

Cocohatchee Creek Preserve

Land Management Plan

Updated 2013



Managed by:

Conservation Collier Program
Collier County
June 2007 – June 2017 (10 yr plan)

Prepared by:

~~Collier County Facilities Management Department~~ Collier County Parks and Recreation Department

~~June-August 2007~~ 2013

Cocohatchee Creek Preserve

Land Management Plan Executive Summary

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

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

Acreage Breakdown: 3.64 acres

Management Responsibilities: Collier County ~~Facilities Management~~ Conservation Collier Program ~~Department~~ 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 Parks and Recreation Department – Conservation Collier Program
Preserve Manager – Designated Conservation Collier ~~County~~ 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;
- 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 a separate parcel and the potential for surplus is very low.

Public Involvement: ~~Public meeting(s) to be held~~ A public meeting was held in spring 2007 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 neighboring property owners is maintained and

2013 Updated Land Management Plan- Ccohatchee Creek Preserve

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

periodically, contact is made to advise of land management actions or issues and to request feedback.

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

Table of Contents

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY2

LIST OF TABLES.....6

LIST OF FIGURES.....6

LIST OF APPENDICES6

1.0 INTRODUCTION7

1.1 Purpose of the Project and Scope of Plan7

1.2 Location.....8

1.3 Regional Significance of the Cocohatchee Creek Preserve8

1.4 Nearby Public Lands and Designated Water Resources.....10

1.5 Management Authority13

1.6 Public Involvement13

2.0 NATURAL AND CULTURAL RESOURCES13

2.1 Physiography.....13

 2.1.1 Topography and Geomorphology13

 2.1.2 Geology15

 2.1.3 Soils15

 2.1.4 Hydrology/Water Management17

2.2 Climate.....17

2.3 Natural Communities17

 2.3.1 Hydric hammock

 2.3.2 Scrubby flatwood

 2.3.3. Mesic pine flatwood

 2.3.4 Floodplain marsh

2.4 Native Plant and Animal Species.....21

2.5 Listed Species21

 2.5.1 Listed Plant Species21

 2.5.2 Listed Wildlife Species21

2.6 Invasive Non-native and Problem Species22

2.7 Forest Resources22

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

2.8 Mineral Resources22

2.9 Archaeological, Historical and Cultural Resources.....22

2.10 Scenic Resources23

3.0 USE OF THE PROPERTY.....23

3.1 Previous Use and Development23

3.2 Current Public Use and Land Uses23

 3.2.1 Identification of Public Uses Consistent with Preservation, Enhancement, Restoration, Conservation and Maintenance of the Resource23

 3.2.2 Planned PublicUses and Assessment of Impacts.....23

3.3 Adjacent Land Uses.....24

3.4 Potential Surplus Lands24

3.5 Prospective Land Acquisitions24

3.6 Analysis of Multiple-Use Potential24

4.0 MANAGEMENT ISSUES, GOALS AND OBJECTIVES.....26

4.1 Program Framework and Goals.....26

 4.1.1 CARL/Florida Forever Management Prospectus.....26

 4.1.2 FCT Management Commitments.....26

 4.1.3 Management Activities to Preserve, Enhance, Restore, Conserve, Maintain and Monitor the Resource.....27

 4.1.4 Manager.....27

 4.1.5 Preserve Rules and Regulations.....27

4.2 Desired Future Conditions.....27

4.3 Major Accomplishments during previous years28

4.4 Goals and Actions for 10 years period 2007-2016.....29

4.5 Prescribed Fire Program33

4.6 Public Use Facilities.....34

4.7 Operational Plan for the Cocohatchee Creek Preserve.....34

 4.7.1 Maintenance34

 4.7.2 Estimated Annual Costs and Funding Sources.....34

 4.7.3. Potential for Contracting Restoration and Management Activities by Private Vendors36

 4.7.4 Management Zones.....36

4.8 Partnerships and Regional Coordination36

 4.8.1 Interdepartmental Partnerships and Agreements36

 4.8.2 Cooperating Agencies and Organizations37

5.0 LITERATURE CITED.....37

List of Tables

Table 1: Acquisition History and Status for 7

Table 2: [Nearby Public Lands and Designated Water Resources](#)10

Table 3: Summary of Natural Communities 18

Table 4: Bird Survey – March 1, 2006 21

Table 5: Invasive Non-native Species Known to Occur at the Site 22

Table 6: Analysis of Multiple-Use Potential 24

Table 7: Major Accomplishments during previous years 28

Table 9: Potential Contracting for Activities 36

List of Figures

Figure 1: Cocohatchee Creek Preserve Map – Existing Conditions8

Figure 2: ~~Natural Preserves and Designated South Florida Water Management District Conservation Easements Existing~~ [Surrounding Conservation Lands](#) in Collier County10

Figure 3: Elevation Map (LIDAR)12

Figure 4: Soil Units at the Cocohatchee Creek Preserve14

Figure 5: Florida Land Use Cover and Forms Classification system (FLUCCS) Map17

Figure 6: Historic distribution of vegetation communities in Collier County, Florida18

List of Appendices

Appendix 1: ~~Conservation Collier Ordinance, 2002-63~~

Appendix 2: ~~Collier County Parks and Recreation Ordinance 76-48, as amended~~

Appendix ~~3~~1: Interdepartmental Agreement between Collier County Environmental Services Department and Collier County Parks and Recreation Department for management of the Cocohatchee Creek Preserve

Appendix ~~4~~2: Legal Description

Appendix ~~5~~3: Public Involvement Contact List

Appendix ~~6~~4: Florida Natural Areas Inventory Managed Area Tracking Record and Element Occurrence Summary; FNAI ranking system explanation

Appendix ~~7~~5: March 1, 2006 Species Survey

[Appendix 6: Plant Survey \(2007\)](#)

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](#), (~~Appendix 1~~) with assistance from the Collier County Parks and Recreation Department under an Interdepartmental Agreement signed April 6, 2006 (Appendix ~~3~~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.

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 Management p Plan
2013	First Updated 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 ~~Interim-Final~~ Management Plan prepared by ~~the Collier County Environmental Services Department~~ Conservation Collier staff in August 2004 and approved by the BCC on ~~September 21, 2004~~ June 26, 2007, and ~~subsequently extended by the BCC through June 2006~~.

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 (~~currently undeveloped~~) are directly across Veteran's Park Drive.

1.3 Regional Significance of the Cocohatchee Creek Preserve

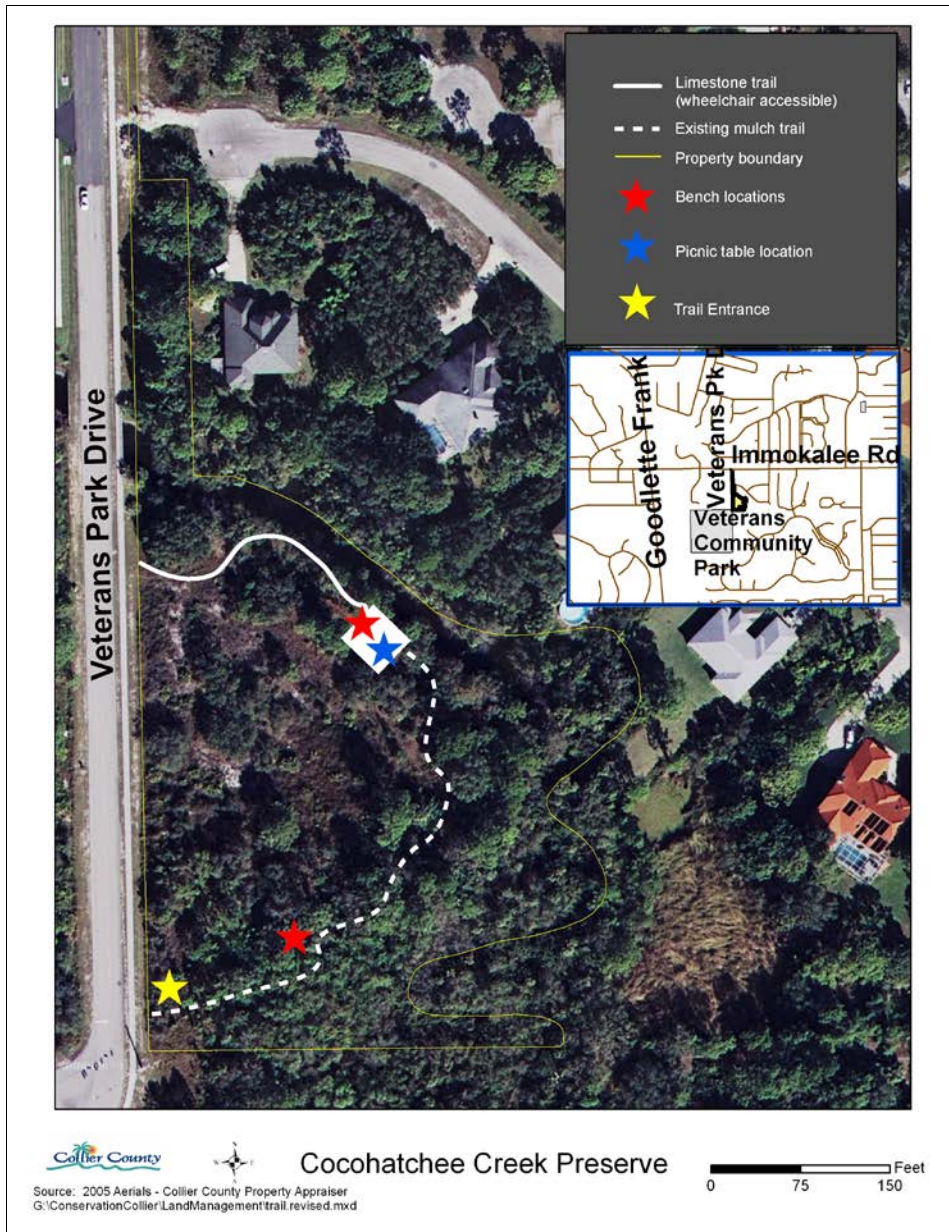
Despite having ~~867~~877,000, or ~~64~~68%, of county lands protected in conservation status (Florida Natural Areas Inventory, February 2013), Collier County has lost, and is losing, many of its rare and unique habitats. The Conservation Collier Ordinance identifies these specific habitats and ~~gives~~gave 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

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

Figure 1. Cocohatchee Creek Preserve Map – Existing Conditions



Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

The riverine wetlands on the preserve parcel contain at least two (and possibly more) species of state listed bromeliads, including *Tillandsia pruinosa-paucifolia* and *T. fasciculata*. An American alligator, (*Alligator mississippiensis*) has been seen by residents in the creek on occasion although it is unlikely alligators will take up permanent residence due to the urban location. The American Alligator is classified by the US Fish and Wildlife Service as “similarity of appearance to a threatened taxon.” This listing has been adopted by the State of Florida. a species that is state and federally listed, has been observed in the creek although it is unlikely alligators will take up permanent residence due to the urban location. 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 ~~Watkins/Jones~~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.

Table 2: Public lands and designated water resources located near the Cocohatchee Creek Preserve

Preserve	Distance (miles)	Direction	Type
Watkins/Jones property 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
Future Gordon River Greenway / Collier Development Corp parcel 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

Formatted: Heading 3, Left, Don't adjust space between Latin and Asian text

Formatted Table

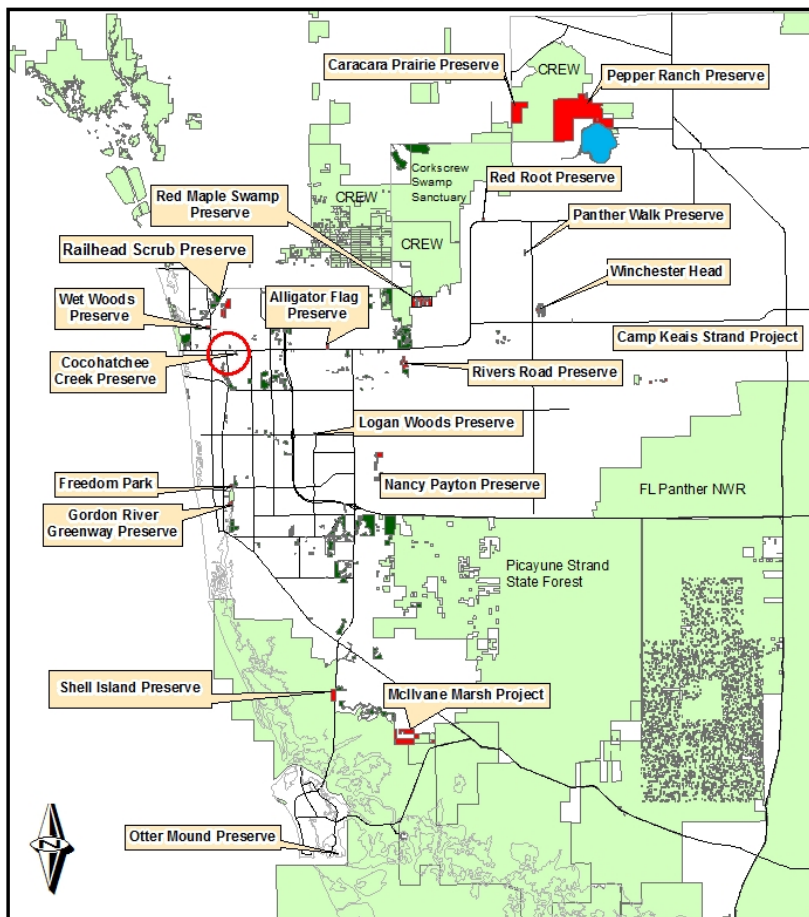
2013 Updated Land Management Plan- Cocohatchee Creek Preserve

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

Figure 2. ~~Natural Preserves and Designated South Florida Water Management District~~
~~Conservation Easements Existing~~Surrounding Conservation Lands in Collier County

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

Conservation Collier Program Lands and Surrounding Conservation Areas



0 2.5 5 Miles

Data Source: Paroels - Collier County Property Appraiser
 FNAI, FL Conservation Lands, 3, 2013
 Created By: Conservation Collier CS
 G:DES Planning Services
 Land Development Services/Conservation
 Collier/Land Management/Cocohatchee Creek
 Land Management Plan update 2013.mxd and .jpg



Legend

- Conservation Collier Acquired
- Other Agency Conservation Lands
- Mitigation / Conservation Easements
- Lake Trafford
- Cocohatchee Creek Preserve

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." ~~Under the Conservation Collier Ordinance, the Collier County Environmental Services Department~~ 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

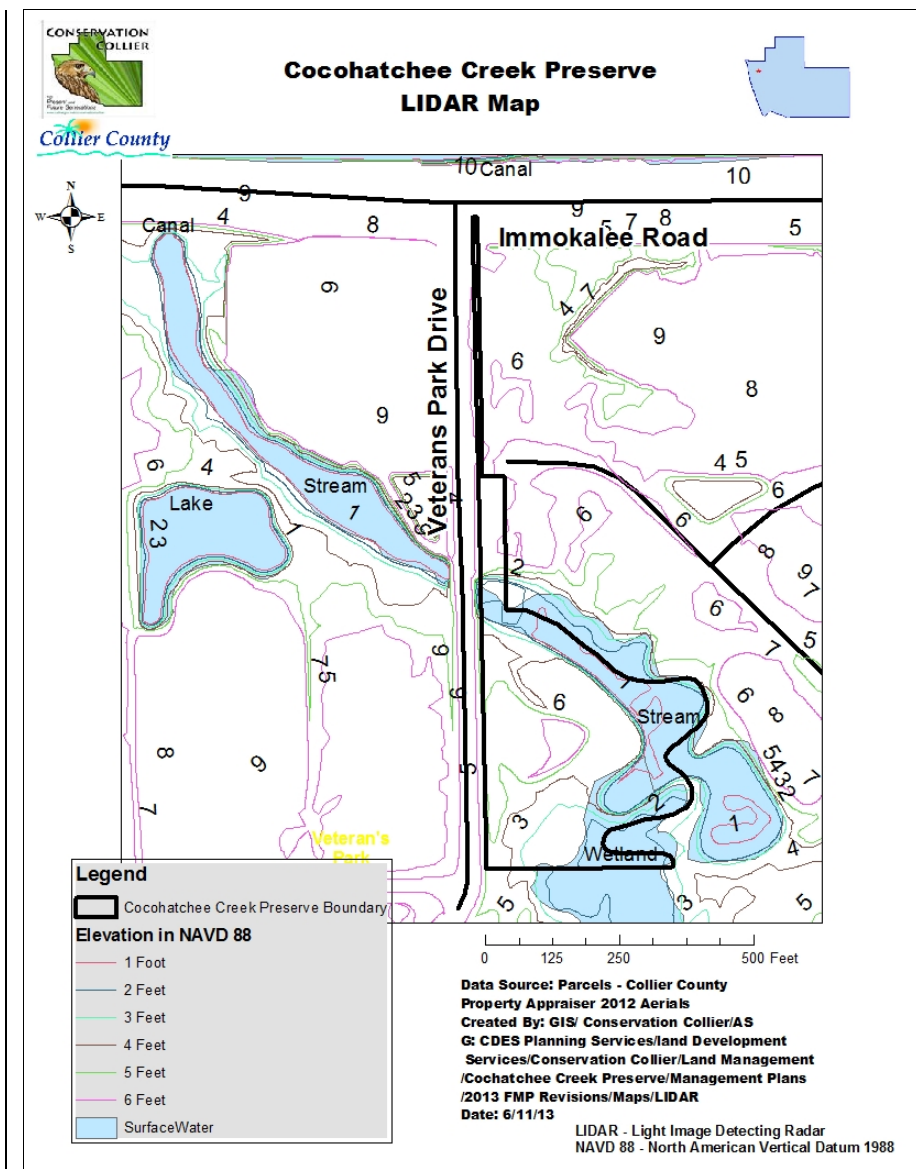
2.1 Physiography

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

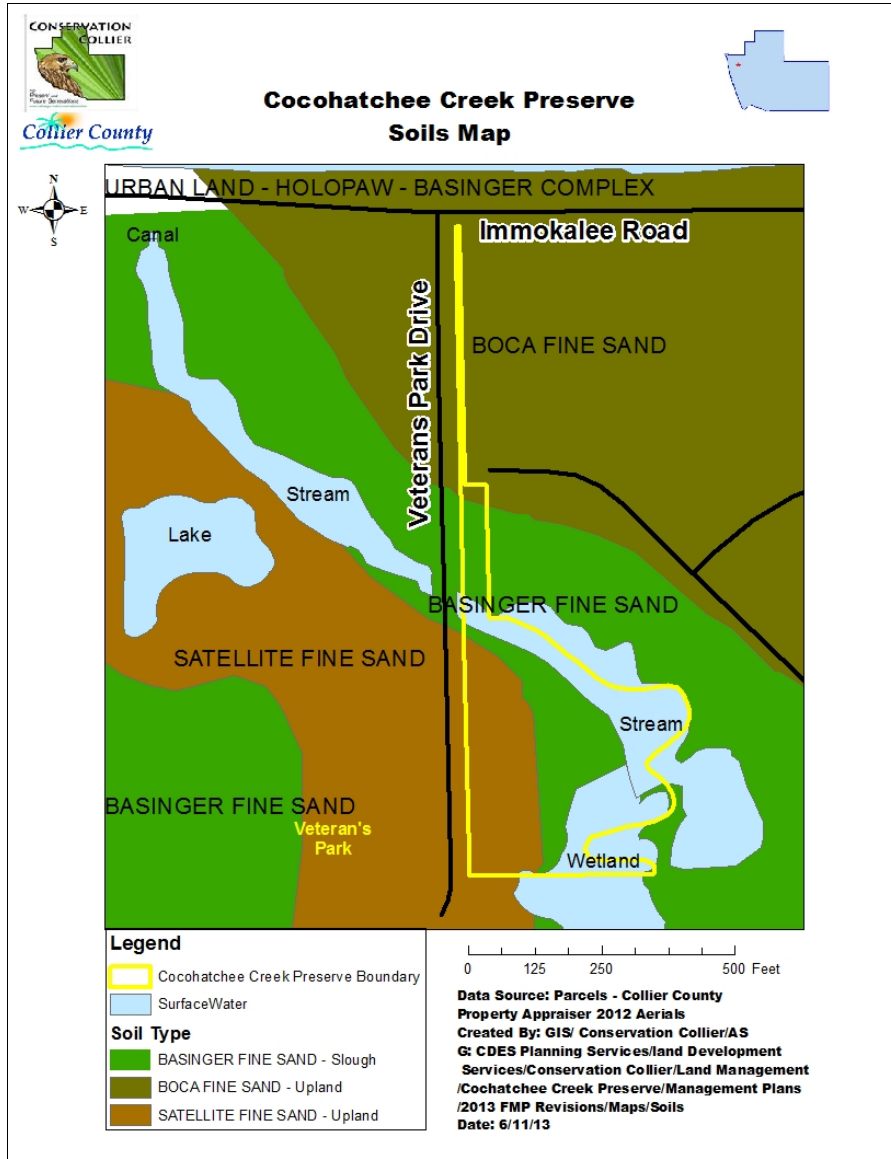
The geology of northern Collier County is characterized by complex sequences of unconformably layered, interbedded sands clays and limestones to a depth of approximately 230 feet. This depth marks the bottom of the surficial aquifer, with the bottom layer creating an aquitard that separates the brackish 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.

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

Figure 4. Soil Units Map



Formatted: Centered

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 ~~both~~ seasonally, ~~and~~ 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 management 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

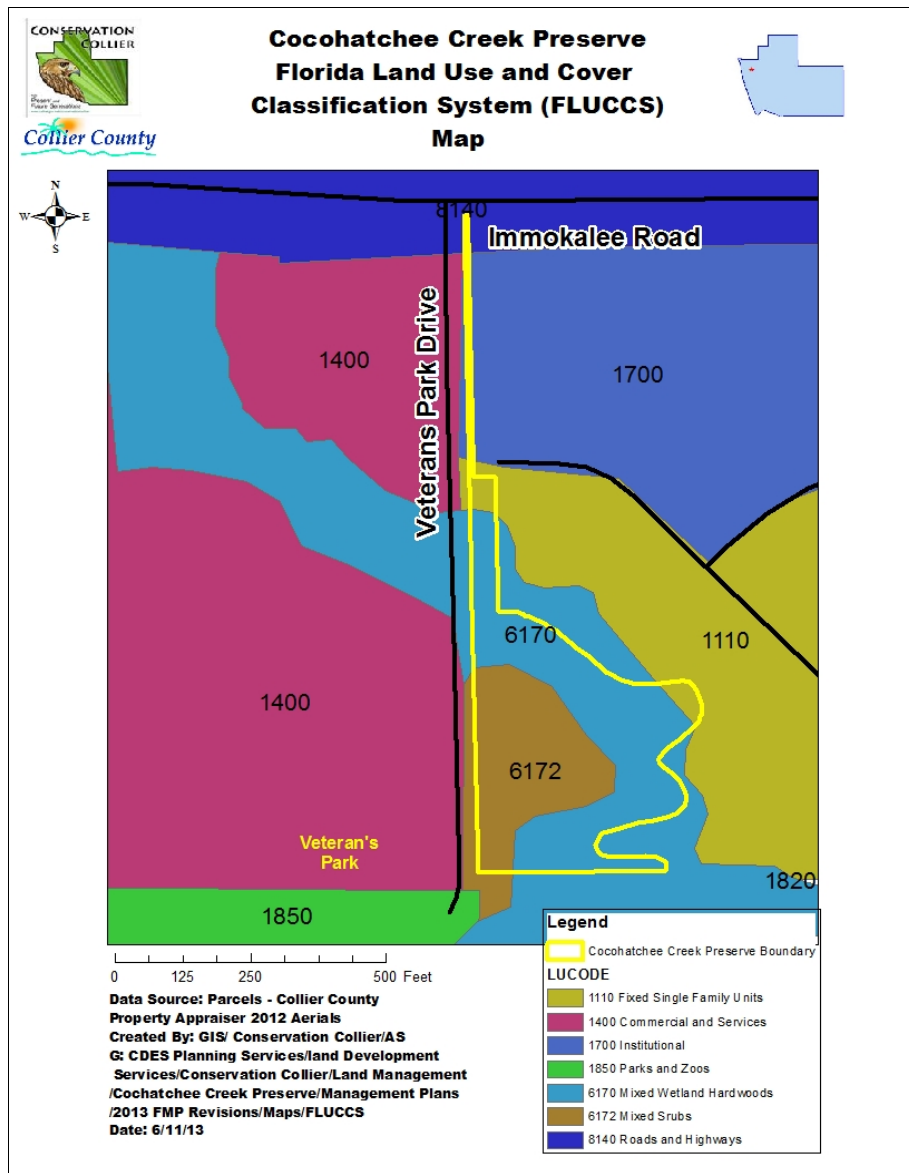
The Cocohatchee Creek Preserve contains small areas of four different types of natural vegetation communities, hydric hammock, scrubby flatwood, mesic pine flatwood, and

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.

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 obsvd.
Mesic Pine Flatwood	1.26 ac	35%		S4	Pine Flatwood areas
Floodplain Marsh	1.1 ac	30%		S2	Cocohatchee Creek floodplain

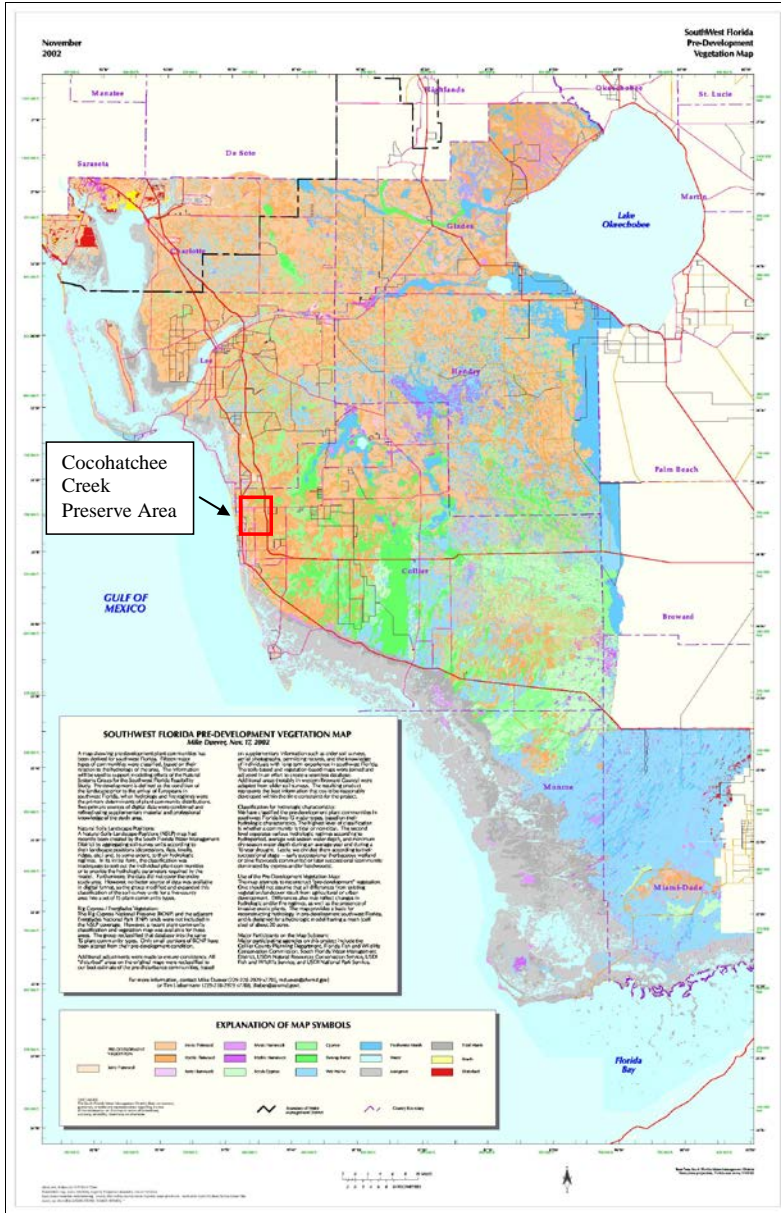
Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

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



Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

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



Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

2.3.1

2.4 Native Plant and Animal Species

A native plant list ~~is not currently available~~ was developed in 2007 and is attached as Appendix 8 – Staff ~~will be contracted~~ with a botanist ~~and append it to this plan when completed~~ to develop this list. The Preserve is in a ~~very~~ urban setting and ~~likely does not have~~ resident wildlife ~~other in than the~~ addition to Gopher tortoises(s) ~~includes raccoons, armadillos, turtles, frogs, fish and bird species~~. ~~No wildlife~~ An eastern corn snake (*Pantherophis guttatus*) ~~has been~~ was observed in the upland ~~portions except for bird species area in 2012~~. In addition to the bird list below, staff has observed Anhinga (*Anhinga anhinga*) ~~fishing in the creek~~. Great Egrets (*Ardea alba*) and ~~Several~~ Florida softshell turtles (*Apolone ferox*) ~~have been observed~~ in the creek.

Formatted: Font: Italic

Formatted: Font: Italic

Formatted: Font: Italic

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	E-USFWS (fed) E-FWCC (state)	Seen overhead
American Crows		7		Seen overhead
Common Yellowthroat		1		
Red-shouldered Hawk		1		

2.5 Listed Species

2.5.1 Listed Plant Species

~~Staff will conduct a listed plant survey or contract with a botanist and append it to this plan when completed~~ Known listed plants at Cocohatchee Creek Preserve include *Tillandsia faciculata*, *T. balbisiana*, and *T. utriculata*. (See plant list, Appendix 8).

Formatted: Font: Italic

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 tortoises (*Gopherus polyphemus*) a species listed by the State of Florida as a “Species of Special Concern.” and Wood storks (*Mycteria americana*), a species listed as “Endangered” by both the State of Florida and the federal government.



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

~~A map has been~~ Maps are prepared and updated by staff showing locations of existing Gopher tortoise burrows; however, ~~it is~~ they are not appended to this plan to protect the animals from

disturbance. ~~One Gopher tortoise has been routinely observed on site.~~ Listed bird species may use the property in passing but are not known to nest there.

2.6 Invasive Non-native and Problem Species

Scientific Name	Common Name	EPPC Cat. (2005 2011 list)	County Listed?	Degree Of Infestation
<i>Schinus terebinthifolius</i>	Brazilian pepper	I	Yes - remove	<25% <u>low/none</u>
<i>Acacia auriculiformis</i>	Earleaf acacia	I	Yes - remove	<10% <u>low/none</u>
<i>Ficus nitida</i>	Indian laurel fig	n/a	Yes — prohibited to plant	1%
<i>Wedelia trilobata</i>	wedelia	n/a	Yes —restricted near preserves	25% <u>moderate/low</u>
<i>Abrus precatorius</i>	Rosary pea	I	No	10% <u>low/none</u>
<i>Melaleuca quinquinerva</i>	Melaleuca	I	Yes —remove	
<i>Scygium cumini</i>	Java plum	I	Yes —remove	2%
<i>Pistia stratiotes</i>	Water lettuce	I	No	2%—creek only <u>low</u>
<i>Panicum repens</i>	Torpedo grass	I	No	In creek bed <u>moderate</u>
<i>Urochloa mutica</i>	Para grass	I	No	All —except scrubby areas <u>low/none</u>
<i>Melinis repens</i>	Rose natal grass	I	No	unconfirmed
<i>Imperata cylindrica</i>	Cogon grass	I	No	low
<i>Urena lobata</i>	Cesar weed	II	No	Scattered throughout <u>low</u>

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.

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

2.10 Scenic Resources

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



Trail made of compacted limestone shell

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. ~~This end~~[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 potentially fishing, though no fish have been directly observed in the creek.

Formatted: Indent: Left: 0", First line: 0"

3.2.2 Planned Public Uses and Assessment of Impacts

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

Formatted: Font: Italic

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

Landscaping – No landscaping projects are planned.

Formatted: Font: Italic

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

Formatted: Font: Italic

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.

Formatted: Font: Italic

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 ~~an undeveloped~~ 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

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

2013 Updated Land Management Plan- Cocohatchee Creek Preserve

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

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 CARL/Florida Forever Management Prospectus

~~Although the Cocohatchee Creek Preserve was acquired entirely with Conservation Collier Program Funds, some other program properties may be acquired with funds from the Conservation and Recreation Lands or Florida Forever programs. In these cases, the Board of Trustees of the Internal Improvement Trust Fund (BOT) holds title to the lands. The Governor and Cabinet sit as the Board of Trustees and are responsible for state-owned lands. The BOT is authorized to lease State lands for the use and benefit of the people of the State of Florida. Each lease is for 50 years. Management authority for these properties is addressed in several documents. In addition to the leases, authority and direction is provided by Chapters 253 and 259, Florida Statutes (FS) (Appendix 4, Chapters 253 and 259, Florida Statutes) (State of Florida 2006), and Chapters 18 2, Florida Administrative Code (FAC), which addresses "Management of Uplands Vested in the Board of Trustees" (Appendix 5, Chapter 18 2, FAC) (FDEP 2006).~~

~~The plan is intended to be consistent with the State Land Management Plan. The content of this plan is in accordance with the Acquisition and Restoration Council recommendations for management plans and the guidelines provided by the staff of DSL.~~

~~These lands are designated for use as botanical sites with passive recreation use. They are to be managed under the single-use concept and, as such, management activities should be directed toward the preservation of resources. Long range plans shall generally be directed toward the restoration of disturbed areas and the perpetuation and maintenance of natural communities. Management activities will also stress the protection of threatened and endangered species (2006 Florida Forever Five Year Plan).~~

4.1.2 FCT Management Commitments

~~While the Cocohatchee Creek Preserve was acquired exclusively with funds from the Conservation Collier Program, other properties within the program may have partial funding from the Florida Communities Trust (FCT). In those cases, although these lands are managed under Collier County's authority, the matching funds provided by FCT carry with them certain obligations. This management plan ensures that the lands acquired with FCT funds will be~~

~~developed in accordance with the grant award agreement and in furtherance of the purpose of the grant application. Additionally, management is guided by the purpose and intended use of the land described in the land acquisition project selection process. Other statutes and rules also control the use of the land. For lands acquired with FCT matching funds, an annual stewardship report will be prepared and submitted to FCT each year. The annual report will evaluate the implementation of this management plan.~~

~~The Florida Communities Trust, Florida Forever Program Rule 9K 7.011, F.A.C. requires all grant recipients to submit a Management Plan for approval prior to the release of grant funds. The management plan is intended to describe how the recipient will manage a project site to further the purposes of the grant application and meet the terms and conditions of the FCT grant contract. It is hereby acknowledged that if grant funding from FCT is used to acquire these sites, the management plan shall ensure that these sites will be developed in accordance with the grant award agreements and in furtherance of the purpose of the grant application.~~

4.1.3-1 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. 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 ~~start in the Lands Evaluation and Management subcommittee and~~ must be approved by ~~both the Conservation Collier Land Acquisition Advisory Committee (CCLAAC) and~~ the Board of County Commissioners.”

4.1.4 Manager

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

Designated Conservation Collier Staff, ~~Facilities Management~~Parks and Recreation Department.

Telephone number: 239-~~213~~252-2961.

E-mail address: ConservationCollier@Colliergov.net.

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. ~~Currently, the~~ Preserve rules are those identified in Collier County Ordinance-~~2011-38, Regulations for Use of Preserve Lands, 76-48, as amended (Appendix 2)~~.

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.

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

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. ~~The creek bank is currently partially covered by wedelia (*Wedelia trilobata*), an invasive exotic plant, which extends into upland areas. Management of this exotic will be by periodic foliar spraying. Should the eventual removal of wedelia threaten the creek bank stability, measures will be taken, including, but not limited to replanting with native plants or structurally securing the soils along the creek bank.~~ 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. No prescribed fire will be used in this location due to proximity of homes and businesses. This 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. ~~Brazilian pepper and earleaf acacia are the primary exotics that need to be eradicated.~~ This area will be maintained by chemical and hand removal of exotics.

The creek will be maintained free of exotic plant species. Of particular concern is keeping the creek free of water lettuce (*Pistia stratioides*). Chemical creek maintenance was begun in 2012 to remove water lettuce and it has been successful. Currently, the creek does have duckweed (*Lemna sp*) in it and control efforts have been made, but this is not as concerning. 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.

Formatted: Font: Italic

Formatted: Font: Italic

Formatted: Font: Italic

Formatted: Font: Italic

4.3 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
<u>Creek Restoration Planting Project</u>	<u>2009</u>
<u>Eagle Scout Seating Area Project</u>	<u>2012</u>

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:** Eliminate or 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 photo points in all habitats

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 locations of rare native plant species.
- Identify actual and potential locations of resident animal life and take steps such as posting a sign, as with the "alligator in the creek" sign, or locating visitor amenities away from animal nesting sites.
- 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*), ~~American alligator (*Alligator mississippiensis*)~~, 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 - SSC)– 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; ~~however, staff has observed one tortoise on the property at various other times. Tortoises have also been observed by staff and the public crossing Veterans Park Drive from the Cocohatchee Creek Preserve site on the east side to the undeveloped scrub habitat on the west side.~~ [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.

The following management actions are based on recommendations by the [Florida Fish and Wildlife Conservation Commission's Nongame Wildlife Program Technical Report No. 4, Ecology and Habitat Protection Needs of Gopher Tortoise. Populations Found on Lands Slated for Large Scale Development in Florida \(1987\)](#) and through review with [Collier County Environmental Permitting Department staff; revised Gopher Tortoise Management Plan \(approved Sept 5, 2012\).](#)

Formatted: Highlight

Formatted: Highlight

- 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.
- **Alligator** (*Alligator mississippiensis*) (State – SSC, Federal – T) – Alligators typically move through an urban area and do not remain there. 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*) (State – E, Federal - E)- 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 ~~are~~ were problem plants in the pine flatwoods areas, with a few Java plums initially found scattered along Veterans Park Drive and ceasar 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 ~~has not been~~ 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. ~~Arsenal is also labeled for use in this type of area and may be specifically useful for exotic grasses, but is less preferred as it can have non-target damage. Ceasar weed is harder, with no known control techniques other than prescribed fire, which is not an option in this small preserve. Staff will continue to research and possibly apply manual removal techniques.~~

- *Riverine oak area (FNAI - Hydric hammock)*
Brazilian-pepper and wedelia ~~are~~ 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 non native vines, including smilax spp., poison ivy, grape vine and an unidentified vine ~~are~~ 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, ~~should are to~~ be avoided ~~in this area~~.
- *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. 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. This area also includes the raised mound. This area 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.
- *Creek and associated wetlands (FNAI – Floodplain Marsh)*
Brazilian pepper, ceasar weed, and paragrass ~~are~~ 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.
- Low priority: remove Muscadine grape from raised mound area and restore with native plant species that can be used by gopher tortoises as forage.

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, ~~have-remove~~ pine needles ~~blown-off~~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 has been executed by staff ~~and delivered to the North Naples Substation~~. 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 from ~~2~~ the trash cans. ~~Other maintenance actions, such as blowing off the trail, may be requested on an ad hoc basis; however, these must be paid for in addition to items identified in the agreement at \$20.00 per hour.~~ 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.

Photopoint photographs will be taken at ~~monthly site visits~~ 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.

~~In order to educate neighbors as to what to expect living next to a Preserve, an annual meeting shall be organized and printed materials (brochures) will be offered at those meetings or sent by mail. Goals and objectives of annual meetings will be to inform citizens about the conservation Collier Program, define what a "Preserve" is, provide relevant history of the site, solicit volunteers if needed, and to educate residents about the habitats and species present and why they are important.~~

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 ten years and the initial and annual cost estimate of each activity. Private conservation organizations may also provide funding for specific projects.

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

Table 8. Actual and Estimated Annual Land Management Budget											
Resource Management Activity	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17
Exotic species control	\$4,500	\$4,500.500	\$4,480.500	\$4,500.150	\$4,000.500	\$4,000.250	\$4,000.250	\$4,000.250	\$4,000.000	\$1,000	\$1,000
Cultural resource management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tree Trimming	\$1,000		\$1,000		\$1,000		\$1,000		\$1,000		\$1,000
Debris removal	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
Parks and Rec Interdepartmental Agreement	\$1,040	\$1,040	\$1,040	\$1,040	\$1,040	\$1,040	\$1,040	\$1,040	\$1,040	\$1,040	\$1,040
Subtotal	\$7,046.040	\$7,5406.040	\$4,0406.020	\$3,0404.690	\$3,5040	\$2,5404.040	\$3,5404.040	\$2,5404.040	\$3,5404.540	\$2,540	\$3,540
Restoration											
Planting Projects	0	0	0\$2,193	0	0	0	\$1,000	0	0	0	0
Creek Cleaning	\$2,000	0	\$2,000	0\$2,800	\$2,0005.000	0\$3,000	\$2,0003.000	0\$2,000	\$2,000	0	\$2,000
Subtotal	\$2,000	0	\$2,0004.193	0\$2,800	\$2,000	\$3,000	\$2,0003.000	0\$2,000	\$2,000	0	\$2,000
Capital Outlay											
Fencing	0	0	0	0	0	0	0	0	0	0	0
Equipment (bench, table, trashcans)	0	0	0	0	\$2,000	0	0	0	0\$2,000	0	0
Trail maintenance	\$100	\$300	\$5,0003.000	\$100300	\$300	0\$300	\$300	0	\$5,0003.000	\$300	0
Signs	0	\$2,000	\$200	\$100	0	\$100	0	\$100	0	\$100	0
Viewing platform over creek (optional)	0	0	0	\$15,000	0	0	0	0	0	0	0

Formatted: Tab stops: 1.69", Centered + 1.88", Left + Not at 3"

Subtotal	\$1000	\$2,00030	\$5,2005	\$15,200	\$2,00030	\$1004	\$4300	\$100	\$2,300,	\$400	0
		0	00	400	0	00			000		
Visitors services/Recreation											
Information/Education programs	0	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100
Brochures	0	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100
Subtotal	0	\$100\$	\$100\$	\$100\$	\$100\$	\$100\$	\$100\$	\$100\$	\$100\$	\$100\$	\$100\$
		200	200	200	200	200	200	200	200	200	200
Law enforcement											
Law enforcement services	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0
Total	\$10,640	\$9,74010,	\$11,240	\$18,440	\$7,7408,4	\$2,840	\$7,040	\$2,840	\$10,740	\$3,4400	\$5,740
	6,040	833	10,313	7,990	40	7,540	7,440	6,240	8,940	40	5,640

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

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		

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

- Duever, Michael. 2002. Southwest Florida pre-development vegetation map. 18 pp. and 1 map. <http://www.evergladesplan.org/pm/studies/swfl/index.shtml>.
- Florida Game and Freshwater Fish Commission (now Florida Fish and Wildlife Conservation Commission) (J. Cox, D. Inkely, R. Kautz) (1987). Nongame Wildlife Program Technical Report No. 4. Ecology and habitat protection needs of gopher tortoise (*Gopherus polyphemus*) populations found on lands slated for large-scale development in Florida.
- Florida Natural Areas Inventory (FNAI) and Florida Department of Natural Resources (FDNR) 1990. Guide to the Natural Communities of Florida. Florida Natural Areas Inventory and Florida Department of Natural Resources.
- Law Engineering and Environmental Services, Inc. 2001. 3.6 Acres Veterans Park Blvd . Project 40340-1-0998.
- Miller J. A. 1986. Hydrogeologic Framework of the Floridan Aquifer System in Florida and in parts of Georgia, Alabama, and South Carolina. United States Geological Survey Professional Paper 1403-B. United States Government Printing Office, Washington, D.C.

Oaks, R.Q. and Dunbar, J.R.. 1974. Post Miocene Stratigraphy of the Central and Southern Atlantic Coastal Plain. Utah State University Press, Logan, Utah.

Scott, T. M. 1988. Lithostratigraphy of the Hawthorne Group (Miocene). Florida Geological Survey Bulletin No. 59, Tallahassee, Florida.

United States Department of Agriculture, Natural Resources Conservation Service (USDA,NRCS). 1990. Soil Survey of Collier County Area. Collier Soil and water Conservation District, Naples, Florida.