Appendix C-2
Data Descriptions and Explanations of Selected GIS Analyses

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More than 35 databases and data coverages were reviewed and analyzed using Geographic Information Systems (GIS) technology to identify various vegetation communities/habitats and to assist in indicating potential species occurrences. For the GIS analyses, WilsonMiller created spatial interaction based GRID models that assist in modeling wetland delineations, and produced Environmental Resource Analysis: Resources-at-Risk Reports (referred to herein as *ERA Tools reports*) for each of the proposed conservation units, the RGP, and the EMA using the FDEP-created ERA Tools.

Databases reviewed or analyzed included, but were not necessarily limited to the following (arranged alphabetically by source):

- FDEP Conservation and Recreation Lands (CARL)
- FDEP OFWs
- FDEP Surface Water Classification (1996, 1998, 2002 305(b) Basin Status Reports) and Impaired Waters Listing (1998 303(d))
- FDEP Aquatic Preserves
- Springs (data from FDEP)
- Marinas (data from FDEP)
- Comprehensive Environmental Resource Compensation and Liability Act (CERCLA) Hazardous Sites (data from FDEP)
- Storage Tank Contaminant Monitoring Sites (data from FDEP)
- Toxic Release Inventory (data from FDEP)
- Private Wells (data from FDEP)
- FFWCC Prioritized Strategic Habitat Conservation Areas (SHCAs)
- FFWCC Priority Habitats for Wetland-Dependent Species
- FFWCC black bear data and bald eagle nest data
- FMRI seagrass beds
- FNAI element occurrences
- FNAI Natural Communities Priorities
- Florida Forever Conservation Need Assessment Priorities (FNAI 2000, 2001), including:
  - Landscape-sized Protection Areas;
  - Landscape Linkages and Conservation Corridors from Ecological Greenways of the Statewide Greenways System Planning Project (UF and FDEP Office of Greenways and Trails);

  - FNAI Priority Habitat Conservation Lands
  - FNAI Coast High Priority Areas;
  - Publicly managed lands;
- NWFWMD Land Uses (FLUCFCS)
- St. Joe Timberland Company timber data
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soils
- USDA NRCS ecological communities, based on soil types
- USFWS National Wetlands Inventory (NWI) wetlands, including marine and estuarine systems
- WilsonMiller species observations

C-2.1 Description of Data Sets Relation to Ecological Criteria and Explanation of Buffers

The data sheets at the end of each area-specific section (Sections C-6 through C-16) present the results of the data analyses first by ecological criterion, then by data set. Data sets are repeated under more than one criterion when they were deemed relevant to more than one criterion. In addition, sometimes a data set that was not listed under a specific criterion was used to evaluate that criterion.

For data analyses relevant to the Regional Significance and Biodiversity criteria, data were also analyzed within buffers around each conservation unit. Buffers were created using GIS by extending a radius of predetermined length around the center point of the conservation unit. The two buffers created around the conservation units for the Regional Significance analyses had a 2- or 5-mile radius. The two buffers created around the conservation units for the Biodiversity analyses had a 1- or 3-mile radius.

C-2.2 Data Descriptions

NRCS Ecological Communities within Boundary:

Number	Description	FNAI Equivalent Natural Community (FNAI and FDNR 1990)
1	North Florida Coastal Strand	Beach Dune, Coastal Berm, Coastal Grassland, Coastal Strand, Maritime Hammock
3	Sand Pine Scrub	Scrub, Xeric Hammock
4	Longleaf Pine-Turkey Oak Hills	Sandhill
5	Mixed Hardwood/Pine	Upland Mixed Forest, Upland Pine Forest, Bluff, Slope Forest
7	North Florida Flatwoods	Mesic Flatwoods, , Wet Flatwoods, Scrubby Flatwoods, Wet Prairie, Dry Prairie
11	Upland Hardwood Hammocks	Upland Mixed Forest, Slope Forest, Sinkhole
12	Wetland Hardwood Hammocks	Hydric Hammock, Baygall,
15	Oak Hammocks	Xeric Hammock, Upland Hardwood Forest, Sinkhole
17	Cypress Swamps	Basin Swamp, Dome Swamp, Floodplain Swamp, Freshwater Tidal Swamp, Strand Swamp, Slough
18	Salt Marsh	Marine/Estuarine Grass Bed, Tidal Marsh, Tidal Swamp
20	Bottomland Hardwoods	Bottomland Forest, Floodplain Forest
21	Swamp Hardwoods	Bottomland Forest, Floodplain Forest, Floodplain Swamp, Freshwater Tidal Swamp, Slough
22	Shrub Bogs	Baygall, Bog

Number	Description	FNAI Equivalent Natural Community (FNAI and FDNR 1990)
23	Wet Prairie	Wet Prairie, Seepage Slope
25	Freshwater Marsh	Floodplain Marsh, Basin Marsh, Depression Marsh

Land Use (NWFWMD 1995):

FLUCFCS Code	FLUCFCS Description
1100	Residential, Low Density
1120, 1220, 1320	Mobile Home Units
1200	Residential, Medium Density
1300	Residential, High Density
1400	Commercial and Services
1420	Wholesale Sales and Services
1450	Tourist Services
1500	Industrial
1600	Extractive
1660	Holding Ponds
1710	Educational Facilities
1720	Religious
1730	Military
1800	Recreational
1820	Golf Courses
1840	Marinas and Fish Camps
1850	Parks and Zoos
1890	Other Recreational
1900	Open Land
2100	Cropland and Pastureland
3200	Shrub and Brushland
3220	Coastal Scrub
4100	Upland Coniferous Forests
4130	Sand Pine
4340	Hardwood-Conifer Mixed
4410	Pine Plantation
4430	Forest Regeneration Areas
5100	Streams and Waterways
5200	Lakes
5300	Reservoirs
5420	Embayments not opening directly into Gulf of
6100	Wetland Hardwood Forests
6200	Wetland Coniferous Forests
6210	Cypress
6300	Wetland Forested Mixed
6410	Freshwater Marsh
6420	Saltwater Marsh
6510	Tidal Flats
6530	Intermittent Ponds
6900	Wetland Scrub Shrub
7100	Beaches other than Swimming Beaches
7200	Sand other than Beaches
7400	Disturbed Land

FLUCFCS Code	FLUCFCS Description
8110	Airports
8140	Roads and Highways
8220	Communication Facilities
8310	Electric Power Facilities
8320	Electrical Power Transmission Lines
8340	Sewage Treatment

NWI Wetlands:

L	Lacustrine
FL	Littoral, ?
P	**Palustrine**
FO	Forested
SS	Scrub-Shrub
E	**Estuarine**
BB	Intertidal, Benthic Bottom

FWC SHCAs:

If part of a SHCA occurs within a conservation unit, the RGP or the EMA, or within the 1-mile or 3-mile biodiversity buffers, the ERA Tools report for that area presents a "1" for "presence." If no SHCAs occur within an area, the ERA Tools report states "Unaffected within Boundary/Buffer." When a SHCA does occur within the boundaries of a specific area or buffer, the individual text report for that area identifies the species (e.g., Gulf salt marsh snake, snowy plover).

Code	Description
0	None present within Analysis Boundary or Buffer
1	Present within Analysis Boundary or Buffer

FMRI Seagrass Beds:

Seagrass data were not available for the central portion of the RGP, from about latitude 86°00' (about 0.25 mile west of the eastern Walton County line) east to latitude 85°53' (in Bay County; at US98, about 0.75 mile east of SR 79). According to the FMRI seagrass metadata (the Habitat Map Data Dictionary), the data obtained for the RGP vicinity is "Unmappable/Uninterpretable." Unmappable/uninterpretable "refers to those areas that are beyond the depth threshold of the aerial photography (approximately 30ft), and/or uninterpretable due to glare, or turbid waters. ..." The following values and descriptions are provided:

Value	Description
EST	Estuarine Non-seagrass habitat (open water)
LAND	Land
PSG1	Patchy seagrass very sparse (1-10% crown cover)
PSG2	Patchy seagrass sparse (15-40% crown cover)
PSG3	Patchy seagrass moderate (45-70% crown cover)
PSG4	Patchy seagrass dense (75-85% crown cover)
RIV	Fresh Non-seagrass habitat (open water)

Blackwater Inflow Characteristic:

Blackwater inflow was determined using NRCS mucky and depressional soil types.

Code	Description	Contributes to Blackwater Inflow
0	No Blackwater Inflow	No
1	Depressional or Very Poorly Drained - not muck	Yes
2	Muck	Yes

Threatened and Endangered Species Status and Rankings:

FNAI Global Rank definitions:

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1,000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3,000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

G3 = Either very rare and local throughout its range (21-100 occurrences of less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

G4 = Apparently secure globally (may be rare in parts of range).

G5 = Demonstrably secure globally.

GH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).

GX = Believed to be extinct throughout range.

GXC = Extirpated from the wild, but still known from captivity or cultivation.

G#? = Tentative rank (e.g., G2?).

G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).

G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).

G#Q = Rank of questionable species - ranked as species but questionable whether it is a species or subspecies; numbers have same definition as above (e.g., G2Q).

G#T#Q = Same as above, but validity as subspecies or variety is questioned.

GU = Due to lack of information, no rank or range can be assigned (e.g., GUT2).

G? = Not yet ranked (temporary).

FNAI State Rank definitions:

S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1,000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3,000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

S3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

S4 = Apparently secure in Florida (may be rare in parts of range).

S5 = Demonstrably secure in Florida.

SH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).

SX = Believed to be extinct throughout range.

SA = Accidental in Florida, i.e., not part of the established biota.

SE = An exotic species established in Florida, may be native elsewhere in North America.

SN = Regularly occurring, but widely and unreliably distributed; sites for conservation hard to determine.

State Legal Status/Animals:

LE = Endangered: species, subspecies, or isolated population so few or depleted in number or so restricted in range that it is in imminent danger of extinction.

LT = Threatened: species, subspecies, or isolated population facing a very high risk of extinction in the future.

LS = Species of Special Concern is a species, subspecies, or isolated population which is facing a moderate risk of extinction in the future.

PE = Proposed for listing as Endangered.

PT = Proposed for listing as Threatened.

PS = Proposed for listing as Species of Special Concern.

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

State Legal Status/Plants (Definitions from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see http://doacs.state.fl.us/~pi/5b-40.htm#.0055.):

LE = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.

LT = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.

PE = Proposed for listing as Endangered.

PT = Proposed for listing as Threatened.

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

Federal Legal Status (refer only to Florida populations; federal status may differ elsewhere):

LE = Endangered: species in danger of extinction throughout all or a significant portion of its range.

LT = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.

E(S/A) = Endangered due to a similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.

T(S/A) = Threatened due to a similarity of appearance (see above).

PE = Proposed for listing as Endangered species.

PT = Proposed for listing as Threatened species.

C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.

XN = Non-essential experimental population.

MC = Not currently listed, but of management concern to USFWS.

N = Not currently listed, nor currently being considered for listing as Endangered or Threatened.

ce = consideration encouraged.

C-2.3 Florida Forever: Conservation Needs Assessment (FNAI 2000, 2001)

Many of the data sets used for the Florida Forever: Conservation Needs Assessment (FNAI 2000) performed by the Florida Natural Areas Inventory for the Florida Forever Advisory Board were used in the GP/EMA project analysis effort. The priorities set (by FNAI) for the data layers that were selected for analyses for the GP/EMA project follow:

Priority	Data Type
FNAI Natural Communities Priorities	
0	No priority
1	Seepage
16	Sandhill
32	Scrub
128	Pine Flatwoods
FNAI Priority Habitat Conservation Lands	
1	High
2	|
3	|
4	|
5	Low
Large Landscape Priorities	
0	No Priorities
1	w/in large landscape

FNAI Priority Habitat Conservation Lands

FNAI's (2001) description of their process for prioritizing the Priority Habitat Conservation Lands follows:

> The habitat grids within each conservation need category were added and the resulting grid was multiplied by the conservation need weight factor for that category. The resulting 5 weighted grids were then added together. This resulted in a habitat model with cell values ranging from 20 to 5030 in increments of 10. For a more detailed explanation on the use of grid data in the overlay process, see the "Overlay Models" section of this report. For ease of viewing, the model values were lumped into 5 priority classes. The Priority 1 class captures all of the highest ranked habitat for the species with the greatest conservation need (group A); priority 2 class captures the entire highest ranked habitat for group B species; priority 3 captures the highest ranked habitat for group C species; priority 4 captures 54% of all habitat for group D species; and priority 5 captures all remaining habitat, with 69% of all habitat in group E falling into this last class. (FNAI 2001)

C-2.4 FFWCC's Mapping Wetland Habitats of High Priority to Endangered and Threatened Species in Florida (1994)[1]

Objective 1 of the FFWCC's project was to develop maps that depict Florida wetlands that are important to the long-term survival of wetland-dependent vertebrates listed as endangered species, threatened species, and species of special concern by the State of Florida. The FFWCC's list of wetland-dependent animals includes four amphibians, four reptiles, 19 birds, and eight mammals[2]..

The relative importance of wetland areas around the state was illustrated by depicting wetlands in which 1-3 species, 4-6 species, 7-9 species, or 10-12 species co-occur. This approach suggests only the relative importance of specific wetland areas based on richness of wetland-dependent listed species. No attempt was made to assign protection priorities based on the number of species likely to use specific wetlands.

Some wetland-dependent species of wildlife also require suitable upland habitat in close proximity to their wetland habitats. Such species include Florida black bear, dusky gopher frog, and Florida gopher frog. For these species, required upland habitats were identified and mapped based on the life history requirements of the species. The relative importance of upland sites required by some wetland-dependent species was illustrated by depicting upland areas used by 1-3 and 4-6 wetland-dependent listed species.

FFWCC's Priority Wetland Habitats:

Upland use areas
1-3 species
4-6 species
Wetland use areas
1-3 species
4-6 species
7-9 species
10-12 species

C-2.5 Estimating Corps' Wetland Jurisdictions Using GIS to Evaluate NRCS Hydric Soils

U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) hydric soils data were used to estimate wetland jurisdiction based on a methodology developed by the RGP Technical Team. In essence, the Technical Team found that using the Primary Hydric soils and the waterward 50% of Not-Primary Hydric soils yields a valid estimate of Corps wetland jurisdiction in the area of the RGP. Figure 2 graphically depicts the amount of estimated Corps' wetlands within the RGP/EMA area; however, this figure does not accurately depict actual locations of wetland lines.

Primary hydric soils are those that are always defined as jurisdictional wetlands by the FDEP (FAC 62-340). *Not-primary* hydric soils exhibit hydric characteristics, but vary in the field as to whether they would be declared jurisdictional. To test the correlation of the above-described method with formal

[1] Kautz, R., J. Cox, M. MacLaughlin, J. Stys. 1994. Mapping wetland habitats of high priority to endangered and threatened species in Florida. Final Project Report.
[2] In addition, Millsap (1990) identified another 15 species of wetland-dependent vertebrates that are not yet listed but have declining populations are in need of conservation attention (Millsap, B.A., J.A. Gore, D.E. Runde, and S.I. Cerulean. 1990. Setting priorities for the conservation of fish and wildlife species in Florida. Wildlife Monographs No. 111).

jurisdictional determination, we compared the approved wetland delineations at two relatively large areas–the St. Joe Company's WaterSound North and RiverCamps at Crooked Creek project sites–with the estimated Corps jurisdiction acreage using the above-described method. We found that the correlation was excellent (3% error) between the acreages estimated using the above-described method and the acreages of field-delineated jurisdictional wetlands.

The two test sites are located in the eastern and western portions of the RGP area, and the wetlands within the two sites cover most of the various wetland communities that may be found within the RGP area, including wet pine flatwoods, cypress swamp, hardwood swamp, shrub swamp and baygall, mixed forested swamp, saltwater and freshwater marsh, Hypericum bog, and wet prairie.

Appendix C-3

Principles for Forest and Wildlife Management of Conservation Units within the Regional General Permit Area