

Babcock Ranch Preserve Hydrological Restoration Assessment in Charlotte and Lee Counties for Florida Division of Forestry

Located in the southeastern corner of Charlotte County, the Babcock Ranch Preserve (BRP) covers approximately 73,239 acres of land. Historically, the preserve has been used for timber production, row crop agriculture, the production of beef cattle, and eco-tourism activities. Hydrologic systems within BRP have been altered over the years as numerous ditch systems and surface water control structures were put in place to facilitate agricultural activities. The largest surface water flow-way on the BRP is Telegraph Swamp that flows into the Caloosahatchee River via Telegraph Creek. The objective of this project was to complete a hydrological assessment and provide recommendations for the management, restoration, and continued monitoring of the onsite surface water systems in accordance with the BRP Management Plan.

Subsequent to the data collection efforts, a field verification was performed and included digital photographs of significant wetlands, water bodies, flow-way features, drainage ditches, and control structures. ECT also assessed how surface waters/wetlands interact (or formerly interacted) with onsite ecosystems and off-site properties, with emphasis on current and future agricultural management operations and the affects to these operations for management or harvest operations. In conjunction with these efforts, the GPS coordinates of significant points and linear features, along with descriptions and quantifications of the extent and magnitude of the hydrologic alterations were determined. The existing and pre-development vegetation cover and land use was mapped using historic and empirical data, and the existing upland and wetland habitats were assessed in terms of plant species composition and functional attributes. Surveys were performed to evaluate the extent of 33 previously identified invasive plant species.

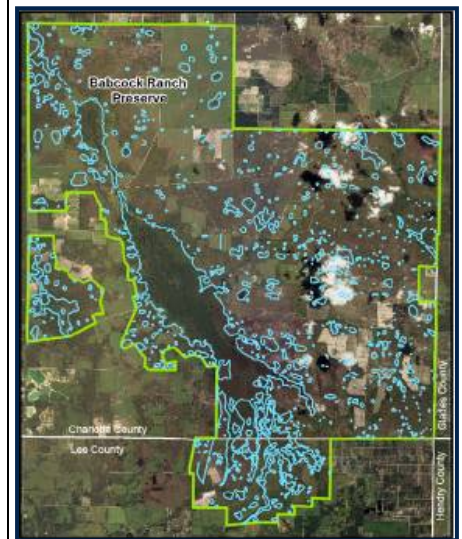
ECT then performed a planning-level GIS analysis and narrative of the changes in the wetland extent, condition, surface water quality, and type of wetland plant communities resulting from the construction of drainage ditches, the filling of wetland areas, channelization, and the installation of control structures along the surface water flow-ways affecting the hydro period and/or hydrology, and resulting artificial impoundments.

ECT subsequently prepared a final report which summarized the data collection efforts and analysis conducted, provided recommendations for the future implementation and planning of ecological and hydrological restoration and management efforts, including (a) removal, addition, or modification of existing hydrologic structures and site management of the surface water systems with specific applicability to agricultural operations; (b) restoration of altered wetlands to increase ecological quality and return natural species composition and diversity (included recommendations for an invasive plant species eradication program); (c) considerations related to upstream and downstream (offsite) ramifications of hydrologic restoration/alterations; (d) prepared technical specifications and costs estimates associated with creating a surface water monitoring plan that will allow for the collection of surface water data in support of restoring and maintaining historic flows, water quality, and hydroperiods; and (e) prepared a listing of potential sources or mechanisms to fund surface water restoration or improvements.

Client: Florida Department of Agriculture & Consumer Services—
Division of Forestry

Start Date: April 2009

End Date: August 2009



Key Highlights

- Data collection and interpretation
- Hydrologic assessment
- Field GPS mapping and delineation
- Ecological analysis
- ArcGIS databases
- Wetland restoration
- Multi-objective uses
- Long-term monitoring plan