



Western Big Cypress National Preserve Vegetation Map

Natural Resource Report NPS/SFCN/NRR—2020/2170



ON THE COVER

An aerial view of pines and cypress communities within Big Cypress National Preserve.

Photograph by: K. R. T. Whelan

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Executive Summary

This vegetation mapping project is a collaborative effort between Avineon, Inc., the South Florida/Caribbean Network (SFCN) of the National Park Service, and the Institute for Regional Conservation (IRC). Avineon, Inc. contracted the image acquisition and photo interpreted the imagery. The IRC collected the accuracy assessment field data. The South Florida/Caribbean Network provided direction, training, point field data, intra-product quality assurance, final accuracy assessment of completed draft map, and final map production. The original project area encompasses a total mapping area of 124,607 hectares (ha; 307,910 acres [ac]) and includes all of the Florida Panther National Wildlife Refuge, the western portion of Big Cypress National Preserve, and the extreme northwestern portion of Everglades National Park on the southeastern shore of the Gulf of Mexico. This report concentrates on the western region of Big Cypress National Preserve. This region is known for its high plant and animal diversity and is home to several threatened and endangered species such as the Florida Panther, the Red-Cockaded Woodpecker, and the Ghost Orchid.

Map annotation of the 88,735 hectares (219,269 ac) that comprise the western region of Big Cypress National Preserve was comprised of 354,940, one quarter-hectare (.62-acre) grid cells. The grid cells adhered to a majority rule; the vegetation community which occupied the majority of the grid cell was the classification given to the whole grid cell. The vegetation classification of each grid cell was accomplished by superimposing a digital quarter hectare, 50 × 50-meter (164 × 164-feet [ft]) grid cell matrix over film-based color-infrared aerial photography on an analytical stereoplotter and then determining the dominant community present. For each grid cell the dominant community type observed was annotated in ArcGIS© (ESRI ArcGIS program) using the six-level hierarchical Vegetation Classification System for South Florida Natural Areas (Rutchev et al. 2006). Polygons (grids) were classified to the highest feasible level of resolution. There were 169 unique classes used in the production of this map and the map was made in UTM, NAD 83, Zone 17N coordinates. The most frequent classes being freshwater prairies, cypress strands, and cypress-hardwood forest.

An accuracy assessment of the draft map was conducted by the South Florida/Caribbean Network. We projected 615 accuracy assessment (AA) points on to the Avineon, Inc. draft vegetation map of the western Big Cypress Regional Vegetation map. The overall map accuracy was 85% (521 points of the 615 points) with a standard error of 1.5% with a 90% lower confidence interval of 82% and meets the National Park Services map accuracy requirement. The draft Big Cypress National Preserve vegetation map was updated to include corrections to polygons based on findings from the 615 accuracy assessment locations. Additionally, the map was updated to show the dominant species within the hydrological designation (level 2) vegetation class at a more detailed level of vegetation classification. The final product for this project is this updated map and the map is referred to as the western Big Cypress National Preserve vegetation map.

The western Big Cypress National Preserve vegetation map provides a spatial inventory of the plant communities within the preserve's western region with a level of accuracy suitable for planning,

implementing, and quantifying management decisions and restoration efforts for the next several decades.

Acknowledgments

We wish to acknowledge the National Park Service (NPS) Vegetation Mapping Inventory Program for funding this important project. We would like to acknowledge Avineon, Inc. for initial draft map production and The Institute for Regional Conservation for data collect for the accuracy assessment field data. We thank the NPS staff at Big Cypress National Preserve for their logistical support in providing much needed transportation and equipment essential to complete this project. Special thanks go out to Jim Burch, Bill Evans, Mike O’Leary, for assisting in the collection of field data and of helicopter support. We are especially grateful to Pablo L. Ruiz for review and support, Mario Londono for GIS assistance and Judd Patterson for data management. Lastly, we would like to thank everyone who assisted in this project for their time and expertise.

Introduction

Big Cypress National Preserve Vegetation Mapping Project Overview

The purpose of this project was to create a spatially and thematically accurate map of the terrestrial plant communities of the western region of Big Cypress National Preserve (BICY or Big Cypress NP; Figure 1). The National Park Service (NPS) Vegetation Mapping Inventory (VMI) Program funded the project. The South Florida/Caribbean Inventory and Monitoring Network (SFCN) of the National Park Service conducted the BICY vegetation mapping project as a joint effort with Avineon, Inc. The draft map was created by Tim Delaney, Keith Patterson, Ari Georgiou, Dan Bubser, and Jon Ruebeling of Avineon through photointerpretation of 2006 aerial imagery (Contract C2117051992). The network conducted the vegetation classification accuracy assessment following NPS–VMI program accuracy standards. The Institute for Regional Conservation (IRC) collected the accuracy assessment field data for each randomly selected grid cell with independent classification (double blind) by two professional botanists (Keith Bradley and Steven Woodmansee). In a joint effort, the South Florida/Caribbean Network and Avineon created a final map product that updated polygon annotations based on accuracy assessment field data and some updating of vegetation types.

The western region of Big Cypress National Preserve vegetation map comprises 88,735 hectares (219,269 ac) and was based on the photo-interpretation (analytical stereo plotter) of 1:24,000 film-based color infrared aerial photographs acquired in February of 2006 and annotated using the Vegetation Classification System for South Florida Natural Areas (Rutchev et al. 2006). This vegetation mapping effort used a grid-based mapping operation; as opposed to the traditional vector mapping approach which delineates observable vegetation boundaries using a set grain size (sometimes referred to as a minimum mapping unit (MMU), however, the authors find the reference to MMU misleading). In grid-based mapping, the entire area of interest is gridded, and annotation was based on the dominant vegetation community within the grid following a majority rule. Map annotation of the 354,940 one quarter-hectare (.62 ac; 50 × 50-meter [164 × 164-ft]), grid cells that make up the map adhered to a majority rule; the vegetation community which occupied the majority of the grid cell was the classification given to the whole grid cell.

The western region of Big Cypress National Preserve vegetation map project was part of a larger mapping effort in which a 124,607-hectare (307,910-ac) area was mapped by Avineon, Inc. This larger area incorporated part of the Florida Panther National Wildlife Refuge, western region of Big Cypress National Preserve and of NW Everglades National Park. This larger project was comprised of four sections (Figure 1):

- Section 1: the Florida Panther National Wildlife Refuge;
- Section 2: the northern half of western region of Big Cypress National Preserve;
- Section 3: the southern portion of the western region of Big Cypress National Preserve; and
- Section 4: the extreme northwest region of the Everglades National Park and parts of Big Cypress Preserve.

NPS Baseline Vegetation Mapping

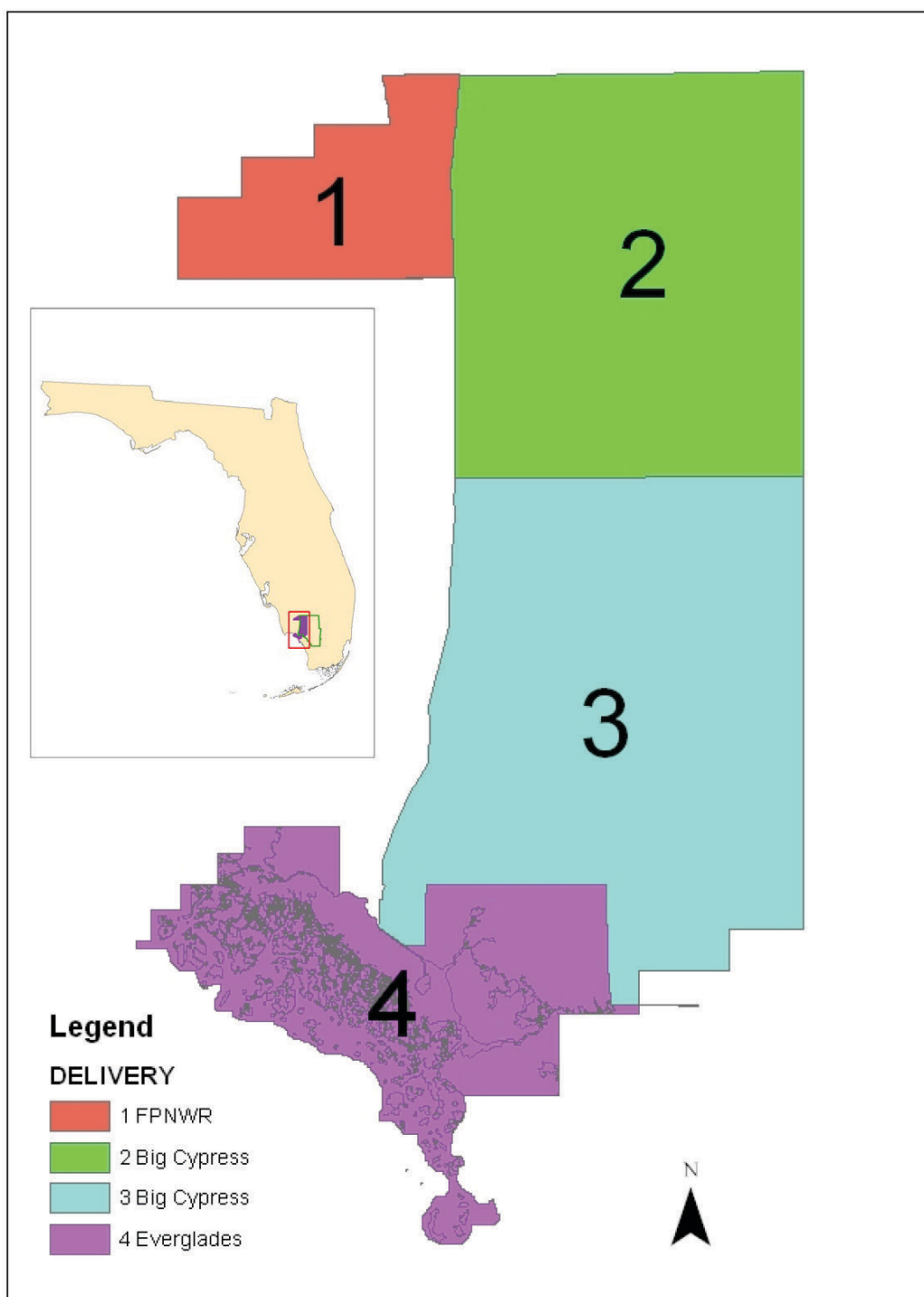


Figure 1. Four sections which were originally mapped as part of the bigger project. This report concentrates on Region 2 and 3 only.

The portions of the South Florida landscape included in this map were chosen because they are outside of the Everglades REstoration COordination and VERification (RECOVER) footprint, and not included in the RECOVER map product. The remaining region within the RECOVER landscape (the unmapped portion of BICY, as well as the Greater Everglades), is being mapped for RECOVER by the NPS/SFCN in collaboration with United States Army Corps of Engineers (USACE). Portions of this region have been completed (see Ruiz et al. 2017, Ruiz et al. 2018, Ruiz et al. 2019 and Ruiz et al. 2020). One region remains to be completed.

As part of the larger mapping project there was a concurrent accuracy assessment for each section. Each of the four sections was individually assessed for overall map classification accuracy. If the section did not meet the standard of 80% accuracy with 90% confidence, it was returned to the contractor for improvements. The accuracy assessment report affiliated with this report is only for the western region of Big Cypress National Preserve which included parts from all four sections but does not include regions outside the preserve.

Big Cypress National Preserve (BICY) was officially established in 1974 to conserve and protect natural resources, ecological functionality, native tribe land use, and recreational land use. Its designation as a preserve was the culmination of advocacy from diverse groups including hunters, conservationists, native tribes, and regional water managers who agreed that protection was needed. The preserve was established to protect the biodiversity within it, as well as protecting the upstream watershed which provides water to the downstream estuaries of Everglades National Park's Gulf Coast. Big Cypress National Preserve is connected to the Everglades Water Conservation Areas (WCA) to the east, the Gulf of Mexico to the west, and Everglades National Park to the south. It is also connected to various other natural areas. Much of the information presented in this section and its historical land use is taken from Duever (1986).

Historical Land Use

Development and use of what is now Big Cypress NP and the adjacent lands was extensive, and the environmental impacts of its use are what ultimately led to the establishment of its preserve status. Recreational, commercial and industrial practices varied widely and became a way of life for the South Florida region in the early 1900s. The increase in types and frequency of the land use, as well as the resulting structural development, led conservationists and land users to the mutual agreement that the ecosystem's health needed to be managed for preservation and longevity.

The primary recreational activity was hunting, especially in the dry interior pinelands. Hunters sought deer, turkey, hogs, and numerous bird species. Hunting as an activity spiked from the 1950s to the 1960s in conjunction with increased off-road vehicle (ORV) use and trail access. Off-road vehicles were initially used for industrial purposes such as logging and agriculture in the early 1920s. Increased recreational use, primarily for hunting, began in the 1940s. Off-road vehicle trails were created from swamp buggies and all-terrain vehicles (ATVs). The establishment of trails and access to remote areas with ORVs paved the way for other recreational activities such as camping, fishing, and horseback riding.

In the early 1900s, cow rearing was introduced to what is today Big Cypress NP and the adjacent lands. For the most part, cattle farms were small in scale but resulted in significant fencing of the area, burning, overgrazing, and nutrient enrichment. Agricultural land use increased after the construction of Tamiami Road and State Route 29 in the late 1920s. Farming of produce such as tomatoes, watermelon, cucumber and sugarcane was extensive, taking place mostly on prairie lands; but some land was drained and cleared. Farming stopped completely by the early 1960s, however, the effects can still be observed. There were several bee keeping operations that took advantage of vegetative species within the preserve to produce honey.

Industrial land use encompassed oil and gas extraction, limestone quarrying, and logging. Oil and gas extraction began around 1939 in the Pinecrest region of Big Cypress NP. The first productive oil well was installed in 1943 on the Sunniland field. It was a short-lived extraction (production stopped in 1946); however, this was the starting point for oil field development (Duever 1986). Limerock quarrying was also an extensive operation with numerous quarries scattered throughout the area. The limestone has been used as fill for almost all buildings and roadways within the preserve, as well as outside for the surrounding area. The logging of primarily slash pine (*Pinus elliottii* var. *densa*) and cypress (*Taxodium distichum*) began in the early 1900s, with peak lumbering activity occurring from the 1940s through the 1950s. Almost all the large, mature trees were logged during this time.

The construction of roads and infrastructure throughout the area was a simultaneous cause and direct result of all the previously listed land uses. After 13 years of construction, the Tamiami Trail (U.S. 41) opened in 1928. In 1967, Alligator Alley was completed. Both these roads were built using fill from the adjacent marsh. This led to the creation of canals that parallel both of these roads and diverted much of the surface water out through an intricate system of canals designed for flood control and drainage. Historically, surface water conveyance through the Big Cypress region was a slow moving surface water sheet flowing through the system.

These roadways allowed for more human traffic and access to remote areas, leading to higher use and an increase in arson fires, litter, and poaching. Bridges, hunting camps, billboards, buildings, and even airports were all built leading to a rich commercial environment. Restaurants, motels, and roadside attractions, such as airboat tours, drew more and more people to the area. By the late 1960s, it was clear that without intervention and preservation, the natural resources of the area were in danger of being depleted beyond recovery. This concern, and public support, led to the creation of the first National Preserve in the National Park Service system.

Previous Vegetation Mapping Efforts

Vegetation mapping of the South Florida interior vegetation types was begun by Lieutenant J. C. Ives during the Second Seminole War (Ives 1856). J. W. Harshberger created a vegetation map of Big Cypress National Preserve and the adjacent natural areas in 1914 (Harshberger 1914). In 1943, Davis produced a detailed vegetation map of the area that linked vegetation community to soil type creating a map from aerial photography (Davis 1943). The Davis map delineated major community boundaries (Davis 1943). In 1947, D. G. Copeland mapped all of Collier County and included trails, historic Indian camps, and basic vegetation complexes are represented (Copeland 1947; Goggin 1948). In 1973, B. F. McPherson created a vegetation map from aerial images acquired in 1969 and

referenced Davis' communities to produce a high-quality vegetation map for the area (McPherson 1973; Duever 1986). The University of Georgia produced a vegetation map of the Greater Everglades region in 1999, which included all of Big Cypress National Preserve. This product primarily interpreted the 1994–95 National Aerial Photography Program (NAPP) using color-infrared (CIR) 1:40,000 scale photography (Welch et al. 1999). This map was found to have classification issues and deemed not to be reliable (Bradley and Woodmansee 2008).

Monitoring and mapping the vegetation communities are clear ways in which scientists and managers can measure the impact of natural and anthropogenic drivers, and the cascading influence they have on the health and function of the ecosystem. In 2005, because of the lack of a current, accurate, and useful vegetation map of Big Cypress NP, the South Florida/Caribbean Network commissioned the development of a spatially and thematically accurate vegetation map of the preserve with funding from the NPS Vegetation Mapping Inventory Program.

Vegetation Communities

The plant communities within the BICY region consist of a mosaic of hardwood hammocks, pine woodlands, swamp forests including cypress domes, strand, and scrub communities, freshwater marshes and prairies, coastal marshes, and mangroves forests. These communities are positioned along topographic and hydrologic gradients. Hydroperiod and water depth and water quality (including nutrients and salinity), as well as natural perturbations like fires and windstorms, are the primary drivers responsible for community structure and species composition. The BICY region is home to many rare, threatened, and endangered plant species. The most abundant habitat types found are cypress domes and strands, freshwater prairies, and pine woodlands. These communities contain a high level of both plant and animal biodiversity, much of which is unique and not observed in other natural areas. Examples are the Florida panther (*Felis concolor coryi*) and the ghost orchid (*Polyrrhiza Lindenni*). Much of the information presented in this section is taken from Duever (1986).

Hardwood Hammocks (Tropical and Temperate)

Hardwood hammock forests are considered the climax community for South Florida and are found throughout the region. They have a characteristic dome-shaped closed canopy that may reach 20 meters (65 ft) in height. These forests are comprised of both tropical and temperate plant species and are typically associated with elevated bedrock outcrops within the landscape. Hammock soils, which are highly variable in organic matter content and fine sands, are generally well drained but may remain moist throughout the year. Average annual hydroperiod typically ranges between 10 and 45 days (Duever 1986).

Hammocks within the region may be characterized as either tropical hardwood hammocks or temperate hammocks. The species composition of tropical hardwood hammocks consists of a mix species assemblage of West Indian evergreen and deciduous trees such as wild tamarind (*Lysiloma bahamensis*), gumbo limbo (*Bursera simaruba*), West Indian mahogany (*Swietenia mahagoni*), pigeon plum (*Coccoloba diversifolia*), false mastic (*Sideroxylon foetidissimum*), cocoplum (*Chrysobalanus icaco*), satinleaf (*Chrysophyllum oliviforme*), and strangler fig (*Ficus aurea*). Temperate species such as live oak (*Quercus virginiana*), sugarberry (*Celtis laevigata*), and cabbage

palm (*Sabal palmetto*) are often found cohabiting within this community. The interior of these hammocks is generally well protected against temperature extremes, particularly during the winter months. Temperate hardwood hammocks, on the other hand, are typically less diverse than tropical hardwood hammocks. Temperate hardwood hammocks species composition consists predominantly of a mix of temperate trees such as live oak (*Q. virginiana*), laurel oak (*Q. laurifolia*), water oak (*Q. nigra*), sugarberry (*C. laevigata*), red maple (*Acer rubrum*), cabbage palm (*S. palmetto*), red mulberry (*Morus rubra*), and common persimmon (*Diospyros virginiana*).

Pine Woodlands (Lowlands and Flatwoods)

Pine woodlands, which occur on well drained sandy or limestone rock substrates, are typified by monospecific stands of South Florida slash pine, *Pinus elliottii* var. *densa*, underlain by a species rich understory of shrubs, palms, and herbs (Snyder 1986; Snyder et al. 1990; Wade et al. 1980). The hydroperiod of the pine woodlands varies from being relatively dry to being inundated for several weeks, which leads to the development of mesic and hydric pine communities. The vegetation composition and structure of these woodlands is maintained by fire; as a result, the state of succession is dependent upon fire frequency. If fire is suppressed, pine woodlands eventually give way to palms and hardwood shrubs that will ultimately lead to the establishment of a hammock community (Duever 1986). Too frequent fire will suppress pine and woody shrubs regeneration which, over time, lead to a palm, palmetto savanna, or prairie community.

Pine woodlands are characterized as either pine lowlands or pine flatwoods based on their elevation, hydroperiod, and understory species composition. Pine lowlands are found at lower elevations and have extended hydroperiods. This community is typified by an open understory dominated by a species rich mix of grasses and sedges such as muhly grass (*Muhlenbergia capillaris*), panicgrass (*Panicum* spp.), bluestem (*Andropogon* spp.), paspalum (*Paspalum* spp.) little bluestem (*Schizachyrium scoparium*), flatsedge (*Cyperus* spp.), and beaksedge (*Rhynchospora* spp.). In contrast, pine flatwoods are typically found on higher elevations sites with well drained deep sandy soils. The pine flatwoods understory graminoid species composition include broomgrass (*Andropogon longiberbis*), gamagrass (*Tripsacum* spp.), threeawn (*Aristida* spp.), lovegrass (*Eragrostis* spp.), witchgrass (*Dichanthelium* spp.), and several species of panicgrass (*Panicum* spp.). Because of its higher elevation and shorter hydroperiods, pine flatwoods support a higher diversity of woody shrubs.

Swamp Forest

Cypress Forest (Domes and Strands)

Cypress have been classified as both two separate species of cypress trees (bald cypress [*Taxodium distichum*] and pond cypress [*Taxodium ascendens*]) and two varieties of a single species of cypress trees (bald cypress [*Taxodium distichum* var. *distichum*] and pond cypress [*Taxodium distichum* var. *imbricarium*]) (Nuttall) Croom (Watson 1985). For the purpose of this report we consider all cypress to fall under *Taxodium distichum* with no indication of varietal status. We are aware of the large variation in leaf morphology and growth form from large trees to stunted individuals.

Cypress forests are the most dominant woody vegetation communities present within Big Cypress NP. Cypress trees thrive in long hydroperiod areas that have standing water for most of the year. Cypress forests can develop in the form of either a dome or a strand community.

The cypress dome is typically a circular grouping of cypress trees surrounding a pond opening at the center; giving the appearance of a donut on the landscape. A cypress strand is a linear community typically originated along a low elevation depression (slough). The cypress may be found in shallow depressions with little or no organic soil or in deeper depressions with large amounts of organic peat soil. The dome and strand community are typically composed of a monospecific overstory of cypress with an understory that may include buttonbush (*Cephalanthus occidentalis*), cocoplum (*Chrysobalanus icaco*), willow (*Salix caroliniana*), bladderwort (*Utricularia* spp.), spikerush (*Eleocharis cellulosa*), and swamp fern (*Blechnum serrulatum*). There are also many epiphytes including various bromeliads and orchids.

Cypress Scrub

Cypress scrub trees are typically referred to as pond cypress and here we will identify pond cypress as (*Taxodium distichum* var. *imbricarium* (Nuttall) Croom (Watson 1985)) but we acknowledge there is debate about the taxonomic clarification of the species name. But for the purpose of this report we consider all cypress to fall under *Taxodium distichum*. We are aware of the large variation in leaf morphology and growth form from large trees to stunted individuals.

Cypress scrub community contain the same trees that compose the cypress forests; however, they have much lower density, stunted growth (under 5 meters [16 ft] tall) due to the low nutrient habitat and are associated with a sparse graminoid understory. The understory in a cypress scrub is primarily a mixed species assemblage of sedges and grasses. Soils at scrub sites are mostly sand or marl that is approximately 7 to 15 centimeters (2.7 to 5.9 in) deep over bedrock. Hydroperiods average about 250 days with waters reaching approximately 0.3 meter (1 ft).

Freshwater Marshes and Prairies

Marshes and prairies are communities dominated by herbaceous vegetation that varies in composition as you move along a hydrological elevation gradient. Prairies occur on sandy or rocky sites higher in elevation with short hydroperiods and have very little peat accumulation as a result. Prairies are characterized by graminoid communities that include sawgrass (*Cladium jamaicense*), muhly (*Muhlenbergia capillaris* var. *filipes*), little bluestem (*Schizachyrium rhizomatum*), lovevine (*Cassytha filiformis*), maidencane (*Panicum hemitomon*), rosy camphorweed (*Pluchea rosea*), and black sedge (*Schoenus nigricans*). Prairies are typically drier than marshes, have a higher level of graminoid diversity, and are shaped by fire.

Marshes are inundated with water between 225–275 days out of the year, with a maximum 40 centimeters (15.7 inches [in]) depth. This results in a peat soil that can support a variety of vegetation species; however, there are usually only a few species present in a given area. Some of the possible species include sawgrass (*Cladium jamaicense*), spikerush (*Eleocharis cellulosa*), beakrush (*Rhynchospora tracyi*), black rush (*Juncus roemerianus*), alligator-flag (*Thalia geniculata*), cattail (*Typha* spp.), pickerelweed (*Pontederia cordata*), and water lily (*Nymphaea odorata*).

Mangrove Forest

Dominant species in mangrove forest are red mangroves (*Rhizophora mangle*), black mangroves (*Avicennia germinans*), white mangroves (*Laguncularia racemosa*), and buttonwood (*Conocarpus erectus*). Mangrove forests are salt tolerant communities, typically inundated with brackish or saline water for extended periods of time. Community structure has been reported to be determined by the intertidal zone in which the vegetation falls. However, more recent investigations indicate this may not be as prevalent as previously believed: Red mangroves dominant the mid- to low-end of the intertidal zone; black mangroves cover the mid- to high-portion of the intertidal zone; white mangroves occur throughout, but on irregularly flooded higher elevations; and buttonwood is typically found on higher elevations. Mangroves can be found as riverine forests along tidal rivers, as fringing forests along coasts and other waterways, or as basin forests found inland where there are extended hydroperiods (Odum et al. 1982). Soils in mangrove forests are usually highly acidic and anaerobic due to long hydroperiods at low wave energy sites. Peat formation is typical and composed of leaf litter and root matter.

Purpose and layout of this report

This report summarizes the steps involved and the results of the Big Cypress National Preserve vegetation mapping project. This report outlines the various products created and is organized together with its associated files to meet the specifications of the NPS Vegetation Mapping Inventory Program. This project is the combined result of the following two efforts:

- Creation of a draft gridded vector map by Avineon (See Avineon 2009).
- Assessment of classification accuracy of the map product by Kevin R. T. Whelan and Andrea Atkinson of the NPS South Florida/Caribbean Inventory and Monitoring Network using field collected data from the Institute of Regional Conservation (Bradley and Woodmansee 2008).

The details of these two efforts are found in Avineon (2009) and Bradley and Woodmansee (2008) and their results are only briefly summarized here.

Methods

Creation of the map involved the following phases detailed below:

- Imagery Acquisition;
- Selection of Vegetation Classification;
- Draft Vegetation Map Creation by Avineon;
- Accuracy Assessment of Map by South Florida/Caribbean Network using field data collected by Institute of Regional Conservation; and
- Refinement and Finalization of Polygon Classification.

Imagery Acquisition

Imagery acquisition was accomplished utilizing 1:24,000 scale film-based color infrared aerial photography acquired on 1 February 2006. The aerial photography was acquired using a Wild RC30 aerial camera with 153.399 mm lens number 13261-5253 at a flight height of 12,020 feet (3.7 kilometers [km]) above mean terrain.

The original film imagery was later scanned by Avineon to be able to be taken in the field. These images are projected to NAD83 UTM Zone 17N and have a spatial resolution of 0.3048 meters (1 ft).

Aerotriangulation Quality Assurance

Aerotriangulation was accomplished by EarthData International (EarthData) on 204 images. Ground control for the aerial photography was derived using a combination of airborne GPS coordinates acquired during acquisition and photo-identifiable ground control coordinates surveyed in the field after aerial photography acquisition.

The full EarthData report “Aerotriangulation Report (Job # J06-0007) Big Cypress National Preserve (misspell Park), Florida” is contained as a supplement appendix in the Avineon report (Appendix A). This report describes the aerotriangulation process and the results obtained after the bundle adjustment.

The results of aerotriangulation were carefully inspected by Avineon prior to mapping. Adjusted coordinate residuals were inspected to ensure compliance with the project’s accuracy requirements of USGS National Map Accuracy Standards (NMAS) for 1:12,000 scale map products.

The rectified imagery was again tested against existing Collier County’s high accuracy digital orthophotography. Photo-identifiable points which were visible on both the project’s imagery and Collier County’s imagery were compared to ensure that only minor offsets existed. The project’s imagery was also compared to USGS Digital Orthophoto Quarter Quads (DOQQ) to ensure accuracy.

Selection of Vegetation Classification

The Vegetation Classification System for South Florida Natural Areas (Rutchey et al. 2006) version 5.22.07 was the initial classification system used on this project. The Rutchey et al. (2006) vegetation

classification system is a hierarchical classification system, consisting of six levels, with Level 6 the most detailed and specific. “The different levels of this classification system represent distinctions in ecological communities, taxonomy, individual species, and physical characteristics such as density and height,” (Rutchev et al. 2006). For this project the level of detailed required was to map to the most detailed level if possible.

The Vegetation Classification System for South Florida Natural Areas was created by a joint effort of southern Florida botanists and vegetation mapping experts, including university scientists, federal and state agency staff, and local consultants. While the first version of the classification system attempted to address all South Florida vegetation communities, some community types were inevitably overlooked and were added later as separate versions of the classification with changes documented. Version 5.22.07 was initially used in this project. However, because of this mapping effort, several communities that were omitted from version 5.22.07 were added and a new version of the classification system (Version 6.15.09) was distributed and used in the final mapping product.

The photo-interpreter altered some map class definitions so they would fit within ESRI ArcMap 9.2 personal geodatabase maximum cell character limit of 254 characters. However, the reader is referred to the original Rutchev et al. (2006) definitions as the most appropriate definitions. Although the classification should be compatible with the National Vegetation Classification System (NVCS), an official crosswalk has not been made.

Draft Vegetation Map Creation by Avineon

The photointerpretation process occurred on an analytical stereo plotter that allows for the visualization of the imagery in stereo (3D). The aerial photographic models were oriented to real ground coordinates using P-CAP software, available from Z/I Imaging Corporation.

Photo interpretation occurs as vegetation cover types are carefully analyzed by the photo interpreter within each grid cell appearing over the stereo models. Each grid cell is then attributed (i.e., labeled) using the Vegetation Classification System for South Florida National Parks.

Avineon used MicroStation V8 software (Bentley Microsystems, Inc.) coupled to the analytical stereo plotter to store graphics and attribute information during photointerpretation. The workstations allow for the direct capture of digital data in MicroStation which is then imported to ArcGIS software. The vegetation map produced was projected to NAD83, UTM Zone 17N and the minimum grain size was 2,500 square meters (26,910 square feet [ft²]). The annotation of the grid was based on the dominant species community present within the 50 × 50-meter (164 × 164-ft) grid cell, thus the minimum mapping unit (MMU) is 2,500 square meters (0.25 hectares; 26,910 ft²). To clarify the grid is considered a square vector in the ArcMap GIS environment. It should be noted that if certain species were present over greater than 10% of a grid cell (such as exotics) then this was considered in the annotation process.

Field work allowed the photo interpreters to correlate signature (i.e., colors, tones, and textures) on the imagery to in-field conditions to determine exact grid cell classification. The coordinates used for each field check site were equivalent to the grid centroids coordinates from the stereo plotter. Field

data was collected at 783 training points (578 from Avineon, 171 from IRC, and 34 from SFCN; see Figure 2). This collection of data helped refine the classification process and ensured the map would meet the expected accuracy. Field observations primarily focused on data needed to place the vegetation community into a map class. Data recorded typically included different levels of the vegetation classification and/or final map class, and on occasion, canopy species composition, herbaceous layer species composition, canopy height, canopy cover, and substrate. This information was then used to interpret the spectral signature of unknown types based on the spectral signature of known communities verified by the ground-referenced locations. (See Appendix A in Avineon 2009 for vegetation mapping examples).

Western Big Cypress National Preserve Field Training Sites

National Park Service
U.S. Department of the Interior

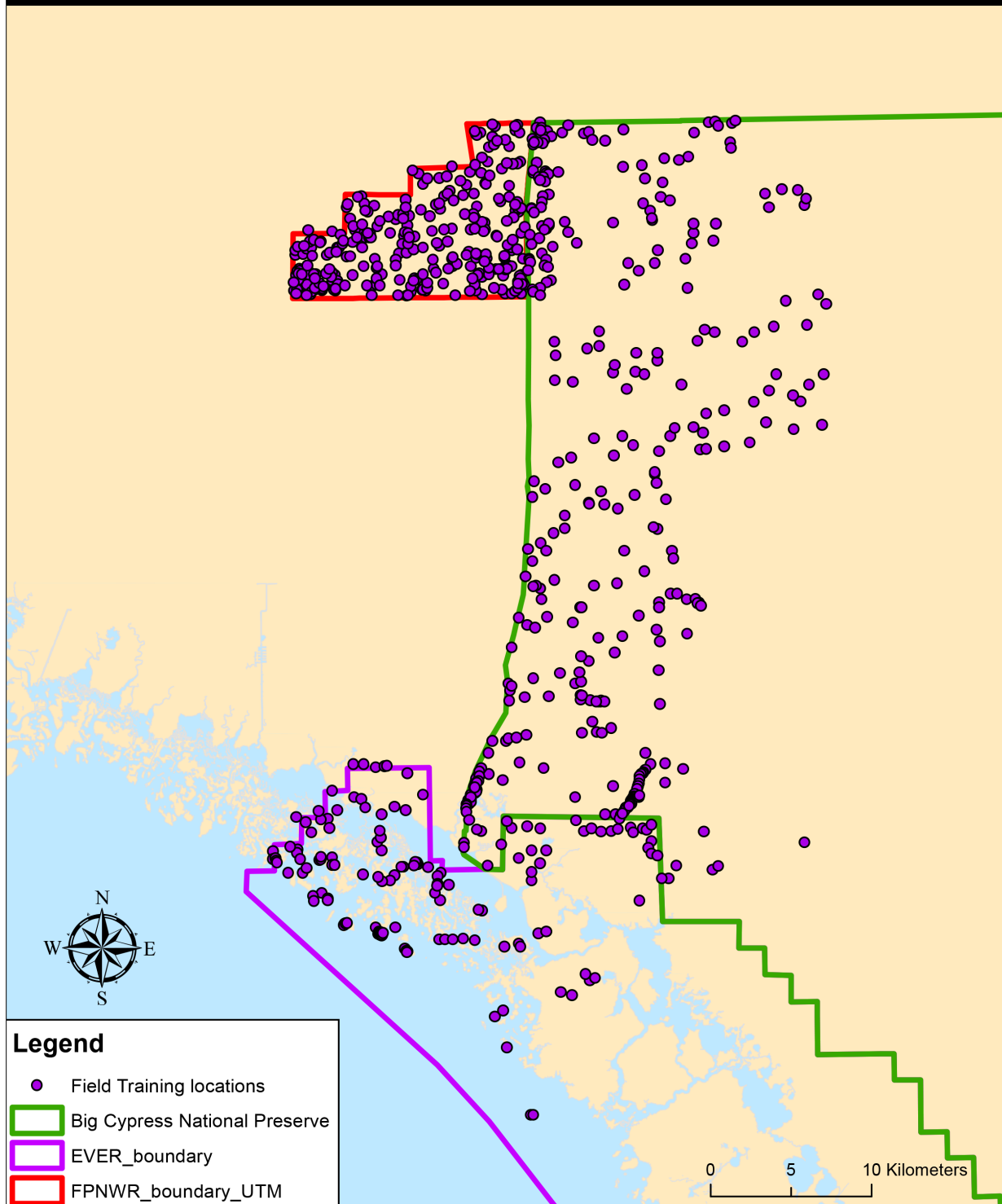


Figure 2. Map of 783 field training locations (578 from Avineon, 171 from IRC, and 34 from SFCN) used to gather field data to interpret photographic signatures for Avineon's annotation process.

Accuracy Assessment of Map by South Florida/Caribbean Network

Map Classification Accuracy

The accuracy of the map was assessed by collecting field data from 615 randomly selected grid cells distributed throughout the mapped area. The Institute for Regional Conservation collected the accuracy assessment field data. The accuracy assessment used independent classification (double blind) by two professional botanists for each randomly selected grid cell. Observations at each site were conducted by helicopter at altitudes less than 100 feet (30.5 meters [m]) and occurred concurrent with the mapping effort. The authors compared the map annotation to the field collected information to determine if the annotation was accurate.

This project used a concurrent map accuracy assessment process which was conducted at the same time the vegetation map was being developed. One advantage of a concurrent assessment is that it allows completion of accuracy assessment in a timeframe that can be used to assess the quality of a contractor vegetation map interim deliverable and compel improvements before acceptance of the final map product. Additionally, it allows collection of accuracy assessment data in a time much closer to the acquisition of the imagery used to create the map. Thus, there are less likely to be problems with vegetation change occurring between image acquisition and completion of the accuracy assessment. There are limitations to the concurrent accuracy assessment mainly due to the complete random sample design for the selection of accuracy assessment locations. A complete random selection of data points will tend to oversample common map classes and under sample or miss rare map classes.

Refinement and Finalization of Polygon Classification and Map Product

The final map product is an updated version of the draft vector map based upon the accuracy assessment results. For points that had some form of disagreement between the map annotation and the field classification, SFCN staff updated the map to match the field classification.

A post accuracy assessment evaluation of all level 2 mapped grid cells, as well as all cells classified as Airboat Trail (AV) or Off-Road Vehicle Trail (ORV), was conducted to improve the map's thematic level of detail.

The Avineon product had 3.5% of the map (17,453 cells) originally classified at a very low level of detail (Level 2). The low level of detail (hydrological status of the dominant vegetation structure) was deemed ineffectual, and in need of reevaluation. From the original geodatabase, each level 2 community was exported separately. The cells within each community were then reevaluated and a more detailed vegetation community type was assigned. The corrected community code was typed into the new VegCode_R column, so the original code still remained untouched. Only cells that fell within the Big Cypress National Preserve boundary were reevaluated and the comments column was used to aid in separating the cells from those outside the boundary. In the case of human impacted communities, it was found that human impacted was the best code to assign to many of the cells, so only 149 out of the 587 within Big Cypress National Preserve were corrected to a higher level of detail. Of the airboat code changes, 91 were corrected not to a higher level of detail, but to a more

natural feature code, open water. All changes made were consistent with version 6.15.09 of the classification system.

A total of 17,691 grid cells, 3.6% of the map, consisting of 16 different thematic classes were reevaluated but not all cells were changed. In Table 1, we report on the cells which were changed.

Table 1. Updated of Vegetation classifications from low level of detail to more detail classifications. Big Cypress National Preserve (BICY).

Level 2 Communities	Code	# of Cells	% of Changes	% of Map
Airboat Trail	AB	125	0.72	0.03
Mangrove Scrub	CM	3	0.02	0.00
Swamp Scrub	CS	127	0.73	0.03
Upland Scrub	CU	390	2.23	0.08
Hammock Forest	FH	13	0.07	0.00
Mangrove Forest	FM	111	0.64	0.02
Swamp Forest	FS	224	1.28	0.04
Human Impacted	HI	149	0.85	0.03
Freshwater Marsh	MF	15	0.09	0.00
Off Road Vehicle Trail	ORV	6,575	37.67	1.32
Mangrove Shrubland	SM	178	1.02	0.04
Swamp Shrubland	SS	2,260	12.95	0.45
Upland Shrubland	SU	6,623	37.95	1.33
Mangrove Woodland	WM	337	1.93	0.07
Swamp Woodland	WS	186	1.07	0.04
Upland Woodland	WU	137	0.78	0.03
Totals	–	17,453	100.00	3.50

Photo interpretation was performed by superimposing the 50 × 50-meter (one-quarter hectare [0.62 ac]) grid cell GIS layer (vector) for each class on a set of 2012 stereoscopic two-foot resolution (0.6096 m) color-infrared (RGBI) digital aerial imagery on a digital photogrammetric workstation. The dominant community identified in each one quarter-hectare (0.62 ac) grid cell was classified using the Vegetation Classification System for South Florida Natural Areas (Rutchev et al. 2006, v6.15.09).

Results

Imagery and Positional Accuracy

Ground control for the aerial photography was derived using a combination of airborne GPS coordinates acquired during acquisition and photo-identifiable ground control coordinates surveyed in the field after aerial photography acquisition. Eighteen survey points were located as ground control points each of which was surveyed using survey grade GPS equipment.

The root mean square error (RMSE) of the ground control point residuals in meters are as follows: RMSE-X = 0.370, RMSE-Y = 0.273, RMSE-Z = 0.278.

Vegetation Classification, Hierarchical Key

Vegetation communities within the park were classified to the most detailed level of resolution possible, typically classified at vegetation community association level [typically equivalent to the association level of the National Vegetation Classification System (NVCS)] of the six-tiered hierarchical vegetation classification system developed by Rutchey et al. (2006). The six-tiered hierarchical vegetation classification levels used are:

- Dominant vegetation structure (Scrub—Level 1),
- Hydrological status of dominant vegetation structure (Swamp scrub—Level 2),
- Dominant species within the hydrological designation (Cypress scrub—Level 3),
- Dominant species and associated habitat within the hydrological designation (Cypress scrub graminoid prairie—Level 4),
- Further species specification (used when there is co-dominance in the dominant species group—Level 5), and
- Vegetation community association (Cypress scrub muhly grass—Level 6).

A total of 169 map classes were used. However, not all communities mapped were listed in the Rutchey et al. (2006) classification system. At the same time, many of the communities listed in the Rutchey et al. (2006) classification system were not observed within the boundaries of the preserve. As a result, the classification system used in this project was modified to include all community types observed and mapped. The 169 classes cover a number of levels in the classification and varied in detail from Dominant species within the hydrological designation (Level 3) to Vegetation community association (Level 6).

Vegetation Map

The final vegetation map consists of 356,595 grid cells (Figures 3, 4, and 5) with a total mapped area of 891.5 square kilometers (344.2 square miles [mi^2]). Less than 1.26% (11.25 square kilometers [4.34 mi^2]) is annotated with non-vegetation community class (e.g., mud, open water, human impacted, road); the rest of the map is annotated to the most detailed vegetation classification

possible (Figure 5). The following is a breakdown of the mapped area into the highest structural classification: Marsh (305.1 square kilometers [117.8 mi²]) was the most common vegetation type followed by forest (295.7 square kilometers [114.2 mi²]), woodlands (174.7 square kilometers [67.5 mi²]), scrub (53.0 square kilometers [20.5 mi²]) and shrubland (51.5 square kilometers [19.9 mi²]) (Figure 3, Table 2).

Western Big Cypress National Preserve Dominant Vegetation Structure

National Park Service
U.S. Department of the Interior

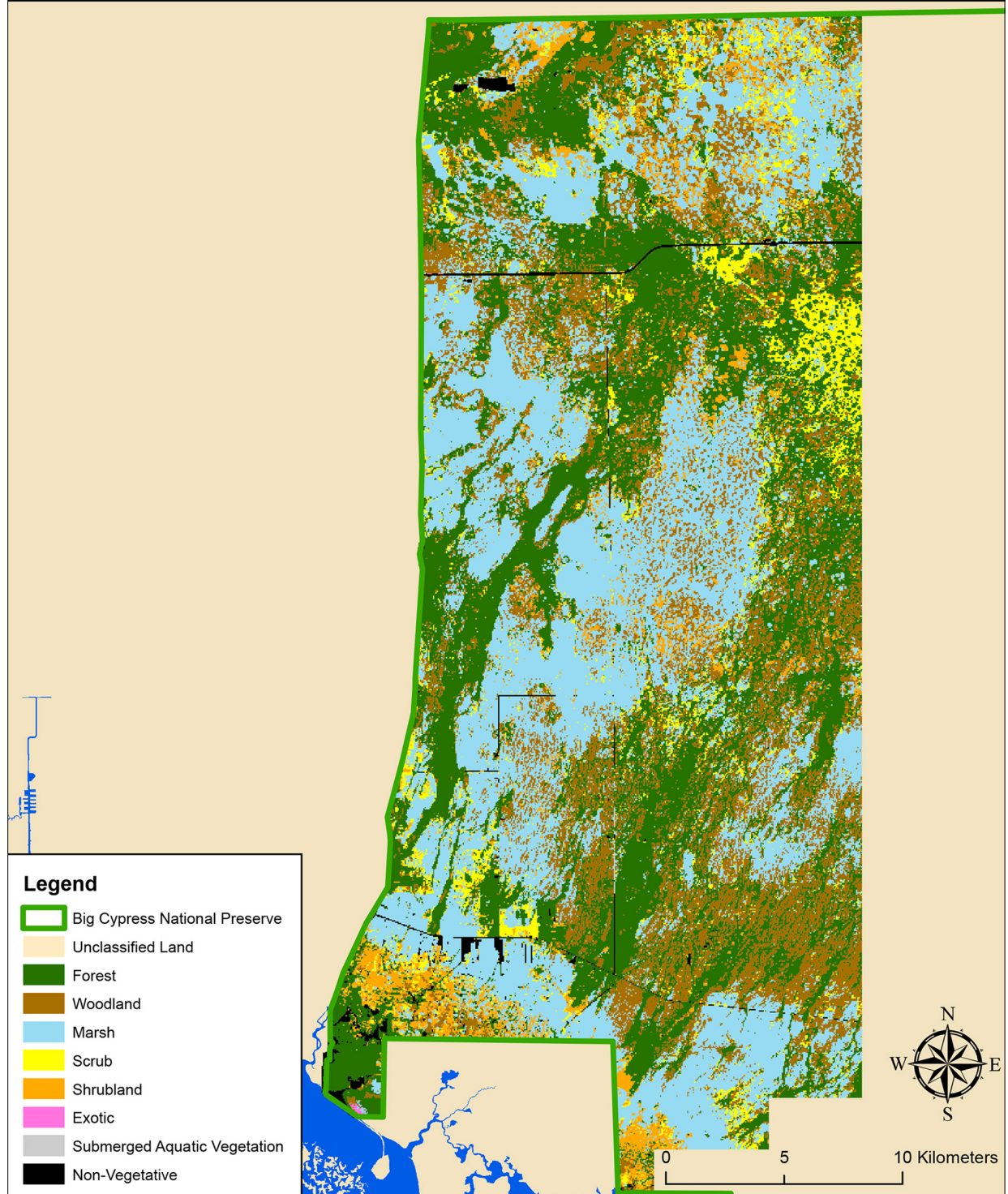


Figure 3. Map of the Dominant Vegetation Structure for Western Big Cypress National Preserve.

Western Big Cypress National Preserve Dominant Species Within Hydrological Designation

National Park Service
U.S. Department of the Interior

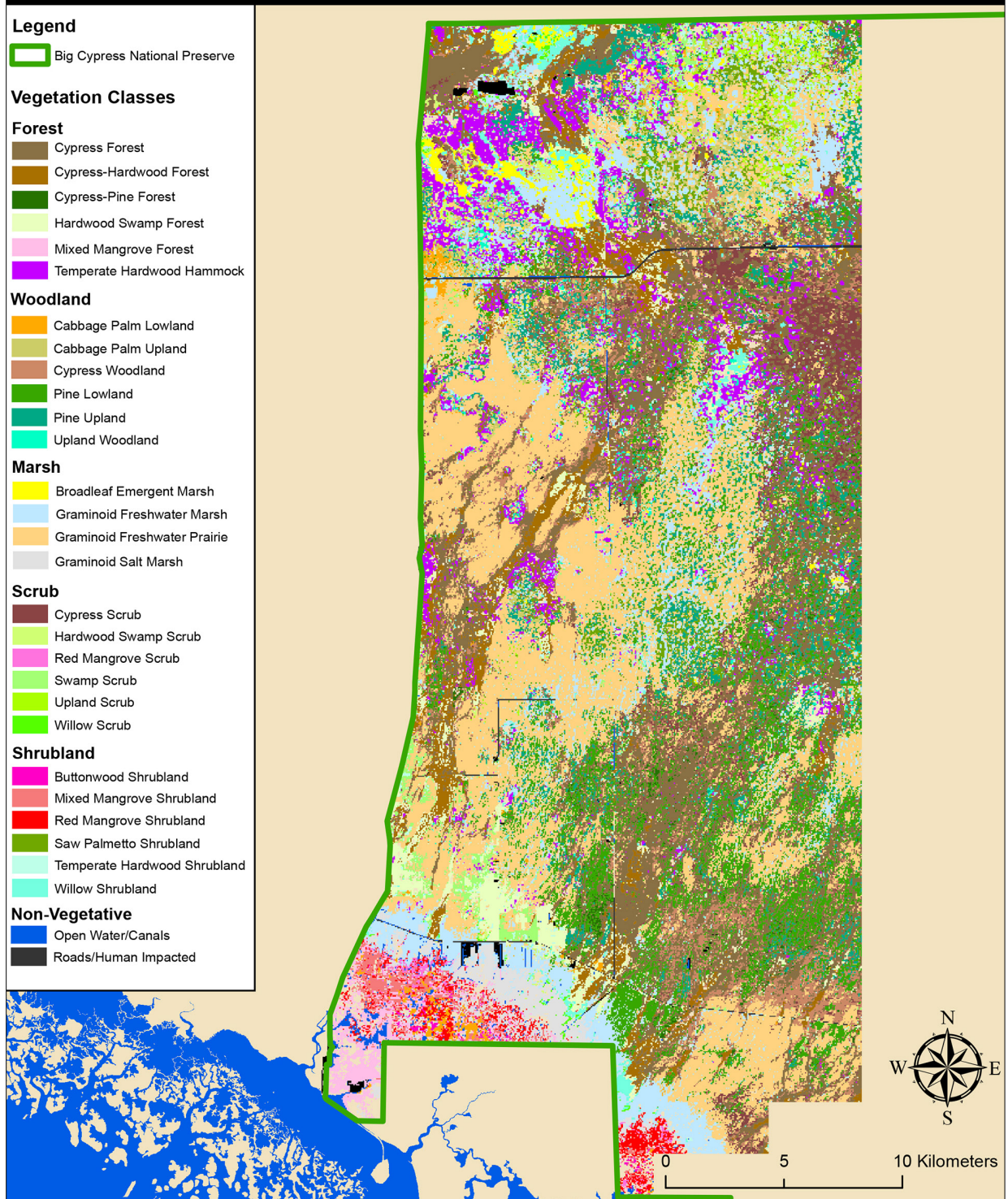


Figure 4. Map of the Dominant Community within the Hydrological Designation for Western Big Cypress National Preserve.

Western Big Cypress National Preserve Vegetation Community Association

National Park Service
U.S. Department of the Interior

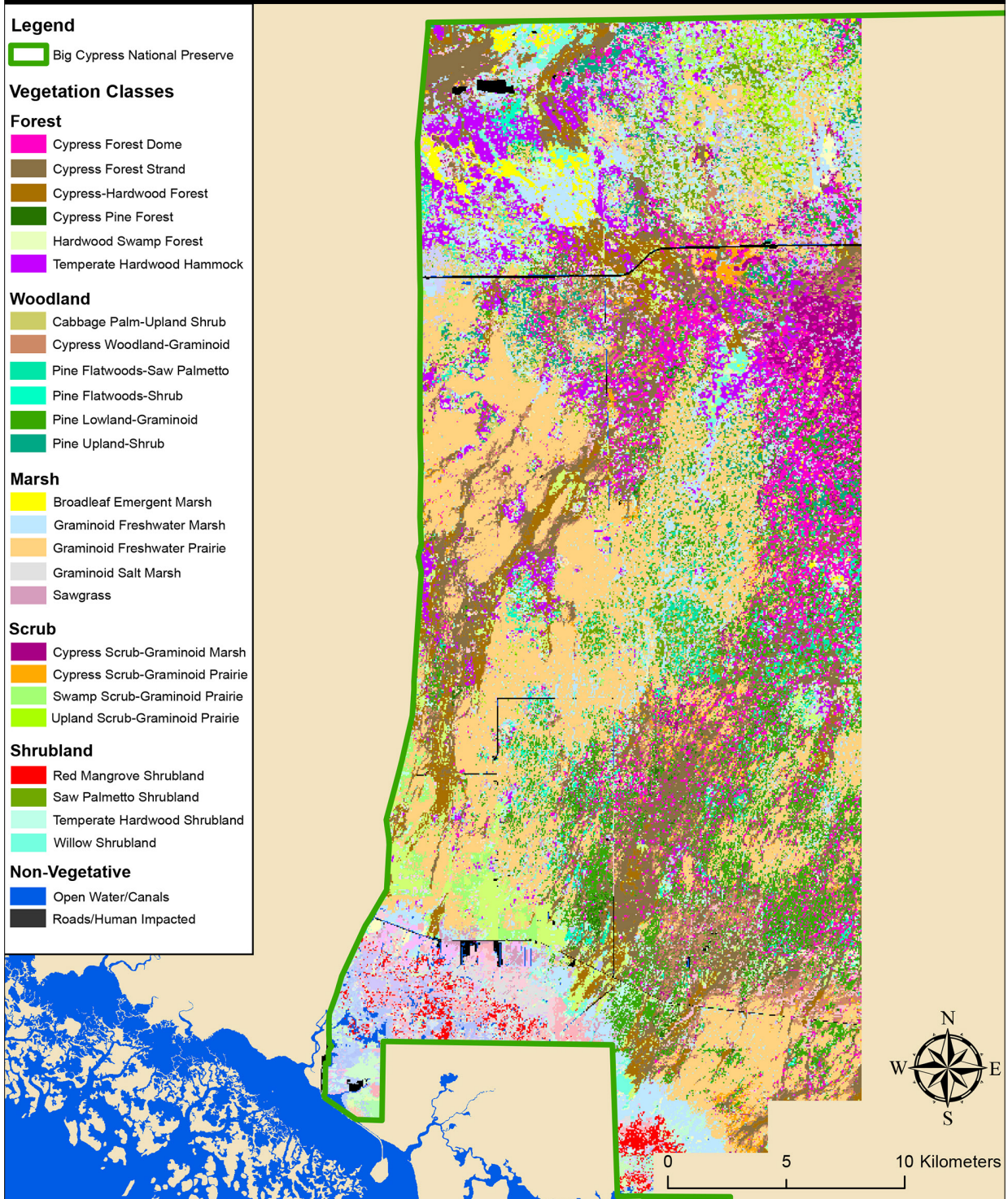


Figure 5. Map of the Vegetation Community Association (most detailed level of classification) for western Big Cypress National Preserve.

Table 2. Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total at the highest structural classification (dominant vegetation structure).

Vegetation Type (Level 1)	Hectares	Percentage of Total Mapped Area
Forest	29,568.50	33.17
Woodland	17,469.25	19.60
Shrubland	5,146.00	5.77
Scrub	5,296.75	5.94
Marsh	30,507.75	34.22
Submerged Aquatic Vegetation	15.25	0.02
Exotic	20.00	0.02
Non-Vegetative	1,125.25	1.26
Grand Total	89,148.75	100.00

At the most detailed vegetation community classification level (Level 6), the ten most common communities comprise approximately 70% of the map area (Table 3, Figure 5). These communities are dominated by graminoid communities (cumulatively 29.8% of the mapped area) comprised of graminoid freshwater prairie (22.9%) and graminoid freshwater marsh (6.9%); followed by a number of cypress communities (cumulatively 27.4% of the mapped area) comprised of cypress forest-strand (10.5%), cypress forest-dome (6.9%), cypress-hardwood forest (4.2%), cypress woodland-graminoid (3.9%), and cypress scrub-graminoid marsh (1.9%). Pine lowland-graminoid (6.5%), temperate hardwood forest (4.8%), and hardwood swamp forest (2.6%) make up the rest of the top vegetation communities.

Table 3. Western Big Cypress National Preserve summary of the ten most common vegetation community area (hectares) and percent of total at the most detailed level of classification (dominant vegetation structure).

Vegetation Classification Level 6	Sum of Hectares	Percentage
Graminoid Freshwater Prairie	20,486.25	23.0
Cypress Forest-Strand	9,348.50	10.5
Graminoid Freshwater Marsh	6,191.00	6.9
Cypress Forest-Dome	6,094.00	6.8
Pine Lowland-Graminoid	5,780.75	6.5
Temperate Hardwood Hammock	4,253.75	4.8

Table 3 (continued). Western Big Cypress National Preserve summary of the ten most common vegetation community area (hectares) and percent of total at the most detailed level of classification (dominant vegetation structure).

Vegetation Classification Level 6	Sum of Hectares	Percentage
Cypress-Hardwood Forest	3,709.75	4.2
Cypress Woodland-Graminoid	3,481.25	3.9
Hardwood Swamp Forest	2,326.75	2.6
Cypress Scrub-Graminoid Marsh	1,676.25	1.9
Total hectares	89,148.75	71.1

Forest

The swamp forest is the dominant vegetation community (78.13%) found in the forest classification of which cypress dominant forest accounts for 88.29 % of the swamp forest types mapped (Table 2). Hammock forests dominate the upland forest communities with the most prevalent being temperate hardwood hammock (84.09%). Mangroves comprise the smallest amount (4.76%) of forest type in the mapped area. The mangrove forest has a number of mixed mangrove communities that co-dominate (Table 4).

Table 4. Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for Forest.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
All Forest	Total	29,568.5	–	33.17
Hammock Forest	Total	5,058.5	100	5.67
	Cabbage Palm Hammock	150.75	2.98	0.17
	Hardwood Hammock-Pine Forest	403	7.97	0.45
	Temperate Hardwood Hammock	4,253.75	84.09	4.77
	Tropical Hardwood Hammock	251	4.96	0.28
Mangrove Forest	Total	1,408.75	4.76	1.58
	Black Mangrove Forest	69.25	4.92	0.08
	Black Mangrove-Buttonwood Forest	0.75	0.05	0.00
	Black Mangrove-Red Mangrove Forest	65.25	4.63	0.07
	Black Mangrove-White Mangrove Forest	265	18.81	0.30
	Buttonwood Forest	59	4.19	0.07

Table 4 (continued). Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for Forest.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
Mangrove Forest (continued)	Buttonwood-Red Mangrove Forest	204	14.48	0.23
	Buttonwood-White Mangrove Forest	1.75	0.12	0.00
	Mixed Mangrove Forest	175.25	12.44	0.20
	Red Mangrove Forest	95	6.74	0.11
	White Mangrove Forest	224.75	15.95	0.25
	White Mangrove-Red Mangrove Forest	248.75	17.66	0.28
Swamp Forest	Total	23,101.25	78.13	25.91
	Bayhead Forest	29.75	0.13	0.03
	Cypress Forest	498.5	2.16	0.56
	Cypress Forest-Dome	6094	26.38	6.84
	Cypress Forest-Strand	9,348.5	40.47	10.49
	Cypress-Hardwood Forest	3,709.75	16.06	4.16
	Cypress-Pine Forest	746.25	3.23	0.84
	Hardwood Swamp Forest	2,326.75	10.07	2.61
	Pop Ash Forest	331.75	1.44	0.37
	Red Maple Forest	1	0.00	0.00
	Cypress-Pine Forest	746.25	3.23	0.84
	Transitional Bayhead Forest	15	0.06	0.02

Woodland

The swamp woodland is the dominant vegetation community (66.10%) found in the woodland classification of which the pine communities are the dominant woodland types accounting for 57.08% of the swamp woodland types mapped (Table 5). Cypress woodland community woodlands are the second most common type (35.46%) of the swamp woodlands. Upland woodlands comprise 33.31% of the woodlands mapped. Pine community types comprise 64.90% of the upland woodlands with cabbage palm woodlands making up the majority (25.43%) of the upland woodlands mapped.

Table 5. Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for Woodlands.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
Woodland (Total)	–	17,469.25	–	19.60
Mangrove Woodland (Total)	–	102	0.58	0.11
	Black Mangrove Woodland	33.5	32.84	0.04
	Buttonwood Woodland	68.5	67.16	0.08
Swamp Woodland (Total)	–	11,547.5	66.10	12.95
	Cabbage Palm Lowland	13.25	0.11	0.01
	Cabbage Palm Lowland-Graminoid	307.5	2.66	0.34
	Cabbage Palm Lowland-Mixed	28.5	0.25	0.03
	Cabbage Palm Lowland-Sawgrass	1.25	0.01	0.00
	Cabbage Palm Lowland-Shrub	272.25	2.36	0.31
	Cypress Woodland	19.75	0.17	0.02
	Cypress Woodland-Graminoid	3,481.25	30.15	3.90
	Cypress Woodland-Open Marsh	35.5	0.31	0.04
	Cypress Woodland-Shrub	558.5	4.84	0.63
	Hardwood Swamp Woodland	238.5	2.07	0.27
	Pine Lowland	188.75	1.63	0.21
	Pine Lowland-Graminoid	5,780.75	50.06	6.48
	Pine Lowland-Mixed	313.5	2.71	0.35
	Pine Lowland-Shrub	308.25	2.67	0.35
Upland Woodland (Total)	–	5,819.75	33.31	6.53
	Cabbage Palm Upland	1.75	0.03	0.00
	Cabbage Palm Upland-Graminoid	101.75	1.75	0.11
	Cabbage Palm Upland-Mixed	48.5	0.83	0.05
	Cabbage Palm Upland-Saw Palmetto	426.75	7.33	0.48
	Cabbage Palm Upland-Shrub	901.5	15.49	1.01
	Pine Flatwoods-Mixed	213	3.66	0.24
	Pine Flatwoods-Saw Palmetto	726.75	12.49	0.82

Table 5 (continued). Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for Woodlands.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
Upland Woodland (Total) (continued)	Pine Flatwoods-Shrub	991.5	17.04	1.11
	Pine Upland	14.25	0.24	0.02
	Pine Upland-Graminoid	65.5	1.13	0.07
	Pine Upland-Mixed	279.25	4.80	0.31
	Pine Upland-Saw Palmetto	104.75	1.80	0.12
	Pine Upland-Shrub	1382.25	23.75	1.55
	Upland Woodland	562.25	9.66	0.63

Shrubland

The upland shrubland is the dominant vegetation community (47.72%) found in the shrubland classification of which saw palmetto shrubland is the dominant with 64.77% of the upland Shrubland types mapped (Table 6). Swamp shrubland and mangrove shrubland both split the difference equally each making up about 26% of the shrubland mapped. Within the swamp shrubland, willow shrubland (95.67%) is the dominant vegetation type. In the mangrove shrubland, red mangrove shrubland (50.61 %) is the dominant form found.

Table 6. Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for shrublands.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
Shrubland (Total)	–	5146	5.77	5.77
Mangrove Shrubland (Total)	–	1339.25	26.03	1.50
	Black Mangrove Shrubland	5.75	0.43	0.01
	Black Mangrove-Red Mangrove Shrubland	14	1.05	0.02
	Black Mangrove-White Mangrove Shrubland	4	0.30	0.00
	Buttonwood Shrubland	90	6.72	0.10
	Buttonwood-Red Mangrove Shrubland	410	30.61	0.46
	Buttonwood-White Mangrove Shrubland	1	0.07	0.00

Table 6 (continued). Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for shrublands.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
Mangrove Shrubland (Total) (continued)	Mixed Mangrove Shrubland	93.5	6.98	0.10
	Red Mangrove Shrubland	677.75	50.61	0.76
	White Mangrove Shrubland	14.5	1.08	0.02
	White Mangrove-Red Mangrove Shrubland	28.75	2.15	0.03
Swamp Shrubland (Total)	—	1351.25	26.26	1.52
	Bayhead Shrubland	5.5	0.41	0.01
	Pond Apple Shrubland	6.75	0.50	0.01
	Pop Ash Shrubland	34.25	2.53	0.04
	Transitional Bayhead Shrubland	5.25	0.39	0.01
	Wax Myrtle Shrubland	6.75	0.50	0.01
	Willow Shrubland	1292.75	95.67	1.45
Upland Shrubland (Total)	—	2455.5	47.72	2.75
	Nicker Bean Shrubland	0.5	0.02	0.00
	Saw Palmetto Shrubland	1590.5	64.77	1.78
	Temperate Hardwood Shrubland	824.5	33.58	0.92
	Tropical Hardwood Shrubland	40	1.63	0.04

Scrub

The swamp scrub is the dominant vegetation community (81.78%) found in the scrub classification of which cypress dominant scrub communities account for 67.43% of the swamp scrub types mapped (Table 7). This was expected due to the conspicuous dwarf cypress communities found in the mapped area.

Table 7. Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for Scrub.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
Scrub	Total	5296.75	5.94	5.94
Mangrove Scrub	Total	290.5	5.48	0.33
	Black Mangrove Scrub-Graminoid	0.25	0.09	0.00
	Black Mangrove-White Mangrove Scrub-Open Marsh	0.5	0.17	0.00
	Black Mangrove-White Mangrove Scrub-Sawgrass	0.25	0.09	0.00
	Buttonwood Scrub	0.75	0.26	0.00
	Buttonwood-Red Mangrove Scrub-Black Rush	0.25	0.09	0.00
	Buttonwood-Red Mangrove Scrub-Graminoid	3	1.03	0.00
	Buttonwood-White Mangrove Scrub-Cordgrass	0.5	0.17	0.00
	Mangrove Scrub-Cordgrass	1.5	0.52	0.00
	Mangrove Scrub-Graminoid	55.75	19.19	0.06
	Mangrove Scrub-Open Marsh	2.75	0.95	0.00
	Mixed Mangrove Scrub	1.75	0.60	0.00
	Mixed Mangrove Scrub-Cordgrass	16.75	5.77	0.02
	Mixed Mangrove Scrub-Graminoid	14.25	4.91	0.02
	Mixed Mangrove Scrub-Open Marsh	5	1.72	0.01
	Mixed Mangrove Scrub-Sawgrass	0.5	0.17	0.00
	Red Mangrove Scrub	35.75	12.31	0.04
	Red Mangrove Scrub-Cattail	0.25	0.09	0.00
	Red Mangrove Scrub-Cordgrass	1	0.34	0.00
	Red Mangrove Scrub-Dominant	0.5	0.17	0.00
	Red Mangrove Scrub-Graminoid	101.25	34.85	0.11
	Red Mangrove Scrub-Herbaceous	1	0.34	0.00
	Red Mangrove Scrub-Open Marsh	40.75	14.03	0.05
	Red Mangrove Scrub-Spikerush	5.25	1.81	0.01
	White Mangrove Scrub	0.25	0.09	0.00
	White Mangrove-Red Mangrove Scrub-Graminoid	0.75	0.26	0.00

Table 7 (continued). Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for Scrub.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
Swamp Scrub	Total	4331.75	81.78	4.86
	Cypress Scrub	2.75	0.06	0.00
	Cypress Scrub-Cattail	0.5	0.01	0.00
	Cypress Scrub-Dominant	66.5	1.54	0.07
	Cypress Scrub-Emergent	6.25	0.14	0.01
	Cypress Scrub-Graminoid Marsh	1,676.25	38.70	1.88
	Cypress Scrub-Graminoid Prairie	1043	24.08	1.17
	Cypress Scrub-Gulfdune Paspalum	0.75	0.02	0.00
	Cypress Scrub-Herbaceous	2	0.05	0.00
	Cypress Scrub-Little Bluestem	1.75	0.04	0.00
	Cypress Scrub-Open Marsh	99.25	2.29	0.11
	Cypress Scrub-Sawgrass	22	0.51	0.02
	Hardwood Swamp Scrub	2.75	0.06	0.00
	Hardwood Swamp Scrub-Dominant	11.25	0.26	0.01
	Hardwood Swamp Scrub-Emergent	0.75	0.02	0.00
	Hardwood Swamp Scrub-Graminoid Marsh	119.5	2.76	0.13
	Hardwood Swamp Scrub-Graminoid Prairie	159.5	3.68	0.18
	Hardwood Swamp Scrub-Sawgrass	4.5	0.10	0.01
	Swamp Scrub-Dominant	0.25	0.01	0.00
	Swamp Scrub-Emergent	6.5	0.15	0.01
	Swamp Scrub-Graminoid Marsh	57	1.32	0.06
	Swamp Scrub-Graminoid Prairie	836.5	19.31	0.94
	Swamp Scrub-Sawgrass	2.5	0.06	0.00
	Wax Myrtle Scrub-Graminoid Prairie	52.75	1.22	0.06
	Willow Scrub	9.25	0.21	0.01
	Willow Scrub-Emergent	38.25	0.88	0.04
	Willow Scrub-Graminoid Marsh	89.25	2.06	0.10
	Willow Scrub-Open Marsh	0.25	0.01	0.00
	Willow Scrub-Sawgrass	20	0.46	0.02

Table 7 (continued). Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for Scrub.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
Upland Scrub	Total	674.5	12.73	0.76
	Upland Hardwood Scrub	3.5	0.52	0.00
	Upland Scrub-Graminoid Prairie	671	99.48	0.75

Marsh

The freshwater marsh is the dominant vegetation community (95.61%) found in the marsh classification of which graminoid freshwater prairie account for 70.24% of the marsh types mapped (Table 8). Graminoid freshwater marshes are the second most common freshwater marsh type mapped. Cordgrass is the dominant salt marsh community mapped (Table 8).

Table 8. Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for Marsh.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
Marsh	Total	30507.75	34.22	34.22
Freshwater Marsh	Total	29167.5	95.61	32.72
	Alligator Flag	17.75	0.06	0.02
	Beakrush	1.25	0.00	0.00
	Broadleaf Emergent Marsh	1055.25	3.62	1.18
	Cattail	247.75	0.85	0.28
	Common Reed	57.5	0.20	0.06
	Duckweed	3.25	0.01	0.00
	Floating Emergent Marsh	4.25	0.01	0.00
	Giant Cutgrass	0.25	0.00	0.00
	Graminoid Freshwater Marsh	6191	21.23	6.94
	Graminoid Freshwater Prairie	20486.25	70.24	22.98
	Gulfdune Paspalum	4	0.01	0.00
	Muhly Grass	1.5	0.01	0.00
	Open Marsh	141.25	0.48	0.16

Table 8 (continued). Western Big Cypress National Preserve summary of vegetation community area (hectares) and percent of total for Marsh.

Vegetation Type Level 2	Dominant Community Level 3	Hectares	Percentage of Structure Class Level 2	Percentage of Total Mapped Area
Freshwater Marsh (continued)	Open Prairie	3.25	0.01	0.00
	Panicgrass	0.75	0.00	0.00
	Sawgrass	698.5	2.39	0.78
	Sawgrass Prairie	24.25	0.08	0.03
	Soft Rush	0.25	0.00	0.00
	Spikerush	229.25	0.79	0.26
Salt Marsh	Total	1340.25	4.39	1.50
	Black Rush	195	14.55	0.22
	Cordgrass	409.25	30.54	0.46
	Graminoid Salt Marsh	635.75	47.44	0.71
	Open Salt Marsh	83.5	6.23	0.09
	Saltwort	16.75	1.25	0.02

Accuracy Assessment

We projected 615 accuracy assessment (AA) points on to the Avineon, Inc. vegetation map of the western Big Cypress Regional Vegetation map (Figure 6). There was an exact match in classification (complete agreement) for 238 (39%) of the 615 points and there was some form of disagreement for 377 of the 615 points. We then checked all 377 of these points to determine the type and degree of difference between the field classification and the map classification to determine if the map classification would be acceptable. For all 377 accuracy assessment points, we noted the reasoning for either accepting the map classification or rejecting the map classification based upon the field data and classification. A total of 94 accuracy assessment points were not acceptable. An additional 283 were accepted as having similar habitat classification for a total of 521 acceptable accuracy assessment points.

Examples for “accepting” an initial non-matching cell:

1. the field classification was at a more detail level than the map classification, but the map classification was correct at the level of detailed mapped,
2. the map classification was at a more detail level than the field classification, but the field notes showed the map classification was an acceptable label,

3. if a Forest was misclassified as a Woodland or vice versa and the % cover in the field data was near the cutoff of 60% cover, the point was accepted as accurate. Similar reasoning applied to the Shrubland versus Forest distinction when height was close to the 5-meter cutoff between the classes,
4. the field data showed the vegetation was on a boundary (ecotone) between the two vegetation categories in the map classification and field classification (Mixed cell),
5. although co-dominant mixes of mangrove classes (level 4 FMXac, FMXal, FMXar, FMXcl, FMXcr, FMXlr) should have only up to a 60/40% split to qualify for the various FMX categories, splits of up to a 80/20% were “accepted.”

The overall map accuracy was 85% (521 points of the 615 points) with a standard error of 1.452% with a 90% lower confidence interval of 82% and meets the National Park Services map accuracy requirement (Figure 6). Full details of the accuracy assessment are in Appendix A.

Western Big Cypress National Preserve Accuracy Assessment

National Park Service
U.S. Department of the Interior

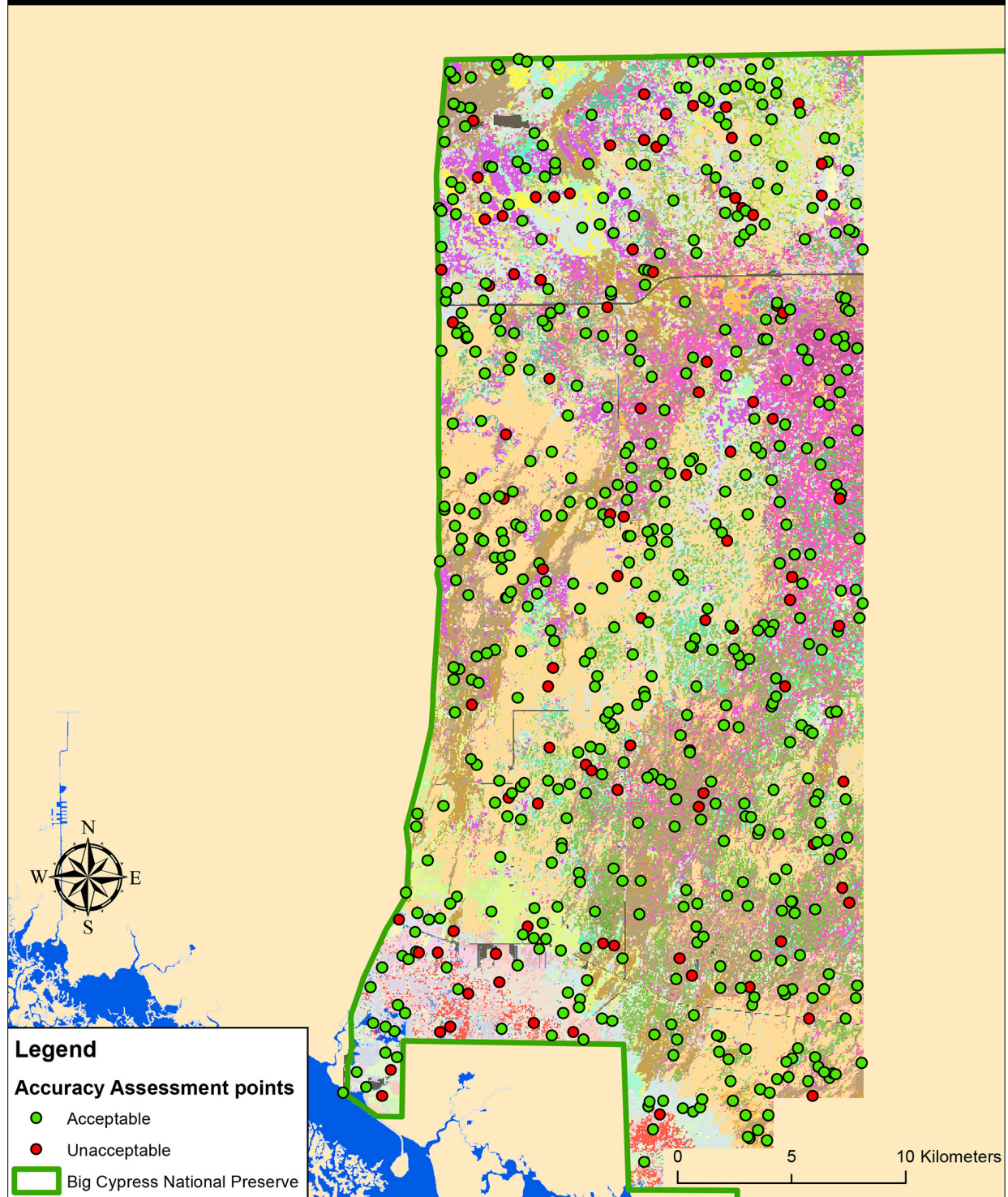


Figure 6. Map of the Western Region of Big Cypress National Preserve with 615 Accuracy Assessment (AA) points displayed.

Analysis of vegetation classification errors

There were 63 different map categories (35% of all classes used on the map) that had at least one accuracy assessment location (See Table A-2 and Table A-5 in Appendix A for the full accuracy assessment dataset). The percent acceptability by categories ranged from 0–100%; with 40 of the categories having 80% or greater acceptability. However, calculating confidence limits for vegetation classes with less than seven assessment locations is problematic.

There are 16 vegetation map categories that had greater than seven assessment locations and this accounted for the majority (79%) of the accuracy assessment points (484 of the 615; Appendix A; Table A-3). These 16 classes included some of the largest vegetation classes used to annotate the map, with each class comprising approximately 1–22% of the area mapped and cumulatively account for 77% of the mapped area. The majority of these sixteen categories had greater than 80% accuracy; however, four of these categories had less. Hardwood swamp forest (10 AA cells) was 70% correct and when found to be incorrect it was generally a cypress community that was identified in the field. Broadleaf emergent marsh (10 AA cells) was 75% correct and when found to be incorrect it was generally panicgrass that was identified in the field. Cypress woodland graminoid (22 AA cells) was 77% correct and when found to be incorrect it was generally a prairie community that was identified in the field. Finally, graminoid freshwater marsh (39 AA cells) was 79% correct and when found to be incorrect it was generally a prairie community that was identified in the field.

During the accuracy assessment field work it was determined there were five classes found in the field and they appeared to be underutilized in the mapping annotation. Sawgrass short marsh (16 AA cells) was correct 63% of the time and when incorrect was found to be classified as graminoid freshwater prairie during map annotation. Cypress-pine forest (8 AA cells) was correct 63% of the time and when incorrect was found to be classified as hardwood swamp forest or Pine Lowland-Graminoid during map annotation. Cypress Woodland (8 AA cells) was also correct 63% of the time and when incorrect was found to be classified as another Cypress community during map annotation. Swamp Woodland (15 AA cells) was correct 73% of the time and when incorrect was found to be classified as Temperate Hardwood Hammock during map annotation. Cypress Woodland-Open (11 AA cells) was also correct 73% of the time and when incorrect was found to be classified as another Cypress community during map annotation.

Review of the accuracy assessment data indicates most errors were a result of the photo interpreters making incorrect majority/dominance rule decisions within each grid cell. The vegetation community which spatially dominated the grid cell was supposed to be primary vegetation community assigned to the cell. The errors generally indicate that during the field assessment another vegetation type was determined to be the spatial dominate community. Misidentification of specific species (Sawgrass compared to Muhly grass) was the second common error associated with the map. Full details of the accuracy assessment are in Appendix A.

Corrections to map

The final map product is an updated version of the draft vector map based upon the accuracy assessment results. For points that had some form of disagreement between the map annotation and the field classification, SFCN staff updated the map to match the field classification.

See Appendix A for maps that indicate which locations had unacceptable, acceptable, or 100% match between field assessment and map annotation.

Discussion and Product Summary

The goal of the vegetation mapping project to produce a thematically accurate vegetation map of the western region of Big Cypress National Preserve was fulfilled (Figure 4, 5, 6). The accuracy assessment of the western region of Big Cypress found that the overall map accuracy was 85% (521 points of the 615 points) with a standard error of 1.452% and with a 90% lower confidence interval of 82%. This map product meets the National Park Services map accuracy requirement. Additionally, when viewed at the six hierarchical levels, the map is accurate as well.

This Western Big Cypress National Preserve vegetation map should serve as a baseline for the extent of vegetation communities within Western Big Cypress National Preserve. Knowledge of existing baseline conditions is critical to the preserve's management to understand the locations that need management action and to determine trend direction from said management action. This map region of the preserve should be particularly useful for documenting the effects of fire, nutrient inputs, hydrological manipulation, sea-level rise, storm impacts, and other stressors, on the wetlands and forested communities of Big Cypress National Preserve. The map should also be useful for park planning, assisting management of threatened and endangered species, and evaluating effects of restoration efforts and other activities.

Summary of Final Products and Files

The Western Big Cypress National Preserve vegetation map was produced in UTM, NAD 83, Zone 17N coordinates, and with a minimum grain size of 2,500 square meters (26,910 ft²). Imagery data used was 2006 aerial imagery (1-foot, 4-band). Table 9 provides a summary of the various products and files that accompany this report.

Table 9. Western Big Cypress National Preserve vegetation mapping projects products or file descriptions and filenames.

Category	Product or File Description	Filename
Aerial photography	Map of the orthophoto mosaicgraphic Zip file containing orthophoto data (personal geodatabase) Map of the aerial photo flightline index	wbicyortho.pdf wbicyortho.zip wbicyphotos.pdf
Project Report	Project report (contains summary report with cooperators' map project report and SFCN's accuracy assessment report as appendices. Also contains a brief description of all products and files, map class descriptions, vegetation classification and hierarchical key, photos of map classes)	wbicyortho.pdf
Field data	Map of plot locations MS Excel format plots Zip file of all available field plot/AA photos	wbicyplots.pdf wbicyplots.xls wbicy_fieldphotos.zip

Table 9 (continued). Western Big Cypress National Preserve vegetation mapping projects products or file descriptions and filenames.

Category	Product or File Description	Filename
Geospatial Vegetation Information	Zip file containing personal geodatabase of spatial data (includes data for vegetation polygons, field point data, accuracy assessment data, and park boundary) and ArcMap MXD project file Map of the vegetation communities (letter size) Map of the vegetation communities (poster size)	wbicygeodata.zip wbicyvegmap.pdf wbicyvegmap_poster.pdf
Accuracy Assessment Information	Map of accuracy assessment locations. Accuracy Assessment contingency table.	wbicyaa.pdf wbicy_aamatrix.xls

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Appendix A. Accuracy Assessment of the Avineon Vegetation Map of Western Region of Big Cypress National Preserve

Report on the Accuracy Assessment of the Avineon Vegetation Map of Western Region of Big Cypress National Preserve (Contract No. C211705992) to the National Park Service South Florida/Caribbean Inventory and Monitoring Network. Authored by Dr. Kevin R. T. Whelan and Dr. Andrea J. Atkinson, December 1, 2009.

We assessed the accuracy of the 88,735-hectare (219,269-acre [ac]) terrestrial vegetation map of the western region of Big Cypress National Preserve. The vegetation map was based on the photo interpretation (analytical stereoplotter) of 1:24,000 film-based color infrared aerial photographs acquired in February of 2006 and annotated using the Vegetation Classification System for South Florida Natural Areas (Rutchev et al. 2006). Map annotation of the 354,940 one quarter hectare (.62 ac; 50 × 50-meter [164 × 164 feet {ft}]) grid cells that make up the map adhered to a majority rule; the vegetation community which occupied the majority of the grid cell was the classification given to the whole grid cell (Figure A-1).

The goal of the vegetation mapping project was to produce a thematically accurate vegetation map with an overall classification accuracy of at least 80% with 90% confidence. This was the National Park Services map accuracy requirement and was the standard required by the contract (1994). The accuracy of the map was assessed by collecting field data from 615 randomly selected grid cells distributed throughout the mapped area (Figure A-1). The Institute for Regional Conservation collected the accuracy assessment field data. The accuracy assessment used independent classification (double blind) by two professional botanists for each randomly selected grid cell. Observations at each site were conducted by helicopter at altitudes less than 100 feet (30.5 feet [ft]) and occurred concurrent with the mapping effort. The Institute for Regional Conservation reports are included in *Pilot Implementation of the Field Methods and Lessons Learned Using the Vegetation Classification System for South Florida Natural Areas* (Bradley and Woodmansee 2007). The authors compared the map annotation to the field collected information to determine if the annotation was accurate.

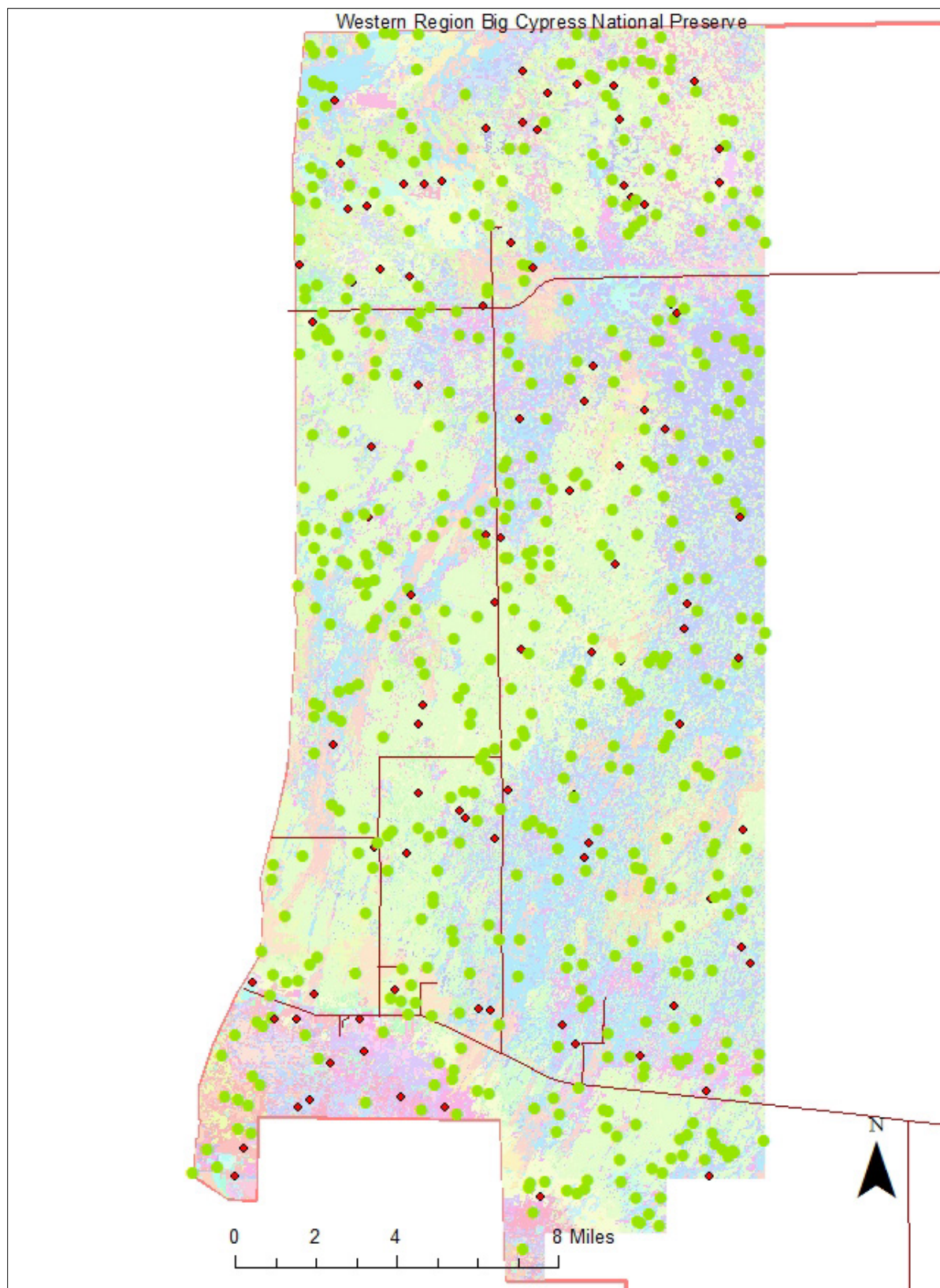


Figure A-1. Map of Western Region of Big Cypress National Preserve with 615 Accuracy Assessment (AA) points displayed. Acceptable are green and Unacceptable are in red.

The western region of Big Cypress National Preserve vegetation map project was part of a larger mapping effort by Avineon in which a 124,607-hectare (307,911-ac) area was mapped. This larger area incorporated part of the Florida Panther National Wildlife Refuge, western region of Big Cypress National Preserve and of NW Everglades National Park. This larger project was comprised of four sections: *Section 1* the Florida Panther National Wildlife Refuge; *Section 2* the northern half of western region of Big Cypress National Preserve; *Section 3* the southern portion of the western region of Big Cypress National Preserve; and *Section 4* the extreme North West region of the Everglades National Park and parts of Big Cypress Preserve. As part of the larger mapping project there was a concurrent accuracy assessment for each section. Each of the four sections were individually assessed for overall map classification accuracy. If the section did not meet this standard, it was returned to the contractor for improvements. Each section was returned to the contractor at least twice. This accuracy assessment report is only for the western region of Big Cypress National Preserve.

Overall accuracy assessment

We projected 615 accuracy assessment (AA) points on to the Avineon, Inc. vegetation map of the western Big Cypress Regional Vegetation map. There was an exact match in classification (complete agreement) for 238 (39%) of the 615 points and there was some form of disagreement for 377 of the 615 points. We then checked all 377 of these points to determine the type and degree of difference between the field classification and the map classification to determine if the map classification would be acceptable. For all 377 accuracy assessment points, we noted the reasoning for either accepting the map classification or rejecting the map classification based upon the field data and classification (see example reason for accepting non-exact matching classifications below). A total of 94 accuracy assessment points were not acceptable. An additional 283 were accepted as having similar habitat classification for a total of 521 acceptable accuracy assessment points. The overall map accuracy was 85% (521 points of the 615 points) with a standard error of 1.452% and with a 90% lower confidence interval of 82% and meets the National Park Services map accuracy requirement.

Examples for “accepting” an initial non-matching cell:

1. the field classification was at a more detailed level than the map classification, but the map classification was correct at the level of detailed mapped
2. the map classification was at a more detailed level than the field classification, but the field notes showed the map classification was an acceptable label
3. if a Forest was misclassified as a Woodland or vice versa and the % cover in the field data was near the cutoff of 60% cover, the point was accepted as accurate. Similar reasoning applied to the Shrubland versus Forest distinction when height was close to the 5-meter (16.4-ft) cutoff between the classes.
4. the field data showed the vegetation was on a boundary (ecotone) between the two vegetation categories in the map classification and field classification (Mixed cell).

5. although co-dominant mixes of mangrove classes (level 4 FMXac, FMXal, FMXar, FMXcl, FMXcr, FMXlr) should have only up to a 60/40% split to qualify for the various FMX categories, splits of up to a 80/20% were “accepted.”

Accuracy assessment by Hierarchical level

The western region of Big Cypress National Preserve vegetation map was annotated using v5.22.07 version of the multi-tier hierarchical Vegetation Classification System for South Florida Natural Areas (Ruthey et al. 2006). The hierarchical designs progress from the most general classes at Level 1 (Forest, Woodland, Scrub, Marsh) to the most specific and detailed classes at Level 6 (Cypress Scrub-Gulfdune Paspalum). The Level 5 and 6 are similar to the alliance and association levels of the National Vegetation Classification Systems. However, the comparison between these two classification systems is not a direct one-to-one relationship.

Since some points were mapped to a very specific classification type, Cypress Scrub-Gulfdune Paspalum (Level 6), the other five hierarchical levels above this classification were known as well. For all 615 accuracy assessment points, an assessment of acceptability was determined for not only the most detailed level mapped but for the level above this classification as well. Since all map annotations were not at the most detailed level, we could only assess down to the level reported so there are fewer assessment points at the more detailed levels. Review of the assessment found that the map was very accurate at Level 1 and 2 (93 and 91%, respectively) and met the National Park Service accuracy requirements (> 80% for the lower 90 Confidence Interval) at all levels except for level 6 (Table A-1). At level 6 the accuracy was 90%, however the lower 90% Confidence Interval was 61%; but this is due to the few over all accuracy assessment points that were sampled at level 6, a total of 10 points. Overall, the map, whether used at the most detailed level or at the higher consolidated level, has sufficient accuracy for it to be used with confidence.

Table A-1. Accuracy by Hierarchical level

Hierarchical Level	Total # AA Points	Acceptable	Not Acceptable	% Correct	Lower 90% CI
level 1	615	571	44	93	91
level 2	615	559	56	91	89
level 3	590	502	88	85	82
level 4	285	249	36	87	84
level 5	144	125	19	87	81
level 6	10	9	1	90	61

Accuracy assessment by most detailed categorical level

Many mapping accuracy assessments are designed to determine categorical map annotation accuracy. This typically is a post-map production process in which the map is completed then following a recommended methodology each map category has a randomly assigned accuracy assessment

location (stratified random) which allow inference to be determined for the map classification of interest. There are many advantages to using this process however, there are some short comings as well. One of which is the high cost associated with trying to assess the accuracy of a large number of map classes. For this map product, with 179 unique classes, the accuracy assessment would need approximately 3,272 assessment locations (following NPS recommended assessment method based on the number of classes and size of each vegetation class). This was well beyond the funding associated with this project. Another limitation to using the post-map accuracy assessment process is the maps need to be completed prior to the assessment beginning. This can create problems on contract-based projects since the contractor cannot get paid until the accuracy assessment is complete, which may take a long time to complete. An additional issue is the temporal gap between the aerial imagery acquisition, which the map is based on, and the time when the accuracy assessment data collection is initiated and completed. If a project takes several years to complete natural disturbance regimes, like fires and windstorms, as well as natural successional processes may lead to an inaccurate accuracy assessment, because field conditions at the time of the assessment may no longer match those captured in the imagery and classified in the map.

Due to the limitations mentioned above, this project used a concurrent map accuracy assessment process which was conducted at the same time the vegetation map was being developed. One advantage of a concurrent assessment is allowing completion of accuracy assessment in a timeframe that can be used to assess the quality of a contractor vegetation map interim deliverable and compel improvements before acceptance of the final map occurs. Additionally, it allows collection of accuracy assessment data in a time much closer to the acquisition of the imagery used to create the map so there are less likely to be problems with vegetation change occurring between image acquisition and completion of the accuracy assessment. There are limitations to the concurrent accuracy assessment mainly due to the complete random sample design for the selection of accuracy assessment locations. A complete random selection of data points will tend to oversample common map classes and undersample or miss rare map classes. This limitation is inherent in the assessment of the western region of Big Cypress Vegetation map.

There were 63 different map categories (35% of all classes used on the map) that had at least one assessment location during the assessment process (Table A-2, Table A-5 is full accuracy assessment data set). The percent acceptability by categories ranged from zero to 100%; with 40 of the categories having 80% or greater acceptability (Table A-2). However, we would caution using categorical assessments that contain less than seven assessment locations.

There are sixteen vegetation map categories that had greater than seven assessment locations and this accounted for the majority (79%) of the accuracy assessment points (484 of the 615, Table A-3). These sixteen classes included some of the largest vegetation classes used to annotate the map, with each class comprising approximately 1% to 22% of the area mapped and cumulatively account for 77% of the mapped area. The majority of these sixteen categories had greater than 80% accuracy; however, four of these categories had less (Table A-3). Hardwood Swamp Forest (10 AA cells) was 70% correct and when found to be incorrect it was generally a cypress community that was identified in the field. Broadleaf Emergent Marsh (10 AA cells) was 75% correct and when found to be

incorrect it was generally panic grass that was identified in the field. Cypress woodland Graminoid (22 AA cells) was 77% correct and when found to be incorrect it was generally a prairie community that was identified in the field. Finally, Graminoid Freshwater Marsh (39 AA cells) was 79% correct and when found to be incorrect it was generally a prairie community that was identified in the field.

During the accuracy assessment field work it was determined there were five classes that were found in the field and appeared to be underutilized in the mapping annotation (Table A-4). Sawgrass Short Marsh (16 AA cells) was correct 63% and when incorrect was found to be classified as Graminoid Freshwater Prairie during map annotation. Cypress-Pine Forest (8 AA cells) was correct 63% and when incorrect was found to be classified as Hardwood Swamp Forest or Pine Lowland-Graminoid during map annotation. Cypress Woodland (8 AA cells) was correct 63% and when incorrect was found to be classified as another Cypress community during map annotation. Swamp Woodland (15 AA cells) was correct 73% and when incorrect was found to be classified as Temperate Hardwood Hammock during map annotation. Cypress Woodland-Open (11 AA cells) was correct 73% and when incorrect was found to be classified as another Cypress community during map annotation.

Review of the accuracy assessment data indicates that most errors were a result of the photo interpreters making incorrect majority/dominance rule decisions within each grid cell. The vegetation community which spatially dominated the grid cell was supposed to be primary vegetation community assigned to the cell. The errors generally indicate that during the field assessment another vegetation type was determined to be the spatial dominate community. Misidentification of specific species (Saw Grass compared to Muhly grass) was second common error associated with the map.

Table A-2. Accuracy by Map Annotation Category.

Number	Map Annotation Category	Acceptable	Not Acceptable	Total AA Points Assessed in Category	% Acceptable by Category
1	Airboat Trail	1	–	1	100
2	Black Mangrove_Red Mangrove Forest	1	1	2	50
3	Black Rush	1	–	1	100
4	Brazilian Pepper Sparse	1	–	1	100
5	Broadleaf Emergent Marsh	6	2	8	75
6	Buttonwood Forest	1	–	1	100
7	Buttonwood_Red Mangrove Shrubland	2	–	2	100
8	Cabbage Palm Lowland_Graminoid	4	–	4	100
9	Cabbage Palm Lowland_Shrub	1	1	2	50

Table A-2 (continued). Accuracy by Map Annotation Category.

Number	Map Annotation Category	Acceptable	Not Acceptable	Total AA Points Assessed in Category	% Acceptable by Category
10	Cabbage Palm Upland_Saw Palmetto	—	1	1	0
11	Cabbage Palm Upland_Shrub	6	—	6	100
12	Cordgrass	3	1	4	75
13	Cypress Forest	3	1	4	75
14	Cypress Forest_Dome	36	5	41	88
15	Cypress Forest_Strand	71	6	77	92
16	Cypress Scrub_Dominant	1	—	1	100
17	Cypress Scrub_Graminoid Marsh	11	—	11	100
18	Cypress Scrub_Graminoid Prairie	6	1	7	86
19	Cypress Scrub_Open Marsh	1	1	2	50
20	Cypress Woodland_Graminoid	17	5	22	77
21	Cypress Woodland_Shrub	6	—	6	100
22	Cypress_Hardwood Forest	25	1	26	96
23	Cypress_Pine Forest	2	1	3	67
24	Graminoid Freshwater Marsh	31	8	39	79
25	Graminoid Freshwater Prairie	120	22	142	85
26	Graminoid Salt Marsh	2	2	4	50
27	Hardwood Hammock _ Pine Forest	3	—	3	100
28	Hardwood Swamp Forest	7	3	10	70
29	Hardwood Swamp Scrub_Graminoid Marsh	1	1	2	50
30	Hardwood Swamp Woodland	—	1	1	0
31	Human Impacted	1	—	1	100
32	Mangrove Forest	1	—	1	100
33	Mangrove Scrub_Graminoid	1	1	2	50
34	Open Marsh	2	—	2	100

Table A-2 (continued). Accuracy by Map Annotation Category.

Number	Map Annotation Category	Acceptable	Not Acceptable	Total AA Points Assessed in Category	% Acceptable by Category
35	Open Water	1	–	1	100
36	ORV Trail	4	2	6	67
37	Pine Flatwoods _ Saw Palmetto	7	–	7	100
38	Pine Flatwoods _ Shrub	8	–	8	100
39	Pine Lowland	1	–	1	100
40	Pine Lowland_Graminoid	36	3	39	92
41	Pine Lowland_Mixed	2	1	3	67
42	Pine Lowland_Shrub	2	2	4	50
43	Pine Upland_Saw Palmetto	2	–	2	100
44	Pine Upland_Shrub	2	1	3	67
45	Red Mangrove Forest	2	–	2	100
46	Red Mangrove Shrubland	3	2	5	60
47	Saw Palmetto Shrubland	3	3	6	50
48	Sawgrass	1	3	4	25
49	Spikerush	1	–	1	100

Table A-3. Accuracy by Map Annotation Category only categories with more than seven accuracy assessment location per category.

Number	Map Annotation Category	Acceptable	Not Acceptable	Total AA Points Assessed in Category	% Acceptable by Category	% of Map Area Comprised by Class
1	Broadleaf Emergent Marsh	6	2	8	75	1
2	Cypress Forest_Dome	36	5	41	88	7
3	Cypress Forest_Strand	71	6	77	92	10
4	Cypress Scrub_Graminoid Marsh	11	—	11	100	2
5	Cypress Woodland_Graminoid	17	5	22	77	4
6	Cypress_Hardwood Forest	25	1	26	96	4
7	Graminoid Freshwater Marsh	31	8	39	79	7
8	Graminoid Freshwater Prairie	120	22	142	85	22
9	Hardwood Swamp Forest	7	3	10	70	3
10	Pine Flatwoods _ Saw Palmetto	7	—	7	100	1
11	Pine Flatwoods _ Shrub	8	—	8	100	1
12	Pine Lowland_Graminoid	36	3	39	92	6
13	Swamp Scrub_Graminoid Prairie	8	1	9	89	1
14	Temperate Hardwood Hammock	20	4	24	83	5
15	Upland Shrubland	12	2	14	86	2
16	Willow Shrubland	6	1	7	86	1
Grand Total		421	63	484	87	77

Table A-4. Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Airboat Trail	Airboat Trail	1	–	1	–
Airboat Trail Total	–	1	–	1	100
Black Mangrove_Red Mangrove Forest	Mangrove Forest	–	1	1	–
	Red Mangrove Forest	1	–	1	–
Black Mangrove_Red Mangrove Forest Total	–	1	1	2	50
Black Rush	Open Salt Marsh	1	–	1	–
Black Rush Total	–	1	–	1	100
Brazilian Pepper Sparse	Brazilian Pepper Dominant	1	–	1	–
Brazilian Pepper Sparse Total	–	1	–	1	100
Broadleaf Emergent Marsh	Arrowhead	5	–	5	–
	Panicgrass	–	1	1	–
	Sawgrass_Short	1	–	1	–
	Wax Myrtle Scrub_Sawgrass	–	1	1	–
Broadleaf Emergent Marsh Total	–	6	2	8	75
Buttonwood Forest	Buttonwood Shrubland	1	–	1	–
Buttonwood Forest Total	–	1	–	1	100
Buttonwood_Red Mangrove Shrubland	Buttonwood Woodland	1	–	1	–
	Cordgrass	1	–	1	–
Buttonwood_Red Mangrove Shrubland Total	–	2	–	2	100
Cabbage Palm Lowland_Graminoid	Cabbage Palm Lowland_Mixed	1	–	1	–
	Swamp Scrub	1	–	1	–
	Swamp Scrub_Graminoid Prairie	1	–	1	–
	Swamp Woodland	1	–	1	–
Cabbage Palm Lowland_Graminoid Total	–	4	–	4	100

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Cabbage Palm Lowland_Shrub	Cabbage Palm Lowland_Mixed	1	–	1	–
	Torpedo Grass Dominant	–	1	1	–
Cabbage Palm Lowland_Shrub Total	–	1	1	2	50
Cabbage Palm Upland_Saw Palmetto	Sawgrass Prairie	–	1	1	–
Cabbage Palm Upland_Saw Palmetto Total	–	–	1	1	0
Cabbage Palm Upland_Shrub	Cabbage Palm Upland_Saw Palmetto	1	–	1	–
	Pine Flatwoods_Saw Palmetto	2	–	2	–
	Upland Woodland	3	–	3	–
Cabbage Palm Upland_Shrub Total	–	6	–	6	100
Cordgrass	Cordgrass	3	–	3	–
	Willow Scrub_Graminoid Marsh	–	1	1	–
Cordgrass Total	–	3	1	4	75
Cypress Forest	Cypress Forest	1	–	1	–
	Cypress Forest_Strand	2	–	2	–
	Cypress Woodland_Graminoid	–	1	1	–
Cypress Forest Total	–	3	1	4	75
Cypress Forest_Dome	Cypress Forest	4	–	4	–
	Cypress Forest_Dome	17	–	17	–
	Cypress Forest_Strand	2	–	2	–
	Cypress Woodland	–	1	1	–
	Cypress Woodland_Graminoid	8	2	10	–
	Cypress Woodland_Open Marsh	4	2	6	–
	Pine Lowland_Graminoid	1	–	1	–
Cypress Forest_Dome Total	–	36	5	41	88

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Cypress Forest_Strand	Cypress Forest	4	—	4	—
	Cypress Forest_Dome	3	—	3	—
	Cypress Forest_Strand	38	—	38	—
	Cypress Scrub_Graminoid Marsh	—	1	1	—
	Cypress Woodland	3	1	4	—
	Cypress Woodland_Graminoid	14	2	16	—
	Cypress Woodland_Open Marsh	2	1	3	—
	Cypress Woodland_Shrub	2	—	2	—
	Cypress_Hardwood Forest	2	—	2	—
	Hardwood Swamp Forest	—	1	1	—
	Pine Lowland_Graminoid	2	—	2	—
	Willow Shrubland	1	—	1	—
	Cypress Forest_Strand Total	—	71	6	77
Cypress Scrub_Dominant	Cypress Scrub_Open Marsh	1	—	1	—
Cypress Scrub_Dominant Total	—	1	—	1	100
Cypress Scrub_Graminoid Marsh	Cypress Scrub	1	—	1	—
	Cypress Scrub_Graminoid Marsh	2	—	2	—
	Cypress Scrub_Graminoid Prairie	1	—	1	—
	Cypress Scrub_Little Bluestem	1	—	1	—
	Cypress Scrub_Open Marsh	4	—	4	—
	Cypress Scrub_Sawgrass	1	—	1	—
	Freshwater Marsh	1	—	1	—
Cypress Scrub_Graminoid Marsh Total	—	11	—	11	100

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Cypress Scrub_Graminoid Prairie	Cypress Scrub_Graminoid Marsh	1	–	1	–
	Cypress Scrub_Graminoid Prairie	1	–	1	–
	Cypress Scrub_Gulfdune Paspalum	–	1	1	–
	Cypress Woodland_Graminoid	3	–	3	–
	Sawgrass Prairie	1	–	1	–
Cypress Scrub_Graminoid Prairie Total	–	6	1	7	86
Cypress Scrub_Open Marsh	Cypress Scrub_Sawgrass	1	–	1	–
	Cypress Woodland	–	1	1	–
Cypress Scrub_Open Marsh Total	–	1	1	2	50
Cypress Woodland_Graminoid	Cypress Forest_Strand	1	–	1	–
	Cypress Scrub_Gulfdune Paspalum	–	1	1	–
	Cypress Woodland_Graminoid	9	–	9	–
	Cypress Woodland_Open Marsh	2	–	2	–
	Cypress_Pine Forest	2	1	3	–
	Graminoid Freshwater Prairie	1	–	1	–
	Graminoid Freshwater Prairie Saw Grass Beakrush	–	1	1	–
	Muhly Grass	–	1	1	–
	Sawgrass_Short	–	1	1	–
	Swamp Woodland	1	–	1	–
	Woodland	1	–	1	–
Cypress Woodland_Graminoid Total	–	17	5	22	77

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Cypress Woodland_Shrub	Cypress Forest	1	–	1	–
	Cypress Forest_Strand	3	–	3	–
	Cypress Woodland_Graminoid	1	–	1	–
	Willow Shrubland	1	–	1	–
Cypress Woodland_Shrub Total	–	6	–	6	100
Cypress_Hardwood Forest	Cypress Forest_Strand	5	1	6	–
	Cypress Woodland	2	–	2	–
	Cypress Woodland_Shrub	2	–	2	–
	Cypress_Hardwood Forest	12	–	12	–
	Pop Ash Forest	1	–	1	–
	Swamp Forest	1	–	1	–
	Swamp Woodland	1	–	1	–
	Upland Scrub_Herbaceous	1	–	1	–
Cypress_Hardwood Forest Total	–	25	1	26	96
Cypress_Pine Forest	Cypress Forest_Strand	–	1	1	–
	Cypress_Pine Forest	2	–	2	–
Cypress_Pine Forest Total	–	2	1	3	67
Graminoid Freshwater Marsh	Common Reed	2	–	2	–
	Cordgrass	1	1	2	–
	Freshwater Marsh	2	–	2	–
	Graminoid Freshwater Marsh	7	–	7	–
	Graminoid Freshwater Prairie	1	5	6	–
	Open Marsh	4	–	4	–
	Panicgrass	4	–	4	–
	Pop Ash Forest	–	1	1	–
	Sawgrass Prairie	1	–	1	–

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Graminoid Freshwater Marsh (continued)	Sawgrass_Short	7	–	7	–
	Spikerush	2	–	2	–
	Willow Scrub_Sawgrass	–	1	1	–
Graminoid Freshwater Marsh Total	–	31	8	39	79
Graminoid Freshwater Prairie	Beakrush	–	1	1	–
	Black Sedge	3	–	3	–
	Cypress Scrub_Little Bluestem	1	–	1	–
	Cypress Scrub_Sawgrass	1	–	1	–
	Cypress Woodland_Graminoid	1	–	1	–
	Freshwater Marsh	6	–	6	–
	Graminoid Freshwater Marsh	5	5	10	–
	Graminoid Freshwater Prairie	85	–	85	–
	Graminoid Freshwater Prairie Saw Grass Muhly Grass	1	–	1	–
	Gulfdune Paspalum	–	6	6	–
	Little Bluestem	3	–	3	–
	Muhly Grass	3	–	3	–
	Open Prairie	1	–	1	–
	Panicgrass	–	1	1	–
	Pine Flatwoods_Saw Palmetto	–	1	1	–
	Pine Flatwoods_Shrub	1	–	1	–
	Pine Lowland	1	–	1	–
	Pine Lowland_Graminoid	4	–	4	–
	Sawgrass	–	2	2	–
	Sawgrass Prairie	3	–	3	–
	Sawgrass_Short	1	5	6	–
	Spikerush	–	1	1	–

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Graminoid Freshwater Prairie Total	–	120	22	142	85
Graminoid Salt Marsh	Cordgrass	2	–	2	–
	Open Marsh	–	2	2	–
Graminoid Salt Marsh Total	–	2	2	4	50
Hardwood Hammock_Pine Forest	Pine Lowland_Shrub	2	–	2	–
	Sawgrass-Paspalum-Little Bluestem	1	–	1	–
Hardwood Hammock_Pine Forest Total	–	3	–	3	100
Hardwood Swamp Forest	Cypress Forest_Strand	–	2	2	–
	Cypress_Hardwood Forest	1	–	1	–
	Cypress_Pine Forest	–	1	1	–
	Hardwood Swamp Forest	1	–	1	–
	Hardwood Swamp Woodland	1	–	1	–
	Swamp Woodland	2	–	2	–
	Willow Shrubland	1	–	1	–
	Woodland	1	–	1	–
Hardwood Swamp Forest Total	–	7	3	10	70
Hardwood Swamp Scrub_Graminoid Marsh	Panicgrass	–	1	1	–
	Wax Myrtle Scrub_Graminoid Marsh	1	–	1	–
Hardwood Swamp Scrub_Graminoid Marsh Total	–	1	1	2	50
Hardwood Swamp Woodland	Temperate Hardwood Hammock	–	1	1	–
Hardwood Swamp Woodland Total	–	–	1	1	0
Human Impacted	Spoil	1	–	1	–
Human Impacted Total	–	1	–	1	100

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Mangrove Forest	Mangrove Woodland Red	1	–	1	–
Mangrove Forest Total	–	1	–	1	100
Mangrove Scrub_Graminoid	Cordgrass	1	–	1	–
	Transitional Bayhead Shrubland	–	1	1	–
Mangrove Scrub_Graminoid Total	–	1	1	2	50
Open Marsh	Graminoid Freshwater Marsh	1	–	1	–
	Open Marsh	1	–	1	–
Open Marsh Total	–	2	–	2	100
Open Water	Open Water	1	–	1	–
Open Water Total	–	1	–	1	100
ORV Trail	Graminoid Freshwater Marsh	–	1	1	–
	Graminoid Freshwater Prairie	2	–	2	–
	Little Bluestem	1	–	1	–
	Muhly Grass	–	1	1	–
	Pine Flatwoods_Mixed	1	–	1	–
ORV Trail Total	–	4	2	6	67
Pine Flatwoods_Saw Palmetto	Cypress Forest_Strand	1	–	1	–
	Graminoid Freshwater Prairie	1	–	1	–
	Pine Flatwoods	1	–	1	–
	Pine Flatwoods_Mixed	1	–	1	–
	Pine Flatwoods_Saw Palmetto	2	–	2	–
	Saw Palmetto Shrubland	1	–	1	–
Pine Flatwoods_Saw Palmetto Total	–	7	–	7	100

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Pine Flatwoods_Shrub	Cabbage Palm Upland_Saw Palmetto	1	–	1	–
	Forest	1	–	1	–
	Graminoid Freshwater Marsh	1	–	1	–
	Pine Flatwoods_Saw Palmetto	3	–	3	–
	Pine Lowland	1	–	1	–
	Pine Lowland_Mixed	1	–	1	–
Pine Flatwoods_Shrub Total	–	8	–	8	100
Pine Lowland	Pine Lowland_Mixed	1	–	1	–
Pine Lowland Total	–	1	–	1	100
Pine Lowland_Graminoid	Cypress Woodland_Graminoid	2	–	2	–
	Cypress_Pine Forest	–	1	1	–
	Pine Flatwoods_Mixed	–	2	2	–
	Pine Lowland	4	–	4	–
	Pine Lowland_Graminoid	23	–	23	–
	Pine Lowland_Mixed	4	–	4	–
	Swamp Scrub	1	–	1	–
	Swamp Woodland	2	–	2	–
Pine Lowland_Graminoid Total	–	36	3	39	92
Pine Lowland_Mixed	Pine Flatwoods_Mixed	–	1	1	–
	Pine Lowland_Mixed	1	–	1	–
	Pine Lowland_Shrub	1	–	1	–
Pine Lowland_Mixed Total	–	2	1	3	67
Pine Lowland_Shrub	Pine Flatwoods_Saw Palmetto	–	1	1	–
	Pine Flatwoods_Shrub	–	1	1	–
	Pine Lowland_Mixed	1	–	1	–
	Woodland	1	–	1	–
Pine Lowland_Shrub Total	–	2	2	4	50

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Pine Upland_Saw Palmetto	Pine Flatwoods_Mixed	1	–	1	–
	Pine Flatwoods_Saw Palmetto	1	–	1	–
Pine Upland_Saw Palmetto Total	–	2	–	2	100
Pine Upland_Shrub	Pine Flatwoods	1	–	1	–
	Pine Flatwoods_Shrub	1	–	1	–
	Pine Lowland_Shrub	–	1	1	–
Pine Upland_Shrub Total	–	2	1	3	67
Red Mangrove Forest	Mixed Mangrove Forest	1	–	1	–
	Red Mangrove Shrubland	1	–	1	–
Red Mangrove Forest Total	–	2	–	2	100
Red Mangrove Shrubland	Buttonwood Shrubland	–	2	2	–
	Open Marsh	1	–	1	–
	Red Mangrove Shrubland	1	–	1	–
	Wax Myrtle Shrubland	1	–	1	–
Red Mangrove Shrubland Total	–	3	2	5	60
Saw Palmetto Shrubland	Pine Flatwoods_Saw Palmetto	–	3	3	–
	Saw Palmetto Shrubland	2	–	2	–
	Upland Shrubland	1	–	1	–
Saw Palmetto Shrubland Total	–	3	3	6	50
Sawgrass	Black Rush	–	1	1	–
	Cordgrass	–	1	1	–
	Graminoid Salt Marsh	–	1	1	–
	Sawgrass_Short	1	–	1	–
Sawgrass Total	–	1	3	4	25
Spikerush	Open Marsh	1	–	1	–
Spikerush Total	–	1	–	1	100

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Swamp Scrub_Graminoid Prairie	Hardwood Swamp Scrub_Graminoid Marsh	1	—	1	—
	Hardwood Swamp Scrub_Sawgrass	3	—	3	—
	Swamp Shrubland	1	—	1	—
	Temperate Hardwood Hammock	—	1	1	—
	Wax Myrtle Scrub_Graminoid Marsh	1	—	1	—
	Wax Myrtle Scrub_Herbaceous	1	—	1	—
	Wax Myrtle Shrubland	1	—	1	—
Swamp Scrub_Graminoid Prairie Total	—	8	1	9	89
Swamp Shrubland	Freshwater Marsh	1	—	1	—
	Swamp Shrubland	1	—	1	—
	Swamp Woodland	1	1	2	—
	Upland Woodland	1	—	1	—
	Wax Myrtle Shrubland	1	—	1	—
Swamp Shrubland Total	—	5	1	6	83
Swamp Woodland	Swamp Woodland	1	—	1	—
Swamp Woodland Total	—	1	—	1	100
Temperate Hardwood Hammock	Cypress_Pine Forest	1	—	1	—
	Forest	1	—	1	—
	Pine Lowland_Shrub	—	1	1	—
	Swamp Woodland	—	3	3	—
	Temperate Hardwood Hammock	14	—	14	—
	Temperate Hardwood Shrubland	1	—	1	—
	Upland Woodland	3	—	3	—
Temperate Hardwood Hammock Total	—	20	4	24	83

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
Upland Scrub	Upland Scrub	1	–	1	–
Upland Scrub Total	–	1	–	1	100
Upland Scrub_Graminoid Prairie	Saw Palmetto Shrubland	2	–	2	–
	Swamp Scrub	1	–	1	–
	Upland Scrub	1	–	1	–
	Wax Myrtle Shrubland	–	1	1	–
Upland Scrub_Graminoid Prairie Total	–	4	1	5	80
Upland Shrubland	Graminoid Freshwater Marsh	1	–	1	–
	Graminoid Freshwater Prairie	1	–	1	–
	Pine Flatwoods	1	–	1	–
	Pine Flatwoods_Saw Palmetto	–	2	2	–
	Pine Upland_Saw Palmetto	1	–	1	–
	Saw Palmetto Shrubland	4	–	4	–
	Temperate Hardwood Hammock	1	–	1	–
	Upland Scrub	1	–	1	–
	Upland Shrubland	2	–	2	–
Upland Shrubland Total	–	12	2	14	86
Upland Woodland	Upland Shrubland	1	–	1	–
	Upland Woodland	3	–	3	–
Upland Woodland Total	–	4	–	4	100
Wax Myrtle Shrubland	Swamp Shrubland	1	–	1	–
Wax Myrtle Shrubland Total	–	1	–	1	100
White Mangrove Forest	Buttonwood Shrubland	–	1	1	–
	Mixed Mangrove Forest	1	–	1	–
	White Mangrove Forest	1	–	1	–
White Mangrove Forest Total	–	2	1	3	67

Table A-4 (continued). Accuracy for Map Annotation Category compared to field assessment category all categories with more than seven accuracy assessment location per category.

Map Annotation Category	Field Assessment Category	Accept	Not Accept	Total	% Accept by Category
White Mangrove_Red Mangrove Forest	Black Mangrove_White Mangrove Forest	–	1	1	–
	Mangrove Forest	1	–	1	–
	Mixed Mangrove Forest	1	–	1	–
	Red Mangrove Forest	1	–	1	–
	White Mangrove Forest	1	–	1	–
White Mangrove_Red Mangrove Forest Total	–	4	1	5	80
White Mangrove_Red Mangrove Shrubland	Mangrove Forest	1	–	1	–
	Mangrove Woodland	1	–	1	–
White Mangrove_Red Mangrove Shrubland Total	–	2	–	2	100
Willow Scrub_Graminoid Marsh	Willow Scrub_Graminoid Marsh	1	–	1	–
Willow Scrub_Graminoid Marsh Total	–	1	–	1	100
Willow Shrubland	Pickerelweed	1	–	1	–
	Sawgrass_Tall	–	1	1	–
	Swamp Woodland	2	–	2	–
	Willow Shrubland	3	–	3	–
Willow Shrubland Total	–	6	1	7	86
Grand Total	–	521	94	615	85

Table A-5. Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
1	0	8/22/2006	7495	465607	2897121	FHT	WU	No	Yes	ok
2	91	8/22/2006	7496	466207	2897521	MFG	MF	No	Yes	ok
3	26	8/22/2006	7497	466557	2898021	CStO	CStGc	No	Yes	on edge between classes
4	64	8/22/2006	7498	466157	2898271	MFB	MFBs	No	Yes	ok, one level higher than field classification
5	25	8/22/2006	7499	465857	2900021	FStS	FStH	Yes	Yes	–
6	17	8/22/2006	7500	466257	2902821	FStS	FStS	Yes	Yes	–
7	16	8/22/2006	7501	466307	2902871	FStH	WStS	No	Yes	height of shrubland difference
8	55	8/23/2006	7563	466607	2892521	WSsG	CSGp	No	Yes	ok palms could be dominant
9	20	8/24/2006	7590	466557	2891871	MFGP	MFGPcm	No	Yes	ok, one level higher than field classification
10	50	8/24/2006	7591	466707	2891721	MFGP	MFGP	Yes	Yes	–
11	1	8/24/2006	7592	466807	2891421	MFGP	MFGP	Yes	Yes	–
12	170	8/24/2006	7607	475007	2856671	FMr	SMr	No	Yes	ok- red shrubland not forest
13	27	8/24/2006	7608	475307	2857321	MFG	MSGs	No	No	Spartina bakeri
14	82	8/24/2006	7609	475457	2857921	MFG	MFGH	No	Yes	ok one level higher
15	110	8/24/2006	7610	474807	2857671	SSs,MFGtS	SSs	Yes	Yes	ok
16	157	8/24/2006	7615	477907	2860071	MFGP	MFGP	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
17	66	8/24/2006	7616	478307	2859721	FStH	FStH	Yes	Yes	–
18	135	8/24/2006	7617	479057	2860171	WSpG	WSpG	Yes	Yes	–
19	45	8/24/2006	7618	481107	2859771	FStS	SSs	No	Yes	ok mixed cell
20	103	8/24/2006	7619	480857	2859621	MFGP	MFGP	Yes	Yes	–
21	5	8/24/2006	7620	480957	2858971	FStS	WStG	No	Yes	–
22	93	8/24/2006	7621	482007	2858121	WStG	CStGs	No	No	Cypress canopy below 5 meters
23	24	8/24/2006	7622	482757	2858921	WSpG	WSpX	No	Yes	ok
24	151	8/24/2006	7623	482907	2859121	WSpG	WSPx	No	Yes	ok
25	11	8/24/2006	7624	483007	2859071	MFGP	MFGP	Yes	Yes	–
26	160	8/24/2006	7625	482107	2859821	CStGP	WStG	No	Yes	ok
27	185	8/24/2006	7626	479707	2858421	MFGP	MFPO	No	Yes	ok
28	67	8/24/2006	7627	478407	2858771	MFGP	MFGP	Yes	Yes	–
29	44	9/14/2006	0	461407	2858271	OW	OW	Yes	Yes	ok
30	154	9/15/2006	7673	462407	2858521	FMXar,EsS	FMr	No	Yes	Red 60 to 70 % of canopy - ok - no Schinus mentioned
31	20	9/15/2006	7689	462007	2859171	FMr	FMX	No	Yes	1 to 5 % Laguncularia found in field visit - Avicennia is 80 to 90 %
32	150	9/15/2006	7690	463257	2860021	FMXlr	FMX	No	Yes	Rhizophora 40 % Avicennia 30 % Laguncularia only 40 %

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
33	132	9/15/2006	7691	463757	2859821	FMI	FMI	Yes	Yes	Laguncularia dominates 70 % Rhizophora 20 % Avicennia 10 %
34	156	9/15/2006	7692	463507	2859271	FMXlr	FMXal	No	No	reds less than 10 % dominated by Laguncularia and Avicennia
35	136	9/15/2006	7697	463107	2858121	FMXar	FM	No	No	reds only in subcanopy and less than 10 % Forest canopy Avicennia 50 and Laguncularia 50
36	183	9/20/2006	7737	476757	2857421	MFG	MFO	No	Yes	ok
37	41	9/20/2006	7738	477057	2857621	MFG	MFGH	No	Yes	OK
38	162	9/20/2006	7739	477157	2857971	MFG	MFO	No	Yes	ok
39	56	9/20/2006	7740	478507	2857921	FStS	FStS	Yes	Yes	–
40	104	9/20/2006	7741	480057	2857271	FStS	FStS	Yes	Yes	–
41	115	9/20/2006	7742	479607	2856621	FStS	WStG	No	Yes	ok on edge between classes
42	33	9/20/2006	7743	479257	2856271	CStGP	WStG	No	Yes	ok on edge between classes
43	171	9/20/2006	7744	480007	2856171	FStD	WStO	No	Yes	ok on edge between classes
44	130	9/20/2006	7745	477957	2860718	MFGP	MFGP	Yes	Yes	–
45	153	9/20/2006	7746	477807	2860768	MFG	MFGP	No	Yes	ok
46	207	9/20/2006	7747	476807	2861668	FStH	FStH	Yes	Yes	–
47	166	9/20/2006	7748	475807	2861268	WStG	FStp	No	Yes	ok on edge between classes

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
48	4	9/20/2006	7749	476057	2860618	FStH	FStH	Yes	Yes	–
49	74	9/20/2006	7750	475057	2860818	FStS	FSt	No	Yes	lower level
50	26	9/22/2006	7751	472657	2896418	MFG	MFGa	No	Yes	ok, one level higher than field classification
51	161	9/22/2006	7752	472807	2897568	MFG	MFGa	No	Yes	ok, one level higher than field classification
52	79	9/22/2006	7753	473757	2897768	MFB	MFBs	No	Yes	ok, one level higher than field classification
53	60	9/22/2006	7754	474157	2896768	MFG	MFO	No	Yes	ok
54	92	9/22/2006	7755	475907	2897468	MFGc	MFGcS	No	Yes	ok, one level higher than field classification
55	236	9/22/2006	7756	478157	2897818	WUpS	WUpF	No	Yes	pine Flatwoods better classification
56	190	9/22/2006	7757	478607	2897568	WUsSs	MFGPc	No	No	classified smaller vegetation type
57	227	9/22/2006	7758	478707	2896768	MFGP	MFG	No	Yes	ok, one level higher than field classification
58	243	9/22/2006	7759	478157	2896918	MFG	MFG	Yes	Yes	–
59	160	9/22/2006	7760	476807	2895718	WUpSs	WUpFx	No	Yes	pine Flatwoods better classification
60	145	9/22/2006	7761	476907	2895168	MFG	MFGa	No	Yes	ok, one level higher than field classification
61	116	9/22/2006	7762	475307	2895118	FStD	FSt	No	Yes	ok

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
62	223	9/22/2006	7763	474107	2895318	MFGP	MFGc	No	No	marsh
63	97	9/22/2006	7765	473257	2896018	FHT	FHT	Yes	Yes	–
64	140	9/22/2006	7766	471907	2896268	MFG	MFGa	No	Yes	ok, one level higher than field classification
65	202	9/22/2006	7767	470107	2895768	MFB	MFGcS	No	Yes	mix Graminoid / broad leaf marsh
66	250	9/22/2006	7768	469257	2896568	FHT	FHT	Yes	Yes	–
67	25	9/22/2006	7769	468657	2897268	MFB	MFBs	No	Yes	ok, one level higher than field classification
68	85	9/22/2006	7770	468407	2896768	MFGP	MFGcS	No	No	marsh
69	171	9/22/2006	7771	467607	2896618	WSh	FHT	No	No	upland temperate hammock
70	0	9/22/2006	7772	467657	2897568	MFB	MFBs	No	Yes	ok, one level higher than field classification
71	70	9/22/2006	7773	467307	2898468	FSH	FStS	No	No	cypress dominates
72	14	9/22/2006	7774	467107	2900968	WSsS	EpD	No	No	woodland does not dominate - marsh
73	15	9/22/2006	7775	467007	2901518	FStS	FStS	Yes	Yes	–
74	87	9/22/2006	7776	466957	2901518	FStS	FSt	No	Yes	ok
75	35	9/22/2006	7777	467007	2902868	FStS	FStS	Yes	Yes	–
76	180	9/22/2006	7778	468257	2903218	FStH	FSf	No	Yes	ok the hardwood is pop ash better would be FSf or FSH

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
77	110	9/22/2006	7779	468157	2903418	FHT	FHT	Yes	Yes	–
78	217	9/22/2006	7780	469107	2903668	FStS	FStS	Yes	Yes	–
79	245	9/22/2006	7781	469457	2903568	FStS	FStS	Yes	Yes	–
80	127	9/22/2006	7782	470407	2903568	MFB	MFBs	No	Yes	ok, one level higher than field classification
81	77	9/22/2006	7783	470357	2902168	WStS	FSt	No	Yes	ok on edge
82	114	9/22/2006	7784	472307	2901218	FStD	FStD	Yes	Yes	–
83	61	9/22/2006	7785	473107	2899868	SU	WUpFSs	No	No	pinus greater than 20 %
84	207	9/22/2006	7786	472157	2899068	FStS	FStS	Yes	Yes	–
85	134	9/22/2006	7787	471357	2897768	MFB	MFGa	No	No	graminoid marsh
86	128	9/22/2006	7788	470657	2897618	MFB	CsmGc	No	No	Shrubs with graminoids
87	54	9/22/2006	7789	469857	2897618	SS	WS	No	No	swamp maple woodland dominates cell
88	147	9/22/2006	7790	470257	2898518	WSpG	Cs	No	Yes	ok but swamp scrub appears to be dominate in cell
89	209	9/22/2006	7791	470707	2898818	FStS	FStS	Yes	Yes	–
90	22	9/22/2006	7792	470707	2899118	SSs	Ws	No	Yes	ok density difference
91	36	9/22/2006	7793	467807	2898968	FHT	FHT	Yes	Yes	–
92	240	9/22/2006	7794	467957	2898918	FHT	FHT	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
93	106	9/22/2006	7795	469057	2899168	WUpFS	MFG	No	Yes	ok, one level higher than field classification
94	43	9/22/2006	7796	469407	2898868	FHT	FHT	Yes	Yes	–
95	132	9/22/2006	7797	470157	2899868	FStS	FSt	No	Yes	ok
96	78	9/22/2006	7798	469807	2900418	WUpFS	F	No	Yes	ok pine hammock mix
97	112	9/22/2006	7799	474057	2899068	SSs	WS	No	Yes	ok -height difference
98	90	9/22/2006	7800	474657	2899018	WUsS	WU	No	Yes	ok
99	24	9/22/2006	7801	474607	2900118	MFG	MFGP	No	No	prairie
100	181	9/22/2006	7802	475157	2899818	MFGP	MFGa	No	No	Graminoid marsh
101	234	9/22/2006	7803	475457	2900118	CSGP	SSm	No	Yes	ok canopy density between scrub and shrubland
102	129	10/4/2006	7804	466357	2896868	FHT	FHT	Yes	Yes	–
103	144	10/4/2006	7805	465707	2897018	WSsG	WS	No	Yes	ok
104	119	10/4/2006	7825	465707	2895418	WUpFS	WUsSs	No	Yes	mix between veg palm dominated and pine dominated
105	113	10/4/2006	7845	465807	2900918	FStS	FStS	Yes	Yes	–
106	196	10/4/2006	7846	466757	2900718	FStS	FStS	Yes	Yes	–
107	159	10/4/2006	7847	466557	2901568	FStS	FStS	Yes	Yes	–
108	177	10/4/2006	7848	466257	2901668	FStS	FStS	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
109	120	10/4/2006	7849	466257	2901718	FStS	FStS	Yes	Yes	–
110	137	10/4/2006	7850	466107	2903118	FStH	FStH	Yes	Yes	–
111	186	10/5/2006	7892	465707	2894418	FHT	WS	No	No	low land species
112	188	10/5/2006	7895	466407	2893618	WSsG	CS	No	Yes	height on edge between scrub and woodland
113	108	10/5/2006	7900	465907	2893068	WSsG	WSsX	No	Yes	difference between graminoid and mixed classes
114	122	10/5/2006	7901	465957	2893418	WUsS	WU	No	Yes	ok
115	106	10/5/2006	7902	466207	2892118	MFG	MFGP	No	No	graminoid prairie
116	169	10/5/2006	7903	466407	2891618	MFGP	MFGP	Yes	Yes	–
117	125	10/5/2006	7904	466857	2891468	MFGP	MFGP	Yes	Yes	–
118	211	10/11/2006	7905	478807	2895668	CStGP	MFGPc	No	Yes	on edge between classes based on % cypress canopy cover
119	199	10/11/2006	7906	479007	2895968	MFGP	MFGPc	No	Yes	ok, one level higher than field classification
120	187	10/11/2006	7907	479307	2896168	MFGP	MFGPc	No	Yes	ok, one level higher than field classification
121	8	10/11/2006	7908	479907	2896418	MFGP	WUpFS	No	Yes	ok looks like 50/50 split on cell between pine Flatwoods and graminoid prairie

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Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
122	175	10/11/2006	7909	480457	2897968	MFG	MFGpc	No	Yes	ok, one level higher than field classification
123	201	10/11/2006	7910	480657	2898968	WUsS	WUpFSs	Yes	Yes	ok
124	221	10/11/2006	7911	479607	2898218	MFGP	MFGP	Yes	Yes	–
125	188	10/11/2006	7912	478907	2897118	SUs	WUpFSs	No	No	canopy > 40%
126	12	10/11/2006	7913	479057	2897018	MFGP	MFGP	Yes	Yes	–
127	228	10/11/2006	7914	477757	2898468	FHT	FHT	Yes	Yes	–
128	129	10/11/2006	7915	477357	2898818	MFG	MFGcS	No	Yes	ok, one level higher than field classification
129	230	10/11/2006	7916	478607	2899418	MFG	MFGcS	No	Yes	ok, one level higher than field classification
130	244	10/11/2006	7917	479507	2900118	CUG	SUs	No	Yes	on edge between classes based on % cypress canopy cover
131	177	10/11/2006	7918	478457	2900218	MFGP	MFG	No	No	prairie - Rynchospora dominated
132	255	10/11/2006	7919	478207	2900818	MFGP	WSp	No	Yes	mixed cell - prairie and pines
133	183	10/11/2006	7920	477907	2901118	WUpSs	WUpFSs	No	Yes	pine Flatwoods better classification
134	229	10/11/2006	7921	478207	2901568	SUs	WUpFSs	No	No	pine canopy >30%
135	67	10/11/2006	7922	477457	2901818	CUG	Cu	No	Yes	ok
136	118	10/11/2006	7923	477257	2901968	SS	Wu	No	Yes	on edge between classes

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
137	210	10/11/2006	7924	476757	2901618	CUG	SSm	No	No	listed as upland should be lowland veg class
138	166	10/11/2006	7925	475557	2901268	CSWG	MFGa	No	No	marsh dominant
139	204	10/11/2006	7926	474607	2902118	CSGP	FHT	No	No	upland veg class temperate hammock
140	156	10/11/2006	7927	476157	2902418	CSGP	CSmH	No	Yes	ok
141	251	10/11/2006	7928	476457	2902418	MFGP	WSpG	No	Yes	ok mixed cell pines appear to dominate
142	32	10/11/2006	7929	476757	2903568	SS	SSm	No	Yes	ok, one level higher than field classification
143	56	10/11/2006	7930	477457	2903568	SSm	SS	No	Yes	ok
144	142	10/11/2006	7931	478157	2902368	FHT	FHT	Yes	Yes	–
145	249	10/11/2006	7932	478607	2902468	SU	MFGP	No	Yes	mixed cell
146	20	10/11/2006	7933	479307	2902568	CUG	Sus	No	Yes	mixed cell
147	69	10/11/2006	7934	479657	2902418	SU	MFG	No	Yes	ok mixed cell marsh is really dominant
148	55	10/11/2006	7935	479307	2903218	CUG	CS	No	Yes	ok
149	205	10/11/2006	7936	480057	2903468	SU	CU	No	Yes	ok
150	45	10/11/2006	7937	480457	2902618	CU	CU	Yes	Yes	–
151	66	10/11/2006	7938	480407	2902168	MFO	MFO	Yes	Yes	–
152	96	10/11/2006	7939	479807	2901668	MFGP	MFGP	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
153	247	10/11/2006	7940	480207	2901018	MFGP	MFG	No	Yes	ok
154	95	10/11/2006	7941	481407	2901718	MFGP	MFG _e	No	No	Marsh - spike rush
155	182	10/11/2006	7942	481457	2901318	SU	SUs	No	Yes	ok, one level higher than field classification
156	212	10/11/2006	7943	482557	2900218	MFG	MFG _e	No	Yes	ok, one level higher than field classification
157	4	10/11/2006	7944	482957	2900168	MFG	MFG _c S	No	Yes	ok, one level higher than field classification
158	213	10/11/2006	7945	482657	2899168	MFG	MFG _e	No	Yes	ok, one level higher than field classification
159	93	10/11/2006	7946	482407	2899068	WStG	MFGP _{cr}	No	No	no canopy
160	113	10/11/2006	7947	483557	2898768	SU	WUpF	No	Yes	mixed cell
161	98	10/11/2006	7948	482407	2897668	MFGP	MFG	No	No	marsh
162	155	10/11/2006	7949	482007	2897118	WUsS	WUsS _s	No	Yes	ok, one level higher than field classification
163	192	10/11/2006	7950	482957	2897268	FSt	FStS	No	Yes	ok field called strand
164	64	10/11/2006	7951	483907	2897318	MFG	MFG	Yes	Yes	–
165	62	10/11/2006	7952	484207	2895318	FSt	FST _s	No	Yes	ok field called strand
166	136	10/11/2006	7953	483807	2896068	FSt	FST	Yes	Yes	–
167	31	10/11/2006	7954	483607	2896168	FStD	FST	No	Yes	ok

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
168	39	10/11/2006	7955	483007	2896018	MFG	MFGcs	No	Yes	ok, one level higher than field classification
169	11	10/11/2006	7956	481657	2895768	CStG	CStG	Yes	Yes	–
170	219	10/12/2006	0	481557	2890918	FStD	WStO	No	Yes	woodland better
171	256	10/12/2006	7957	483257	2893218	FStS	WStG	No	Yes	on edge
172	170	10/12/2006	7958	483457	2893168	FStS	WSt	No	Yes	on edge
173	144	10/12/2006	7959	483457	2892718	FHT	FHT	Yes	Yes	–
174	102	10/12/2006	7960	483607	2892618	FStS	WSt	No	Yes	on edge
175	125	10/12/2006	7961	483357	2891468	WStG	MFGP	No	Yes	ok
176	193	10/12/2006	7962	483057	2891368	MFGP	CStGc	No	Yes	ok but scrub cypress > 10 % canopy
177	76	10/12/2006	7963	483407	2891068	CStG	CStO	No	Yes	ok
178	196	10/12/2006	7964	483957	2890968	CStG	CStO	No	Yes	ok
179	216	10/12/2006	7965	483507	2890018	CStD	CStO	No	Yes	ok
180	121	10/12/2006	7966	482757	2889568	FStD	WStO	No	Yes	ok on edge between classes
181	89	10/12/2006	7967	483207	2889018	CStG	CSt	No	Yes	ok
182	157	10/12/2006	7968	482307	2888618	FStD	FStD	Yes	Yes	–
183	72	10/12/2006	7969	482757	2888468	CStG	CStO	No	Yes	ok
184	65	10/12/2006	7970	483957	2887368	FStD	FStD	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
185	68	10/12/2006	7971	482757	2886818	FStD	FStD	Yes	Yes	–
186	222	10/12/2006	7972	481757	2886568	WSpG	WSpG	Yes	Yes	–
187	86	10/12/2006	7973	482357	2885868	FStD	FStD	Yes	Yes	–
188	176	10/12/2006	7974	483057	2884968	CStG	CStG	Yes	Yes	–
189	5	10/12/2006	7975	483257	2884568	FStD	FStD	Yes	Yes	–
190	197	10/12/2006	7976	483207	2884368	FHT	WS	No	No	lower elevation
191	41	10/12/2006	7977	484057	2882618	FStD	FSt	No	Yes	ok
192	248	10/12/2006	7978	480857	2883218	WSpG	WSp	No	Yes	ok
193	195	10/12/2006	7979	480557	2884218	FStD	FStD	Yes	Yes	–
194	133	10/12/2006	7980	480207	2885168	MFO	MFG	No	Yes	ok
195	169	10/12/2006	7981	479057	2885418	MFGP	MFGP	Yes	Yes	–
196	158	10/12/2006	7982	478157	2884668	WSpG	WSpG	Yes	Yes	–
197	58	10/12/2006	7983	478257	2882518	MFGP	MFGcS	No	No	marsh
198	29	10/12/2006	7984	478007	2882868	MFGP	MFGP	Yes	Yes	–
199	252	10/12/2006	7985	477757	2883268	MFGP	MFGP	Yes	Yes	–
200	63	10/12/2006	7986	479157	2883668	MFGP	MFGP	Yes	Yes	–
201	83	10/12/2006	7987	476457	2885418	SU	WUpFSs	No	No	canopy 10 - 20 % pines

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
202	131	10/12/2006	7988	477107	2885668	MFGP	MFGP	Yes	Yes	–
203	148	10/12/2006	7989	476757	2886118	MFGP	MFGP	Yes	Yes	–
204	27	10/12/2006	7990	478407	2886418	MFGP	WUpFSs	No	No	pinus greater than 30 %
205	164	10/12/2006	7991	479757	2886368	CStG	CStGc	No	Yes	ok, one level higher than field classification
206	48	10/12/2006	7992	479507	2886618	MFGP	MFGP	Yes	Yes	–
207	19	10/12/2006	7993	480557	2886668	FStD	WStO	No	Yes	ok, on edge between forest and woodland
208	231	10/12/2006	7994	480807	2887618	FHT	SUT	No	Yes	ok, tree height difference
209	138	10/12/2006	7995	480257	2887868	CStO	WSt	No	No	tree height woodland
210	123	10/12/2006	7996	479457	2887868	MFG	MFG	Yes	Yes	–
211	168	10/12/2006	7997	479407	2888618	FHT	WS	No	No	lowland species
212	194	10/12/2006	7998	480857	2889568	FStD	FStD	Yes	Yes	–
213	18	10/12/2006	7999	481807	2890468	FStD	WStG	No	Yes	ok, edge between woodland and forest
214	13	10/12/2006	8000	482307	2891568	CStG	CStO	No	Yes	ok between open marsh and graminoids
215	241	10/12/2006	8001	480607	2892268	FStS	WStO	No	Yes	ok, edge between woodland and forest
216	59	10/12/2006	8002	479957	2892218	FStS	WStG	No	Yes	ok, edge between woodland and forest

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
217	237	10/12/2006	8003	477007	2889018	ORV	MFG	No	No	orv does not dominate - sawgrass marsh dominates
218	80	10/12/2006	8004	478207	2889768	FHT	FHT	Yes	Yes	–
219	184	10/12/2006	8005	477357	2890368	FStD	WStG	No	No	should be WStG - canopy 20 to 30 %
220	120	10/12/2006	8006	476757	2890568	WStG	W	No	Yes	ok
221	40	10/12/2006	8007	476457	2889868	WStG	WStO	No	Yes	ok
222	42	10/12/2006	8008	476407	2893018	FStS	FStS	Yes	Yes	–
223	124	10/12/2006	8009	478157	2891768	FStS	FSt	No	Yes	ok
224	200	10/12/2006	8010	478657	2890818	FStH	FStH	Yes	Yes	–
225	46	10/12/2006	8011	479857	2891368	FHp	WSpS	No	Yes	ok hardwood pine mix
226	191	10/12/2006	8012	480007	2891368	FHp	WSpS	No	Yes	ok hardwood pine mix
227	239	10/12/2006	8013	480457	2892818	FSt	WStG	No	No	not forest
228	185	10/12/2006	8014	480457	2892968	FHT	WU	No	Yes	ok on edge between woodland and forest
229	33	10/12/2006	8015	480707	2892518	FHT	WSpS	No	No	pine dominated
230	253	10/12/2006	8016	481007	2892668	FStD	WStG	No	Yes	ok on edge between woodland and forest
231	105	11/1/2006	8017	465857	2883868	MFGP	MFG	No	Yes	ok graminoid marsh is better
232	49	11/1/2006	8018	465857	2884018	MFGP	MFGP	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
233	9	11/1/2006	8019	466507	2883918	MFGP	MFGP	Yes	Yes	–
234	135	11/1/2006	8020	467157	2883718	MFGP	MFGP	Yes	Yes	–
235	37	11/1/2006	8021	466307	2883168	MFGP	MFGP	Yes	Yes	–
236	57	11/1/2006	8022	466607	2882618	MFGP	MFGP	Yes	Yes	–
237	7	11/1/2006	8023	467407	2882618	MFGP	MFGP	Yes	Yes	–
238	30	11/1/2006	8024	467557	2882518	MFGP	MFG	No	Yes	ok graminoid marsh is better
239	152	11/1/2006	8025	468357	2882868	MFGP	MFGP	Yes	Yes	–
240	109	11/1/2006	8026	468457	2882518	MFGP	MFGP	Yes	Yes	–
241	101	11/1/2006	8027	469007	2883218	FStH	FStS	No	Yes	less than 10% hardwoods in upper canopy
242	165	11/1/2006	8028	469207	2883118	FHT	FHT	Yes	Yes	–
243	137	11/1/2006	8029	470307	2883618	MFGP	MFGP	Yes	Yes	–
244	232	11/1/2006	8030	471007	2883618	FStH	FStH	Yes	Yes	–
245	99	11/1/2006	8031	471357	2884218	FSH	FStH	No	Yes	on edge between classes FStH better
246	226	11/1/2006	8032	471407	2885268	MFGP	MFGP	Yes	Yes	–
247	16	11/1/2006	8033	472307	2884168	FStH	FStH	Yes	Yes	–
248	172	11/1/2006	8034	472807	2883668	MFGP	MFGP	Yes	Yes	–
249	143	11/1/2006	8035	473107	2883668	MFGP	MFGcS	No	No	graminoid marsh

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
250	258	11/1/2006	8036	473057	2883318	SU	SUs	No	Yes	ok, one level higher than field classification
251	246	11/1/2006	8037	473707	2883568	MFGP	MFG	No	No	graminoid marsh
252	262	11/1/2006	8038	473904	2882721	MFGP	MFGP	Yes	Yes	–
253	154	11/1/2006	8039	474007	2882718	ORV	MFGPs	No	Yes	ok
254	235	11/1/2006	8040	474957	2882518	MFGP	MFGP	Yes	Yes	–
255	173	11/1/2006	8041	475007	2883018	MFGP	MFGP	Yes	Yes	–
256	215	11/1/2006	8042	474757	2882918	CStGP	CStG	No	Yes	ok
257	84	11/1/2006	8043	475607	2883018	MFGP	MFGP	Yes	Yes	–
258	21	11/1/2006	8044	475607	2882468	MFGP	MFGP	Yes	Yes	–
259	130	11/1/2006	8045	475507	2884218	WUh	SU	No	Yes	ok
260	126	11/1/2006	8046	475107	2884918	FHT	WU	No	Yes	canopy difference
261	34	11/1/2006	8047	475757	2885468	MFGP	MFGPc	No	Yes	ok, one level higher than field classification
262	260	11/1/2006	8048	476604	2886021	MFGP	MFGP	Yes	Yes	–
263	224	11/1/2006	8049	475457	2885918	SSs	MFBp	No	Yes	ok mixed cell
264	3	11/1/2006	8050	474907	2886768	WSpG	WSpX	No	Yes	ok
265	75	11/1/2006	8051	473957	2886618	FStH	WS	No	Yes	ok differs on canopy density

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
266	146	11/1/2006	8052	473807	2886368	FStS	FStS	Yes	Yes	–
267	153	11/1/2006	8053	474057	2885718	WU _h	WU	No	Yes	ok
268	38	11/1/2006	8054	474057	2884868	FStH	WSt	No	Yes	mixed cell - woodland better
269	50	11/1/2006	8055	473857	2884318	FStS	FStD	No	Yes	dome better
270	151	11/1/2006	8056	473457	2884968	FStS	WStG	No	Yes	ok differs on canopy density
271	189	11/1/2006	8057	472907	2884618	MFGP	MFGP	Yes	Yes	–
272	108	11/1/2006	8058	470557	2886418	MFGP	MFGP	Yes	Yes	–
273	141	11/1/2006	8059	469607	2886018	MFGP	MFGP	Yes	Yes	–
274	186	11/1/2006	8060	468857	2884668	FStD	WStG	No	Yes	ok
275	100	11/1/2006	8061	468457	2884368	MFGP	MFG	No	No	Graminoid marsh
276	81	11/1/2006	8062	468257	2884468	MFGP	MFGP	Yes	Yes	–
277	1	11/1/2006	8063	467607	2884368	FStH	CUH	No	Yes	ok mixed cell
278	198	11/1/2006	8064	467007	2885268	WS	WS	Yes	Yes	–
279	220	11/1/2006	8065	465857	2885518	MFGP	MFGP	Yes	Yes	–
280	225	11/1/2006	8066	466207	2887668	FStS	WStG	No	Yes	ok differs on canopy density
281	115	11/1/2006	8067	467457	2887768	WUsS	WUpFSs	No	Yes	ok
282	162	11/1/2006	8068	468557	2887168	MFGP	MFGcS	No	No	Graminoid marsh

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
283	149	11/1/2006	8072	471257	2888018	MFGP	MFGP	Yes	Yes	–
284	73	11/1/2006	8073	473007	2888368	SSs	SSs	Yes	Yes	–
285	88	11/2/2006	8074	465707	2890868	MFGP	MFGP	Yes	Yes	–
286	17	11/2/2006	8075	467207	2890818	MFGP	MFGP	Yes	Yes	–
287	218	11/2/2006	8076	467607	2889868	CStG	MF	No	Yes	ok mixed cell
288	23	11/2/2006	8077	468657	2890018	MFGP	MFGP	Yes	Yes	–
289	107	11/2/2006	8078	468757	2890568	MFGP	MFGP	Yes	Yes	–
290	122	11/2/2006	8079	469557	2890018	MFGP	MFGP	Yes	Yes	–
291	104	11/2/2006	8080	470457	2889618	MFGP	MFgc	No	No	Graminoid marsh
292	233	11/2/2006	8081	471657	2889318	WUpS	WUpFS	No	Yes	pine Flatwoods better classification
293	10	11/2/2006	8082	472057	2891618	WStG	WStO	Yes	Yes	–
294	28	11/8/2006	0	474957	2889718	FStD	FSt	No	Yes	ok
295	163	11/8/2006	0	475507	2888268	FStS	FStS	Yes	Yes	–
296	178	11/8/2006	8083	474457	2888318	FStD	WStO	No	No	canopy 20% - woodland
297	139	11/8/2006	8084	474407	2890418	WUh	WU	No	Yes	ok
298	6	11/8/2006	8085	474007	2890918	WUh	WU	No	Yes	ok
299	111	11/8/2006	8086	474057	2891518	FStS	WStG	No	Yes	ok differs on canopy density

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
300	52	11/8/2006	8087	472807	2891518	WSpG	WSpG	Yes	Yes	–
301	117	11/8/2006	8088	474657	2893768	FSH	WS	No	Yes	ok differs on canopy density
302	74	11/8/2006	8089	474607	2894418	SS	WS	No	Yes	ok differs on canopy density and height but on edge for classes
303	53	11/8/2006	8090	474807	2894368	FStH	FStH	Yes	Yes	–
304	71	11/8/2006	8091	475007	2894318	FStH	FStS	No	No	FStS better acer is at about 30% not the 40%
305	261	11/8/2006	8092	479404	2896821	SUs	WUpFSs	No	No	piners make up 20% canopy
306	167	11/8/2006	8093	473157	2893318	FSH	WS	No	Yes	ok differs on canopy density
307	179	11/8/2006	8094	473157	2893468	FStS	FStS	Yes	Yes	–
308	159	11/8/2006	8095	473007	2892768	WUpS	WSpS	No	No	lowland pines not upland pines
309	47	11/8/2006	8096	471957	2892568	FStD	WStG	No	Yes	ok canopy estimated at 50%
310	214	11/8/2006	8097	470357	2891968	FStD	WStG	No	Yes	ok canopy estimated at 50%
311	238	11/8/2006	8098	470157	2892168	MFG,MFGtS	MFGcS	No	Yes	ok, one level higher than field classification
312	208	11/8/2006	8099	470507	2892518	WStG	WStG	Yes	Yes	–
313	91	11/8/2006	8100	470907	2892718	MFGP	MFGP	Yes	Yes	–
314	2	11/8/2006	8101	470407	2893568	WSpG	WSpX	No	Yes	ok
315	257	11/8/2006	8102	470057	2893968	WStG	MFGcS	No	No	marsh dominant

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
316	259	11/8/2006	8103	468904	2894221	MFG	CSsGc	No	No	Willow Scrub dominant
317	242	11/8/2006	8104	468907	2891618	FHp	MFGPcps	No	Yes	forest dominant
318	119	11/8/2006	8105	468307	2891718	FHT	FHT	Yes	Yes	–
319	94	11/8/2006	8106	468107	2892268	WStG	WStG	Yes	Yes	–
320	82	11/8/2006	8107	468307	2892668	MFG,MFGtS	MFG	Yes	Yes	–
321	150	11/8/2006	8108	467557	2893068	WUpFS	WUpFSs	No	Yes	ok, one level higher than field classification
322	254	11/8/2006	8109	467807	2893718	SSs	MFGcT	No	No	marsh dominant
323	206	11/8/2006	8110	467657	2893818	WUsS	WU	No	Yes	ok
324	104	6/5/2007	6	483957	2862968	WStG	WStG	Yes	Yes	–
325	288	6/5/2007	7	483907	2862418	WStG	WStG	Yes	Yes	–
326	281	6/5/2007	8	483457	2861518	MFGP	MFGPs	No	Yes	lower level - little bluestem
327	58	6/5/2007	9	481857	2861518	FSH	FStS	No	No	not greater than 60% hardwood Forest
328	265	6/5/2007	10	482007	2862418	WStS	WStG	No	Yes	ok, on edge between classes
329	38	6/5/2007	11	482507	2862818	WStS	FStS	No	Yes	ok, on edge between classes
330	187	6/5/2007	12	482707	2863468	WStS	FStS	No	Yes	ok, on edge between classes
331	184	6/5/2007	13	481457	2864318	WSpG	WSpG	Yes	Yes	–
332	248	6/5/2007	14	480607	2864918	WSpG	WUpFX	No	No	upland pine

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
333	29	6/5/2007	15	479507	2864268	FStp	FStp	Yes	Yes	–
334	16	6/5/2007	16	480607	2864068	FStS	FStS	Yes	Yes	–
335	269	6/5/2007	17	481107	2862818	WStG	WStG	Yes	Yes	–
336	188	6/5/2007	18	480807	2862568	FStS	FStD	No	Yes	ok
337	68	6/5/2007	19	480707	2862768	FStS	WSt	No	Yes	ok, on edge between classes
338	259	6/5/2007	20	479357	2862118	MFGP	MFGPm	No	Yes	lower level - Muhly Grass
339	252	6/5/2007	21	479457	2862468	MFGP	MFGP	Yes	Yes	–
340	80	6/5/2007	22	479257	2862918	WStG	FStp	No	No	piners dominate cypress secondary
341	204	6/5/2007	23	478857	2862868	MFGP	MFGPp	No	Yes	lower level - little bluestem
342	59	6/5/2007	24	477957	2862868	FStS	FStS	Yes	Yes	–
343	113	6/5/2007	25	477957	2863818	FStS	FStS	Yes	Yes	–
344	71	6/5/2007	26	476707	2863418	WSpX	WUpFX	No	No	Upland pine
345	150	6/5/2007	27	476007	2863268	FStS	WSpG	No	Yes	mixed cell
346	131	6/5/2007	28	476157	2864168	WSpG	WUpFX	No	No	upland pine
347	72	6/5/2007	29	476957	2864868	WStS	FStS	No	Yes	ok, on edge between classes
348	270	6/5/2007	30	477207	2865118	FStS	FStS	Yes	Yes	–
349	266	6/5/2007	31	476907	2865568	WStG	WStG	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
350	6	6/5/2007	32	476957	2866568	FStS	FStS	Yes	Yes	–
351	89	6/5/2007	33	476357	2866418	FStS	WSpG	No	Yes	mixed cell
352	225	6/5/2007	34	476457	2867168	WSpG	WSpG	Yes	Yes	–
353	260	6/5/2007	35	474407	2866118	FStS	FStS	Yes	Yes	–
354	282	6/5/2007	36	474457	2867568	FStH	FStH	Yes	Yes	–
355	202	6/5/2007	37	474357	2870118	WSpG	WStG	Yes	Yes	–
356	283	6/5/2007	38	475957	2869968	FStS	FStS	Yes	Yes	–
357	242	6/5/2007	39	476007	2871168	FStS	WStG	No	Yes	ok, on edge between classes
358	274	6/5/2007	40	477207	2871418	FStS	CStG	No	No	Scrub dominate
359	86	6/5/2007	41	477007	2870818	FStp	FStS	No	No	Not enough pine in cell
360	249	6/5/2007	42	477107	2870268	FStS	FStS	Yes	Yes	–
361	99	6/5/2007	43	477757	2870968	WUpFSs	SUs	No	Yes	ok, on edge between classes
362	52	6/5/2007	44	478107	2869318	WSpG	WSpG	Yes	Yes	–
363	208	6/5/2007	45	479007	2870968	FStS	FStS	Yes	Yes	–
364	163	6/5/2007	46	479057	2870418	WSpG	WSpG	Yes	Yes	–
365	30	6/5/2007	47	479307	2870368	ORV	WUpFX	No	Yes	ok mixed cell
366	197	6/5/2007	48	483307	2867268	WStG	MFGPm	No	No	prairie dominate

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
367	273	6/5/2007	49	483607	2866618	WSpG	FStp	No	No	lots of cypress
368	122	6/12/2007	50	482107	2866318	FStD	FStD	Yes	Yes	–
369	19	6/12/2007	51	481207	2866168	WSpG	WSpG	Yes	Yes	–
370	203	6/12/2007	52	480657	2866268	WSpG	WSpG	Yes	Yes	–
371	284	6/12/2007	53	481107	2866668	MFGP	WSpG	No	Yes	mixed cell
372	264	6/12/2007	54	481057	2866668	WSpG	WSpG	Yes	Yes	–
373	132	6/12/2007	55	480857	2868068	MFGP	MFGPm	No	Yes	lower level - Muhly Grass
374	180	6/12/2007	56	480357	2867668	WSpG	WSpG	Yes	Yes	–
375	34	6/12/2007	57	479157	2866468	WStG	WS	No	Yes	ok
376	51	6/12/2007	58	478257	2866918	WUpFS	WUpFSs	No	Yes	lower level
377	221	6/12/2007	59	478957	2867518	WSpG	WSpG	Yes	Yes	–
378	41	6/12/2007	60	479607	2869618	FStS	FStS	Yes	Yes	–
379	126	6/12/2007	61	479657	2869818	FStS	FStS	Yes	Yes	–
380	237	6/12/2007	64	480507	2869618	MFGP	WSpG	No	Yes	mixed cell
381	158	6/12/2007	65	482257	2871368	WSpG	WSpG	Yes	Yes	–
382	20	6/12/2007	66	482107	2871068	FStS	FStD	No	Yes	ok
383	232	6/12/2007	67	483457	2871168	MFGP	MFGP	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
384	235	6/12/2007	68	482357	2870118	MFGP	WSpG	No	Yes	mixed cell
385	236	6/12/2007	69	482057	2869168	MFG	MFGP	No	No	prairie dominate
386	192	6/12/2007	70	482207	2869268	WSpG	WSpG	Yes	Yes	–
387	144	6/12/2007	71	482657	2869368	WSpX	WSpX	Yes	Yes	–
388	78	6/12/2007	72	483507	2869468	FStS	FStS	Yes	Yes	–
389	243	6/12/2007	73	482757	2868518	FStS	FStS	Yes	Yes	–
390	212	6/12/2007	74	483257	2868768	FStD	FStD	Yes	Yes	–
391	103	6/12/2007	75	481907	2881918	FStD	FStD	Yes	Yes	–
392	65	6/12/2007	76	481207	2881918	FStD	FStD	Yes	Yes	–
393	209	6/12/2007	77	480557	2881518	FStD	WStG	No	Yes	Ok, woodland would be better
394	254	6/12/2007	78	481107	2880918	FStD	WStG	No	No	canopy < 40%
395	118	6/12/2007	79	481557	2880618	FStD	WStG	No	Yes	OK, dome does not really dominate cell but acceptable
396	95	6/12/2007	80	481007	2879918	FStS	WStG	No	No	woodland
397	40	6/12/2007	81	481457	2879118	FHT	FStp	No	Yes	mixed cell
398	160	6/12/2007	82	480307	2878818	CStGP	WStG	No	Yes	on edge between classes
399	136	6/12/2007	83	479857	2878818	FStD	WStG	No	Yes	OK, dome does not really dominate cell but acceptable

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
400	37	6/12/2007	84	479607	2878568	WSpG	WSp	No	Yes	ok
401	267	6/12/2007	85	480157	2878518	FStS	WStG	No	Yes	ok
402	229	6/12/2007	86	481857	2877968	FStD	FStD	Yes	Yes	–
403	76	6/12/2007	87	482407	2877718	WUpFSs	WUpFSs	Yes	Yes	–
404	193	6/12/2007	88	483357	2871918	ORV	MFGPm	No	No	MFGP
405	258	6/12/2007	89	481807	2872068	ORV	MFGP	No	Yes	ok
406	108	6/12/2007	90	480307	2871568	ORV	MFGP	No	Yes	ok
407	169	6/12/2007	91	477557	2871918	WSpG	WSpG	Yes	Yes	–
408	218	6/12/2007	92	476607	2873318	FStS	WStG	No	No	canopy less than 60%
409	292	6/12/2007	93	476607	2873218	WStG	WStG	Yes	Yes	–
410	97	6/12/2007	94	476207	2873968	CStG	CStGp	No	Yes	CStGP better
411	178	6/12/2007	95	476507	2874868	FStS	WStG	No	Yes	ok on edge between classes
412	63	6/12/2007	96	478207	2875268	CStGP	CStGP	Yes	Yes	–
413	191	6/12/2007	97	478107	2874418	FStD	FStD	Yes	Yes	–
414	112	6/12/2007	98	478757	2874318	WSpG	WStG	Yes	Yes	–
415	77	6/13/2007	99	482807	2874968	FHT	F	No	Yes	ok
416	253	6/13/2007	100	483057	2875018	FSH	FSH	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
417	94	6/13/2007	101	481507	2874418	WSpX	WSpS	No	Yes	ok
418	223	6/13/2007	102	481857	2874168	WSpS	W	No	Yes	lower level
419	55	6/13/2007	103	482007	2874068	FSH	W	No	Yes	lots of cypress and pine as well
420	26	6/13/2007	104	481007	2873668	WSpG	WSpG	Yes	Yes	–
421	285	6/13/2007	105	480207	2875218	WSpG	WSpG	Yes	Yes	–
422	48	6/13/2007	106	480257	2875368	FStD	FStD	Yes	Yes	–
423	109	6/13/2007	107	480407	2875668	FStD	WSpG	No	Yes	ok cell has three veg types pines (best), prairie, and dome.
424	181	6/13/2007	108	480407	2876468	SUs	SU	No	Yes	lower level on map
425	256	6/13/2007	109	480807	2876118	FStS	WSt	No	No	canopy less than 30%
426	110	6/13/2007	111	483107	2878518	SU	FHT	No	Yes	Temperate hardwood hammock dominate
427	9	6/13/2007	112	483157	2878768	FStD	WSt	No	No	dome not dominant
428	230	6/13/2007	113	484057	2879118	WSpG	WSpG	Yes	Yes	–
429	217	6/13/2007	114	484207	2879768	WUpFSs	WUpFX	No	Yes	ok lower level
430	61	6/13/2007	115	483907	2880368	WSpG	WSpG	Yes	Yes	–
431	182	6/13/2007	116	483257	2880318	FStD	FStS	No	Yes	ok
432	24	6/13/2007	117	479207	2877318	WSpG	WSpG	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
433	87	6/13/2007	118	478857	2877068	SUs	SUs	Yes	Yes	–
434	214	6/13/2007	119	478757	2877468	FHT	FHT	Yes	Yes	–
435	211	6/13/2007	120	478557	2877768	MFGP	MFGP	Yes	Yes	–
436	268	6/13/2007	121	478507	2878668	MFG	MFGP	No	No	prairie dominate
437	148	6/13/2007	122	478407	2878768	MFGP	MFGP	Yes	Yes	–
438	167	6/13/2007	123	477607	2877718	WUpFSs	MFGP	No	Yes	ok mixed cell
439	246	6/13/2007	124	476857	2878218	SUs	SUs	Yes	Yes	–
440	39	6/13/2007	125	476757	2877818	WUpFSs	WUpF	No	Yes	lower level
441	201	6/13/2007	126	476657	2877868	WUpFSs	WUpFSs	Yes	Yes	–
442	140	6/13/2007	127	477307	2879018	MFG	MFGP	No	No	prairie dominate
443	46	6/13/2007	128	477407	2879518	MFGP	MFGP	Yes	Yes	–
444	139	6/13/2007	129	476307	2880768	MFGP	MFGP	Yes	Yes	–
445	85	6/13/2007	130	476107	2881018	MFGP	MFGP	Yes	Yes	–
446	250	6/13/2007	131	474857	2881918	MFGP	MFGP	Yes	Yes	–
447	102	6/13/2007	132	473957	2881568	MFGP	MFGP	Yes	Yes	–
448	159	6/13/2007	133	474257	2880668	MFG	MFGcS	No	Yes	ok lower level
449	247	6/13/2007	134	475057	2880068	MFGP	MFGP	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
450	15	6/13/2007	135	474507	2879118	MFGP	MFGGr	No	No	beak rush
451	210	6/13/2007	136	474807	2878918	MFGP	MF	No	Yes	ok lower level
452	261	6/13/2007	137	474107	2877518	WSpG	WSp	No	Yes	lower level on map
453	143	6/13/2007	138	474957	2876568	CSGP	CsmG	No	Yes	ok on edge between prairie and
454	75	6/19/2007	139	476907	2876118	WUpFSs	FStS	No	Yes	mixed cell
455	22	6/19/2007	140	474607	2875868	MFGP	MFGP	Yes	Yes	–
456	151	6/19/2007	141	474657	2875668	MFGP	MFGP	Yes	Yes	–
457	13	6/19/2007	142	474307	2875318	MFGP	MFGP	Yes	Yes	–
458	134	6/19/2007	143	473257	2874318	MFGP	MFGPh	No	Yes	lower level - black sedge
459	194	6/19/2007	144	473157	2874468	WSpG	WSpG	Yes	Yes	–
460	21	6/19/2007	145	472907	2874718	WUpFS	WSp	No	Yes	ok
461	176	6/19/2007	146	473057	2874968	MFGP	MFGPs	No	Yes	lower level - little bluestem
462	157	6/19/2007	147	473457	2875118	MFG	MFGcS	No	Yes	ok lower level
463	43	6/19/2007	148	472457	2876118	MFGP	MFGP	Yes	Yes	–
464	275	6/19/2007	149	472557	2876568	SU	WUpSs	No	Yes	on edge between classes
465	125	6/19/2007	150	472007	2877218	MFGP	MFGP	Yes	Yes	–
466	190	6/19/2007	151	472257	2877568	MFGP	MFGP	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
467	42	6/19/2007	152	473307	2878718	WSpG	WSpG	Yes	Yes	–
468	36	6/19/2007	153	473457	2880968	MFGP	MFGpa	No	No	Marsh
469	227	6/19/2007	154	472757	2880418	MFGP	MFGP	Yes	Yes	–
470	138	6/19/2007	156	471507	2880618	SU	SU	Yes	Yes	–
471	25	6/19/2007	157	471807	2879518	MFGP	MFGP	Yes	Yes	–
472	228	6/19/2007	158	470507	2878568	SU	SU	Yes	Yes	–
473	175	6/19/2007	159	466907	2880118	MFGP	MFGP	Yes	Yes	–
474	287	6/19/2007	160	466357	2880768	FStS	FStS	Yes	Yes	–
475	84	6/19/2007	161	465657	2881618	FStH	FStS	No	Yes	ok, not really enough hardwoods
476	93	6/19/2007	162	466507	2882118	SU	SUs	No	Yes	lower level
477	115	6/19/2007	163	468057	2881768	MFGP	MFGP	Yes	Yes	–
478	205	6/19/2007	164	468407	2881768	MFGP	MF	No	Yes	ok lower level
479	31	6/19/2007	165	468707	2881868	MFGP	MFGPm	No	Yes	lower level - Muhly Grass
480	234	6/19/2007	166	468357	2881268	MFGP	MFGP	Yes	Yes	–
481	162	6/19/2007	167	468557	2880018	FStH	FStS	No	Yes	ok, enough hardwoods
482	27	6/19/2007	168	468607	2880018	FStH	FStH	Yes	Yes	–
483	121	6/19/2007	169	468757	2880268	FStH	FStS	No	Yes	ok, not really enough hardwoods

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
484	124	6/19/2007	170	469307	2880818	FStS	FStS	Yes	Yes	lots of cypress
485	8	6/19/2007	171	470007	2881518	FStH	WSt	No	Yes	ok, not really enough hardwoods
486	69	6/19/2007	172	470157	2881268	MFG	FSf	No	No	Fsf
487	220	6/19/2007	173	470307	2880718	FStS	FStS	Yes	Yes	–
488	174	6/19/2007	174	469907	2880168	MFGP	WStG	No	Yes	on edge between classes
489	53	6/19/2007	175	469507	2879618	SU	SUs	No	Yes	lower level
490	50	6/19/2007	176	470657	2878118	MFGP	MFGPh	No	Yes	lower level - black sedge
491	226	6/19/2007	177	470607	2876918	MFGP	MFGpa	No	No	marsh
492	114	6/19/2007	178	470407	2876118	MFGP	MFGpa	No	No	marsh
493	146	6/19/2007	179	469057	2875618	MFGP	MFGP	Yes	Yes	–
494	70	6/19/2007	180	469207	2877668	MFGP	MF	No	Yes	ok lower level
495	171	6/19/2007	181	468057	2877718	FStS	FStH	No	Yes	> 50% hardwoods
496	82	6/19/2007	182	467707	2877568	FStS	FStS	Yes	Yes	–
497	35	6/19/2007	183	467257	2877418	FStS	FStS	Yes	Yes	–
498	216	6/19/2007	184	466507	2876868	FStS	WStO	No	Yes	on edge between classes
499	45	6/19/2007	185	466257	2876968	WSp	WSpX	No	Yes	one level higher than field
500	101	6/19/2007	186	466257	2876418	FStS	WStG	No	Yes	on edge between classes

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
501	251	6/19/2007	187	467057	2876418	FStS	WStS	No	Yes	on edge between classes
502	170	6/19/2007	188	467357	2876268	CSWG	CStG	No	Yes	mixed cell
503	47	6/19/2007	189	467057	2875318	FSH	FStp	No	No	majority canopy made up of Pine & Taxodium
504	278	6/19/2007	190	466307	2874968	FStH	FStH	Yes	Yes	–
505	133	6/22/2007	193	474007	2873518	FStS	WStO	No	No	cypress canopy less than 45%
506	289	6/22/2007	194	472657	2873368	MFGP	MFGPh	No	Yes	lower level - black sedge
507	100	6/22/2007	195	472257	2873468	MFGP	MFGP	Yes	Yes	–
508	127	6/22/2007	196	470457	2873418	MFGP	MFGpa	No	No	Paspalum marsh
509	128	6/22/2007	197	471707	2873218	MFG	MF	No	Yes	ok
510	60	6/22/2007	198	472057	2872668	MFGP	MFGpa	No	No	Paspalum marsh
511	196	6/22/2007	199	472307	2872418	CStGP	CStGs	No	No	Paspalum marsh
512	213	6/22/2007	200	472757	2872268	FStS	WStG	No	Yes	on edge between classes
513	5	6/22/2007	201	473707	2872768	SS	MF	No	Yes	mixed cell
514	66	6/22/2007	203	475757	2871818	WSpG	WS	No	Yes	lower level on map
515	168	6/22/2007	204	475357	2872018	FStp	FStp	Yes	Yes	–
516	81	6/22/2007	205	475007	2872268	WStG	WStG	Yes	Yes	–
517	240	6/22/2007	206	474757	2872118	FStS	WStG	No	Yes	mixed cell

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
518	177	6/22/2007	207	473457	2871568	FStD	WStO	No	No	canopy < 40%
519	272	6/22/2007	208	472057	2871418	WUpFS	WSpX	No	Yes	ok
520	17	6/22/2007	209	471207	2870318	WStG	WStG	Yes	Yes	canopy < 50%
521	195	6/22/2007	210	471007	2869218	MFGP	MFGP	Yes	Yes	–
522	172	6/22/2007	211	471357	2871818	FStS	FStS	Yes	Yes	–
523	173	6/22/2007	212	470857	2871618	MFGP	MFGP	Yes	Yes	–
524	147	6/22/2007	213	470407	2871968	MFGP	MF	No	Yes	ok lower level
525	23	6/22/2007	214	469957	2870968	MFGP	MFG	No	No	Marsh
526	257	6/22/2007	215	469207	2870268	WStS	SSs	No	Yes	on edge between classes
527	11	6/22/2007	216	468607	2870418	MFGP	MFGP	Yes	Yes	–
528	154	6/22/2007	217	468057	2871018	MFGP	MFGP	Yes	Yes	–
529	280	6/22/2007	218	468657	2871218	MFGP	MFGpa	No	No	Paspalum marsh
530	92	6/22/2007	219	468807	2871418	MFGP	MFGP	Yes	Yes	–
531	98	6/22/2007	220	469207	2871718	MFGP	MFGP	Yes	Yes	–
532	88	6/22/2007	221	469357	2871868	MFGP	MFGP	Yes	Yes	–
533	293	6/22/2007	222	468257	2871968	MFGP	MFGP	Yes	Yes	–
534	231	6/22/2007	224	467257	2872668	MFGP	MFGP	Yes	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
535	224	6/22/2007	226	467007	2872918	FStH	WStS	No	Yes	Ok. Hardwoods in subcanopy
536	244	6/22/2007	227	465807	2870868	CSGP	CSWG	No	Yes	ok on edge between prairie and
537	255	6/22/2007	228	465107	2868468	FSH	WSh	No	Yes	on edge between classes
538	33	6/22/2007	229	464607	2869968	FStS	WStS	No	Yes	ok between canopy density
539	137	6/22/2007	230	464657	2870518	FStH	FStS	No	Yes	FStS better. Hardwoods really in shrub layer
540	165	6/22/2007	231	468307	2868618	SSs	SSs	Yes	Yes	–
541	189	6/22/2007	232	470557	2868368	MFGP	MFG	No	Yes	marsh better
542	291	6/22/2007	233	471007	2869018	MFG	MFG	Yes	Yes	–
543	215	6/22/2007	234	471757	2867918	FStD	FStS	No	Yes	ok
544	233	6/22/2007	235	471807	2867518	WUpFS	WUpFSs	No	Yes	lower level
545	129	6/22/2007	236	473257	2868118	FStD	FStD	Yes	Yes	–
546	239	6/22/2007	237	473657	2867568	WSpG	WS	No	Yes	lower level on map
547	164	6/22/2007	238	472457	2866218	FStD	FStD	Yes	Yes	–
548	135	6/22/2007	239	470807	2866418	MFGP	MFGP	Yes	Yes	–
549	105	6/22/2007	240	469807	2866368	MFGP	MFGP	Yes	Yes	–
550	155	6/22/2007	241	470157	2865718	CSGP	CSWGc	No	Yes	ok on edge between prairie and
551	18	6/22/2007	242	469507	2865568	MFGP	MFGcS	No	No	Saw Grass Marsh

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
552	156	6/22/2007	243	469307	2865218	CSGP	CSWGc	No	Yes	Marsh tall (2 meter tall) saw grass
553	263	6/22/2007	244	469757	2865068	SS	SS	Yes	Yes	–
554	200	6/22/2007	245	470307	2865018	CSGP	SS	No	Yes	ok on edge between classes canopy
555	10	6/22/2007	246	470007	2864568	MFGc	MFO	No	Yes	ok
556	145	6/22/2007	247	470957	2864518	FSH,EsS	EsD	No	Yes	ok Brazilian pepper dense
557	2	6/22/2007	248	472057	2864618	WSpS	WSpX	No	Yes	ok
558	279	6/25/2007	0	465957	2863768	AB	AB	Yes	Yes	–
559	222	6/25/2007	250	472807	2864818	WSpS	WUpFS	No	No	Upland pine - Serenoa
560	106	6/25/2007	251	473307	2864718	WSpS	WUpFSs	No	No	Upland pine - Serenoa
561	73	6/25/2007	252	473657	2864168	FStH	FStH	Yes	Yes	–
562	219	6/25/2007	253	472107	2863218	CSsG	CSsG	Yes	Yes	–
563	44	6/25/2007	254	471257	2862668	MSG	MSGs	No	Yes	lower level
564	199	6/25/2007	255	471807	2862368	FSH	SSs	No	Yes	ok mixed cell
565	79	6/25/2007	256	471757	2862018	MSGs	MSGs	Yes	Yes	–
566	116	6/25/2007	257	471057	2861768	MSG,MFGtS	MSGs	No	Yes	ok. Typha mentioned
567	142	6/25/2007	258	472757	2861518	MSGs	MSGs	Yes	Yes	–
568	152	6/25/2007	259	473207	2861418	MFG,MFGtD	MFG	No	Yes	–

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
569	32	6/25/2007	260	471957	2860618	MSGs	MSGs	Yes	Yes	–
570	206	6/25/2007	261	471507	2860918	MSGs	CSsG	No	No	It is Spartina but shrub density 20%-30%
571	111	6/25/2007	262	470557	2860768	SMr	SSM	No	Yes	ok mixed cell
572	14	6/25/2007	263	469757	2861318	MSG	MFO	No	No	not saltwater species - freshwater
573	238	6/25/2007	264	468357	2861068	WSsS	WSsX	No	Yes	ok
574	119	6/25/2007	266	466107	2861168	SMr	SMc	No	No	Conocarpus dominant not Rhizophora
575	245	6/25/2007	267	465657	2860918	FMI	SMc	No	No	Conocarpus dominant, Laguncularia not in field notes
576	179	6/25/2007	268	464107	2861768	SMXlr	WM	No	Yes	ok Rhizophora not really codominant according to field notes
577	183	6/25/2007	269	463807	2862118	SMXlr	FM	No	Yes	Conocarpus and Laguncularia Rhizophora not dominant
578	57	6/25/2007	270	463657	2860968	FMXlr	FMr	No	Yes	ok Laguncularia @ 25 %
579	141	6/25/2007	271	463257	2861168	FMXlr	FM	No	Yes	OK Rhizophora and Laguncularia
580	83	6/25/2007	272	462707	2861318	FMXlr	FMI	No	Yes	ok Laguncularia Rhizophora at 20%
581	12	6/25/2007	273	462607	2862918	FMI	FMX	No	Yes	ok
582	96	6/25/2007	274	463107	2863768	SMXcr	WMc	No	Yes	Woodland better. Conocarpus dominated but Rhizophora in understory

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
583	262	6/25/2007	275	464007	2864268	SMr	SMr	Yes	Yes	–
584	90	6/25/2007	276	464257	2864118	SMr	MFO	No	Yes	ok mixed cell
585	277	6/25/2007	277	464607	2864468	CMG	MSGs	No	Yes	ok mixed cell
586	3	6/25/2007	278	464707	2864418	CMG	SSBT	No	No	mangroves not dominant, Myrica, sable, Persea, ilex
587	186	6/25/2007	279	465557	2864418	MSG	MFO	No	No	freshwater graminoids
588	107	6/25/2007	280	466457	2862818	SMXcr	MSGs	No	Yes	ok mixed cell
589	120	6/25/2007	281	466907	2862618	SMr	SMc	No	No	Conocarpus dominant, Rhizophora 5-10%
590	56	6/25/2007	282	468257	2863118	MFGc	MSG	No	No	no saw grass found in field check Spartina and Juncus dominate
591	276	6/25/2007	283	469057	2863868	HI	SP	No	Yes	ok
592	91	6/25/2007	284	468107	2864368	MFGc	MSGs	No	No	Spartina dominate marsh
593	49	6/25/2007	285	467907	2866218	CSGP	CSWGc	No	Yes	ok
594	28	6/25/2007	286	466407	2866868	MFGP	MF	No	Yes	ok lower level
595	123	6/25/2007	287	466107	2866568	MFGP	MF	No	Yes	ok lower level
596	241	6/25/2007	288	465657	2865918	MFG	MSGs	No	Yes	Spartina dominate marsh but other species present
597	67	6/25/2007	289	466257	2865368	FSStS	FSH	No	No	swamp hardwood forest is dominant-cypress only 10 to 20%

Table A-5 (continued). Accuracy Assessment data for the 615 assessment locations comparing map annotation to vegetation class identified in the field. Unique AA is the unique identifying AA point Number. Point is the field location point, Date is the field sample date, Photo ID is the photograph number, Easting and Northing (NAD 1983). Avineon Annotation is the map annotation class code, Field Class is the class code found in the field, Total Agreement, Acceptable, Reasoning for accepting difference between map and field classification.

Unique AA	Point	Date	Photo	Easting	Northing	Avineon Annotation	Field Class	Total Agreement	Acceptable	Reasoning
598	149	6/25/2007	290	464557	2865318	MSGj	MSO	No	Yes	ok mixed cell
599	271	6/25/2007	291	465157	2865868	MFG	MFG	Yes	Yes	–
600	1	6/25/2007	292	464657	2866168	MFGP	MFGcS	No	Yes	ok
601	286	6/25/2007	293	463857	2865868	MFGc	MSGj	No	No	Juncus marsh
602	117	6/25/2007	294	464157	2867068	FStH	FS	No	Yes	ok
603	220	7/20/2007	300	484157	2859571	MFGP	CStGPs	No	Yes	ok
604	242	7/20/2007	301	481357	2860221	WStG	FStp	No	Yes	–
605	205	7/20/2007	302	482257	2859421	WSpG	WSp	No	Yes	ok
606	191	7/20/2007	303	482507	2859171	FStS	WStG	No	Yes	ok on edge between classes
607	249	7/20/2007	304	481807	2858771	MFGP	MFGP	Yes	Yes	–
608	203	7/20/2007	305	480457	2858871	MFGP	MFGP	Yes	Yes	–
609	225	7/20/2007	306	480107	2858271	CStG	CStGPs	No	Yes	ok
610	263	7/20/2007	307	479057	2857271	WStG	FStS	No	Yes	ok on edge between classes
611	194	7/20/2007	308	479157	2856321	FStS	FStS	Yes	Yes	–
612	265	7/20/2007	309	474607	2855221	FMc	SMc	No	Yes	Conocarpus shrubland better height difference
613	261	7/20/2007	311	476307	2857571	MFG	MFO	No	Yes	ok
614	201	7/20/2007	313	474857	2857871	FM	WMr	No	Yes	ok Rhizophora is 50 % > 5 meters

Conclusion

The goal of the vegetation mapping project to produce a thematically accurate vegetation map of the western region of Big Cypress National Preserve was fulfilled. The accuracy assessment of the western region of Big Cypress found that the overall map accuracy was 85% (521 points of the 615 points) with a standard error of 1.452% and with a 90% lower confidence interval of 82%. This map product meets the National Park Services map accuracy requirement. Additionally, when viewed at the hierarchical levels the map is accurate as well. The concurrent map accuracy assessment process has some inherent shortfalls, but it was successfully utilized here for contract management that allowed for a higher quality deliverable.

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