

# Jeffrey B. Rupe

## GIS Manager/Director



### Expertise

#### GIS

- Spatial Analysis
- Raster Analysis
- Geostatistics

#### GPS

### Education

B.A., History, University of South Florida, 2000

B.A., Geography (Environmental), University of South Florida, 2001

Master Certificate GIS, University of South Florida, in progress

### Certifications

FWC Authorized Gopher Tortoise Agent, GTA-15-00021

Jeff has a substantial background in Geographic Information Systems (GIS) and Global Positioning System (GPS) and has participated in a wide variety of cartographic map production and spatial analysis. Jeff has extensive experience in aerial wetland determinations, raster analysis using ET Geowizards, Spatial Analyst, 3D Analyst, statistical analysis, geodatabase creation and management, metadata creation, database creation and management, mobile GIS, as well as verification of GPS data and differential correction. In addition to ArcInfo and its extensions, Jeff uses AutoCAD for Computer-Aided Design (CAD) to GIS conversions, as well as Trimble Pathfinder Office for GPS data correction and analysis. Jeff uses Engineer AutoCAD drawings as well as project specific Light Detection and Ranging (LiDAR) data to make environmental constraint maps. Jeff incorporates his field experience, including GPS data collection for wetland determinations, listed species surveys, including gopher tortoise surveys, to make the end GIS product a more meaningful and useful resource. Jeff is also a Florida Fish and Wildlife Conservation Commission (FWC) Authorized Gopher Tortoise Agent.

### GEOGRAPHIC INFORMATION SYSTEMS (GIS)

#### GIS Project Manager -Avian Protection Plan, Statewide

Created a predictive risk model for transmission corridors throughout the state of Florida. Used Model Builder to allow for an effective, repeatable process. Incorporated a large and diverse variety of data to be input into the model. Each variable was assigned a weighting system that resulted in an accurate forecast of the present and future risk to avian species in the Florida service territory for a large electric utility company. This model was used to evaluate which lines had the most risk, and decide which lines needed to be fitted or replaced with avian protection measures. Presented risk model results to client and agencies.

#### GIS Project Manager – Southwest Florida Water Management District (SWFWMD) Florida Natural Area Inventory FNAI Landcover Mapping

Led effort to map existing and historic land cover, exotic plant and animal species, as well as rare plant and animal species on 17,000 acres of SWFWMD lands. Using current and historic data and imagery to classify habitat types based off FNAI classifications. Created LiDAR surfaces to better analyze habitat breaks and refine land uses. Coordinated field work to specific areas of interest to better determine habitat boundaries, and to investigate plant and animal species of interest. Created database schema for GPS and GIS to seamlessly match SWFWMD existing database.

#### GIS Project Manager – Substation Projects throughout Florida

Created maps for environmental survey reports, Florida Department of Environmental Protection (FDEP) Environmental Resource Permit (ERP) and U.S. Army Corps of Engineers (USACE) wetland permit applications, FWC gopher tortoise permit applications and U.S. Fish and Wildlife Service (FWS) listed species permit applications for over 25 substation sites throughout Florida. Maps included Florida Natural Areas Inventory (FNAI) observations, FEMA 100-year floodplain, gopher tortoise burrow survey, wetland limits, land use, soils, quad, location, state and federal protected waters, state and federal protected lands, and avian protection. Utilized field collected data to create environmental survey maps to identify constraints. Provided data to clients in electronic (GIS Shapefiles, AutoCAD, Google Earth) formats.

#### GIS Project Manager – Transmission Line Projects throughout Florida

Created maps for environmental survey reports, FDEP ERP and USACE wetland permit applications, FWC gopher tortoise permit applications and FWS listed species permit applications for 100 transmission line projects throughout Florida. Maps included FNAI observations, FEMA 100-year floodplain, gopher tortoise burrow survey, wetland limits, land use, soils, quad, location, state and federal protected waters, state and federal protected lands, and avian protection. Utilized field collected data to create environmental survey maps to identify constraints. Used Engineer AutoCAD drawings as well as project specific LiDAR data to create Stormwater Pollution Prevention Plan (SWPPP) maps. Provided data to clients in electronic (GIS Shapefiles, AutoCAD, Google Earth) format.

#### GIS Project Manager – St George Island Living Shoreline, Franklin County, Florida

Designed a Living Shoreline Mitigation Area In Apalachicola Bay. Apalachicola Bay is a diverse and productive estuarine System. The bay is part of the Nation Estuarine Research Preserve and renowned for its oysters. Used ArcGIS to design oyster reefs and planting zones, as well as calculate the amount of materials needed. Calculated proper oyster reef placement in relation to the Mean High Water Line (MHWL), which is critical for reef survival as well as the success of the landward planting zones.

**GIS Project Manager – Rapanos Determination, Hardee County, Florida**

Created Digital Elevation Model (DEM) based off LiDAR contours to determine connectivity of wetland systems. Used 3D Analyst in ArcGIS to create a Triangulated Irregular Network (TIN) to analyze elevations and their relations to approved wetland determinations. Created Cross-sections through each wetland, using the base LiDAR data to better show isolation, or connectivity of wetlands in question.

**GIS Project Manager – Landfill Alternatives Analysis, Brevard County, Florida**

Created an alternatives analysis study for Brevard County. Used spatial analysis to combine, overlay, and weight layers by rank and importance to produce data showing those areas which were rated as most likely to be used for landfill purposes.

**GIS Project Manager– Limerock Mine, Levy County, Florida**

Responsible for all spatial aspects of mitigation planning and impact calculations. Worked with project engineers using multiple mine plans to reduce impacts and calculate amount and types of mitigation needed. Used LiDAR data to create a TIN to better analyze areas of upland islands, and depressions to aid ecologists in their field endeavors.

**Senior GIS Analyst – DRC Marine Services, Mobile, Alabama**

Conducted bathymetric DEM generation, index grid creation; GPS coordinate reports, and spatial statistics analysis on a 278-square-mile area in Mississippi Sound, which was devastated by Hurricane Katrina. The project area was divided into one-square-mile cells, and a unique identifier was generated for each cell. These grid cells were then overlaid onto a DEM generated from the National Oceanic and Atmospheric Administration (NOAA). Zonal statistics were used to determine the minimum, maximum, and mean depth. The grid cells were then symbolized into two depth categories and overlaid onto NOAA nautical charts. The client then used these data to decide the size of boats to deploy to specific waterways, which allowed for maximum and effective use of their equipment.

**Senior GIS Analyst– Mid-Atlantic Power Pathway (MAPP) Transmission Line, Maryland**

GIS Analyst for routing and siting a corridor for the Mid-Atlantic Power Pathway (MAPP) Project, a 500 kilovolt (kV) transmission line (landside Southern Maryland) and 640-kV DC (waterside & Eastern Shore), proposed by Pepco Holdings, Inc. (PHI) to improve reliability and increase energy imports into the Mid-Atlantic Region. Mr. Rupe used the project specific LiDAR database to determine slopes along stream banks and determine the Stream Management Zones for the project. Other GIS analyses including but not limited to; environmental baseline data collection, alternatives analyses and GIS support for all environmental approvals for routing and siting a corridor across the Chesapeake Bay (submarine) and the lower Eastern Shore of Maryland. This project will represent the first utility crossing of Chesapeake Bay, and key environmental concerns include maintenance of water quality and potential impacts to native oyster beds. After crossing the Bay, the project will be routed through Dorchester County, Maryland, much of which is designated for preservation at the federal and state levels.

**GLOBAL POSITIONING SYSTEM (GPS)**

**GPS Project Manager – Limerock Mine, Levy County, Florida**

Responsible for all GPS activities associated with wetland delineation. He developed the methodology and performed differential correction to ensure all GPS data met the project specific standard set by the FDEP. Other responsibilities included GPS mission planning, GPS field testing, data integration into GIS format, deriving accurate wetland polygons from GPS point data, and assuring spatially correct data so that further GIS analysis was possible.

**GPS Project Manager - Mean High Water Determination, Rattlesnake Key, Manatee County, Florida**

Participated in the installation and was responsible for the data download of three tidal gauges around the island to determine tidal fluctuations. Performed GPS data collection of Mean High Water, as well as differential correction and GIS integration. The final product included an accurate sub-meter Mean High Water Line of the entire island.

**GPS Project Manager– Mid-Atlantic Power Pathway (MAPP) Transmission Line, Maryland**

Coordinated DGPS field data capture effort for the Mid-Atlantic Power Pathway (MAPP) Project, a 500 kilovolt (kV) transmission line (landside Southern Maryland) and 640-kV DC (waterside & Eastern Shore), proposed by Pepco Holdings, Inc. (PHI) to improve reliability and increase energy imports into the Mid-Atlantic Region. Responsible for DGPS coordination including mission planning, Data QA/QC, Differential Correction, technical support, data accuracy, and submitting final deliverables.