Florida Forever Decision Support Data

Documentation

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Florida Natural Areas Inventory

November 2009

Funded by the
Florida Department of Environmental Protection,
Division of State Lands

FLORIDA FOREVER DECISION SUPPORT DATA

The Florida Forever Decision Support Data consist of eight geographic data layers derived from the Florida Forever Conservation Needs Assessment data layers. The Assessment, originally created in December 2000, is a set of geographic data for 15 natural resource types specifically targeted for protection by the Florida Forever program (G. Knight et al. 2000). Detailed descriptions of these data may be found in the Florida Forever Conservation Needs Assessment Technical Report, Version 3.2 (A. Knight and Oetting 2009a). Each data layer is divided into several priority classes to help focus conservation efforts. Although the original Needs Assessment data are useful for establishing baselines and measuring progress of the Florida Forever program, the scope and complexity of the data made interpretation difficult for decision-makers evaluating potential acquisition projects. The creation of the Florida Forever Decision Support Data is an effort to provide a more concise picture of the natural resources within projects and across the state and to eliminate redundancy among similar data. Based on recommendations of the Florida Forever Analysis working group some of the original Assessment data layers were combined into functional groups. In addition, some individual resource types were re-prioritized. Table 1 shows the original Conservation Needs Assessment data layers and the new Florida Forever Decision Support data sets into which they are combined.

Several of the original Conservation Needs Assessment data layers are not included as part of the Florida Forever Decision Support Data. **Archaeological and Historical sites** (measures F1 and F2) were not included because cultural resource experts have not identified a method for prioritizing these sites in a quantifiable manner. Division of Historical Resources provides a separate evaluation of cultural resources on Florida Forever projects. **Listed species** (measure B6) and **forest land to maintain recharge** (measure G3) are not included because they are sufficiently captured by other data layers and will only be used in reporting progress of the Florida Forever program.

The Florida Forever Decision Support Data were designed for use in two primary analyses: 1) the Florida Forever Tool for Efficient Resource Acquisition and Conservation or F-TRAC (Oetting and Knight 2009) and 2) the Single Resource Ranking (A. Knight and Oetting 2009b). The data are used differently in each analysis but the primary purpose of both is to help inform acquisition decisions. Table 1 also identifies which data are used in each analysis.

Table 1. Derivation of the Florida Forever Decision Support Data from the original Conservation Needs Assessment and the analysis type that uses each data layer.

FL Forever Measure	Conservation Needs Assessment Data Layers	Decision Support Data Sets	Analysis Type
B1 B2	Strategic Habitat Conservation Areas FNAI Habitat Conservation Priorities	Species	F-TRAC, Single Resource Evaluation
B4 C7	Under-represented Natural Communities Fragile Coastal Resources	Communities	F-TRAC, Single Resource Evaluation
B3 B5	Significant Landscapes, Linkages, and Conservation Corridors Landscape-sized Protection Areas	Landscapes	Single Resource Evaluation
C4 C5	Natural Floodplain Significant Surface Waters	High Quality Watersheds	F-TRAC, Single Resource Evaluation
C8	Functional Wetlands	Wetlands	F-TRAC, Single Resource Evaluation
G1/G2	Sustainable Forestry	Forestry	F-TRAC, Single Resource Evaluation
E2	Recreational Trails	Trails Network	Single Resource Evaluation
D3	Aquifer Recharge	Aquifer Recharge	Single Resource Evaluation

Resource Descriptions

The following resource descriptions rely on knowledge of how some of the original Conservation Needs Assessment data layers were created. Please refer to the Conservation Needs Assessment Technical Report Version 3.2 (Knight and Oetting 2009a) for complete descriptions of the original data from which the decision support data (described below) are derived.

SPECIES

The current Species model is based on species information contained in the 2009 Strategic Habitat Conservation Areas (SHCA) and the FNAI Habitat Conservation Priorities Version 3 data layers. The 2009 SHCAs identify areas of habitat that are essential to sustain a minimum viable population for focal species of terrestrial vertebrates that were not adequately protected on existing conservation lands. The SHCAs include habitat data for 34 terrestrial vertebrate species, primarily on private lands, and are prioritized into five priority classes based on rarity (FNAI State and Global ranks). The FNAI Habitat Conservation Priorities layer was designed to identify areas important for species habitat based on both species rarity and species richness. FNAI mapped occurrence-based potential habitat for 248 species of plants, invertebrates, and vertebrates, including aquatic species. Nineteen species were included in both the final SHCA and FNAI habitat analyses. In order to minimize redundancy between these two layers we combined the data following a rules-based approach as shown in Table 2.

Table 2. Priority classes for the species decision support data layer.

Priority	Description	Acres
Priority 1	Priority 1 for SHCA or FNAI Habitat Conservation Priorities	2,266,507
Priority 2	Priority 2 for FNAI Habitat Conservation Priorities	636,524
Priority 3	Priority 2 for SHCA or Priority 3 for FNAI Habitat Conservation Priorities	10,066,632
Priority 4	Priority 3 for SHCA or Priority 4 for FNAI Habitat Conservation Priorities	3,566,113
Priority 5	Priority 4 for SHCA or Priority 5 for FNAI Habitat Conservation Priorities	2,416,280
Priority 6	Priority 5 for SHCA or Priority 6 for FNAI Habitat Conservation Priorities	2,289,738
TOTAL		21,241,794

COMMUNITIES

The current community data layer combines the natural community data from the under-represented natural communities and fragile coastal resources. This new data layer was prioritized based on Global Rank of the natural communities. Table 3 lists the natural communities, their Granks, and acreage statewide.

Table 3. Natural community type, grank, and acreage for community decision support data.

Community	GRank	Acres
pine rockland	G1	310
upland glade	G1	10,230
Lake Wales Ridge scrub	G2	285,580
other scrub	G2	106,880
rockland hammock	G2	11,330
dry prairie	G2	188,200
seepage slope	G3	12,140
sandhill	G3	545,260
sandhill upland lake	G3	110,400
fragile coastal uplands (dune, coastal grassland, coastal strand, maritime hammock, etc. NOTE: coastal scrub, r hammock separated out)	G3	94,360
upland hardwood forest	G4	441,980
pine flatwoods	G4	1,039,460
fragile coastal wetlands (mangrove, salt marsh)	G5	725,870
TOTAL		3,572,000

LANDSCAPES

The Landscapes Decision Support Data includes the Ecological Greenways as revised by Tom Hoctor in 2008 for the Critical Lands and Water Identification Project and the Landscape-sized Protection Areas data layer. These datasets formerly were combined to create an overall Landscapes Decision Support Data layer; now, however, they are retained as separate layers but used in concert to provide a single resource evaluation of projects based on Landscapes.

The Ecological Greenways Network was prioritized into 8 priority classes based on the following criteria:

1) Potential importance for maintaining or restoring populations of wide-ranging species (e.g., Florida black bear and Florida panther)
2) Importance for maintaining a statewide, connected reserve network from south Florida through the panhandle.

3) Other important landscape linkages that provide additional opportunities to maintain statewide connectivity especially in support of higher priority linkages.
4) Importance as a riparian corridor to protect water resources, provide functional habitat gradients, and to possibly provide connectivity to areas within other states.

The top two priorities, Critical Linkages 1 and 2, were selected based on several factors, including how critical an area is to completing a connection in the Network and between existing conservation lands; the threat of land conversion; and the feasibility of acquisition. For a detailed report on critical linkages, please contact Tom Hoctor, Geoplan Center, University of Florida.

The Landscape-sized Protection Areas were prioritized by resource experts into three classes based on their contribution to the protection of biodiversity and overall ecological integrity.

For a complete description of how the Ecological Greenways and Landscape-sized Protection Areas are used to assign a single resource rank to projects for Landscapes please see the Single Resource Ranking Documentation (Knight and Oetting 2009b)

Table 4 lists the priorities and acreage statewide for the individual Ecological Greenways and Landscape-sized Protection Areas data layers.

Table 4. Priority classes and acreages for the Landscapes decision support data.

Ecological Greenways Priority	Acres	Landscape-sized Protection Areas	Acres
Critical Linkages 1	8,148,900	Priority 1	1,966,402
Critical Linkages 2	2,310,580	Priority 2	2,878,210
Priority 1	1,386,850	Priority 3	1,860,158
Priority 2	2,525,850	-	-
Priority 3	1,237,230	-	-
Priority 4	1,028,510	-	-
Priority 5	1,165,320	-	-
Priority 6	4,078,040	-	-
TOTAL	21,881,280	TOTAL	6,704,770

HIGH QUALITY WATERSHEDS

The surface water and floodplain data sets were combined into a single data layer with 7 priority classes. An explanation of the two original data sets is required to understand the combined priorities.

The surface water data identifies significant surface waters of the state, which include the following: Outstanding Florida Waters, National Scenic Waters and National Estuaries, shellfish harvesting areas, seagrass beds, springs, water supply and waters important for imperiled fish. We created 7 prioritized sub-models based on the waters listed above. These sub-models were combined into a single surface water model with 6 priority classes as shown in Table 5. Detailed methodology for the surface water model may be found in the Conservation Needs Assessment Technical Report Version 3.2 (Knight and Oetting 2009a).

Table 5. Priority classes and acreages for the significant surface waters data layer.

Priority	Acres
Priority 1	1,202,050
Priority 2	7,333,560
Priority 3	2,345,550
Priority 4	11,464,620
Priority 5	2,095,250
Priority 6	4,729,060
Priority 7	2,527,570
TOTAL	31,697,660

Natural floodplain was identified using 2003 FWC Landsat land cover data and to a lesser degree Water Management District land cover data. Detailed methodology for the floodplain data layer may be found in the Conservation Needs Assessment Technical Report Version 3.2 (Knight and Oetting 2009a). These data were prioritized based on the degree of "naturalness" of the floodplain, which was estimated through the use of FNAI Potential Natural Areas (PNA). The PNAs are ranked from P1 to P4 based on size, perceived quality, and type of natural community present. PNAs with these ranks were grouped into "high quality" natural areas. Floodplains within these areas were assigned the highest priority (Priority 1). PNAs ranked P5 are areas that do not meet the criteria for P1 – P4 but are nonetheless believed to be ecologically viable tracts of land representative of Florida's natural ecosystems. Floodplains that occur within P5 areas were assigned Priority 2. Floodplains outside of PNAs were assigned Priority 3. Table 6 shows the priority classes for floodplain.

Table 6. Priority classes and acreages for natural floodplain data.

Priority	Acres
Priority 1 (floodplain within PNA 1-4)	1,380,431
Priority 2 (floodplain within PNA 5)	449,442
Priority 3 (floodplain outside PNAs)	687,772

Table 7 shows how the floodplain and surface water data sets were combined into the high quality watersheds data layer and describes the seven resulting priority classes.

Table 7. Priority classes for the high quality watersheds decision support data layer.

Priority	Description	Acres
Priority 1	Priority 1 or 2 surface water *and* Priority 1 floodplain; OR Priority 1 surface water *and* Priority 2 floodplain	688,222
Priority 2	Priority 1 floodplain (no surface water); OR Priority 1 surface water (no floodplain); OR Priority 1 floodplain *and* Priority 3-6 surface water; OR Priority 2 floodplain *and* Priority 2 surface water; OR Priority 1 surface water *and* Priority 3 floodplain	1,909,186
Priority 3	Priority 2 floodplain (no surface water); OR Priority 2 surface water (no floodplain); OR Priority 2 floodplain *and* Priority 3-6 surface water; OR Priority 3 floodplain *and* Priority 2-3 surface water	7,036,441
Priority 4	Priority 3 floodplain (no surface water); OR Priority 3 surface water (no floodplain); OR Priority 3 floodplain *and* Priority 4-6 surface water	2,283,257
Priority 5	Priority 4 surface water (no floodplain)	10,659,883
Priority 6	Priority 5 surface water (no floodplain)	2,010,061
Priority 7	Priority 6 surface water (no floodplain)	7,134,700
TOTAL		31,721,750

WETLANDS

The wetland data layer is a subset of the National Wetlands Inventory data. In order to identify functional wetlands we removed those occurring in non-natural areas based on water management district landcover data. Wetlands were then assigned priorities based on natural quality using the FNAI Potential Natural Areas (PNA). (Previously, wetlands were divided into only two priority classes; the work group recommended that we further prioritize the wetlands data layer). The PNA ranks from P1 to P4 are based on size, perceived quality, and type of natural community present. Because size and type of community do not necessarily increase the natural quality of a wetland, PNAs with these ranks were grouped into "high quality" natural areas. Wetlands within these areas were assigned the highest priority (Priority 1). PNAs ranked P5 are areas that do not meet the criteria for P1 – P4 but are nonetheless believed to be ecologically viable tracts of land representative of Florida's natural ecosystems. Wetlands that occur with P5 areas were assigned Priority 2. Wetlands that occurred outside PNAs but within a "natural" landcover category (based on WMD landcover data) were assigned Priority 3. Wetlands occurring within a "semi-natural" landcover category were assigned Priority 4. Table 8 lists the wetland priorities and their acreages.

Table 8. Priority classes and acreages for wetlands decision support data.

Priority	Description	Acres
Priority 1	within PNA class 1-4 or managed area in existence before 1995	6,310,200
Priority 2	within PNA class 5	1,230,800
Priority 3	outside of PNA but with "natural" landcover	1,961,100
Priority 4	outside of PNA but with "semi-natural" landcover	1,108,200
TOTAL		6,310,200

TRAILS NETWORK

A Trail Opportunities Network was developed as part of the Florida Greenways and Trails System to identify a set of potential trail corridors that provide a connected set of linear recreational opportunities statewide (Florida Department of Environmental Protection and Florida Greenways Coordinating Council 1998, 2004). The Trails Network is designed to provide opportunities to move along trails systems from major city to major city and from those urban areas to sites of historic, cultural and ecological significance. The trail opportunities are composed of sub-network corridors for hiking, multi-use, and paddling. Version 3.2 is based on the 2008 Update and Prioritization of Florida's Trail Network (Goodison et al. 2008; http://www.floridatrailsnetwork.com/download.html).

For the Florida Forever Decision Support Data we combined the sub-network corridors for hiking and multi-use into a single prioritized set of corridors; paddling trails were excluded. If trail types overlapped, the segment retained the priority of the highest ranked segment. Because the original corridors are 4 km wide, analyses based on trails can be calculated in acres or kilometers. One acre of trail corridor approximates 1 m of linear trail segment.

Table 9. Priority classes and acreages for trails network decision support data.

Priority	Description	Acres
Priority 1	High Priority designation based on recreation potential	6,311,540
Priority 2	Medium Priority designation based on recreation potential	2,437,400
Priority 3	Low Priority designation based on recreation potential	3,841,640
TOTAL		12,590,580

FORESTRY

In the current forestry data layer we revised the WMD land cover categories that represent existing and potential pinelands. The primary difference from previous versions is that urban open lands are no longer included as potential pinelands. Also, we further divided existing pinelands into natural pine and plantation.

Previously, the forestry data layer was categorized into pinelands and potential pinelands, but was not further prioritized. We met with Steve Bohl (Division of Forestry (DOF)), Leon Irvin (DOF) and Randy Kautz (FWC) to discuss ways to further prioritize the forestry data layer. Table 10 lists the prioritization method agreed to by the forestry experts. These criteria were applied to the existing pinelands data (not potential pinelands).

Table 10. Criteria used to prioritize the forestry data layer.

CRITERIA (% influence on score)	DATA LAYER	SCORE
NATURAL VS. PLANTED PINE (24%)	WMD landcover	
natural		10
plantation		8
Potential (ag lands that could be restored to pine)		0
SIZE (33%)	WMD landcover	
≥ 7,500 acres		10
2,500 – 7,500 acres		5
<2,500 acres		1
MILES TO MARKET (33%)	Natural Resource Planning Services, Inc.	
< 50 mi		10
50 - 100 mi		5
≥ 100 mi		1
HYDROLOGY (10%)		
Mesic	Pinelands not in the dry or wet categories (see below)	10
Dry	Davis Map (historic longleaf area)	5
Wet	NWI – wet pinelands	1

The forestry data were scored based on the 4 criteria above, resulting in a grid with grid cell scores ranging from 273 to 990. The highest potential score was 1000:

Natural pine	+	>7,500 acres	+	<50 mi to market	+	mesic site		
10 pts X 24%	+	10 pts X 33%	+	10 pts X 33%	+	10 pts X 10%		
230 pts	+	330 pts	+	330 pts	+	100 pts	=	1000

We divided the resulting data layer into 4 priority classes and added a fifth class for "potential" pineland (agricultural lands that could be restored to pineland). The breaks for the 4 priority classes were determined based on the type of information represented by the four criteria. Table 11 describes the justification for each priority class.

Table 11. Descriptions, scores, and acreages for the priority classes of the forestry data layer.

Priority Class	Scores	Description	Total Acres
Priority 1	950-990	Contains at least the top scores for all criteria except Hydrology and at least the middle score for Hydrology.	2,923,830
Priority 2	737-894	Contains at least the middle scores for three of the criteria and top score for Size or Distance to Market	2,012,340
Priority 3	522-693	Contains at least the middle scores for all criteria except Hydrology.	3,081,560
Priority 4	273-495	Contains remainder of pinelands not captured above.	132,660
Priority 5	N/A	Potential pinelands	3,429,980
Total			11,580,380

AQUIFER RECHARGE

The aquifer recharge base data layer was developed by Advanced Geospatial, Inc. (AGI) and further prioritized by FNAI in consult with AGI and Florida Geological Survey. The priority classes are based on the following data inputs: soil hydraulic conductivity, proximity to karst features, depth to water and overburden, overlap with Springs Protection Areas and overlap with buffers to public water supply wells. Detailed methodology for the aquifer recharge model may be found in the Conservation Needs Assessment Technical Report Version 3.2 (Knight and Oetting 2009a).

Table 12. Priority classes and acreages for aquifer recharge decision support data.

Priority	Description	Acres
Priority 1	Very High Priority designation based on aquifer recharge potential & vulnerability	1,005,961
Priority 2	High Priority designation based on aquifer recharge potential & vulnerability	3,253,839
Priority 3	Medium-High Priority designation based on aquifer recharge potential & vulnerability	6,226,785
Priority 4	Medium Priority designation based on aquifer recharge potential & vulnerability	7,579,291
Priority 5	Medium-Low Priority designation based on aquifer recharge potential & vulnerability	6,736,141
Priority 6	Low Priority designation based on aquifer recharge potential & vulnerability	8,626,371
TOTAL		33,428,387

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