

Cocohatchee Creek Preserve

Land Management Plan

Updated 2020



Managed by:

**Conservation Collier Program
Collier County**

Prepared by:

Collier County Parks and Recreation Department

December 2020

Cocohatchee Creek Preserve

Land Management Plan Executive Summary

Lead Agency: Conservation Collier Program, Collier County Parks and Recreation Department

Properties included in this Plan: Cocohatchee Creek Preserve – Folio #00166680102

Acreage Breakdown: 3.64 acres

Management Responsibilities: Collier County’s Conservation Collier Program has oversight responsibility with day to day responsibilities shared by the Collier County Parks and Recreation Department under an Interdepartmental Agreement attached as Appendix 3.

Agency – Collier County – Conservation Collier Program

Preserve Manager – Designated Conservation Collier Environmental Specialist

Designated Land Use: Conservation and natural resource-based recreation

Unique Features: Adjacent to Cocohatchee Creek

Archaeological/Historical: N/A

Management Needs:

- Exotic plant removal and maintenance in preserve and creek;
- Monitoring of listed species (gopher tortoise) on site;
- Periodic removal of trash from cans;
- Maintenance of trail;
- Evaluation for prescribed fire
- Site security.

Acquisition Needs: None

Surplus Lands: Potentially, a small strip adjacent to Southwind Estates, Lot 15, being approximately 40 feet wide and 215 feet long, or roughly one fifth of one acre, lying north of the thread of the Cocohatchee Creek ONLY if a conservation easement is placed on it by the acquiring entity. This section of land is not surveyed as separate parcels and the potential to surplus it is very low.

Public Involvement: A public meeting was held in spring 2007 and fall of 2019 with residents and neighboring businesses invited from surrounding developed areas, including: Southwind Estates, Northside Medical Plaza PUD, Veterans Park Commons PUD, North Naples Fire Control and Rescue District, Southampton/Stonebridge, and Collier County Parks and Recreation Department. A contact list for owners is maintained and periodically, contact is made to advise of land management actions and to request feedback.

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1.0 Introduction

The Cocohatchee Creek Preserve is a 3.64-acre urban preserve located in North Collier County, off Immokalee Road, across from the Veterans Community Park, a Collier County Regional Park. The Preserve protects small areas of several native plant communities and adds buffer protection to the Cocohatchee Creek. Access to the preserve is from Veterans Park Drive, with parking and restrooms available at the Veterans Community Park.

The Conservation Collier Program acquired the preserve in September 2002. Natural plant communities represented include upland scrub, pine flatwood, riverine oak and cabbage palm groves. The property was purchased with funds from the Conservation Collier Program and the County holds fee simple title. The Conservation Collier Program manages this parcel under authority granted by the Conservation Collier Ordinance 2002-63, as amended with assistance from the Collier County Parks and Recreation Department under an Interdepartmental Agreement signed April 6, 2006 (Appendix 1).

Conservation, restoration and passive public use are the designated uses of the property. Management activities allowed are those necessary to preserve, enhance, restore, conserve and maintain environmentally endangered lands for the benefit of present and future generations. Public use of the site must be consistent with these goals.

An initial site assessment of this property was conducted on August 20, 2003 and the property was purchased by the Conservation Collier Program on September 10, 2004. Previously known as the “Visnich” property, for the previous owners, George and Virginia Visnich, it was renamed the Cocohatchee Creek Preserve in May 2005. Initial acquisition activities are identified in Table 1 below.

Table 1: Acquisition History and Status	
Year	Benchmark
2003	Initial Assessment
2004	Purchase of Visnich Property
2004	Developed Interim Management Plan
2005	Renamed Visnich property Cocohatchee Creek Preserve
2005	Initial exotic plant and debris removal
2005	Installed trail with ADA section and park equipment (bench, table and 2 trash cans, signage)
2006	Developed Interdepartmental Agreement with Parks and Recreation Department
2006	Opened preserve to the public in March 2006
2006	Started quarterly exotics maintenance (contracted) and creek maintenance (County Trans/Road Maintenance/Aquatic Plant Management)
2006	Completion of Final Management Plan
2013	First Update to Final management Plan
2015	Revision of Plan to incorporate potential for prescribed fire as a management tool
2020	10-yr Update to Final Management Plan

1.1 Purpose of the Project and Scope of Plan

The purpose and scope of this management plan is to provide management direction for the Cocohatchee Creek Preserve by identifying the goals and objectives necessary to eliminate or minimize and threats to the resources and integrity of the preserve. This plan is a working

document that establishes the foundation for the ten-year plan by identifying the appropriate management techniques necessary to preserve, enhance, restore, maintain and monitor the resource. This plan will balance resource restoration and protection with passive public recreational and educational use while looking at restoration needs, listed species protection and maintenance of the site free of invasive exotic plants and species (if applicable). This plan is divided into sections that incorporate an introduction, descriptions of the natural and cultural resources, projected uses of the property and management issues, goals and objectives.

This management plan, including any updates, shall be submitted to the Collier County Board of County Commissioners (BCC) for its approval. When approved, this plan will replace the Final Management Plan prepared by Conservation Collier staff and approved by the BCC on June 26, 2007.

1.2 Location

The Cocohatchee Creek Preserve is located in North Naples, Collier County, Florida. It is bounded on the west by Veterans Park Drive, on the north by Immokalee Road, on the east by the Cocohatchee Creek (property line through the center of the creek), and on the south by the Veterans Community Park (Figure 1). The legal description is attached at Appendix 4. The surrounding land use is a blend of residential, commercial, conservation and County Park. Across the creek from the Preserve, to the east, is a residential single-family development called Southwind Estates. A conservation area belonging to the Southampton/Stonebridge development exists along the southern boundary. Veterans Park Commons Planned Unit Development (PUD) and Northside Medical Plaza PUD are directly across Veteran's Park Drive.

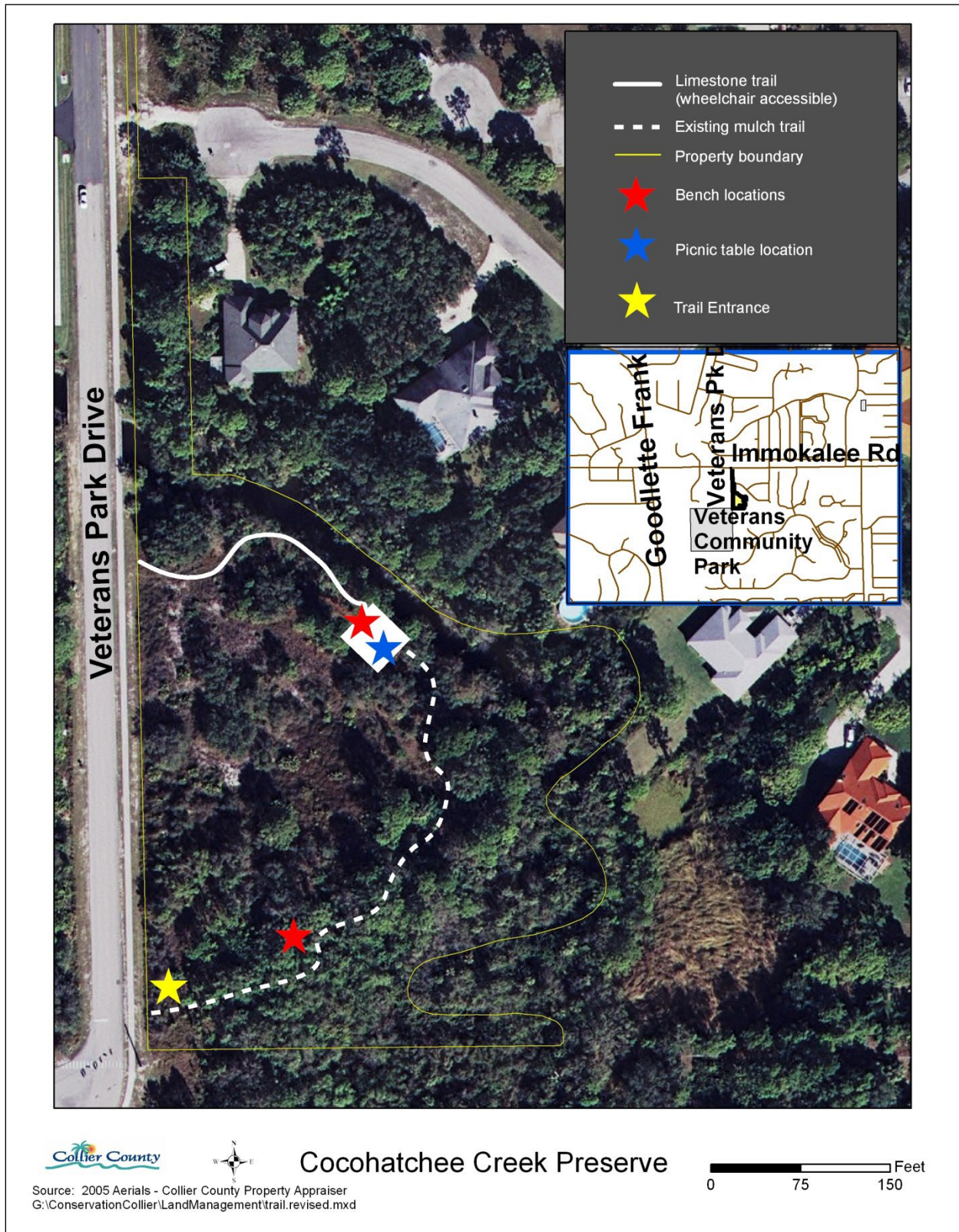
1.3 Regional Significance of the Cocohatchee Creek Preserve

Despite having 877,000, or 68%, of county lands protected in conservation status (Florida Natural Areas Inventory, February 2013), Collier County has lost, and is losing, many of its rare and unique habitats. The Conservation Collier Ordinance identifies these specific habitats and gave preference to them in acquisition evaluations. These habitats include, in order of preference: tropical hardwood hammocks, xeric oak scrub, coastal strand, native beach, riverine oak, high marsh (saline) and tidal freshwater marsh. The Cocohatchee Creek Preserve was purchased partly because it contains remnant habitats of two of these specific habitats, xeric oak scrub and riverine oak, in addition to other native habitats, pine flatwood and cabbage palm groves. The location of the preserve in the urban area provides an opportunity for citizens, visitors and school age children to view these habitat types without traveling far from home or school.



Cocohatchee Creek – Riverine Oak habitat

Figure 1. Cocohatchee Creek Preserve Map – Existing Conditions



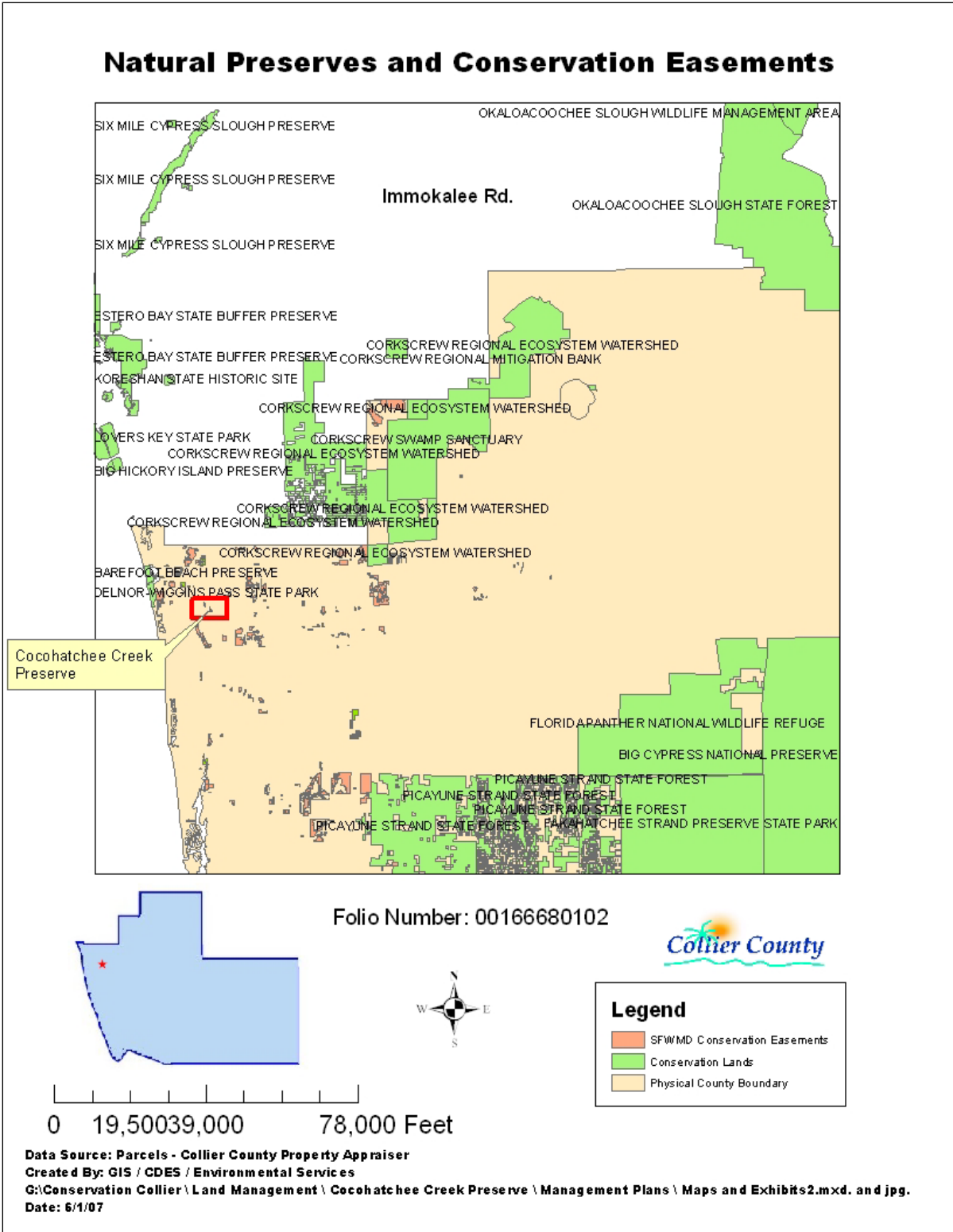
The riverine wetlands on the preserve parcel contain at least two (and possibly more) species of state listed bromeliads, including *Tillandsia paucifolia* and *T. fasciculata*. American alligator, (*Alligator mississippiensis*), are known to utilize the creek. The American alligator is classified by the U.S. Fish and Wildlife Service as “similarity of appearance to a threatened taxon.” This listing has been adopted by the State of Florida. Listed wading birds, such as little blue heron (*Egretta caerulea*) and snowy egret (*Egretta thula*) are often observed foraging in streams and canals in surrounding area. Protection and management of listed species is critical to their long-term existence in Collier County and globally.

1.4 Nearby Public Lands and Designated Water Resources

The closest preserve to Cocohatchee Creek Preserve is the Conservation Collier property currently known as Wet Woods Preserve, a 28-acre preserve located at the mouth of the Cocohatchee Creek as it joins the Wiggins Pass Estuary, 2 miles to the Northwest. Other preserves, in order of increasing distance are identified in Table 2. Existing natural preserves and designated South Florida Water Management District conservation easements in Collier County are shown in Figure 2.

Preserve	Distance (miles)	Direction	Type
Wet Woods Preserve	2.0	N and W	Conservation Collier
Railhead Scrub Preserve	2.4	North	Conservation Collier
Delnor-Wiggins Pass State Park	2.5	N and E	State
Barefoot Beach Preserve	3.6	N and E	Collier County
Imperial River Preserve	6.2	NW	Lee County
Gordon River Greenway Park and Preserve	7.6	S and E	Collier County/Conservation Collier
Rookery Bay National Estuarine Research Reserve	17	S and E	National

Figure 2. Surrounding Conservation Lands in Collier County



1.5 Management Authority

Lands acquired by Conservation Collier are titled to “COLLIER COUNTY, a political subdivision of the State of Florida, by and through its Conservation Collier Program.” The Conservation Collier Program, under the Parks and Recreation Department holds management authority for all Conservation Collier Program lands. The Collier County Parks and Recreation Department assists with specific management tasks for the Cocohatchee Creek Preserve, as identified in the Interdepartmental Agreement (Appendix 3).

1.6 Public Involvement

Neighborhood involvement will be sought through e-mail or direct mailing notice for public meetings to residents within the surrounding area and owners of properties that border the Preserve. Any major changes or management activities that are likely to generate an intrusive aspect or in some way affect neighboring properties will be reviewed with these contacts prior to conducting the activity. Staff will also seek volunteers from surrounding areas through these contacts.

2.0 Natural and Cultural Resources

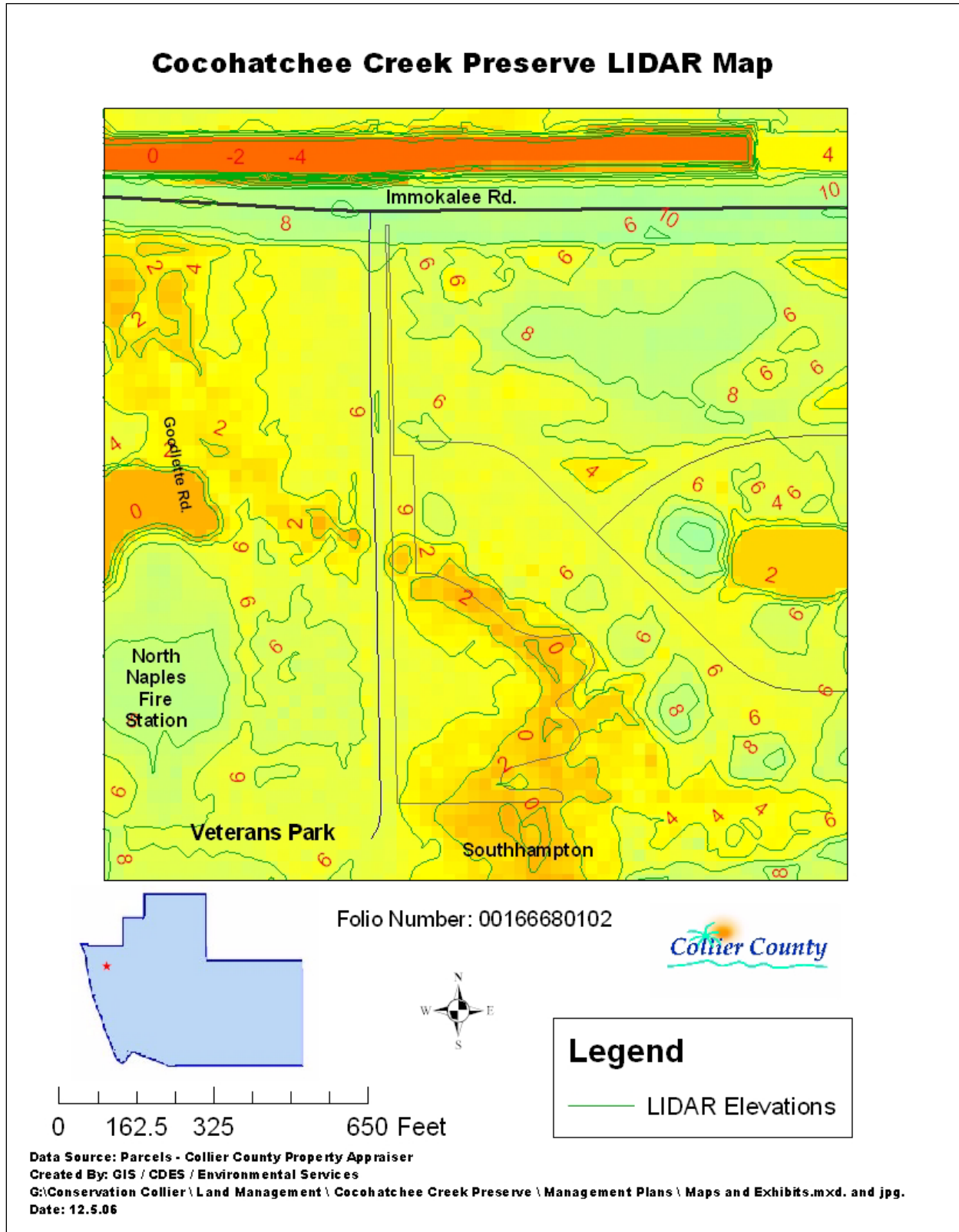
2.1 Physiography

The Cocohatchee Creek Preserve lies within the Gulf Coastal Lowlands physiographic province, characterized by low elevations and poor drainage. The landforms that make up these coastal lowlands include coastal and sand dune ridges and relic spits with intervening coast-parallel valleys consisting of poorly drained swampy areas with little recharge.

2.1.1 Topography and Geomorphology

The site is located in the Southwestern Slope region of the South Florida Water Management District. Topography has been established using a Light Detecting and Ranging (LIDAR) map (Figure 3). The average elevation of the surrounding lands is 6-8 feet NAVD (1988), with lower elevations along the Cocohatchee Creek Channel as it flows to the Wiggins Pass Estuary. Elevations of the Preserve property are lower than surrounding lands, ranging from 0 to 4 feet, with 0 foot elevation along the primary creek channel, grading up to 2 feet in the riverine oak, pine and cabbage plant communities, and to 4 feet in the upland scrub area along Veterans Park Drive.

Figure 3. LIDAR Map



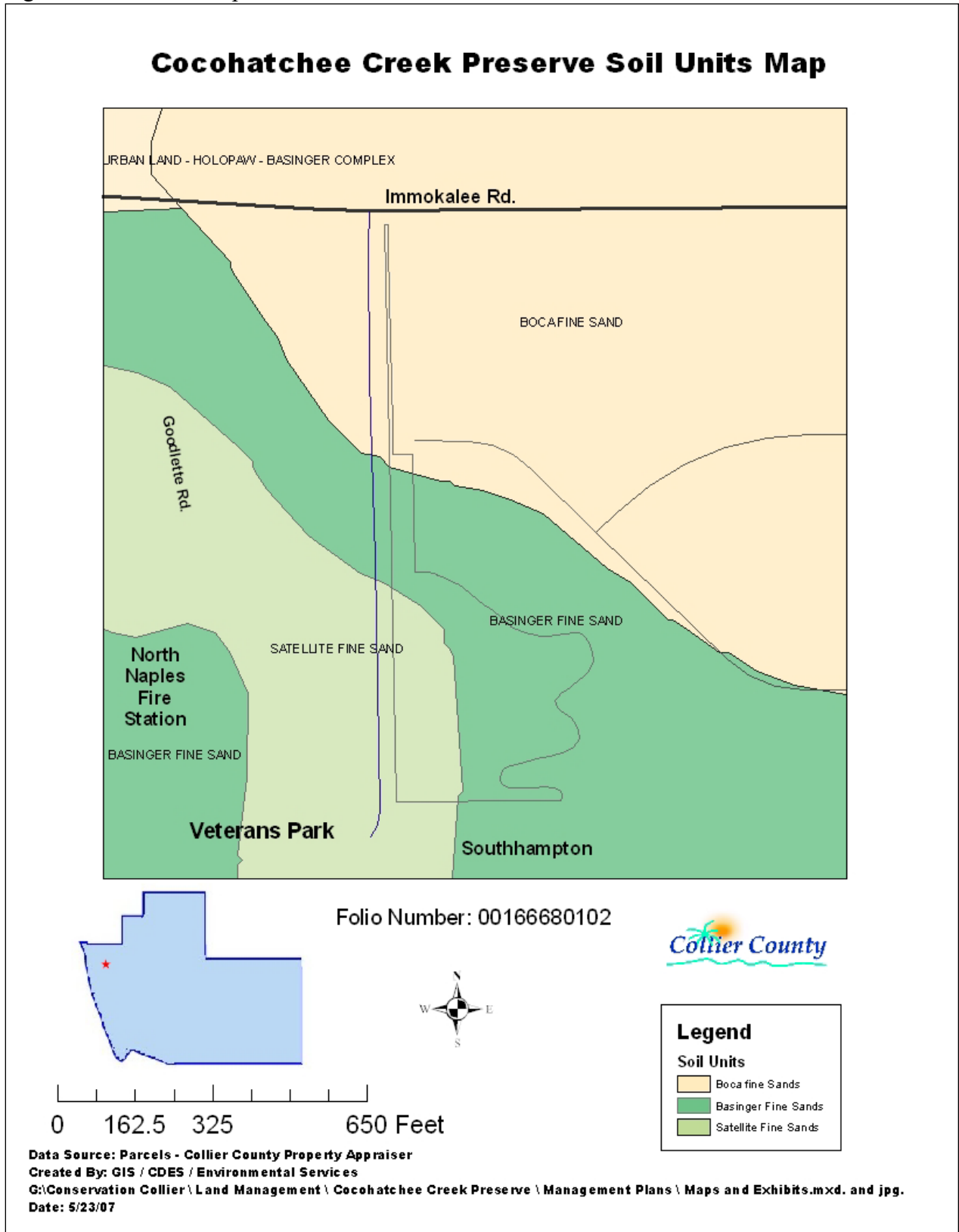
2.1.2 Geology

The geology of northern Collier County is characterized by complex sequences of uncomfortably layered, interbedded sands clays and limestones to a depth of approximately 230 feet. This depth marks the bottom of the surficial aquifer, with the bottom layer creating an aquitard that separates the brackish underlying aquifer below (Miller, 1986) (Oaks and Dunbar (1974) (Scott, 1988).

2.1.3 Soils

Soils data is based on the Soil Survey of Collier County, Florida (USDA/NRCS, 1990). Mapped soils on this parcel include, in descending order of extent, Basinger Fine Sands (75%) and Satellite Fine Sands (24%)(Figure 4). Basinger Fine Sands is an occasionally flooded slough soil with natural vegetation including slash pine, palmetto, wax myrtle and St. Johnswort. This soil type covers the creek bed and its immediate floodplain. Expected vegetation is present. Satellite Fine Sands is an upland soil type with typical vegetation including sand live oak, rosemary, slash pine and prickly pear cactus. These plants are present in areas mapped as Satellite Fine Sands. These soil types consist of light grey, white or brown fine sands to a depth of 80 inches or more. Hand auger borings performed onsite in 2001 by LAW encountered fine sand to about 4 to 5 feet below natural grade, underlain by grey clayey sand.

Figure 4. Soil Units Map



2.1.4 Hydrology/Water Management

Groundwater flow in the surficial aquifer and surface water of the Cocohatchee Creek is toward the west and the coast. The aquifer grades from freshwater to brackish water due to the proximity of the Gulf of Mexico to the west. Cocohatchee Creek flows in a northwesterly direction and discharges into the Gulf of Mexico via the Wiggins Pass Estuary, named by the Florida Department of Environmental Protection as an Outstanding Florida Water (OFW). The volume of water in the creek itself rises and falls seasonally in response to tidal changes, and in response to weir controls

Surface water management is related to regional water management strategy. A water control structure (weir) maintained by the Collier County Road Maintenance Department exists just north of the Preserve and south of Immokalee Road, along the Cocohatchee Creek. This is the Cocohatchee East Branch AMIL Gate Weir, consisting of one (1) model D400 AMIL gate the purpose of which is to automatically maintain upstream water levels at a control elevation of 4.0'. If upstream water elevations rise, the gate will automatically open to maintain control elevation. Automatic gate control can be overridden by manual operations controlled by the Collier County Road Maintenance Department. The Big Cypress Basin maintains an automatic water level recorder gauge immediately upstream of the weir on the west bank of the creek. The ability of the Cocohatchee Creek Preserve's land manager to control the water level is limited or non-existent.

2.2 Climate

The Cocohatchee Creek Preserve is located in an area of Florida that is overlapped by a humid subtropical climate and a tropical savanna climate in which temperatures are moderated by winds from the Gulf of Mexico and the Atlantic Ocean. A tropical savanna climate is characterized by sharply delineated wet and dry seasons and average monthly temperatures greater than 64° Fahrenheit. Monthly rainfalls may exceed ten inches during the wet season. Humid subtropical climates are characterized by less extreme rainfall fluctuations between wet and dry seasons and average monthly temperatures less than 64° Fahrenheit in some months.

The average annual temperature for the coastal portion of Collier County is approximately 75° Fahrenheit. The warmest months are usually July and August. The humidity is high during these months, but frequent afternoon thunderstorms prevent excessively high temperatures.

Two-thirds of the annual rainfall occurs in the wet season from May to October. Thunderstorms are frequent during the wet season occurring every two out of three days between June and September. Rainfall records for the area indicate that there is not significant variation in the annual rainfall throughout much of the county; however, large variations often occur during a single year. The hurricane season extends from June through November with peak activity occurring in September and October when ocean temperatures are highest.

2.3 Natural Communities

The Cocohatchee Creek Preserve contains small areas of four different types of natural vegetation communities, hydric hammock, scrubby flatwood, mesic pine flatwood, and floodplain marsh (Table 3) (Figure 5). These communities are ranked by the Florida Natural Areas Inventory (FNAI) (Ranking System Explanation – Appendix 6). A map of historic distributions of native vegetation communities in Collier County is shown as Figure 6 (Duever,

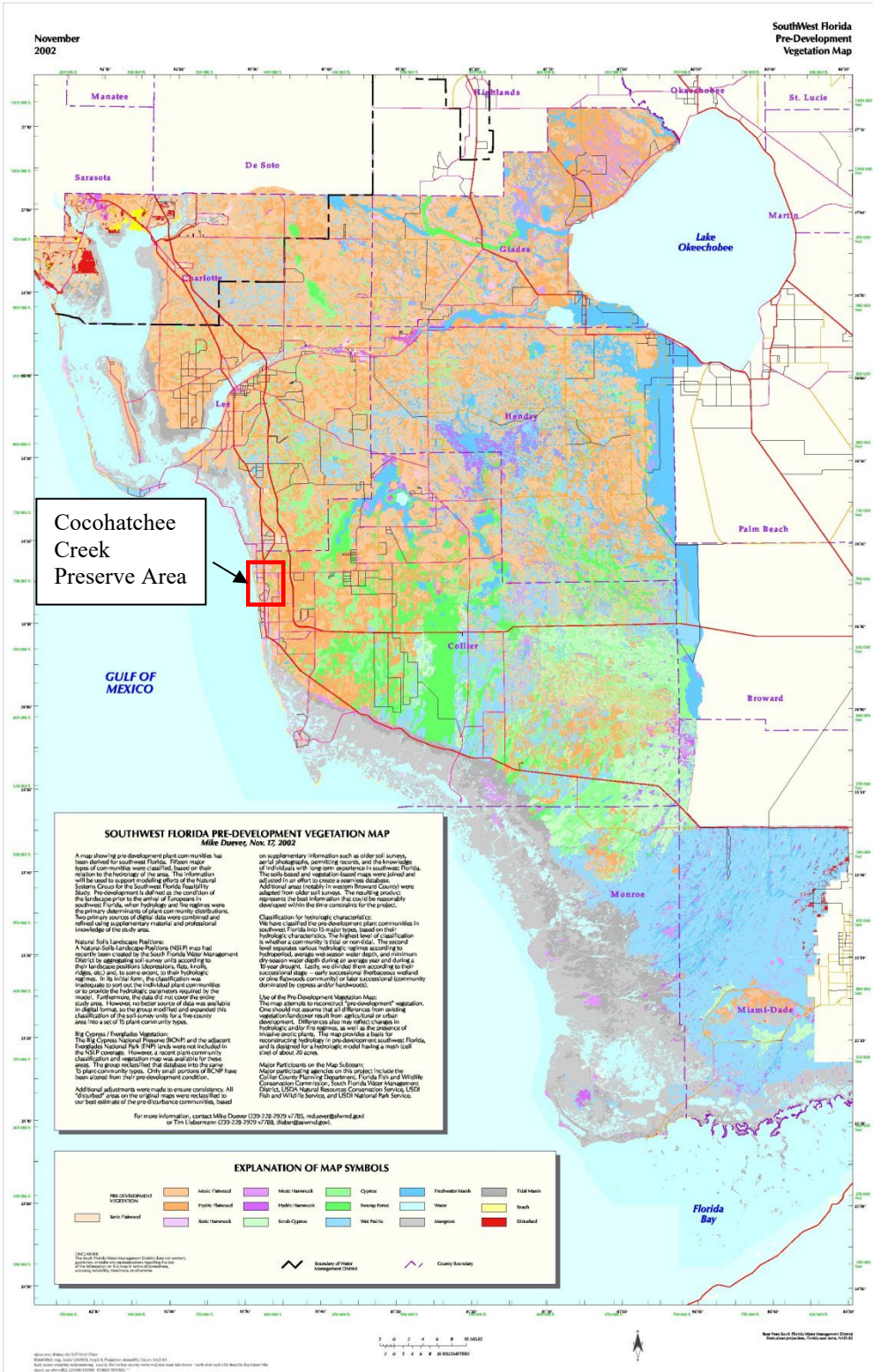
2002). This map shows that the area where the Cocohatchee Creek Preserve is located was historically a mosaic of hydric flatwood, mesic flatwood, mesic hammock and hydric swamp forest.

Table 3: Summary of Natural Communities					
FNAI Natural Community Type	# Acres	% of Area	Global Rank	State Rank	Comments
Hydric Hammock	.55 ac	15%		S4	Riverine Oak and Cabbage Palm groves
Scrubby Flatwood	.73 ac	20%	G3	S3	9 gopher tortoise burrows located; 1 gopher tortoise observed.
Mesic Pine Flatwood	1.26 ac	35%		S4	Pine Flatwood areas
Floodplain Marsh	1.1 ac	30%		S2	Cocohatchee Creek floodplain

Figure 5. Florida Land Use Cover and Forms Classification System (FLUCCS) Map.



Figure 6. Historic distribution of vegetation communities in Collier County, Florida (Duever, 2002)



2.4 Native Plant and Animal Species

A native plant list was developed in 2007 and is attached as Appendix 8. Staff contracted with a botanist to develop this list. The Preserve is in an urban setting and resident wildlife in addition to Gopher tortoises(s) includes raccoons, armadillos, turtle, frog, fish and bird species. An eastern corn snake (*Pantherophis guttatus*) was observed in the upland area in 2012. In addition to the bird list below, staff has observed anhinga (*Anhinga anhinga*), great egret (*Ardea alba*), wood duck (*Aix sponsa*) and Florida softshell turtle (*Apolone ferox*), little blue heron (*Egretta caerulea*) in the creek.

Common Name	Latin Name	# Seen	Status	Comments
Northern Cardinal		4		
Red-winged Blackbird		3		
Blue-gray Gnatcatcher		2		
Boat-tailed Grackle		2		
Yellow-rumped Warbler		6		
Northern Mockingbird		1		
Turkey Vulture		2		
Gray Catbird		5		
Red-bellied Woodpecker		1		
Blue Jay		2		
Woodstork	<i>Mycteria Americana</i>	1	T-USFWS (fed)	Seen overhead
American Crow		7		Seen overhead
Common Yellowthroat		1		
Red-shouldered Hawk		1		

2.5 Listed Species

2.5.1 Listed Plant Species

Known listed plants at Cocohatchee Creek Preserve include *Tillandsia faciculata*, *T. balbisiana*, *Tutriculata* and *Clitoria frangrans*, . (See plant list, Appendix 8)

2.5.2 Listed Wildlife Species

A listed wildlife species survey was done by staff on March 1, 2006 (Appendix 7). Listed wildlife species observed onsite or in the air above the parcel include gopher tortoise (*Gopherus polyphemus*) a species listed by the State of Florida as a “State Threatened.” and Wood storks (*Mycteria americana*), a species listed as “Threatened” by both the federal government. Maps are prepared and updated by staff showing locations of existing Gopher tortoise burrows; however, they are not appended to this plan to protect the animals from disturbance. As of June 2013, sixteen (16) active burrows were located on the property. .



Gopher tortoise - *Gopherus polyphemus* (State - SSC)

2.6 Invasive Non-native and Problem Species

Table 5: Invasive Non-native Species Known to Occur at the Site			
Scientific Name	Common Name	EPPC Cat. (2011 list)	Degree Of Infestation
<i>Schinus terebinthifolius</i>	Brazilian pepper	1	low/
<i>Acacia auriculiformis</i>	Earleaf acacia	1	low/none
<i>Wedelia trilobata</i>	wedelia	n/a	5% Moderate/low
<i>Abrus precatorius</i>	Rosary pea	1	low/none
<i>Panicum repens</i> <i>Pistia stratiotes</i>	Torpedo grass Water lettuce	1 1	In creek bed creek only/low
<i>Urochloa mutica</i> <i>Panicum repens</i> <i>Pistia stratiotes</i>	Para grass Torpedo grass Water lettuce	I 1 1	low/none In creek bed creek only/low
<i>Imperata cylindrical</i> <i>Urochloa mutica</i> <i>Panicum repens</i>	Cogon grass Para grass Torpedo grass	II 1 1	low low/none In creek bed
<i>Urena lobata</i> <i>Imperata cylindrical</i> <i>Urochloa mutica</i>	Ceasar weed Cogon grass Para grass	III 1 1	low low low/none
<i>Urena lobata</i> <i>Imperata cylindrical</i>	Ceasar weed Cogon grass	III 1	low low
<i>Urena lobata</i>	Ceasar weed	II	low

2.7 Forest Resources

No commercial forests exist and timber extraction is not appropriate for this site.

2.8 Mineral Resources

No particular minerals are reported for this site and the extraction of minerals is not appropriate for this site.

2.9 Archaeological, Historical and Cultural Resources

A field visit was made to the site by Archeological Consultants, Inc. (Sarasota, Florida) in 2001 for the previous owner. No evidence of a significant prehistoric or historic resource was found. The investigation conducted included background research, excavation of subsurface, shovel unit tests and a visual reconnaissance of the entire parcel. Of particular interest was the elevated “mound” area near the center of the parcel. Subsurface tests showed this feature to be comprised of fill material including sand and limestone pebbles and boulders.

A request to the Florida Division of Historical Resources for a Township Range Section (TRS) search in September 2006 resulted in no known archeological sites or historical structures documented on this parcel.

2.10 Scenic Resources



Trail section made of compacted limestone shell

The primary scenic resource of this preserve is the Cocohatchee Creek. Additionally, the natural buffer created by the mature vegetation in the preserve provides a place for visitors to experience the feeling of being alone in nature in a very urbanized area. Public access to the preserve is facilitated by a trail approximately 700 feet long, that meanders along the creek, over a raised mound and through the pine flatwood. Three-hundred and fifty (350) feet of the trail along the north side is made of compacted limestone shell materials and is accessible by wheelchair (compliant with American Disabilities Act-ADA). In 2012, an Eagle Scout project added a small ADA seating area and 2 benches at the north trail access. The remainder of the trail is made of mulch laid over a cleared 5' wide trail. The mulched portion of the trail enters the preserve at the south side, directly across from the Veteran's Community Park shared parking area. (Figure 1).

3.0 Use of the Property

3.1 Previous Use and Development

A Phase 1 Environmental Assessment was done in 2001 by LAW Engineering and Environmental Services (LAW). This report noted that a review had been done of aerial photos and maps dating back to 1940, showing that the site has not been previously developed. Six hand augur borings were done by LAW in 2001 on the raised mound area, finding no evidence of buried waste, trash, soil staining or chemical/petroleum odors.

3.2 Current Public Use and Land Uses

The preserve is currently open to the public for use of walking trails and picnic area. Small plant identification signs have been placed within the preserve to identify native plant species. These signs are intended to educate preserve visitors and school age children about the native plants of the region.



Picnic area

3.2.1 Identification of Public Uses Consistent with Preservation, Enhancement, Restoration, Conservation and Maintenance of the Resource

Uses consistent with the above goals include walking, bird and wildlife watching, picnicking, biking and fishing.

3.2.2 Planned Public Uses and Assessment of Impacts

Easements, Concessions and Leases – There are no easements, concessions or leases.

Landscaping – A native plant restoration project was initiated in the summer of 2019 to increase the diversity of native forage species for the Florida gopher tortoise and native host plants for area pollinators. 70 potted plants were installed at the preserve by local volunteers and staff.

Stormwater Facilities – There are no stormwater facilities on this parcel.

Trail Network – There is a trail meandering through the parcel along the creek through upland vegetative communities approximately 700 feet in length, 350 feet of which is accessible by wheelchair.

3.3 Adjacent Land Uses

Surrounding land uses include single-family residential on the north and east sides (Southwind Estates), Planned Unit Development (PUD) conservation easement (Southampton/Stonebridge) on the south side, Veteran's Park Blvd. roadway, a developed medical PUD and a developed medical PUD on the west, and to the southwest, the County's Veteran's Community Park.

3.4 Potential Surplus Lands

The parcel has an unusual polygon boundary that includes the west 40 feet of Southwind Estates, lot 15. This portion is approximately 40 feet wide and 215 feet long, being roughly 1/5 acre in size. In June 2005, the Conservation Collier Land Acquisition Advisory Committee (CCLAAC) evaluated a proposal by the adjoining neighbors to purchase this portion of the Cocohatchee Creek Preserve and place a perpetual conservation easement over it. The CCLAAC made a recommendation not to sell this portion, and the petitioner decided not to forward the request/proposal to the Board of County Commissioners. As this portion of the parcel is of small size positioned in a way that makes it difficult for the public to use, and does provide a buffer for the residential property, the issue of this portion being potential surplus lands may arise again in the future. Conservation Collier could potentially sell this portion, as long as a perpetual conservation easement was placed over it.

3.5 Prospective Land Acquisitions

There are no parcels adjacent to the Cocohatchee Creek Preserve available for acquisition.

3.6 Analysis of Multiple-Use Potential

Table 6: Analysis of Multiple-Use Potential			
Activity	Approved	Conditional	Rejected
Protection of endangered and threatened species	Y		
Ecosystem maintenance	Y		
Soil and water conservation	Y		
Hunting			N
Fishing	Y		
Wildlife observation	Y		
Hiking	Y		
Bicycling	Y		
Horseback riding			N
Timber harvest			N
Cattle grazing			N
Camping			N
Apiaries			N
Linear facilities			N
Off road vehicle use			N
Environmental education	Y		
Citriculture or other agriculture			N
Preservation of archeological and historical sites	n/a		
(Other uses as determined on an individual basis)			

4.0 Management Issues, Goals and Objectives

4.1 Program Framework and Goals

The Conservation Collier Program considers properties of high natural resource value throughout Collier County for acquisition from willing and voluntary participants. Properties must support at least two of the following qualities: rare habitat, aquifer recharge, flood control, water quality protection, and listed species habitat to qualify for further consideration. The Collier County Board of County Commissioners appointed a Land Acquisition Advisory Committee to consider any selected or nominated properties where an owner has indicated a willingness to sell. The committee shall recommend property purchases for final approval by the County Commission.

This property shall be managed only for conservation, protection and enhancement of natural resources and for public outdoor passive recreation that will be compatible with the conservation, protection and enhancement of the site and its surrounding lands.

4.1.1 Management Activities to Preserve, Enhance, Restore, Conserve, Maintain and Monitor the Resource

Each property purchased by Conservation Collier shall have its own management plan. The ordinance requires that an "Interim" Management Plan be developed within 60 days of purchase and that a "Final" management plan be developed within 2 years. After that, property management plans must be updated every 5 years, or sooner, if needed. Interim plans shall be concerned with basic items such as removal of invasive exotics and trash, establishing site security, developing management partnerships and planning for public access. All management plans must be approved by the Board of County Commissioners.

4.1.2 Manager

The Program Coordinator for the Conservation Collier Program and Land Manager for this property is:

Designated Conservation Collier Staff, Parks and Recreation Department. Telephone number: 239-252-2961.

E-mail address: ConservationCollier@CollierCountyFL.gov

4.1.5 Preserve Rules and Regulations

No dumping, use of unauthorized vehicles, or removal or destruction of natural resources shall be permitted within the preserve. The goal is to allow limited nondestructive public access to natural resource habitat and native plant communities and animal species. Preserve rules are those identified in Collier County Ordinance 2011-38, Regulations for Use of Preserve Lands.

4.2 Desired Future Conditions

This section includes a narrative of proposed future conditions for the site's natural areas. Management techniques to achieve these conditions are in section 4.5.

Following recommended management actions, and using adaptive management, Cocohatchee Creek Preserve will have a riverine oak canopy, upland scrub, pine flatwood, and cabbage palm

grove habitats that have a similar structure and composition to that which existed upon purchase of the property.

The riverine oak canopy will be maintained by managing vines so they do not overtop oaks. Periodic removal of vines from the canopy will accomplish this goal. Cabbage palm groves will be maintained by removal of exotic plants and periodic removal of plant debris.

Upland scrub areas on the site will not be fragmented by trails, but instead will form a continuous unit of vegetation. Prescribed fire may be considered for use in scrub areas if adjoining residents are comfortable with its use. Use of prescribed fire would benefit rare plants located within the scrub area. If a level of comfort with neighbors cannot be reached, the habitat will be maintained by manual chopping or chemical applications.

The pine flatwood will have an overstory of slash pine and an understory of native herbs and grasses. This area will be maintained by chemical and hand removal of exotics.

The creek will be maintained With limited or low levels of exotic plant species. A native plant restoration project in 2009 added approximately 300 native herbaceous plants along the creek, including: bull rush (*Scirpus validus*), swamp lilly (*Crinum americanum*) and leather fern (*Achrostichum daneifolium*). The bull rush and swamp lilies did not do well, due to the occasional influx of brackish water, but the leather fern is thriving.

4.3 Major Accomplishments during previous years

Table 7: Major Accomplishments during previous years	
Accomplishment	Year(s)
Removal of vegetative and other types of debris from forest floor and creek bank	2005
Development of a 700 foot walking trail with a representative portion built to be wheelchair accessible	2005
Development of management agreement with Collier County Parks and Recreation Dept.	2006
Formal ceremony to open Preserve for passive public use	2006
Implementation of quarterly exotic maintenance program	2007
Creek Restoration Planting Project	2009
Eagle Scout Seating Area Project	2012
Gopher Tortoise Forage Planting Project	2019

4.4 Goals and Actions for 10 years period 2007-2016

A set of goals and objectives for the Cocohatchee Creek Preserve were developed in conjunction with the drafting of this Management Plan. The goals and objectives in this plan are tailored specifically for the Cocohatchee Creek Preserve, based on the purposes for which the lands were acquired, the condition of the resources present, and management issues for the property. On-site managers should be familiar with the entire Management Plan. Goals and objectives from the Interim Management Plan for the Cocohatchee Creek Preserve were reviewed to determine if they remain meaningful and practical and should be included in this plan. The goals and objectives presented here reflect programmatic goals in addition to ideas of Conservation Collier Program staff. Programmatic goals shall not be modified, but specific application of management techniques may take into consideration input by user groups and other stakeholders from outside

the program, accommodating user needs and desires where practicable and where overarching management goals are not violated.

Management issues are discussed below in separate sections. Within each section, approaches for dealing with these issues are described. The ability to implement the specific goals and objectives identified in this plan is dependent upon the availability of funding resources. The following goals have been identified for the Cocohatchee Creek Preserve:

- Goal 1:** Maintain the property in its natural condition.
- Goal 2:** Reduce human impacts to indigenous plant and animal life.
- Goal 3:** Manage the property for the benefit of native and listed wildlife species.
- Goal 4:** Remove exotic plants to restore natural habitats and reduce fuel loads.
- Goal 5:** Restore native vegetation as appropriate and necessary.
- Goal 6:** Maintain the trail to provide a safe and pleasant visitor experience.
- Goal 7:** Facilitate uses of the site for educational purposes.
- Goal 8:** Provide a plan for security and disaster preparedness

Goal 1: Maintain the property in its natural condition

The property was purchased due to specific natural features. In order to maintain these features, periodic biological monitoring will be performed including the following actions:

- Conduct periodic wildlife surveys
- Install permanent vegetation monitoring plots in all habitats
- Install permanent photo points in all habitats
- Evaluate potential for applying prescribed fire in scrubby flatwoods area.

Goal 2: Eliminate or reduce human impacts to indigenous plant and animal life

Actions:

- Maintain bollards at north trail entrance to prevent unauthorized vehicle access
- Identify rare native plant species.
- Avoid off target damage to native plants and animals, especially rare species, during invasive exotic plant treatments.
- Require that domestic animals brought onto the preserve lands are leashed.
- All site development occurring adjacent to the Cocohatchee Creek Preserve will be noted and the property manager will research to determine that the proper site development permits have been obtained. All existing local, state, and federal regulations should be strictly followed and enforced during any site development adjacent to the preserve. It shall be the responsibility of the developer to establish and utilize turbidity and erosion control measures (i.e., rock bags, silt fencing or barriers), and vegetation protection measures (i.e., protective fencing or barriers). If any site developer working in areas adjacent to the preserve does not take the necessary control measures, construction shall be immediately halted until control measures are put into place and mitigation and/or remediation will be the sole responsibility of the developer.

Goal 3: Manage the property for the benefit of native and listed wildlife species.

Listed species known to occur on the Cocohatchee Creek Preserve include gopher tortoise (*Gopherus polyphemus*), and a variety of wading birds including woodstorks (*Mycteria americana*). Other listed species (primarily bird species) may also use the preserve for foraging and nesting. Many non-listed native bird species also use this site for forage and nesting.

Management actions to protect native bird species are:

- Avoid off target damage to native plants and animals, especially rare species, during invasive exotic plant treatments.
- Require that any domestic animals brought onto the preserve lands are leashed.

Management actions for state and federally listed species are:

- **Gopher tortoise (*Gopherus polyphemus*) (State - Threatened)**– A survey done on March 1, 2006 located 15 burrows (not designated active or inactive) on the property. No tortoises were observed during the survey. A gopher tortoise survey done in June 2013 found 17 burrows, with all but one appearing active. As FFWCC guidelines for management identify a viable population as consisting of 40 – 50 individuals requiring 25-50 acres of appropriate habitat, the population on Cocohatchee Creek Preserve should be considered a remnant population requiring access to surrounding lands for long term viability. Staff recognizes that due to the small area involved, just under 2 acres, that habitat protection alone on this site may not satisfy long term conservation goals for this species. Staff conducted a burrow scoping survey in the summer of 2018 with the help of a volunteer. 16 burrows were located during this survey with 2 currently occupied by an adult gopher tortoise. This data compliments staff observations of two unique tortoises active on the preserve.
 - **Beginning in 2018, staff began monitoring numerous observations of depredated turtle nests by suspected armadillo in the upland habitat surrounding tortoise burrows.** Greater than 20 nest depredations have been observed since 2018 indicating that the uplands of Cocohatchee Creek Preserve may serve as nesting grounds to both terrestrial and aquatic turtles given the nesting density in relation to known tortoises. Heavy nest predation pressures by armadillo and a limited adult population are two factors that may pose the greatest threat to the maintenance of the existing gopher tortoise population at the preserve.

The following management actions are based on recommendations by the revised Gopher Tortoise Management Plan (approved September 5, 2012).

- Management of exotic and native vegetation to maintain an appropriate open canopy (less than 60%) and sparse shrub cover habitat
- Evaluation for need for planting of the site with native herbaceous ground cover plant species and grasses known to be food for tortoises
- Placement of signs designating a “gopher tortoise preserve area” along Veterans Park Drive and a “wildlife crossing” across the roadway,
- Enforcement of preserve rules excluding potential predators (dogs) from the site unless leashed.

- **Alligator (*Alligator mississippiensis*)** (Federal – T) –Management efforts to protect habitat for this species will focus on the following:
 - Posting signage to warn visitors not to feed or approach alligators
 - Keeping creek free of exotic plants and debris
- **Woodstorks (*Mycterus Americana*)** (Federal - T)- Woodstorks may use the property for occasional foraging. Management efforts to protect habitat for this species include:
 - Keeping creek free of exotic plants and debris.

Goal 4: Remove exotic plants to restore natural habitats and reduce fuel loads.

In general, Goal 3 will be accomplished by cutting, chemically treating and physically removing vegetative debris for all shrub and tree-like species of Category I invasive plant species identified on the Florida Exotic Pest Plant Council's (FLEPPC) List of Invasive Species. Grasses and herbaceous plants will be treated in place with appropriate herbicide applications. Plant species targeted within the preserve will be updated to coincide with updates of FLEPPC's List. Treatment of invasive exotic plant species will begin with more frequent treatments, such as quarterly, and be reduced in frequency of treatment over several years to find the minimum re-treatments necessary to keep exotic plant species under 5% of the existing vegetation. Specific management actions are provided below for each habitat type:

- *Pine flatwoods area (FNAI - Mesic Pine Flatwoods)*

Earleaf acacia and Brazilian pepper were problem plants in the pine flatwoods areas, with a few Java plums initially found scattered along Veterans Park Drive and caesar weed scattered throughout. In March 2007, a representative of the Florida Natural Areas Inventory (FNAI) identified what he believed is rose natal grass but this was never confirmed. Any exotic plants will be cut and the debris removed from the preserve and the stumps treated with appropriate herbicide. Appropriate herbicides for Brazilian pepper, earleaf acacia and Java plum are Garlon 3-A or Garlon-4 mixed with surfactant and applied to the stump directly after cutting. Arsenal will not be used in the preserve due to potential for non-target damage.
- *Riverine oak area (FNAI - Hydric hammock)*

Brazilian-pepper and wedelia were the primary exotic plant problems in this area, which is the creek bank area along the eastern side of the preserve. A few non-native ficus trees were noted here but have been removed. Poison ivy and rosary pea are also present and targeted for removal. Native and nonnative vines, including smilax spp., poison ivy, grape vine and an unidentified vine were initially found climbing to the canopies of the oaks along the river, but have since been removed for the most part. Most of these species can be controlled by spraying with Garlon 3-A or Garlon-4 mixed with surfactant at their base and by periodically pulling them out of the oak canopies. The wedelia and any exotic grasses on the creek bank can be treated with 2,4-D and the banks monitored for erosion. Herbicides that have higher non-target damage such as Velpar and Arsenal, are to be avoided.

- *Oak scrub area (FNAI - Scrubby Flatwood)*

The upland scrub area contains several non-native plant species, originally including Brazilian pepper, earleaf acacia and a Java plum or two. These plants have since been removed. This area must be addressed carefully, as it is habitat for at least one and perhaps several gopher tortoises and several rare plants, including *Tephrosia florida*, *Croton michauxii*, and *Indigofera caroliniana*. Exotics will be removed entirely in this area, leaving no mulch or debris. Appropriate herbicides include Garlon 3-A or Garlon-4 mixed with surfactant and applied to the stump directly after cutting. Introduction of prescribed fire should be considered in this area to minimize competition by encroaching plants. This area also includes the raised mound. The mound is covered with Muscadine grape (*Vitis rotundifolia*), a native vine species. While Muscadine grape is not considered a problem species, and is a low management priority, at some point management staff may elect to remove some of it and restore with native plant species more useful for gopher tortoise forage. Arsenal will not be used in this area.
- *Creek and associated wetlands (FNAI – Floodplain Marsh)*

Brazilian pepper, caesar weed, and paragrass were the original problem species in this area. Brazilian pepper was removed from the floodplain area in 2005 and re-growth has been primarily weedy herbaceous species. An additional removal of a small area of Brazilian pepper inadvertently left out of the 2005 initial removal was done in April 2007. Most exotics have been entirely removed in this area, with the exception of the woody bases for several large Brazilian pepper plants that are growing in the stream bed and could not be accessed for physical removal. These have been killed in place with herbicides. The property will be periodically examined and, if necessary, treated with herbicides starting quarterly with frequency of treatment reduced over several years as the soil seed bank is reduced and re-sprouting of exotics becomes less frequent. Quarterly treatments are currently under contract for the period of September 2006 – September 2007. Unless the area is completely dry, any herbicides used in this area should be labeled for use in water, such as Rodeo. If the ground is completely dry, Arsenal can be used for paragrass and torpedograss.

Goal 5: Restore native vegetation as appropriate and necessary

Actions:

- Monitor creek, bank and if necessary, plant native vegetation to prevent erosion.
- Carry out occasional native vegetation restoration plantings to increase forage species for resident Florida gopher tortoise. A forage species restoration planting was carried out in 2019 with the help of Gulf Coast High School and Leadership Collier volunteers.

Goal 6: Maintain the trail to provide a safe and pleasant visitor experience.

Actions:

- Inspect trail monthly for tripping hazards and fix immediately.
- Inspect trail monthly for overhead hazards such as broken or hanging tree limbs and fix immediately.
- Periodically, as needed, remove pine needles and weeds from the shell portion of the trail.

Goal 7: Facilitate use of the site for educational purposes

Actions:

- Maintain plant identification signs.
- Maintain visitor caution sign for potential alligator in creek.
- If staffing allows, agree to provide trail tour for classes of school children upon teacher request.
- Provide Preserve brochures in rainproof box on site. Inspect monthly and refill as necessary.

Goal 8: Provide a plan for security and disaster preparedness

Actions:

Collier County Parks and Recreation Park Rangers make routine daily patrols of the Preserve during the posted Preserve hours, 8:00 a.m. to dusk. A “Property Owner’s Agreement,” allowing the Collier County Sheriff’s Department to enforce trespass after Preserve hours and make arrests for illegal activities occurring on the property are executed by staff annually. Other actions shall include:

- Do not allow vehicle use in the preserve unless management related and unavoidable.
- Enforce regulations prohibiting trash and landscape debris dumping in or near the Preserve.
- Clean the Preserve annually of fallen tree pieces or other debris that could become airborne during a storm and cause damage to neighboring properties.
- After a storm event, staff will visit the Preserve within 48 hours to assess damages. The first priority for action is the perimeter of the Preserve, where trees may have fallen from Preserve lands onto a neighbor’s property. These will be removed as soon as possible, with highest priority of action for those that may have fallen onto a structure.

4.5 Prescribed Fire Program

No Prescribed Fire Program is planned for the Cocohatchee Creek Preserve.

4.6 Public Use Facilities

Public Access / Parking / Handicap Facilities/ Restrooms

There are two trail entrances to the Preserve, at the north and south ends of the property along Veterans Park Drive. Visitor and handicapped parking is provided at Veterans Park. The trail entrances are accessed via sidewalk from the Veterans Park parking lot. The south trail entrance is closest to the parking lot. The north trail entrance is wheelchair accessible, in compliance with Americans with Disabilities Act (ADA) requirements. The site shall adhere to ADA standards for pathways and facilities onsite. Restrooms are provided at Veterans Park.

4.7 Operational Plan for the Cocohatchee Creek Preserve

4.7.1 Maintenance

The primary maintenance activities for the preserve will include monthly site visits to control littering within and around the preserve, inspect exotic plant re-growth, maintain the trail in a safe and aesthetically pleasing way, refill brochure boxes, inspect signs and equipment (bench, table and

trashcans) and review general site security. A maintenance agreement exists with Collier County Parks and Recreation Department for routine patrols and trash removal. Staff will coordinate with the Veteran's Community Park Manager to receive updates as to problem issues or items noticed during Park Ranger patrols that the Preserve Manager should address.

Photo point photographs will be taken semi-annually. The Preserve Manager will keep an electronic management log to record observations from the site visit, any contacts made or issues raised. Ongoing projects such as exotic removal, debris removal, creek maintenance and planting projects will be calendared periodically as identified in Section 4.0, Management Issues, Goals and Objectives.

4.7.2 Estimated Annual Costs and Funding Sources

Preliminary budget estimates for the Cocohatchee Creek Preserve include cost breakdowns associated with resource restoration and management. The funding source identified for the restoration and management activities is the Conservation Collier Program Management Trust Fund. Alternative funding sources, such as mitigation and grant funds, will be sought to supplement existing funding. Table 8 shows the activities planned for the next five years and the initial and annual cost estimate of each activity. Private conservation organizations may also provide funding for specific projects.

Table 8. Actual and Estimated Annual Land Management Budget

Resource Management Activity	2019	2020	2021	2022	2023
Exotic Species Control	\$300	\$300	\$300	\$300	\$300
Cultural Resource Management	\$0	\$0	\$0	\$0	\$0
Tree Trimming	\$250	\$500	\$250	\$500	\$250
Debris Removal	\$400	\$400	\$400	\$400	\$400
Trash Removal	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Subtotal	\$1,950	\$2,200	\$1,950	\$2,200	\$1,950
Restoration					
Planting Projects	\$300	\$200	\$0	\$0	\$300
Subtotal	\$300	\$200	\$0	\$0	\$300
Capital Outlay					
Equipment	\$0	\$0	\$0	\$400	\$0
Trail Maintenance	\$0	\$0	\$0	\$0	\$0
Signs	\$50	\$250	\$0	\$0	\$0
Subtotal	\$50	\$250	\$0	\$400	\$0
Visitor Services/Recreation					
Brochures	\$100	\$100	\$100	\$100	\$100
Subtotal	\$100	\$100	\$100	\$100	\$100
Total	\$2,400	\$2,750	\$2,050	\$2,700	\$2,350

4.7.3. Potential for Contracting Restoration and Management Activities by Private Vendors

Table 9: Potential Contracting for Activities			
Activity	Approved	Conditional	Rejected
Trail maintenance	X		
Fence installation and maintenance	X		
Wildlife inventory and monitoring		X	
Native plant restoration		X	
Determine extent of hydrologic needs of preserve	X		
Restore hydrology via creek cleaning	X		
Reduce exotic species	X		
Education facilities, programs, and literature development and printing		X	
Education signs development and installation	X		
Viewing platform installation (optional)	X		
Law enforcement and patrol	X		
Prescribed Fire treatments		X	

4.7.4 Management Zones

Due to the small size of the preserve (3.64 acres), the entire Preserve is considered one management zone.

4.8 Partnerships and Regional Coordination

4.8.1 Interdepartmental Partnerships and Agreements

In addition to the Interdepartmental Agreement for specific management tasks with the Collier County Parks and Recreation Department, other potential partnerships may include, but not be limited to, surrounding residential and commercial property owner associations, the Conservancy of Southwest Florida, The Audubon Society, Florida Wildlife Federation, Collier County Schools, Collier County Sheriff’s Office, North Naples Fire Department, Florida Division of Forestry, U.S. Fish and Wildlife Service, Florida Department of Environmental Protection, South Florida Water Management District, Big Cypress Basin, Florida Fish and Wildlife Conservation Commission, and other County Departments, as some goals and purposes will be similar.

4.8.2 Cooperating Agencies and Organizations

The preserve is managed in accordance with all applicable Florida Statutes and administrative rules. Agencies having a major or direct role in the management of the preserve are discussed in relevant portions of this plan. The Florida Fish and Wildlife Conservation Commission (FFWCC) may aid Conservation Collier with wildlife management programs, including the development and management of Watchable Wildlife programs.

5.0 Literature Cited

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