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APPENDIX H
COMPREHENSIVE EVERGLADES RESTORATION PLAN
MASTER RECREATION PLAN
GEOGRAPHICAL INFORMATION SYSTEMS (GIS)
CRITERIA, WEIGHTING AND SCORING INFORMATION
USED BY THE MASTER RECREATION PLAN

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Below is the summary information used to develop the CERP Master Recreation Plan GIS Suitability and Analysis baseline criteria, weighting and scoring. The MRP PDT used two study team workshops to discuss, propose and resolve challenges that led to decisions which Gulf Engineers & Consultants, Incorporated used for the GIS modeling. This baseline work feed into the development of the suitability maps which the public reviewed and provided their input to. That input and additional public input (on existing recreation conditions, future recreation needs, emerging recreation issues and future recreation trends) was used to develop the MRP regional conceptual recreation plans which the public also reviewed and commented on.

METHODS AND DATA.

To quantify the suitability of lands within the boundaries of CERP project areas for specific recreation purposes, a weighted overlay spatial analysis of the region was conducted. This method enables multiple GIS datasets to be incorporated in the final results, thus generating a comprehensive, information-rich final product.

METHOD.

The study team agreed that raster-based GIS should be used as the methodology. Rasterbased methods have frequently been used to measure suitability for various criteria that require large amounts of data for analysis.

For MRP GIS, it was necessary to rasterize most source data, because they were in a vector format (such as shapefile). The raster resolution (or cell size) of every dataset used was 30 meters (98.425 feet). Because land use and land cover data (*fl_veg03* from Florida Fish and Wildlife Conservation Commission) appeared to be the core element for determining potential suitability, its properties were used as the standard to which all datasets were converted for suitability modeling. Since *fl_veg03* is already a GRID with a cell size of 30 meters, all datasets used in the modeling were converted to 30-meter GRIDs.

In order to begin using *fl_veg03* in a way that made it functional for raster overlay analysis techniques and not too cumbersome, it was necessary to reclassify the raster into fewer classifications. Chapter 2, Section 2.1.3.4. Suitability Mapping Data, Figure 2.1.3.4. Suitability Mapping Data shows a simplification of merging 43 classifications into 15 classifications.

Criteria Determination.

To measure suitability for any particular recreation type, criteria were developed for each recreation type. It was first necessary for the study team to decide which recreation types were to be evaluated. The team selected nine resource-based recreation types: bank fishing, boating/boat ramps, historic sites, hunting, multiuse trails, nature study, RV camping, sightseeing, and tent camping. The study team then established criteria for each recreation type.

Two workshops were conducted in which study team members provided input as to which recreation types were to be measured, the criteria that would make up suitability

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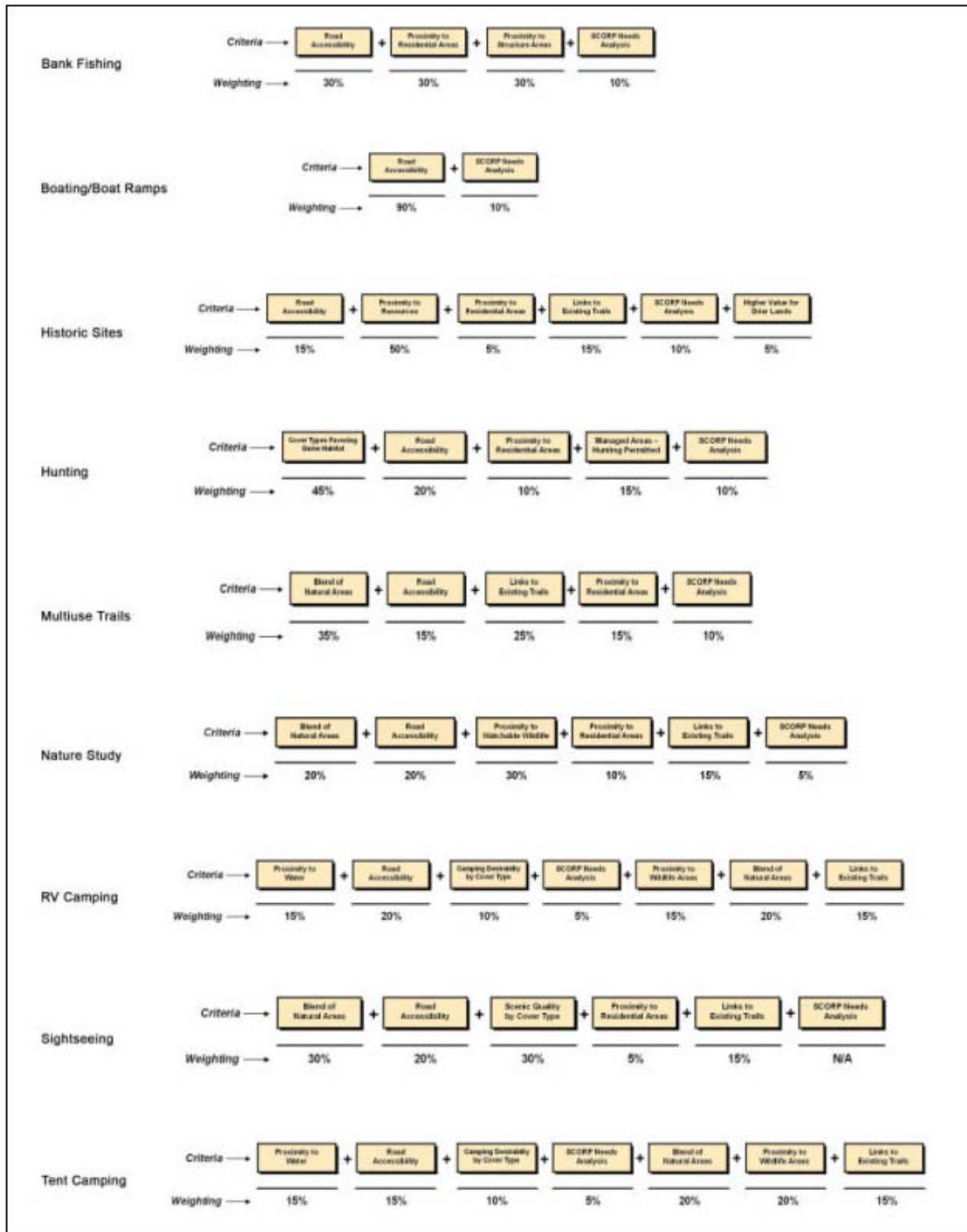
for each recreation type, and the weighting of criteria. The first workshop was held in Jacksonville, Florida, on September 9, 2005. The second workshop was held in West Palm Beach, Florida, on October 12, 2005. Chapter 5 contains written materials presented at each workshop.

Criteria Weighting.

A level of importance, or weighting, was applied to each criterion. Weightings were derived from input gathered during the workshops. Final weightings were essentially weightings applied by respondents from the study team, then averaged among the group. The only limitation was that the sum of all values not exceed 100 percent. When executed, this model calculates a total value for each recreation type's grid cells based on the grid cell values of the multiple criteria layers as well as their relative influence (weight). Figure 1 shows the criteria and weightings for each criterion.

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Figure 1. GIS Criteria, Weighting and Scoring Summary Table.



Source: GEC, GIS Development for the Master Recreation Plan, 2005.

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Criteria Definitions and Scoring.

Criteria were defined using parameters based on distance, intensity, variety, etc. All parameters used to define a criterion were scored using 0 to 3 scale. Scoring was based on the following:

0 = UNSUITABLE

1 = LOW SUITABILITY

2 = MODERATE SUITABILITY

3 = HIGH SUITABILITY

Chapter 2 provides a more detailed, step-by-step approach to the Suitability Modeling process used for each recreation type. The criteria were defined and scored for each recreation type on the following basis:

Bank Fishing.

CRITERION: Road Accessibility.

3 Within 0.25 mile of a road,

2 From 0.25 to 0.50 mile of a road,

1 From 0.50 to 0.75 mile of a road,

0 Over 0.75 mile from a road,

CRITERION: Proximity to Residential Areas.

3 Land within 2 miles of a residential area,

0 Land outside 2 miles of a residential area,

CRITERION: Proximity to SFWMD Structures.

3 Land within 0.25 mile of SFWMD structures,

0 Land outside 0.25 mile of SFWMD structures,

CRITERION: SCORP Needs Analysis.

3 Stated Need in SCORP,

0 No Stated Need,

Boat Ramps.

CRITERION: Road Accessibility.

3 Within 0.25 mile of a road,

2 From 0.25 to 0.50 mile of a road,

1 From 0.50 to 0.75 mile of a road,

0 Over 0.75 mile from a road,

CRITERION: SCORP Needs Analysis.

3 Stated Need in SCORP,

0 No Stated Need.

Historic Sites.

CRITERION: Road Accessibility.

3 Within 0.25 mile of a road,

2 From 0.25 to 0.50 mile of a road,

1 From 0.50 to 0.75 mile of a road,

0 Over 0.75 mile from a road,

CRITERION: Proximity to Historic Resources.

3 Within 0.25 mile of a historic resource,

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- 2 From 0.25 to 1.0 mile of a historic resource,
- 1 From 1.0 to 3.0 miles of a historic resource,
- 0 Over 3.0 miles from a historic resource,

CRITERION: Proximity to Residential Areas.

- 3 Land within 2 miles of a residential area,
- 0 Land outside 2 miles of a residential area,

CRITERION: Links to Existing Trails.

- 3 Within 0.25 mile of a potential trail linkage,
- 2 From 0.25 to 1.0 mile of a potential trail linkage,
- 1 From 1.0 to 3.0 miles of a potential trail linkage,
- 0 Over 3.0 miles from a potential trail linkage,

CRITERION: SCORP Needs Analysis.

- 3 Stated Need in SCORP,
- 0 No Stated Need,

CRITERION: Higher Value for Drier Land.

- 3 Lands not associated with water/wetlands,
- 0 Lands associated with water/wetlands,

Hunting.

CRITERION: Cover Types Favoring Game Habitat.

- 3 High suitability of natural cover types,
- 2 Moderate suitability of natural cover types,
- 1 Low suitability of natural cover types,
- 0 Extremely low suitability of natural cover types,

CRITERION: Road Accessibility.

- 3 Within 0.25 mile of a road,
- 2 From 0.25 to 0.50 mile of a road,
- 1 From 0.50 to 0.75 mile of a road,
- 0 Over 0.75 mile of a road,

CRITERION: Proximity to Residential Areas.

- 3 Land outside 2 miles of a residential area,
- 0 Land within 2 miles of a residential area,

CRITERION: Managed Area - Hunting Permitted,

- 3 Area where hunting is permitted,
- 0 Other areas

CRITERION: SCORP Needs Analysis.

- 3 Stated Need in SCORP,
- 0 No Stated Need

Multiuse Trails.

CRITERION: Blend of Natural Areas.

- 3 High variety of natural cover types,
- 2 Moderate variety of natural cover types,
- 1 Low variety of natural cover types,
- 0 Extremely low variety of natural cover types,

CRITERION: Road Accessibility.

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- 3 Within 0.25 mile of a road,
- 2 From 0.25 to 0.50 mile of a road,
- 1 From 0.50 to 0.75 mile of a road,
- 0 Over 0.75 mile from a road,

CRITERION: Links to Existing Trails.

- 3 Within 0.25 mile of a potential trail linkage,
- 2 From 0.25 to 1.0 mile of a potential trail linkage,
- 1 From 1.0 to 3.0 miles of a potential trail linkage,
- 0 Over 3.0 miles from a potential trail linkage,

CRITERION: Proximity to Residential Areas.

- 3 Land within 2 miles of a residential area,
- 0 Land outside 2 miles of a residential area,

CRITERION: SCORP Needs Analysis.

- 3 Stated Need in SCORP,
- 0 No Stated Need

Nature Study.

CRITERION: Blend of Natural Areas.

- 3 High variety of natural cover types,
- 2 Moderate variety of natural cover types,
- 1 Low variety of natural cover types,
- 0 Extremely low variety of natural cover types,

CRITERION: Road Accessibility,

- 3 Within 0.25 mile of a road,
- 2 From 0.25 to 0.50 mile of a road,
- 1 From 0.50 to 0.75 mile of a road,
- 0 Over 0.75 mile from a road,

CRITERION: Proximity to Watchable Wildlife.

- 3 Within 0.25 mile of rare species/rookeries,
- 2 From 0.25 to 1.0 mile of rare species/rookeries,
- 1 From 1.0 to 3.0 miles of rare species/rookeries,
- 0 Over 3.0 miles from rare species/rookeries,

CRITERION: Proximity to Residential Areas.

- 3 Land within 2 miles of a residential area,
- 0 Land outside 2 miles of a residential area,

CRITERION: Links to Existing Trails.

- 3 Within 0.25 mile of a potential trail linkage,
- 2 From 0.25 to 1.0 mile of a potential trail linkage,
- 1 From 1.0 to 3.0 miles of a potential trail linkage,
- 0 Over 3.0 miles from a potential trail linkage,

CRITERION: SCORP Needs Analysis.

- 3 Stated Need in SCORP,
- 0 No Stated Need

RV/Trailer Camping.

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CRITERION: Proximity to Open Water.

- 3 Within 0.25 mile of open water,
- 2 From 0.25 to 1.0 mile of open water,
- 1 From 1.0 to 3.0 miles of open water,
- 0 Over 3.0 miles from open water,

CRITERION: Road Accessibility.

- 3 Within 0.25 mile of a road,
- 2 From 0.25 to 0.50 mile of a road,
- 1 From 0.50 to 0.75 mile of a road,
- 0 Over 0.75 mile from a road,

CRITERION: Camping Desirability based on Cover Type.

- 3 Rated as having "High" Desirability,
- 2 Rated as having "Moderate" Desirability,
- 1 Rated as having "Low" Desirability,
- 0 Rated as having "Very Low" Desirability,

CRITERION: SCORP Needs Analysis.

- 3 Stated Need in SCORP,
- 0 No Stated Need,

CRITERION: Proximity to Wildlife Areas.

- 3 Within 1.0 mile of a WMA, WR, NP, or Other,
- 2 From 1.0 to 2.0 miles of a WMA, WR, NP, or Other,
- 1 From 2.0 to 3.0 miles of a WMA, WR, NP, or Other,
- 0 Over 3.0 miles from a WMA, WR, NP, or Other,

CRITERION: Blend of Natural Areas.

- 3 High variety of natural cover types,
- 2 Moderate variety of natural cover types,
- 1 Low variety of natural cover types,
- 0 Extremely low variety of natural cover types,

CRITERION: Links to Existing Trails.

- 3 Within 0.25 mile of a potential trail linkage,
- 2 From 0.25 to 1.0 mile of a potential trail linkage,
- 1 From 1.0 to 3.0 miles of a potential trail linkage,
- 0 Over 3.0 miles from a potential trail linkage,

Sightseeing.

CRITERION: Blend of Natural Areas.

- 3 High variety of natural cover types,
- 2 Moderate variety of natural cover types,
- 1 Low variety of natural cover types,
- 0 Extremely low variety of natural cover types,

CRITERION: Road Accessibility.

- 3 Within 0.25 mile of a road,
- 2 From 0.25 to 0.50 mile of a road,
- 1 From 0.50 to 0.75 mile of a road,
- 0 Over 0.75 mile from a road,

CRITERION: Scenic Quality by Cover Type.

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3 Rated as having "High" Scenic Quality,
2 Rated as having "Moderate" Scenic Quality,
1 Rated as having "Low" Scenic Quality,
0 Rated as having "Very Low" Scenic Quality,
CRITERION: Proximity to Residential Areas.

3 Land within 2 miles of a residential area,
0 Land outside 2 miles of a residential area,
CRITERION: Links to Existing Trails.
3 Within 0.25 mile of a potential trail linkage,
2 From 0.25 to 1.0 mile of a potential trail linkage,
1 From 1.0 to 3.0 miles of a potential trail linkage,
0 Over 3.0 miles from a potential trail linkage,
CRITERION: SCORP Needs Analysis.
No SCORP Data Available for Sightseeing,

Tent Camping.

CRITERION: Proximity to Open Water.
3 Within 0.25 mile of open water,
2 From 0.25 to 1.0 mile of open water,
1 From 1.0 to 3.0 miles of open water,
0 Over 3.0 miles from open water,
CRITERION: Road Accessibility.
3 Within 0.25 mile of a road,
2 From 0.25 to 0.50 mile of a road,
1 From 0.50 to 0.75 mile of a road,
0 Over 0.75 mile from a road,
CRITERION: Camping Desirability based on Cover Type.
3 Rated as having "High" Desirability,
2 Rated as having "Moderate" Desirability,
1 Rated as having "Low" Desirability,
0 Rated as having "Very Low" Desirability,
CRITERION: SCORP Needs Analysis.
3 Stated Need in SCORP,
0 No Stated Need,
CRITERION: Blend of Natural Areas.
3 High variety of natural cover types,
2 Moderate variety of natural cover types,
1 Low variety of natural cover types,
0 Extremely low variety of natural cover types,
CRITERION: Proximity to Wildlife Areas.
3 Within 1.0 mile of a WMA, WR, NP, or Other,
2 From 1.0 to 2.0 miles of a WMA, WR, NP, or Other,
1 From 2.0 to 3.0 miles of a WMA, WR, NP, or Other,
0 Over 3.0 miles from a WMA, WR, NP, or Other 18,

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Dataset Name Data Provider Data Type Description

- boatramps G.E.C., Inc. shapefile Geocoded boat ramps within the study area. Information taken from many sources. Most likely incomplete.
- shpo_bridges Bureau of Archaeological Research/FGDL shapefile Historic bridge locations and attributes.
- shpo_structures Bureau of Archaeological Research/FGDL shapefile Historic structure locations and attributes.
- shpo_cemeteries Bureau of Archaeological Research/FGDL shapefile Historic cemetery locations and attributes.
- fl_veg03 FWC grid Vegetation and land cover classified from satellite imagery. Updated 2003.
- public_levee_roads SFWMD shapefile Levee roads.
- SFWMD_ROAD_BASE SFWMD SDE feature class Comprehensive streets data used by SFWMD.
- FDEP_FLORIDA_TRAILS FDEP shapefile Includes all types of existing recreational trails in the state.
- FFWCC_FADIS_ROOKERY FWC/SFWMD SDE feature class Describes the locations of wading bird nesting sites.
- FNAI_ENDANGERED_SPECIES FNAI shapefile Element occurrence of endangered or rare plant or animal.
- FNAI_MANAGED_AREAS FNAI/SFWMD SDE feature class Statewide coverage of public managed lands.
- LSCND_LAND_COVER_AREA SFWMD SDE feature class 1999 vector land use/land cover for SFWMD.
- IMFDC_STRUCTURE_SITE SFWMD SDE feature class Water control structure database for internal District projects.
- PublicHuntingAreas FWC shapefile Permitted public hunting areas.

CRITERION: Links to Existing Trails.

- 3 Within 0.25 mile of a potential trail linkage,
- 2 From 0.25 to 1.0 mile of a potential trail linkage,
- 1 From 1.0 to 3.0 miles of a potential trail linkage,
- 0 Over 3.0 miles from a potential trail linkage.

One of the parameters included in the calculations is a needs assessment derived from SCORP data. Regional-level SCORP need and demand data was applied to each recreation type except for sightseeing, for which there is no SCORP measure. The level of influence (weighting) of the SCORP needs analyses is 5 to 10 percent for all of the recreation types in which it has been part of the calculation. This is important for two reasons. First, it probably should not be weighted too highly, because the need factor may override the other criteria and show an area to be suitable when it is not. Second, the weighting for SCORP need is significant enough to favor one area over another if one has need and the other does not, all else being equal.