



CHEROKEE POINT CONSERVATION AREA

FINAL MANAGEMENT PLAN | MAY 10, 2013





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Executive Summary

The Cherokee Point Conservation Area (hereafter referred to as "Cherokee Point") consists of approximately 183 acres of land in Osceola County, Florida. The site consists of a mosaic of lake littoral zones, wet pastures, an upland peninsula, and a residential parcel historically used for cattle ranching. Funding for the acquisition of Cherokee Point was provided by Osceola County and Osceola County is responsible for the management of the property. The site is considered a multiple use park as the site is managed for both environmental protection and recreation.

Acquired by the County in June 2012, this park provides an excellent opportunity to observe the abundant bird diversity of Goblets Cove and Lake Tohopekaliga (Lake Toho). Cherokee Point provides a unique opportunity to provide a blueway connection for canoe and kayak users from the south side of Lake Toho to the Twin Oaks Conservation Area. Other features of Cherokee Point include:

- A broad expanse of lake edge of Lake Toho;
- An upland peninsula stretching into the lake that provides an almost 360° view of the lake;
- Significant viewing areas for habitat used by Everglade snail kite, wood stork, and a large diversity of other bird species;
- A small house and associated barn that provide a unique opportunity for large park pavilion and public space; and
- An excavated pond near the barn that could provide opportunities for bank fishing.

The following master plan and management plan was developed to guide the recreational use and land management of the park. This plan identifies key improvements to provide access to features on the site and to guide land management over the next five to ten years.

Cherokee Point is located in the Osceola Plain physiographic region of Florida. Three soil types, primarily consisting of hydric soils, underlie the park. A total of seven land uses and vegetation communities was identified on Cherokee Point and consist of a house and barn, open pastures, lake edge and marshes within pastures, a canal, a small pond, and a peninsula extending into Lake Toho. The legacy of water level regulation for Lake Toho and the historical cattle grazing on the wet pastures have left an imprint on the natural systems of the site. The hydrology of the site is primarily driven by the water levels and hydrology of Lake Toho. The site is used by Everglade snail kite, bald eagle, wading birds, and a variety of other wildlife and plant species.

The following goals, objectives and activities have been identified for the management and use of Cherokee Point. Natural resource goals and objectives are focused on the desired future conditions (DFC) of the habitats within Cherokee Point and management activities needed to meet those DFCs. Recreation use goals and objectives focus on establishing and controlling appropriate access to the park. The implementation of management actions to meet these goals will depend on funding levels, personnel availability, permitting and design requirements, and specific site conditions.

Goal #1: Preserve, maintain, and enhance the natural resources of Cherokee Point.

Goal #2: Provide resource-based recreation that includes appropriate utilization of existing buildings.

Land management activities for Cherokee Point will generally consist of prescribed fire, mechanical management, exotic and invasive species control, and ecological restoration and enhancement. Specific land management activities were identified for specific areas on the site, including maintenance return intervals, species planting lists, and access requirements.

A detailed master plan was developed to identify improvements to the facilities of the site, including standardized site furnishings. Improvements identified include:

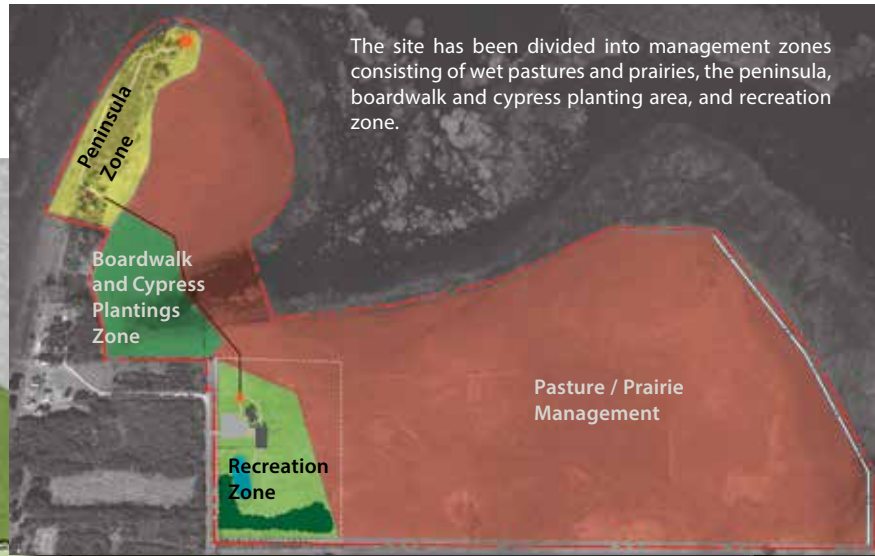
- Plantings within designated right-of-way for Cherokee Road that is unpaved at the Lake Toho edge;
- Standardized fencing;
- Driveway and parking improvements to provide approximately 25-35 parking spaces;
- Enhancements to the on-site pond to provide a fishing and viewing location;
- Conversion of the barn to a large pavilion unique to the County;
- New trails and landscape improvements; and
- Retrofits to the house for a gathering and exhibit space.

Capital cost estimates were identified for the proposed improvements. A two phase implementation schedule was established based on the cost estimates and criteria for access and enhancement of Cherokee Point.



Cherokee Point Conservation Area

The site has been divided into management zones consisting of wet pastures and prairies, the peninsula, boardwalk and cypress planting area, and recreation zone.



Detailed master plan for recreation zone





Introduction

Introduction

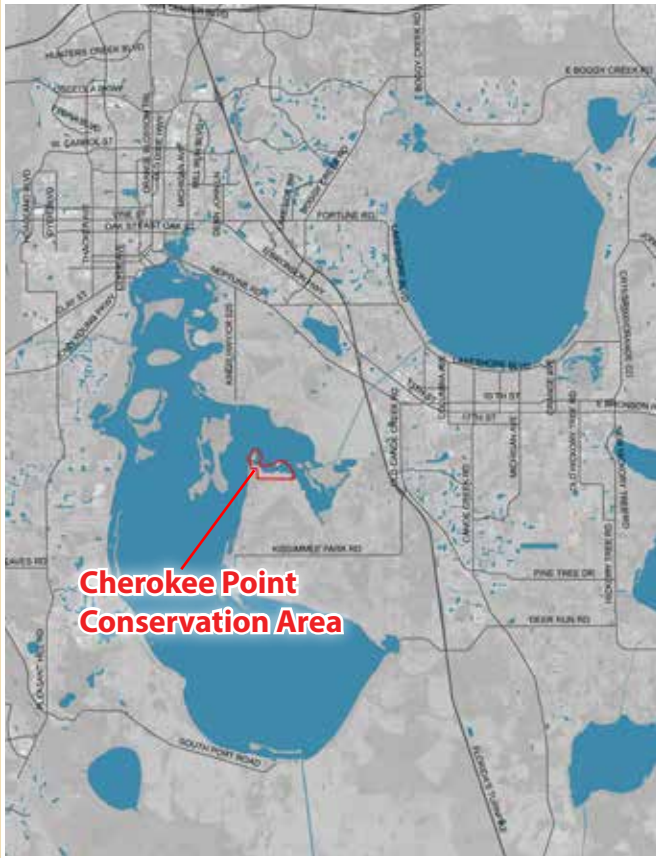


Figure 1. Location Map

Plan Purpose

The following master plan and management plan was developed to guide the recreational use and land management of the park. This plan identifies key improvements to provide access to features in the site and to guide land management activities on Cherokee Point over the next ten years.



Overview

The Cherokee Point Conservation Area (hereafter referred to as "Cherokee Point") consists of approximately 183 acres of land in Osceola County, Florida (**Figure 1**). Located west of Canoe Creek Road and Kissimmee Park Road at the north end of Cherokee Road, Cherokee Point occurs in Sections 12 and 13, Township 26 South, Range 29 East and Section 18, Township 26 South, Range 30 East. According to the Osceola County property appraiser, Cherokee Point is comprised of tax folio numbers 24-26-29-368-0000-A0010, 24-26-29-369-0000-B0010, 24-26-29-369-0000-C0190, 24-26-29-367-0000-10010, and 24-26-29-367-0000-70010. The site consists of a mosaic of lake littoral zones, wet pastures, an upland peninsula, and a residential parcel. The site was historically used for cattle ranching and as a single-family residence. A current aerial photograph of the site is included as **Figure 2**. Two aerial photographs taken in 1951 and 1959 are included as **Figures 3A** and **3B**. Funding for the acquisition of Cherokee Point was provided by Osceola County and Osceola County is responsible for the management of the property. The site is considered a multiple use park as the site is managed for both environmental protection and recreation.

Setting

Acquired by the County in June 2012, the unique setting of this park along the shores of Lake Tohopekaliga (Lake Toho) provides an excellent opportunity to observe the abundant bird diversity of Goblets Cove. Moreover, the location of Cherokee Point on the south side of Goblets Cove provides a unique opportunity to provide a blueway connection for canoe and kayak users from the south side of Lake Toho to the County-owned Twin Oaks Conservation Area on the north side of the lake. Other features of Cherokee Point include:

- A broad expanse of lake edge of Lake Toho;
- An upland peninsula stretching into the lake that provides an almost 360° view of the lake;
- Significant viewing areas for habitat used by Everglade snail kite, wood stork, and a diversity of other bird species;
- A small house and associated barn that provide a unique opportunity for large park pavilion and public space; and
- An excavated pond near the barn that could provide opportunities for bank fishing.



Figure 2. Current Aerial Photograph

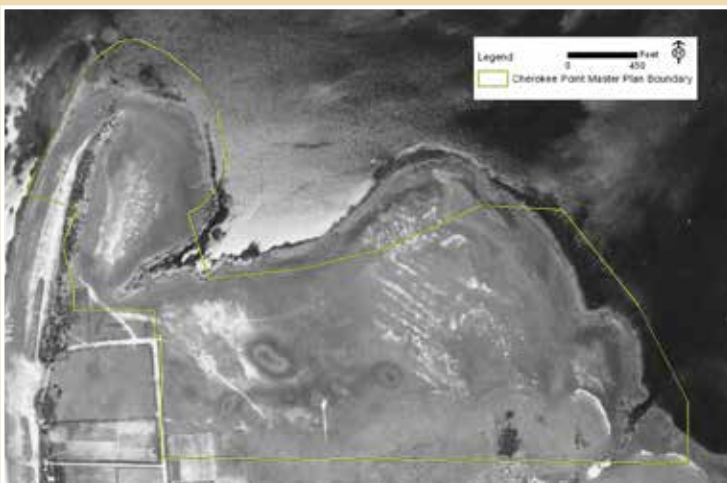


Figure 3A. Historical Aerial Photograph - 1951



Figure 3B. Historical Aerial Photograph - 1959





Existing Conditions

PHYSIOGRAPHIC SETTING
SOILS
LAND USE AND VEGETATION
LISTED AND NON-LISTED SPECIES

Existing Conditions

Existing conditions on the Cherokee Point consist of a house and barn, open pastures, lake edge, marshes within pastures, a small pond, and a peninsula extending into Lake Toho. The following provides a brief description of each of these elements as well as an overview of other natural resources found on the site. The common and scientific names of plant and wildlife species referenced in the text of this management plan are identified in **Attachment 1**.

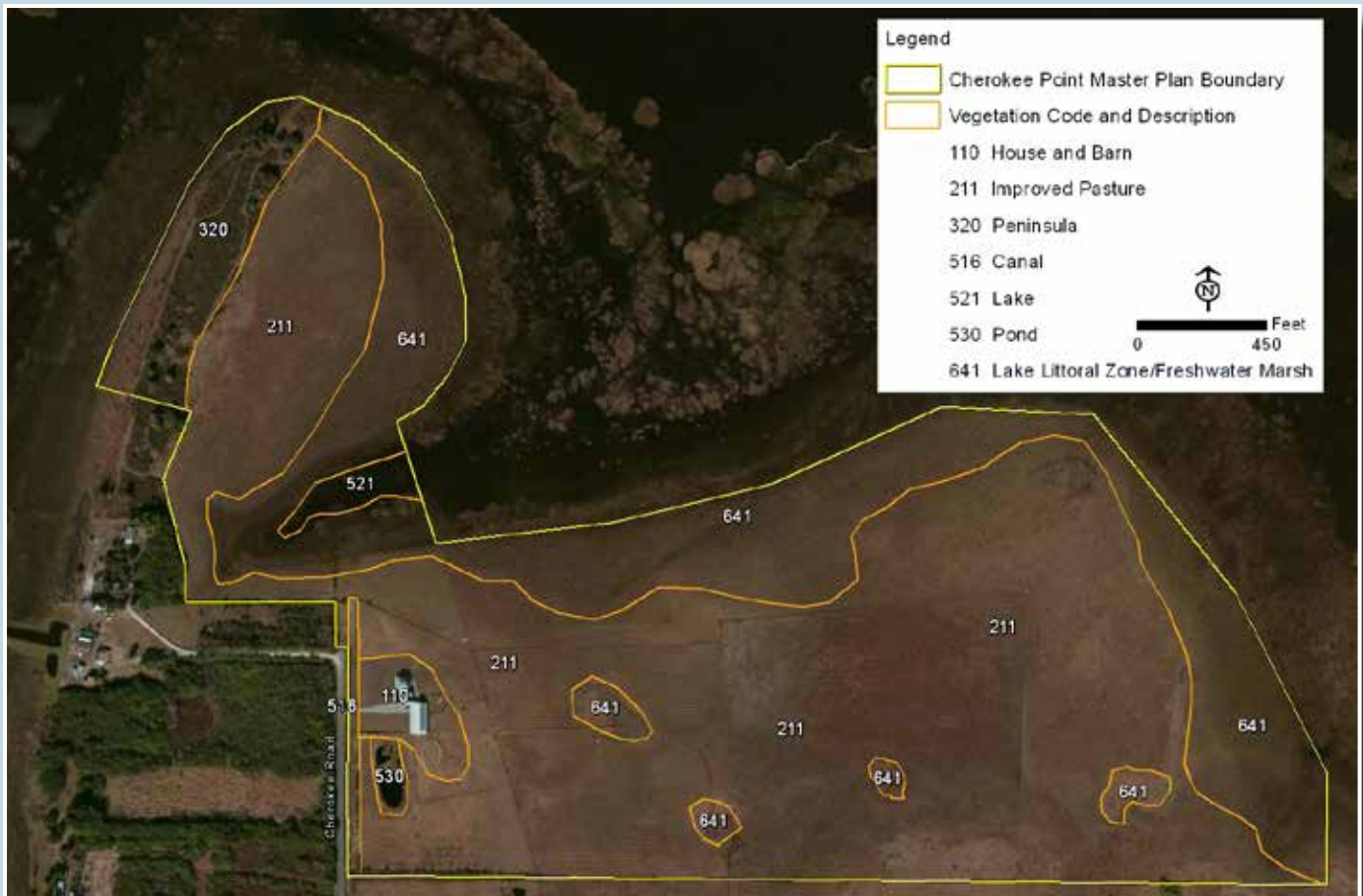
Physiography

Cherokee Point is situated in the Osceola Plain physiographic region of Florida. The Osceola Plain is the dominant physiographic region within Osceola County, encompassing the generally level to gently rolling lands between the Lake Wales Ridge to the west and Eastern Valley to the east. Pine and palmetto flatwoods dotted with small to large lakes like Lake Toho, broad grassy sloughs, and other depressions historically dominated the sandy soils of this region. Portions of this region have been converted to improved pasture for cattle grazing, although

much of the naturally-occurring vegetation has been used for native range as well. Other portions of this physiographic region have been converted to various residential and commercial uses, especially around the cities of St. Cloud and Kissimmee.

Hydrology and Regional Setting

The legacy of water level regulation for Lake Toho and the historical cattle grazing on the wet pastures left an imprint on the natural systems of the site. Like many other lakes in Central Florida, the water levels of Lake Toho historically fluctuated more than the current regulation schedule. Water levels recorded for Lake Toho ranged from 48.93 feet MSL to 59.40 feet MSL from 1942 to 1964, while the current regulation schedule maintains water levels between 52.0 and 55.0 feet. During periods of high water, the majority of Cherokee Point would have been underwater and/or comprised of wet prairie and marsh vegetation along the lake shoreline. Cattle grazing coupled with the lower water levels of the current regulation schedule have resulted in the establishment of a wet



pasture system over much of the site. The hydrology of the site is primarily driven by the water levels and hydrology of Lake Toho.

Soils

According to the United States Department of Agriculture Soil Conservation Service Soil Survey of Osceola County, water and three soil types underlie Cherokee Point as depicted on **Figure 4**. The soil types include Adamsville variant fine sand, 0-5% slopes Basinger fine sand, and Pompano fine sand. Much of the site is demarcated in the soil survey as water associated with lake bottom. The majority of the soils underlying Cherokee Point are poorly drained and nearly level, with the somewhat poorly drained Adamsville variant fine sand occurring on drier portions of the peninsula. The Hydric Soils of Florida Handbook notes that Basinger fine sand and Pompano fine sand are comprised primarily or solely of hydric soils. These soils exhibit ponding, saturation, or flooding during much of the growing season and typically underlie wetland areas such as lake littoral zones, freshwater marshes, or wet

prairie. Adamsville variant fine sand underlies the higher elevation portions of the peninsula. This soil type typically underlies oak hammocks and mixed forested upland areas within the County.

Land Use and Vegetation

The existing conditions of Cherokee Point include broad expanses of wet pasture, lake littoral edges, an upland peninsula, and a house and barn from the previous residential land use. Land uses on Cherokee Point prior to County acquisition included cattle grazing, fishing, and limited watercraft access from the end of the Cherokee Road right-of-way. Extensive barbed wire fencing remains in the wet pasture areas that separated individual pastures.

The land use and vegetation communities within Cherokee Point were characterized using Florida Land Use, Cover, and Forms Classification System (FLUCFCS) and depicted on **Figure 5**. A total of seven (7) land uses and vegetation communities were designated on Cherokee Point. The following provides a brief overview of each of these communities.



Figure 5. Land Use and Vegetation - FLUCFCS Designations

110 – House and Barn

Cherokee Point currently includes a two-story house, a mother-in-law suite attached to the house, and a large horse barn with three garage stalls. The driveway to the house is surfaced by pavers and extends from the road to the garage stalls. The driveway is approximately 10 feet wide at the road, but widens to the width of the three garage stalls by the barn. The house exhibits a narrow porch with multiple pillars that limit maneuverability on the porch. Several paver-surfaced walks occur around the house. In addition to the garage stalls, the barn includes three rooms that were used as tack rooms as well as multiple horse stalls. A covered walkway extends between the barn and the house. The mother-in-law suite consists of a single room and toilet facility adjacent to, but connected with the single-family house.

211 – Wet Pasture

The majority of the property consists of wet pasture areas that occurred along the lake shoreline and were fenced from the residential facility. These areas grade gently into the lake edge and have been used for cattle grazing over the years. Bahiagrass and carpetgrass comprise a significant portion of the wet pasture areas. In recent years, the

pastures have not been mowed or maintained, thereby allowing natural vegetation such as broomsedge and rush to grow in the area. Scattered Brazilian pepper plants occur at fence posts and along fence lines.

320 – Peninsula

This peninsula consists of a natural lake berm that exhibits a ground elevation several feet above the current lake surface. Historical water levels likely inundated the top of the berm periodically, especially during heavy inundation periods and storms, but the berm now remains dry under typical water level regulation schedules. The drier portions of the peninsula are dominated by blackberry and bahiagrass with scattered occurrences of Brazilian pepper, tropical soda apple, dog fennel, and small cabbage palms. Scattered laurel oaks, live oaks, and cypress trees occur around the peninsula, with the cypress trees generally occurring closer to the edge of the lake and the oak trees occurring on the crest of the peninsula. The edges of this community grade into the lake and exhibit wet prairie and/or marsh vegetation consistent with the rest of the lake littoral edge. Brazilian pepper occurs in several locations and comprises a dense shrub understory under many of the cypress trees.



Barn



Wet pasture



Peninsula

516 - Canal

A roadside canal occurs between the existing fence line and roadway on the western boundary of Cherokee Point. The banks of the canal area are maintained by mowing. Although the canal is generally clear of vegetation, the margins of the canal exhibit torpedograss, bahiagrass, marshpennywort, and primrose willow of varying densities.

521 - Lake

A small finger of relatively permanent open water associated with Lake Toho stretches into the park boundaries to the northwest of the house and barn.

530 - Pond

A small pond was excavated in an area south of the house and barn, likely to provide fill and water quality treatment. The banks of the pond are relatively steep and exhibit erosion in some areas. Primrose willow occurs on the bank around much of the pond over a dense thatch of bahiagrass. Brazilian pepper occurs in small patches around the margin of the pond. Cattails and burhead sedge grow within the deeper water portions of the pond. The burhead sedge also occurs in floating mats that grow on the surface of the water and move around the pond with daily breezes.

641 - Lake Littoral Zone / Freshwater Marsh

Marsh and wet prairie vegetation dominate the lake littoral edge and several seasonally isolated marshes within the wet pastures. The seasonally isolated marshes were grazed by cattle along with the adjacent wet pastures. The seasonally isolated marshes may have been deeper pockets of the lake littoral zone prior to regulation of the water levels in the lake. These wetlands are dominated by a variety of herbaceous species generally dependent on depth and duration of inundation. Seasonally inundated shallower areas that occur in the transition between the wet pastures and regularly inundated marsh are dominated by a variety of species, including carpetgrass, rush, pickerelweed, maidencane, grassy arrowhead, spikerush, and yelloweyed grass. Areas that regularly inundate for much of the year or exhibit deeper inundation levels are dominated by cattail, pickerelweed, maidencane, and/or duck potato, although other species such as beaksedge and rush also occur. The cattails in the vicinity of Cherokee Point are periodically used by Everglade snail kite for nesting.



Canal



Pond



Lake littoral zone / freshwater marsh

Listed and Non-Listed Wildlife

Cherokee Point provides habitat for a diversity of wildlife species, especially wading and water dependent birds. Several federally- or state-listed bird species are known to utilize habitats within or adjacent to Cherokee Point for foraging, nesting, or loafing, including the Everglade snail kite, bald eagle, wood stork, ibis, little blue heron, snowy egret, tricolored heron, and sandhill crane. Other listed wildlife species such as gopher tortoise and eastern indigo snake may utilize the site, although the primary suitable habitats for these species are limited. Management efforts that maintain wet prairie/pasture and lake littoral edge vegetation will continue to provide habitat for these listed wildlife species and a broad diversity of other non-listed wildlife species.

A list of threatened and endangered species and species of special concern (SSC) that potentially occur in Osceola County along with the typical habitats occupied by each species and a qualitative assessment of the probability of occurrence for each species within Cherokee Park is included as **Attachment 2**. The following information is provided to highlight several of the wildlife species that occur or could potentially occur on the site and may influence management and recreation activities within the park.

- *Everglade Snail Kite* - Restricted to watersheds of the Everglades, Lakes Okeechobee and Kissimmee, and Upper St. Johns basin, the Everglade snail kite is a rare raptor that utilizes freshwater marshes and shallow vegetated lake edges to forage for apple snails. Although not legally described as critical habitat, Lake Toho provides habitat for a significant portion of the remaining snail kite population. Snail kites have been known to nest in the cattails in the vicinity of Cherokee Point, although they will also nest in small trees and shrubs that grow over open water. Water management actions within Lake Toho and other systems home to the snail kite are the most important human-controlled factors for maintaining habitat for the snail kite. Other actions, such as limiting access to snail kite nesting habitat during nesting season and/or construction within buffer zones around nests established by regulatory agencies are also an important management tools.
- *Bald Eagle* - The mosaic of lakes and flatwoods in Central Florida, including Lake Toho, are home to a large population of bald eagles. Eagles typically nest in mature or old-growth pine trees in the vicinity of open water bodies and typically will re-use the same nest for subsequent years. During the breeding season,



bald eagles can be sensitive to human activity in the vicinity. Management activities that increase the availability of large pine trees may increase potential nesting habitat at Cherokee Point. Adherence to regulatory buffers during construction and recreational access control during the nesting season near a nest are also important management tools for bald eagles.

- *Wading Birds* - The low growing vegetation and shallow water of the expansive lake littoral edge provides important habitat for a variety of wading birds, including the federally-listed wood stork and state-listed little blue heron, white ibis, tricolored heron, limpkin, and snowy egret. In addition, the lake marshes in Goblets Cove are well-known for their aggregations of various duck species, white pelicans, and other bird species infrequently observed in Central Florida that forage and congregate in the open water and marsh vegetation of the lake edge. Maintenance of vegetation height and character as well as water levels sufficient for Everglade snail kite will assist in maintaining habitat for these species.
- *Sandhill Crane* - Sandhill cranes use open habitats such as prairies and pastures for nesting and foraging. Nesting typically occurs in shallow herbaceous wetlands like those found on most of the site between

January and August. Disturbances to the nest during incubation may lead to nest abandonment and re-nesting attempts. Maintenance of uplands adjacent to nesting areas through fire or mowing is important to maintain the herbaceous vegetation at less than 20 inches in height for foraging. Areas for which prescribed burns are scheduled to occur during the nesting season for sandhill crane should be evaluated for nests prior to ignition.

- *Gopher Tortoise* - The wet pastures and prairies of Cherokee Point are generally not considered suitable habitat for gopher tortoises due to the high groundwater table and periodic inundation. Although not generally suitable, gopher tortoises can establish short burrows in wet pastures like those on the site during dry periods and may forage in the fringe of these systems if adjacent upland areas are available for their burrows. The drier soils of the peninsula may provide suitable habitat for gopher tortoises, although the narrow width of the peninsula and potential to be inundated during very high water periods may limit the long-term viability of a gopher tortoise population. Mowing or prescribed fire should be used to maintain open herbaceous conditions if gopher tortoises are observed on the peninsula.







Master Plan and Land Management Plan

GOALS AND OBJECTIVES
LAND MANAGEMENT
OVERALL MASTER PLAN
DETAILED SITE PLAN
INTERIOR BUILDING IMPROVEMENTS

Management Plan

Goals and Objectives

This ten year management plan provides a basic statement for the future direction of Cherokee Point and is intended to provide a framework for annual management activities. Work plans that provide additional detail on specific activities or improvements will be prepared as needed to meet park operation needs and provide flexibility for adaptive techniques to be incorporated into management activities. The following goals, objectives and activities have been identified for the management and use of Cherokee Point. Natural resource goals and objectives are focused on the desired future conditions (DFC) of the habitats within Cherokee Point and management activities needed to meet those DFCs. Recreation use goals and objectives focus on establishing and controlling appropriate access to the park. The implementation of management actions to meet these goals will be dependent on funding levels, personnel availability, permitting and design requirements, and specific site conditions.

Natural Resources

Goal #1: Preserve, maintain, and enhance the natural resources of Cherokee Point.

One of the primary goals of Cherokee Point is to preserve, maintain, and enhance the natural resources of the site to meet desired future conditions for the habitats found within the park. The DFCs provide a reference set of physical, composition, operational, or visual objectives that would be present on a site after a long period of management (50 years or more). These DFCs are expected to provide site-wide comprehensive objectives for which system-based management actions can be formulated. The DFCs are described as follows:

Site-Wide DFCs

- All non-native vegetation is controlled at existing densities or eradicated;
- Public access is provided through appropriate, resource-based recreation opportunities; and
- The array of natural habitats supports historically representative species of native wildlife, including listed species.

Habitat Specific DFCs

- *Lake, Lake Littoral Edge, Wet Pasture, and Freshwater Marsh* – These systems will seamlessly transition from deep water habitats to shallow, seasonally inundated areas characterized by native, desirable plant species based on lake levels and water schedules. Vegetation height will generally be low and shrubs will be limited to non-existent. Obstructions to wildlife movement, such as fencing, will be limited solely to that required to limit off-site cattle from the site. Cattails will remain to provide nesting areas for Everglade snail kites. Patches of cypress trees on the lake margin will provide roosting locations for wading birds.
- *Canal* – Open water will be visible in the main part of the canal and will continue to convey water from adjacent parcels and road. Banks of the canal will be vegetated with native vegetation that requires annual or less frequent maintenance.
- *House and Barn* – The landscape around the house and barn will be comprised of desirable native vegetation and open grassed play areas. The area requiring mowing will be reduced from current conditions. Areas south of the pond and buildings will consist of vegetation characteristic of pine flatwoods.
- *Pond* – The banks of the pond will be smoothed to provide easier access at locations for bank fishing. Native vegetation will stabilize the banks of the pond and require annual or less frequent mowing or burning. Cypress trees will provide cover and structure for the margins of the pond and desirable native wetland vegetation will comprise the littoral zones of the pond.
- *Peninsula* – The peninsula will exhibit scattered clumps of cypress, oak and pine trees that provide shade and roosting locations for birds. The herbaceous and shrub layers will generally be open and low in height with a groundcover dominated by bahiagrass that currently occurs. Fire and mowing may be used to minimize the height of the bahiagrass and encourage other native species to grow.

Recreation Resources

Goal #2: Provide resource-based recreation that includes appropriate utilization of existing buildings.

A second goal of Cherokee Point is to provide appropriate resource-based recreation opportunities that utilize existing buildings to supplement resource-based recreation and/or provide unique facilities in the County. Three objectives were identified to outline potential recreation use areas within the site as well as management actions that assist in meeting these objectives.

Objective 2A – Provide pedestrian and canoe/kayak access to Lake Toho and the peninsula.

Proposed activities

- Construct a boardwalk and trail between the main parking area and the peninsula.
- Construct a platform on the boardwalk to provide a canoe and kayak launch in Lake Toho.

Objective 2B – Provide parking and facilities for public access, small-scale environmental education opportunities, and future concessionaire use.

Proposed activities

- Remove the existing kitchen on the first floor and repaint the remainder of the room.
- Change the bathroom to a utility and storage room.
- Remove the existing shower and bathroom on the second floor to establish exhibit space.
- Expand the driveway to provide two lanes of access.
- Provide pervious surfaced parking areas, including ADA parking spaces.
- Add an ADA accessible ramp.
- Maintain the mother-in-law suite for use by a concessionaire.

Objective 2C – Provide passive recreation space for large groups.

Proposed activities

- Convert two storage rooms in the barn to men's and women's bathrooms.
- Convert the horse stall area to a large pavilion.
- Maintain garage stalls for storage and concession use.
- Construct a playground.
- Establish a location for bank fishing and overlook platform for the pond.

Land Management Activities

Land management activities for Cherokee Point will consist of prescribed fire, mechanical management, exotic and invasive species control, and ecological restoration and enhancement.

Prescribed Fire - Prescribed fire is a critical tool for enhancing and sustaining the ecological health of the wet prairies and pastures of Cherokee Point. Prescribed fire reduces fuel loads, returns nutrients to the soil, and assists in the control of exotic species. Where possible, fire return intervals should be consistent with historical frequencies for which the plant and animal species using the habitats are adapted. The wet pastures, wet prairies, and peninsula of Cherokee Point likely burned every two to five years, depending on fuel accumulation, lake levels, and regional fire patterns. Installation of roads, conversion of pine flatwoods to pastures, and regulation of the water schedule for Lake Toho have fragmented the natural regional fire patterns and changed the fuel loading and moisture conditions for habitats on the site. Application of prescribed fire to these habitats should be done with return intervals of every two to five years. The State of Florida regulates implementation of prescribed fire. Permits are required from the local Florida Forest Service office prior to implementation of a prescribed burn based on a burn prescription prepared by a certified burn manager. Firebreaks will need to be established along the eastern boundary of Cherokee Point. Fire control measures such as wet lines, mowing or bush-hogging can also be used to establish defensible fire breaks or to define separate units for fire management.

Mechanical Management - Mechanical management such as mowing or bush-hogging may be used throughout the property, especially if prescribed fire is limited by funding, staff availability, or weather conditions. Regular mowing sufficient to maintain lawns will only be conducted in small areas around the house and the lawn area adjacent to the barn. Infrequent mowing (annual or semi-annual) may be used along the canal banks, the peninsula trail, and in areas planted with native grasses to limit unwanted shrub growth. Annual or biannual mowing or bush-hogging may be used to manage shrub and herbaceous vegetation on the peninsula and pastures.

Exotic and Invasive Species Control - Exotic plant and animal species are known to occur on or in the vicinity of Cherokee Point. These species can affect habitat function through alterations to soil conditions, growth and exclusion over native species, or undesirable structure for wildlife species using the site. The Florida Exotic Pest Plan Council (FLEPPC) defines two categories of invasive exotic plant species based on capacity to alter habitat community structure or function and/or ability to increase in abundance within the state. A copy of the FLEPPC list of Category 1 and 2 species is included as **Attachment 3**.

Exotic invasive species on the site, including Brazilian pepper, torpedograss, and feral hogs, occur on Cherokee Point. Brazilian pepper occurs around the margin of the pond, along fence lines, and on the peninsula in clusters under canopy trees. Torpedograss occurs on the margins of the canal and edges of the pond. Feral hogs are known to occur in the vicinity of the site and likely periodically

pass through the wet pastures. Exotic plant control efforts include herbicide application, physical removal, or some combination of the two. Frequent applications of herbicide may be needed for bigger aggregations of invasive species to treat re-growth of the plants. Trapping of feral hogs may be required if hog damage is noted to alter physical conditions of the site.

Ecological Restoration and Enhancement - Cherokee Point includes improved wet pastures, mowed lawns, an excavated pond, and canal that have been altered from historical conditions. Implementation of prescribed fire and/or mechanical management within the majority of the wet pastures and peninsula will assist in establishing conditions favorable for native plants to re-establish in these areas. Plantings, exotic species removal, and/or earthwork will likely be required to restore or enhance other portions of the site. Specific plans for plantings are identified by land area.

Master Plan Land Management Activities

The master plan for the entire site consists of four primary management zones (**Figure 7**), including the wet pastures and prairies, peninsula, boardwalk and cypress planting area, and house and pavilion activity center. Brief descriptions of the land management activities and associated master plan improvements are provided for these areas. Specific site improvements for the house and pavilion activity center relative to buildings and site improvements are detailed in following pages.

1. *Pasture/Prairie Management* - The large pasture area east and north of the house will be managed for wet prairie habitats with the primary management tool consisting of prescribed fire with return intervals of approximately two to five years. All or portions of the pasture may be burned in any one prescribed fire or the pasture may be divided into smaller units for variation in fire application. No permanent firebreaks will be established within the pasture area, although a permanent firebreak will be established on the eastern property boundary. Periodic mowing on an annual or biannual basis between the fires may be used as an alternative method to control shrub regeneration within the pastures. Interior fencing within the pastures will be removed, including posts and barbed wire, although some fence posts will be left (approximately one out of six) to provide perches for wildlife. A new

barbed wire fence will be installed along the eastern property boundary to fence the pasture from adjacent cattle use.

2. *Peninsula* - The peninsula will be managed using prescribed fire or mowing to maintain the low herbaceous and shrub growth. A six to eight foot wide trail will be mowed from the terminus of the boardwalk to a viewing node at the end of the peninsula. Two benches will be placed at this node for rest and viewing of the lake. A small 10 foot x 20 foot standard park pavilion will be placed near the terminus of the boardwalk for shelter. A three rail wooden fence will be installed along the southern property boundary of the peninsula to demarcate the public ownership of the area. Additional canopy trees such as longleaf pine, live oak, and cypress may be planted on the peninsula in the future.

3. *Boardwalk* - An eight foot wide boardwalk sufficiently sized to allow for a small Gator or other maintenance vehicle to use will extend from near the parking facility to the peninsula. It is anticipated that this will be a wooden boardwalk or a boardwalk constructed from concrete or related materials similar in form to the Permatrack boardwalk system. A soil cement path will extend from the parking area to the terminus of the boardwalk. The boardwalk will be constructed on piling to elevate the floor of the boardwalk to at least one foot above the ordinary high water elevation of

Lake Toho (55.0 feet NGVD). A 20 foot by 40 foot wide platform will be constructed in the middle of the boardwalk by the open water portion of the lake. This will be used for canoe and kayak launches and it will be signed accordingly.

4. *Cypress Planting* - The area between the boardwalk and the southwestern property boundary consists of open marsh and wet prairie areas. Small cypress trees (1 gal) will be planted in clusters (average 30 foot OC) throughout the shallower portions of this area to provide future canopy trees as well as buffering for the adjacent homes.
5. *Canal Banks* - The canal banks will be planted with native herbaceous species, including cordgrass, maidencane, Fakahatchee grass, and other native grasses. These areas will be mowed on a biannual or annual basis to minimize shrub regrowth.
6. *Upland Restoration* - The south side of the property will be restored with native upland plantings. Herbicide will be applied to the existing bahiagrass and the areas will be disked to prepare the seedbed. Native seeds will be applied to the prepared seedbed using methodologies similar to that of the Natives. The native seeding will be supplemented with acorns, saw palmetto berries, and other shrub seeds to provide additional long-term shrub cover. Additional supplemental plantings of one gallon or smaller plantings of the same shrub species and bare root seedlings of longleaf pine will be placed within the restoration area to provide future canopy species. Prescribed fire and /or mowing will be used to maintain the herbaceous nature of this area in the long term. Prescribed fire will be conducted every two to five years within the area while mowing may occur annually or biannually.



Figure 6 - Master plan for Cherokee Point



Figure 7 - Detailed Site Plan

1 Cherokee Road ROW

A non-paved portion of the Cherokee Road ROW extends to the marsh edge. This area has been used for airboat access and requires frequent mowing. A three rail wooden fence will be placed along the south edge of this non-paved ROW. Canopy trees such as live oak and cypress will be planted on approximately 30 foot centers and native shrubs such as beautyberry, saw palmetto, Virginia sweetspire, and wax myrtle will be planted (approximately four foot centers) to provide additional species diversity.

2 Driveway

The driveway will be expanded to provide two lanes (20 feet) of drive aisle. Pavers currently used for sidewalks and trails in other parts of the facility will be relocated to surface the expanded portions of the driveway. The culvert for the canal will be extended underneath the driveway. It is anticipated that the paver-surfaced drive will extend to the main entrance of the house for passenger drop-off.

3 Parking

A new parking area will be established on both sides of the revised driveway. Approximately 10 to 15 parking spaces will be placed south of the driveway and 15 to 20 parking spaces will be placed north of the driveway. An ADA accessible parking space will be located on both sides of the driveway. Shell or other aggregate surfacing will be used in the remainder of the parking areas to allow for some pervious drainage. A half circle drive with similar surfacing will extend from the paver-surfaced end of the driveway to provide additional access into the parking lot. Drainage from the parking area will be routed to the pond.

4 Fencing

A new three rail wooden fence will be placed from the beginning of the boardwalk around the east side of the house and barn to the south side of the playground. The existing wooden fence on the east side of the canal will be relocated to the west side of the canal adjacent to the roadway. An area sufficient for overflow parking will be maintained between the fence and the road. A small segment of three rail wooden fence will be used at the terminus of Cherokee Road to secure access.

5 Fishing Pond

The existing pond south of the house will be improved to provide bank fishing and a viewing platform accessible from the adjacent barn. The banks of the pond will be re-sculpted to provide smoother slopes for access to the pond and to limit erosion from steep slopes, especially in

the bank fishing locations. Native grasses and shrubs such as wiregrass, muhly grass, cordgrass, and saw palmetto will be used to stabilize the majority of the banks of the pond. Bahiagrass sod will be used to stabilize the banks in the areas designated for bank fishing. Canopy trees such as cabbage palm, live oak, and longleaf pine will be placed around the top of the bank, while cypress will be planted in the littoral edges. It is anticipated that these canopy trees will be relatively large (30 gallon or larger) to provide a quality naturalized landscape. A 20 foot by 25 foot wide viewing platform will be installed over the bank on the east side of the pond. This will be situated to provide views of planted trees and native wildflowers on the other bank of the pond. The current floating mats of vegetation in the pond will be removed and native herbaceous littoral vegetation will be planted around the margins of the pond, including pickerelweed, duck potato, and maidencane. The lake will be stocked with fish by the FFWCC.

6 Barn Area Exterior Improvements

The barn will be converted to a large pavilion. A paver sidewalk will extend from the entry drive to the barn. A medium-sized playground comprised of natural materials will be placed in the vicinity of the barn for children play areas. In addition, a horseshoe pit will be placed on the east side of the barn. A soil cement trail from the barn to the horseshoe pit, playground, and viewing platform will be provided for ADA accessibility. A mowed lawn will be maintained on the east and south sides of the barn to provide un-programmed play areas adjacent to the barn.

7 Trails and Access

Several new soil cement trails will be placed on the east side of the house to connect the barn to the house patio and the patio to the boardwalk entry. These trails will be surfaced with park-standard soil cement and be approximately six (6) feet wide. A new ADA accessible ramp will be installed from the sidewalk on the north side of the barn to the east side of the porch. It is anticipated that this ramp will be constructed on an earthen mound and paved with concrete.

8 Lawn Enhancement

A small area of lawn will be maintained on the east side of the house adjacent to the patio. The remainder of the current lawn will be planted with clusters of native grasses and wildflowers that will be placed with the existing bahiagrass. Mowing and or prescribed fire, where appropriate, will be used to maintain these areas and to allow the planted native species to expand and additional native species to recolonize the area.

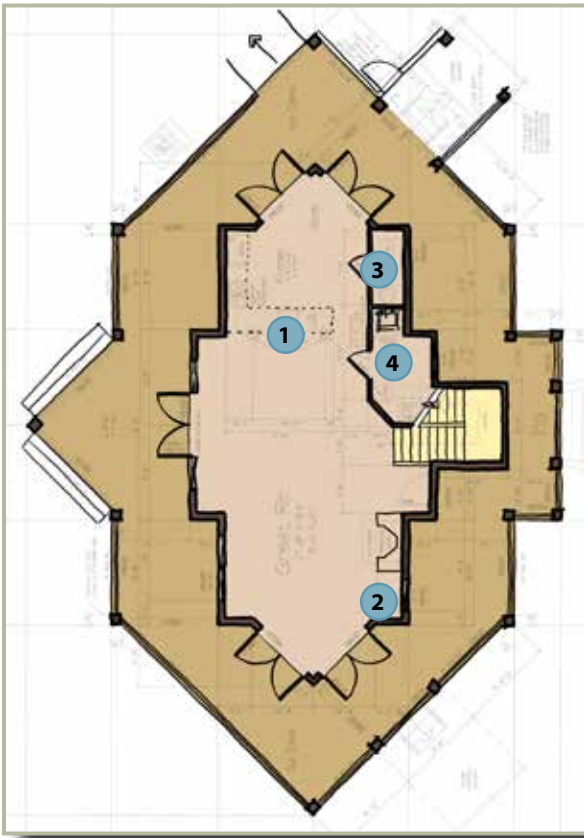


Figure 9 - Sketch plan for house first floor improvements



Figure 10 - Sketch plan for house second floor improvements

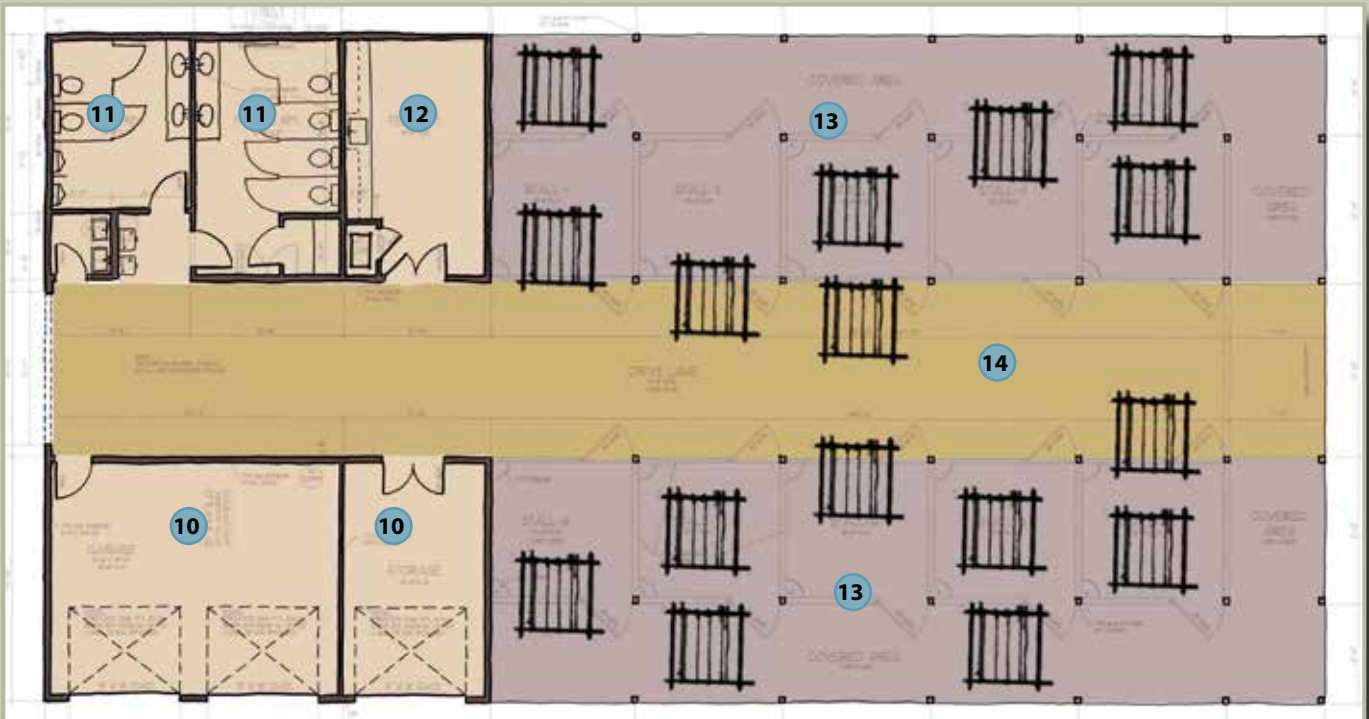


Figure 11 - Sketch plan for the barn to pavilion conversion

First Floor

- 1 The kitchen facilities will be removed from the house, including the existing cabinetry, sink, counter top, stove, and refrigerator. The floor will be fixed from where the cabinets are removed to be surfaced consistent with the rest of the first floor surface.
- 2 The interior of the house will be painted with muted colors consistent with natural themes of the area.
- 3 The first floor bathroom will be converted to a utility closet and the toilet will be removed.
- 4 A utility sink will be installed in the current storage room and the remainder of that room will be used for storage for the house and park operations.

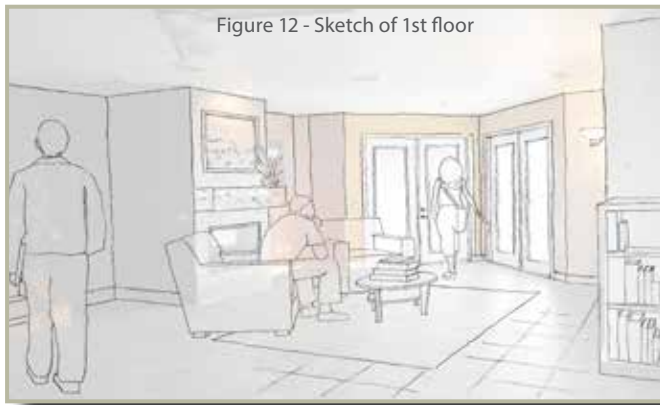


Figure 12 - Sketch of 1st floor

Second Floor

- 5 The shower, toilet, sink, and shell and closet area will be removed from the southern room of the second floor. This area will be converted to a single room used for exhibits.
- 6 One of the current windows for the shower area will be moved to the east wall of the central room to provide views on the sun deck.
- 7 The main room at the head of the stairs on the second floor will be used for exhibit space. It is anticipated that exhibits ranging from signs to small-scale animal exhibits will be used in this area.
- 8 Two mounted telescopes will be installed on the sun deck to provide views over the marsh from the deck.
- 9 The current claw foot tub will be removed. Two mounted telescopes will be installed in the current tub location to provide views north over the lake from inside the house.

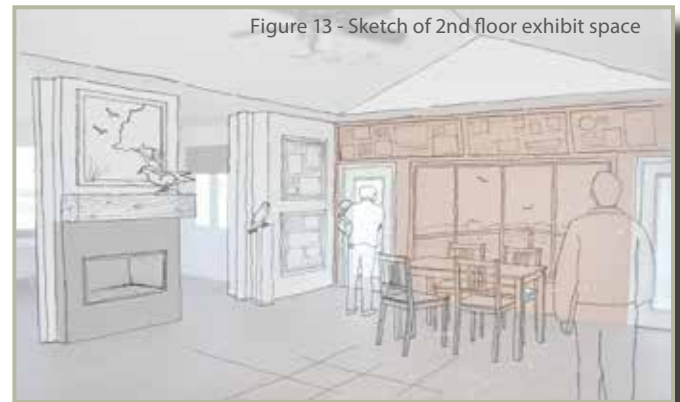


Figure 13 - Sketch of 2nd floor exhibit space

Barn Plan

Room Improvements

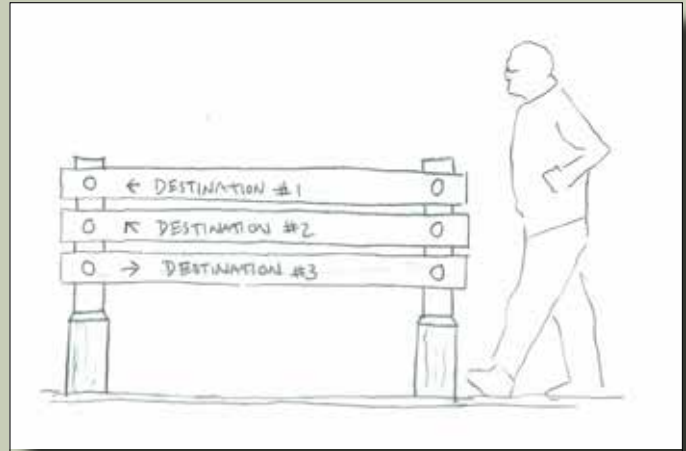
- 10 The three garage bays will be maintained following the conversion to pavilion use. The single bay will be used for County storage, while the double bay will be used for concessionaire canoe and kayak storage.
- 11 Two of the existing rooms in the barn will be converted to restroom facilities, one for men and one for women. The bathrooms will each have four water closets or urinals and will be tied into the existing or improved septic system for the house.
- 12 The remaining room will be converted for pavilion use. A vending machine and counter space will be included in this room.

Pavilion

- 13 The horse stalls in the remainder of the barn will be removed and a concrete floor will be installed in the place of the stalls. Approximately 16 picnic tables will be placed in this area to provide seating and picnicking space in the pavilion.
- 14 Ceiling fans will be maintained within the building. Additional electric sockets will be installed in the wall. Additional lighting within the barn pavilion will be evaluated after use occurs.

Standards and Maintenance Requirements

The natural resources of the Cherokee Point Conservation Area are highlighted, accessed, and protected through recreational improvements, site furnishings, and fencing. The consistent application of features that occur throughout Cherokee Point as well as other County facilities is desired to minimize maintenance costs and maintain a consistent design aesthetic. Similarly, consistent signage is useful to brand the wayfinding and entry for separate parcels within the Conservation Area. The following images document typical furnishings and signs for Cherokee Point Conservation Area.



Typical Directional Signs



Three rail wooden fence



Typical picnic table



Typical park standard pavilion



Typical bench



Soil cement trail



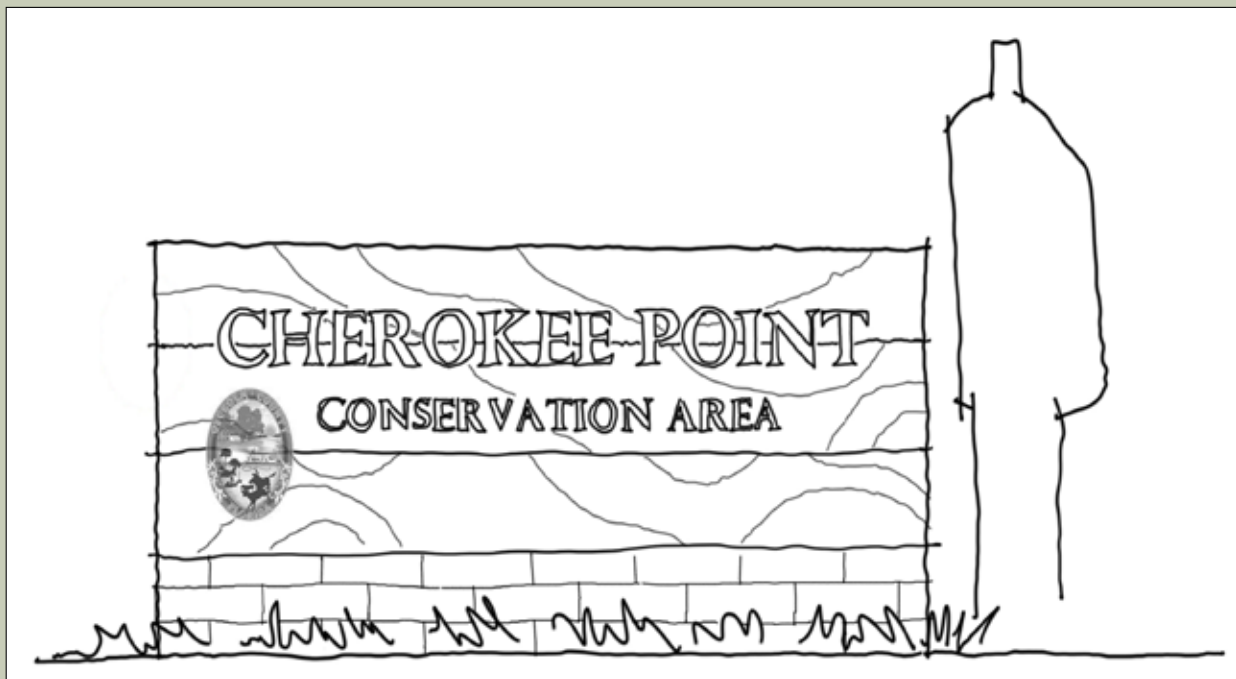
Educational kiosk



Concrete boardwalk - photo courtesy of Permatrack



Desired condition for upland restoration areas



Entry sign





Cost Estimates and Phasing

Cost Estimates, Phasing, and Permitting

Capital Cost Estimates

Order of magnitude capital cost estimates were prepared for the improvements identified within the master plan. At the direction of the County, cost estimates for two boardwalk options were developed. Option A consists of a concrete boardwalk, while Option B consists of a wooden boardwalk. Copies of the worksheets for these cost estimates providing additional information concerning assumptions used in the estimates are provided in **Attachment 4**. A cost estimate summary is provided in **Table 1**.

Operating Expense Assessment

Management activities required to maintain Cherokee Point will include both regular annual operating costs and periodic maintenance events. Annual maintenance expenses may consist of the following:

- Utilities, such as monthly payments for lighting and water;
- Mowing for lawn areas and the peninsula trail;
- Supplies such as paper supplies and soap for restrooms;
- Exotic species control;
- Trash removal; and
- Miscellaneous repairs, including boardwalk maintenance that may vary based on a concrete or wooden boardwalk construction materials.

Periodic maintenance expenses may have regularly established intervals between events of two or more years or irregularly for less predictable activities. Periodic maintenance expenses will likely include:

- Prescribed fire on a 2 to 5 year return interval;
- Mowing or bush-hogging of pastures and restored/enhanced natural areas to limit shrub growth less frequently than once per year;
- Replacement of the well;
- Repairs to structures, fencing, or vegetation due to normal degradation, vandalism, weather events, or accidents;
- Re-surfacing of parking areas, trails, or sidewalks; or
- Replacement of facilities.

Annual Maintenance Cost Estimates

Based on data provided by the County for other County maintained facilities, annual costs for a variety of maintenance requirements were estimated. Some or all of these costs could be offset or addressed by a concessionaire for the facilities.

Table 1. Capital cost estimate summary for proposed improvements at Cherokee Point

Item No.	Item	Cost Estimates
Cherokee Point Conservation Area		\$939,900
1.	Fencing	\$30,400
2.	Parking Improvements	\$32,000
3.	Peninsula	\$11,600
4.	Landscape Improvements	\$149,200
5.	Barn Retrofit to Pavilion	\$68,000
6.	House Interior Improvements	\$29,400
7.	Wooden Boardwalk, includes additional permitting	\$360,400
8.	Design/Permitting Reservation	\$75,000
9.	Mobilization/General Conditions/Bonds/Contingency (27%)	\$183,900

Estimates for these annual maintenance costs are as follows:

- Electricity: \$2,500 per year;
- Restroom Supplies: \$850 to \$1,000 per year based FY12 data provided for boat ramp facilities with similar restroom facilities;
- Well/Water Use: \$1,000 per year considering well use and water use permit annual fee;
- Exotic Species Control, including cattail: \$70 per acre per event
- Miscellaneous Repairs: \$2,000 per year

Periodic Maintenance Event Cost Estimates

Prescribed fire, annual or less frequent mowing/bush-hogging in natural areas, and replacement of the water well for the house are likely to be required during the first 10 years of management for Cherokee Point. Additional activities, such as septic field replacement, facility replacement, or parking area resurfacing may be needed over time, but likely outside of the first 10 years of operations. The following provides an order of magnitude estimate of costs associated with prescribed fire, infrequent mowing/bush-hogging, and water well replacement:

- Prescribed Fire: \$50 - \$75 per acre per event;
- Infrequent Mowing/Bush-hogging: \$1,200 per acre per event;
- Water Well Replacement: \$10,000 per event based on recent well for a boat ramp.

AECOM has no control over the cost of labor, materials, or equipment, the Contractor's method of determining prices or competitive bidding or market conditions. Therefore, the firm's statements of probable construction costs provided for herein are made on the basis of experience and represent our best judgment as Landscape Architects familiar with the construction industry. The firm cannot and does not guarantee that proposals, bids, or the construction cost will not vary from our statements of probable costs. If the Owner wishes greater assurances as to the construction cost, we recommend the employment of an independent cost estimator.

Phasing

During the plan development phase of the project, the County identified general budgetary considerations and criteria for evaluating implementation of the improvements identified for Cherokee Point. These criteria included providing a boardwalk to the peninsula and water access to Lake Toho, converting the barn to a unique large pavilion for the County, and opening the site and providing appropriate access to the public. Based on these criteria and estimated capital cost estimates associated with the proposed improvements, a proposed phasing and implementation plan was developed to complete the identified improvements within a three phase period. Actual implementation will be dependent on funding availability and may need to vary based on site conditions or requirements. The proposed phasing plan focuses on opening the site to the public and permitting the boardwalk options in the first phase, construction of one of the boardwalk in the second phase, and completion of the landscape improvements, house improvements, and peninsula improvements in the third phase. The proposed phasing plan is identified in **Table 2**.

Permitting

Permits from several agencies are required to implement the proposed improvements. The construction of the boardwalk will likely require in part or in whole construction over Sovereign Submerged Lands (SSL) owned by the State of Florida. The Florida Department of Environmental Protection (FDEP) historically permitted boardwalk facilities, but has delegated authority to the South Florida Water Management District (SFWMD) to process proprietary requirements for SSLs as part of the Environmental Resource Permit (ERP) process. The size of the boardwalk over more than 1,000 square feet will likely require a standard general ERP and a letter of consent or lease for SSL use. The Army Corps of Engineers may also require a permit for the boardwalk as an activity over jurisdictional waters, although boardwalks on pilings have been exempted from permitting in the past.

Table 2. Proposed three phase implementation plan.

Phase	Activities	Phase Cost Estimate*
Phase 1	Construct driveway improvements; Place aggregate for parking spaces; Install car stops	\$328,000
	Obtain permits from FDEP/SFWMD/ACOE for boardwalk	
	Conduct landscape improvements: Install horseshoe pit and playground; Place soil cement paths and ADA ramp; Resculpt the pond edges; Install canopy and herbaceous plantings on bank and littoral zones for pond; designate fishing bank locations; install overlook on pond	
	Install barb wire fence on eastern boundary; remove existing fence on eastern boundary; remove fences in pastures; install wooden three rail fence on western boundary	
	Retrofit the barn to make a pavilion; retrofit rooms to two new restrooms; evaluate/upgrade septic system; install concrete where stalls currently occur; remove stalls; install picnic tables; install vending machine and counter	
Phase 2	Construct wooden boardwalk	\$400,000
Phase 3	Complete peninsula improvements: Install pavilion; mow trail; install benches	\$211,900
	Conduct landscape improvements: Install herbaceous and canopy plantings in lawn areas; Landscape with natives around house; Conduct native species restoration in southern portion of property; Install plantings along canal banks; Place kiosk at trail ends	
	Construct house interior improvements; remove kitchen; repaint interior walls; repair floors and ceiling; install mounted telescopes; relocate windows	

*Cost estimate includes permitting, design, mobilization/general conditions/bonds, and contingency

Improvements to the house, barn, and parking area may also require permits. The aggregate surface for the parking may require a permit as an impervious surface from the SFWMD, although it may qualify for a no-notice general permit due to the size and location on uplands. Improvements to the pond bank may qualify for a noticed or no-notice general ERP depending on the extent of work completed. The Florida Fish and Wildlife Conservation Commission and/or the U.S. Fish and Wildlife Service may require coordination to address potential impacts to listed wildlife species, especially the Everglade snail kite. Alterations to the buildings may require County permits or FDEP permits for water or septic system changes. Coordination with the County engineer or contracted engineer prior to construction may indicate the need for additional permits.





Attachments

Attachment 1. Common and Scientific Names of Plant and Wildlife Species Referenced in the 2013 Cherokee Point Conservation Area Management Plan

Common Name	Scientific Name
American coot	<i>Fulica americana</i>
American widgeon	<i>Anas americana</i>
apple snail	<i>Pomacea paludosa</i>
bald eagle	<i>Haliaeetus leucocephalus</i>
beaksedge	<i>Rhynchospora spp.</i>
beautyberry	<i>Callicarpa americana</i>
blackberry	<i>Rubus spp.</i>
Brazilian pepper	<i>Schinus terebinthifolius</i>
broomsedge	<i>Andropogon sp.</i>
burhead sedge	<i>Oxycaryum cubense</i>
cabbage palm	<i>Sabal palmetto</i>
carpetgrass	<i>Axonopus sp.</i>
cattails	<i>Typha spp.</i>
cordgrass	<i>Spartina bakeri</i>
cypress	<i>Taxodium distichum</i>
dog fennel	<i>Eupatorium capillifolium</i>
duck potato	<i>Sagittaria latifolia</i>
Everglades snail kite	<i>Rostrhamus sociabilis plumbeus</i>
Fakahatchee grass	<i>Tripsacum dactyloides</i>
feral hog	<i>Sus scrofa</i>
fetterbush	<i>Lyonia lucida</i>
gopher tortoise	<i>Gopherus polyphemus</i>
grassy arrowhead	<i>Sagittaria graminea</i>
laurel oak	<i>Quercus laurifolia</i>
limpkin	<i>Aramus guarana</i>
little blue heron	<i>Egretta caerulea</i>
live oak	<i>Quercus virginiana</i>
longleaf pine	<i>Pinus palustris</i>
maidencane	<i>Panicum hemitomon</i>
marshpennywort	<i>Hydrocotyle umbellata</i>
muhly grass	<i>Muhlenbergia capillaris</i>
pickerelweed	<i>Pontederia cordata</i>
primrose willow	<i>Ludwigia peruviana</i>
rush	<i>Juncus effusus</i>
sandhill crane	<i>Grus canadensis pratensis</i>
saw palmetto	<i>Serenoa repens</i>
shiny blueberry	<i>Vaccinium myrsinites</i>
spikerush	<i>Eleocharis sp.</i>
torpedograss	<i>Panicum repens</i>
tricolored heron	<i>Egretta tricolor</i>
tropical soda apple	<i>Solanum viarum</i>
Virginia sweetspire	<i>Itea virginica</i>
wax myrtle	<i>Myrica cerifera</i>
white ibis	<i>Eudocimus albus</i>
white pelican	<i>Pelecanus erythrorhynchos</i>
wood stork	<i>Mycteria americana</i>
yelloweyed grass	<i>Xyris sp.</i>

Attachment 2. Wildlife and Plant Species Listed as Threatened, Endangered, and/or Species of Special Concern That Potentially Occur on Cherokee Point Conservation Area, Osceola County, Florida

Scientific Name	Common Name	State	USFWS	Habitat Type	Probability of Occurrence
<i>Plants</i>					
<i>Andropogon arctatus</i>	pinewood bluestem	T		1,3,4,5	Medium
<i>Asclepias curtissii</i>	Curtis' milkweed	E		1	Very Low
<i>Bonamia grandiflora</i>	Florida bonamia	E	T	1	Very Low
<i>Carex chapmanii</i>	Chapman's sedge	E		8	Low
<i>Chionanthus pygmaeus</i>	pygmy fringe-tree	E	E	1	Very Low
<i>Clitoria fragrans</i>	pigeon wings	E	T	1,2	Very Low
<i>Conradina grandiflora</i>	large-flowered rosemary	E		1	Very Low
<i>Drosera intermedia</i>	water sundew	T		12,16	Low
<i>Encyclia tampensis</i>	Florida butterfly orchid	C		6,7,11,15,21,23	Low
<i>Epidendrum conopseum</i>	green-fly orchid	C		7,15	Low
<i>Eriogonum floridanum</i>	scrub-buckwheat	E	T	1,2	Very Low
<i>Garberia heterophylla</i>	garberia	T		1	Very Low
<i>Harrisella filiformis</i>	threadroot orchid	T		15	Very Low
<i>Lechea cernua</i>	scrub pinweed	T		1	Very Low
<i>Lilium catesbaei</i>	pine lily	T		4,10	Medium
<i>Lycopodium cernuum</i>	nodding club-moss	C		5,7,14,16	High
<i>Myrcianthes fragrans</i>	Simpson's stopper	T		6,7	Low
<i>Nemastylis floridana</i>	celestial lily	E		5,12,15	Low
<i>Nolina brittoniana</i>	Britton's beargrass	E	E	1,2,3	Very Low
<i>Osmunda cinnamomea</i>	cinnamon fern	C		12,14,15	High
<i>Osmunda regalis</i>	royal fern	C		12,14,15	High
<i>Panicum abscissum</i>	cut throat grass	E		5,14	Low
<i>Pecluma ptilodon</i>	swamp plume polypody	E		7,11,15,23	Low
<i>Pinguicula caerulea</i>	blue butterwort	T		4,5,14	Medium
<i>Pinguicula lutea</i>	yellow butterwort	T		4,5,14	Medium
<i>Platanthera integra</i>	orange rein orchid	E		5,12,14	Medium
<i>Platanthera nivea</i>	snowy orchid	T		5,10,14	Medium
<i>Pogonia ophioglossoides</i>	rose pogonia	T		5,12,14	Low
<i>Polygala lewtonii</i>	Lewton's polygala	E	E	1,2	Very Low
<i>Polygonella myriophylla</i>	woody wireweed	E	E	1	Very Low
<i>Pteroglossaspis ecristata</i>	non-crested eulophia	T		1,2,3	Medium
<i>Rhapidochloa hystrix</i>	needle palm	C		6,7	Low
<i>Sarracenia minor</i>	hooded pitcher-plant	T		4,5,10,14	High
<i>Schizachyrium niveum</i>	scrub bluestem	E		1,2	Very Low
<i>Spiranthes laciniata</i>	lace-lip ladies'-tresses	T		12,15	Medium
<i>Spiranthes longilabris</i>	long-lip ladies'-tresses	T		5,10	Medium
<i>Sacoila lanceolata</i>	leafless beaked orchid	T		4,5,6,17	Medium
<i>Tillandsia balbisiana</i>	inflated wildpine	T		1,6,7,8,23	Medium
<i>Tillandsia utriculata</i>	giant wild-pine	E		1,6,7,15,23	Medium
<i>Warea amplexifolia</i>	clasping warea	E	E	1,2	Very Low
<i>Zamia pumila</i>	coontie	C		1,2,3,6	Very Low
<i>Zephyranthes atamasco</i>	atamasco lily	T		4	Low
<i>Zephyranthes simpsonii</i>	Simpson's zephyr-lily	T		5,10	Low
<i>Amphibian</i>					
<i>Rana capito</i>	gopher frog	SSC		4,6,9	Medium

Scientific Name	Common Name	State	USFWS	Habitat Type	Probability of Occurrence
<i>Bird</i>					
<i>Ammodramus savannarum floridanus</i>	Florida grasshopper sparrow	E	E	9,17	Low
<i>Aphelocoma coerulescens</i>	Florida scrub jay	T	T	1	Very Low
<i>Aramus guarauna</i>	limpkin	SSC		7,9,10,11	High
<i>Dendroica kirtlandii</i>	Kirtland's warbler	E	E	2,18	Very Low
<i>Egretta caerulea</i>	little blue heron	SSC		7,9,10,11,12,13,14,15,16,17,21	On-site
<i>Egretta thula</i>	snowy egret	SSC		7,9,10,11,12,13,14,15,16,17,21	On-site
<i>Egretta tricolor</i>	tricolored heron	SSC		7,9,10,11,12,13,14,15,16,17,21	High
<i>Eudocimus albus</i>	white ibis	SSC		7,9,10,11,12,13,16,20	High
<i>Falco peregrinus sspp.</i>	peregrine falcon	E		6,9,10,12,15,16,17,18	Low
<i>Falco sparverius paulus</i>	southeastern American kestrel	T		2,3,4,5,10,12,17	Low
<i>Grus americana</i>	whooping crane	SSC	T(E/P)	9,10,12,14,16,17	Low
<i>Grus canadensis pratensis</i>	Florida sandhill crane	T		9,10,12,14,16,17	On-site
<i>Haliaeetus leucocephalus</i>	bald eagle		BGEPA	2,3,4,5,10,11,12,13,15,16,17,21	On-site
<i>Mycteria americana</i>	wood stork	E	E	7,9,10,11,12,13,14,15,17,21	On-site
<i>Polyborus plancus audubonii</i>	Audubon's crested caracara	T	T	3,4,6,7,9,10,12	Medium
<i>Rostrhamus sociabilis plumbeus</i>	Everglades snail kite	E	E	10,11,12,15,16	On-site
<i>Speotyto cunicularia</i>	burrowing owl	SSC		2,9,17	Low
<i>Mammal</i>					
<i>Blarina carolinensis shermani</i>	Sherman's short-tailed shrew	SSC		4,5,6,7,10	Low
<i>Felis concolor coryi</i>	Florida panther	E	E	various	Very Low
<i>Podomys floridanus</i>	Florida mouse	SSC		1,2,3	Low
<i>Sciurus niger shermani</i>	Sherman's fox squirrel	SSC		2,3,4,5,6,7	Low
<i>Ursus americanus floridanus</i>	Florida black bear	T	CA	1,2,3,4,5,6,7,11,15	Low
<i>Reptile</i>					
<i>Alligator mississippiensis</i>	American alligator	SSC	T(S/A)	11,12,15,16,17	High
<i>Drymarchon corais couperi</i>	eastern indigo snake	T	T	1,2,3,4,5,12,13	Medium
<i>Eumeces egregius lividus</i>	bluetail mole skink	T	T	1,2,3	Very Low
<i>Gopherus polyphemus</i>	gopher tortoise	T		1,2,3,4,6	Medium
<i>Neoseps reynoldsi</i>	sand skink	T	T	1,2,3	Very Low
<i>Pituophis melanoleucus mugitus</i>	Florida pine snake	SSC		2,3,6,17	Low

SSC - Species of Special Concern (FGFWFC)

C - Commercially Exploited

T - Threatened

E - Endangered

***Habitat Types**

1 - Scrub

2 - Sandhills

3 - Scrubby Flatwoods

4 - Mesic Flatwoods

5 - Wet Flatwoods

6 - Dry Hammocks

7 - Wet Hammocks

8 - Calcerous Hammocks

9 - Dry Prairie

10 - Wet Prairie

11 - Bottomland Hardwood

12 - Freshwater Marsh

13 - Saltwater Marsh

14 - Seepage Bog

15 - Swamp/Cypress Dome

16 - Ponds/Lakes

T(S/A) - Similarity of Appearance (USFWS)

CA - Candidate for Listing

T(E/P) - Experimental Population

BGEPA - Bald and Golden Eagle Protection Act

17 - Disturbed/Cultivated

18 - Sand Dunes/Beach

19 - Pinelands

20 - Banks of Streams

21 - Mangroves

22 - Shell middens

23 - Epiphyte

24 - Limestone Sink Edges

Source: Wunderlin, R. 1998. *Guide to the Vascular Plants of Florida*. Univ. P of Florida

Various authors. *Endangered Biota of Florida series*. 1992-1996

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Attachment 3. Florida Exotic Pest Plant Council List of Category 1 and Category 2 Invasive Exotic Plant Species

Florida Exotic Pest Plant Council's 2011 List of Invasive Plant Species

Purpose of the List: *To focus attention on —*

- ▶ the adverse effects exotic pest plants have on Florida's biodiversity and native plant communities,
- ▶ the habitat losses in natural areas from exotic pest plant infestations,
- ▶ the impacts on endangered species via habitat loss and alteration,
- ▶ the need for pest-plant management,
- ▶ the socio-economic impacts of these plants (e.g., increased wildfires or flooding in certain areas),
- ▶ changes in the severity of different pest plant infestations over time,
- ▶ providing information to help managers set priorities for research and control programs.

CATEGORY I

Invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. *This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage caused.*

Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist.
<i>Abrus precatorius</i>	rosary pea	I	N	C, S
<i>Acacia auriculiformis</i>	earleaf acacia	I		C, S
<i>Albizia julibrissin</i>	mimosa, silk tree	I		N, C
<i>Albizia lebbbeck</i>	woman's tongue	I		C, S
<i>Ardisia crenata</i> (A. <i>crenulata</i> misapplied)	coral ardisia	I		N, C, S
<i>Ardisia elliptica</i> (A. <i>humilis</i> misapplied)	shoebutton ardisia	I	N	C, S
<i>Asparagus aethiopicus</i> (A. <i>sprengeri</i> ; A. <i>densiflorus</i> misapplied)	asparagus-fern	I		N, C, S
<i>Bauhinia variegata</i>	orchid tree	I		C, S
<i>Bischofia javanica</i>	bishopwood	I		C, S
<i>Calophyllum antillanum</i> (C. <i>calaba</i> and C. <i>inophyllum</i> misapplied)	santa maria, mast wood, Alexandrian laurel	I		S
<i>Casuarina equisetifolia</i>	Australian-pine, beach sheoak	I	P, N	N, C, S
<i>Casuarina glauca</i>	suckering Australian-pine, gray sheoak	I	P, N	C, S
<i>Cinnamomum camphora</i>	camphor tree	I		N, C, S
<i>Colocasia esculenta</i>	wild taro	I		N, C, S
<i>Colubrina asiatica</i>	lather leaf	I	N	S
<i>Cupaniopsis anacardioides</i>	carrotwood	I	N	C, S
<i>Deparia petersenii</i>	Japanese false spleenwort	I		N, C
<i>Dioscorea alata</i>	winged yam	I	N	N, C, S
<i>Dioscorea bulbifera</i>	air-potato	I	N	N, C, S
<i>Eichhornia crassipes</i>	water-hyacinth	I	P	N, C, S
<i>Eugenia uniflora</i>	Surinam cherry	I		C, S
<i>Ficus microcarpa</i> (F. <i>nitida</i> and F. <i>retusa</i> var. <i>nitida</i> misapplied) ¹	laurel fig	I		C, S
<i>Hydrilla verticillata</i>	hydrilla	I	P, U	N, C, S
<i>Hygrophila polysperma</i>	green hygro	I	P, U	N, C, S
<i>Hymenachne amplexicaulis</i>	West Indian marsh grass	I		N, C, S
<i>Imperata cylindrica</i> (I. <i>brasiliensis</i> misapplied)	cogon grass	I	N, U	N, C, S
<i>Ipomoea aquatica</i>	water-spinach	I	P, U	C
<i>Jasminum dichotomum</i>	Gold Coast jasmine	I		C, S
<i>Jasminum fluminense</i>	Brazilian jasmine	I		C, S
<i>Lantana camara</i> (= L. <i>strigocamara</i>)	lantana, shrub verbena	I		N, C, S
<i>Ligustrum lucidum</i>	glossy privet	I		N, C
<i>Ligustrum sinense</i>	Chinese privet, hedge privet	I		N, C, S
<i>Lonicera japonica</i>	Japanese honeysuckle	I		N, C, S
<i>Ludwigia peruviana</i>	Peruvian primrosewillow	I		N, C, S
<i>Lumnitzera racemosa</i>	kripa; white-flowered mangrove; black mangrove	I		S
<i>Luziola subintegra</i>	Tropical American water grass	I		S
<i>Lygodium japonicum</i>	Japanese climbing fern	I	N	N, C, S
<i>Lygodium microphyllum</i>	Old World climbing fern	I	N, U	C, S

¹Does not include *Ficus microcarpa* subsp. *fuyuensis*, which is sold as "Green Island Ficus"

FLEPPC List Definitions:

Exotic – a species introduced to Florida, purposefully or accidentally, from a natural range outside of Florida.

Native – a species whose natural range includes Florida.

Naturalized exotic – an exotic that sustains itself outside cultivation (it is still exotic; it has not "become" native).

Invasive exotic – an exotic that not only has naturalized, but is expanding on its own in Florida native plant communities.

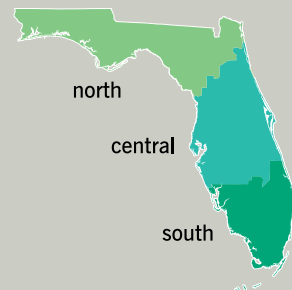
Abbreviations:

Government List (Gov. List):
P = Prohibited aquatic plant by the Florida Department of Agriculture and Consumer Services;

N = Noxious weed listed by Florida Department of Agriculture & Consumer Services;

U = Noxious weed listed by U.S. Department of Agriculture.

Regional Distribution (Reg. Dist.):
N = north, C = central, S = south, referring to each species' current distribution in general regions of Florida (not its potential range in the state). Please refer to the map below.



Changes to the 2011 List:

New Listings to Category I:

Deparia petersenii

(Japanese false spleenwort)
Documented in numerous near exotic-free ravines in the central panhandle, it is displacing native flora and likely insect populations because it forms extremely dense colonies. Documented in seven Florida counties.

Lumnitzera racemosa

(black mangrove)
This Asian mangrove has spread abundantly following plantings at Fairchild Tropical Botanical Garden in Miami-Dade County between 1966 and 1971. The species subsequently spread into mangrove forests at Fairchild and the adjacent Matheson Hammock Park, infesting 19 acres with stem densities exceeding that of native mangrove species. Looks very similar to the protected native white mangrove (*Laguncularia racemosa*).

Phymatosorus scolopendria

(serpent fern, wart fern)
This fern, native to tropical Asia, Africa, and Polynesia, has been documented naturalizing in three south Florida counties. It is invading rockland hammocks and forested wetlands where it displaces native understory species including endangered ferns.

New Listings to Category II:

Ardisia japonica (Japanese ardisia)

Ardisia japonica is a plant species from Japan. Thirteen populations have been located in San Felasco Hammock in Alachua County, two more at the Loblolly Nature Center in Gainesville, and another one containing 3,000 to 4,000 plants in Florida Caverns State Park in the Florida panhandle. All of the infestations are in undisturbed mature upland hardwood forest with healthy, diverse ground cover that is displaced as it spreads by underground rhizomes. Fruits collected from these populations produced viable seedlings.

Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist.
<i>Macfadyena unguis-cati</i>	cat's claw vine	I		N, C, S
<i>Manilkara zapota</i>	sapodilla	I		S
<i>Melaleuca quinquenervia</i>	melaleuca, paper bark	I	P, N, U	C, S
<i>Melinis repens</i> (= <i>Rhynchelytrum repens</i>)	Natal grass	I		N, C, S
<i>Mimosa pigra</i>	catclaw mimosa	I	P, N, U	C, S
<i>Nandina domestica</i>	nandina, heavenly bamboo	I		N, C
<i>Nephrolepis brownii</i> (= <i>N. multiflora</i>)	Asian sword fern	I		C, S
<i>Nephrolepis cordifolia</i>	sword fern	I		N, C, S
<i>Neyraudia reynaudiana</i>	Burma reed, cane grass	I	N	S
<i>Nymphoides cristata</i>	snowflake	I		C, S
<i>Paederia cruddasiana</i>	sewer vine, onion vine	I	N	S
<i>Paederia foetida</i>	skunk vine	I	N	N, C, S
<i>Panicum repens</i>	torpedo grass	I		N, C, S
<i>Pennisetum purpureum</i>	Napier grass	I		N, C, S
<i>Phymatosorus scolopendria</i>	serpent fern, wart fern	I		S
<i>Pistia stratiotes</i>	water-lettuce	I	P	N, C, S
<i>Psidium cattleianum</i> (= <i>P. littorale</i>)	strawberry guava	I		C, S
<i>Psidium guajava</i>	guava	I		C, S
<i>Pueraria montana</i> var. <i>lobata</i> (= <i>P. lobata</i>)	kudzu	I	N	N, C, S
<i>Rhodomyrtus tomentosa</i>	downy rose-myrtle	I	N	C, S
<i>Rhynchelytrum repens</i> (See <i>Melinis repens</i>)				
<i>Ruellia simplex</i> ²	Mexican petunia	I		N, C, S
<i>Salvinia minima</i>	water spangles	I		N, C, S
<i>Sapium sebiferum</i> (= <i>Triadica sebifera</i>)	popcorn tree, Chinese tallow tree	I	N	N, C, S
<i>Scaevola taccada</i> (= <i>Scaevola sericea</i> , <i>S. frutescens</i>)	scaevola, half-flower, beach naupaka	I	N	C, S
<i>Schefflera actinophylla</i> (= <i>Brassaia actinophylla</i>)	schefflera, Queensland umbrella tree	I		C, S
<i>Schinus terebinthifolius</i>	Brazilian-pepper	I	P, N	N, C, S
<i>Scleria lacustris</i>	Wright's nutrush	I		C, S
<i>Senna pendula</i> var. <i>glabrata</i> (= <i>Cassia coluteoides</i>)	climbing cassia, Christmas cassia, Christmas senna	I		C, S
<i>Solanum tampicense</i> (= <i>S. houstonii</i>)	wetland nightshade, aquatic soda apple	I	N, U	C, S
<i>Solanum viarum</i>	tropical soda apple	I	N, U	N, C, S
<i>Syngonium podophyllum</i>	arrowhead vine	I		N, C, S
<i>Syzygium cumini</i>	jambolan plum, Java plum	I		C, S
<i>Tectaria incisa</i>	incised halberd fern	I		S
<i>Thespesia populnea</i>	seaside mahoe	I		C, S
<i>Tradescantia fluminensis</i>	small-leaf spiderwort	I		N, C
<i>Urena lobata</i>	Caesar's weed	I		N, C, S
<i>Urochloa mutica</i> (= <i>Brachiaria mutica</i>)	Para grass	I		C, S

CATEGORY II

Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. *These species may become ranked Category I, if ecological damage is demonstrated.*

Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist.
<i>Adenanthera pavonina</i>	red sandalwood	II		S
<i>Agave sisalana</i>	sisal hemp	II		C, S
<i>Aleurites fordii</i> (= <i>Vernicia fordii</i>)	tung oil tree	II		N, C
<i>Alstonia macrophylla</i>	devil tree	II		S
<i>Alternanthera philoxeroides</i>	alligator weed	II	P	N, C, S
<i>Antigonon leptopus</i>	coral vine	II		N, C, S
<i>Ardisia japonica</i>	Japanese ardisia	II		N
<i>Aristolochia littoralis</i>	calico flower	II		N, C, S
<i>Asystasia gangetica</i>	Ganges primrose	II		C, S
<i>Begonia cucullata</i>	wax begonia	II		N, C, S

²Many names are applied to this species in Florida because of a complicated taxonomic and nomenclatural history. Plants cultivated in Florida, all representing the same invasive species, have in the past been referred to as *Ruellia brittoniana*, *R. tweediana*, *R. caerulea*, and *R. simplex*.

Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist.
<i>Blechnum pyramidatum</i> (see <i>Ruellia blechnum</i>)				
<i>Broussonetia papyrifera</i>	paper mulberry	II		N, C, S
<i>Bruguiera gymnorhiza</i>	large-leaved mangrove	II		S
<i>Callisia fragrans</i>	inch plant, spironema	II		C, S
<i>Callistemon viminalis</i> (= <i>Melaleuca viminalis</i>)	bottlebrush, weeping bottlebrush	II		C, S
<i>Casuarina cunninghamiana</i>	river sheoak, Australian-pine	II	P	C, S
<i>Cecropia palmata</i>	trumpet tree	II		S
<i>Cestrum diurnum</i>	day jessamine	II		C, S
<i>Chamaedorea seifrizii</i>	bamboo palm	II		S
<i>Clematis terniflora</i>	Japanese clematis	II		N, C
<i>Cocos nucifera</i>	coconut palm	II		S
<i>Cryptostegia madagascariensis</i>	rubber vine	II		C, S
<i>Cyperus involucratus</i> (<i>C. alternifolius</i> misapplied)	umbrella plant	II		C, S
<i>Cyperus prolifer</i>	dwarf papyrus	II		C, S
<i>Dactyloctenium aegyptium</i>	Durban crowfootgrass	II		N, C, S
<i>Dalbergia sissoo</i>	Indian rosewood, sissoo	II		C, S
<i>Elaeagnus pungens</i>	silvertorn, thorny olive	II		N, C
<i>Elaeagnus umbellata</i>	silverberry, autumn olive	II		N
<i>Epipremnum pinnatum</i> cv. Aureum	pothos	II		C, S
<i>Ficus altissima</i>	false banyan, council tree	II		S
<i>Flacourtia indica</i>	governor's plum	II		S
<i>Hemarthria altissima</i>	limpo grass	II		C, S
<i>Hibiscus tiliaceus</i> (See <i>Talipariti tiliaceum</i>)				
<i>Hyparrhenia rufa</i>	jaragua	II		N, C, S
<i>Ipomoea carnea</i> ssp. <i>fistulosa</i> (= <i>I. fistulosa</i>)	shrub morning-glory	II	P	C, S
<i>Kalanchoe pinnata</i> (= <i>Bryophyllum pinnatum</i>)	life plant	II		C, S
<i>Koeleruteria elegans</i> ssp. <i>formosana</i> (= <i>K. formosana</i> ; <i>K. paniculata</i> misapplied)	flamegold tree	II		C, S
<i>Landoltia punctata</i> (= <i>Spirodela punctata</i>)	Spotted duckweed	II		N, C, S
<i>Leucaena leucocephala</i>	lead tree	II	N	N, C, S
<i>Limnophila sessiliflora</i>	Asian marshweed	II	P, U	N, C, S
<i>Livistona chinensis</i>	Chinese fan palm	II		C, S
<i>Melia azedarach</i>	Chinaberry	II		N, C, S
<i>Melinis minutiflora</i>	Molassesgrass	II		C, S
<i>Merremia tuberosa</i>	wood-rose	II		C, S
<i>Mikania micrantha</i>	mile-a-minute vine	II	N, U	S
<i>Murraya paniculata</i>	orange-jessamine	II		S
<i>Myriophyllum spicatum</i>	Eurasian water-milfoil	II	P	N, C, S
<i>Panicum maximum</i> (= <i>Urochloa maxima</i> , <i>Megathyrus maximus</i>)	Guinea grass	II		N, C, S
<i>Passiflora biflora</i>	two-flowered passion vine	II		S
<i>Pennisetum setaceum</i>	green fountain grass	II		S
<i>Phoenix reclinata</i>	Senegal date palm	II		C, S
<i>Phyllostachys aurea</i>	golden bamboo	II		N, C
<i>Pittosporum pentandrum</i>	Philippine pittosporum, Taiwanese cheesewood	II		S
<i>Pteris vittata</i>	Chinese brake fern	II		N, C, S
<i>Ptychosperma elegans</i>	solitaire palm	II		S
<i>Rhoeo spathacea</i> (see <i>Tradescantia spathacea</i>)				
<i>Ricinus communis</i>	castor bean	II		N, C, S
<i>Rotala rotundifolia</i>	roundleaf toothcup, dwarf Rotala, redweed	II		S
<i>Ruellia blechnum</i>	green shrimp plant, Browne's blechnum	II		N, C, S
<i>Sansevieria hyacinthoides</i>	bowstring hemp	II		C, S
<i>Sesbania punicea</i>	purple sesban, rattlebox	II		N, C, S
<i>Solanum diphyllum</i>	two-leaf nightshade	II		N, C, S

FLEPPC 2011 List of Invasive Plant Species – Summer/Fall 2011

Bruguiera gymnorhiza

(large-leaved mangrove)
This mangrove from the Old World tropics is established at the Kampong, a botanical garden in Miami-Dade County where it was planted in 1940. The leaves and propagules of this species bear a strong resemblance to the native red mangrove (*Rhizophora mangle*). In a 2008 survey it was found naturalized in mangrove forest on the property, where 86 individuals were observed and recruitment rates were higher than for native species. There is a strong chance that it will disperse to other nearby mangrove forests.

Cocos nucifera (coconut palm)

Coconut palm, ubiquitous along Florida's coastlines, is thought to be native to the Malay Peninsula or the South Pacific. This species has been found invading beach dune and coastal grassland communities in extreme south Florida and the Florida Keys. Plants form thick clusters and shed leaves that form dense layers on the ground, displacing native species. Impacted species include the federally threatened Garber's spurge (*Chamaesyce garberi*) in the Cape Sable area of Everglades National Park and nickerbean (*Caesalpinia bonduc*), the host plant for the endangered Miami Blue butterfly at Bahia Honda State Park.

Mikania micrantha

(mile-a-minute vine)
This vine of the American tropics is listed on the Federal Noxious Weed List because of invasiveness in other tropical regions. *M. micrantha* was first observed in Florida in 2008 in Miami-Dade County. It has since been observed at over two dozen sites throughout the Redland area of Miami-Dade County. It is primarily associated with agricultural sites, particularly container nurseries and tree farms, but has been found within the interiors of two rockland hammock fragments. It is a threat to other natural areas in Miami-Dade County, and poses a very high risk of dispersing to other counties.

Syzygium jambos

(Malabar plum, rose apple)
This species was downgraded from the Category II list in 2009 because of a lack of data in EDDMapS, herbaria, and observations of committee members. However, data compiled by FNAI shows 62 records in 9 counties in mesic and wet flatwoods, basin and floodplain wetlands. It has been reinstated as a Category II.

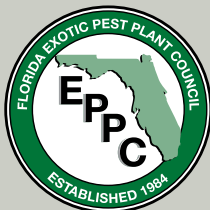
Category Changes

Jasminum sambac and *Solanum jamaicense* removed from Category II based on lack of data in natural areas. *Urena lobata* moved from Category II to Category I.

Use of the FLEPPC List

The FLEPPC List of Invasive Plant Species is not a regulatory list. Only those plants listed as Federal Noxious Weeds, Florida Noxious Weeds or in local ordinances are regulated by law. FLEPPC encourages use of the Invasive Species List for prioritizing and implementing management efforts in natural areas, for educating lay audiences about environmental issues, and for supporting voluntary invasive plant removal programs. For more information on using the FLEPPC List of Invasive Plant Species, see *Wildland Weeds* Summer 2002 issue (Vol. 5, No. 3), pp. 16-17, or <http://www.fleppc.org/list/list.htm>

NOTE: Not all exotic plants brought into Florida become pest plants in natural areas. The FLEPPC List of Invasive Plant Species represents only about 11% of more than 1,400 exotic species that have been introduced into Florida and have subsequently established outside of cultivation. Most escaped exotics usually present only minor problems in highly disturbed areas (such as roadsides). And there are other exotics cultivated in Florida that are “well-behaved” — that is, they don’t escape cultivation at all.



www.fleppc.org

Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist.
<i>Solanum torvum</i>	susumber, turkey berry	II	N, U	N, C, S
<i>Sphagneticola trilobata</i> (= <i>Wedelia trilobata</i>)	wedelia	II		N, C, S
<i>Stachytarpheta cayennensis</i> (= <i>S. urticifolia</i>)	nettle-leaf porterweed	II		S
<i>Syagrus romanzoffiana</i> (= <i>Arecastrum romanzoffianum</i>)	queen palm	II		C, S
<i>Syzygium jambos</i>	Malabar plum, rose-apple	II		N, C, S
<i>Talipariti tiliaceum</i> (= <i>Hibiscus tiliaceus</i>)	mahoe, sea hibiscus	II		C, S
<i>Terminalia catappa</i>	tropical-almond	II		C, S
<i>Terminalia muelleri</i>	Australian-almond	II		C, S
<i>Tradescantia spathacea</i> (= <i>Rhoeo spathacea</i> , <i>Rhoeo discolor</i>)	oyster plant	II		S
<i>Tribulus cistoides</i>	puncture vine, burr-nut	II		N, C, S
<i>Vitex trifolia</i>	simple-leaf chaste tree	II		C, S
<i>Washingtonia robusta</i>	Washington fan palm	II		C, S
<i>Wedelia</i> (see <i>Sphagneticola</i> above)				
<i>Wisteria sinensis</i>	Chinese wisteria	II		N, C
<i>Xanthosoma sagittifolium</i>	malanga, elephant ear	II		N, C, S

Citation example:

FLEPPC. 2011. List of Invasive Plant Species. Florida Exotic Pest Plant Council. Internet: <http://www.fleppc.org/list/11list.htm> or *Wildland Weeds* Vol. 14(3-4):11-14. Summer/Fall 2011.

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FLEPPC Database – The Florida Exotic Pest Plant Database contains over 211,000 sight records of infestations of FLEPPC Category I and Category II species in Florida public lands and waters. 143 species are recorded. Nearly all of the records are from local, state, and federal parks and preserves; a few records document infestations in regularly disturbed public lands such as highways or utility rights-of-way. Natural area managers and other veteran observers of Florida’s natural landscapes submit these records, with many supported further by voucher specimens housed in local or regional herbaria for future reference and verification. New and updated observations can be submitted online at www.eddmaps.org/florida/. This database, along with other plant data resources such as the University of South Florida Atlas of Florida Vascular Plants at www.plantatlas.usf.edu, the Florida Natural Areas Inventory database at www.fnai.org, and The Institute for Regional Conservation Floristic Inventory of South Florida database at www.regionalconservation.org, provides important basic supporting information for the FLEPPC List of Invasive Plant Species.

Images of FLEPPC-listed species may be found at one or more of the following websites: University of South Florida Atlas of Florida Vascular Plants, www.plantatlas.usf.edu; the University of Florida Herbarium collection catalog, <http://www.flmnh.ufl.edu/herbarium/cat/>, and image gallery, <http://www.flmnh.ufl.edu/herbarium/cat/imagesearch.asp>; at Fairchild Tropical Botanic Garden’s Virtual Herbarium, www.virtualherbarium.org/vhportal.html, The Robert K. Godfrey Herbarium at Florida State University, <http://herbarium.bio.fsu.edu/index.php>; the University of Florida’s IFAS Center for Aquatic and Invasive Plants, <http://plants.ifas.ufl.edu>, and the USDA PLANTS database, <http://plants.usda.gov/>. Please note that greater success and accuracy in searching for plant information is likely if you search by scientific name rather than common name. Common names often vary in cultivation and across regions.

FLEPPC 2011 List of Invasive Plant Species – Summer/Fall 2011

Attachment 4. Order of Magnitude Capital Cost Estimate Worksheet for Cherokee Point

PROJECT NAME: Cherokee Point
 AECOM PROJECT NUMBER: 60285559
 DATE: 2013.05.10
 PROJECT PHASE: Concept Plan

STATEMENT OF PROBABLE COST

Item No.	Item	Quantity	Unit	Price	Subtotal	Description
A Peninsula					\$11,600	
1.	Mowed Trail	1,100	LF	\$0.40	\$500	
2.	Benches (cost/unit provided by County)	2	EA	\$450.00	\$900	Assumes \$335/bench with allowance for freight
3.	Trash Receptacle (cost/unit provided by County)	1	EA	\$175.00	\$200	Assumes drum top (\$94) and drum (\$18) with allowance for freight
4.	Family Pavilion (cost/unit provided by County)	1	EA	\$10,000.00	\$10,000	10 x 20 covered pavilion
B Boardwalk					\$360,400	
1.	Wooden boardwalk (cost/unit provided by County)	10,400	SF	\$30.00	\$312,000	8 foot wide concrete trail with pilings and railing, 1300 feet long - assumes pilings do not require special lengths or installation requirements
2.	Canoe Launch (cost/unit provided by County)	800	SF	\$30.00	\$24,000	20'x40' stepped wooden launch, based on cost/unit for boardwalk
3.	Soil cement trail from parking to boardwalk	720	SF	\$6.00	\$4,400	8' wide, 90 feet long
4.	Permitting	1	EA	\$20,000.00	\$20,000	Permitting with FDEP/SFWMD/ACOE
C Fencing					\$30,400	
1.	Barbwire along eastern border	1,800	LF	\$5.50	\$9,900	RS Means 2013 pg 387
2.	Wooden Fence - 3 Rail (cost/ft provided by County)	1,850	LF	\$7.50	\$13,900	
3.	Remove interior fence (leave every 6th post)	8,000	LF	\$0.75	\$6,000	
4.	Remove wooden rail fence along canal	700	LF	\$0.75	\$600	
D Parking					\$32,000	
1.	Car stops (cost/unit provided by County)	26	EA	\$75.00	\$2,000	
2.	2 new ADA concrete spaces	2	EA	\$3,000.00	\$6,000	
3.	Entry Sign	1	EA	\$5,000.00	\$5,000	
4.	Minor grading to prep parking	0.2	AC	\$3,000.00	\$600	
5.	Aggregate for parking area	533	SY	\$15.00	\$8,000	
6.	Relocate pavers/new pavers for driveway	5,200	SF	\$2.00	\$10,400	
E Landscape Improvements					\$149,200	
1.	Trash Receptacles (cost/unit provided by County)	5	EA	\$175.00	\$900	Assumes drum top (\$94) and drum (\$18) with allowance for freight
2.	Benches (cost/unit provided by County)	4	EA	\$450.00	\$1,800	Assumes \$294/unit plus allowance for freight
3.	Playground	1	EA	\$50,000.00	\$50,000	
4.	Horseshoe Pit	1	EA	\$1,200.00	\$1,200	2 opposing throwing pit areas
5.	Viewing Platform	1	EA	\$10,000.00	\$10,000	500 sq. ft. wooden platform
6.	Canal edge plantings	18,000	SF	\$0.50	\$9,000	Spartina, maidencane, Fakahatchee grass, wiregrass, love grass at 3' OC (1 gal)
7.	Canopy plantings (oaks, cabbage palms)	40	EA	\$150.00	\$6,000	30 gal trees (oaks, cabbage palms) around playground, south of entry, near house
8.	Pond edge - cypress tree plantings	35	EA	\$150.00	\$5,300	30 gallon cypress trees around the margin of pond
9.	Pond edge herbaceous plantings	14,000	SF	\$0.50	\$7,000	Spartina, maidencane, Fakahatchee grass at 3' OC with (1 gal)
10.	Sculpting banks of pond	5,400	SF	\$0.50	\$2,700	RSMeans Pg 292
11.	Upland restoration on southern property boundary	2.2	AC	\$9,000.00	\$19,800	Native seeding consistent with The Natives methodology; supplemental shrub and canopy species plantings (1-gal saw palmetto 1 gal shiny blueberry, 1 gal fetterbush, 1 gal itea on 7 to 8 OC; 35 longleaf pine (BR)
12.	Native seeding in lower areas around margins of house and west side of pond	4	AC	\$2,000.00	\$8,000	plant pockets of native grasses, shrubs (approximately 600 1 gal plants/ac); leave bahia
13.	Ornamental native planting around house	3,400	SF	\$0.75	\$2,600	native grasses/wildflower 3'OC (1gal) and shrub plantings (1 gal - 6'OC)
14.	Cypress plantings on Lake Toho edge	2.5	AC	\$400.00	\$1,000	60 - 1 gal pond cypress trees per acre (30' OC)
15.	Road ROW canopy and shrub plantings	6,000	SF	\$0.50	\$3,000	3-gal cypress trees (30' OC) on lower areas and 3-gal oaks on higher areas; 1 gal wax myrtle, saw palmetto, Virginia sweetspire
16.	Kiosk (cost provided by County)	1	EA	\$1,500.00	\$1,500	kiosk at trailhead
17.	ADA Ramp to house - allowance	1	EA	\$5,000.00	\$5,000	ADA ramp; fill for ramp to porch
18.	Soil cement path	2,400	SF	\$6.00	\$14,400	6' wide paths around house
F Barn Retrofit to Pavilion					\$68,000	
1.	Picnic Tables (cost/unit provided by County)	20	EA	\$400.00	\$8,000	Assumes \$294/unit plus allowance for freight
2.	Restroom Facilities	2	EA	\$15,000.00	\$30,000	retrofit existing bathroom and ancillary room to 1 men's and 1 women's restroom
3.	Septic Field Improvements	1	EA	\$15,000.00	\$15,000	allowance for septic system improvements for additional restroom facilities
4.	Concrete for flooring	3,000	SF	\$4.50	\$13,500	concrete for flooring in stall areas
5.	Prep Room Improvements	1	EA	\$1,500.00	\$1,500	New countertop and upgrades
G House Interior Improvements					\$29,400	
1.	Remove kitchen	1	EA	\$2,500.00	\$2,500	Removal of appliances, cabinets, island, etc
2.	Addition of storage and utility room	1	EA	\$3,500.00	\$3,500	
3.	Repainting interior walls - allowance	1	LS	\$3,000.00	\$3,000	
4.	Renovation floor repair - allowance	1	EA	\$2,000.00	\$2,000	
5.	Mounted telescopes	4	EA	\$1,500.00	\$6,000	from \$750 to \$10K depending on type of telescope
6.	Relocate windows	2	EA	\$1,200.00	\$2,400	per window (move one window and move to another location)
7.	Educational exhibits - allowance	1	EA	\$10,000.00	\$10,000	
SUBTOTAL					\$681,000	
Permitting (5%)					\$34,100	
Design (6%)					\$40,900	
Mobilization/General Conditions/Bonds (7%)					\$47,700	
Contingency (20% - % provided by County)					\$136,200	
CHEROKEE POINT TOTAL					\$939,900	

All cost estimates have been rounded up to the nearest \$100
 AECOM has no control over the cost of labor, materials, or equipment, the Contractor's method of determining prices or competitive bidding or market conditions. Inherent, the firm's statements or probable construction costs provided for herein are made on the basis of experience and represent our best judgment as Landscape Architects familiar with the construction industry. The firm cannot and does not guarantee that proposals, bids, or the construction cost will not vary from our statements of probable costs. If the Owner wishes greater assurances as to the construction cost, we recommend the employment of an independent cost estimator.

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Bibliography

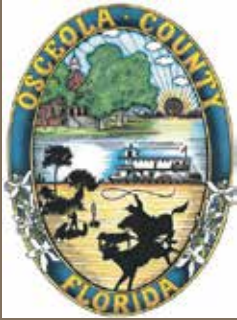
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ACKNOWLEDGEMENTS

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