosemary scrub, paper whitlow-wort can become very abundant after a fire or on disturbed sites such as along fire lanes or trails. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 415—Longleaf pine-upland oak. • 421—Xeric oak. • 432—Sand live oak • 436—Upland scrub, pine, and hardwoods.	141.4	54.4	**High** likelihood of occurrence; **historical observation** near MP 35. http://www.fws.gov/verobeach/msrppdfs/papery.pdf	May affect, but not likely to adversely affect.
Lewton's polygala *Polygala lewtonii* *(LE)*	X X X X	Relatively short-lived (5 to 10 years) perennial herb, spring; *Polygala lewtonii* blooms from February to May with flowers dominating from February to April. **Proposed survey period:** March - April 2015	**Osceola and Polk Counties** White sand scrub; not strictly a scrub species; found in widely scattered populations that frequently occur in transitional habitats between high pine and turkey oak barrens, occurring in both habitats *P. lewtonii* **depends on fire** to maintain its habitat. Found in sunny openings and often colonizes disturbed sites, such as roadsides and fire lanes. • 411—Pine flatwoods. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 414—Pine-mesic oak. • 415—Longleaf pine-upland oak. • 419—Other pine. • 432—Sand live oak • 436—Upland scrub, pine, and hardwoods.	126.6	50.6	**Moderate** likelihood of occurrence; **historical observation** near MP 9. http://www.fws.gov/verobeach/MSRPPDFs/Lewton.PDF	May affect, but not likely to adversely affect.
Tiny polygala *Polygala smallii* *(LE)*	X X X	In populations, flowers appear throughout the year with a peak during summer. Also, seeds are produced year-round. **Proposed survey period:** No surveys proposed.	**Martin and St Lucie Counties** Occurs in four distinct habitats with similar characteristics: pine rocklands, scrub, high pine, and open coastal spoil. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 432—Sand live oak. • 436—Upland scrub, pine, and hardwoods.	0.0	0.0	**Low** likelihood of occurrence due to lack of suitable habitat in study area. We do not propose surveys for this species. http://www.fws.gov/verobeach/msrppdfs/tinypoly.pdf	Unlikely to affect.

Table 2. Federally-Listed Plant Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Fall Flowering/ Spring Flowering/ Survey Period	Species Preferred Habitat (FLUCFCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
															Total Acreage = 5,512.3 acres	Total Acreage = 1,785.8 acres		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
	GENERAL PROTOCOL: Individual patches of identified potential habitat are relatively small, so the entirety of it will be surveyed (by a team of biologists who have been trained to recognize the species) by walking meandering transects across each habitat during the time period when the species should be visible, if present. In all cases, transects will cover 100 percent of the identified suitable habitat within the current Project right-of-way. All surveys will be documented using GPS tracking and GPS locations of any of listed plants will be recorded and mapped. Representative photographs of all federally listed plant species will be taken. Survey methods and timing need to vary by species. The following information outlines the specific species surveys and schedules that will be followed for the Project.																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec						
Florida jointweed/wireweed *Polygonella basiramia* *(LE)*									X	X	X	X	Flowering-September-October; Flowering begins in September, and achenes are produced in late November and early December. **Proposed survey period:** September – October 2014	**Polk County** Commonly found in rosemary scrub, also known as rosemary phase of sand pine scrub. *Polygonella basiramia* occupies open spaces or gaps between shrubs and can be found in abundance along sandy fire lanes. • 413—Sand pine scrub. • 432—Sand live oak. • 436—Upland scrub, pine, and hardwoods.	23.7	6.3	**Low** likelihood of occurrence; **historical observation** near MP 35. http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q20R	May affect, but not likely to adversely affect.
Small's jointweed/Sandlace *Polygonella myriophylla* *(LE)*	X	X	X	X	X	X	X	X	X	X	X	X	Year-round **Proposed survey period:** March - April 2015	**Osceola and Polk Counties** Scrub. This low, spreading shrub thrives in areas of bare white or yellow sand created by moderate disturbance. • 413—Sand pine scrub. • 432—Sand live oak • 436—Upland scrub, pine, and hardwoods.	45.4	18.7	**Moderate** likelihood of occurrence; **historical observation** near MP 1. Believed to be allelopathic; species' tendency to colonize disturbed areas along easily accessible road cuts and right-of-ways can result in overestimations of the species abundance and health. http://www.fws.gov/verobeach/msrppdfs/sandlace.pdf .	May affect, but not likely to adversely affect.
Scrub plum *Prunus geniculata* *(LE)*	X	X	X	X	X								Flowering-January-February; Fruiting-March- May; easily recognizable year round. **Proposed survey period:** March - April 2015	**Osceola and Polk Counties** Sand pine scrub; plant is found in longleaf pine-turkey oak vegetation, and in sand pine (*Pinus clausa* - evergreen oak scrub vegetation -locally referred to as scrub) in Polk County. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 421—Xeric oak. • 432—Sand live oak • 436—Upland scrub, pine, and hardwoods	134.4	51.3	**Moderate** likelihood of occurrence; **historical observation** near MP 35. http://www.fws.gov/northflorida/Species-Accounts/PDFVersions/Scrub-Plum-2005.pdf	May affect, but not likely to adversely affect.
Clasping warea/ Wide-leaf warea *Warea amplixifolia* *(LE)*									X	X			September-October **Proposed survey period:** September - October 2014	**Osceola and Polk Counties** Dry pinelands, sandhills. • 411—Pine flatwoods. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 415—Longleaf pine-upland oak. • 436—Upland scrub, pine, and hardwoods.	120.1	50.6	**Low** likelihood of occurrence. http://www.fws.gov/northflorida/Species-Accounts/PDFVersions/Wide-Leaf-Warea-2005.pdf	May affect, but not likely to adversely affect.

Table 2. Federally-Listed Plant Protocols

Florida Southeast Connection Pipeline Project

Species	Survey Window												Fall Flowering/ Spring Flowering/ Survey Period	Species Preferred Habitat (FLUCFCS)	Habitat Acreage within Project ESA	Potential Impact Acreage (100-ft Construction ROW +Workspaces)	Notes	Effects Determination
															Total Acreage = 5,512.3 acres	Total Acreage = 1,785.8 acres		• **Unlikely to affect.** • **May affect, but not likely to adversely affect.** • **May affect, and is likely to adversely affect.**
	GENERAL PROTOCOL: Individual patches of identified potential habitat are relatively small, so the entirety of it will be surveyed (by a team of biologists who have been trained to recognize the species) by walking meandering transects across each habitat during the time period when the species should be visible, if present. In all cases, transects will cover 100 percent of the identified suitable habitat within the current Project right-of-way. All surveys will be documented using GPS tracking and GPS locations of any of listed plants will be recorded and mapped. Representative photographs of all federally listed plant species will be taken. Survey methods and timing need to vary by species. The following information outlines the specific species surveys and schedules that will be followed for the Project.																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec						
Carter's warea *Warea carteri* *(LE)*									X	X			September-October **Proposed survey period:** September - October 2014	**Polk County** Pinelands, scrub sandhills. • 411—Pine flatwoods. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 414—Pine-mesic oak. • 415—Longleaf pine-upland oak. • 421—Xeric oak. • 432—Sand live oak. • 436—Upland scrub, pine, and hardwoods.	159.7	54.8	**Moderate** likelihood of occurrence; **historical observation** near MP 15. http://www.fws.gov/verobeach/MSRPPDFs/Carter.PDF	May affect, but not likely to adversely affect.
Scrub ziziphus/ Florida ziziphus *Ziziphus celata* *(LE)*	X	X	X	X	X	X							Flowering- January-February; Fruiting- March- June; visible year round **Proposed survey period:** March-April 2015	**Polk county** Scrub-sandhill ecotone. • 411—Pine flatwoods. • 412—Longleaf pine-xeric oak. • 413—Sand pine scrub. • 414—Pine-mesic oak. • 415—Longleaf pine-upland oak. • 432—Sand live oak. • 436—Upland scrub, pine, and hardwoods.	78.9	26.0	**Low** likelihood of occurrence. http://www.fws.gov/verobeach/msrppdfs/flzizi.pdf	May affect, but not likely to adversely affect.

APPENDIX 3B

AGENCY CORRESPONDENCE

Mier, Jena

From: Phil Simpson <psimpson@ectinc.com>
Sent: Thursday, July 17, 2014 10:32 AM
To: 'ted_martin@fws.gov'; 'charles_kelso@fws.gov'
Cc: Mier, Jena; Tessier, John; 'jdawson@ectinc.com'
Subject: Florida Southeast Connection- Federal Species Survey Protocols
Attachments: FSC federally listed plants protocol table 7-17-14.pdf; FSC wildlife protocol table 7-17-14.pdf

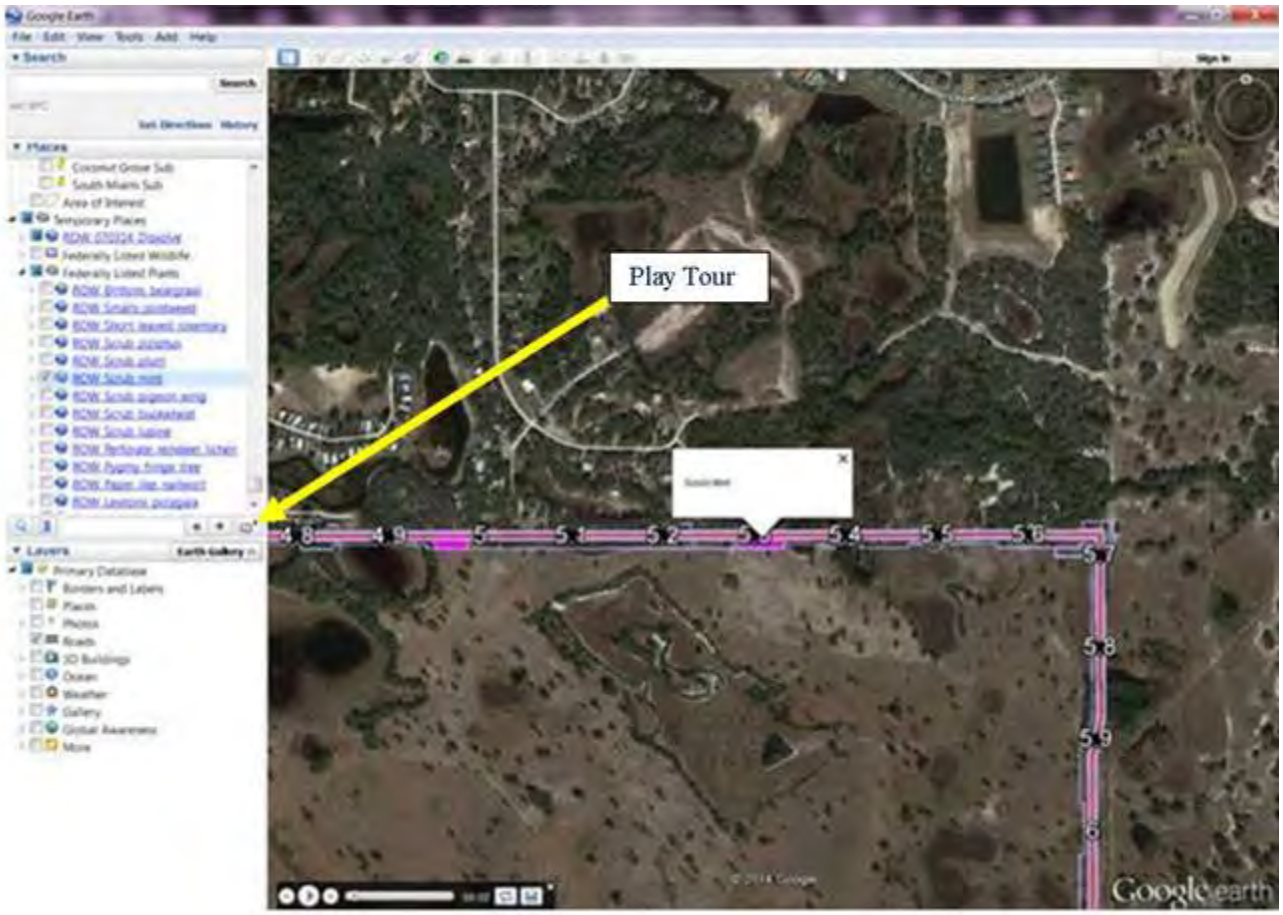
Ted and Chuck—Attached are two files (one for Federally listed plants and one for wildlife) that provide the species, survey protocols, FSC's recommended survey protocols and windows, as well as kmz (Google Earth) files for each species. Instructions are provided below for opening and using the kmz files on Google Earth. What they show are the habitats for each species that we would survey for during the proposed seasonal survey periods. These habitats have been delineated based on a number of factors including preferred FLUCFCS communities, historical and confirmed presence, preferred soil types, geographic range, etc. When we meet on Tuesday, if you have internet access with Google Earth, we can go through the species and address any comments you may have.

Based on those comments, we can then revise the protocol tables, if necessary. Since some plant species are fall-flowering, we would seek to start surveys of certain species this September. Please don't hesitate to call me if you have any questions on these files prior to Tuesday. We look forward to seeing you then.

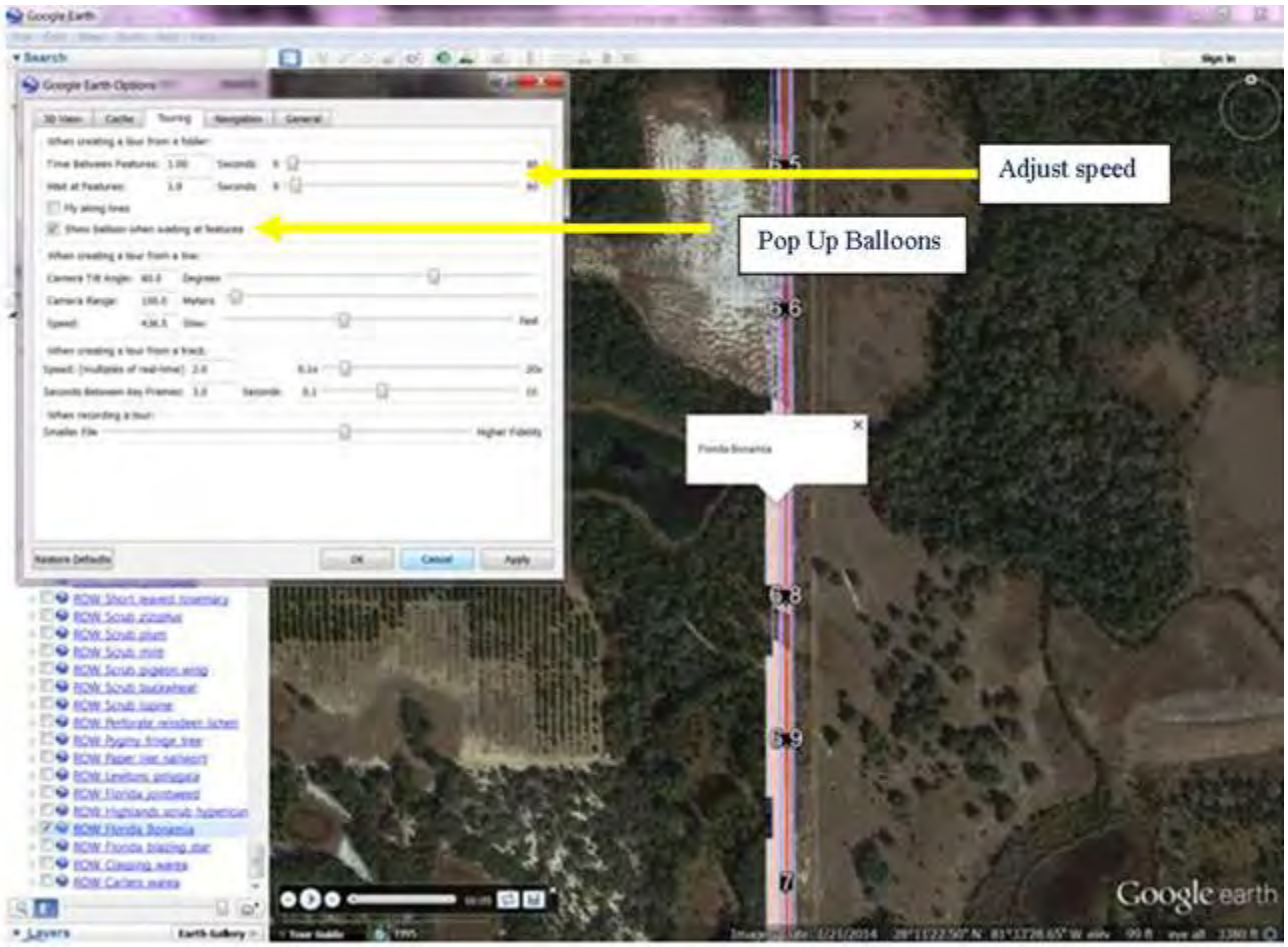
FILE INSTRUCTIONS:

To optimize functionality of the embedded survey habitat kmz's, we recommend the following:

- Open Facilities kmz **first**.
- Next, open the Wildlife (or Plants) kmz, select **one species at a time** (box will be checked) [if multiple species are selected, only the layer on top will show]. Each species habitat has a distinct color.
- Click the Play Tour button (folder icon beneath places window, to the right – see picture below). This will locate all the habitat for that species within the project area. You may click at any time to stop the tour at a certain location.
- If you do not immediately see the identified polygon during the tour, you may zoom in to the corridor (many of the polygons are **very** small).



- To adjust the speed of the “Tour”, under the “Tools” tab at the top, choose “Options”, then “Touring” tab and select the “show balloon when wafting at features”. Adjust the slidebars to adjust (speed up) timing.



Philip W. Simpson, M.S.
Vice President/Principal Scientist
Environmental Consulting & Technology, Inc.
3701 NW 98th Street
Gainesville, FL 32606
Direct line: (352) 248-3365
Switchboard: (352) 332-0444
Fax: (352) 332-6722
psimpson@ectinc.com | www.ectinc.com

Mier, Jena

From: Martin, Ted <ted_martin@fws.gov>
Sent: Wednesday, July 23, 2014 5:09 PM
To: Mier, Jena
Cc: Phil Simpson (psimpson@ectinc.com); Tessier, John; Chuck Kelso (charles_kelso@fws.gov); Annie Dziergowski
Subject: Re: FSC Pipeline Listed Species Discussion

Ted Martin's Summary Notes

USFWS / FP&L FSC Survey Protocol Meeting at the

USFWS Vero Beach, FL. Field Office

Tuesday 22, 2014

Survey Reports: All species survey reports, not specifically discussed below, will be submitted as specified on the USFWS Vero Beach Field Office web site.

Eastern Indigo Snake:

1) FP&L FSC will implement all USFWS Standard Protection Measures for the Eastern Indigo Snake during the clearing and construction phases of the FP&L FSC gas pipeline project to minimize adverse effects to this species.

2) FP&L FSC will report all visual encounter and locations of Eastern indigo snakes (above-ground and underground) to the USFWS Vero Beach Field Office.

3) FP&L FSC agreed to include an indigo snake observer during any tree clearing activity in citrus groves or in scrubby habitats.

Sand skink & Blue-tailed mole skink issues:

1) FP&L FSC stated any skink compensation ratios (1-to-1 or 2-to-1) are not acceptable to FP&L.

2) FP&L FSC stated skink habitat determination, as interpreted by the USFWS Vero Beach Field Office, is not acceptable to FP&L.

3) FP&L/Consultant will re-evaluate the skink habitat area to be surveyed based on recommendations published on the USFWS Vero Beach Field Office web site. They will then compare that area to the area they have proposed to survey for skinks. FP&L wants further discussions on the compensation ratio for these areas.

Florida scrub-jay:

1) Ted Martin (USFWS) needs to verify that the USFWS Vero Beach Field Office will not require a Florida scrub-jay 2-to-1 compensation ratio for temporary FP&L FSC gas pipeline clearing and construction.

Wood storks:

1) FP&L/Consultant will provide a habitat assessment that will support their claims that there will be no-net-loss of hydroperiod that reduces or changes the acreage or type of wetlands.

Red-cockaded woodpecker (RCW):

1) RCW habitat will be surveyed as per survey protocol identified on the USFWS Vero Beach Field Office web site.

Crested caracara:

1) The caracara compensation ratio for impacts to caracara nest trees and/or primary and secondary zones, as discussed during the FP&L/USFWS Vero Beach Field Office meeting on July 22, 2014, is satisfactory to FP&L.

Snail kite:

1) Snail kite habitat will be surveyed as per survey protocol identified on the USFWS Vero Beach Field Office web site.

Florida bonneted bat:

1) FP&L will survey for the Florida bonneted bat potential roosting sites within the FSC pipeline route, access roads, and permanent structure sites, etc. on forest land proposed for clearing. Keeping in mind the variability in roosting sites, your qualified surveyor will pay particular attention to cavities trees and old hollow snags, if they are present within the FSC gas pipeline right-of-way.

2) Florida bonneted bats are known to roost in both natural and artificial structures. Potential natural roost structures include tree cavities, caves, rock crevices, and foliage; artificial roost structures include buildings, bridges, and bat houses constructed specifically to attract roosting bats.

Plants:

1) Plant surveys will be conducted for all plants on the county lists that could be impacted by the FP&L FSC gas pipeline and where the appropriate habitat exists for those plants as described on the USFWS Vero Beach Field Office web site.

On Tue, Jul 8, 2014 at 12:31 PM, Mier, Jena <Jena.Mier@fpl.com> wrote:
Meeting to discuss listed species within the proposed pipeline route, survey methodology, timing and potential conservation measures.

--
Ted Martin
U.S. Fish & Wildlife Service
Office Phone: 772-469-4232
Office Fax: 772-562-4288
Email: ted_martin@fws.gov
Website: http://www.fws.gov/verobeach/
The Only Certainty In Life, Is The Past!

Project/Topic of Meeting		
Agency	**US Fish & Wildlife Service**	**Date: 07/22/14**
Agency Attendees	**Ted Martin – Biologist, Vero Beach Field Office** **Annie Dziergowski – Biologist, Jacksonville Field Office (by phone)**	
Scribe Name:		
Owner	**Florida Southeast Connection, LLC.**	
Owner Attendees	**Jena Mier, Environmental Project Manager** **John Tessier, Environmental Specialist** **Phil Simpson, Principal Scientist – ECT**	

MEETING NOTES

Ted asked that FSC include an "effects" determination for each species in each county that the project crosses.

Ted stated that the Service is in agreement with FSC's list of wildlife species that may have the potential to be impacted by the project.

Ted asked that if we make a "no effect" determination for a species that we describe why. For example, we should state that the coastal habitat does not exist within the project route for each coastal species.

If any bank credits are determined to be required, they must be provided prior to construction.

The following species were discussed in detail:
Eastern indigo snakes- FSC presumes presence and provides that the project "may effect but is not likely to adversely effect" this species. We propose to abide by the FWS's Standard Eastern Indigo Snake Protection Measures during construction. We do not propose specific surveys for the snake other than observations noted during pedestrian surveys for other species. Annie provided that is consistent with the protocol she had approved for Sabal Trail and that no loss of habitat occurs because this is a temporary impact. Ted noted that it was inconsistent with the protocol provided on Vero Beach's website and that he would discuss with staff in his office and get back to us on this item.

Blue mole skink- FSC should update the survey protocol chart to reflect the same timing for surveys as shown for the sand skink.

Sand skink- FSC described that we have reviewed the soils, elevations and FLUCCS codes along the pipeline route and have determined approximately 76 ac. of potential sand skink habitat. Ted states that the determination of potential sand skink habitat should be based upon soils and elevation alone, unless there is a developed area or some other habitat that clearly would not support skinks. FSC agrees to calculate the ac. based upon soils and elevation alone and provide that ac. to Ted for further review.

FSC proposes to presume presence, conduct pedestrian surveys only and no coverboard surveys since the pipeline construction impacts to skink habitat is temporary. Annie states that is consistent with what Sabal Trail was asked to do. In addition, Sabal Trail will conduct coverboard surveys in areas of permanent impact such as locations of compressor stations. **It was noted that there is an inconsistency between survey protocol between the Vero Beach and Jacksonville office with regard to skinks and that the two offices will discuss and resolve. It was noted that FERC will request consistency between the projects. In addition, Ted shared a draft compensation plan that is being discussed between the two offices regarding the purchase of sand skink credits for project impacts to the skink. FSC provided that we did not agree with the need to purchase credits for temporary construction impacts that do not result in permanent impacts to the population. Furthermore, we noted that at the 1:1 and 2:1 ratios being discussed, a sufficient number of skink credits are not available for the either the FSC or Sabal Trail projects.**
Grasshopper sparrow- This species is of high concern to FWS. If birds are found during the surveys, it will be an issue due to the rarity of the species. Ted suggested we review the GIS layers we provided for potential sparrow habitat and confirm those areas fall within the Consultation Area (regardless of perceived quality). We explained that we may not have full access to properties in these habitats but can work along the FDOT fence adjacent to SR 60 and can observe "across the fence" into unaccessible parcels. Ted agreed with this approach. Ted also agreed that if we follow the survey protocol and have 3 negative surveys we can assume there are no sparrows in that area.
Scrub jay- FSC provided that we will follow FWS's survey protocol for scrub jays. Annie provided that Jacksonville will not request compensation for temporary impacts in scrub jay areas as long as conservation measures during construction are implemented. Nesting areas avoidance may be necessary or used to offset impacts. Within consultation area it's possible that FSC could be creating habitat. FSC also proposes no compensation for temporary impacts to scrub jay habitat.
Bald eagle- FSC will survey for nesting eagles through helicopter fly-overs along the route.
Wood stork- Although the FSC project does fall within Woodstork Core Foraging Habitat, it is not in the vicinity of any known rookeries. Ted agreed that we do not have to conduct a formal "foraging analysis" but FSC does have to provide text describing how the project is not having any impact on short-term or long-term foraging of the wood storks.
Caracara- FSC will follow FWS survey protocol. Both nest and buffer impacts are a concern. Ted provided compensation ratio for impact to caracara nest and buffer around the nest.
Snail kite- Ted provided that FWS has GIS layers showing know snail kite nesting locations that we can utilize to determine if any known nesting sites are in the vicinity of the project.
Florida bonneted bat- FWS is currently drafting survey protocol. However if we look for cavity trees, scope the cavities of trees that are free of nesting birds, and look for guano at the base of trees and manmade structures, FWS will consider the survey methodology appropriate for this project even if different criteria are provided by FWS as the protocol in the future.
Listed plants- There is no take for listed plants. FSC should avoid or minimize where possible. A jeopardy opinion would only apply to the population of the species, not individual plants. Surveys are proposed for plants on the county list where appropriate habitat exists. Ted will have a botanist in his office review the plant survey protocol and let us know of any concerns with our proposal.

Mier, Jena

From: Martin, Ted <ted_martin@fws.gov>
Sent: Monday, August 04, 2014 7:06 AM
To: Mier, Jena
Cc: Tessier, John; Annie Dziergowski; Charles Kelso; Phil Simpson (psimpson@ectinc.com)
Subject: Re: FSC/USFWS meeting notes

Hi Jena,

I reviewed this issue with Vero Beach field office management and specific surveys for Eastern indigo snakes will not be required as long as all FWS's Standard Eastern Indigo Snake Protection Measures and Working Conditions are adhered to during all phases of gas pipeline construction. - ES: "We do not propose specific surveys for the snake other than observations noted during pedestrian surveys for other species".

The Service will be providing skink compensation ratio requirements to the gas pipeline proponents in the near future. - ES: "FSC provided that we did not agree with the need to purchase credits for temporary construction impacts that do not result in permanent impacts to the population".

This is another one of those issues that I must review with management in the Vero Beach field office. - ES: "FSC also proposes no compensation for temporary impacts to scrub-jay habitat".

In relationship to grasshopper sparrow (and scrub-jay) surveys, it is very important to insure that all areas of the property being surveyed are within the audible range of the grasshopper sparrow broadcasted calls. - "Ted also agreed that if we follow the survey protocol and have 3 negative surveys we can assume there are no sparrows in that area."

Where can I find your survey protocol for our review? - ES: "Ted will have a botanist in his office review the plant survey protocol and let us know of any concerns with our proposal".

Thanks,

Ted Martin
USFWS

On Fri, Aug 1, 2014 at 11:12 AM, Mier, Jena <Jena.Mier@fpl.com> wrote:

Ted-

Please find attached our notes from our meeting on July 22nd.

Jena S. Mier, PWS

Project Manager

Environmental Services

700 Universe Blvd.

Juno Beach, FL 33408

Office 561-691-2209

Cell 561-339-0621

Jena.Mier@nee.com

--
Ted Martin
U.S. Fish & Wildlife Service
Office Phone: 772-469-4232
Office Fax: 772-562-4288
Email: ted_martin@fws.gov
Website: http://www.fws.gov/verobeach/
The Only Certainty In Life, Is The Past!

Mier, Jena

From: Mier, Jena
Sent: Monday, August 04, 2014 9:01 AM
To: 'Martin, Ted'
Cc: Tessier, John; Annie Dziergowski; Charles Kelso; Phil Simpson (psimpson@ectinc.com)
Subject: RE: FSC/USFWS meeting notes
Attachments: FSC federally listed plants protocol table 7-17-14.pdf

Ted-

The listed plant survey protocol was provided in the email from Phil Simpson on July 17. I have attached again for your reference. The link for the kmz file is embedded in the document. Let me know if you have any questions.

Jena S. Mier, PWS
Project Manager
Environmental Services

FLORIDA SOUTHEAST CONNECTION

700 Universe Blvd.
Juno Beach, FL 33408
Office 561-691-2209
Cell 561-339-0621
Jena.Mier@nee.com

From: Martin, Ted [mailto:ted_martin@fws.gov]
Sent: Monday, August 04, 2014 7:06 AM
To: Mier, Jena
Cc: Tessier, John; Annie Dziergowski; Charles Kelso; Phil Simpson (psimpson@ectinc.com)
Subject: Re: FSC/USFWS meeting notes

Hi Jena,

I reviewed this issue with Vero Beach field office management and specific surveys for Eastern indigo snakes will not be required as long as all FWS's Standard Eastern Indigo Snake Protection Measures and Working Conditions are adhered to during all phases of gas pipeline construction. - ES: "We do not propose specific surveys for the snake other than observations noted during pedestrian surveys for other species".

The Service will be providing skink compensation ratio requirements to the gas pipeline proponents in the near future. - ES: "FSC provided that we did not agree with the need to purchase credits for temporary construction impacts that do not result in permanent impacts to the population".

This is another one of those issues that I must review with management in the Vero Beach field office. - ES: "FSC also proposes no compensation for temporary impacts to scrub-jay habitat".

In relationship to grasshopper sparrow (and scrub-jay) surveys, it is very important to insure that all areas of the property being surveyed are within the audible range of the grasshopper sparrow broadcasted calls. - "Ted also agreed that if we follow the survey protocol and have 3 negative surveys we can assume there are no sparrows in that area."

Where can I find your survey protocol for our review? - ES: "Ted will have a botanist in his office review the plant survey protocol and let us know of any concerns with our proposal".

Thanks,

Ted Martin
USFWS

On Fri, Aug 1, 2014 at 11:12 AM, Mier, Jena <Jena.Mier@fpl.com> wrote:

Ted-

Please find attached our notes from our meeting on July 22nd.

Jena S. Mier, PWS

Project Manager

Environmental Services

FLORIDA SOUTHEAST CONNECTION

700 Universe Blvd.

Juno Beach, FL 33408

Office 561-691-2209

Cell 561-339-0621

Jena.Mier@nee.com

--
Ted Martin
U.S. Fish & Wildlife Service

Office Phone: 772-469-4232
Office Fax: 772-562-4288
Email: ted_martin@fws.gov
Website: http://www.fws.gov/verobeach/
The Only Certainty In Life, Is The Past!

Mier, Jena

From: Martin, Ted <ted_martin@fws.gov>
Sent: Wednesday, August 06, 2014 2:33 PM
To: Phil Simpson (psimpson@ectinc.com); Mier, Jena
Cc: Tessier, John; jdawson@ectinc.com
Subject: Re: FSC Listed species kmz files

Hi Phil and Jena,

First of two emails.

Contained within this email response, that I received from our Vero Beach field office in house botanist (David Bender), is his response to the proposed FP&L polygons for plant surveys within the FSC gas pipeline right-of-way. I will also forward to you David's second email to me outlining his recommended survey protocol for plants within the FSC gas pipeline right-of-way.

If you have any questions, please call.

Thanks,

Ted Martin
USFWS

On Wed, Aug 6, 2014 at 2:00 PM, Bender, David <david_bender@fws.gov> wrote:
Ted,

I can't understand what data these polygons were derived from, or why the survey should be limited to them.

In short, new surveys should cover all habitat in the project footprint that could support T and E species (plants would be mainly scrub, sandhill, scrubby flatwoods.) We can't just look in the locations where the species were historically. If these poylgons reflect FNAI data overlaid with the pipeline route, then that is a fine starting point, but many of the records may be fairly dated - meaning that plants could be absent there now, and present elsewhere.

Also, the ROW itself often contains many of these species.

Dave

=-=
Dave Bender
Botanist
U.S. Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street, Vero Beach, FL 32960
Office: (772) 562-3909 ext. 294
Cell: (772) 559-5348
Email: david_bender@fws.gov
=-=

On Mon, Aug 4, 2014 at 10:30 AM, Martin, Ted <ted_martin@fws.gov> wrote:
Hi David,

I was wondering if you have had time to review the FP&L Florida Southeast Connection gas pipeline polygons for plants that I emailed to you on 7/22. I am interested in your expert opinion on whether those polygons are adequate to cover all T&E plant species we are interested in within the pipeline 100 foot right-of-way? Has the FP&L consultant missed anything?

The FP&L proposed plant survey protocol and polygons areas along their 127 mile gas pipeline rout to be surveyed are attached. Please verify that you are in agreement with their proposed plant survey protocol and polygon areas to be surveyed, or provide provide me with alternative recommendations.

Barry Wood may also be contacting you for the most accurate plant polygons areas to be surveyed along the gas pipeline route, since he is trying to create a ArcGIS map for comparison to the information that has been submitted by FP&L and their consultants.

Thanks for your help.

Ted Martin
USFWS

---------- Forwarded message ----------
From: **Phil Simpson** <psimpson@ectinc.com>
Date: Thu, Jul 17, 2014 at 12:11 PM
Subject: FSC Listed species kmz files
To: ted_martin@fws.gov, charles_kelso@fws.gov
Cc: "jena.mier@nee.com" <jena.mier@nee.com>, "Tessier, John (John.Tessier@nee.com)" <John.Tessier@nee.com>, "jdawson@ectinc.com" <jdawson@ectinc.com>

If you are having troubles finding the kmz files off the two pdf tables I sent earlier, please use attached. The three files contain the facilities layer, plant species layer, and wildlife species layer.

Philip W. Simpson, M.S.

Vice President/Principal Scientist

Environmental Consulting & Technology, Inc.

3701 NW 98th Street

Gainesville, FL 32606

Direct line: (352) 248-3365

Switchboard: (352) 332-0444

Fax: (352) 332-6722

psimpson@ectinc.com | www.ectinc.com

--
Ted Martin
U.S. Fish & Wildlife Service
Office Phone: 772-469-4232
Office Fax: 772-562-4288
Email: ted_martin@fws.gov
Website: http://www.fws.gov/verobeach/
The Only Certainty In Life, Is The Past!

--
Ted Martin
U.S. Fish & Wildlife Service
Office Phone: 772-469-4232
Office Fax: 772-562-4288
Email: ted_martin@fws.gov
Website: http://www.fws.gov/verobeach/
The Only Certainty In Life, Is The Past!

Mier, Jena

From: Martin, Ted <ted_martin@fws.gov>
Sent: Wednesday, August 06, 2014 2:38 PM
To: Phil Simpson (psimpson@ectinc.com); Mier, Jena
Cc: Tessier, John; jdawson@ectinc.com
Subject: Fwd: FSC Listed species kmz files
Attachments: GUIDELINES FOR BOTANICAL SURVEYS.pdf

Hi Phil and Jena,

This is the second email I previously mentioned, which contains David Benders plant survey guidelines.

Sincerely,

Ted Martin
USFWS

---------- Forwarded message ----------
From: **Bender, David** <david_bender@fws.gov>
Date: Wed, Aug 6, 2014 at 2:01 PM
Subject: Re: FSC Listed species kmz files
To: "Martin, Ted" <ted_martin@fws.gov>

Here are my usual survey requirements.

=-=
Dave Bender
Botanist
U.S. Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street, Vero Beach, FL 32960
Office: (772) 562-3909 ext. 294
Cell: (772) 559-5348
Email: david_bender@fws.gov
=-=

On Wed, Aug 6, 2014 at 2:00 PM, Bender, David <david_bender@fws.gov> wrote:
Ted,

I can't understand what data these polygons were derived from, or why the survey should be limited to them.

In short, new surveys should cover all habitat in the project footprint that could support T and E species (plants would be mainly scrub, sandhill, scrubby flatwoods.) We can't just look in the locations where the species were historically. If these poylgons reflect FNAI data overlaid with the pipeline route, then that is a fine starting point, but many of the records may be fairly dated - meaning that plants could be absent there now, and present elsewhere.

Also, the ROW itself often contains many of these species.

Dave

=-=
Dave Bender
Botanist
U.S. Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street, Vero Beach, FL 32960
Office: (772) 562-3909 ext. 294
Cell: (772) 559-5348
Email: david_bender@fws.gov
=-=

On Mon, Aug 4, 2014 at 10:30 AM, Martin, Ted <ted_martin@fws.gov> wrote:
Hi David,

I was wondering if you have had time to review the FP&L Florida Southeast Connection gas pipeline polygons for plants that I emailed to you on 7/22. I am interested in your expert opinion on whether those polygons are adequate to cover all T&E plant species we are interested in within the pipeline 100 foot right-of-way? Has the FP&L consultant missed anything?

The FP&L proposed plant survey protocol and polygons areas along their 127 mile gas pipeline rout to be surveyed are attached. Please verify that you are in agreement with their proposed plant survey protocol and polygon areas to be surveyed, or provide provide me with alternative recommendations.

Barry Wood may also be contacting you for the most accurate plant polygons areas to be surveyed along the gas pipeline route, since he is trying to create a ArcGIS map for comparison to the information that has been submitted by FP&L and their consultants.

Thanks for your help.

Ted Martin
USFWS

---------- Forwarded message ----------
From: **Phil Simpson** <psimpson@ectinc.com>
Date: Thu, Jul 17, 2014 at 12:11 PM
Subject: FSC Listed species kmz files
To: ted_martin@fws.gov, charles_kelso@fws.gov
Cc: "jena.mier@nee.com" <jena.mier@nee.com>, "Tessier, John (John.Tessier@nee.com)" <John.Tessier@nee.com>, "jdawson@ectinc.com" <jdawson@ectinc.com>

If you are having troubles finding the kmz files off the two pdf tables I sent earlier, please use attached. The three files contain the facilities layer, plant species layer, and wildlife species layer.

Philip W. Simpson, M.S.

Vice President/Principal Scientist

Environmental Consulting & Technology, Inc.

3701 NW 98th Street

Gainesville, FL 32606

Direct line: (352) 248-3365

Switchboard: (352) 332-0444

Fax: (352) 332-6722

psimpson@ectinc.com | www.ectinc.com

--
Ted Martin
U.S. Fish & Wildlife Service
Office Phone: 772-469-4232
Office Fax: 772-562-4288
Email: ted_martin@fws.gov
Website: http://www.fws.gov/verobeach/
The Only Certainty In Life, Is The Past!

--
Ted Martin
U.S. Fish & Wildlife Service
Office Phone: 772-469-4232
Office Fax: 772-562-4288
Email: ted_martin@fws.gov
Website: http://www.fws.gov/verobeach/
The Only Certainty In Life, Is The Past!

Mier, Jena

From: Mier, Jena
Sent: Wednesday, August 06, 2014 3:13 PM
To: 'david_bender@fws.gov'
Cc: Ted Martin (ted_martin@fws.gov); Jude Dawson; Phil Simpson (psimpson@ectinc.com); Tessier, John
Subject: Botanical Surveys for Florida Southeast Connection Pipeline Project

David-

Ted Martin sent us your emails regarding the plant survey protocols that ECT, our environmental consultants, have developed the for the Florida Southeast Connection pipeline project. The following is information to answer your questions and that should be helpful in reviewing the files provided.

ECT has spent many hours in the field on this project beginning last summer through May of this year. They have conducted habitat surveys of a 300 ft. wide corridor associated with the pipeline route. All lands have been categorized and polygons digitized utilizing the Florida Land Use, Cover and Forms Classification System (FLUCFCS). In addition, any observations of listed plants during field surveys were noted and GPS points of locations collected. All wetland boundaries have also been delineated and confirmed by the FDEP. The areas selected for plant surveys are specific to each plant. In addition to the FNAI data of known presence, ECT overlaid the FLUCFCS polygons within the survey corridor, identified the type of habitat in which each plant has a potential to be found and included species observations made during the previous field surveys. Therefore, each plant has its own area for specific surveys based upon the type of habitat that currently exists in that location (i.e. scrub, sandhill, etc.). Of course, some may overlap, but a separate survey area has been defined for each plant.

With regard to the kmz files provided, please note that if you have all species layers on at the same time, they will overlap and it may difficult to get a clear picture of what is proposed. The timing of surveys is determined by each species' characteristics and the most appropriate time to survey for that species. ECT has followed and will continue to follow the guidelines for botanical surveys provided in your email.

If you have additional questions, please call Jude Dawson at ECT at (352) 248-3336. Thanks.

Jena S. Mier, PWS
Project Manager
Environmental Services

FLORIDA SOUTHEAST CONNECTION

700 Universe Blvd.
Juno Beach, FL 33408
Office 561-691-2209
Cell 561-339-0621
Jena.Mier@nee.com

Mier, Jena

From: Martin, Ted <ted_martin@fws.gov>
Sent: Wednesday, August 06, 2014 4:22 PM
To: Mier, Jena
Cc: Jude Dawson; Phil Simpson (psimpson@ectinc.com)
Subject: Some Everglade snail kite nest locations.
Attachments: Snail kite data points in relationship to the FSC gas pipeline right-of-way..jpg

Hi Jena,

Thank you for contacting David Bender directly, I will be looking to him for the evaluation of the adequacy of the FSC T&ES plant survey protocol.

While reviewing the FSC right-of-way, I noticed some Everglade snail kite nest locations that you should closely investigate during your surveys activities for that species (Google map clip attached).

I have also had conversations that indicate there are proprietary survey reports that have identified Florida grasshopper sparrows, crested caracara, and scrub-jays on the property just south of the FSC gas pipeline right-of-way between mile marker 54 to 78.

Hope this information helps with your T&ES survey program.

Sincerely,

Ted Martin
U.S. Fish & Wildlife Service
Office Phone: 772-469-4232
Office Fax: 772-562-4288
Email: ted_martin@fws.gov
Website: http://www.fws.gov/verobeach/
The Only Certainty In Life, Is The Past!

><»»»»»>ºc


7:55:58 am
2012
2013
2013
2013
2012
2012
2013
2012
2013
Additional TWS
52.9
53
53.1
53.2
53.3
53.5
53.6
53.7
Hesperides Rd
60
Additional TWS
Additional TWS
© 2014 Google
1995
Imagery Date: 2/15/2014 27°48'30.49" N 81°11'52.90" W elev 49 ft

Mier, Jena

From: Mier, Jena
Sent: Wednesday, August 06, 2014 5:05 PM
To: 'Martin, Ted'
Cc: Jude Dawson; Phil Simpson (psimpson@ectinc.com); Tessier, John
Subject: RE: Some Everglade snail kite nest locations.

Ted-

Thanks. We will make sure to look in the areas within the vicinity of construction for snail kites. However, the area just north of SR 60 shown on the map in your email will be constructed by horizontal directional drill under Lake Kissimmee so I would not expect adverse impact to those nests.

The property just south of SR 60 from MP 54 to 78 is owned by one entity that owns 32,519 acres that includes several sections of land comprising over 11 miles east along the road and south to the Kissimmee River. It is possible that Florida grasshopper sparrows, crested caracara, and scrub-jays may have been identified on the property. If there are any known reports of occurrence within the proposed pipeline ROW we would appreciate being provided that information as soon as possible to determine the most appropriate way to address the specific species. Thanks.

Jena S. Mier, PWS
Project Manager
Environmental Services

FLORIDA SOUTHEAST CONNECTION

700 Universe Blvd.
Juno Beach, FL 33408
Office 561-691-2209
Cell 561-339-0621
Jena.Mier@nee.com

From: Martin, Ted [mailto:ted_martin@fws.gov]
Sent: Wednesday, August 06, 2014 4:22 PM
To: Mier, Jena
Cc: Jude Dawson; Phil Simpson (psimpson@ectinc.com)
Subject: Some Everglade snail kite nest locations.

Hi Jena,

Thank you for contacting David Bender directly, I will be looking to him for the evaluation of the adequacy of the FSC T&ES plant survey protocol.

While reviewing the FSC right-of-way, I noticed some Everglade snail kite nest locations that you should closely investigate during your surveys activities for that species (Google map clip attached).

I have also had conversations that indicate there are proprietary survey reports that have identified Florida grasshopper sparrows, crested caracara, and scrub-jays on the property just south of the FSC gas pipeline right-of-way between mile marker 54 to 78.

Hope this information helps with your T&ES survey program.

Sincerely,

Ted Martin
U.S. Fish & Wildlife Service
Office Phone: 772-469-4232
Office Fax: 772-562-4288
Email: ted_martin@fws.gov
Website: http://www.fws.gov/verobeach/
The Only Certainty In Life, Is The Past!

Mier, Jena

From: Martin, Ted <ted_martin@fws.gov>
Sent: Thursday, August 07, 2014 8:03 AM
To: Mier, Jena
Cc: Jude Dawson; Phil Simpson (psimpson@ectinc.com); Tessier, John
Subject: Re: Some Everglade snail kite nest locations.

Hi Jena,

Sorry, I do not have access to any proprietary survey reports. I just wanted to give you a heads-up about the greater likelihood of federally listed species being present in that section of the FSC gas pipeline right-of-way. You may want to contact the owner of that 32,519 acre parcel and ask them if they are in possession of any such survey reports and if they would be willing to share that information with you.

If I obtain any species survey reports that will facilitate your survey activities, I will be sure to share them with you.

Sincerely,

Ted Martin
USFWS

On Wed, Aug 6, 2014 at 5:05 PM, Mier, Jena <Jena.Mier@fpl.com> wrote:

Ted-

Thanks. We will make sure to look in the areas within the vicinity of construction for snail kites. However, the area just north of SR 60 shown on the map in your email will be constructed by horizontal directional drill under Lake Kissimmee so I would not expect adverse impact to those nests.

The property just south of SR 60 from MP 54 to 78 is owned by one entity that owns 32,519 acres that includes several sections of land comprising over 11 miles east along the road and south to the Kissimmee River. It is possible that Florida grasshopper sparrows, crested caracara, and scrub-jays may have been identified on the property. If there are any known reports of occurrence within the proposed pipeline ROW we would appreciate being provided that information as soon as possible to determine the most appropriate way to address the specific species. Thanks.

Jena S. Mier, PWS

Project Manager

Environmental Services

FLORIDA SOUTHEAST CONNECTION

700 Universe Blvd.

Juno Beach, FL 33408

Office 561-691-2209

Cell 561-339-0621

Jena.Mier@nee.com

From: Martin, Ted [mailto:ted_martin@fws.gov]
Sent: Wednesday, August 06, 2014 4:22 PM
To: Mier, Jena
Cc: Jude Dawson; Phil Simpson (psimpson@ectinc.com)
Subject: Some Everglade snail kite nest locations.

Hi Jena,

Thank you for contacting David Bender directly, I will be looking to him for the evaluation of the adequacy of the FSC T&ES plant survey protocol.

While reviewing the FSC right-of-way, I noticed some Everglade snail kite nest locations that you should closely investigate during your surveys activities for that species (Google map clip attached).

I have also had conversations that indicate there are proprietary survey reports that have identified Florida grasshopper sparrows, crested caracara, and scrub-jays on the property just south of the FSC gas pipeline right-of-way between mile marker 54 to 78.

Hope this information helps with your T&ES survey program.

Sincerely,

Ted Martin

U.S. Fish & Wildlife Service

Office Phone: 772-469-4232

Office Fax: 772-562-4288

Email: ted_martin@fws.gov

Website: http://www.fws.gov/verobeach/

The Only Certainty In Life, Is The Past!

--
Ted Martin
U.S. Fish & Wildlife Service
Office Phone: 772-469-4232
Office Fax: 772-562-4288
Email: ted_martin@fws.gov
Website: http://www.fws.gov/verobeach/
The Only Certainty In Life, Is The Past!

Florida Fish and Wildlife Conservation Commission

Commissioners
Richard A. Corbett
Chairman
Tampa

Brian Yablonski
Vice Chairman
Tallahassee

Ronald M. Bergeron
Fort Lauderdale

Richard Hanas
Oviedo

Aliese P. "Liesa" Priddy
Immokalee

Bo Rivard
Panama City

Charles W. Roberts III
Tallahassee

Executive Staff
Nick Wiley
Executive Director

Eric Sutton
Assistant Executive Director

Jennifer Fitzwater
Chief of Staff

Office of the Executive Director
Nick Wiley
Executive Director

(850) 487-3796
(850) 921-5786 FAX

Managing fish and wildlife resources for their long-term well-being and the benefit of people.

620 South Meridian Street
Tallahassee, Florida
32399-1600
Voice: (850) 488-4676

Hearing/speech-impaired:
(800) 955-8771 (T)
(800) 955-8770 (V)

MyFWC.com

August 13, 2014

Jessica Harris
Federal Energy Regulatory Commission
888 1st Street NE
Washington, DC 20426
Jessica.harris@ferc.gov

RE: Florida Southeast Connection Project, Pre-filing Draft, Federal Energy Regulatory Commission (FERC) Docket No. PF14-2-000, Multiple Counties

Dear Ms. Harris:

Florida Fish and Wildlife Conservation Commission (FWC) staff has reviewed the pre-filing draft for the Florida Southeast Connection Project and offers the following comments for your consideration, in accordance with our authorities under Chapter 379, Florida Statutes.

Project Description

Florida Southeast Connection, LLC, seeks to construct and operate an approximately 127-mile natural gas pipeline known as the Florida Southeast Connection Project ("FSC Project"). The pipeline will originate near Kissimmee in Osceola County, and terminate at the Florida Power & Light's (FPL) Clean Energy Center, Martin County. The proposed pipeline corridor runs south through Polk County to the Lake Wales area, where the route turns east, paralleling State Road 60, before diverting southeast through Okeechobee and St. Lucie Counties to FPL's Clean Energy Center. The FSC Project will require the construction of a meter station and development of temporary staging areas, pipe yards, and contractor yards.

The FSC Project will require clearing 75- and 100-foot wide corridors in wetlands and uplands, respectively, along the project footprint. Once the project is complete, the applicant plans to restore the habitats within the corridor with the exception of a 50-foot wide permanent right-of-way maintained to permit access for routine pipeline corridor surveys and repairs, as well as to enhance visibility during aerial surveys. For pipeline safety, woody vegetation will be removed within a portion or the entire permanent access corridor. In wetlands, a 10-foot wide path centered over the pipeline will be maintained in an herbaceous state devoid of woody vegetation. FSC will retain the right to remove trees taller than 15 feet that are located within 15 feet of the pipeline. In uplands, the entire 50-foot wide corridor will be maintained in an herbaceous state devoid of woody vegetation.

Fish and Wildlife Resources

The FSC Project traverses many different upland and wetland habitats, including some rare habitats (as defined by the Florida Natural Areas Inventory) including dry prairie and scrub that are known to support wildlife endemic to Florida. In addition to crossing

several rare habitats, portions of the FSC Project intersect with or are adjacent to public lands that support state- and federally listed species. These public lands also provide recreational opportunities for hunting, fishing, and wildlife-viewing. FWC staff conducted a geographic information system analysis of the FSC Project footprint. According to this analysis, the FSC Project is located within or near:

- Public and Private Conservation Lands:
  - Allapattah Flats Wildlife Management Area
  - Bluefield Ranch Wetland Mitigation Bank
  - Collany Conservation Bank (for sand skinks)
  - Collany Wetland Mitigation Bank
  - Kissimmee River Public Use Area and Wildlife Management Area
  - Lake Marion Creek Wildlife Management Area
  - Lake Wales Ridge National Wildlife Refuge
  - Lake Wales Ridge State Forest
  - North Walk-in-Water Creek
  - Reedy Creek Wetland Mitigation Bank
  - Tiger Lake Ranch Conservation Easement
  - Upper Lakes Basin Watershed
  - Upper Lake Marion Creek Watershed
- U.S. Fish and Wildlife Service (USFWS) Consultation Areas:
  - Audubon's crested caracara (*Polyborus plancus audubonii*, Federally Threatened [FT])
  - Everglade snail kite (*Rostrhamus sociabilis plumbeus*, Federally Endangered [FE])
  - Florida grasshopper sparrow (*Ammodramus savannarum floridanus*, FE)
  - Florida scrub-jay (*Aphelocoma coerulescens*, FT)
  - Red-cockaded woodpecker (*Picoides borealis*, FE)
  - Sand skink (*Neoseps reynoldsi*, FT)
- Wood stork (*Mycteria americana*, FT) nesting colony core foraging areas:
  - 616047A
  - 616117
  - 616321
  - Lake Rosalie
  - Lake Russell
  - N. Fork St. Lucie River
  - Reedy Creek
  - Unnamed colony
- FWC wildlife observations:
  - Audubon's crested caracara
  - Florida sandhill crane (*Grus canadensis pratensis*, State Threatened [ST])
  - Sand skink
  - Florida scrub-jay
  - Gopher tortoise (*Gopherus polyphemus*, ST)
- Bald eagle (*Haliaeetus leucocephalus*) nests:
  - PO014
  - PO144
  - PO172
- Wading bird nesting colony:

  - 616318
- Florida black bear (*Ursus americanus floridanus*) range:
  - Secondary range for the Glades/Highlands sub-population
- Potential habitat for:
  - Eastern indigo snake (*Drymarchon corais couperi*, FT)
  - Florida bonneted bat (*Eumops floridanus*, FE)
  - Florida burrowing owl (*Ahene cunicularia*, Species of Special Concern [SSC])
  - Gopher frog (*Lithobates capito*, SSC)
  - Limpkin (*Aramus guarauna*, SSC)
  - Little blue heron (*Egretta caerulea*, SSC)
  - Sherman's fox squirrel (*Sciurus niger shermani*, SSC)
  - Snowy egret (*Egretta thula*, SSC)
  - Southeastern American kestrel (*Falco sparverius paulus*, ST)
  - Tricolored heron (*Egretta tricolor*, SSC)
  - White ibis (*Eudocimus albus*, SSC)

The *Draft Resource Report 3 – Fish, Wildlife, and Vegetation* submitted for our review states that field surveys were conducted within a 300-foot-wide survey corridor encompassing the FSC Project footprint between July 22, 2013, and January 24, 2014, and again between March 31, 2014, and May 30, 2014. Species observed during the survey periods include the Audubon's crested caracara, bald eagle nest, gopher tortoise, Florida burrowing owl, Florida sandhill crane, little blue heron, Sherman's fox squirrel, snowy egret, tricolored heron, white ibis, and wood stork.

Comments and Recommendations

In its *Draft Resource Report 3 – Fish, Wildlife, and Vegetation*, FSC agreed to perform listed species surveys using USFWS and FWC protocols prior to clearing activities. Please recognize that many species surveys are time-sensitive and coincide with the breeding (or active) season of the species being surveyed. Therefore, surveys conducted at the appropriate time and season will more accurately determine wildlife usage along the FSC Project corridor. Basic guidance for conducting wildlife surveys can be found in the Florida Wildlife Conservation Guide (http://myfwc.com/conservation/value/fwcg/).

The FSC Project passes through lands that may be occupied by the Florida grasshopper sparrow, a federally endangered bird found only in the dry prairies of south-central Florida. The species is often unnoticed because of its small size and cryptic habits. Most Florida grasshopper sparrows are located on public lands at Three Lakes WMA and Kissimmee Prairie Preserve State Park. Although once considered a strong population, the number of birds at Avon Park Air Force Range has dramatically decreased and may be functionally extirpated. Each of these public lands surround the FSC Project so it is conceivable that grasshopper sparrows may use the project corridor. While the *Resource Report* states that a previous wetland permit for a neighboring property did not mention the presence of the Florida grasshopper sparrows, we should point out that the permit specifically addressed aquatic and wetland-dependent species, and not species like the grasshopper sparrow that occur wholly within uplands. We encourage the applicant to coordinate with the USFWS at (772) 562-3909 to discuss any necessary federal survey or

permitting requirements for the Florida grasshopper sparrow and other federally listed species potentially occurring within the corridor.

We recognize the FSC Project requires land clearing within the project footprint prior to the construction and installation of the pipeline and that parts of the entire pipeline corridor will be maintained devoid of woody vegetation. The removal of woody vegetation will result in the conversion of forested to non-forested systems within the 50-foot wide corridor. While the applicant states that the remnant habitats will continue to provide similar functions to their forested counterparts, several state- and federally listed species use trees or tree cavities for essential behaviors such as nesting or sheltering. We encourage the applicant to thoroughly examine all trees slated for removal from the project area to ensure that listed species are not present or utilizing the trees for essential behaviors. If nest trees are encountered within the project corridor and removal of the tree is unavoidable, we recommend the applicant coordinate with the FWC to discuss avoidance, minimization, and permitting alternatives specific to the nesting species.

Part of the project will occur within the Kissimmee Public Use Area (PUA)/Wildlife Management Area (WMA), which includes the channelized portion of the Kissimmee River. Based on the *Draft Resource Report*, FSC intends to horizontal directional drill (HDD) under the Kissimmee River. While HDD should avoid direct impacts to the Kissimmee River, the project may necessitate the applicant to temporary restrict public access to the Kissimmee River, the Kissimmee PUD, or the Kissimmee WMA. Please be aware that FWC administers hunting-related activities and works with local governments to create community fishing opportunities near the Kissimmee PUA/WMA. If the applicant intends to temporarily restrict public access to the Kissimmee PUA/WMA, we recommend the applicant coordinate with the FWC and local stakeholder groups that may otherwise have an interest in the area.

Project activities like the movement of equipment between work sites can increase the geographical spread of invasive plant species. As noted above, the project footprint crosses several public lands managed for the conservation of the state's natural resources. Once invasive plants are established in natural areas, they can be costly to remove and can alter ecosystem processes that, in turn, affect native wildlife. Since the project has the potential to increase the geographical spread of invasive species on public lands, we recommend the applicant take steps to prevent or limit the introduction, establishment, and spread of invasive plant species. Some proactive steps to prevent or limit the spread of invasive plant species include:

- Installing spray stations at the entrance of work sites leading to public lands
- Inspecting equipment before and after work, removing visible plants, seeds, and other debris that can transport invasive species
- Cleaning and drying equipment after leaving an aquatic site

The *Draft Resource Report 1 – General Project Description* states that a trench will be excavated along the pipeline corridor, and the construction process timed to limit the amount of time that the trench is open to the elements. In our letter to the Florida Department of Environmental Protection, dated April 18, 2014, we noted that wildlife could meander into open trenches along the pipeline corridor. This pipeline corridor is within secondary bear range, which is important to bear movement and habitat use, and

suitable habitat for several other listed species occurs within the corridor. We encourage the applicant to inspect the open trenches at the beginning and end of each work day for injured wildlife that may have wandered into the trenches. Injured wildlife should be reported to the FWC. To reduce negative human-wildlife interactions with larger animals that may wander into the trench, we recommend the applicant install "wildlife ramps" that allow uninjured wildlife to leave the trenches on their own accord.

We appreciate the opportunity to review the pre-filing materials ahead of the *Draft Environmental Impact Statement.* We look forward to working with both FERC and the applicant to ensure the project complies with FWC's authorities under Chapter 379, Florida Statutes. If you need any further assistance, please do not hesitate to contact Jane Chabre either by phone at (850) 410-5367 or by email at FWCConservationPlanningServices@MyFWC.com. If you have specific technical questions regarding the content of this letter, please contact Ben Shepherd at (407) 858-6170 or by email at Ben.Shepherd@MyFWC.com.

Sincerely,

Jennifer D. Goff
Land Use Planning Program Administrator
Office of Conservation Planning Services

jdg/bs
ENV 2-11
Southeast Market Pipelines (Sabal Trail and Southeast Connection Projects)_19439_081314

cc: Jena Mier, FPL, jena.mier@nee.com
Phil Simpson, ECT, Inc., psimpson@ectinc.com
Ted Martin, USFWS, ted_martin@fws.gov
Annie Dziergowski, USFWS, annie_dziergowski@fws.gov
Lauren Milligan, FDEP, lauren.milligan@dep.state.fl.us
Lisa Prather, FDEP, lisa.prather@dep.state.fl.us
Jon Dinges, SRWMD, jmd@srwmd.org
Victoria Nations, SJRWMD, vnations@sjrwmd.com
Trisha Neasman, SWFWMD, trisha.neasman@swfwmd.state.fl.us
Sharon Trost, SFWMD, strost@sfwmd.gov

Project/Topic of Meeting		
Agency	**US Fish & Wildlife Service**	**Date: 08/12/14**
Agency Attendees	**Annie Dziergowski** **Jay Herrington** **Heath Rauschenberger**	
Scribe Name:	**Jena Mier**	
Owner	**Florida Southeast Connection, LLC**	
Owner Attendees	**Jena Mier, FSC Environmental Project Manager** **Phil Simpson, Principal Scientist – ECT** **Richard Brightman, Attorney – Hopping, Green & Sams**	

MEETING NOTES

FSC, Sabal Trail and Transco met with USFWS to discuss the Southeast Market Pipelines Project's Migratory Bird Conservation Plan. Each company representative provided a project overview and purpose for their respective projects. The contents of the SMP Project Migratory Bird Conservation Plan were presented and discussed including: Species of Conservation Concern; Habitats in the SMP Project Area; Project Effects on Habitats and Migratory Birds; Potentially Effected Birds of Conservation Concern; Avoidance, Minimization, and Mitigation Strategies; and Wetland Effects.

Annie Dziergowski indicated that the Plan should address all questions from the USFWS and no additional mitigation is expected to be required by the USFWS to address migratory birds. The Plan will be provided in the next week as a draft for USFWS review and comment.

The USFWS also presented its draft recommendations for determining the presence of sand skinks in the Sabal Trail and FSC project areas and mitigating construction related impacts to the species. USFWS requested feedback from Sabal Trail and FSC on these recommendations. FSC and Sabal Trail agreed to review and provide feedback within the next 30 days.

Mier, Jena

From: Bender, David <david_bender@fws.gov>
Sent: Thursday, August 28, 2014 10:00 AM
To: Mier, Jena
Cc: Ted Martin
Subject: Re: Botanical Surveys for Florida Southeast Connection Pipeline Project

Hi Jena,

I'm satisfied that the plant surveys will be adequate, provided your team follows the protocols and guidelines that have been established.

Dave

=-=
Dave Bender
Botanist
U.S. Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street, Vero Beach, FL 32960
Office: (772) 562-3909 ext. 294
Cell: (772) 559-5348
Email: david_bender@fws.gov
=-=

On Wed, Aug 6, 2014 at 3:13 PM, Mier, Jena <Jena.Mier@fpl.com> wrote:

David-

Ted Martin sent us your emails regarding the plant survey protocols that ECT, our environmental consultants, have developed the for the Florida Southeast Connection pipeline project. The following is information to answer your questions and that should be helpful in reviewing the files provided.

ECT has spent many hours in the field on this project beginning last summer through May of this year. They have conducted habitat surveys of a 300 ft. wide corridor associated with the pipeline route. All lands have been categorized and polygons digitized utilizing the Florida Land Use, Cover and Forms Classification System (FLUCFCS). In addition, any observations of listed plants during field surveys were noted and GPS points of locations collected. All wetland boundaries have also been delineated and confirmed by the FDEP. The areas selected for plant surveys are specific to each plant. In addition to the FNAI data of known presence, ECT overlaid the FLUCFCS polygons within the survey corridor, identified the type of habitat in which each plant has a potential to be found and included species observations made during the previous field surveys. Therefore, each plant has its own area for specific surveys based upon the type of habitat that currently exists in that location (i.e. scrub, sandhill, etc.). Of course, some may overlap, but a separate survey area has been defined for each plant.

With regard to the kmz files provided, please note that if you have all species layers on at the same time, they will overlap and it may difficult to get a clear picture of what is proposed. The timing of surveys is determined by each species' characteristics and the most appropriate time to survey for that species. ECT has followed and will continue to follow the guidelines for botanical surveys provided in your email.

If you have additional questions, please call Jude Dawson at ECT at (352) 248-3336. Thanks.

Jena S. Mier, PWS

Project Manager

Environmental Services

FLORIDA SOUTHEAST CONNECTION

700 Universe Blvd.

Juno Beach, FL 33408

Office 561-691-2209

Cell 561-339-0621

Jena.Mier@nee.com

FLORIDA SOUTHEAST CONNECTION™

APPENDIX 3C

SOUTHEAST MARKET PIPELINES PROJECT MIGRATORY BIRDS CONSERVATION PLAN

[To be submitted after submittal to USFWS]