# Rattlesnake Hammock Preserve Land Management Plan



Managed by:

Collier County, FL
Conservation Collier Program

January 2023 - January 2033 (10 Year Plan)

**Prepared by: Collier County Conservation Collier Staff** 

# Contents

Land Management Plan Executive Summary	5
Introduction	6
Table 1. Acquisition History and Status of the Rattlesnake Hammock Preserve	6
Parcel Description	8
1. Location	8
1.1. Description	8
1.1.1 - Figure 1. Overview map of Rattlesnake Hammock Preserve and surrounding conservations areas	
1.1.2 - Figure 2. 2022 Aerial close-up	10
2. Physiography	11
2.1. Description	11
2.1.1 - Figure 3. Topographical Map (LIDAR)	12
2.1.2 - Figure 4. Surface Waters Map	13
2.1.3 - Figure 5. Aquifer Map (CLIP4 Aquifer Priority Map and Wellfield Protection Zones)	14
2.1.4 - Figure 6. Hydric Soils Map (Collier County Soils Survey)	15
3. Historical Land Use	16
3.1. Description	16
3.1.1 - Figure 7. Rattlesnake Hammock Road History, 2002	17
3.1.2 - Photoset 1. Historical Aerial Imagery	18
4. Adjacent Land Use	22
4.1. Description	22
5. Acquisition and Expansion	22
5.1. Acquisition Description	22
5.1.1 - Table 2. Parcel Attributes Table	22
5.2. Potential Preserve Expansion	23
5.2.1 - Figure 8. Potential Expansion Areas Map	23
Management	24
6. Vegetation Management	24
6.1. Current Vegetative Community Conditions	24
6.1.1 Figure 9. Cooperative Land Cover Classification Map	25
6.1.2 - Table 4. Threatened and Endangered Species Table	26

# Conservation Collier Rattlesnake Hammock Preserve 10-year Land Management Plan

6.1.3	Vegetation Management Concerns	26
6.2. Des	ired Future Conditions	26
6.3. Ma	nagement Tools	26
6.3.1	Invasive Plant Removal	26
6.3.2	Native Plant Restoration	27
6.3.3	Prescribed Fire	27
6.3.4	Hydrological Restoration	27
6.4. Par	tnership Opportunities	28
7. Wildlife	Management	28
7.1. Cur	rent Wildlife Community Conditions	28
7.1.1	Table 5. Observed Wildlife Species Table	28
7.1.2	Table 6. Potential Threatened and Endangered Species Table	29
7.1.3	- Photoset 2. Wildlife Camera Observations	30
7.1.4	. Wildlife Management Concerns	34
7.2. Des	ired Future Conditions	35
7.3. Ma	nagement Tools	35
7.3.1	Habitat Improvements	35
7.3.2	Consumptive Wildlife Use	35
7.3.3	Monitoring	35
7.4. Par	tnership Opportunities	36
8. Recreat	ion Management	36
8.1. Cur	rent Recreational Opportunity Conditions	36
8.2. Des	ired Future Conditions	36
8.2.1	- Table 5. Compatible Recreational Activities	36
8.3. Ma	nagement Tools	37
8.3.1	Access Improvements	37
8.3.2	Amenity Installation/Enhancement	37
8.3.3	- Figure 10. Conceptual Visitor Amenities	38
8.4. Par	tnership Opportunities	39
9. Preserve	e Safety and Security Management	39
9.1. Cur	rent/Predicted Human Conflict Conditions	39
9.1.1	- Photoset 3: Historic Wastewater Treatment Plant	39

# Conservation Collier Rattlesnake Hammock Preserve 10-year Land Management Plan

9.2. Desired Future Conditions	41
9.3. Management Tools	41
9.3.1. Site Security Improvements	41
9.3.2. Debris Removal	41
9.3.3. Contamination Remediation	41
9.4. Partnership Opportunities	41
10. Cultural Resource Management	41
10.1. Current Cultural Resource Conditions	41
10.2. Desired Future Conditions	42
10.3. Management Tools	42
10.4. Partnership Opportunities	42
11. Budget	43
11.1. – Table 6. Past and Projected Expenditures Table	43
Appendix	44
Photoset 4: Representative Site Photos	44
Figure 11. Legal Description	50

# Land Management Plan Executive Summary

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

**County Public Services Department** 

Properties included in this Plan: Rattlesnake Hammock Preserve

Preserve lands consist of two parcels located within Township 50S, Range 26E and Section 16, in Collier County, Florida (00425920008, 00419160007) Full legal descriptions are provided in Appendix 14.

**Total Acreage**: 37.16 acres

Management Responsibilities: Collier County Conservation Collier Program staff

Designated Land Use: Preservation

**Unique Features:** Rattlesnake Hammock Preserve contributes to the conservation of ecologically sensitive lands within the urban area of Collier County. Mature live oaks create a densely shaded canopy atop tropical hardwood species such as red stopper, gumbo limbo (*Bursera simaruba*), and privet senna (*Senna lingustrina*). The preserve contributes to an existing wildlife corridor between the Picayune Strand State Forest and Rookery Bay National Estuarine Research Reserve.

#### **Desired Future Conditions:**

**Vegetation:** A preserve with a matrix of high-quality hammocks, mixed hardwood-coniferous wetlands, and freshwater marshes with mixed age trees, a diverse understory, and less than 10% infestation of non-native species.

**Wildlife:** A preserve with a rich diversity of wildlife species utilization year-round comprised of populations with mixed age classes indicating ongoing recruitment and use of the preserve for denning and nesting activities.

**Recreation:** A preserve with the amenities required for the public to safely engage in passive natural resource-based recreation

**Preserve Safety and Security:** A preserve free of littering, dumping, illicit activities, neighbor disturbances, unauthorized vehicles, and after-hours trespass.

**Cultural Resources:** A preserve with intact and secure cultural resources that provide opportunities for community education about pre-historic settlements.

#### **Public Involvement**

As part of the Land Management Plan drafting process, a public meeting will be held in the winter of 2022 to gather input from members of the public and preserve stakeholders.

# Introduction

The Rattlesnake Hammock Preserve is a 37.16-acre nature preserve located in South Naples in Collier County, FL. It is largely comprised of mixed hardwood-coniferous and mixed scrub-shrub wetland plant communities. Future access to the preserve is from 6371 Adkins Avenue off of Santa Barbara Blvd. The Preserve was purchased by Collier County in August of 2020 through funds from the Conservation Collier Program. The County holds fee simple title. Prior to acquisition, the property was referred to as SD Corp of Naples. Following a public name submission and voting contest and approval by the Board of County Commissioners, the preserve was officially named the Rattlesnake Hammock Preserve in February of 2021. Public access opportunities through nature-based recreation are planned for the site following completion of access infrastructure projects including a conceptual parking lot, bench, overlook platform, and interpretive signage. The Conservation Collier Program manages this parcel under authority granted the Conservation Collier Ordinance 2002-63, as amended (available by from www.municode.com). Conservation, restoration and passive public recreation are the designated uses of the property. Management activities allowed are those necessary to preserve and maintain this environmentally sensitive land for the benefit of present and future generations. Public use of this site must be consistent with these goals.

Table 1. Acquisition History and Status of the Rattlesnake Hammock Preserve

Year	Benchmark
2017	Acquisition Application submitted to the Conservation Collier Program by SD Corp of Naples, Inc for 115.15 acres
2019	37.16 acres recommended for Cycle 9 Acquisition A -List by the Conservation Collier Land Acquisition Advisory Committee with remaining 77.99 acres recommended for Acquisition B-List
2019	Proposal to purchase 37.16 acres of SD Corp brought by Commissioner Fiala approved by BCC in November
2020	37.16 acres purchased by Conservation Collier in August
2021	Public Preserve Naming Competition held. Rattlesnake Hammock Preserve recommended based on total votes in January.
2021	Developed Interim Management Plan- BCC Approved Plan and Preserve Name in February
2022	Developed Final Management Plan in October- LEMS, CLAAC, and BCC Approval Pending

### **Conservation Collier: Land Acquisition Program and Management Authority**

The Conservation Collier Program was originally approved by voters in November 2002 and subsequently confirmed in the November 2006 and 2020 ballot referendum. Both voter-approved referendums enable the program to acquire environmentally sensitive lands within Collier County, Florida (Ordinance 2002-63, as amended). Properties must support at least two of the following qualities to qualify for consideration: rare habitat, aquifer recharge, flood control, water quality protection, and listed species habitat. The BCC appointed a\_Conservation Collier Land Acquisition Advisory Committee (CCLAAC) to consider any selected or nominated properties that an owner has indicated a willingness to sell. The committee recommends property purchases for final approval by the BCC.

Lands acquired with Conservation Collier funds are titled to "COLLIER COUNTY, a political subdivision of the State of Florida, by and through its Conservation Collier program." The Board of County Commissioners of Collier County established the Conservation Collier Program to implement the program and to manage acquired lands. As such, Conservation Collier holds management authority for the Rattlesnake Hammock Preserve.

## **Purpose and Scope of Plan**

The purpose of the plan is to provide management direction for the Rattlesnake Hammock Preserve (Rattlesnake Hammock) by identifying the desired future conditions of each element and the appropriate tools to achieve these conditions. This plan will balance resource restoration and protection with natural resource-based recreational and educational use while looking at listed species protection and maintenance of the site free of invasive, exotic plant and animal species. This plan is divided into sections that include an introduction, descriptions of the natural and cultural resources, projected uses of the property, and management issues, goals, and objectives.

An Interim Management Plan for the Rattlesnake Hammock Preserve was approved by the Collier County Board of County Commissioners (BCC) in 2021. This is the Final Management Plan for the Rattlesnake Hammock Preserve. Updates to this plan will be completed every 5 years following approval by the BCC.

#### **Public Involvement**

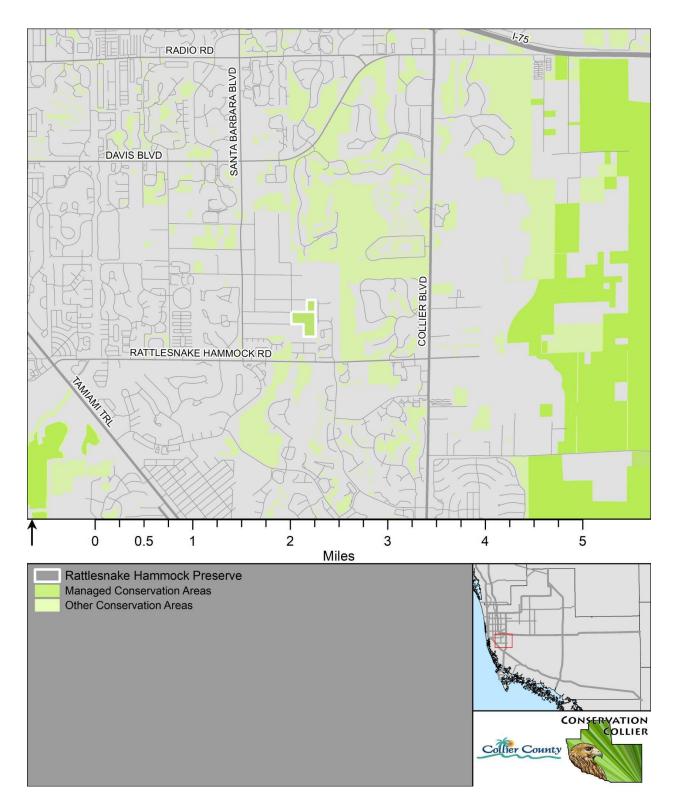
The results of the public meeting planned for the winter of 2022 to gather input from members of the public and preserve stakeholders will be included in this section prior to the Plan moving forward to the Conservation Collier Land Acquisition Advisory Committee.

# **Parcel Description**

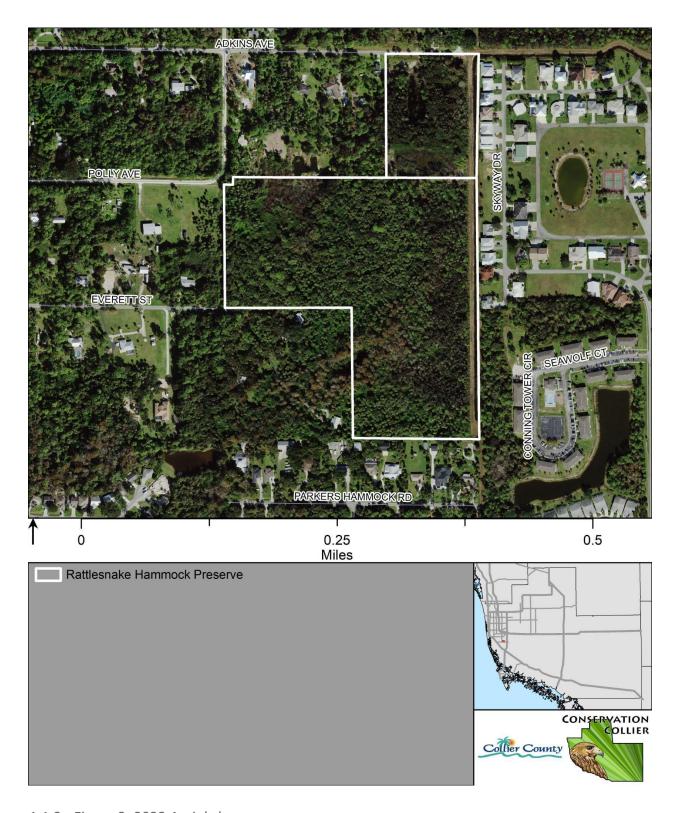
# 1. Location

### 1.1. Description

The Rattlesnake Hammock Preserve is in South Naples, FL at the address 6371 Adkins Avenue, Naples, FL 34112. The preserve is situated east of Santa Barbara Blvd, west of Collier Blvd, and north of Rattlesnake Hammock Rd in Section 16, Township 50S, and Range 26E in the designated Urban Area of Collier County (Figure 2. Overview Map). Adjacent to the Wing South Airpark, Rattlesnake Hammock Preserve is accessible via Adkins Avenue to the north for both land management and future public access as well as Parkers Hammock Rd to the south for land management access only. The property is made up of two parcels (00425920008 and 00419160007) comprising 37.16 acres in total (Figure 11, Legal Description). Nearby conservation and natural lands include the Collier County Serenity Walk Park (0.5 miles) as well as the Picayune Strand State Forest (3 miles) and Rookery Bay National Estuarine Research Reserve (3 miles).



1.1.1 - Figure 1. Overview map of Rattlesnake Hammock Preserve and surrounding conservation areas



1.1.2 - Figure 2. 2022 Aerial close-up

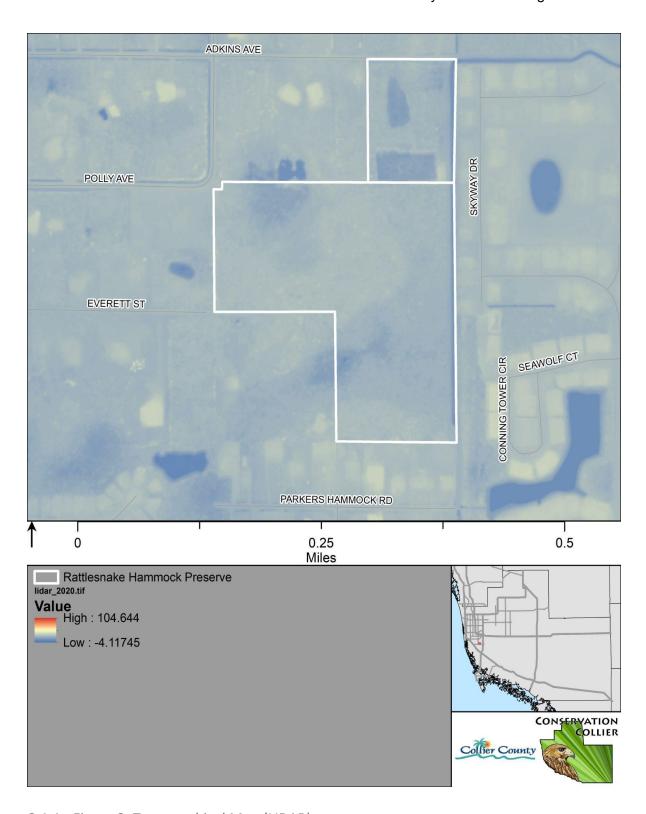
# 2. Physiography

# 2.1. Description

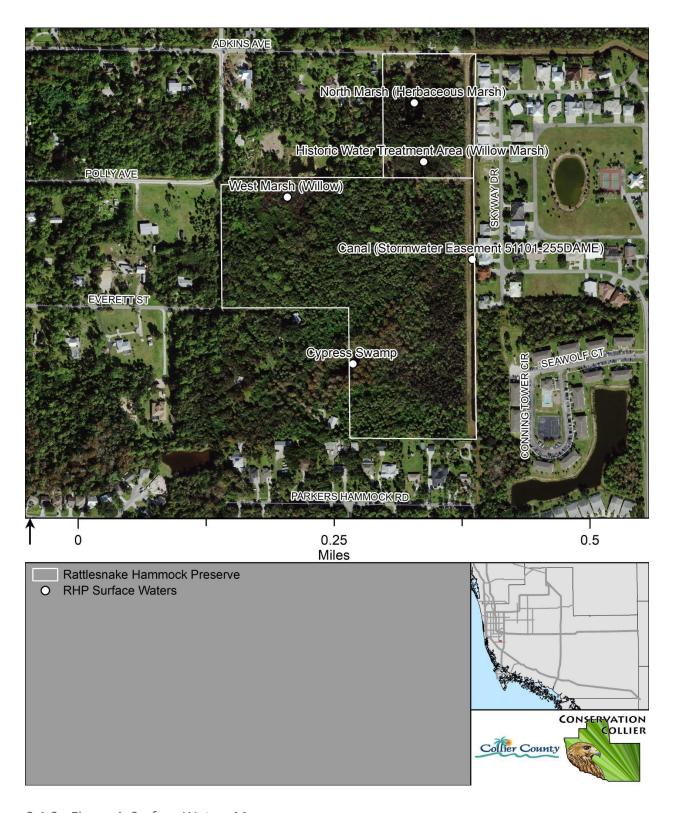
A Light Detection and Ranging (LIDAR) map provides information about the elevation of the Earth's surface. The topographical map of Rattlesnake Hammock Preserve (Figure 3) indicates surface features of lower elevation in deepening shades of blue. Five low-elevation features exist within the Rattlesnake Hammock Preserve that are seasonally flooded and collect surface waters from May-November each year. Three of these features are naturally occurring including the North Marsh (herbaceous marsh), Cypress Swamp, West Marsh (willow), while two of the features are the result of land use alterations including the Historic Water Treatment Area (willow marsh) and Canal (Stormwater Easement 51101-255 DAME) as indicated in Figure 2.1.2 Surface Waters Map.

Figure 5. Aquifer Map indicates the preserve is within a Priority 6 CLIP4 Aquifer Recharge designation. This property lies within the Rookery Bay watershed, with groundwater flowing from the northeast to the southwest. Most of the community drinking water supply in Collier County comes from the surficial aquifer, but many residents also have wells to the Lower Tamiami aquifer, a slightly deeper aquifer. The mapped surficial aquifer recharge for the preserve is 31" to <43" annually. These parcels contribute moderately to the surficial aquifer. The mapped Lower Tamiami aquifer recharge is -16" to -1" annually. Protection of this site in an undeveloped state will help to protect the Lower Tamiami aquifer as there is no confining layer between it and the surficial aquifer system.

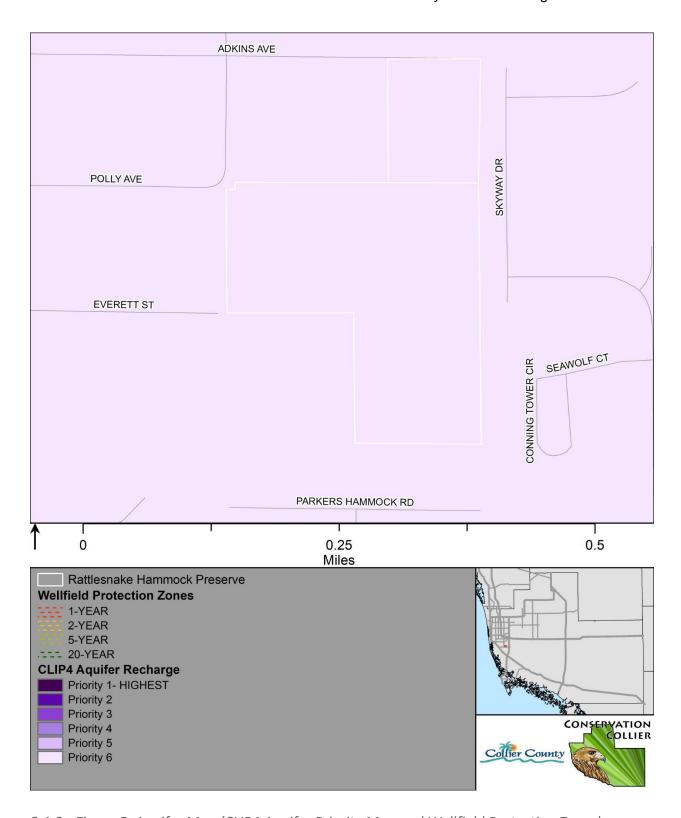
A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Three soil types were mapped for the preserve parcels (Figure 6. Hydric Soils Map) including: Hilolo, Jupiter, and Margate fine sands (hydric), Boca, Rivera, Limestone substratum, Copeland FS (hydric, depressional), and Pineda fine sand, Limestone substratum (hydric).



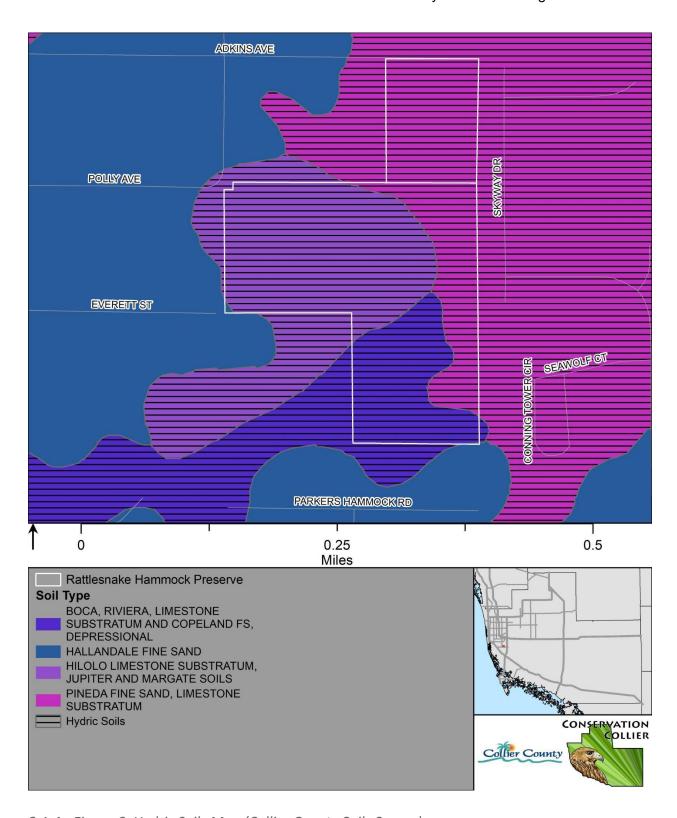
2.1.1 - Figure 3. Topographical Map (LIDAR)



2.1.2 - Figure 4. Surface Waters Map



2.1.3 - Figure 5. Aquifer Map (CLIP4 Aquifer Priority Map and Wellfield Protection Zones)



2.1.4 - Figure 6. Hydric Soils Map (Collier County Soils Survey)

## 3. Historical Land Use

## 3.1. Description

Historic aerial imagery (Photoset 1) from the 1940s indicates that the preserve lands were part of a large, contiguous network of Cypress strand and hardwood hammock with seasonal wetlands and surrounding graminoid-dominated prairies composed of grasses, sedges, and rush species. While much of the foundational community within today's preserve boundary have not had significant alterations, the land use of the adjacent area including historic water flow, habitat connectivity, and cover have changed significantly. Aerials from 1978 show significant alterations in place in the lands surrounding and within the preserve including the footprints of the roadways and residential lots and communities that comprise today's neighborhood. Along the eastern boundary of the preserve is the Wing South Airpark community and corresponding runway for small aircraft. Constructed within the current preserve boundaries at this time is the water treatment structure that serviced the community. Also apparent in the aerials from 1978 is a removal of vegetation in the northern portion of today's preserve that would later become the melaleuca-infested seasonal wetland adjacent to Adkins Avenue. Maps of 1985 through to the 2000s indicate growing development and expansion of the lands adjacent to the preserve for residential use and enhancement of roadway infrastructure. In the 2000s, aerials are of a high enough resolution to show the first indications of significant infestation of exotic plant species within the current preserve boundary.

Conservation Collier staff contacted representatives from the Collier County Museum to research the history of the area within and surrounding the preserve and it was determined there was not an abundance of historical information on record about the area. A newspaper clipping (Figure 7) provided by museum staff indicated that the area was notable historically amongst residents for having a high population of Eastern diamondback rattlesnakes and was sought out as an area for dumping.

Q. Where did the name of Rattlesnake Hammock Road come from?

Sis Wendeler Naples



IN THE KNOW A. The exact details of much of Collier County history have been lost over the years. The origin of the name of Rattlesnake Hammock Road, which runs from U.S. 41 East to Collier Boulevard in East

Naples, is one of these details, said Ron Jamro, executive director of the Collier County Museum.

But Jamro did say he has

heard only one story over the years as a possible explanation — that decades ago, local residents would go down to a dumping area at the end of that road and shoot rattlesnakes. That area's geography had a slightly raised feature, called a hammock, Jamro said.

Jamro said there was a time that an occasional six-foot rattlesnake could be found on doorsteps in Naples. Imagine finding one of those today!

Got a question for the "In the Know" column? Submit it by calling 213-6007, or e-mailing: intheknow@naplesnews.com.

According to the Collier County
Museum, Rattlesnake Hammock
acquired its name because of
the abundance of rattlesnakes
in the area. A hammock is an
elevated area with rich soil
and hardwoods. The early
Seminole Indians planted
crops in regions like these to
avoid the flooding of the lowlands. Rattlesnake Hammock
was even used as a filming
location for the 1951 Warner
Brothers production, "Distant
Drums," starring Gary Cooper.

Resource: Collier County Museum Files Naples Daily News 11/22/04 p.10B

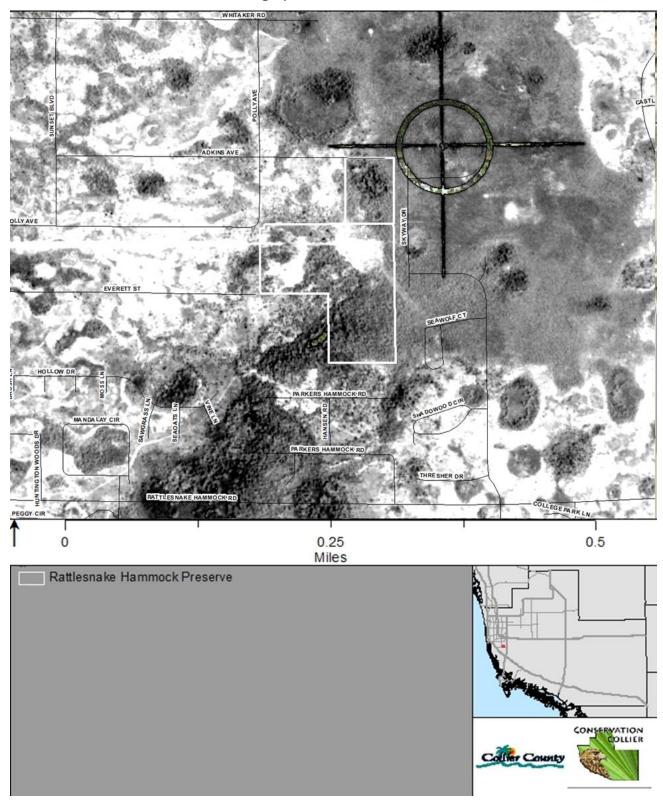
Naples Daily News 1/6/02 p. 1B

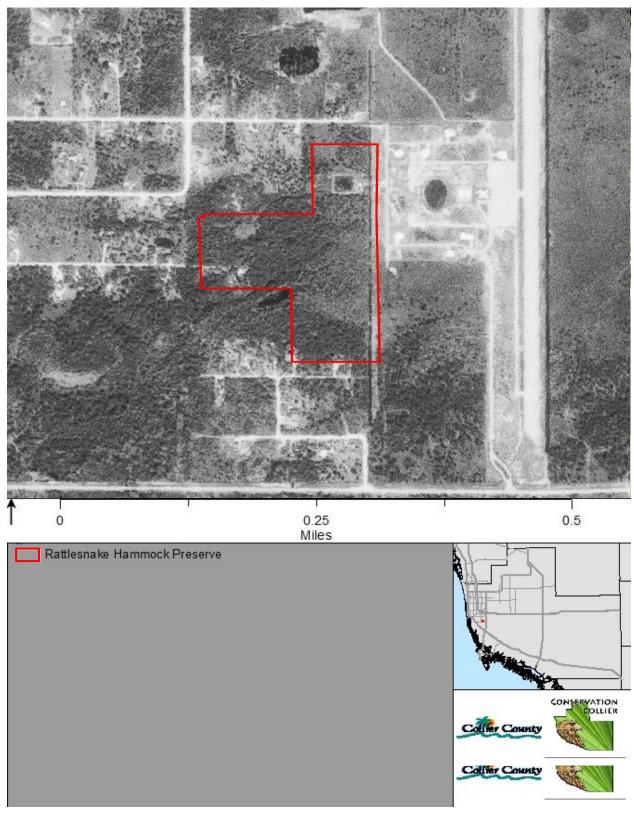
Compiled by: Marie A. Mayer 2004

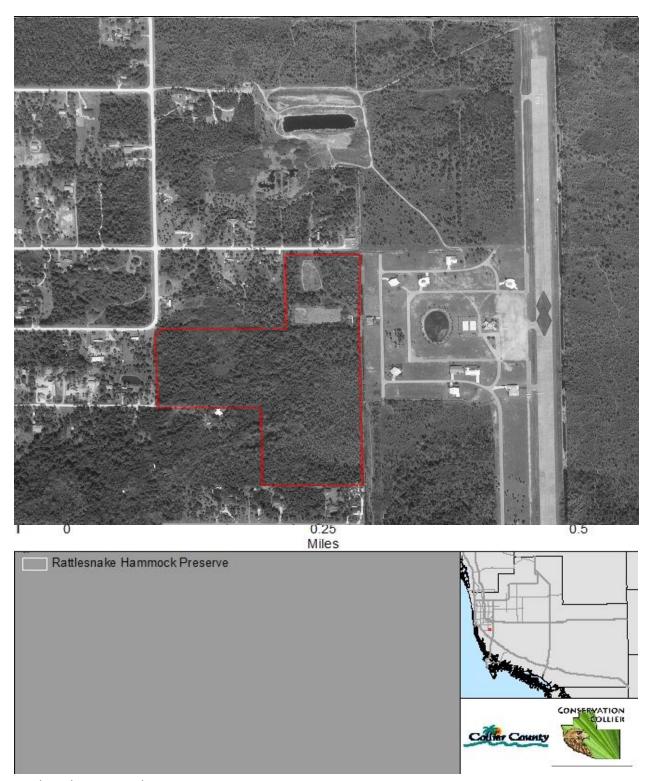
Information provided by Collier County Museum, Naples, FL 34112

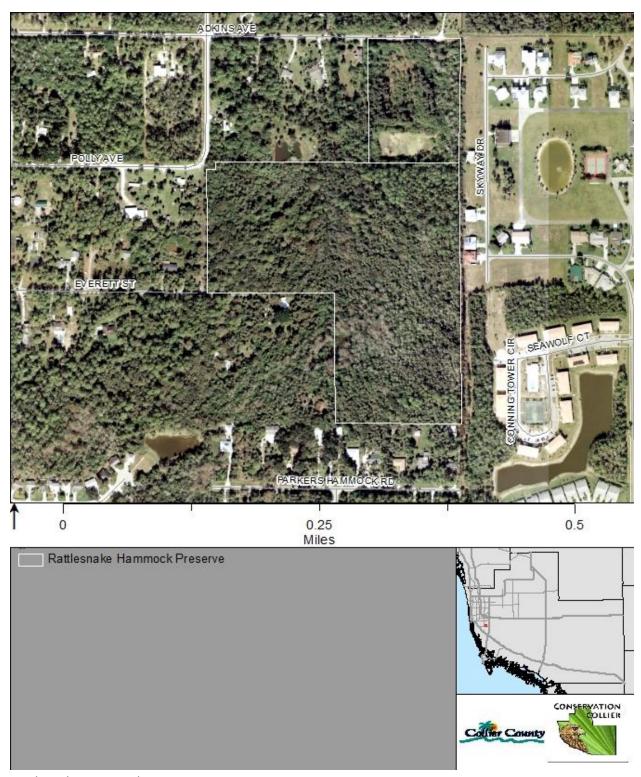
3.1.1 - Figure 7. Rattlesnake Hammock Road History, 2002

# 3.1.2 - Photoset 1. Historical Aerial Imagery









# 4. Adjacent Land Use

# 4.1. Description

Rattlesnake Hammock Preserve is located within the urban area of Collier County and is adjacent to a low-density residential community along the western and northern property boundary. The eastern boundary of the property is adjacent to a stormwater canal and the Wing South Airpark and runway. The 78 acres to the northeast of the preserve (formally a Cycle 9 acquisition application parcel recommended for the B-List) was clear-cut in the summer of 2022 with a high-density housing development planned for the parcel that was historically an integral wildlife dispersal corridor and connection point between the Rattlesnake Hammock Preserve and the Picayune Strand State Forest. To the South of the preserve is a residential community known as Parker's Hammock. Lands to the north and the east are existing residential communities and golf courses which may provide lasting habitat dispersal corridors for long-ranging wildlife species. The Picayune Strand State Forest to the east is the most significant large conservation area. The existing corridor to the south of the property has historic connection linkages with the Rookery Bay National Estuarine Research Reserve. Stormwater control features and major roadways bisect these habitat linkages on all sides of the preserve.

# 5. Acquisition and Expansion

## 5.1. Acquisition Description

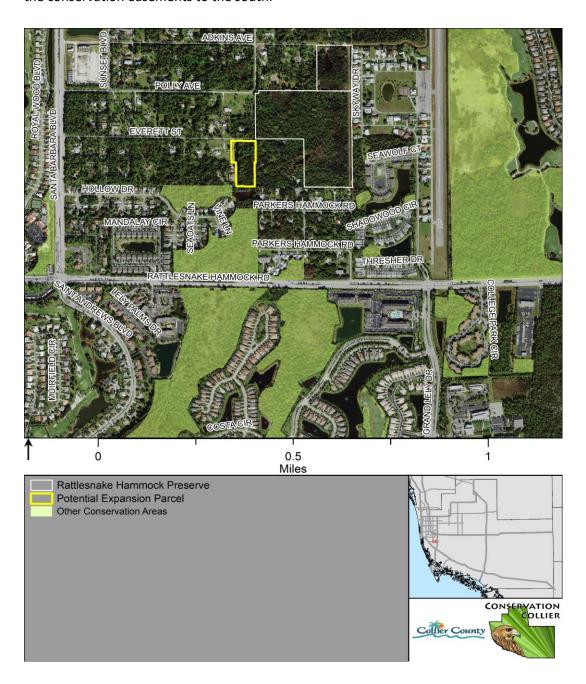
In 2017, SD Corp of Naples, Inc applied for three parcels totaling 115.15-acres during Conservation Collier Acquisition Cycle 9. In 2019, the Conservation Collier Land Acquisition Advisory Committee recommended two parcels totaling 37.16-acres for the acquisition A-list and the remaining 77.99-acres for the acquisition B-list. Later that year, Commissioner Fiala proposed the purchase of the A-list parcels. This was approved by the Board of County Commissioners in November 2019. Conservation Collier purchased the 37.16-acres on August 10th, 2020.

5.1.1 - Table 2. Parcel Attributes Table

Folio(s)	Acreage	Seller	Acquisition Date	Price
425920008	7.16			
419160007	30	SD Corp of Naples Inc.	8/10/2020	\$1,480,000.00
Total	37.16			

## 5.2. Potential Preserve Expansion

Conservation Collier is targeting the only remaining undeveloped parcel adjacent to the preserve. The 4.5-acre parcel (00419840000) indicated in Figure 8 is located southwest of the preserve at the eastern terminus of Everett St. Increasing development, especially to the north, is isolating the preserve from surrounding natural areas. Acquiring this parcel would protect the last linkage between the preserve and the conservation easements to the south.



5.2.1 - Figure 8. Potential Expansion Areas Map

# Management

# 6. Vegetation Management

## 6.1. Current Vegetative Community Conditions

Cooperative Land Cover Classification System Habitats Identified. Non-native species are denoted with an \*

1400 Mixed Hardwood-Coniferous - Mix of hardwood and coniferous trees where neither is dominant.

**Notes:** This community is found throughout the preserve. The center of the preserve is composed primarily of the oaks, palms, and slash pines. The more upland portions of the preserve have a prominent tropical hardwood component. These species give way to cypress, wetland hardwoods, melaleuca, and various non-native species as the elevation drops and in the disturbed margins.

Major Canopy Components — Cabbage palm (Sabal palmetto), laurel oak (Quercus laurifolia), slash pine (*Pinus elliotti*), bald cypress (*Taxodium distichum*), strangler fig (*Ficus aurea*), royal palm (*Roystonea regia*), gumbo limbo (*Bursera simaruba*), melaleuca (*Melaleuca quinquenervia*) \*, Java plum (*Szygium cumini*)\*, and earleaf acacia (*Acacia auriculiformes*)

**Major Midstory Components** – Simpson's stopper (*Myricanthes fragrans*), myrsine (Myrsine cubana), fire bush (Hamelia patens), bay (*Persea sp.*), wax myrtle (*Myrica cerifera*), buttonbush (*Cephalanthus occidentalis*), saltbush (*Baccharis angustifolia*), dahoon holly (*Ilex glabra*), and Brazilian pepper (*Schinus terebinthifolius*) \*

Major Understory/Groundcover Components – Wild coffee (*Pschotria nervosa*), swamp fern (*Blechnum serrulatum*), pokeweed (Phytolacca americana), air potato (*Dioscorea bulbifera*) \*, caesarweed (*Urena lobata*) \*, sword fern (*Nephrolepis sp.*)\*

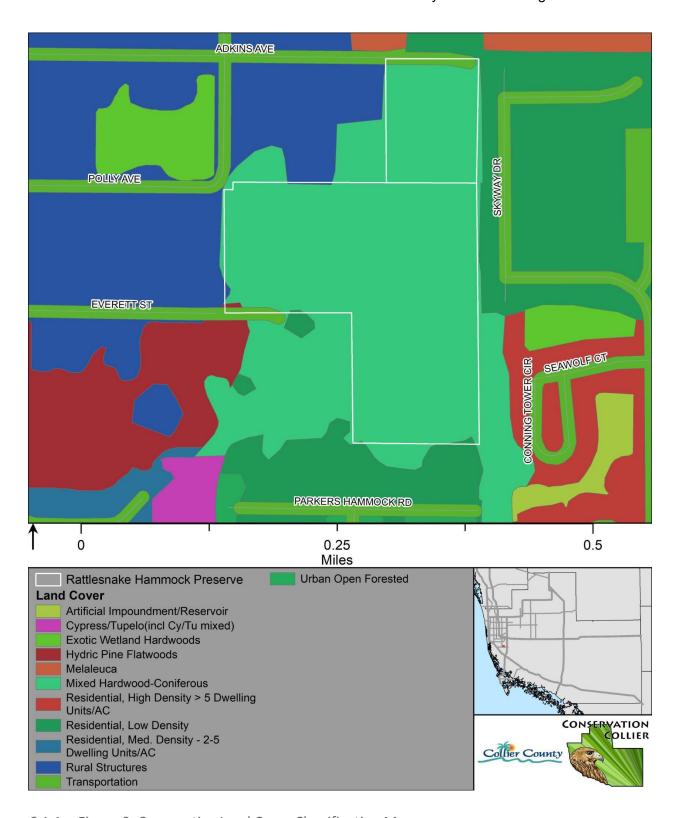
**2112 Mixed Scrub-Shrub Wetland** - Wetland areas that are dominated by woody vegetation less than 20 feet in height. This can occur in many situations, but in most cases involves transitional or disturbed communities on drier sites. Persistent examples of shrub wetlands include shrub bogs and willow swamps. (SJRWMD)

**Notes:** This community is not identified on map but is found in two natural marshes and one historic water treatment area.

Major Canopy Components – Melaleuca (Melaleuca quinquenervia) \*

Major Midstory Components – Coastal plain willow (*Salix caroliniana*), Brazilian pepper (*Schinus terebinthifolius*) \*

**Major Understory/Groundcover Components** – Smartweed (*Polygonum sp.*), swamp fern (Blechnum serrulatum), climbing hempvine (*Mikania scandens*), sawgrass (*Cladium jamaicense*), and torpedo grass (*Panicum repens*) \*



6.1.1. - Figure 9. Cooperative Land Cover Classification Map

## 6.1.2 - Table 4. Threatened and Endangered Species Table

Imperiled Plant Species	Conservation Status		
Common Name	Scientific Name	State	Federal
Cardinal Airplant	Tillandsia fasciculata	Endangered	Not Listed
Northern Needleleaf Airplant	Tillandsia balbisiana	Endangered	Not Listed
Giant Airplant	Tillandsia utriculata	Endangered	Not Listed
Royal Palm	Roystonea regia	Endangered	Not Listed

## 6.1.3. Vegetation Management Concerns

High woody and vining invasive species cover is the primary concern on this preserve. Not only do these species out compete and smother native plants, they also provide little in the form of forage for wildlife. Monocultures of Brazilian pepper and melaleuca will require re-vegetating once treated or removed. Trees that are treated and left in place may present hazards and negatively impact aesthetics, where they abut the trail and neighboring properties, and easements. Coastal plain willow (*Salix caroliniana*) is acting as a nuisance native in previously herbaceous wetlands. Special considerations should be made to preserve and enhance the tropical hardwood elements present as they represent one of the rarest plant communities in Collier County. A full botanical inventory is required to create a baseline to measure our native restoration against.

#### 6.2. Desired Future Conditions

A preserve with a matrix of high-quality hammocks, mixed hardwood-coniferous wetlands, and freshwater marshes with mixed age trees, a diverse understory, and less than 10% infestation of non-native species.

### 6.3. Potential Management Options

## 6.3.1. Invasive Plant Removal

Upon acquisition, the preserve was >75% infested with invasive plants, primarily melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolius*), Java plum (*Szygium cumini*), and air potato (*Dioscorea bulbifera*). In some areas, particularly the north and west sides, these species occur in single species that are so dense that even if treated in place, native vegetation will have difficulty recolonizing the area. Other notable species include old world climbing fern (*Lygodium microphyllum*), arrowhead vine (*Syngonium podophyllum*), Asian sword fern (*Nephrolepis sp.*), torpedo grass (Panicum repens), cogon

grass (*Imperata cylindrica*), Bishopwood (*Bischofia javanica*), and elephant ear (*Xanthosoma sagittifolium*). There is a diverse array of non-native landscaping plants found along the margins of the preserve. A combination of mechanical and repeated herbicidal treatments of all Florida Invasive Species Partnership Category I&II species are necessary to achieve the desired future conditions.

Actions taken thus far to reach these goals include Conservation Collier staff hand clearing melaleuca from the north marsh, mechanical removal of melaleuca, Brazilian pepper, and Java plum stands along Adkins Avenue and along the east and south sides of the historic water treatment area to allow for access and debris removal, and herbicidal treatment of all Brazilian pepper, melaleuca, Java plum, and old-world climbing fern in the southern 30-acre parcel of the preserve. This treatment was conducted using funding assistance from the FWC Upland Invasive Exotic Plant Management Program.

### 6.3.2. Native Plant Restoration

Native plantings have been, and will continue to be used, to increase diversity, improve wildlife forage, enhance aesthetics, and to revegetate mechanically cleared areas. Thus far all mechanically cleared areas, aside from the footprint of the conceptual parking lot and trail, have received native plantings. A combination of herbaceous plants, shrubs, and trees were planted to create a visual buffer between the proposed parking lot and adjacent private residence. Volunteers planted a wide variety of emergent aquatic plants as well as pop ash (*Fraxinus caroliniana*) and pond apple (*Annona glabra*) in the north marsh post melaleuca-removal and coastal plain willow reduction. The non-profit organization, Growing Climate Solutions organized a corporate volunteer workday and provided 150 trees to plant in the remaining cleared areas. These included slash pine, cypress, laurel oak, and red maple. In addition to removing invasive species, staff plans on reducing willow cover in the historic water treatment area. Lack of disturbance has led to willow dominating this marsh, reducing the herbaceous diversity and limiting the available foraging habitat for wading birds and among other species.

### 6.3.3. Prescribed Fire

Natural communities within this preserve have exceeded their fire return interval. The herbaceous marshes and more upland portions of hammock may benefit from patchy understory fire. However, application of prescribed fire is unlikely for this site due to its urban nature, proximity to the Wing South Airpark, high surrounding fuel loads, and extent of safety improvements required.

### 6.3.4. Hydrological Restoration

The preserve sits within the center of an extensively altered watershed. The historic northeast to southwest flow through the area has been intercepted and drained by canals and swales resulting in a shorter duration hydroperiod. This change in hydroperiod partially explains the transitional nature of the vegetative communities present. Areas of the preserve that were historically cypress strand forests and depressional marshes are shifting towards less flood tolerant species. Due to the forces altering hydrology being largely upstream and off property, the onsite flow cannot be restored to its pre-development state. The preserve must be managed to benefit the vegetative communities most suited for its current and future conditions. Proposed mastication of large stands of melaleuca may further affect hydrology by

creating a mulch layer and reducing water loss by transpiration. Hydrological mitigation may be required for some or all the proposed visitor amenities. These areas will be planted with appropriate native plants.

### 6.4. Partnership Opportunities

Conservation Collier will continue to seek funding assistance from the FWC Upland Invasive Exotic Plant Management Program. This program has been critical in conducting initial and otherwise cost prohibitive invasive plant removal projects over the past 20 years. Revegetation needs are expected to grow as invasive vegetation is removed, and Conservation Collier intends to cultivate a lasting partnership with Growing Climate Solutions to meet those needs when feasible.

# 7. Wildlife Management

## 7.1. Current Wildlife Community Conditions

The Rattlesnake Hammock Preserve is comprised of a rich mosaic of plant communities and habitat types that contribute to utilization of the property by a wide diversity of bird, mammal, reptile, amphibian, and invertebrate species. The residential neighborhood adjacent to the preserve is made up of low-density, larger acreage lots that have been maintained in a natural state and contribute to the dispersal and persistence of species through the preserve and into the surrounding neighborhood lands. White-tailed deer and wading bird foraging are the most frequently observed groups along existing management access trails by visitors. Ample opportunities exist to enhance the preserve's wildlife community conditions through habitat restoration activities and management.

7.1.1. - Table 5. Observed Wildlife Species Table

Туре	Common Name	Species	Protection Status
Mammals	bobcat	Lynx rufus	
	Florida black bear	Ursus americanus floridanus	
	Florida panther	Puma concolor coryi	Federally Endangered
	gray squirrel	Sciurus carolinensis	
	nine-banded armadillo	Dasypus novemcinctus	
	North American river otter	Lontra canadensis	
	Ten Thousand Islands raccoon	Procyon lotor marinus	
	Virginia opossum	Didelphis virginiana	
	white-tailed deer	Odocoileus virginianus	
Birds	blue jay	Cyanocitta cristata	
	great-crested flycatcher	Myiarchus crinitus	

# Conservation Collier Rattlesnake Hammock Preserve 10-year Land Management Plan

	mottled duck	Anas fulvigula	
	mourning dove	Zenaida macroura	
	northern cardinal	Cardinalis cardinalis	
	northern mockingbird	Mimus polyglottos	
	red-bellied woodpecker	Melanerpes carolinus	
Reptiles	brown anole	Anolis sagrei	
	Florida banded water snake	Nerodia pictiventris	

# 7.1.2. - Table 6. Potential Threatened and Endangered Species Table

Туре	Common Name	Species	Protection Status
Mammals	Big Cypress fox squirrel	Sciurus niger avicennia	State Threatened
	Everglade's mink	Neovison vison evergladensis	State Threatened
	Florida panther	Puma concolor coryi	Federally Endangered
	Florida bonneted bat	Eumops floridensis	Federally Endangered
Birds	Audubon's crested caracara	Polyborus plancus audubonii	Federally Threatened
	Everglade's snail kite	Rostrhamus sociabilis plumbeus	Federally Endangered
	Little blue heron	Egretta caerulea	State Threatened
	Roseate spoonbill	Platalea ajaja	State Threatened
	Tricolored heron	Egretta tricolor	State Threatened
	Wood stork	Mycteria americana	Federally Threatened
Reptiles	American alligator	Alligator mississippiensis	Federally Threatened SA
	Eastern indigo snake	Drymarchon corais couperi	Federally Threatened
	Gopher tortoise	Gopherus polyphemus	State Threatened

7.1.3 - Photoset 2. Wildlife Camera Observations



Photo: White-tailed deer (fStop Foundation, 2021)



Photo: White-tailed deer (fStop Foundation, 2022)



Photo: White-tailed deer (fStop Foundation, 2022)



Photo: Florida black bear (fStop Foundation, 2021)



Photo: Black vulture (fStop Foundation, 2021)



Photo: Florida panther and kittens (fStop Foundation, 2022)



Photo: Nine-banded armadillo (fStop Foundation, 2022)



Photo: Florida bobcat (fStop Foundation, 2022)

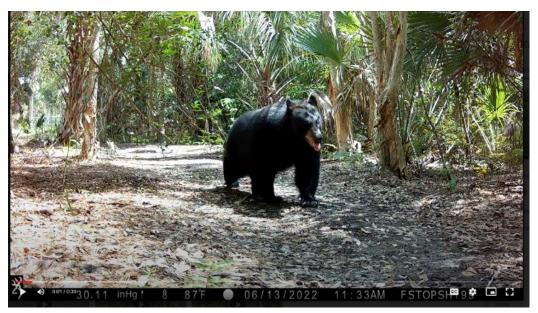


Photo: Florida black bear (fStop Foundation, 2022)

## 7.1.4. Wildlife Management Concerns

As preserve land in the urban area of South Naples, one of the most significant threats to wildlife species that utilize Rattlesnake Hammock Preserve is the loss of habitat connectivity and safe dispersal corridors between larger conservation lands due to land use changes like development and expansion of roadways. Wildlife cameras within the preserve have continually documented longer ranging larger mammals utilizing the preserve like Florida black bear, bobcat and Florida panther. Due to the surrounding land use changes, each of these species routinely crosses major roadways in order to access the undeveloped habitat within the preserve. Camera footage of injured bears and reports of a panther kitten mortality in 2022 as a result of crossing roadways adjacent to the preserve shed light on the threats wildlife that utilize lands within the urban area face. Actions such as providing educational outreach to surrounding communities, supporting the addition of wildlife crossing signage on nearby roadways, and continuing to target lands within the acquisition area to reduce development pressure along the existing wildlife corridor may help to reduce these conflicts.

Florida black bear are consistently observed utilizing the preserve lands on the wildlife monitoring cameras. Since acquisition, Conservation Collier staff have been notified by neighbors of a number of incidents of conflicts with Florida black bear causing property damage to access food source attractants such as nest boxes and occasionally garbage. As land development expands on parcels adjacent to the existing preserve, staff have the opportunity to partner with adjacent developments and the FWC Florida Black Bear Program to support bear-wise practices for garbage management and attractant reduction to help safeguard the black bears and other species like raccoon and black vulture that utilize the preserve.

#### 7.2. Desired Future Conditions

A preserve with a rich diversity of wildlife species utilization year-round comprised of populations with mixed age classes indicating ongoing recruitment and use of the preserve for denning and nesting activities.

## 7.3. Management Tools

### 7.3.1. Habitat Improvements

Management activities undertaken within the preserve will consider impacts to wildlife and opportunities to enhance resources for the species that utilize the property. Ongoing restoration efforts such as exotic plant removal, historic debris removal, and plantings will provide progressive habitat improvements for wildlife species that rely on the Rattlesnake Hammock Preserve. Removal and continued maintenance of exotic plant species that were dominant within the preserve upon acquisition, such as Brazilian pepper and melaleuca, will allow for native forage species to recover from the existing seed bank to support herbivore and carnivore populations. Restoration plantings and exotics removal within the wetlands and marshes of the preserve will enhance foraging habitat for imperiled wading birds, migratory birds, and species like river otter that have been observed using the preserve. Removal of historic, nuisance debris will enhance safe wildlife access and dispersal throughout the plant communities within the preserve. Access trails created for land management and potential future public access are routinely utilized by wildlife and provide opportunities to monitor preserve utilization by species with passive wildlife camera observations.

## 7.3.2. Consumptive Wildlife Use

Rattlesnake Hammock Preserve is a 37- acre property within the Urban area of Naples and surrounded by residential housing units. In its current state, the property is not compatible with consumptive wildlife uses such as hunting. Wetlands within the preserve are seasonal. As restoration efforts continue, staff will re-evaluate opportunities for consumptive use such as fishing that are not compatible with the current state of the property.

#### 7.3.3. Monitoring

Following acquisition, Conservation Collier staff partnered with the non-profit conservation organization called the fStop Foundation to install and maintain a network of motion-sensor trail cameras throughout the preserve (Photoset 2: Wildlife Camera Observations) to contribute to data collection for a wildlife utilization species inventory. fStop Foundation cameras provided the first known observations of Florida panther utilizing the property since 2013 and captured mating activities of a male and female panther within the preserve and the kittens that resulted from the interaction. Footage is shared with the FWC Panther Team and provides opportunities for researchers to track utilization of lands within the urban area by imperiled wildlife species. Cameras will continue to be deployed at the preserve to maintain passive monitoring of wildlife.

Property restoration, exotics removal, and plantings provide staff with an opportunity to utilize wildlife surveys to measure enhanced utilization of the preserves plant communities by wildlife in response to management and maintenance actions. It is recommended that regular surveys for breeding birds, reptiles, amphibians, insects, and small and large mammals be conducted on a routine basis to enhance wildlife monitoring and data collection on the preserve.

### 7.4. Partnership Opportunities

Conservation Collier staff will continue to partner and share data and observations with wildlife management agencies such as the Florida Fish and Wildlife Conservation Commission as well as the United States Fish and Wildlife Service (USFWS) where possible. Grant funding may be available to enhance imperiled wildlife species habitat such as the USFWS Partners Grant. Staff will continue to partner with organizations such as the fStop Foundation for monitoring and outreach opportunities. Staff will continue to work collaboratively with the residents of the neighborhood surrounding the preserve who collect and share observations of wildlife species and conflicts and concerns. Staff will seek opportunities to partner with researchers from higher education institutions to enhance conservation efforts of the wildlife species that utilize the preserve.

# 8. Recreation Management

# 8.1. Current Recreational Opportunity Conditions

The preserve is currently closed to the public. There is an access trail that begins at Adkins Avenue and creates a loop throughout the preserve that may be converted to a visitor trail once mechanical vegetation is completed and parking lot is installed.

#### 8.2. Desired Future Conditions

A preserve with the amenities required for the public to safely engage in passive natural resource-based recreation. These include a parking lot, visitor trail, educational signage, and viewing/resting areas.

#### 8.2.1. - Table 5. Compatible Recreational Activities

Recreational Activity	Compatible Use
Passive nature-based recreation (hiking, photography, wildlife viewing, environmental education, etc.)	Yes
Hunting	No
Fishing	No
Water-based Recreation (paddling, swimming, etc)	No
Biking	No

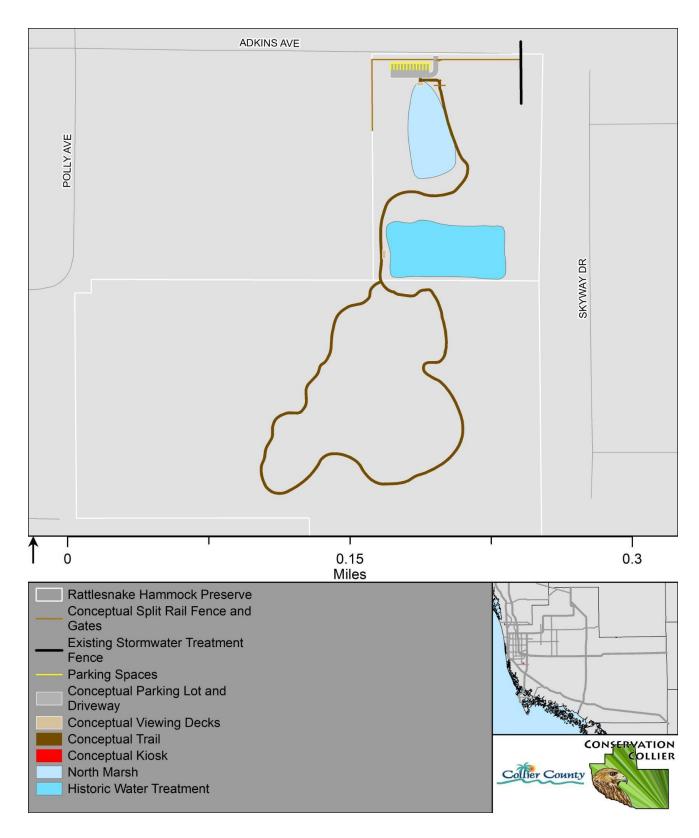
#### 8.3. Management Tools

## 8.3.1. Access Improvements

Direct roadway access is only available via Adkins Avenue. In order to remove debris and damaged fencing along Adkins Avenue a large Brazilian pepper hedge was removed. This cleared area is the proposed location for an 8-10 space parking lot and trailhead. There is an existing gate and right of way which crosses the roadside swale in this area. Design and materials for the parking lot will be determined by the constraints of the site.

## 8.3.2. Amenity Installation/Enhancement

Amenities dedicated to visitors include converting the current 3000ft, unimproved utility trail into a visitor hiking trail, adding viewing decks/overlooks to the north marsh and historic water treatment area, installing an informational kiosk and interpretive signage, and placing benches. If site conditions allow the portion of the trail that connects the parking lot to the southern viewing deck may be improved to meet Americans with Disabilities Act (ADA) standards for accessibility. Native plantings will be utilized to enhance the aesthetics surrounding visitor amenities.



8.3.3 – Figure 10. Conceptual Visitor Amenities

### 8.4. Partnership Opportunities

Residents adjacent to the preserve have expressed their desire to help maintain trails and plantings and have assisted during volunteer workdays. Once the preserve is open to the public, staff would like to further cultivate this neighborhood volunteer group and train them to independently monitor and clean the trails.

## 9. Preserve Safety and Security Management

## 9.1. Current/Predicted Human Conflict Conditions

Prior to acquisition this property had a long history of illegal dumping and housed a package wastewater treatment plant that serviced the adjoining Wing South Airpark for approximately 25 years from starting in the mid-1970s (Photoset 3: Historic Water Treatment Plant). The wastewater plant structures were demolished and removed from the site in April of 2018. There were no remaining structures on site at the time of acquisition except for approximately 1000ft of 6ft tall, dilapidated, chain link fencing was left surrounding the water treatment area and along Adkins Avenue. Additionally, a large pile of broken concrete, tires, and various other debris was located immediately south of Adkins Avenue. In 2020, invasive vegetation was cleared to allow for machinery to remove and dispose of this fencing and debris. It is likely that more debris will be uncovered as additional stands of invasive vegetation are removed. The previously undeveloped properties to the north of the preserve experienced frequent off-road vehicle trespass. There is currently little off-road vehicle trespass on the site, but it may become more vulnerable as stands of invasive trees are cleared creating potential points of entry. Like other secluded, public properties, the preserve may attract those wishing to engage in illicit activities.



9.1.1 – Photoset 3: Historic Wastewater Treatment Plant

Photo: Collier County Pollution Control, 2017



Photo: Collier County Pollution Control, 2017



Photo: Collier County Pollution Control, 2017

#### 9.2. Desired Future Conditions

A preserve free of littering, dumping, illicit activities, neighbor disturbances, unauthorized vehicles, and after-hours trespass.

#### 9.3. Management Tools

## 9.3.1. Site Security Improvements

To prevent trespass, staff installed a temporary barbed wire fence along Adkins Avenue that runs between the neighboring residence and ties into the existing Stormwater Treatment fence that runs along the east side of the preserve. A more permanent solution that is more aesthetically pleasing and blocks vehicles, but not wildlife is necessary before the preserve can be opened to the public. This proposed fence will need an automatic gate to allow visitors to access the proposed parking lot between sunrise and sunset. Additional fencing and removable bollards will be necessary to prevent vehicles from entering the trail during times when the gate is open. Trees have already been planted and will continue to be planted to block openings where invasive vegetation has been removed. Preventing access to the parking lot after dark should aid in preventing after hours trespass and illicit activities. Preserve regulations will include signage to the public of carry-in, carry-out practices to reduce impact to the preserve and no trash receptacles will be available along the trail in order to prevent wildlife conflicts.

#### 9.3.2. Debris Removal

Debris will continue to be removed and disposed of offsite as it is encountered. Staff will monitor the preserve boundaries for signs of illegal dumping, erect education signage, and work collaboratively with the Collier County Sheriff's Office to address repeat offenses.

#### 9.3.3. Contamination Remediation

A Phase I Environmental Site Assessment was conducted by Tetra Tech on behalf of Collier County prior to acquisition. This assessment determined no Recognized Environmental Conditions associated with the preserve lands and prior wastewater treatment activities.

#### 9.4. Partnership Opportunities

Staff will collaborate with both the Collier County Sheriff's Office and FWC Law Enforcement to both prevent and respond to any criminal site security and safety issues as they present themselves. Adjacent neighbors have kept staff apprised of notable human and wildlife activity.

## 10. Cultural Resource Management

#### 10.1. Current Cultural Resource Conditions

A due diligence cultural resource assessment conducted by Archaeological and Historical Conservancy, Inc. in April 2017 revealed two black earth midden archaeological sites ("Porque Pig" 8CR710 and "Wing

South 1" 8CR1482) within the SD Corp Preserve boundary. This assessment included a pedestrian survey and judgmental shovel testing in 11 identified higher probability target areas. A total of 51 shovel tests were excavated. Fourteen shovel tests were positive for prehistoric material including shell tools, faunal bone, and pottery. This site is potentially eligible for listing on the National Register of Historic Places due to the likelihood that it contains information bearing on an important archaeological research question. It is recommended that the two sites be avoided during ground disturbing activities. Although not ground disturbing, archaeological monitoring was conducted by Archaeological and Historical Conservancy, Inc. on November 19, 2020, during debris removal and initial exotic removal near site 8CR710. No disturbance or artifacts were recorded.

#### 10.2. Desired Future Conditions

A preserve with intact and secure cultural resources that provide an opportunity for community education about pre-historic settlements.

## 10.3. Management Tools

The County will notify the Division of Historical Resources immediately if evidence is found to suggest any additional archaeological or historic resources are discovered. If such resources are identified on-site, staff shall cordon off the area, and a professional survey and assessment shall be instituted. The archaeologist shall prepare a report outlining results of the assessments and issue recommendations to County staff about management of any sites discovered. This report shall be sent to the Division of Historical Resources. The County shall cooperate fully with direction from the Division of Historical Resources on the protection and management of archaeological and historical resources. The management of these resources will comply with the provisions of Chapter 267, Florida Statutes, specifically Sections 267.061 2 (a) and (b).

### 10.4. Partnership Opportunities

Staff will seek out opportunities to partner with organizations including the Division of Historical Resources, the National Register of Historic Places and research institutions to enhance the knowledge and safeguarding of the properties rich, cultural resources. Staff will seek opportunities to partner with organizations and agencies that can enhance monitoring and enforcement efforts to maintain site security.

# 11. Budget

11.1. – Table 6. Past and Projected Expenditures Table

<b>Total Projected Costs</b>	<b>Equipment and Supplies</b>	Invasive Plant Treatment/Removal	Restoration Planting	Educational Materials (Kiosks, signs, etc.)	Trailhead Amenities and Parking Lot (Permitting, Design, Construction, and Maintenance)	Trail Installation and Maintenance	Debris Removal	Projected Operating Costs
\$21,000	\$0	\$37,972 (Paid for with FWC funding assistance)	\$0	\$0	\$0	\$0	\$21,000	2020
\$10,500	\$0	\$9,700	\$800	\$0	\$0	\$0	\$0	2021
\$0	\$0	\$0	\$0	\$0	5498 (Due Diligence)	ŞO	\$0	2022
\$80,500	\$500	\$50,000	\$25,000	\$0	104304.28 (Engineering and Permitting)	\$5,000	\$0	2023
\$39,000	\$500	\$30,000	\$5,000	\$3,000	110695.72 (Construction)	\$500	\$0	2024
\$36,000	\$500	\$30,000	ŞO	\$0	\$5,000	\$500	\$0	2025
\$36,000   \$26,000	\$500	\$30,000 \$20,000	\$0	\$0	\$5,000	\$500	0\$	2026
\$26,000	\$500	\$20,000	\$0	\$0	\$5,000	\$500	0\$	2027
\$26,000	\$500	\$20,000	\$0	\$0	\$5,000	\$500	0\$	2028
\$26,000	\$500	\$20,000 \$20,000	\$0	\$0	\$5,000	\$500	\$0	2029
\$26,000   \$26,000   \$26,000   \$317,000	\$500	\$20,000	0	0	\$5,000	500	0	2030
\$317,000	Total							

# Appendix

Photoset 4: Representative Site Photos



Photo: North Marsh, herbaceous marsh



Photo: Mixed Scrub-Shrub Wetland, North marsh, herbaceous marsh



Photo: Mixed Scrub-Shrub Wetland, North marsh, herbaceous marsh



Photo: Mixed Scrub-Shrub Wetland, Historic Water Treatment Area (Willow Marsh)



Photo: Mixed Scrub-Shrub Wetland, Historic Water Treatment Area (Willow Marsh)



Photo: Mixed hardwood-coniferous, heavy melaleuca infestation



Photo: Mixed hardwood-coniferous, heavy melaleuca infestation



Photo: Cypress and melaleuca along stormwater canal



Photo: Cypress Swamp



Photo: Mixed hardwood-coniferous



Photo: Mixed hardwood-coniferous



Photo: Southern boundary line adjacent to Parkers Hammock residences

Figure 11. Legal Description

CONSERVATION COLLIER - SD CORPICYPRESS LANDINGS II OF NAPLES, LLC TAX IDENTIFICATION NUMBER: 00419150007 & 00425920008

## **EXHIBIT "A"**

#### LEGAL DESCRIPTION:

THE EAST HALF (E ½) OF THE SOUTHEAST QUARTER (SE ½) OF THE SOUTHWEST QUARTER (SW ¼) OF THE NORTHEAST QUARTER (NE ½) AND THE EAST HALF (E ½) OF THE WEST HALF (W ½) OF THE SOUTHEAST QUARTER (SE ½) OF THE SOUTHWEST QUARTER (SW ½) OF THE NORTHEAST QUARTER (NE ½ ) OF SECTION 16, TOWNSHIP 50 SOUTH, RANGE 26 EAST, LYING AND BEING IN COLLIER COUNTY, FLORIDA. LESS THE NORTHERLY 30 FEET THEREOF FOR ROAD RIGHT-OF-WAY PURPOSES AND FORMERLY KNOWN AS THE SEWAGE TREATMENT PLANT LAND. (7.16 ACRES)

PROPERTY IDENTIFICATION NUMBER: 00425920008



CONSERVATION COLLIER - SD CORPICYPRESS LANDINGS II OF NAPLES, LLC TAX IDENTIFICATION NUMBER: 00419160007 & 00425920008

## **EXHIBIT "B"**

#### LEGAL DESCRIPTION:

THE NORTH HALF (N ½) OF THE NORTHWEST QUARTER (NW ¼) OF THE SOUTHEAST QUARTER (SE ¼) AND THE SOUTHEAST QUARTER (SE ½) OF THE NORTHWEST QUARTER (NW ¼) OF THE SOUTHEAST QUARTER (SE ¼) OF SECTION 16, TOWNSHIP 50 SOUTH, RANGE 26 EAST, LYING AND BEING IN COLLIER COUNTY, FLORIDA. (30 ACRES)

PROPERTY IDENTIFICATION NUMBER: 00419160007