Guana Tolomato Matanzas National Estuarine Research Reserve Management Plan

Florida Department of Environmental Protection
Office of Resilience and Coastal Protection
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List of Commonly Used Acronyms

AP: Aquatic Preserve
API: Area of Perpetual Interest
ARC: Acquisition and Restoration Council
BTIITF: Board of Trustees of the Internal Improvement Trust Fund
CARL: Conservation and Recreation Lands
CLC: Cooperative Land Classification
CSO: Citizen Support Organization
CTP: Coastal Training Program
DRP: Division of Recreation and Parks
EEL: Environmentally Endangered Lands
ERD: Environmental Reporting Database
ESBHP: Environmentally Sensitive and Biologically Highly Productive
FDACS: Florida Department of Agriculture and Consumer Services
FDEP: Florida Department of Environmental Protection
FE: Federally Endangered
FGDC: Federal Geographic Data Committee
FISC: Florida Invasive Species Council
FLAIR: Florida Accounting Information Resource
FNAI: Florida Natural Areas Inventory
FT: Federally Threatened
FWC: Florida Fish and Wildlife Conservation Commission
GIS: Geographic Information Systems
GTM: Guana Tolomato Matanzas
GRMAP: Guana River Marsh Aquatic Preserve
GRWMA: Guana River Wildlife Management Area
ICW: Intracoastal Waterway
IUCN: International Union for Conservation of Nature
KEEP: K-12 Estuarine Education Program
LATF: Land Acquisition Trust Fund
LMR: Land Management Review
Ma: Mega annum or "millions of years"
MAG: Management Advisory Group
MOA: Memorandum of Agreement
MOU: Memorandum of Understanding

NERR: National Estuarine Research Reserve
NERRS: National Estuarine Research Reserve System
NERT: Northeast (Florida) Restoration Team
NFLT: North Florida Land Trust
NOAA: National Oceanic and Atmospheric Administration
NPS: National Park Service
NSC: NERRS Science Collaborative
OCM: Office of Coastal Management
OFW: Outstanding Florida Waterway
OPS: Other Personnel Services (state designation for temporary, hourly staff)
ORCP: Office of Resilience and Coastal Protection
OWQTF: Oyster and Water Quality Task Force
PCAP: Pellicer Creek Aquatic Preserve
PIO: Public Information Officer
PM: Performance Measure
PMN: Phytoplankton Monitoring Network
SE: State Endangered
SETs: Sediment Elevation Tables
SOC: Save Our Coast
ST: State Threatened
STEM: Science, technology, engineering and mathematics
SJRWMD: St. Johns River Water Management District
TOTE: Teachers on the Estuary
UF: University of Florida
UNF: University of North Florida
USFWS: United States Fish and Wildlife Service
WBID: Water Body Identification

Executive Summary

Management Plan Purpose and Scope

The Guana Tolomato Matanzas National Estuarine Research Reserve (typically referred to as the GTM Research Reserve) operates under a management plan that serves as the foundation and guide for reserve activities. The GTM Research Reserve has reviewed and updated its management plan, which was last revised in 2009.

Aquatic resources and their upland buffers have the potential to be significantly impacted by increasing sea level rise, development, recreation, and economic pressures. These potential impacts to resources can reduce the health and viability of the ecosystems that contain them, requiring active management to ensure the long-term health of the entire network. Effective management plans for the National Estuarine Research Reserves (NERRs), aquatic preserves, and other lands managed by Florida's Office of Resilience and Coastal Protection (ORCP) are essential to address this goal and each site's own set of unique challenges. The purpose of these plans is to incorporate, evaluate and prioritize all relevant information about the site into a cohesive management strategy, allowing for appropriate access to the managed areas while protecting the long-term health of the ecosystems and their resources.

The NOAA requirements for the preparation of management plans are outlined in the NERR program regulations (15 Code of Federal Regulations (C.F.R.) 921.13) which implement Section 315 of the Coastal Zone Management Act of 1972 (16 United States Code (U.S.C.) 1461). The federal regulations ensure that NERR management programs are consistent with the goals, objectives and policies of the NERR System. The mandate for developing aquatic preserve management plans is outlined in Rule 18-20.013 and Subsection 18-18.013(2) of the Florida Administrative Code (F.A.C.). Management plan guidelines for NERRs recommend an update every five years while Florida guidelines suggest a ten-year span. It is anticipated that this plan will be amended in five years.

This plan includes scientific information about the existing conditions of the site and the management strategies developed to respond to those conditions. It is intended for use by site managers and other agencies or private groups involved with maintaining the natural integrity of the Guana Tolomato Matanzas National Estuarine Research Reserve's natural resources, as well as those of the surrounding lands and waters managed by ORCP. Management plan development and review begins with collecting resource information from historical and current research and monitoring data and includes input from the Florida Department of Environmental Protection (FDEP), GTM Research Reserve managers and staff, area stakeholders, and members of the public. The statistical data, public comment and cooperating agency information are then used to identify management issues and threats affecting the present and future integrity of the site, its boundaries, and adjacent areas. The plan is examined for consistency with the statutory authority and intent of the aquatic preserve and NERR programs. Each management plan is evaluated periodically and revised as necessary to allow for strategic improvements.

This plan is the second update to the GTM Research Reserve management plan which was approved by Florida's Board of Trustees of the Internal Improvement Trust Fund (BTIITF) on November 10, 1998. The first update to this plan was approved on May 13, 2009. The Reserve Plan covers the Guana River Marsh Aquatic Preserve (GRMAP) and the Pellicer Creek Aquatic Preserve (PCAP). The first GRMAP management plan was approved December 17, 1991 and the first PCAP management plan was approved July 9, 1991. Uplands along the Guana River, currently managed as part of the GTM Research Reserve, were previously managed as the Guana River State Park under Division of State Lands Lease Number 3462 (management plan approved March 26, 1999). Some parcels in the Matanzas and Tolomato river basins are included in Lease No. 3462; these are also covered by this management plan, which is intended to meet the requirements of Section 253.034, Florida Statutes.

This management plan also reflects the recent expansion of the Reserve's boundary – approved in March 2020 – to include the City of St. Augustine's sovereign submerged lands within the Matanzas River and Salt Run, the state sovereign submerged lands along the Matanzas and Tolomato Rivers that connect the City of St. Augustine portion to the previous boundary, and the Marshview parcel in the southern portion of the Reserve (shown on Map 1).

Key Accomplishments of the GTM Research Reserve since the 2009 Management Plan:

NERR Boundary Expansion

- Northern and Southern components of the GTM Research Reserve boundary were connected along the Intracoastal and now includes part of the City of St. Augustine's sovereign submerged lands.

Resource Management

- Oyster shell collected from restaurants and event venues, and used in salt marsh restoration projects.
- Re-engineering living shorelines to halt erosion and restore coastal saltmarsh habitats and cultural resources in high-energy environments (funded by the NERR System Science Collaborative).

Research & Monitoring

- Staff co-authored 33 published, peer-reviewed journal articles about the reserve.
- Over 150 plots and 18 Surface Elevation Tables (SETs) were installed to monitor intertidal wetland vegetation and elevation long term.
- Completed baseline survey of over 200 oyster reefs throughout the reserve and collected monthly oyster settlement data on 21 reefs for five years.
- Established ten long-term water quality monitoring sites in the Guana River Estuary.
- Installed and assessed living shorelines.
- Conducted pollution source tracking studies in Guana River and Pellicer Creek.
- Completed NERR System Science Collaborative project with University of Florida: Re-engineering living shorelines to halt erosion and restore coastal salt marsh habitats and cultural resources in high-energy environments.

- Completed NERR System Science Collaborative project with Oregon State University: Stakeholder-driven modeling investigation of factors affecting oyster population sustainability.
- Completed spoil island and shoreline characterization studies with funding from Florida Coastal Zone Management.
- Completed study with Florida Coastal Zone Management: “Investigation of Summer Haven’s Morphodynamic Effects on Hydrodynamics, Water Quality, Trophic State, and Oyster Reef Habitat in South Matanzas River”.

Facilities

- Stormwater diversion at boat ramp.
- Freshwater marsh boardwalk on Guana Preserve Yellow Trail.
- Boardwalk replacement and restoration on Guana Preserve Blue and Orange Trails.
- Native plant demonstration garden installed at Visitor Center.
- Redesigned interpretive displays place at the Guana Trails entrance and around Visitor Center.
- Concessionaire facility installed for kayak, paddleboard and bicycle rentals.
- Pole barn added to maintenance yard.
- Three of four beach boardwalks/dune crossovers replaced due to wear and tear. Subsequently replaced two more times dues to damage from Hurricanes Matthew and Irma.
- Walkways and sidewalks around the Guana dam were rebuilt and improved.
- Installation of solar water heating, tankless water heating, electric vehicle charger, motion detector lighting and compact fluorescent bulbs.
- Constructed Princess Place Legacy House and Cabins for Visiting Investigator use.

Education

- On average, 3,500 students participated in formal, on-site education programs each year.

Collaboration

- Hosted ten State of the Reserve symposia for staff and visiting scientists to share research findings.
- Established the Oyster and Water Quality Task Force of the Guana, Tolomato, and Matanzas Rivers.
- Completed NERR System Science Collaborative project with University of Florida: Monitoring Sea Level Rise in the Matanzas Basin.

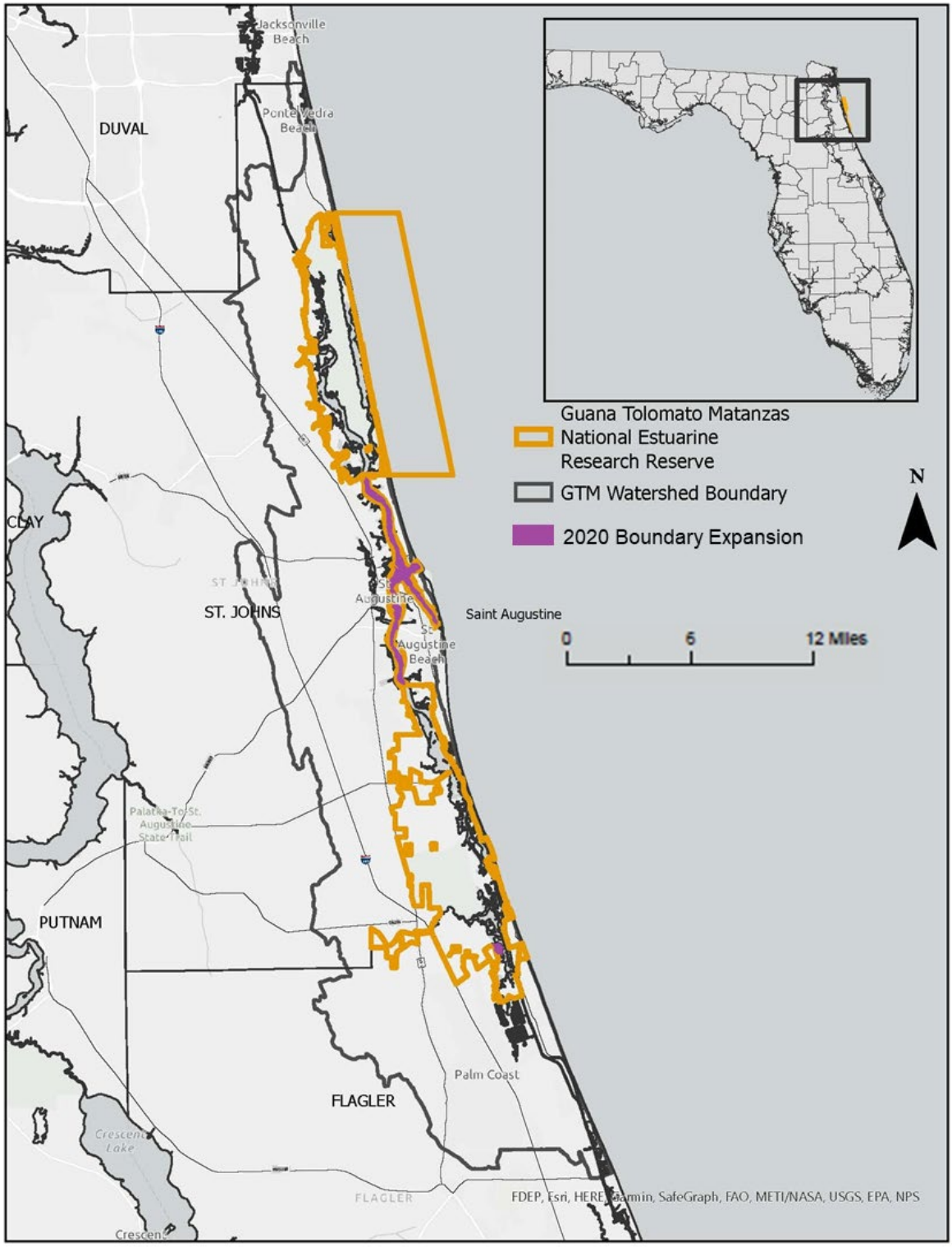
Emergency Response Plan

- Addresses the specific need for emergency planning at the GTM Research Reserve and demonstrates collaboration in emergency planning within and around each NERR.

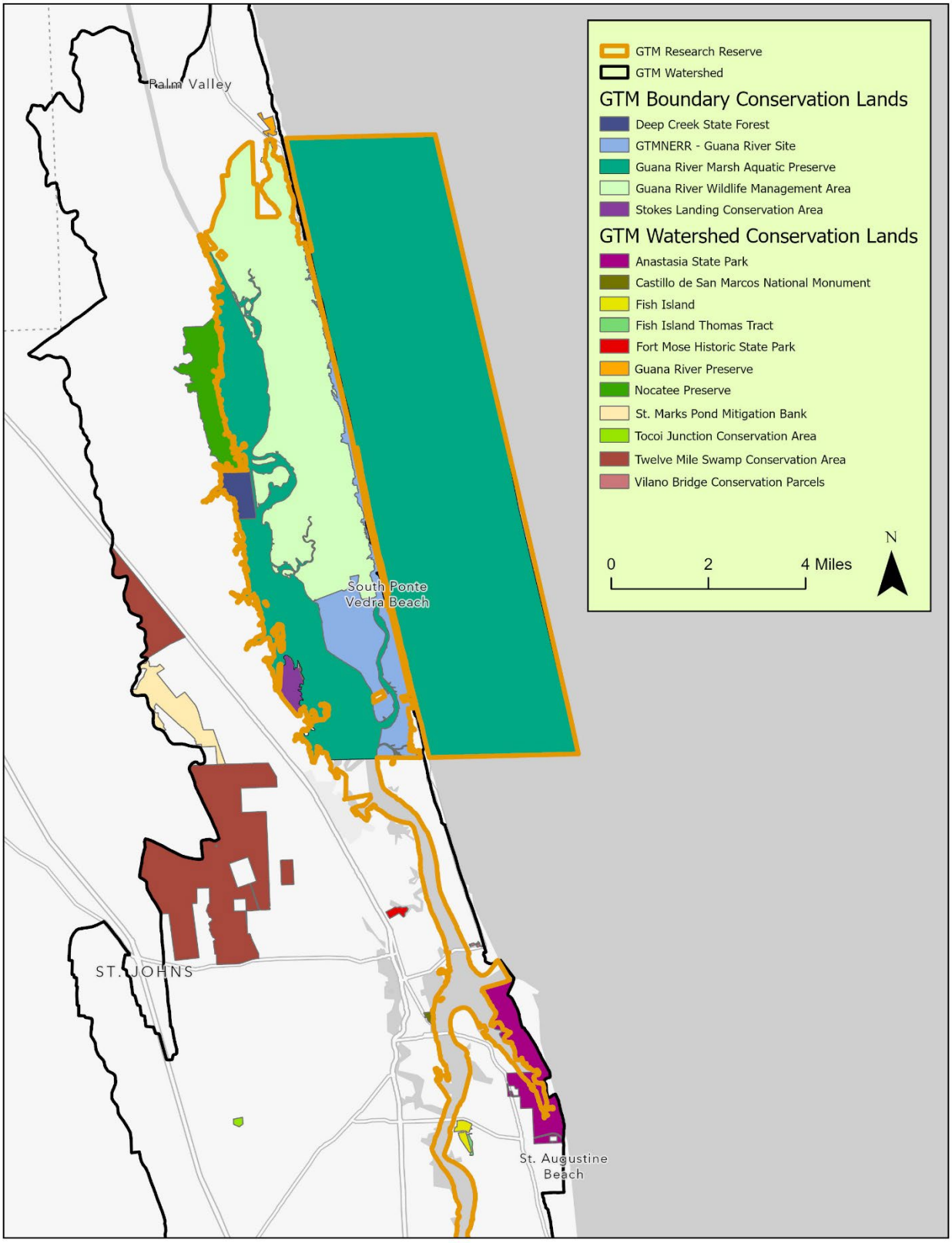
Full Page Maps of the GTM Research Reserve

Full page versions of the maps referenced throughout this Management Plan are included in this section for easier readability and comparison across attributes (e.g., comparing soils and plant communities).

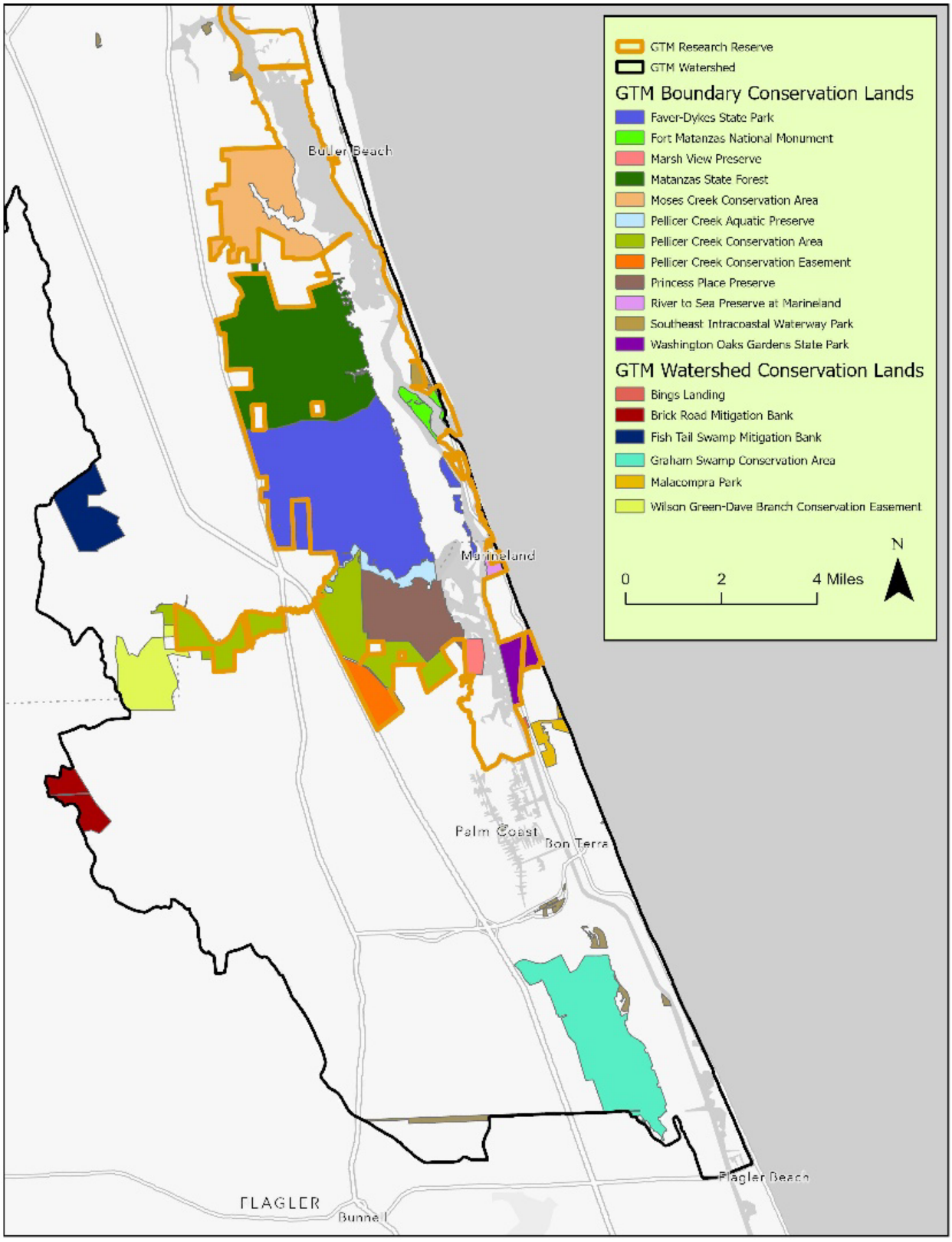
Map 1. GTM Research Reserve Boundary



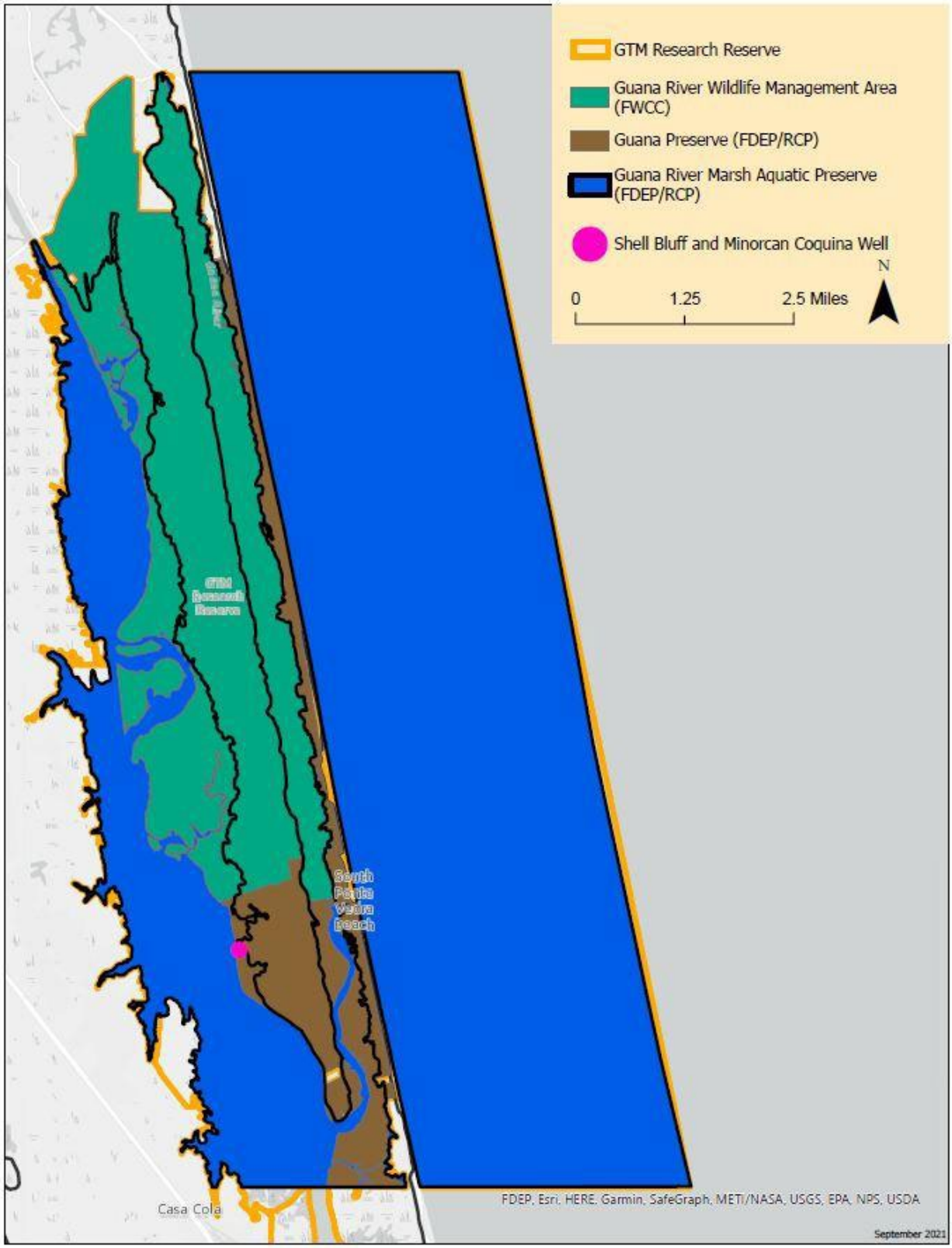
Map 2a. Conservation Lands North



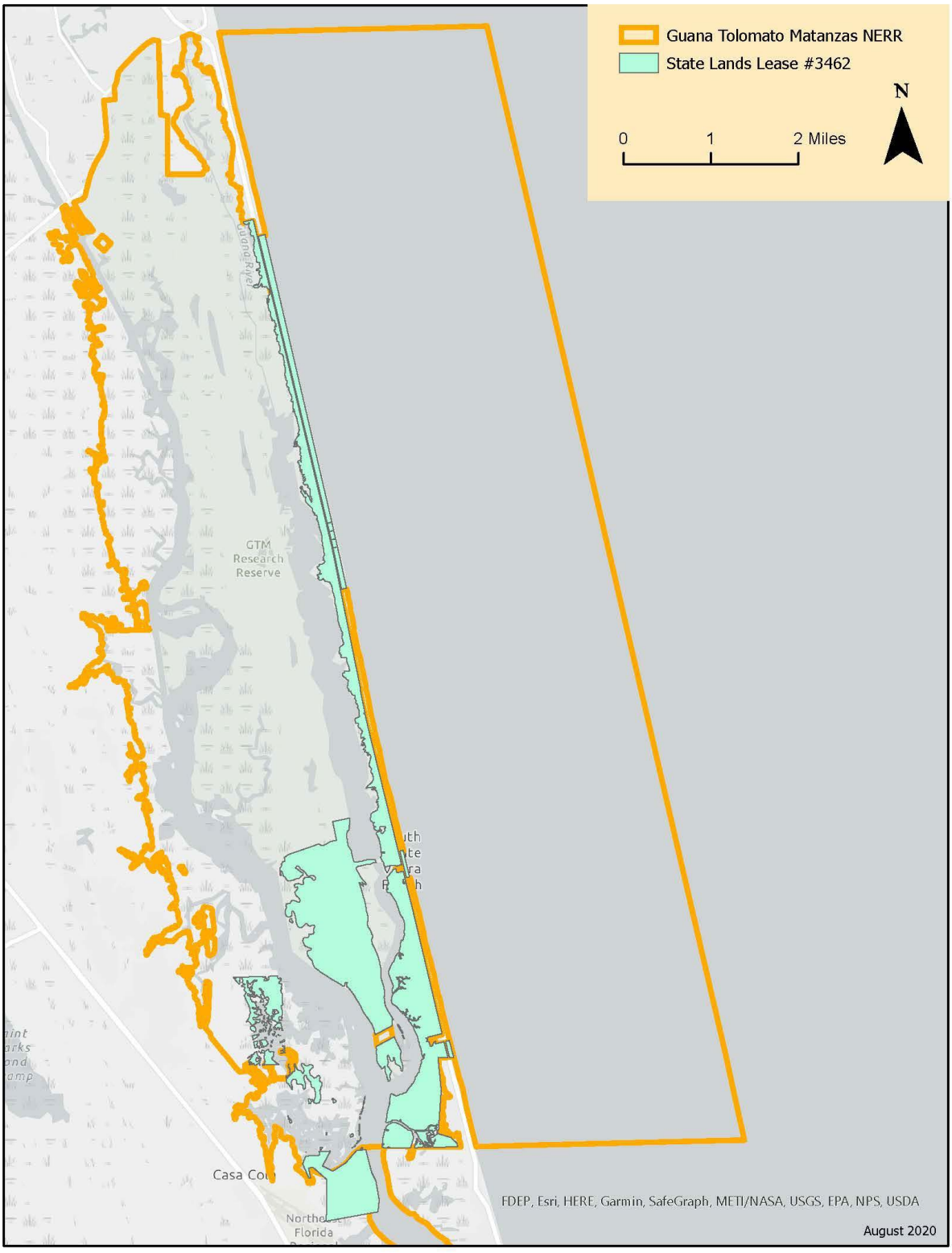
Map 2b. Conservation Lands South



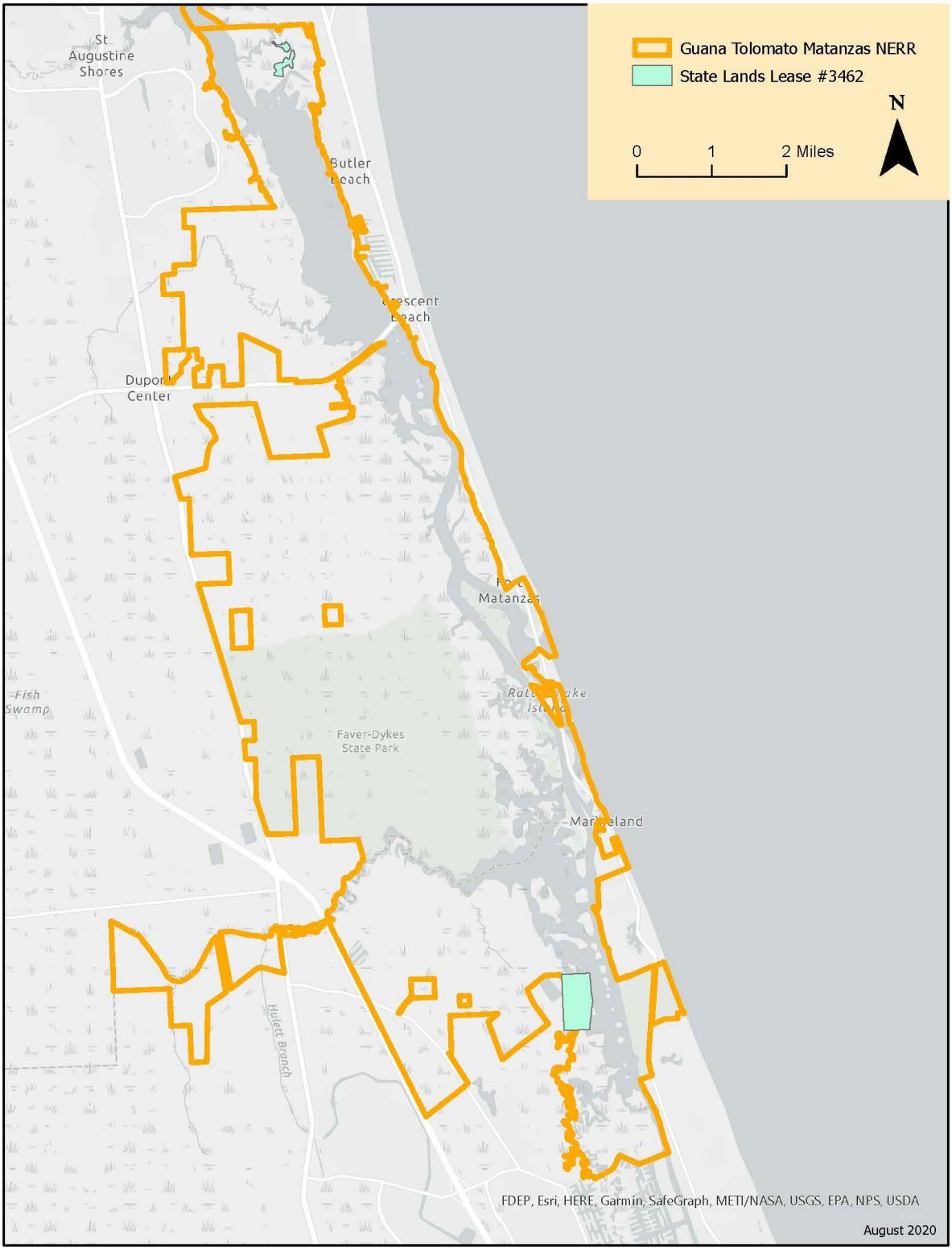
Map 3. Detail of Guana Properties



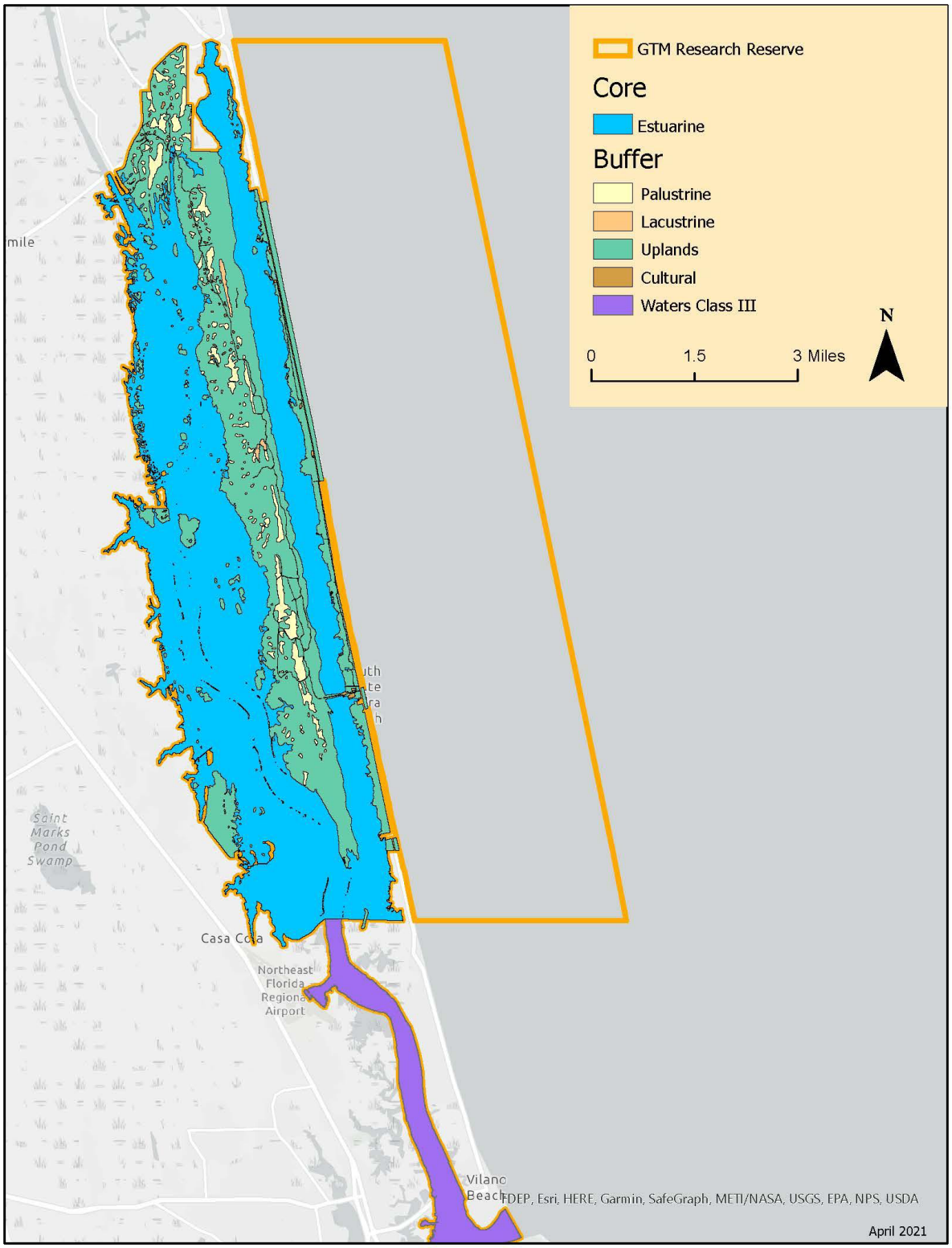
Map 4a. Lease 3462 Parcels North



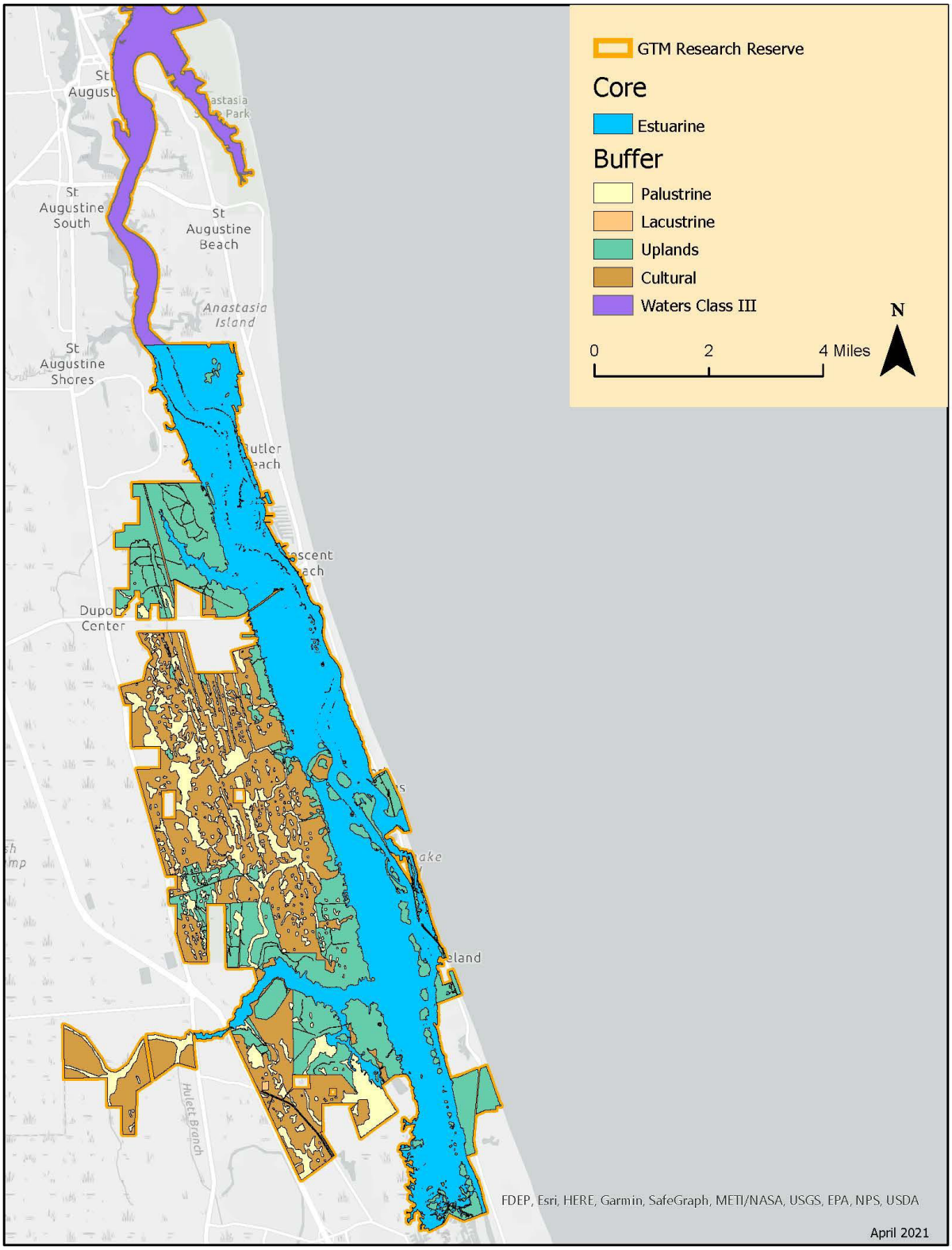
Map 4b. Lease 3462 Parcels South



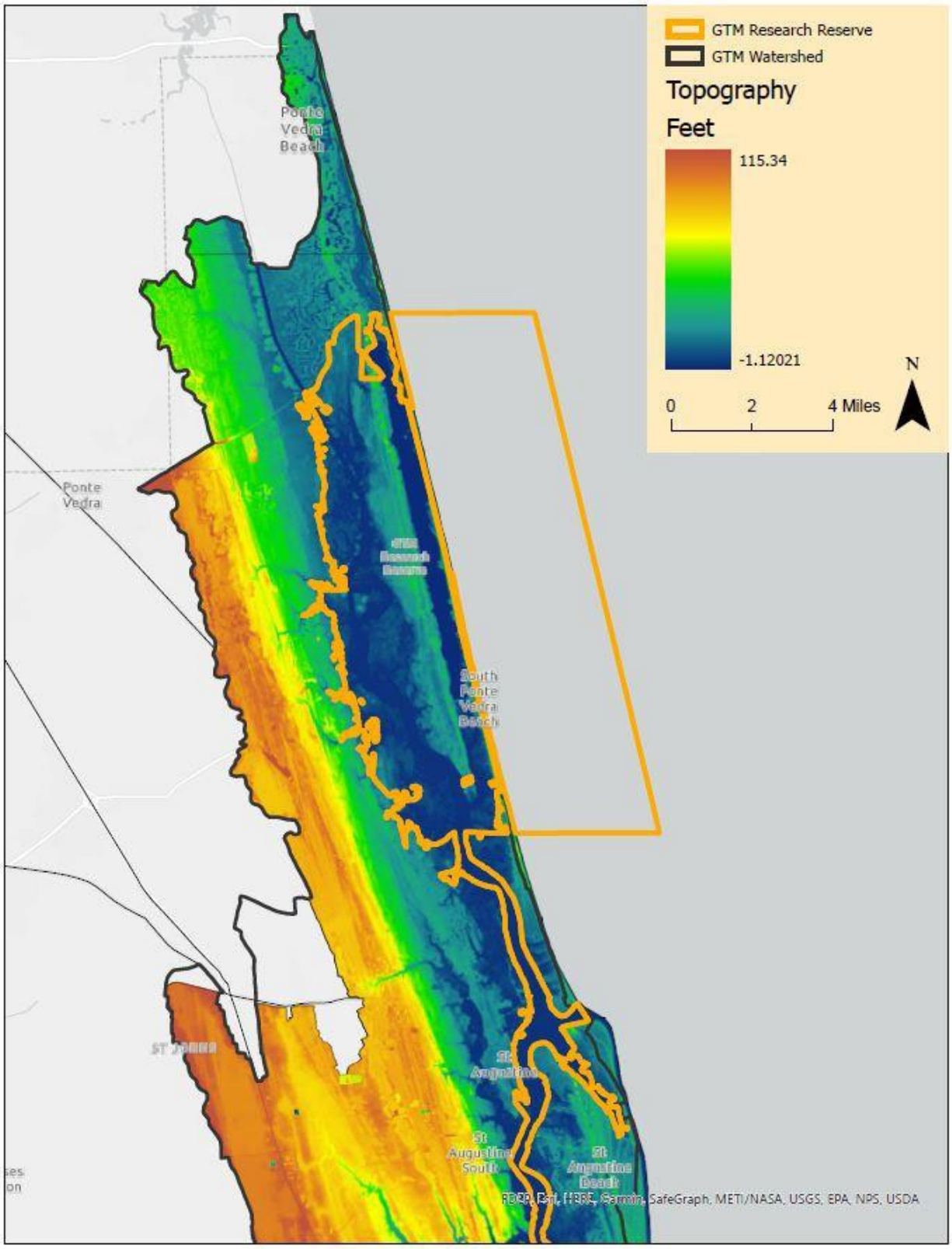
Map 5a. Core and Buffer Areas North



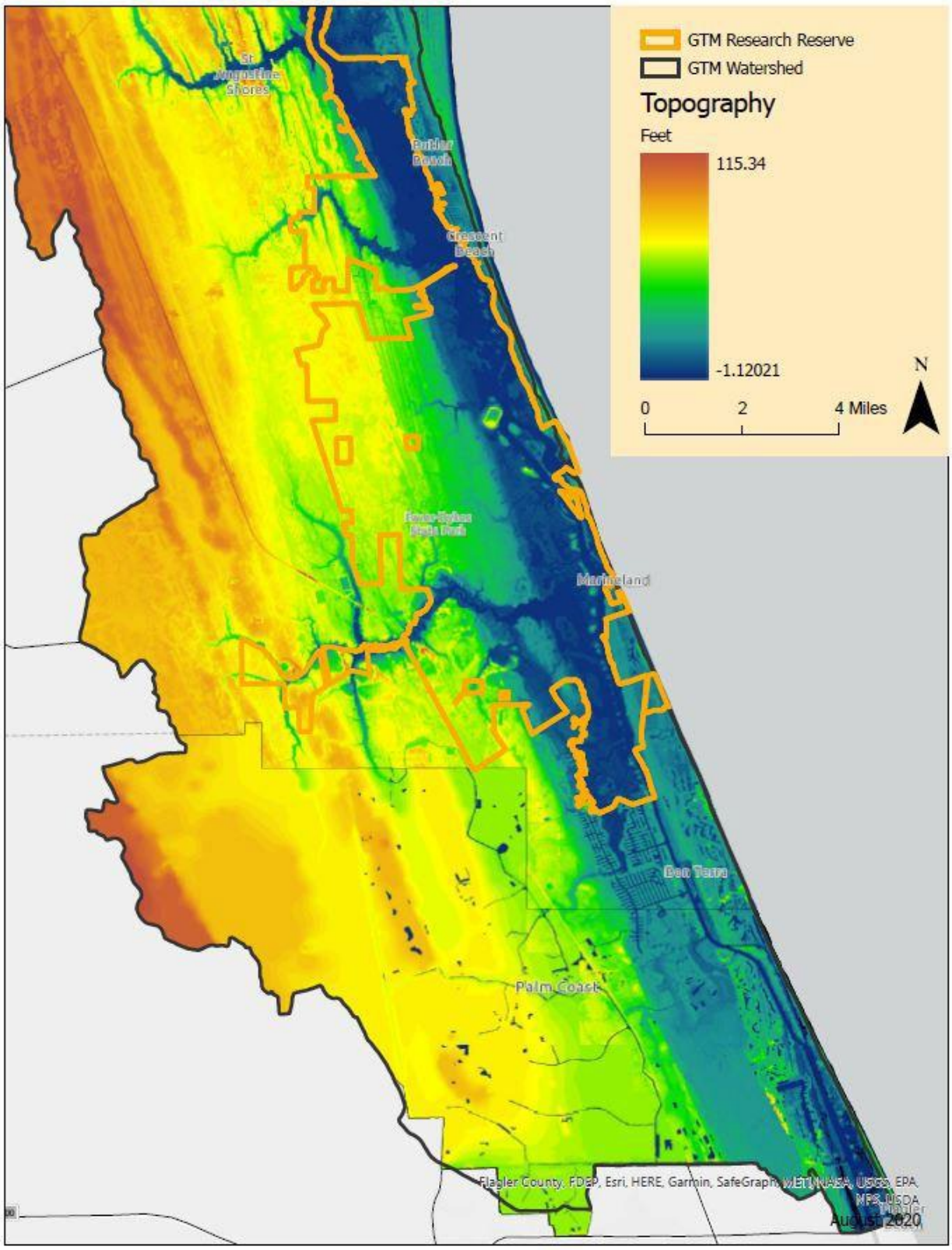
Map 5b. Core and Buffer Areas South



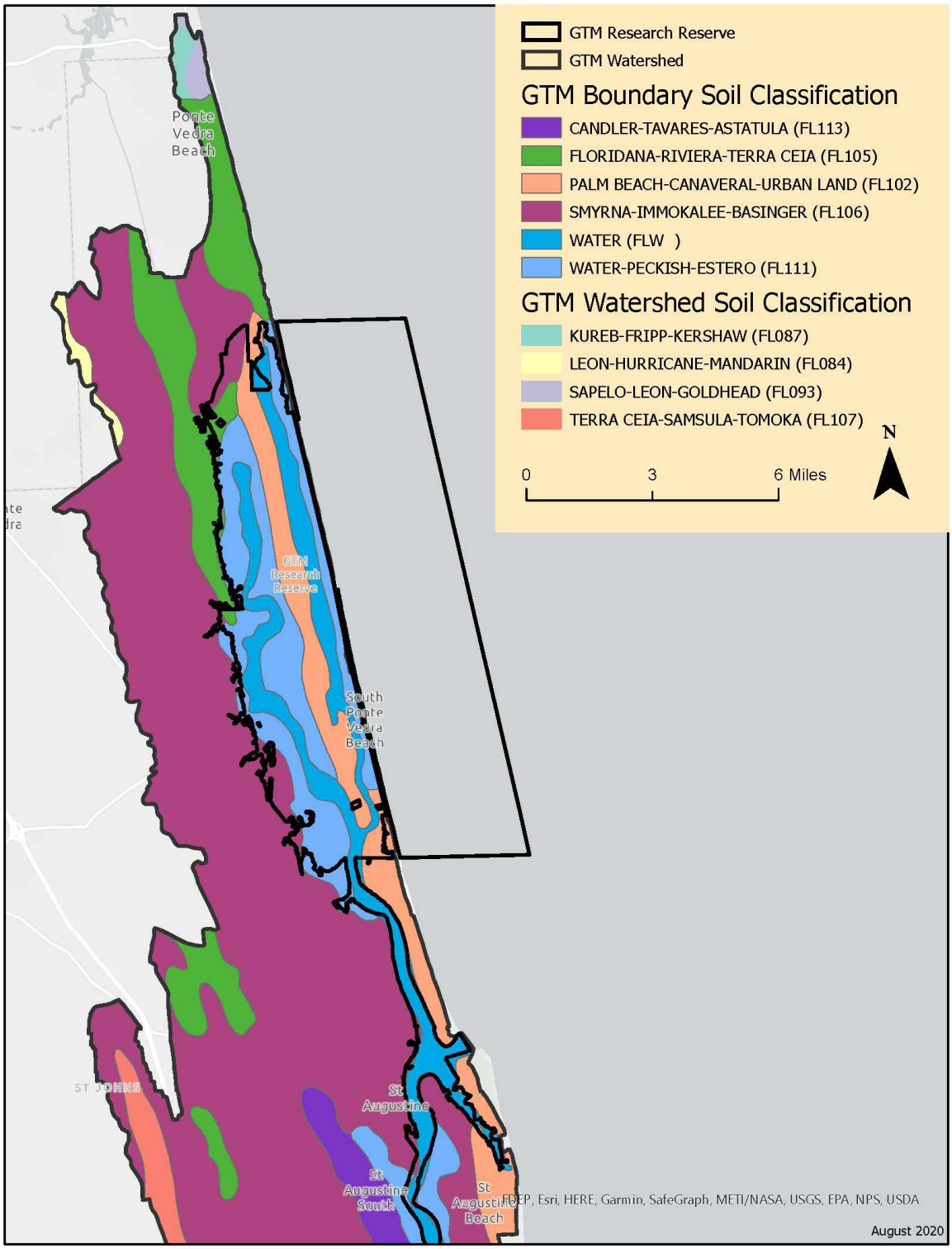
Map 6a. Topography North



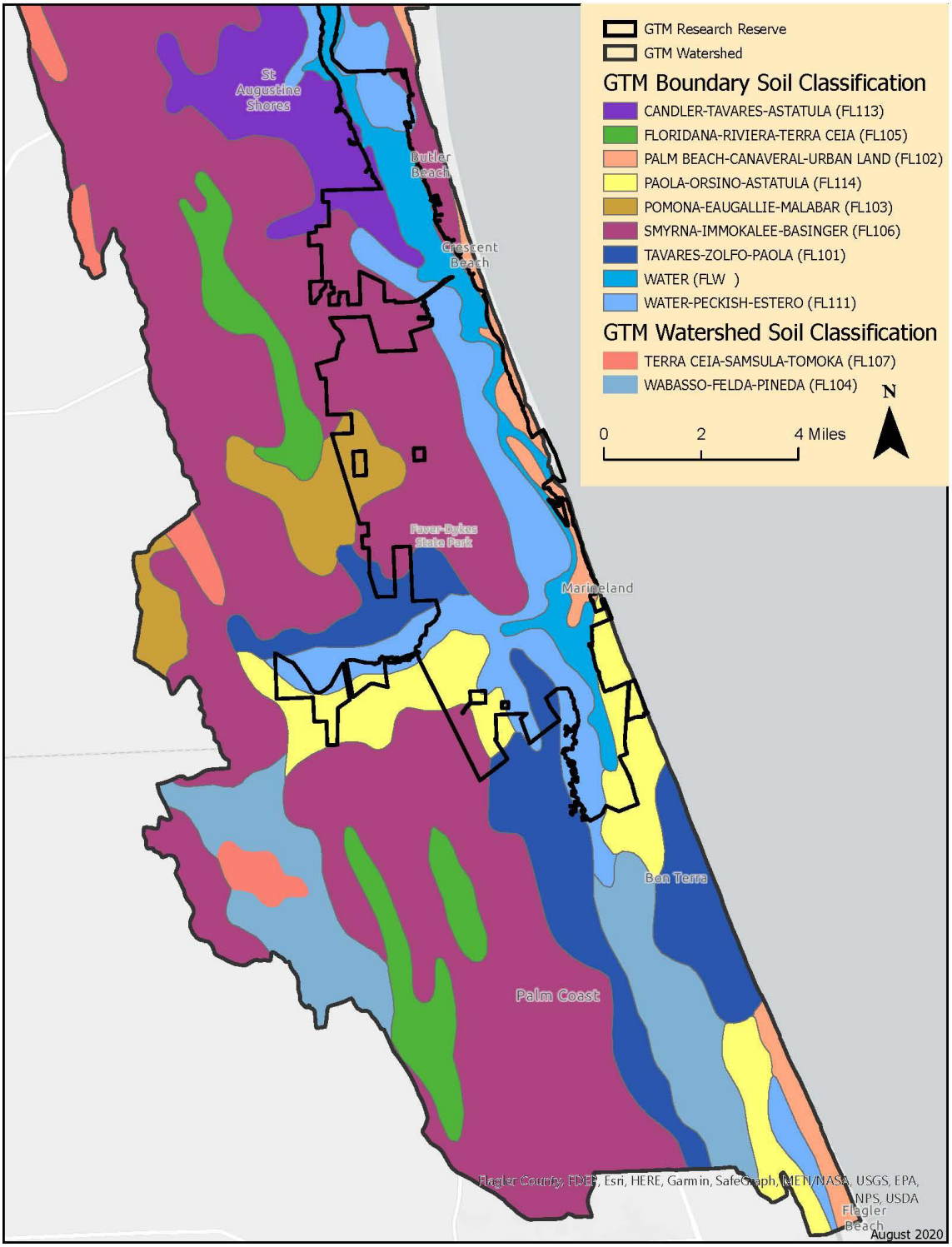
Map 6b. Topography South



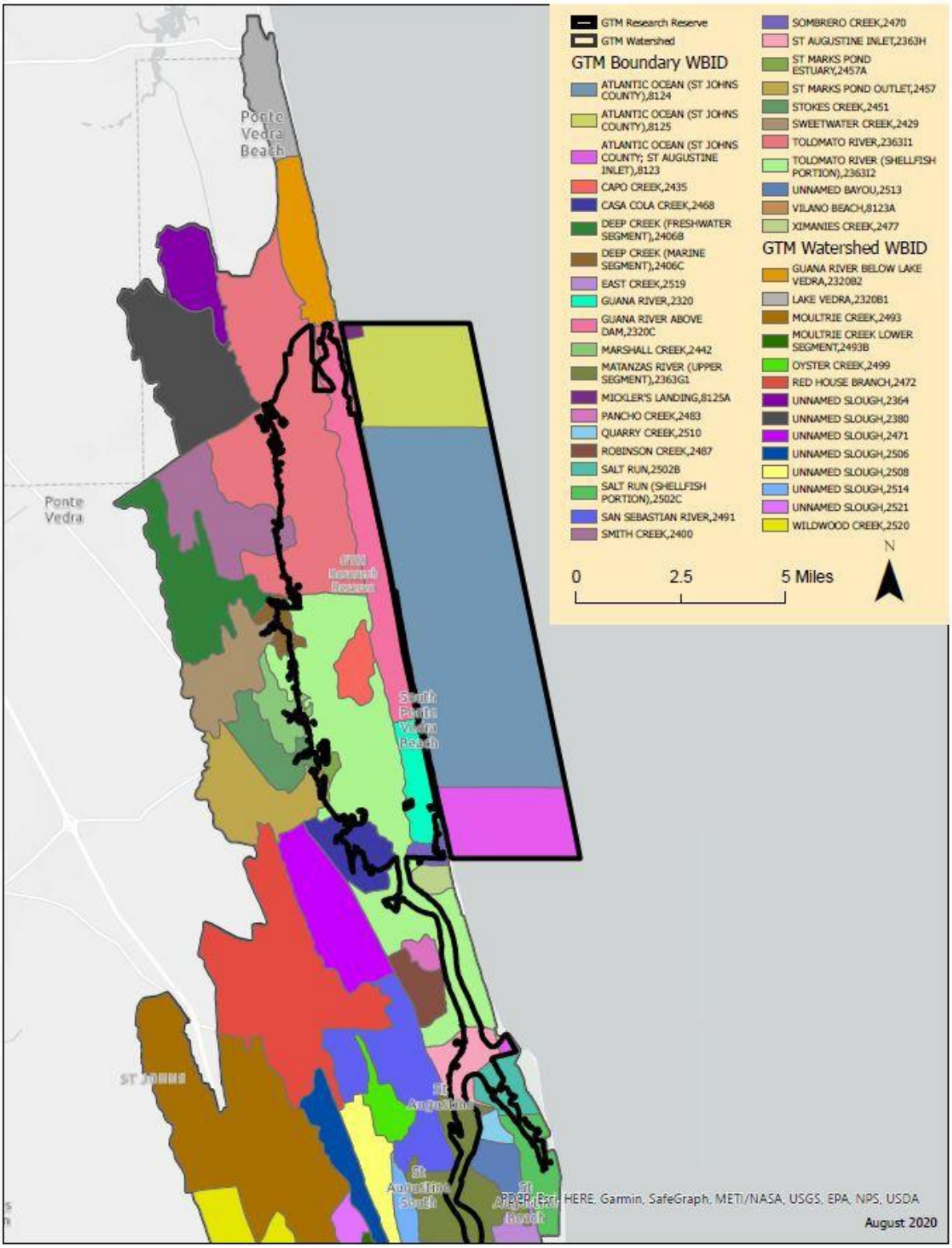
Map 7a. Soils North (State Soil Geographic: STATSGO)



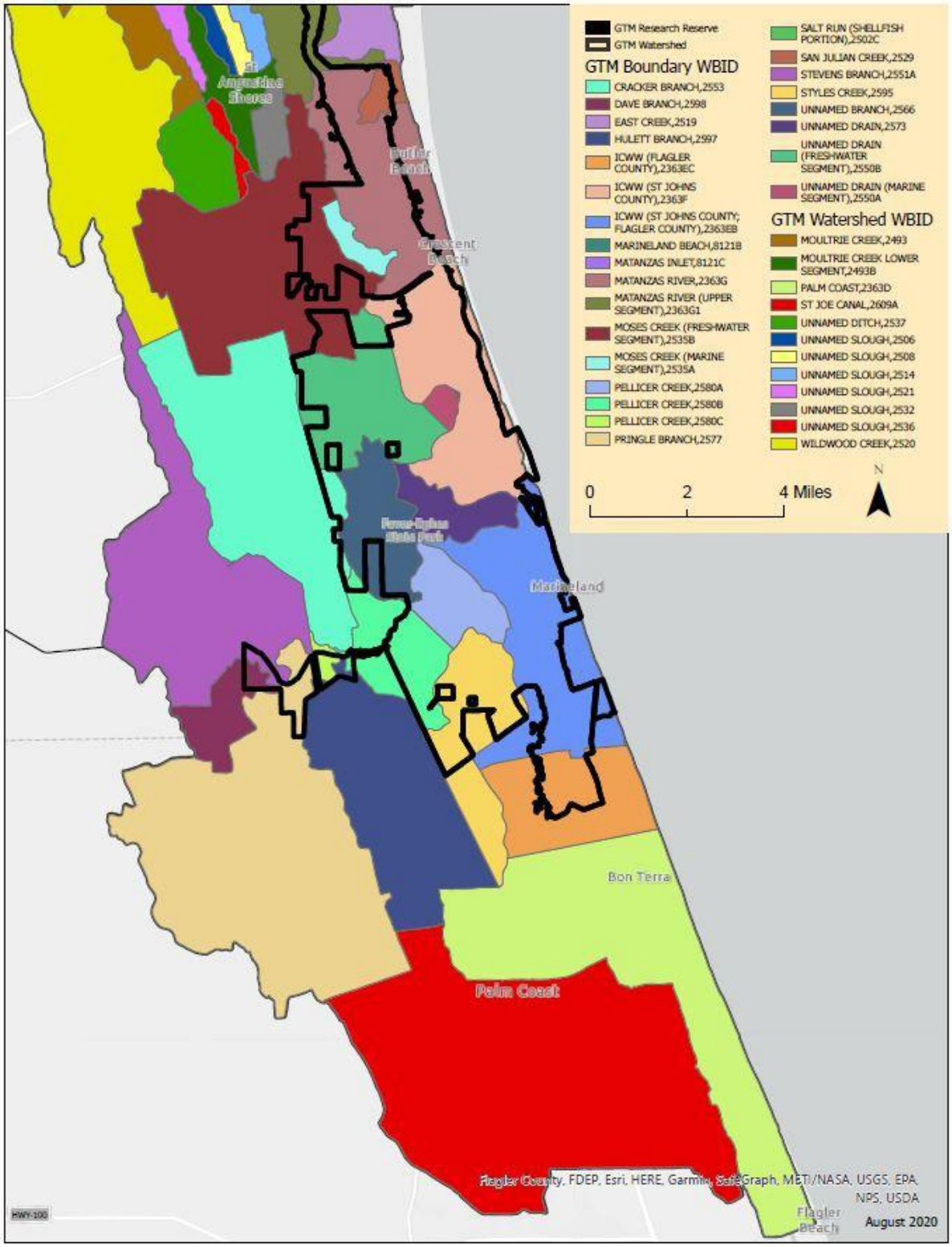
Map 7b. Soils South (State Soil Geographic: STATSGO)



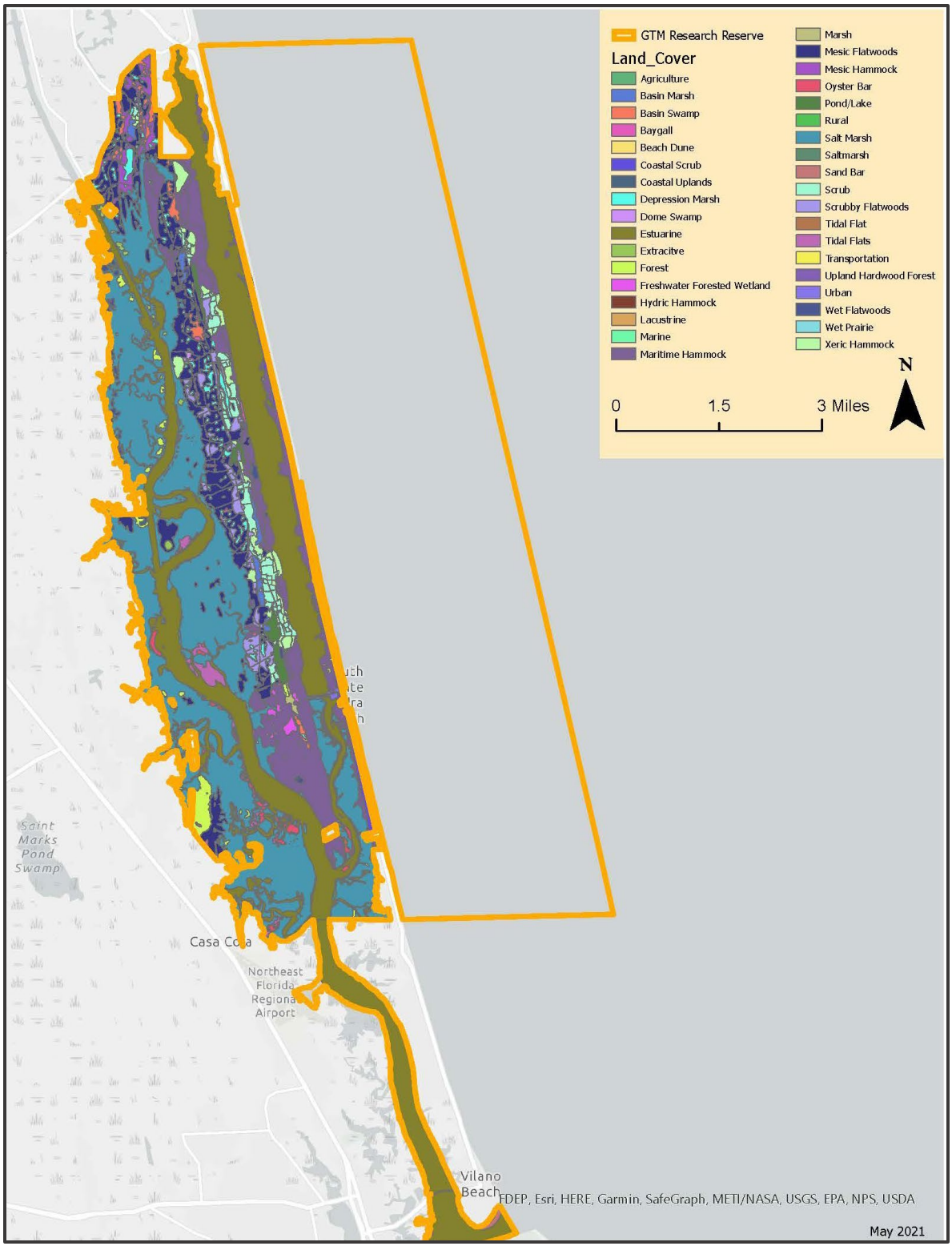
Map 8a. Waterbody IDs North



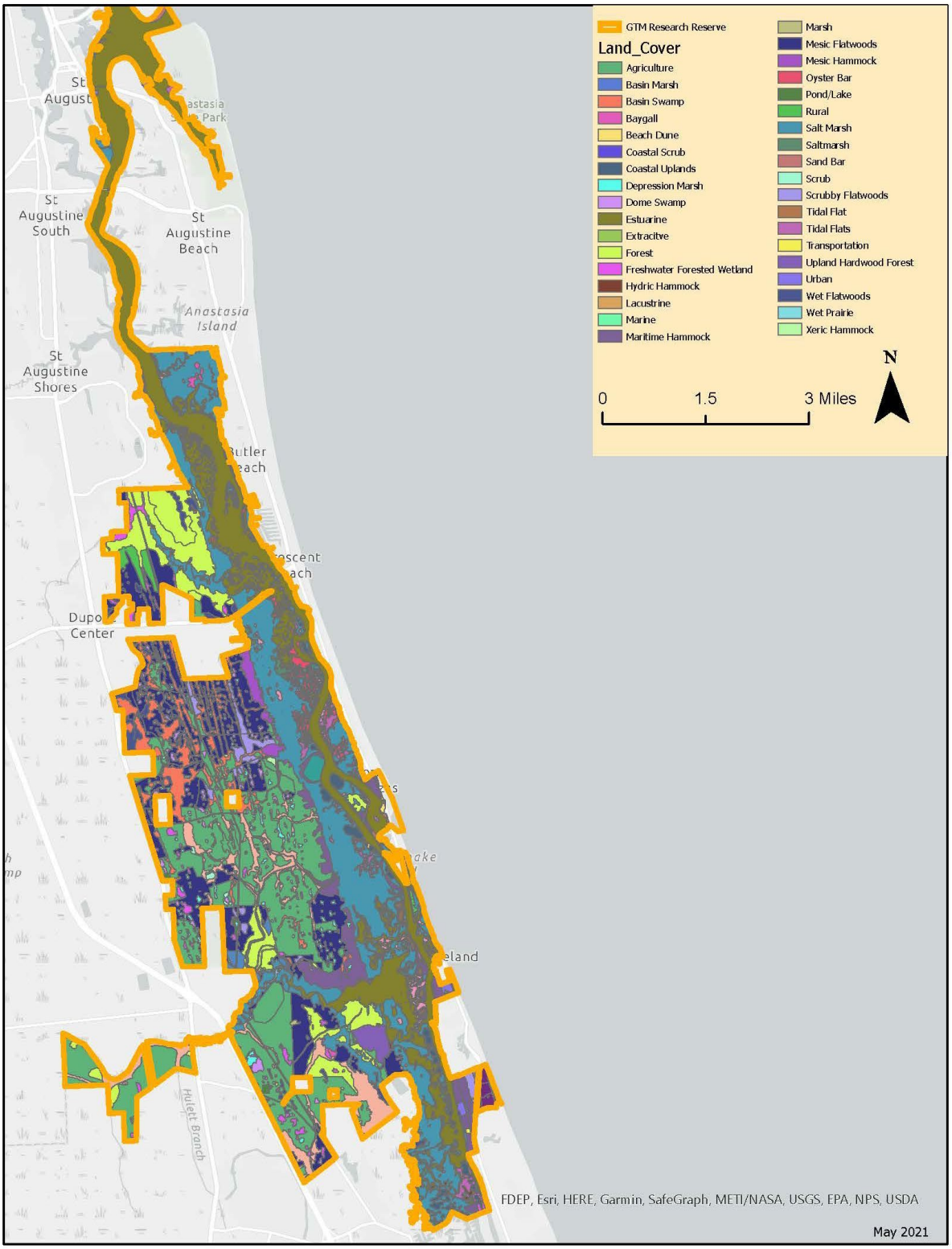
Map 8b. Waterbody IDs South



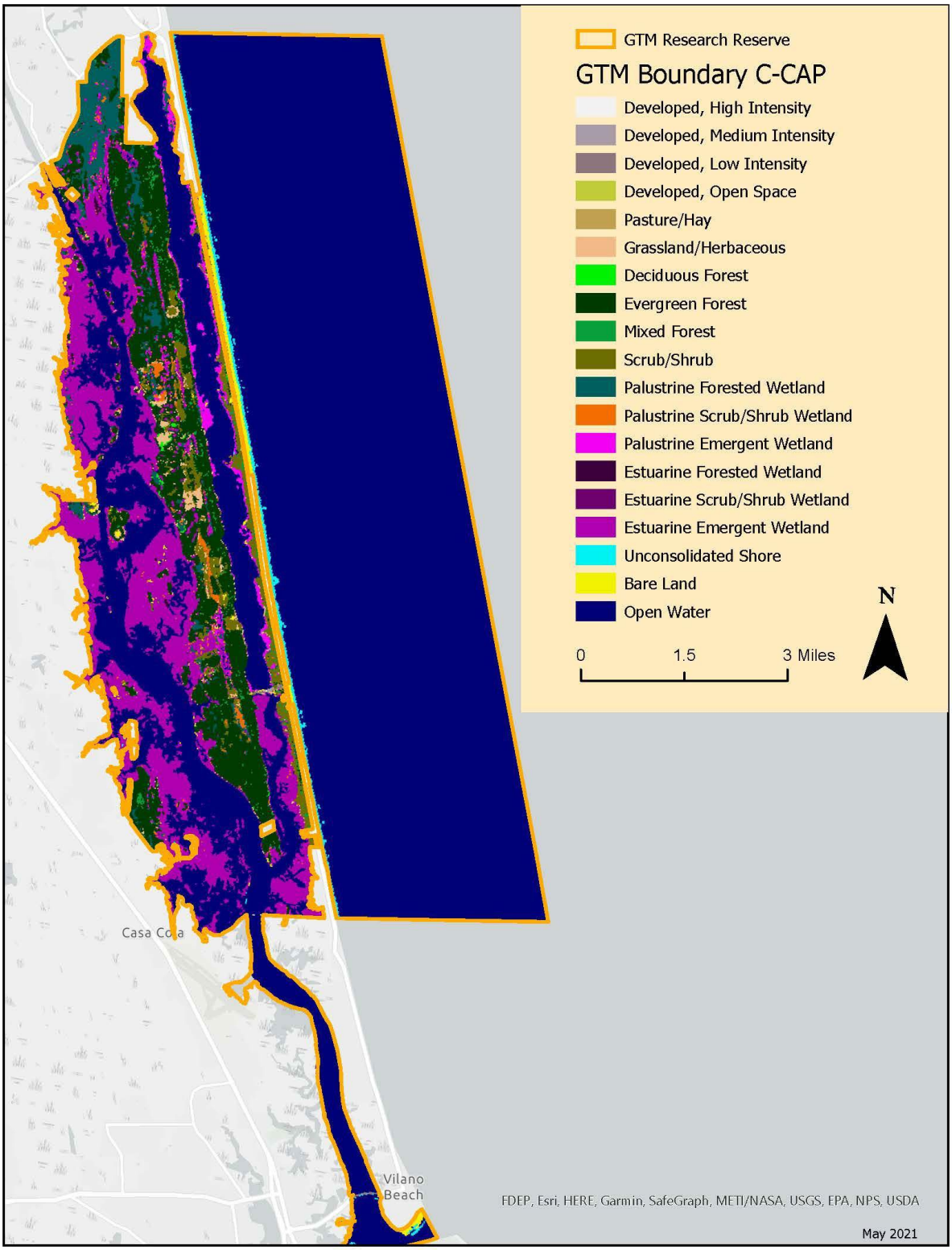
Map 9a. Conservation Land Cover (CLC) Communities North



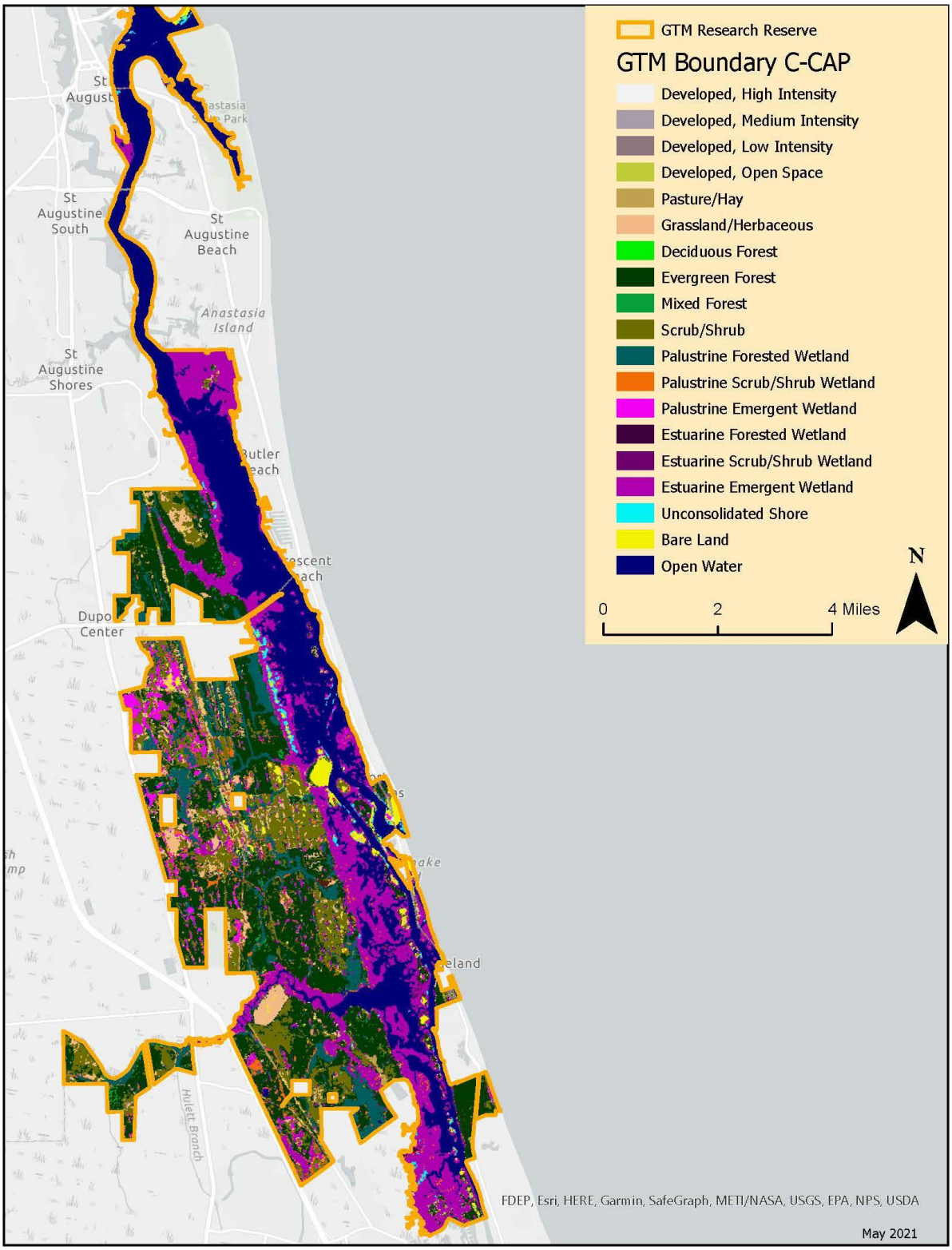
Map 9b. Conservation Land Cover (CLC) Communities South



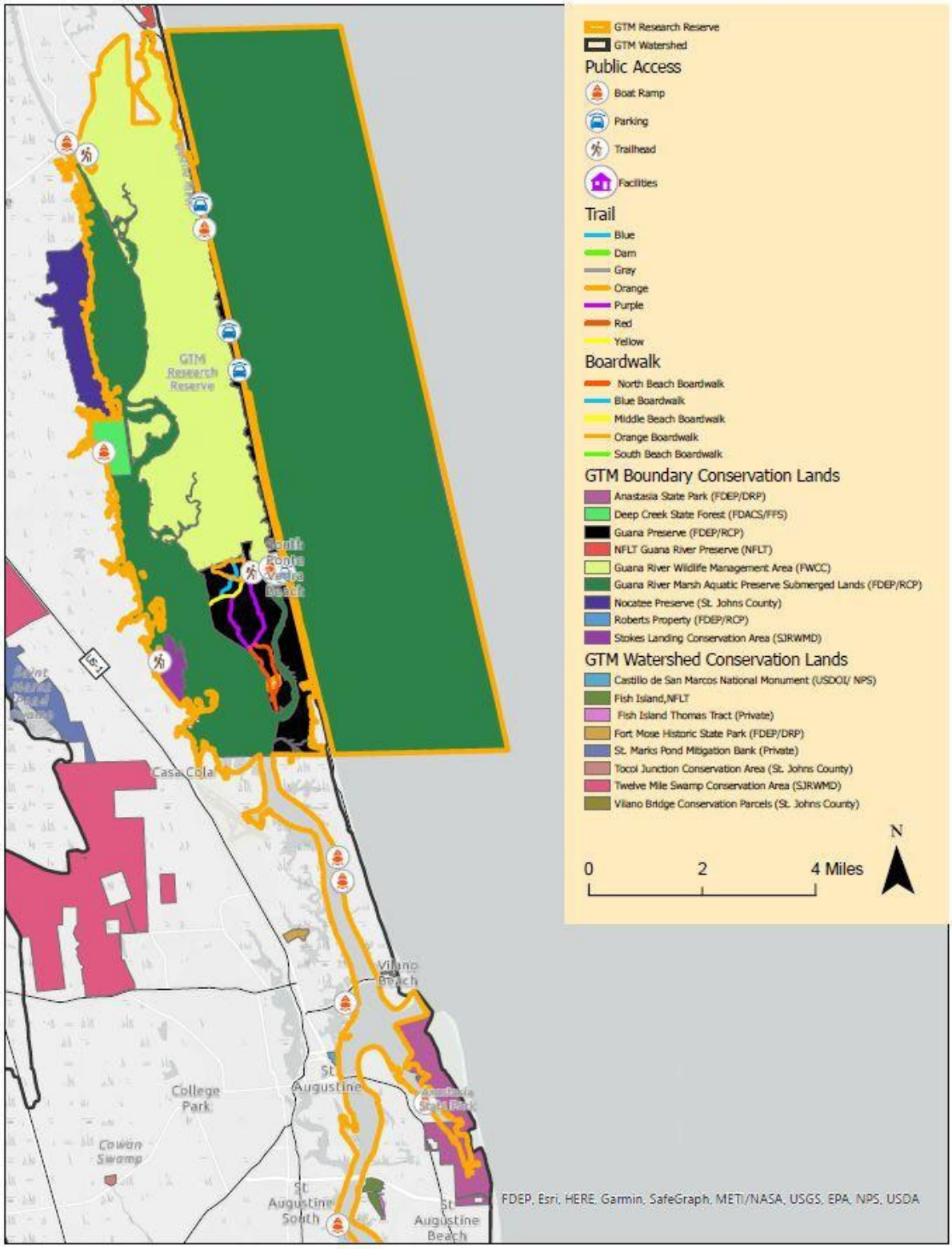
Map 10a. Coastal Change and Analysis Program (CCAP) Communities North



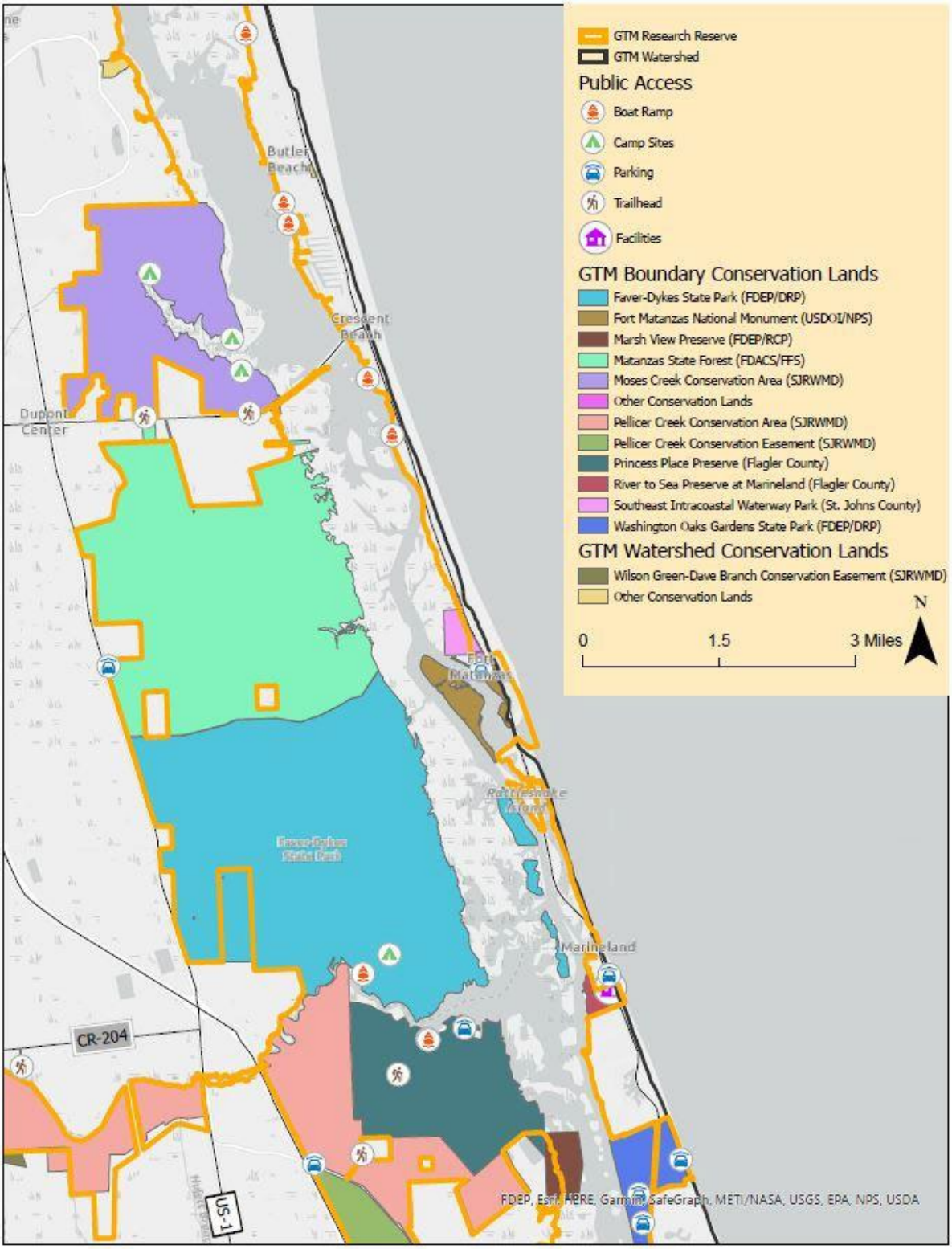
Map 10b. Coastal Change and Analysis Program (CCAP) Communities South



Map 11a. Access Points and Facilities North



Map 11b. Access Points and Facilities South



Map 12a. System Wide Monitoring Program (SWMP) and Related Stations North

Map 12b. System Wide Monitoring Program (SWMP) and Related Stations South

Chapter I: Introduction

GTM Research Reserve Overview

In 1999, the Guana Tolomato Matanzas National Estuarine Research Reserve (GTM Research Reserve) was designated in St. Johns and Flagler counties, Florida, as a part of the National Oceanic and Atmospheric Administration (NOAA) National Estuarine Research Reserve (NERR) System because of its outstanding representation of the east Florida sub-region of the Carolinian bioregion and its unique combination of natural and cultural resources. The GTM Research Reserve boundary encompasses 75,761 acres along the Guana, Tolomato, and Matanzas rivers, and the Atlantic Coast (Map 1. GTM Research Reserve Boundary). Its mission is to achieve the conservation of natural biodiversity and cultural resources by using the results of research and monitoring to guide science-based stewardship and education strategies.

GTM is one of three NERRs in Florida and is administered on behalf of the state by the Florida Department of Environmental Protection's Office of Resilience and Coastal Protection as part of a network that includes 42 aquatic preserves, three NERRs, a National Marine Sanctuary, and the Kristin Jacobs Coral Reef Ecosystem Conservation Area. This provides for a system of significant protections to ensure that our most popular and ecologically important aquatic and wetland ecosystems are cared for in perpetuity. Each of these special places is managed with strategies based on local resources, issues and conditions.

To aid in the analysis and development of the GTM Research Reserve management strategies, five comprehensive management programs are identified. These programs are Research and Monitoring, Education, Coastal Training, Stewardship, and Resource Management. In each of these programs, relevant information about the specific sites is described to create a comprehensive management plan. Additional staff provides administrative, communication, facilities, and volunteer coordination support services. The detailed priorities, objectives, and strategies of each sector described herein and are aligned with the overarching goals of the NERR System and the Florida Department of Environmental Protection (FDEP).

Coastal Management Issues and Reserve Goals

Florida's expansive coastline and wealth of aquatic resources attracts millions of residents and visitors, and the businesses that serve them. Florida's submerged lands play important roles in maintaining good water quality, hosting a diversity of wildlife and habitats (including economically and ecologically valuable nursery areas), and supporting a treasured quality of life for all. In the 1960s, it became apparent the ecosystems that had attracted so many people to Florida could not support rapid growth without science-based resource protection and management.

The hallmark of the NERR System is that each reserve's management efforts are in direct response to, and designed for, unique local and regional issues. The purpose of this plan is to incorporate, evaluate, and prioritize all relevant information about the GTM Research Reserve into management strategies, allowing for compatible public access to the managed areas while sustaining the long-term quality of its ecosystems and cultural resources. Reserve staff identified five primary management issues and a

primary goal for each to guide this plan. Specific strategies and actions to accomplish these goals can be found in Chapter Six.

Issue 1. Loss of Natural Biodiversity

Primary Goal- improve natural biodiversity throughout the Reserve.

Issue 2. Water Quality Degradation

Primary Goal- improve water quality within the Reserve.

Issue 3. Impacts from Sea Level Rise and Climate Change

Primary Goal- Enhance the understanding of impacts from sea level rise and climate change on estuarine systems**.**

Issue 4. Sustainable Public Use

Primary Goal- Improve visitor experiences and minimize resource damage and user group conflicts.

Issue 5. Cultural Resources

Primary Goal- Increase awareness of cultural history within the Reserve while preventing negative impacts to historical sites.

Public Involvement

FDEP's Office of Resilience and Coastal Protection (ORCP, formerly Florida Coastal Office (FCO) and Office of Coastal and Aquatic Managed Areas (CAMA)) recognizes the importance of stakeholder participation and encourages their involvement in the management plan development process. ORCP is also committed to meeting the requirements of the Sunshine Law (Florida Statute § 286.011), which includes:

- Meetings of public boards or commissions must be open to the public;
- Reasonable notice of such meetings must be given;
- Minutes of the meetings must be recorded; and
- NOAA may require public notice, including notice in the Federal Register and opportunity for public comment before approving a boundary or management plan change.

Several key steps are to be taken during management plan development. First, staff organizes an advisory committee comprised of key stakeholders. Next, staff advertises and conducts one or more public meetings to receive input from stakeholders on the concerns and perceived issues affecting each of the sites. This input is used in the development of a draft management plan that is reviewed by ORCP staff and the advisory committee. After the initial reviews, the staff advertises and conducts, in conjunction with the advisory committee, additional public meetings to engage the stakeholders for feedback on the draft plan and the development of the final draft of the management plan. For additional information about the advisory committee and the public meetings, refer to Appendix F - Public Involvement.

Chapter 2. National Estuarine Research Reserve System (NERRS)

Introduction to the National Estuarine Research Reserve System

The National Estuarine Research Reserve (NERR) System is a network of 30 protected estuarine areas that represent different biogeographic regions and estuarine types within the United States. Reserves are protected for long-term research, monitoring, education and coastal stewardship. The NERR System, created by the Coastal Zone Management Act of 1972, currently protects over one million acres of estuarine lands and waters. The system is managed in accordance with federal regulations at 15 CFR Part 921.

Each reserve has a unique boundary based on the nature of its ecosystem. The boundaries include the land and water areas needed to protect an intact ecological unit. Reserves classify their land and water areas as either "core" or "buffer," which determines the level of protection and the types of activities allowed within each area. Each reserve develops the programming most appropriate for its location while also delivering required system-wide programs focused on research and monitoring, education, training, and stewardship.

The NERR System is a partnership program between the National Oceanic and Atmospheric Administration (NOAA) and the coastal states. NOAA provides funding, national guidance, and technical assistance for reserve operations and system-wide programs, facilities construction and land acquisition, graduate fellowships, and collaborative science projects. The state partner manages the reserve on a daily basis and works collaboratively with local and regional partners. NOAA also leads projects that integrate data or support decision-making at the national level.

Each reserve is required to develop a management plan that contains the goals, objectives, and strategies for that reserve. Management plans are updated every five years and must be approved by NOAA[1]. These plans enable the reserves and NOAA to track progress and realize opportunities for growth. Each plan describes how the reserve will carry out its foundational research, education, and training programs. Each plan also outlines administration, resource protection, public access, land acquisition, and facility plans, as well as restoration and resource manipulation plans if applicable. The plans also incorporate strategies designed to help the reserve contribute to the system's national goals. NOAA periodically evaluates reserves for compliance with federal requirements and their approved management plan.

The most recent strategic plan for the NERR System can be found at *coast.noaa.gov/data/docs/nerrs/StrategicPlan.pdf*. It describes the following goals for the system.

1. **Protecting Places:** Enhance and inspire stewardship, protection, and management of estuaries and their watersheds in coastal communities through place-based approaches.
2. **Applying Science:** Improve the scientific understanding of estuaries and their watersheds through the development and application of reserve research, data, and tools.
3. **Educating Communities:** Advance environmental appreciation and scientific literacy, allowing for science-based decisions that positively affect estuaries, watersheds, and coastal communities.

[1] The Florida Department of Environmental Protection requires Management Plans to be updated every ten years. The NOAA-required 5-year update will consist of any changes to this plan noted in an addendum to this plan.

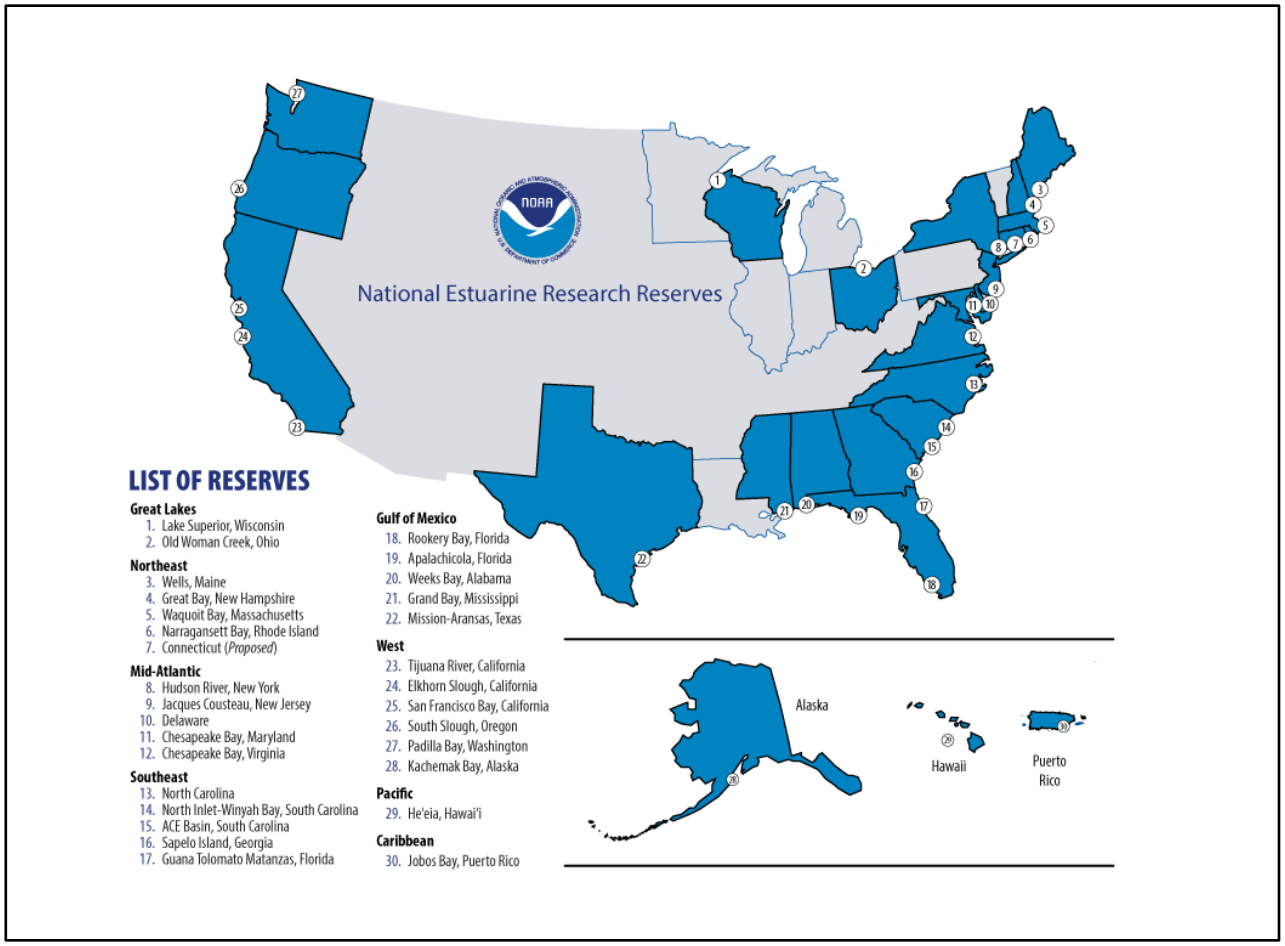


Figure 1. National Estuarine Research Reserve System map

Note that the Connecticut Reserve has been designated but an updated map was not available at the development of this plan.

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Chapter 3. Florida Department of Environmental Protection Office of Resilience and Coastal Protection

Introduction to the Office of Resilience and Coastal Protection

The Florida Department of Environmental Protection (FDEP) protects, conserves and manages Florida's natural resources and enforces the state's environmental laws. FDEP is the lead agency in state government for environmental management and stewardship and commands one of the broadest charges of all the state agencies, protecting Florida's air, water and land. FDEP is divided into 3 primary areas: Regulatory Programs, Land and Recreation, and Ecosystem Restoration. Florida's environmental priorities include restoring America's Everglades; improving air quality; restoring and protecting the water quality in our springs, lakes, rivers and coastal waters; conserving environmentally sensitive lands; and providing citizens and visitors with recreational opportunities, now and in the future.

The Office of Resilience and Coastal Protection (ORCP) is the unit within the FDEP that manages more than five million acres of submerged lands and select coastal uplands. These lands include three National Estuarine Research Reserves (NERR), 42 aquatic preserves, the Florida Keys National Marine Sanctuary and the Coral Reef Conservation Program (CRCP) (Figure 2). The three NERRs, the Florida Keys National Marine Sanctuary and the CRCP are managed in cooperation with the National Oceanic Atmospheric Administration.

The Office of Resilience and Coastal Protection manages sites in Florida for the conservation and protection of natural and historical resources and resource-based public use that is compatible with the conservation and protection of these lands. ORCP is a strong supporter of the NERR System and its approach to coastal ecosystem management. Each of the Florida NERR sites encompasses at least one aquatic preserve within its boundaries. Rookery Bay NERR includes Rookery Bay Aquatic Preserve and Cape Romano - Ten Thousand Islands Aquatic Preserve; Apalachicola NERR includes Apalachicola Bay Aquatic Preserve; and Guana Tolomato Matanzas NERR includes Guana River Marsh Aquatic Preserve and Pellicer Creek Aquatic Preserve. These aquatic preserves provide discrete areas designated for additional protection beyond that of the surrounding NERR and may afford a foundation for additional protective zoning in the future. The GTM Research Reserve Manager reports to the ORCP Regional Administrator, who oversees multiple other aquatic preserves in their region. This management structure advances ORCP's ability to manage its sites as a part of the larger statewide system (Figure 3).

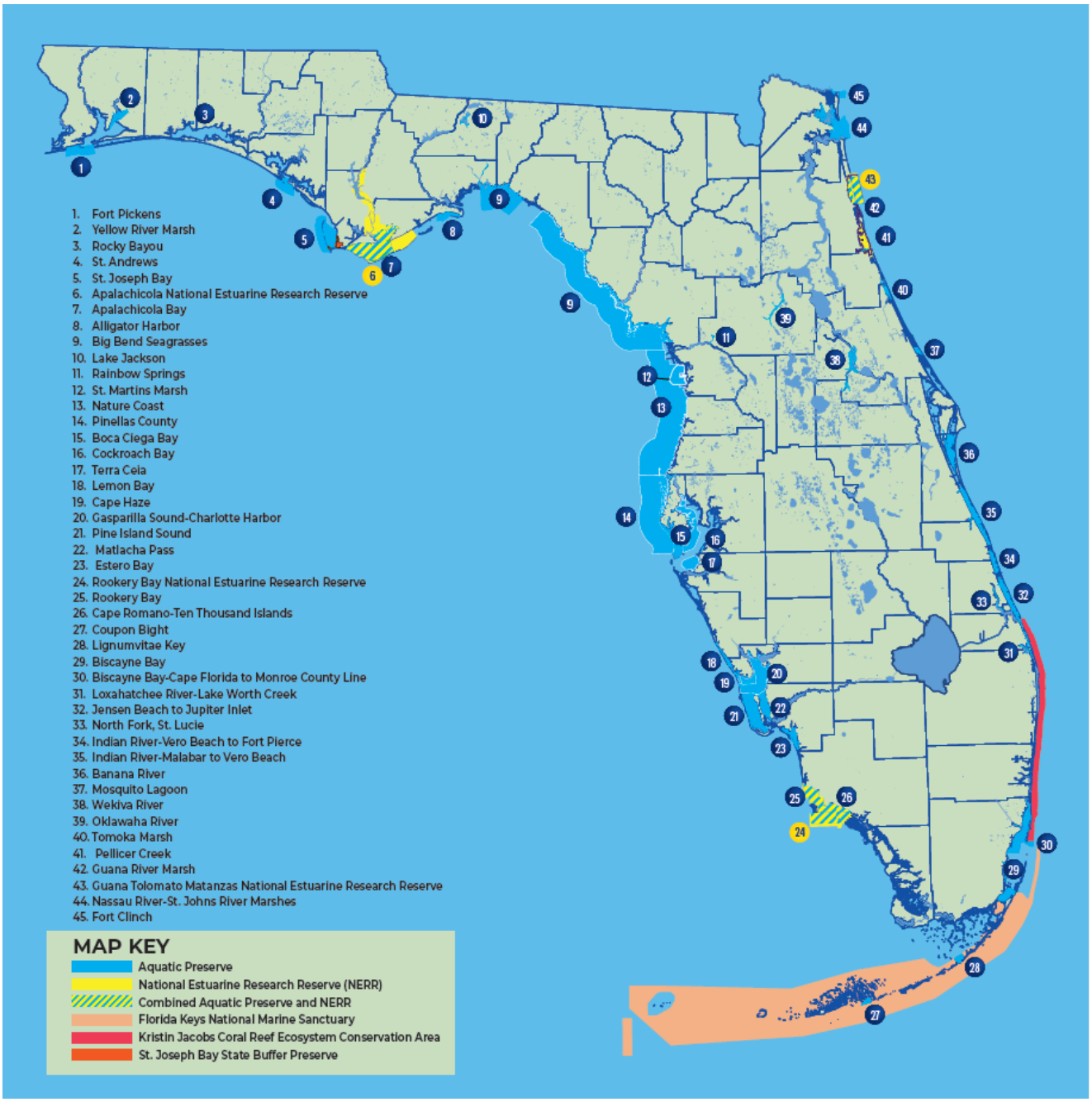

Figure 2. Office of Resilience and Coastal Protection Statewide Managed Resources

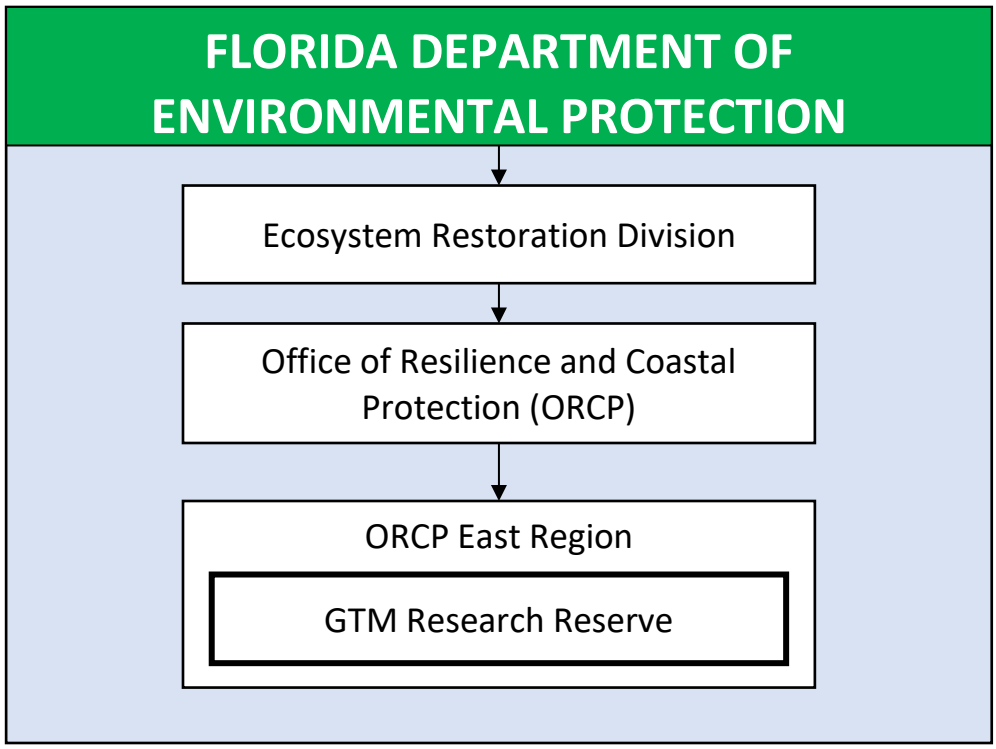

Figure 3. State organizational structure

State Management Authority

This plan follows the Conceptual State Lands Management Plan, adopted March 17, 1981 by the Board of Trustees of the Internal Improvement Trust Fund and represents balanced public utilization, specific agency statutory authority, and other legislative or executive constraints. The Conceptual State Lands Management Plan also provides essential guidance concerning the management of sovereignty lands and aquatic preserves and their important resources, including unique natural features, seagrasses, endangered species and archaeological and historical resources.

Through delegation of authority from the Trustees, FDEP and ORCP have proprietary authority to manage the sovereignty lands, the water column, spoil islands (which are merely deposits on sovereignty lands), and some of the natural islands and select coastal uplands to which the Trustees hold title. Sites covered by this management plan include state-owned uplands in addition to sovereignty lands.

Florida's first acquisition program was born in 1963 as the Land Acquisition Trust Fund (LATF), which funded the Outdoor Recreation and Conservation Program to purchase park and other recreational areas. 1963 Fla. Laws ch. 63-36, § 4. The Environmentally Endangered Lands (EEL) program was created in 1972. See 1972 Fla. Laws ch. 72-259.

In 1979, the current Division of State Lands was created within the Florida Department of Natural Resources, a predecessor agency to the FDEP. 1979 Fla. Laws ch. 79-255, §§ 2–4. The same year the legislature substantially amended Chapter 253, Florida Statutes (F.S.), pertaining to the use and

management of state lands and created the Conservation and Recreation Lands (CARL) program to replace EEL. 1979 Fla. Laws ch. 79-255 § 8. CARL and its successors were eventually codified in Chapter 259, F.S. See 1992 Fla. Laws ch. 91-62 § 1. 1981 saw the establishment of the Save Our Coast (SOC) program, which augmented the LATF to focus on coastline purchases. CARL eventually subsumed the responsibilities of both SOC and LATF.

The Preservation 2000 Program commenced in 1990 to fund CARL and other acquisition initiatives. 1990 Fla. Laws ch. 90-217. Preservation 2000 was intended as a 10-year program and was succeeded by the Florida Forever Program at the end of its course. See 2000 Fla. Laws ch. 2000-281. Florida Forever has replaced CARL and continues to provide for the evaluation of land for acquisition and inclusion within and adjacent to the boundaries of Florida's three NERRs as well as other areas. More details about Florida Forever and priorities near the GTM Research Reserve can be found in Chapter 10.

Enforcement of state statutes and rules relating to criminal violations and non-criminal infractions rests with the Florida Fish and Wildlife Conservation Commission law enforcement and local law enforcement agencies. Enforcement of administrative remedies rests with ORCP, the FDEP Regulatory Districts, and Water Management Districts.

Aquatic Preserves

Two aquatic preserves are within the GTM Research Reserve boundary and are covered by this management plan- Guana River Marsh Aquatic Preserve and Pellicer Creek Aquatic Preserve. Established by law, aquatic preserves are submerged lands of exceptional beauty that are to be maintained in their natural or existing conditions. F.S. § 258.37(1). The intent was to set aside, in perpetuity, submerged lands with exceptional biological, aesthetic, and scientific values as sanctuaries, called aquatic preserves, for the benefit of future generations. F.S. § 258.36.

The laws supporting aquatic preserve management are the direct result of the public's awareness of and interest in protecting Florida's aquatic environment. The extensive dredge and fill activities that occurred in the late 1960s spawned this widespread public concern. In 1966, the Board of Trustees of the Internal Improvement Trust Fund (the Trustees) created the first aquatic preserve, Estero Bay, in Lee County.

In 1967, the Florida Legislature passed the Randall Act (Chapter 67-393, Laws of Florida), which established procedures regulating previously unrestricted dredge and fill activities on state-owned submerged lands. That same year, the legislature provided the statutory authority (F.S. § 253.03) for the Trustees to exercise proprietary control over state-owned lands. Fla. Laws ch. 67-269 §§ 2, 3. Also in 1967, government focus on protecting Florida's productive water bodies from degradation due to development led the Trustees to establish a moratorium on the sale of submerged lands to private interests. An Interagency Advisory Committee was created to develop strategies for the protection and management of state-owned submerged lands.

In 1968, the Florida Constitution was revised to declare in Article II, Section 7, the state's policy of conserving and protecting natural resources and areas of scenic beauty. That constitutional provision also established the authority for the legislature to enact measures for the abatement of air and water

pollution. Later that same year, the Interagency Advisory Committee issued a report recommending the establishment of 26 aquatic preserves.

The Trustees acted on this recommendation in 1969 by establishing 16 aquatic preserves and adopting a resolution for a statewide system of such preserves. In 1975, the state Legislature passed the Florida Aquatic Preserve Act of 1975 (Act) that was enacted as Chapter 75-172, Laws of Florida, and later became Chapter 258, Part II, F.S. This Act codified the already existing aquatic preserves and established standards and criteria for activities within those preserves. Additional aquatic preserves were individually adopted at subsequent times up through 1989.

In 1980, the Trustees adopted the first aquatic preserve rule, Chapter 18-18, Florida Administrative Code (F.A.C.), for the administration of the Biscayne Bay Aquatic Preserve. All other aquatic preserves are administered under Chapter 18-20, F.A.C., which was originally adopted in 1981. These rules apply standards and criteria for activities in the aquatic preserves, such as dredging, filling, building docks and other structures that are stricter than those of Chapter 18-21, F.A.C., which apply to all sovereignty submerged lands in the state.

State Statutory Authority

Aquatic Preserves

The fundamental laws providing management authority for the aquatic preserves are contained in Chapters 258 and 253, F.S. These statutes establish the proprietary role of the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund, as Trustees over all sovereignty lands. F.S. § 253.02(1). In addition, these statutes empower the Trustees to adopt and enforce rules and regulations for managing all sovereignty lands, including aquatic preserves. F.S. § 253.127. The Florida Aquatic Preserve Act was enacted by the Florida Legislature in 1975 and is codified in Chapter 258, F.S.

The legislative intent for establishing aquatic preserves is stated in Section 258.36, F.S.: “It is the intent of the Legislature that the state-owned submerged lands in areas which have exceptional biological, aesthetic, and scientific value, as hereinafter described, be set aside forever as aquatic preserves or sanctuaries for the benefit of future generations.” This statement, along with the other applicable laws, provides a foundation for the management of aquatic preserves. Management will emphasize the preservation of natural conditions and will include only sovereignty or state-owned lands that are specifically authorized for inclusion as part of an aquatic preserve.

Management responsibilities for aquatic preserves may be fulfilled directly by the Trustees or by staff of the FDEP through delegation of authority. See F.S. § 258.45. Other governmental bodies may also participate in the management of aquatic preserves under appropriate instruments of authority issued by the Trustees. ORCP staff serves as the primary managers who implement provisions of the management plans and rules applicable to the aquatic preserves. ORCP does not “regulate” the lands per se; rather, that is done primarily by the FDEP Districts (in addition to the Water Management Districts) which grant regulatory permits. The Florida Department of Agriculture and Consumer Services, through delegated authority from the Trustees, may issue proprietary authorizations for marine aquaculture within the aquatic preserves and regulates all aquaculture activities as authorized by Florida Aquaculture Policy Act. F.S. § 597.003. Aquatic preserve staff evaluates proposed uses or activities in the

aquatic preserve and assesses the possible impacts on the natural resources. Project reviews are primarily evaluated in accordance with the criteria in the Act, Chapter 18-20, F.A.C., and this management plan.

ORCP staff comments and those of the public are submitted to the appropriate permitting staff for consideration in their issuance of any delegated authorizations in aquatic preserves or in developing recommendations to be presented to the Trustees. This mechanism provides a basis for the Trustees to evaluate public interest and the merits of any project while also considering potential environmental impacts to the aquatic preserves. Any activity located on sovereignty lands requires a letter of consent, a lease, an easement, or other approval from the Trustees.

National Estuarine Research Reserves (NERRs)

The same authorities in Chapters 258 and 253, F.S., discussed above, provide management directives relevant to the NERRs. Of critical importance, Section 253.86 grants ORCP the explicit authority to promulgate rules for the management and use of uplands assigned to its management. Additionally, NERR management must consider the Florida Forever Act, which authorizes and governs acquisition and use of lands to conserve and protect important habitats, wildlife, water resources and archaeological sites in accordance with the Land Conservation Act of 1972. F.S. § 259.105. Land managing agencies must prepare management plans in compliance with guidelines established in Chapter 259, F.S. The Trustees fulfill the proprietary management overview role for the NERRs, with management responsibilities assigned to staff acting as "agents" of the Trustees, pursuant to delegations of authority, management agreements and other legal mechanisms. Typically, a lease agreement with the Trustees delegates management authority for the uplands assigned to the FDEP and ORCP. Leases for Trustees' lands within this NERR are included in Appendix A.

Many provisions of the Florida Statutes that empower non-ORCP programs within FDEP or other agencies may be important to the management of ORCP sites. For example, the Florida Air and Water Pollution Control Act authorizes FDEP to create rules concerning the designation of "Outstanding Florida Waters (OFWs)," a program that provides aquatic preserves with additional regulatory protection. F.S. § 403.061. Saltwater fisheries are regulated by the FWC pursuant to Article IV Section 9 of the Florida Constitution, which provides enforcement authority and powers for law enforcement. Likewise, Chapter 379, F.S., provides similar powers relating to fish and wildlife management. Because the NERR boundaries encompass areas directly managed by other state and federal agencies, interested parties should refer to the management plans produced by the relevant agencies for those parcels for a discussion of their legal authorities. The sheer number of statutes that affect NERR management prevents an exhaustive list of all such laws from being provided here.

State Administrative Rules

Aquatic Preserves

Chapters 18-18, 18-20 and 18-21, F.A.C., are the three administrative rules directly applicable to the uses allowed in aquatic preserves specifically and sovereignty lands generally. These rules are intended to be cumulative, meaning that Chapter 18-21, F.A.C., should be read together with Chapter 18-18, F.A.C., or Chapter 18-20, F.A.C., to determine what activities are permissible within an aquatic preserve. If Chapter 18-18, F.A.C., or Chapter 18-20, F.A.C., are silent on an issue, Chapter 18-21, F.A.C., will

control; if a conflict is perceived between the rules, the stricter standards of Chapter 18-18, F.A.C., or Chapter 18-20, F.A.C., supersede those of Chapter 18-21, F.A.C. Because Chapter 18-21, F.A.C. concerns all sovereignty lands, it is logical to discuss its provisions first.

Originally codified in 1982, Chapter 18-21, F.A.C., is meant "to aid in fulfilling the trust and fiduciary responsibilities of the Board of Trustees of the Internal Improvement Trust Fund for the administration, management and disposition of sovereignty lands; to insure maximum benefit and use of sovereignty lands for all the citizens of Florida; to manage, protect and enhance sovereignty lands so that the public may continue to enjoy traditional uses including, but not limited to, navigation, fishing and swimming; to manage and provide maximum protection for all sovereignty lands, especially those important to public drinking water supply, shellfish harvesting, public recreation, and fish and wildlife propagation and management; to insure that all public and private activities on sovereignty lands which generate revenues or exclude traditional public uses provide just compensation for such privileges; and to aid in the implementation of the State Lands Management Plan." Rule F.A.C. 18-21.001.

To that end, Chapter 18-21, F.A.C., contains provisions on general management policies, forms of authorization for activities on sovereignty lands, and fees applicable for those activities. "Activity," in the context of the rule, includes "construction of docks, piers, boat ramps, boardwalks, mooring pilings, dredging of channels, filling, removal of logs, sand, silt, clay, gravel or shell, and the removal or planting of vegetation." Subsection 18-21.003(3), F.A.C. To be authorized on sovereignty lands, activities must be not contrary to the public interest. Subsection 18-21.004(1)(a), F.A.C.

Chapter 18-21, F.A.C., also sets policies on aquaculture, geophysical testing (using gravity, shock wave and other geological techniques to obtain data on oil, gas or other mineral resources), and special events related to boat shows and boat displays. Of importance to ORCP site management, it additionally addresses spoil islands, preventing their development in most cases. See Rule 18-21.012, F.A.C.

Chapters 18-18 and 18-20, F.A.C., apply standards and criteria for activities in the aquatic preserves that are stricter than those of Chapter 18-21, F.A.C. Chapter 18-18, F.A.C., is specific to the Biscayne Bay Aquatic Preserve and is more extensively described in that site's management plan. Chapter 18-20, F.A.C., is applicable to all other aquatic preserves. It further restricts the type of activities for which authorizations may be granted for use of sovereignty lands and requires that structures that are authorized be limited to those necessary to conduct water dependent activities. See Subsection 18-20.004(1)(f), F.A.C. Moreover, for certain activities to be authorized, "it must be demonstrated that no other reasonable alternative exists which would allow the proposed activity to be constructed or undertaken outside the preserve." Subsection 18-20.004(1)(g), F.A.C.

Chapter 18-20, F.A.C., expands on the definition of "public interest" by outlining a balancing test that is to be used to determine whether benefits exceed costs in the evaluation of requests for sale, lease, or transfer of interest of sovereignty lands within an aquatic preserve. Subsection 18-20.003(46), F.A.C. The rule also provides for the analysis of the cumulative impacts of a request in the context of prior, existing, and pending uses within the aquatic preserve, including both direct and indirect effects. Rule 18-20.006, F.A.C. Chapter 18-20, F.A.C., directs management plans and resource inventories to be developed for every aquatic preserve.

National Estuarine Research Reserves (NERRs)

NERRs, because they manage uplands in addition to their oversight of sovereignty lands within aquatic preserves, must follow the provisions of Chapter 18-2, F.A.C., Chapter 18-23, F.A.C., and Chapter 18-24, F.A.C. Chapter 18-2, F.A.C., establishes policies concerning use of uplands owned by the Trustees and managed by state entities. Originally codified in 1996, this rule expands upon the guidelines set forth in the Conceptual State Lands Management Plan. It requires that uses of the uplands be not contrary to the public interest and mandates that direct and indirect impacts and cumulative effects be considered as part of the public interest determination. Subsection 18-2.018(1), F.A.C.

Chapter 18-23, F.A.C., supplements Chapter 18-2, F.A.C., by establishing guidelines and criteria specifically for uplands managed by ORCP. It limits certain activities on these uplands, such as hunting and admission of pets, "to conserve, preserve and restore the natural and cultural resources and ensure the safety and enjoyment of visitors." Subsection 18-23.007(2), F.A.C. The rule provides a schedule of fines for violations of these policies, which are considered non-criminal infractions. See Rule 18-23.010, F.A.C.

Chapter 18-24, F.A.C., delineates procedures specific to the use of monies from the Florida Forever Trust Fund for the acquisition and restoration of uplands. It also prescribes the procedures that are to be followed by the Acquisition and Restoration Council in advising the Trustees in administering the Florida Forever Program.

As with statutes, aquatic preserve management relies on the application of many other FDEP and outside agency rules. Perhaps most notably, Chapter 62-302, F.A.C., concerns the classification of surface waters, including criteria for OFW, a designation that provides for the state's highest level of protection for water quality. All aquatic preserves contain OFW designations. No activity may be permitted within an OFW that degrades ambient water quality unless the activity is determined to be in the public interest. Subsection 62-302.300(18), F.A.C. Once again, the list of other administrative rules that do not directly address ORCP's responsibilities but do affect ORCP sites is so long as to be impractical to create within the context of this management plan. For areas within NERR boundaries directly managed by other agencies, interested parties should refer to the relevant management plans for those areas for a discussion of their applicable rules and regulations.

Chapter 4. The Guana Tolomato Matanzas National Estuarine Research Reserve

The following chapter contains the details that impact the management of the GTM Research Reserve and drive research and other programs to fulfill the reserve's mission. These details range from the geologic to the geographic; from the biologic to the socioeconomic; from the archaeologic to present-day use. The information herein is based on best available knowledge, and staff continue to investigate these characteristics and provide updates as needed.

Location/ Boundary

The GTM Research Reserve is located in St. Johns County and Flagler County on the northeast coast of Florida, between the city of Jacksonville and the city of Palm Coast. From 1999 to 2019, the GTM Research Reserve was geographically separated into a northern and southern component, separated by the city of St. Augustine. In March 2020, an expansion to the NERR boundary was approved to include the city of St. Augustine sovereign submerged lands in the Matanzas River, as well as the state sovereign submerged lands connecting the city's waters to the previous boundary, signifying one continuous system. The expansion also included the Marshview parcel, which was added to Lease No. 3462, which covers lands managed by ORCP in the area, in 2011. At the time of the boundary expansion, these additions increase the NERR area by 3,346.44 acres to a total of 76,759.97 acres. However, since then better data files led to refining portions of the boundary lines which effectively reduced the total area to 75,761 acres. See Map 1.

International/National/State/Regional Significance

From its geomorphological structure to the species found within, the area of the GTM Research Reserve encompasses many unique features that make it an important site for ecological conservation, research and environmental education. In addition to these natural resources, the GTM Research Reserve contains a unique array of cultural resources. This ecosystem has been used by humans for over 5,000 years (Baker, 1988; Newman, 1995). Artifacts found in the GTM Research Reserve area range from an arrowhead from the late Archaic (2500-1000 BC) to pottery from the 19th century. The following list highlights significant features of the Reserve:

- It is a bar-built estuary characterized by barrier islands that run parallel to the coastline, separated from the ocean. Most National Estuarine Research Reserves represent coastal plain estuaries. It also includes one of the few remaining natural inlets in northeast Florida, at the Matanzas River, which has never been dredged.
- It encompasses a climatic transition zone, highlighted by the ecotone where mangrove-dominated salt marshes transition to grass domination.
- In contains large, contiguous stands of globally rare maritime hammock and coastal strand vegetation communities.
- It serves as an important habitat for migrating species including calving North Atlantic right whales, three species of nesting sea turtles, nesting least terns and breeding painted buntings. It serves as a critical feeding and resting location for migrating shorebirds and raptors along the North American Atlantic flyway. Manatees, wood storks, roseate spoonbills, bald eagles and many more species find refuge within the Reserve.

- It is in a region with the oldest record of European occupation in the U.S. and has a rich assortment of cultural resources dating to the pre-Columbian era, thereby providing a valuable resource for archaeological research and interpretation.
- The estuary serves as a nursery for commercially and recreationally important species like oysters, white and brown shrimp, flounder, blue crabs, red drum and gag grouper.

Designation and Acquisition History

Designation as a NERR

The site selection process for Florida's east coast National Estuarine Research Reserve began in September of 1991, with the identification of candidate estuaries in the Florida East Coast Carolinian and West Indian biogeographic regions identified by the National Estuarine Research Reserve (NERR) System. The Guana Tolomato Matanzas ecosystem was selected as the preferred alternative by a committee of scientists, environmental educators, and coastal managers based on its overall potential for scientific research and environmental education opportunities and because of its relatively pristine condition.

The GTM Research Reserve's ultimate purpose is to serve as a platform for research that guides environmental education and stewardship programs focused on the conservation of northeast Florida's unique natural and cultural resources. After obtaining support from the citizens and legislators of St. Johns and Flagler counties, the Governor and Cabinet of the State of Florida nominated the estuarine ecosystem composed of the Guana, Tolomato, and Matanzas rivers for designation as a NERR.

The GTM Research Reserve was officially designated on August 19, 1999 and currently covers 75,761 acres. This designation includes 12 distinct management units, including the portions directly managed by the Office of Resilience and Coastal Protection within the NERR boundary designated as one unit (44,383 acres). Maps 2a and 2b depict the units located within the boundary line, as well as additional conservation properties within the watershed.

The ORCP unit within the NERR boundary includes the Guana River Marsh Aquatic Preserve (GRMAP), the Pellicer Creek Aquatic Preserve (PCAP), and the uplands associated with State Lands Lease No. 3462, formerly Guana State Park. The GRMAP surrounds three sides of the Guana Peninsula, which includes a portion of Lease No. 3462 and the upland area of the Guana River Wildlife Management Area, which is managed by the Florida Fish and Wildlife Conservation Commission. The submerged area of GRMAP and the upland areas of GRMAP that are managed by ORCP staff for public use are collectively and colloquially referred to as the Guana Preserve. The Guana Preserve and Guana River Wildlife Management Area overlap on Guana Lake (also called Ponte Vedra Lake). Map 3 depicts this division of GRMAP. A small portion of parcels included in Lease No. 3462 are not included in the NERR boundary, however the management of those parcels is included under state-relevant parts of this management plan. Maps 4a and 4b show these parcels.

The other management units are listed in Figure 4. All documentation for adequate state control over human activities as required by NOAA for inclusion in the reserve boundary may be found in Appendix A.

GTM Research Reserve Non-ORCP Management Unit	Managing Agency	Acreage	Adequate Control Document
Guana River Wildlife Management Area	Florida Fish and Wildlife Conservation Commission	9,815	1998 Cooperative Management MOA and MOA from 2007
Deep Creek State Forest	Florida Department of Agriculture and Consumer Services	380	MOA (FDACS Contract # 009260)
Stokes Landing Conservation Area	St. Johns River Water Management District	286	1998 Cooperative Management MOA
Moses Creek Conservation Area	St. Johns River Water Management District	2,172	1998 Cooperative Management MOA
Matanzas State Forest	Florida Department of Agriculture and Consumer Services	4,700	MOA (FDACS Contract # 009260)
Faver-Dykes State Park	Florida Department of Environmental Protection - Division of Recreation and Parks	6,045	1998 Cooperative Management MOA
Washington Oaks State Park	Florida Department of Environmental Protection - Division of Recreation and Parks	425	1998 Cooperative Management MOA
Fort Matanzas National Monument	National Park Service	300	1998 Cooperative Management MOA
Princess Place Preserve	Flagler County	1,503	1998 Cooperative Management MOA
Pellicer Creek Conservation Area	St. Johns River Water Management District	3,162	1998 Cooperative Management MOA
River-to-Sea Preserve	Flagler County/ Town of Marineland	85	1998 Cooperative Management MOA

Figure 4. GTM Research Reserve Management Units not managed by ORCP

Acquisition of ORCP-managed Properties

Chapter 3 details the state of Florida's management authority for aquatic preserves including PCAP, which was designated in 1970, and GRMAP, which was designated in 1985. The total area managed by ORCP within the GTM Research Reserve is 44,383 acres of upland and aquatic habitats, which includes these aquatic preserves, most of Lease No. 3462, and the State sovereign submerged lands within the Matanzas River and its tributaries inside the GTM Research Reserve boundary.

The upland portions of Guana area (approximately 15,000 acres) were leased by the Florida Game and Fresh Water Fish Commission in 1957. In 1982, Gate Petroleum purchased the property from Phillips Petroleum Company, which had recently acquired the peninsula when it purchased Stockton, Whatley, Davin & Co. In 1984, the state of Florida purchased the Guana River peninsula property for $48 million

dollars through its Conservation and Recreation Lands and Save Our Coast programs, and subsequently designated it as an aquatic preserve a year later.

On January 8, 1988, the Board of Trustees of the Internal Improvement Trust Fund (BTIITF) conveyed management authority of Guana River State Park, approximately 2,489 acres of GRMAP that included a portion of the peninsula and the adjacent barrier island to the Florida Department of Environmental Protection (FDEP), Division of Recreation and Parks (DRP) under Lease No. 3462 (Appendix A). On December 15, 2003, the BTIITF assigned, transferred and conveyed 100% of the title and interest to DEP, ORCP for the remainder of the term of the lease. This lease will expire on January 8, 2038.

Aquatic Preserve, Research Reserve and Nearby Conservation Lands

The GTM Research Reserve is divided into two components. Before 2020, the northern and southern components did not share a contiguous boundary and were separated by the City of St. Augustine. In 2019 a boundary expansion for the NERR was approved that connected the two components (Map 1). For clearer maps and ease of discussion, the GTM Research Reserve is still referred to as two components; the northern component is associated with the Tolomato and Guana River estuaries and the southern component is associated with the Matanzas River estuary. The dividing line is the St. Augustine Inlet.

Northern Component

The Northern Component consists of GRMAP, the Guana Preserve and the Guana River Wildlife Management Area (GRWMA), Stokes Landing Conservation Area, and Deep Creek State Forest. Acreage and managing agencies are described in the previous section. All non-aquatic preserve lands within this component are adjacent to GRMAP.

The GTM Visitor Center is located on the uplands within GRMAP, ten miles north of St. Augustine on State Road A1A in Ponte Vedra Beach. The Visitor Center serves as the primary facility for the administrative, education, research, and stewardship programs in the northern component of the GTM Research Reserve. This component and its adjacent conservation lands are in St. Johns County.

Additional public conservation lands within the watershed of the Guana and Tolomato rivers that are not in the Reserve boundary include the Nocatee Preserve, lands owned and conserved by the North Florida Land Trust (NFLT), a portion of the Twelve Mile Swamp Tract including the Twelve Mile Swamp Wildlife Management Area and Conservation Area, Castillo de San Marcos National Monument, Fish Island, Fort Mose Historic State Park, Anastasia State Park, Tocoi Junction Conservation Area and the Vilano Bridge Conservation Parcels (Map 2a). Of these, only the Nocatee Preserve and NFLT lands are adjacent to GRMAP. Nocatee Preserve is a 2,400-acre parcel of salt marsh, floodplain forest, and silviculture donated to St. Johns County by the PARC Corporation, developers of the town of Nocatee. The purpose of this parcel is to provide conservation of wildlife and passive recreation. The NFLT lands are currently comprised of four parcels along the waterway that feeds Guana Lake on the north end. Of these parcels, 8 acres are adjacent to the northern end of GRMAP and another 48 acres are to the north across A1A (Ponte Vedra Boulevard).

Southern Component

The southern component of the reserve consists of PCAP, portions of Lease No. 3462 outside of GRMAP, the Matanzas River, the Matanzas State Forest, Faver-Dykes State Park, Pellicer Creek Conservation Area, Fort Matanzas National Monument, the Princess Place Preserve and the River-to-Sea Preserve. Acreage and managing agencies are described in the previous section. PCAP is adjacent to Faver-Dykes State Park, Princess Place Preserve, Pellicer Creek Conservation Area and the Matanzas River.

The GTM Research Reserve has office, meeting, dormitory, and lab space in a building owned by Flagler County in the town of Marineland. Within Princess Place Preserve, the GTM Research Reserve has priority use of the Legacy School House for visiting investigator and educational purposes. Also, on this property are three cabins partially funded via a NOAA Procurement Acquisition and Construction grant that may also be used for these purposes. The use agreements for these facilities can be found in Appendix A.

Additional public conservation land within the watershed of the Matanzas River not in the NERR boundary include Bings Landing and Graham Swamp Conservation Area, which are owned by Flagler County, and St. Johns River Water Management District's Wilson Green-Dave Branch Conservation Easement (Map 2b). This parcel was purchased with Florida Forever Funds in 2019 and is adjacent to the newly added portion of the GTM Research Reserve in City of St. Augustine.

Core and Buffer Areas

NERR System Regulations under 15 C.F.R. Sec. 921.13 outline requirements for "identifying the ecologically key land and water areas of the Reserve, ranking those areas according to their relative importance, and including a strategy for establishing adequate long-term state control over those areas sufficient to provide protection for Reserve resources to ensure a stable environment for research…"

The Core Area of the Reserve includes all estuarine waters and associated intertidal wetlands where the FDEP surface water classification falls under Class II (Shellfish Propagation or Harvesting). All other lands and waters within the NERR boundary are considered the Buffer Area, which provide protection to estuarine water quality. The Buffer Area includes including freshwater, salt water, uplands, and estuarine waters that fall under Class III (Limited Fish Consumption; Recreation or Limited Recreation; and/or Propagation and Maintenance of a Limited Population of Fish and Wildlife). Maps 5a and 5b depict these areas.

Ecological Characteristics

Topography and Geomorphology

The GTM Research Reserve's coastal estuaries are bounded to the west by the Pamlico Terrace, which has an elevation of 5 to 25 feet above sea level. The topography present within GTM Research Reserve today was formed over the last 125,000 years and is composed of remnant beach and dune ridges, swamps, marshes, tidal flats, creeks, rivers, and estuarine lagoon bottoms (Maps 6a and 6b). The elevation within the GTM Research Reserve ranges from sea level to 40 feet on the dunes within its northern component and in the central regions of the Pellicer Creek Conservation Area.

The GTM Research Reserve is in the Atlantic Coastal Plain (Fenneman, 1938). Ongoing work of Williams et al. (in preparation) at the Florida Geological Survey more explicitly identify the GTM area as part of the Barrier Island District and the Atlantic Coastal Complex. The latter contains most of the beach ridge strand plains and lower elevation depositional coastal terraces along the Atlantic Coast of Florida from Palm Beach north to Jacksonville. This region lies adjacent to the coast, extending up to 20 miles inland, is poorly drained, and characterized by trellis drainage developed in the swales between the ancient dune ridges, interpreted as Pleistocene age.

Statewide, there are seven or possibly eight marine terraces, each formed at different sea levels during the Pleistocene epoch (White, 1970). These terraces were formed prehistorically by waves, currents, and the rise and fall of sea level. When the sea level remained stationary for long periods, the waves and currents would erode the sea floor to form a nearly-level surface. Many of the marine terraces in peninsular Florida are depositional in nature, thus not all reveal this style of erosional planation. Each time the sea level dropped, a part of the sea floor was exposed as a level plain or terrace. The terraces tend to be parallel to the present Atlantic shoreline and become progressively higher from east to west (Kojima and Hunt, 1980). Over time the level plains of the terraces were modified or destroyed by stream erosion, and trellis drainage developed on many of the beach ridge strand plains.

Geology

The GTM Research Reserve overlies strata common to northeastern Florida. Sediments interpreted to have been deposited during the Holocene, based upon geomorphology, include the Recent barrier islands and beaches, and many of the lowland areas of salt marsh and mangroves (Holocene Epoch, 0.012 mega annum (Ma) to Recent). Quartz sand and shell fragments are common in the beach environments, with quartz sand and some clay found in the salt marshes. Shell material type and content is highly variable in the salt marshes, often based upon local habitat variations and may be from local modern or ancient oyster reefs. This is different from shell material on beaches, where the material type and content are more homogenized and ubiquitous. Older beach ridges interpreted to be Pleistocene, such as the Guana Peninsula, are coquinoid limestone of the Pleistocene Anastasia Formation, exposed on the southern beach in the GRMAP (east of Sombrero Creek) and are some of the older sediments and rocks in GTM Research Reserve (Pleistocene epoch, 2.58-0.012 Ma). The Anastasia Formation is also near the surface and exposed on several beaches from Matanzas Inlet southward, and along the Matanzas River and the Intracoastal Waterway in the southern portion of the GTM Research Reserve. The Anastasia Formation is late Pleistocene. Many of the coastal outcrops date to approximately 125,000 years ago. Due to erosion along the coastline during periods of lower sea level, the Anastasia Formation is not always present, and GTM Research Reserve has the most northern recognized coastal exposure of the formation.

Beneath the Holocene sediments and Anastasia Formation, where present, are Pliocene and Pleistocene age sediments informally referred to as the Tertiary/Quaternary shelly sediments (Pliocene epoch, 5.333-2.58 Ma). These consist of diverse fossil molluscan faunas with variable amounts of quartz sand and clay, and at times the materials are calcite cemented and have significant quantities of crystalline calcite.

The Hawthorn Group in northeastern Florida is Miocene (Miocene epoch, 23.03-5.333 Ma). The Coosawhatchie Formation, Marks Head Formation, and Penney Farms Formation are, youngest to oldest, the three formations recognized in the Hawthorn Group in northeastern Florida. Overall, the Hawthorn Group consists of variable amounts of quartz sand, dolosilt, clay, often expansive, phosphatic sand and gravel, dolostone, and sometimes limestone. The Hawthorn Group is as a semi-confining layer above the Eocene limestones (Ocala Limestone and Avon Park Formation) at the top of the Floridan aquifer system in northeastern Florida where the Oligocene Suwannee Limestone is missing (Oligocene epoch, 33.9-23.03 Ma; Eocene epoch, 56.0-33.9 Ma). The Hawthorn Group is thickest under the GRMAP, approximately 150 feet thick under the GRMAP and thins to the south, to approximately 75 feet thick under the southern portion of the GTM Research Reserve (Green et al., 2014).

Minerals

No deposits of commercially valuable minerals have been found within the GTM Research Reserve.

Soils

There are nine soil associations as defined by STATSGO (state soils survey) occurring in the boundaries of the GTM Research Reserve and five additional associations not in the boundary but within the watershed (Maps 7a and 7b). This data set is a digital general soil association map developed by the National Cooperative Soil Survey. It consists of a broad-based inventory of soils and non-soil areas that occur in a repeatable pattern on the landscape and that can be cartographically shown at the scale mapped. The soil maps for STATSGO are compiled by generalizing more detailed soil survey maps. Where more detailed soil survey maps are not available, data on geology, topography, vegetation, and climate are assembled, together with Land Remote Sensing Satellite (LANDSAT) images. Soils of like areas are studied, and the probable classification and extent of the soils are determined. Map unit composition for a STATSGO map is determined by transecting or sampling areas on the more detailed maps and expanding the data statistically to characterize the whole map unit. This data set consists of georeferenced digital map data and computerized attribute data. The map data are collected in 1- by 2-degree topographic quadrangle units and merged and distributed as statewide coverages. The soil map units are linked to attributes in the Map Unit Interpretations Record relational data base which gives the proportionate extent of the component soils and their properties. Maps 7a and 7b depict the soils throughout the reserve's watershed.

The Smyrna-Immokalee-Basinger association dominates the watershed of the GTM Research Reserve but is only found in a couple of areas within the boundary. These soils are very deep, poorly to very poorly drained, and formed in thick deposits of sandy marine materials. They are usually found in mesic flatwoods.

The soils throughout the salt marsh and mangrove regions of the estuaries are classified as Water-Peckish-Estero and represent areas that are very poorly drained and rapidly permeable and typically flooded daily.

The soils of the uplands within the GTM Research Reserve are primarily derived from sandy marine sediments. The majority of the Guana peninsula consist of the Palm Beach-Canaveral-Urban Land soils, although there are small pockets of different soils. These soils are nearly level to sloping; excessively

drained, moderately well-drained, and somewhat poorly drained soils that are sandy throughout. This soils type can also be found surrounding the St. Augustine and Matanzas Inlets.

Much of the area that drains into Moultrie Creek consists of the Candler-Tavares-Astatula association. These soils are very deep, moderately to excessively drained, very rapidly to rapidly permeable and formed in eolian and marine sands. Tavares soils are found on hills, ridges and knolls of the lower coastal plain.

Along the north side of Pellicer Creek and along the Intracoastal Waterway near Palm Coast is the Tavares-Zolfo-Paola association, which includes soils, often hills, and ridges of marine terraces. They vary in drainage capability but are all deep and formed in sandy marine sediments. On the south side of Pellicer Creek and in areas along the Intracoastal Waterway to the south is the Paola-Orsino-Astatula association, which are deep, moderately to excessively-well drained and feature rapid permeability.

There is a small area of Floridana-Riviera-Terra Ceia and of Pomona-EauGallie-Malabar found in the Reserve's boundary. These soils are very deep and very poorly drained. Pomona-EauGallie-Malabar tend to feature more sand in their composition so may be somewhat more permeable than Floridana-Riviera-Terra Ceia soils.

The GTM Research Reserve's beaches (not shown on the map due to scale) consist of quartz sand, shells, shell fragments, and pebbles partially derived from exposures of the Anastasia Formation (Tanner, 1960). This formation consists of a sandy coquina held together by calcareous cement and obtained its name from Anastasia Island opposite St. Augustine (Cooke, 1945).

Hydrology

Surface Water

The GTM Research Reserve is in the Upper East Coast Drainage Basin (part of the Florida East Coast Basin) which covers 467,196 acres. The basin has been further divided into drainage sub-basins, two of which encompass the reserve: the Tolomato River (53,802 acres) and the Matanzas River (167,599 acres) drainage basins. Smaller basins within sub-basins can be evaluated by Waterbody Identification (WBID) labels, as shown in Maps 8a and 8b. The natural hydrodynamics of this system have been altered by water control structures, such as the Intracoastal Waterway (ICW) that runs through it, dikes, inland wells, drainage ditches and a dam placed across the headwaters of the Guana River estuary.

The Guana, Tolomato, and Matanzas River estuaries form a system of "bar-bounded" estuaries that extend south from Jacksonville in Duval County to south of Marineland in Flagler County behind the barrier island system. The Guana River estuary runs parallel to the Tolomato River estuary on the seaward side, with the two lagoons joining just north of the St. Augustine Inlet. Oceanic exchange occurs on the Tolomato to the south, via St. Augustine Inlet and to the north via a man-made connection to Pablo Creek, which flows to the St. Johns River Inlet, a major navigational channel. The Matanzas River estuary extends approximately 20 miles south from the St. Augustine Inlet and includes the Matanzas Inlet.

The tidal inlets form the oceanic exchange for the estuarine ecosystem. The connection of the reserve's estuaries to inlets beyond its boundaries changed with the dredging of the ICW. Prior to the ICW, the Tolomato River connected to Pablo Creek in the north via salt marsh; now it is connected via the ICW channel. Pablo Creek connects to the Atlantic Ocean at the St. Johns River Inlet, a major shipping port. Similarly, the connection of the Matanzas River to the Halifax River south of the Reserve has been channelized as part of the ICW. The Halifax River connects to the Atlantic at the Ponce Inlet.

The two inlets within the reserve are very different in structure. The St. Augustine Inlet has been stabilized with north and south jetties and is the major entrance to the ICW, which runs through the Matanzas estuary. Matanzas Inlet is one of the last "natural" inlets on Florida's east coast. It has no dredged channel and has limited armoring along its southern shoreline. The Matanzas inlet is characterized by a transitory offshore bar and inner shoal with high tidal currents. This inlet system is ideally suited to serve as a comparison site for other more altered inlets to examine physical and biological processes such as sediment transport, species migration, and larval recruitment.
Surface waters within the GRMAP were designated as Outstanding Florida Waters (OFW) on May 14, 1986. Because of their natural attributes, these waters are assigned additional protection through the DEP.

The northern component of the GTM Research Reserve consists of the GRMAP that encompasses the Atlantic Ocean, estuarine (tidal) waters of the Tolomato and Guana rivers, interior impoundments, marshes, swamps and five artesian wells. Surface waters within the GRMAP are further classified as Class III and Class II. Class III waters are designated for recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Class II waters are designated for shellfish propagation or harvesting.

The southern component of the GTM Research Reserve is comprised of Pellicer Creek, Moses Creek, and the Matanzas River. Pellicer Creek was designated as an OFW, on March 1, 1979. National, state, and county conservation areas surround Pellicer Creek making it one of the last undisturbed tidal marsh creek systems along the east coast of Florida. Moses Creek Conservation Area (2,173 acres) provides water quality protection to Moses Creek, the Matanzas River, and associated tidal marshes. Both water bodies are designated Class II shellfish waters by FDEP and Moses Creek is one of a few undisturbed tidal creeks within the Northern Coastal Basin. In addition, Pellicer Creek Conservation Area, Princess Place Preserve, Matanzas State Forest, Fort Matanzas National Monument, The River to Sea Preserve, Washington Oaks Gardens State Park, and Faver-Dykes State Park provide over 15,000 acres of watershed buffer protection to the aquatic resources of the GTM Research Reserve.

Surface waters in Florida are divided into water body identification numbers (WBIDs). Each WBID is assessed by FDEP for various parameters and contaminants. If any parameter or level of contaminant is determined to exceed the acceptable threshold, it may be declared to be impaired. Maps 8a and 8b show the WBIDs within the GTM Research Reserve Watershed.

Groundwater

Three aquifer systems are found in the region of the GTM Research Reserve (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986). The surficial aquifer system, which is non-artesian, consists primarily of Pliocene to Recent deposits of sand, clay, and shell. The surficial aquifer system recharges from local rainfall. The intermediate aquifer system/intermediate confining unit in this area is comprised of the Hawthorn Group rocks and sediments. Water in the Floridan aquifer system in coastal northeastern Florida is highly mineralized and is thus a less used water source. Recharge to the Floridan aquifer system in the area is minimal (Fernald and Patton, 1984). The top of the Floridan aquifer system consists of the Ocala Limestone due to the Suwannee Limestone missing in the area. The Floridan aquifer system is comprised of carbonate rocks, predominantly limestone and dolostone, that lies under all of Florida and parts of adjacent states, generally referred to as the "principle artesian aquifer" in Georgia, Alabama and South Carolina (Miller, 1986). Being porous and permeable, this Floridan aquifer system holds tremendous amounts of groundwater.

In the GTM Research Reserve, the depth of the top of the Floridan aquifer system is shallowest in the south, approximately 150 feet below land surface, and gradually deepens towards the north to approximately 250 feet below land surface (Green et al., 2014). The Floridan aquifer system, comprised of the Upper Floridan aquifer and Lower Floridan aquifer, has a thickness of approximately 2,000 feet throughout the GTM Research Reserve (Miller, 1986). There is a submarine spring off the coast of Crescent Beach, just outside of PCAP that discharges water from the Floridan aquifer system (Kinnaman, 2006). The influence of groundwater pumping from aquifers for drinking water and anthropogenic water diversions for irrigation and lake management on the GTM Research Reserve's natural resources requires further study.

Climate and Weather

The climate of northeast Florida is typically characterized by mild winters (few hard freezes), warm summers, relatively high annual precipitation and high humidity. According to Florida State University's Climate Center, average annual precipitation from 1974 to 2016 is about 47 inches. Fifty-five to sixty per cent of rainfall occurs in the summer; May through August. Relative humidity ranges from 50 to 63 per cent in the afternoon and 86 to 92 per cent in the early morning. Temperatures are moderated by proximity to the ocean. Average temperatures range from 47 to 67 degrees Fahrenheit in the winter (average low and average high, respectively) to 73 to 89 degrees in the summer (Climate Access Tools, climatecenter.fsu.edu).

Storm events at GTM Research Reserve include thunderstorms and hurricanes. Except for the September 9, 1964 landfall of category 2 Hurricane Dora in St. Augustine, the areas now comprising the GTM Research Reserve have not experienced a hurricane's eye wall landfall (Winsberg, 2003). However, hurricane- and tropical storm-force winds of Hurricane Matthew in 2016 and Hurricane Irma in 2017, along with multiple nor'easters during that time caused significant erosion along the coast throughout the reserve. Storms are often the cause of major shoreline changes, exacerbating the impact of other factors, such as sea level rise, inlet management, beach nourishment and channel dredging, on natural sediment dynamics (Michener et. al, 1997). The influence of global warming on sea level rise and the GTM Research Reserve's habitat and species composition will need to be monitored closely to guide future long-term management strategies.

Natural Communities

Florida Classification System

The natural community classification system used in the text of this plan and one set of habitat maps for the full NERR boundary (Maps 9a and 9b) are based on the Florida Land Cover Classification System, which is referred to as the Cooperative Land Cover (CLC) herein. The CLC was developed to incorporate classifications currently used by the Florida Fish and Wildlife Conservation Commission (FWC), Florida Natural Areas Inventory (FNAI), and Florida's water management districts. The development of standardized, regional land cover information enables managers to coordinate the planning of shared resources, facilitating an ecosystem approach to environmental issues that transcends local and state regulatory boundaries. Since boundaries between habitats tend to be more gradual than those typically defined in habitat maps, all acreage estimates are approximate. The full boundary of GTM Research Reserve contains 38 distinct natural CLC communities in addition to urban, rural, agriculture and transportation land types within the watershed. A table showing CLC acreages across the full boundary, within Lease 3462 and the two aquatic preserves along can be found in Appendix C.

ORCP-Managed Lands

The lands managed directly by ORCP under Lease 3462, the Pellicer Creek Aquatic Preserve and Guana River Marsh Aquatic Preserve are portrayed in Maps 4a and 4b. The uplands managed by ORCP staff contain the natural communities listed below and Figure 5 shows the CLC communities on these lands. Figure 6 shows the condition score, which is based on the Land Management Review (LMR) conducted by FDEP's State Lands Division in 2023. Habitats listed as "Unknown" condition were not assessed via the LMR but are continually assessed by Reserve staff and visiting researchers. Descriptions of these communities from the Florida Natural Areas Inventory are included below.

Resource management staff present at the 2023 LMR have identified inconsistent classifications from the previous management plan based on site observations and will conduct a thorough assessment to update these maps in the next two years. In some cases, habitats were scored by the LMR team that were not labeled in the CLC map. Management actions beyond the Prescribed Fire Plan will be determined when this assessment is complete.

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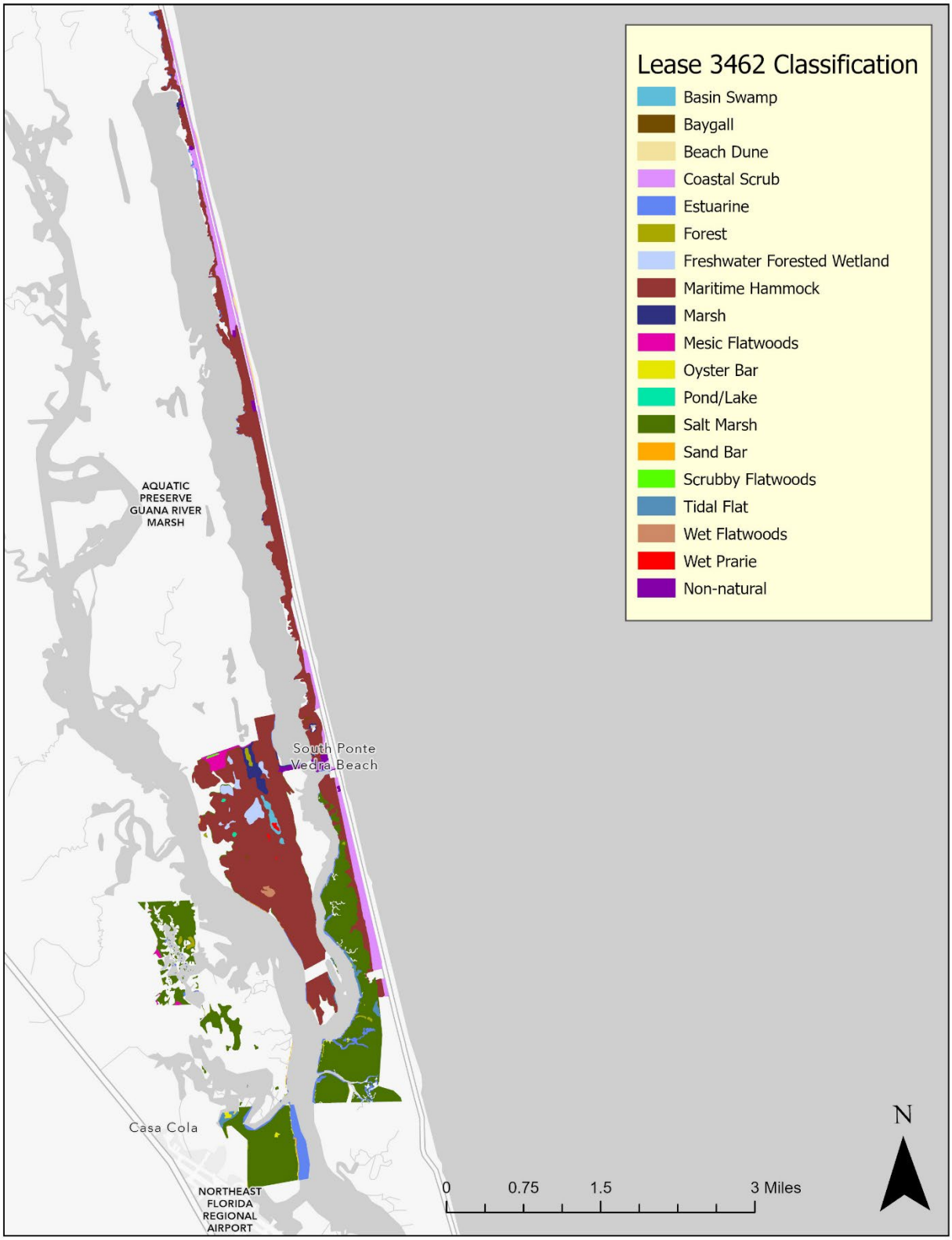

Figure 5. CLC communities of Lease 3462

Natural Community	Condition (2023 LMR score)
Xeric Hammock	81-100% in maintenance condition (4.75)
Mesic Hammock	81-100% in maintenance condition (5.00)
Maritime Hammock	81-100% in maintenance condition (4.75)
Hydric Hammock	81-100% in maintenance condition (4.67)
Mesic Flatwoods	61-80% in maintenance condition (4.00)
Basin Marsh/Marsh	61-80% in maintenance condition (3.75)
Shell Mound	81-100% in maintenance condition (4.75)
Beach Dune	81-100% in maintenance condition (4.50)
Coastal Scrub	61-80% in maintenance condition (4.25)
Salt Marsh	81-100% in maintenance condition (4.75)
Marine Unconsolidated Substrate	81-100% in maintenance condition (4.75)
Baygall	Unknown
Forest/Freshwater Forested Wetland	Unknown
Wet Flatwoods	Unknown
Wet Prairie	Unknown
Sand Bar/Tidal Flat	Unknown
Pond/Lake	Unknown
Estuarine	Unknown
Oyster Bar	Unknown
Marine	Unknown

Figure 6. Land Management Review Natural Community Scores 2023

Basin Marsh – Basin with peat or sand substrate; seasonally inundated; statewide; occasional fire; largely herbaceous; maidencane, sawgrass, bulltongue arrowhead, pickerelweed, Baker's cordgrass, white water lily.

Baygall – Slope or depression wetland with peat substrate; usually saturated and occasionally inundated; statewide excluding Keys; rare or no fire; closed canopy of evergreen trees; loblolly bay, sweetbay, swamp bay, titi, fetterbush.

Beach Dune – Active coastal dune with sand substrate; xeric; statewide; rare or no fire; marine influence; open herbaceous vegetation with no canopy; sea oats, railroad vine, bitter panicum, and/or mixed salt-spray tolerant grasses and herbs.

Coastal Scrub – This scrub category represents a wide variety of species found in the coastal zone. A few of the more common components are saw palmetto, sand live oak, myrtle oak, yaupon, railroad vine, bay bean, sea oats, sea purslane, sea grape, Spanish bayonet and prickly pear. This cover type is generally found in dune and white sand areas.

Estuarine – Deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the ocean, with ocean-derived water at least

occasionally diluted by freshwater runoff from the land. The upstream and landward limit is where ocean-de rived salts measure less than .5 ppt during the period of average annual low flow.

Freshwater Forested Wetlands – Floodplain or depression wetlands dominated by hydrophytic trees.

Hydric Hammock (Hydrick Hammock, Cabbage Palm Hammock) – Lowland with sand/clay/organic soil over limestone or with high shell content; mesichydric; primarily eastern Panhandle and central peninsula; occasional to rare fire; diamond-leaved oak, live oak, cabbage palm, red cedar, and mixed hardwoods.

Marine – Open ocean overlying the continental shelf and coastline exposed to waves and currents of the open ocean shoreward to (1) extreme high water of spring tides; (2) seaward limit of wetland.

Marine Unconsolidated Substrate (Beach, Shore) - The portion of beach that lies seaward of the beach dune community and is largely devoid of plant species.

Maritime Hammock – Stabilized coastal dune with sand substrate; xeric-mesic; statewide but rare in panhandle and Keys; rare or no fire; marine influence; evergreen closed canopy; live oak, cabbage palm, red bay, red cedar in temperate maritime hammock; gumbo limbo, seagrape, and white or Spanish stopper in tropical maritime hammock.

Mesic Flatwoods (Palmetto Prairie) – Flatland with sand substrate; mesic; statewide except extreme southern peninsula and Keys; frequent fire (2-4 years); open pine canopy with a layer of low shrubs and herbs; longleaf pine and/or slash pine, saw palmetto, gallberry, dwarf live oak, wiregrass.

Mesic Hammock (Cabbage Palm) – Flatland with sand/organic soil; mesic; primarily central peninsula; occasional or rare fire; live oak, cabbage palm, southern magnolia, pignut hickory, saw palmetto.

Oyster Bar (Estuarine Mollusk Reef) - Faunal based natural community typically characterized as expansive concentrations of sessile mollusks occurring in intertidal and subtidal zones.

Pond/Lake

> Floating/Emergent Aquatic Vegetation – Includes both floating vegetation and vegetation which is found either partially or completely above the surface of water.,
>
> Cultural-Palustrine – Communities that are both created and maintained by human activities or are modified by human influence to such a degree that the physical conformation of the substrate, the hydrology, or the biological composition of the resident community is substantially different from the character of the substrate, hydrology, or community as it existed prior to human influence.
>
> Flatwoods/Prairie/Marsh Lake – Shallow basin in flatlands with high water table; frequently with a broad littoral zone; still water or flow-through; sand or peat substrate; variable water chemistry, but characteristically colored to clear, acidic to slightly alkaline,

soft to moderately hard water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic. Marsh lakes are generally shallow, open water area within wide expanses of freshwater marsh; still water or flow-through; peat, sand or clay substrate; occurs in most physiographic regions; variable water chemistry, but characteristically highly colored, acidic, soft water with moderate mineral content (sodium, chloride, sulfate); oligomesotrophic to eutrophic

Cultural Estuarine - Communities that are either created and maintained by human activities or are modified by human influence to such a degree that the physical conformation of the substrate, or the biological composition of the resident community is substantially different from the character of the substrate or community as it existed prior to human influence.

Salt Marsh (Non-vegetated Wetland, Non-Vegetated, Salt Marsh) – Estuarine wetland on muck/sand/or limestone substrate; inundated with saltwater by daily tides; statewide; occasional or rare fire; treeless, dense herb layer with few shrubs; saltmarsh cordgrass, needle rush, saltgrass, saltwort, perennial glasswort, seaside oxeye.

Shell Mound – Small hill of shells deposited by Native Americans; mesic-xeric; statewide; rare or no fire; marine influence; closed canopy of mixed hardwoods; soapberry, snowberry, white stopper.

Tidal Flat (Mud) – A community of quiet waters, with substrates composed of silt or sand that is rich in organic matter and poorly drained at low tide. The substrate may be covered with algae.

Wet Flatwoods (Hydric Pine Flatwoods) – Flatland with sand substrate; seasonally inundated; statewide except extreme southern peninsula and Keys; frequent fire (2-4 years for grassy wet flatwoods, 5-10 years for shrubby wet flatwoods); closed to open pine canopy with grassy or shrubby understory; slash pine, pond pine, large gallberry, fetterbush, sweetbay, cabbage palm, wiregrass, toothache grass.

Wet Prairie - Flatland or slope with sand or clayey sand substrate; usually saturated but only occasionally inundated; statewide excluding extreme southern peninsula; frequent fire (2- 3 years); treeless, dense herbaceous community with few shrubs; wiregrass, blue maidencane, cutthroat grass, wiry beaksedges, flattened pipewort, toothache grass, pitcherplants, coastalplain yellow-eyed grass.

Xeric Hammock – Upland with deep sand substrate; xeric; primarily eastern Panhandle to central peninsula; rare or no fire; closed canopy of evergreen hardwoods; sand live oak, saw palmetto.

Federal Classification System

To achieve consistency with NOAA/NERRS classification standards, an additional habitat map is included based on the Coastal Change and Analysis Program (C-CAP) scheme (Maps 10a and 10b). C-CAP is a nationally standardized database of land cover and land change information, developed using remotely sensed imagery, for the coastal regions of the U.S. C-CAP products inventory coastal intertidal areas, wetlands, and adjacent uplands with the goal of monitoring these habitats by updating the land cover maps every five years. A C-CAP/CLC crosswalk table is provided to explain the relationship between

these two classification systems. The table also includes a crosswalk for CLC and the Florida Natural Areas Inventory (FNAI) classification, which was used in the previous management plan.

CLC	FNAI & Other State Schema Equivalents	CCAP
Basin Marsh	Basin Marsh	Palustrine Forested Wetland
Basin Swamp	Basin Swamp	Palustrine Forested Wetland
Baygall	Mixed Scrub-Shrub Wetland, Baygall, Bay Swamp	Palustrine Forested Wetland
Beach Dune	Beach Dune	Unconsolidated Shore
Blackwater Stream	Riverine, Streams, Blackwater Stream	Open Water
Bottomland Forest	Bottomland Forest	Palustrine Forested Wetland
Coastal Grassland	Coastal Grassland	Grassland/Herbaceous
Coastal Interdunal Swale	Coastal Interdunal Swale	Palustrine Emergent Wetland
Coastal Scrub	Coastal Scrub	Scrub/Shrub
Coastal Strand	Coastal Strand	Scrub/Shrub
Coastal Uplands	Coastal Uplands	Scrub/Shrub
Depression Marsh	Depression Marsh	Palustrine Emergent Wetland
Dome Swamp	Dome Swamp	Palustrine Forested Wetland
Estuarine	Estuarine, Estuarine Artificial Impountment	Estuarine Unconsolidated Shore
Floodplain Marsh	Floodplain Marsh	Palustrine Emergent Wetland
Floodplain Swamp	Floodplain Swamp	Palustrine Forested or Shrub/Scrub Wetland
Upland Hardwood Forest	Upland Hardwood Forest, Upland Coniferous, Successional Hardwood Forest, Shrub & Brushland	Mixed Forest
Freshwater Forested Wetland	Cypress, Mixed Wetland Hardwoods, Mixed Hardwood Coniferous Swamps	Palustrine Forested Wetland
Hydric Hammock	Hydrick Hammock, Cabbage Palm Hammock	Evergreen Forest
Lacustrine	Lacustrine	Open Water
Mangrove Swamp	Mangrove Swamp, Other Shrubs and Brush	Estuarine Scrub/Shrub Wetland
Marine	Marine	Open Water
Maritime Hammock	Maritime Hammock	Evergreen Forest
Marsh	Marsh	Palustrine Emergent Wetland
Mesic Flatwoods	Mesic Flatwoods, Palmetto Prairie	Evergreen Forest
Mesic Hammock	Mesic Hammock, Cabbage Palm	Evergreen Forest
Oyster Bar	Oyster Bar	Unconsolidated Shore
Pond/Lake	Floating/Emergent Aquatic Vegetation, Cultural-Palustrine, Flatwoods/Prairie/Marsh Lake, Cultural Estuarine	Palustrine Emergent Wetland
Salt Marsh	Non-vegetated Wetland, Non-Vegetated, Salt Marsh	Estuarine Emergent Wetland
Sand Bar	Sand Beach (Dry)	Unconsolidated Shore
Sandhill	Sandhill	Barren Land
Scrub	Scrub	Scrub/Shrub
Scrubby Flatwoods	Scrubby Flatwoods	Evergreen Forest
Shell Mound	Shell Mound	Evergreen Forest
Tidal Flat	Tidal Flat, Mud	Unconsolidated Shore
Wet Flatwoods	Wet Flatwoods, Hydric Pine Flatwoods	Palustrine Forested Wetland
Wet Prarie	Wet Prarie	Palustrine Scrub/Shrub Wetland
Xerick Hammock	Xerick Hammock	Evergreen Forest

Figure 7. Natural Communities Crosswalk

Habitat mapping and change assessment is discussed in Chapter 5 under the Stewardship Program. Habitat suitability modeling or similar efforts should be implemented as a predictive tool to guide management decisions affecting natural biodiversity.

Priority Species

Priority species include flora and fauna that have been officially listed by the U.S. Fish and Wildlife Service (USFWS) or FWC; key species that play a unique and critical role within a natural community such that the community would be drastically altered if that species was absent; species that provide commercial or recreational value; and species whose viability is of global concern but may not be identified in the other categories. Appendix C-4 lists priority species that may be found within the GTM boundary and their various designations and ranks.

Monitoring for some priority species is primarily conducted by partners and listed in Appendix D-2. A plan for additional monitoring programs for the remaining species will be developed in the next two years. Additional species, especially arthropods, may be identified as priority species in the future as visiting researchers learn more about the reserve's biodiversity.

Nonnative Invasive Species

Nonnative invasive species are those plants or animals that are not native to Florida, were intentionally or unintentionally introduced by human-related activities, and causes, or is likely to cause, environmental harm, economic harm, or harm to humans. Nonnative invasive species typically have fewer natural enemies and may have a higher survival rate than native species. They may harbor diseases or parasites that significantly affect non-resistant native species. A list of nonnative species found, or likely to be found, within the GTM Research Reserve boundary is included Appendix C.

The Florida Invasive Species Council (FISC) maintains the Florida Exotic Pest Plant Council (FLEPPC) list of invasive plant species classifies species as Category I- invasive species that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives; and Category II- invasive species that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. Both categories of exotic species are considered a threat to the integrity of the GTM Research Reserve's natural communities and are in direct conflict with its mission to encourage sustainable conservation of natural biodiversity. The degree of threat posed by these species differs within managed areas comprising the GTM Research Reserve. Therefore, the policy of the GTM Research Reserve and its partners is to remove exotic species incompatible with each location's management goals. GTM staff participate in the First Coast Invasive Working Group to share resources, lessons learned, and stay informed about new invasions.

Prevention is the best strategy to protect the GTM Research Reserve's natural resources from damage by invasive exotic species. Many of these species are escaped pets or landscape plants from neighboring properties, or are transferred from other regions by vehicles, boats and other equipment. The threats caused by exotic species and the prevention strategies to avoid them must be continually included in educational materials to emphasize the severity of this issue and to promote voluntary action. To the greatest extent feasible, equipment used within the ORCP-managed area of the reserve will be

restricted to those areas, and contractor equipment will be brushed and hosed down off-site to minimize transference of invasive species seed onsite. Climate change and its impact on range extension of exotic species from south Florida is an increasing topic of concern for the GTM Research Reserve.

Much of the past focus of the GTM Research Reserve has been on terrestrial exotic species; however, estuarine, oceanic and freshwater invasive species are equally damaging. Recent invasions by Asian green mussels (*Perna viridis*) and titan acorn barnacles (*Megabalanus coccopoma*) have been documented in the GTM Research Reserve. As with many aquatic managed areas, a comprehensive management strategy to quickly detect estuarine invasive species does not exist.

The GTM Research Reserve will continue to take an active role in the First Coast Invasive Working Group to stay up to date on information regarding new invasions and best management strategies for Northeast Florida. When additional information is needed, and funding is available, staff and visiting researchers will investigate efficient techniques to manage and control invasive species.

Problem/Nuisance Species

Problem species are defined as native species that cause specific management problems or concerns. Occasionally, problem species are also listed species, such as alligators. The GTM Research Reserve and its partners will consult and coordinate with appropriate federal, state and local agencies for management of listed species that are considered a threat or problem. Raccoons (*Procyon lotor*) are problem species in the picnic grounds and refuse collection points within the GTM Research Reserve where they scavenge for food. Education of the GTM Research Reserve visitors related to the consequences of feeding wildlife will continue.

Outbreaks of mosquitoes and other biting flies are perceived as a problem by some GTM Research Reserve visitors. The marshes and freshwater wetlands can be breeding sites for mosquitoes. The GTM Research Reserve partners with the Anastasia Mosquito Control District and the FWC's Guana River Wildlife Management Area to develop strategies that selectively control mosquitoes in areas with high human use while minimizing damage to the GTM Research Reserve's natural biodiversity. However, lands directly managed by ORCP, including the Aquatic Preserves, are designated as environmentally sensitive and biologically highly productive (ESBHP) and are not sprayed for mosquito control (see Appendix C for the Arthropod Management Plan).

A full list of problem species for the GTM Research Reserve is included in Appendix C.

Forest Resources

Forest resources vary within the management units that comprise the GTM Research Reserve. State agency specific information is available within each unit's Acquisition and Restoration Council (ARC) approved management plan. The most practical application of silviculture within the ORCP-managed lands of the GTM Research Reserve is as a tool in achieving restoration objectives and for reducing wildfire hazards. In a letter from the Florida Department of Agriculture and Consumer Services regarding the ORCP-managed area of the Guana peninsula, "the pine flatwoods component...is extremely small and fragmented occurring in isolated pockets intermixed with oak hammocks throughout...Management options are very limited due to the logistics which include the size and condition of interior roads and

the position of the flatwoods component and oak hammocks." In the best-case scenario, the revenue potential of timber harvest in the GTM Research Reserve is low to average (Appendix C).

Archaeological and Historical Resources

Modern northeast Florida's appearance is the result of a long interaction of humans and nature. The region is of special interest because of the comprehensive documentary record of European settlement and landscape modifications beginning at an early date. The detailed records of the mid-sixteenth century, Native American, Spanish, French, British and American inhabitants indicate that these cultures adapted in very different ways. Burning, clear cutting, plowing, dredging, filling, ditching and drainage are all evident throughout the historical record.

The first inhabitants of northeast Florida probably appeared during the Late Glacial Transition, 10,000 to 13,000 years ago. However, these humans were likely nomadic or ranging from settlements farther west into the peninsula where freshwater and stone sources appropriate for tools were more prevalent (Miller, 1998). Between 10,000 and 5,000 years ago, the extinction of Pleistocene megafauna led to less reliance on stone tools to acquire food through hunting. As sea level rise slowed to its pre-industrial rate, water resources, small game, and plant resources became more accessible. This condition enhanced settlement in coastal locations.

By approximately 5,000 years ago the coastal environment of Florida had become similar to the present-day situation. Native Americans living on the coast took advantage of the relatively stable and abundant seafood, an important source of protein. As human populations became more sedentary in response to stable conditions, opportunities for specialized collection and domestication of plants increased along with the duration of settlements. There are currently 38 recorded archaeological sites within the boundaries of the area directly managed by the GTM Research Reserve. A full table of these sites can be found in Appendix C. Known sites include a burial mound, numerous shell middens, a Spanish mission (probably La Natividad de Nuestra Senora de Tolomato), and homestead sites from the British, Second Spanish and Territorial Periods (Newman 1995). These are some of the major prehistoric and historic cultural sites within the GTM Research Reserve:

SJ00032 Shell Bluff Landing - This is an extensive midden site located on the west side of the Guana peninsula along the shoreline of the Tolomato River. Artifacts representing the cultures of the area from the Orange Period (ca. 2500 BC) to recent times have been found at the site. A 19th century Minorcan well, constructed of coquina blocks, was discovered at the site and dated to about the 1800-1820 period. On February 8, 1991, the Florida Register Review Board approved the nomination of Shell Bluff Landing for listing in the National Register of Historic Places.

SJ02554 Guana River Shell Ring - This large, 100-meter diameter shell ring is made up of oyster, clam, and coquina shells on the east side of the Guana peninsula adjacent to Lake Ponte Vedra (formerly part of the Guana River). Artifacts found at the site indicate a late Archaic Period (ca. 500-1000 BC) date for the ring's construction. This is the only Archaic shell ring reported to date in the state of Florida. It is considered eligible for listing in the National Register of Historic Places.

SJ02463 Guana River Site - This extensive shell midden extends over 100 meters along a ridge overlooking Lake Ponte Vedra. The midden is made up of layers of zones believed to date from the preceramic Archaic Period (prior to 2500 BC) in the lowest zone to historic European occupation, Spanish or British (ca. AD 1763-1900), in the upper zone.

SJ00004 Sanchez Mound - An earthen mound of stone celts, whetstones and human bundle burials on the Guana Peninsula. There has been no formal archaeological survey of this site.

SJ02548 Little Orange Site - A small shell midden located on the western shoreline of the Guana River. Shells, as well as fire-tempered shards (ca. 2500 BC) and a Strombus pick were collected at this site.

SJ00046 Summer Haven Site - A late Orange Period archaeological site. Archaeological digs at this site found tools, fiber tempered pottery, and other evidence indicating that Native Americans used water transportation and engaged in fishing in the area.

Faver-Dykes State Park has five identified sites with artifacts from the full range of cultural periods: Orange, St. Johns, Saint Augustine and Second Spanish from the Hepworth Carter Plantation site.

Washington Oaks Gardens State Park (FL00276 Washington Oaks Historic District) has several Nineteenth and early Twentieth Century sites associated with the Bella Vista Plantation, as well as sites associated with the ornamental gardens dating from the late 1930s - 1950s. In addition, the area has several middens in fair to good condition.

Princess Place Preserve (FL00072 Cherokee Grove) has Florida's oldest commercial orange groves planted in the early 1800's. The land is part of the original land grant from the Spanish Government in the late 1700's; it may be the only contiguous land grant remaining from that period. The site contains one of Florida's first inground pools.

SJ00044 Matanzas Inlet - Fort Matanzas National Monument was the scene of crucial events in Spanish colonial history. The defeat of French soldiers here in 1565 initiated Spain's establishment of its first permanent colony in Florida. The construction of Fort Matanzas in 1740-42 was Spain's attempt to stop British encroachments on St. Augustine (Fort Matanzas, www.nps.gov/foma/index.htm).

The boundary of **Marineland Dolphin Adventures (FL00041 Marine Studios)** intersects with the NERR boundary near the Matanzas River.

The City of St. Augustine waterways added to the NERR boundary in 2020 intersect the boundaries of many historic sites in the City:
SJ00009 Castillo de San Marcos National Monument
SJ00069 Spanish Coquina Quarries
SJ02460 Bridge of Lions
SJ02461 Abbott Tract Historic District
SJ03248 Lincolnville Historic District
SJ05404 Fort Matanzas National Monument Headquarters and Visitor Center

Although likely to be significant, much less is known about underwater archaeological resources in the GTM Research Reserve. It is one of the GTM Research Reserve's goals to enhance regional understanding, interpretation and preservation of cultural resources by proactively working with state, federal and local agencies, academic institutions, private industry and citizens.

Social Attributes

Population Trends and Projections

The populations of St. Johns County and Flagler County are critical to the future management of GTM Research Reserve as the boundary encompasses portions of both counties. According to the University of Florida's Bureau of Economic and Business Research (BEBR), these counties have experienced substantial growth since 1990 compared with all of Florida. From 2000 to 2022, the Flagler County population grew from 49,832 to 124,202 and the St. Johns County population grew from 123,135 to 296,767 (BEBR, 2022).

Ocean Jobs

The six sectors of ocean-related jobs designated by NOAA are Tourism and Recreation, Ship and Boat Building, Living Resources (fishing, fisheries, seafood), Offshore Mineral Extraction, Marine Transportation, and Marine Construction. Florida is the top state for ocean-based economy in 2023 and details about each county's ocean-based economic activities can be found at https://coast.noaa.gov/enowexplorer/.

Ecosystem Services

Community leaders along with state, federal and local governments have preserved extensive areas within the watershed of the GTM Research Reserve to preserve biodiversity and the benefits or uses natural areas provide for society. These benefits may be referred to as *ecosystem services* and include the traditional and compatible uses of the reserve. The primary ecosystem services relevant within the GTM Research Reserve are listed in Appendix C.

Ecosystem services may be used to understand how a change in an ecosystem can affect society and are often associated with market and non-market values of natural areas. For example, some tourism and recreation jobs may be tied to the ecosystem services of the estuarine system. If the estuarine system is degraded, then that may have a negative impact on the economy as tourism jobs and dollars are reduced. One of the reserve's research objectives is to understand more about these services and their impact to society, including the economy, and how that may change over time as a result of natural and anthropogenic changes.

Not all uses derived from ecosystem services are allowed on the ORCP-managed lands and waterways. For a list and description of compatible and traditional public uses within the Reserve, see the Public Use section in Chapter 5.

Threats and Stressors

While reserves were designated under the premise that they are relatively pristine, representative estuarine ecosystems, they are and will likely be increasingly exposed to human and environmental stressors that must be understood in order to manage and adapt to changing conditions. Staff and visiting investigators study threats and stressors and how they impact the reserve's biodiversity, ecosystem services, and cultural resources. For example, an increasing population may impact the water quality, which may impact the amount of area open to shellfish harvesting.

The GTM Management Advisory Group (MAG) initiated a list of the primary threats and stressors to the reserve:

Threats and Stressors to Biodiversity and Ecosystem Services

- Non-point source pollution
    - Copper sulfate and chloramine
    - Micro plastics
    - Nutrients
    - Bacteria
- Alterations to watershed, land use
- Boat wake energy damage
- Terrestrial and aquatic invasive species
- Sea level rise and habitat inundation
- Recreational vehicles
- Lack of fire
- Harvesting pressure (oysters and clams)
- Visitation/ population increases
- Septic and wastewater treatment discharges, especially during storm events
- Lack of wildlife corridors
- Shoreline management (i.e., armoring, living shorelines, beach nourishment)
- Predator impacts (i.e., hogs, raccoons)
- Hydrologic alterations
- Climate change and species shifts

Threats and Stressors to Cultural Resources

- Wake energy damage
- Bacterial contamination of oyster harvesting areas
- Sea level rise and inundation from flooding
- Inappropriate use of recreational vehicles
- Changes to the viewshed
- Harvesting pressure (oysters, clams)
- Shoreline armoring
- Development, public use
- Water quality

The MAG did not achieve full consensus on how damaging each item could be because there are still knowledge gaps about the extent to which these stressors impact the Reserve. Staff will conduct an in-depth knowledge assessment of the interactions of ecosystem structure and function with anthropogenic and natural stressors, and the vulnerability of the ecosystem services and biodiversity to

anticipated changes. This will provide enhanced guidance on research and stewardship priorities and will be part of Chapter 6 Strategic Objectives A.1, A.2, A.3, A.4, A.5, B.1, B.2, B.3, C.1, C.2, and C.3.

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Chapter 5. Management Programs

Research and Monitoring

NERRS Research and Monitoring Program

Reserves are created to provide a stable platform for long-term research on estuarine conditions and relevant coastal management issues. The System Wide Monitoring Program (SWMP) delivers standardized measurements of short-term variability and long-term changes in water quality and biological systems, and maps land use and land cover characteristics across all reserves. The effort is focused on three ecosystem characteristics: abiotic characteristics (water temperature, salinity and quality, and weather); biotic characteristics (habitat types and species); and watershed and land use characteristics (land cover and elevation changes). Reserve-generated data meet federal geographical data standards and are available via the Reserve System's Centralized Data Management Office. Reserves also serve as sentinel sites for observing how coastal habitats respond to changing water levels. This program is guided by the *Reserves' System Wide Monitoring Program Plan*, the *Reserve Habitat Mapping and Change Plan*, and *Sentinel Sites Guidance*.

The NERR System also supports applied research through its Science Collaborative program and the Margaret A. Davidson Graduate Fellowship program. The Science Collaborative funds competitive research projects that engage end-users in the project design and address NERR System research and management needs. The goal of the Davidson Fellowship is to build the next generation of leaders in estuarine science and coastal management. The fellowship provides opportunities for graduate students to conduct research within a reserve under the guidance of a mentor who also supports their professional development.

The *Reserve System Strategic Plan* outlines research objectives to maintain and expand biophysical and socioeconomic monitoring to track environmental change, increase the use of collaborative research to address decision-maker needs, and ensure that scientific, education, and management audiences can use the data, research results, and tools developed by the system.

The GTM Research Reserve Research Program

The GTM Research program is led by the Research Coordinator with guidance from other GTM program managers and staff, and in consultation with outside researchers, NOAA staff, ORCP, and other interested parties. The Research program relies on funding, standard operating procedures, and support from NOAA to implement national programs and priorities. Implementation of local and regional research priorities is reliant upon guidance and support from ORCP, external granting agencies, partner institutions, and community members who depend on a healthy estuary. The Research Coordinator convenes ad hoc committees as needed to prioritize and address research questions at local and regional scales.

By providing the science behind coastal decision making, the Research program supports various reserve functions and is well-integrated with other reserve programs. Research staff work with the Coastal Training Program to engage stakeholders; the Resource Management program to monitor threatened

and endangered species and assess restoration practices; and the Education program to provide information to the public, develop research skills in students, and implement citizen science programs.

Evaluation of the Research program occurs at the federal level through NOAA's 312 Evaluation process, which takes place every five to seven years. On an annual basis, the Research Coordinator updates a work plan and budget for the Research program based on the Management Plan. The process starts with a review of the previous year's work plan and an evaluation of strengths and limitations of the program. In consultation with Research staff and reserve managers, the details of the work plans are refined to ensure relevance and achievability.

The Research program aims to achieve the following outcomes:

- Adherence to NERR System guidelines and procedures ensuring production of quality environmental monitoring data relevant at national and local scales;

- Strong relationships among reserve staff, partners, students and stakeholders that drive research priorities and collaboratively achieve research objectives; and,

- Increased capacity to understand and address coastal management issues through the development of data and other research products that inform decision making.

The geographic scope of the Research Program includes all coastal habitats from the Reserve's northern boundary in Ponte Vedra, Florida to the southern boundary in Palm Coast, Florida. Where appropriate, research activities occur outside the GTM boundaries if they inform knowledge of relative condition or processes inside the boundaries. The research community surrounding the reserve is emerging as an energetic, collaborative group willing to conduct applied science to address coastal management issues.

Since the last management plan, studies conducted at the GTM Research Reserve have increased knowledge in the areas of water quality, plankton and oyster ecology, fish temporal and spatial distribution, American alligator habitat use and diet, gopher tortoise population distribution, sea level rise projections, marsh phenology and carbon storage, mangrove range expansion and associated ecosystem effects, spoil island ecology, and many more research topics. Reports and peer-reviewed publications resulting from this research are available upon request.

The primary focus for the research team is long-term monitoring, which continues to be a major strength of the GTM Research Reserve. Consistent monitoring provides valuable baseline data for measuring ecosystem change. The NERRs have been well-positioned to deliver quality monitoring datasets due to relatively stable funding and the System-Wide Monitoring Program described earlier. Long-term data are available for public download at www.nerrsdata.org, which is a website maintained by the NERRS Centralized Data Management Office (CDMO). Almost two decades of weather and water quality data are now available along with salt marsh vegetation data that has been collected since 2012. Maps 12a and 12b show the locations of long-term monitoring sites for the System-wide Monitoring Program location for water quality, meteorology and sediment elevation tables. Weather and water quality data from the Pellicer Creek station can be viewed in real-time. Data not stored on the CDMO website are available upon request. Information about research activities, project summaries, and

published reports are provided to target audiences as identified by the Research, Coastal Training, Education and Communication teams. These audiences typically include scientists, resource managers, teachers, and decision makers.

Research priorities are developed from a combination of NERRS and FDEP guidance, this management plan, and ongoing input from stakeholders to understand management needs. All projects are designed to do the following:

- Collect baseline information on ecological structure and function, including hydrology, bathymetry/topography, spatial habitat coverage and condition, phenology, trophic dynamics, quantification of habitat functions (ecosystem services), and relative rates of processes (primary production, grazing, etc.)

- Synthesize and summarize available information

The long-term monitoring projects and goals listed below are high priorities for GTM and were initiated under the previous management plan. Like SWMP weather and water quality, the projects will continue, as they may provide critical information on estuarine habitats through the coming years. A full inventory of current, on-going monitoring projects can be found in Appendix D. Resource Management staff significantly contribute to and often lead these projects.

- The goal of **supplemental water quality monitoring** is to understand contaminant sources, impacts and other factors that affect ecosystem services of aquatic areas without SWMP water quality monitoring stations, like Guana Lake and Pellicer Creek. This also includes monitoring water quality parameters at SWMP sites not included in standard protocols, like fecal coliforms.
  Applicable GTM Strategic Objectives: B.1, B.2

- The goal of **coastal wetland monitoring** is to document ecological characteristics of this dynamic community and discern the impacts of local and global environmental changes on the estuarine ecosystem.
  Applicable GTM Strategic Objectives: A.1, C.1, C.2

- The goals of **plankton monitoring** are to detect harmful algal species and quantify plankton community composition. Most of this project is conducted by volunteers, so it has the added benefit of training participants in plankton identification and ecology.
  Applicable GTM Strategic Objectives: A.2, B.3, C.2

- The goal of **intertidal oyster monitoring** is to characterize oyster population structure (e.g., size and abundance) and its condition, and to understand the impacts of water quality, global environmental changes, and harvesting.
  Applicable GTM Strategic Objectives: A.2, B.3, C.2

Specific actions for the Research program and their associated objectives may be found in Chapter 6 and in Appendix D, where all actions are listed by lead program.

Program Capacity

Facilities & Equipment

The primary research lab is located at the Visitor Center in Ponte Vedra Beach, Florida. It is equipped with the following:

- water quality and meteorological instruments
- calibration materials and accessories
- 2 inverted microscopes with cameras
- water level loggers
- optical level
- burrow scope
- computer
- 2 dissecting microscopes
- fume hood
- analytical balance
- GPS unit
- Ponar grab
- pipettes, glassware
- miscellaneous sampling gear

An additional research lab is located in the Marineland office and it is equipped with a fume hood, a work bench, storage space, and a one-bedroom dorm for visiting scientists. Research space is also provided at the Flagler County Legacy School House at Princess Place Preserve.

Research staff has access to one boat owned by the University of North Florida (an aluminum 20' Sea Ark with a tunnel hull). All other vessels and vehicles are owned by FDEP and include two Carolina Skiffs, trucks with towing capacity, jon boats, canoes, and kayaks. Older vehicles and vessels are replaced per Florida Department of Management Services guidelines and as funds are available.

Staff

Research staff consists of the full-time Research Coordinator, two full-time Biologists, a full-time SWMP Manager, a part-time SWMP Data Specialist, and a full-time SWMP Technician. Three of the full-time positions are employed by the University of North Florida and are on contract with FDEP. All other positions are employed by FDEP. When funding is available, additional part-time staff are utilized.

Partnerships

This Reserve's Research Program is committed to an interdisciplinary approach to research and monitoring. Complex questions regarding ecosystems require such an approach, especially in a climate of strict budgets. Benefits of interdisciplinary research include involvement of students focused on specific projects, access to more funding sources, and involvement of scientists with diverse skills and expertise.

Agencies, universities, and institutions that have been and will be involved heavily in research and monitoring with or in cooperation with GTM Research Reserve include, but are not limited to, Harbor Branch Oceanographic Institute, Flagler College, Florida Fish and Wildlife Conservation Commission, Florida Sea Grant, Florida Wildlife Research Institute, St. Johns River Water Management District, Smithsonian Institution, University of Georgia, University of Florida, University of Maryland, University of New Hampshire, University of North Florida, and Villanova University.

Future Needs and Opportunities

Research opportunities within the Reserve are extensive and additional support is found from the national to local level. Training opportunities in vertical control and data analysis techniques are regularly offered by NOAA. University partnerships and a general collaborative atmosphere among academic and agency professionals continue to facilitate development of interdisciplinary teams. Student involvement through classes and internships often result in sound research tackling important questions on small and short-term scales. Groups like the Oyster and Water Quality Task Force of the Guana, Tolomato, and Matanzas Rivers; the GTM Research Reserve Management Advisory Group; and volunteers with an interest in life-long learning, enhance community support for research. Finally, supplemental funds for equipment, supplies and travel are typically available through the citizen support organization, the Friends of the GTM Reserve. The Friends also administers small research grants with low overhead costs, allowing more funds to be applied to research rather than administration. Additional research funds will be prioritized as follows:

- Increased monitoring infrastructure will be used to meet objectives related to salt marsh/water level monitoring and water quality/trophic dynamics. In some areas, like Pellicer Creek, this infrastructure is currently being installed. There are additional areas within the Reserve where this could be replicated, like the Tolomato River. For example, to relate water depth measurements to vertical elevations on the marsh surface, water level instruments need to be secured to structures more stable than single channel markers and pilings. To access shore-to-upland monitoring transects in marshes, raised platforms need to be installed. To monitor rapid changes in the base of the aquatic food web, automated sensors for dissolved organic matter and chlorophyll need to be installed on datasondes. Spatial patterns in these parameters also need to be studied using automated sensors as part of a GPS-enabled flow-through system for boats.
- Increased staff capacity will allow for more data collection, summarization and reporting than is currently conducted. Staff retention is a high priority in this field to ensure consistent, accurate data collection and to supplement that data with anecdotal observations of changes observed by field researchers. Staff capacity and educational opportunities may also be increased by using interns and graduate research fellows.

Education and Outreach

NERRS Education and Outreach

The reserve system seeks to enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation. The reserve system increases estuary literacy among students, teachers, and the public through the K-12 Estuarine Education Program (KEEP) and Conservation Action Education programs.

The K-12 Estuarine Education Program helps educators bring estuarine science into the classroom through hands-on learning, experiments, fieldwork, and data explorations using grade-appropriate lessons, activities, and videos. Reserves also offer teacher development programs that use established coastal and estuarine science curricula aligned with state and national science education standards. Teachers on the Estuary (TOTE) workshops give teachers the opportunity to explore coastal habitats and

conduct field investigations, learn how to integrate local and national monitoring data into the classroom, and gain hands-on experience using estuary education resources.

Conservation Action Education programs focus primarily on fostering and modeling behavioral change that leads to resource conservation and advances the mission of the reserve. Such programs are specifically designed with the intention of creating behavior change and/or fostering wise stewardship of estuaries. The ultimate goal is to help audiences make personal choices and collective actions that help them conserve, protect and restore our estuaries and their associated watersheds. Target audiences include, but are not limited to, residents of the watershed and surrounding communities, watershed residents and recreational users of the reserve. Participants in the reserve's coastal training program and K-12 audiences are not included in this category.

Reserves integrate research and monitoring into their educational and outreach efforts, providing a multi-faceted, locally focused approach aimed at engaging the community.

The Reserve System Strategic Plan outlines education objectives designed to increase the public's awareness of and participation in stewardship activities; improve educators' and students' understanding and use of the Reserve System and NOAA resources for place-based and inquiry-based learning; and grow and motivate the next generation of coastal professionals through access to programs and facilities that facilitate research, resource management, and educational opportunities.

The GTM Research Reserve Education Program

The GTM Education Program is led by the Education Coordinator in collaboration with other GTM program managers and staff, and in consultation with other local and NERR educators, NOAA staff, ORCP, and other interested parties. The education program relies on funding, standard operating procedures, and support from NOAA to implement national programs and priorities. Implementation of local and regional education priorities is reliant upon guidance and support from ORCP, external granting agencies, and partner institutions.

GTM Education programming is largely mirrored on current research and monitoring efforts conducted at the Reserve. The intention is to put focus on the importance of the research and monitoring efforts being conducted, show the community relevance and need for the projects, and to further engage community members beyond the education aspect and into actively participating in conservation efforts as volunteers and citizen scientists. Some examples of this are the upper-level Beach Biosphere program within the Living Lab Series, which collects the same beach profile data the research team collects. Also, the upper-level Planet Plankton program, also part of the Living Lab Series, which mirrors the research/ citizen science Phytoplankton Monitoring Network (PMN).

The geographic scope of the Education Program primarily includes students and members of the public from Flagler, St. Johns, and Duval counties. When possible, this scope is expanded using distance learning techniques.

The Education Program endeavors to provide accurately interpreted programming for as many community members as possible and to further create opportunities for community members to engage

in meaningful, interactive programming and conservation efforts. In 2018, GTM Education began the GTM for All Initiative. This initiative arose from the objective to increase the cultural diversity in education program attendance, and to improve access to programs and opportunities. The goals of the GTM for All initiative are to:

- Work with community organizations to recognize and reduce gaps in developing and delivering interpretively appropriate programs
- Increase and sustain diverse community attendance to programs at the GTM Research Reserve
- Increase awareness of the importance of natural and cultural diversity
- Further show the potential for positive interaction and community contribution to conservation efforts

The GTM For All Initiative acts as an umbrella over all education programming at the GTM Research Reserve. Education programs incorporate the above goals through interpretive adaptations for diverse community audiences including deaf/low hearing, blind/low vision, culturally diverse groups, individuals on the autism spectrum, individuals facing economic and distance limitations, and individuals with physical and cognitive disabilities.

On an annual basis, the Education Coordinator updates a work plan and budget for the education program based on the Management Plan. The process starts with a review of the previous year's work plan and an evaluation of strengths and limitations of each education activity and ability to achieve targeted outcomes. Participants of most education and outreach programs are surveyed to determine whether any knowledge was gained. The education team adjusts their programs and work plans as needs and opportunities arise. Additionally, evaluation occurs at the federal level through NOAA's 312 Evaluation process, which takes place every five to seven years.

The following programs are currently conducted by the education team and were developed based on NERRS and local education priorities, the expertise of education staff, and survey results. Since the implementation of the last management plan, surveys have shown that there has been an overall increase in participants' knowledge and awareness of environmental topics.

- **Kindergarten – Undergraduate College Environmental Education Programs:** these programs are designed so students, while onsite, are immersed in experiential, problem-based learning opportunities that focus on the scientific process. Students are introduced to the concept of digital literacy in field investigations. In addition to learning responsible ways to utilize technology for research, students practice field techniques with standard field equipment. Each activity is aligned with Florida's state education standards and NERRS Estuarine Literacy Principles and Ocean Literacy Principles, as appropriate.

    - Estuary Explorers
      Target Audience: Kindergarten – 5th Grade
      Applicable GTM Strategic Objectives: A.6, B.4

    - Living Lab Series (aligned with NOAA's Estuaries 101 curriculum)
      Target Audience: 6th – 12th Grade, Undergraduate College
      Applicable GTM Strategic Objectives: A.6, B.4, C.3

- **Adventures in the Estuary Summer Camp:** This summer camp is typically held in one-week sessions, each divided into two sections; an older group (ages seven to nine) and a younger group (4 to 6-year-olds). Students receive hands-on experience conducting estuarine science while enjoying fun camp activities. Lessons progressively build knowledge breaking down the complexities of the estuarine environment.
  Target Audience: ages four to nine
  Applicable GTM Strategic Objectives: A.6, B.4

- **Teachers on the Estuary (TOTE):** This is a program coordinated across the NERR System that offers hands-on, field-based, professional teacher development opportunities at NERRs across the nation. The goals of the program are for teachers, and subsequently students, to increase their knowledge and appreciation of estuarine environments, as well as acquire the necessary skills to act as stewards of estuarine resources.
  Target Audience: Teachers of K-16 students, and preservice college students interested in teaching
  Applicable GTM Strategic Objectives: A.6, B.4, C.3

- **Guided Hikes:** Hikes are guided by trained volunteers at different locations throughout the reserve. Each session focuses on general elements of the reserve, e.g., forest ecology, beach ecology, estuarine ecology, and cultural history. These hikes are typically ½ to 2 miles long and take place on weekends and weekdays.
  Target Audience: Tourists and residents interested in ecology and history
  Applicable GTM Strategic Objectives: A.6, B.4, C.3

- **Family Seining:** These sessions are volunteer-led and allow participants to pull a seine net through Guana Lake to learn to identify species of fish, crabs and shrimp, and understand their roles in the estuary.
  Target Audience: Local and visiting families
  Applicable GTM Strategic Objectives: A.6, B.4, C.3

- **Lecture Series:** Lectures on estuarine ecology, research, and conservation topics are provided in two locations, one in the Ponte Vedra Beach facility, and one in the Marineland.
  Target Audience: Tourists and residents interested in ecology, research, and conservation
  Applicable GTM Strategic Objectives: A.6, B.4, C.3

- **Outreach Events:** Education staff and volunteers attend and, in some cases, coordinate festivals for the public to provide information about the Reserve, ecology, cultural history and other topics covered in this management plan. While these events vary in format and subject, every effort is made to provide an interactive, hands-on experience for attendees**.** Festivals may take place on or off site.
  Target Audience: Varies by festival
  Applicable GTM Strategic Objectives: A.6, B.4, C.3

In addition to programming, education staff is responsible for the interpretive elements of the public use areas managed by GTM staff. This includes the exhibit hall in the Visitor Center and information kiosks in parking lots, at the beaches and on the trails.

Program Capacity

Facilities & Equipment

Most on-site education programs take place in and around the Visitor Center in Ponte Vedra Beach, Florida. It is equipped with an education exhibit hall, three classrooms, an auditorium, an outdoor amphitheater, ten miles of trails, two pavilions, Guana Lake and River access, and three beach access points for education space. The GTM Education Program endeavors to integrate cutting-edge education technology into its programs and, through various external grants, has amassed equipment and software to support those efforts. Additional available education materials include microscopes, audio/visual equipment, and sampling gear for plankton and nekton.

Education staff have access to multiple kayaks and safety gear, and all-terrain vehicles with people tram-trailers to transport program participants across the site to demonstrate different habitats. All education staff and volunteers are trained to transport participants based on state and federal regulations.

Staff

At a minimum, education staff consists of the full-time Education Coordinator, one full-time Environmental Educator and two part-time Environmental Educators. All education positions are employed by FDEP. When funding is available, additional part-time staff are utilized.

Partnerships

The GTM Education Program works with regional education partners to collaborate and coordinate on programs and events, to identify regional gaps in environmental education, and to develop internship opportunities. Key partners in recent years include Flagler College, Florida Public Archaeology Network, The Foundation Academy, Marineland Dolphin Adventure, Northeast Florida Sea Grant Extension Program, St. Johns County School District, the University of North Florida, and White Oak Conservation.

In addition to the available space, equipment, and partnerships mentioned earlier, the GTM Education Program is supported by the Friends of the GTM Reserve that provides funding and administers grants at a low overhead cost. The GTM Research Reserve also has a strong volunteer program and many participants assist with education and outreach programs, expanding estuarine education throughout the community.

Future Opportunities

Under the GTM for All Initiative, the Education Program will focus future programming on targeting diverse audiences as described above. As priorities emerge from Research, Stewardship and Resource Management, the Education Coordinator will seek to incorporate key findings and education needs into appropriate activities. For example, as more is learned about the loss of coastal wetlands in Northeast Florida, this information and conservation behaviors to prevent it will be added to some of the programs listed above.

Coastal Training Program

NERRS Coastal Training Program

The Coastal Training Program provides up-to-date scientific information and skill-building opportunities to coastal decision-makers on relevant coastal management issues. Target audiences may vary for each reserve, but generally include local elected or appointed officials, managers of both public and private lands, natural resource managers, coastal and community planners, and coastal business owners and operators. They may also include such audiences as farmers, watershed councils, professional associations, recreation enthusiasts, researchers, and more.

The place-based nature of reserves makes them uniquely positioned to deliver pertinent information to these audiences. Each reserve conducts an analysis of the training market and assessment of audience needs to identify how best to deliver relevant training on priority issues to their area.

Partnerships are integral to the program's success. Reserves work closely with a host of local partners, as well as several NOAA programs, to determine key coastal resource issues and the appropriate target audiences and expertise needed to deliver relevant and accessible programs.

The *Reserve System Strategic Plan* outlines coastal training objectives designed to ensure that coastal decision-makers and environmental professionals understand and effectively apply science-based tools, information, and planning approaches that support resilient estuaries and coastal communities.

The GTM Research Reserve Coastal Training Program

The GTM Coastal Training Program (CTP) is led by the CTP Coordinator in collaboration with other GTM program managers and staff, and in consultation with regional policy makers, NOAA staff, ORCP, and other interested parties. CTP relies on funding and guidance from NOAA to implement national programs and priorities. State-wide programs are typically guided and supported by ORCP, though many CTP initiatives are developed by continually communicating with and assessing the needs of the local natural resource managers, policymakers, and other professional groups that impact or are impacted by the health of the estuary.

The primary geographic scope for the GTM Research Reserve CTP is within St. Johns County and Flagler County, which encompass the GTM Reserve boundary. However, CTP activities often include other areas within Northeast Florida where policies, planning, scientific research and education can directly and indirectly impact the condition of land and waters within the Reserve.

CTP provides an annual workplan and budget based on training needs assessments and market analyses, collaborative research programs, evaluation of existing programs, and the fulfillment of the strategies in this management plan. In consultation with other Reserve staff and the CTP Advisory Committee (which also serves as the GTM Management Advisory Group), work plan details are refined as necessary to ensure relevance and achievability.

Estuarine ecology, water quality, living shorelines, invasive species, and climate change were identified as priority topics for job responsibilities and training in a Needs Assessment conducted in September 2020 via an online survey that was completed by twenty-one respondents. These topics have been identified as top priorities in past needs assessments and are expected to remain important through the

ten-year span of this Management Plan. Specific actions for CTP and their associated objectives may be found in Chapter 6 and in Appendix D, where all actions are listed by lead program.

The GTM CTP has several collaborative efforts with the research sector to promote two-way communication between researchers and end-users to ensure that scientific findings are integrated into land management and decision making. CTP often serves as a liaison to bring relevant stakeholders into research discussions to help prioritize research efforts that fill knowledge gaps relevant to local issues. CTP coordinates with the education program and the communications team to provide consistent information and messages targeted to a wide variety of audiences. Finally, CTP assesses resource management and policy knowledge and skill gaps within the GTM Reserve and local community. The CTP Coordinator endeavors to provide training and professional development opportunities to fill those gaps.

Formal events, such as workshops, trainings, and presentations, hosted by CTP are evaluated based on participant surveys that evaluate the event's quality, usefulness and applicability to decision making. These evaluations are provided in several formats including paper handouts, and web-based options sent in email via hyperlinks. There are three CTP evaluation questions required by the NERRS that assess whether the event was a good use of time, participants received an increase in knowledge, and there is potential to apply the information in the future. In many instances, GTM's CTP asks additional questions on topics such as how the information will add value to future efforts, if there are any foreseen obstacles, what additional training could be provided, etc. Occasionally a survey will be disseminated three months after the workshop to follow up with participants and provide support when necessary. Evaluation of CTP occurs at the federal level through NOAA's 312 Evaluation process, which takes place every five to seven years.

Current ongoing programs expected to continue through the duration of this Management Plan are listed below.

- **State of the Reserve:** The annual research symposium at the GTM Research Reserve provides staff, visiting investigators and land managers an opportunity to showcase their results and highlights to a large audience. This event is coordinated by CTP in collaboration with other sectors.
  Applicable GTM Strategic Objective: A.6, B.4, C.3

- **The Oyster and Water Quality Task Force of the Guana, Tolomato and Matanzas Rivers**: CTP staff serve as the organizers and facilitators of this group of local agency representatives, researchers, community members and shellfish harvesters whose mission statement is, *Recognizing the role that oyster habitat plays as an indicator of water quality, and the cultural importance of shellfish in our region, we seek to ensure the sustainability of oysters in the Guana, Tolomato, and Matanzas rivers by working to understand and improve the health of our estuarine waters.*
  Applicable GTM Strategic Objectives: A.6, B.4, C.3, C.4

- **First Coast Invasive Working Group:** The CTP Coordinator serves as co-chair for the First Coast Invasives Working Group, which addresses regional invasive species issues. Staff provide workshops on invasive plants and native alternatives for landscaping to interested groups. Applicable GTM Strategic Objectives: A.6

Program Capacity

Facilities & Equipment

The GTM Coastal Training Program primarily uses the auditorium and one classroom at the Visitor Center in Ponte Vedra Beach, Florida to host workshops, trainings and other events. The office in Marineland, Florida and partners' facilities serve as additional spaces when needed. CTP has access to portable and stationary audio/visual equipment to use as needed.

Staff

Coastal Training Program staff consists of the full-time CTP Coordinator, and one full-time CTP Specialist. All positions are employed by UNF and are on contract with FDEP. When funding is available, additional part-time staff are utilized.

Partnerships

CTP partners with many local organizations in program development and dissemination. Key partners include Florida SeaGrant, St. Johns County Parks and Recreation Department, St. Johns River Water Management District, the University of Florida Institute of Food and Agricultural Extension Offices, and the University of North Florida.

Future Opportunities

Due to increasing development in the GTM watershed and ongoing effects of sea level rise and climate change, CTP anticipates many programs to address the impacts of those processes on natural and cultural resources. Target programmatic objectives and actions for the next ten years are described in Chapter 6. Examples of specific topics expected to be major foci for CTP programs going forward include:

- Guana Lake & River: through the Oyster and Water Quality Task Force, as well as multiple grants and fellowships, there is a concentrated effort to evaluate the status and anticipated trends of the Guana River system. This is likely to lead to increased outreach and collaboration with local stakeholders on maintaining the health of this system.
- Coastal Wetland Habitat Loss: recent research and long-term monitoring data synthesis is showing a loss of coastal wetland area throughout Northeast Florida. CTP will play a role in coordinating knowledge transfer, stakeholder engagement, and other communication activities as land managers investigate options for mitigating this loss.

Stewardship Program

The Stewardship Program leads habitat mapping, change documentation, and estuarine restoration/enhancement throughout the reserve boundary. The exception to this is the SWMP emergent vegetation and sedimentation monitoring, which is managed by the Research Program and described earlier in this chapter. This program is led by a Stewardship Coordinator and is supported by visiting investigators, volunteers, and part-time staff when possible.

Habitat Mapping and Change

Using the NOAA NERR System standard operating procedure for mapping land use, staff are developing a reserve habitat map for the land and waters within the GTM Reserve boundary. This map will be used as a baseline to estimate changes from the past and assess change going forward as part of a long-term monitoring strategy. This mapping effort will evaluate short-term variability and long-term changes in the extent and type of habitats within the NERRs, and how these changes are impacted from land uses within adjacent watersheds and changes in local sea level. Although the study area comprises the entire reserve boundary, areas of perpetual interest (APIs) will receive additional focus in the mapping effort. The APIs that have been identified at the writing of this plan will support research and monitoring projects described earlier in this chapter. They currently include Pellicer Creek and areas where changes can be detected in oysters, mangroves, coastal strand impacted by fire, and shorelines.
Applicable GTM Strategic Objectives: A.1, C.2

Habitat Restoration

Through mapping and monitoring the estuary, the Stewardship Program endeavors to identify needs for physical action to maintain biodiversity and ecological functions. Details about restoration at the GTM Reserve are described in Chapter 9.
Applicable GTM Strategic Objectives: A.3, A.4

Program Capacity

Facilities & Equipment

Stewardship staff has access to the facilities, vehicles and vessels already described including, vessels and vehicles that are owned by FDEP and include two Carolina Skiffs, one 20' SeaArk aluminum hulled boat, trucks with towing capacity, jon boats, canoes, and kayaks. Older vehicles and vessels are replaced per Florida Department of Management Services guidelines and as funds are available.

The habitat mapping and change portion of this program requires the use of sophisticated unmanned aerial and aquatic vehicles, and a computer with high processing power. This equipment is typically obtained and maintained by external grants and other funding.

Staff

Stewardship staff consists of a full-time Stewardship Coordinator who maintains an office in Marineland office and Ponte Vedra.

When funding is available, additional part-time staff are utilized.

Partnerships

Agencies, universities, and institutions that have been and will be involved heavily with the Stewardship Program include, but are not limited to, Flagler College, Florida Sea Grant, Florida Fish and Wildlife Conservation Commission (FWC), Florida Wildlife Research Institute, St. Johns River Water Management District, United States Fish and Wildlife Service, the University of Florida, and the University of North Florida.

Future Opportunities

In addition to the available space, equipment, and partnerships mentioned earlier, the Stewardship Program is supported by the Friends of the GTM Reserve that provides funding and administers grants at a low overhead cost.

Resource Management and Public Use Program and Protection Plan

The Resource Management Program oversees the land management and public use of the ORCP-managed Guana Preserve, which includes beach access points, trails, and the Guana dam (see Map 3). This program is led by a Resource Management Coordinator and supported by an Environmental Specialist, Park Services Specialist and multiple Park Rangers. In addition to public use, this program manages invasive species, prescribed fire, cultural and historic resources. Biological monitoring on the Guana Preserve is typically conducted by this team with the help of volunteers.

Biological Monitoring

Biological monitoring is conducted on the Guana Preserve to establish species status and trends in upland habitats. With the support of volunteers, the team endeavors to conduct surveys to establish presence/absence of species when possible. A list of current monitoring projects is in Appendix D though more may be added during the period of this management plan. One of these monitoring projects is the gopher tortoise project which has been ongoing since 2005 with the latest survey in 2014. The staff surveys show a high density of active burrows in suitable habitat areas. The site is unlikely to support the introduction of additional individuals so GTM Research Reserve is unsuitable as a gopher tortoise recipient site.

Applicable GTM Strategic Objectives: A.2

Invasive and Nuisance Species Control

While there are no wide-spread detrimental invasions of exotic species on the ORCP-managed lands and waters within the Reserve, staff will continue to monitor for and control exotic species that are considered a threat to the integrity of the GTM Research Reserve's natural communities and are in direct conflict with its mission to encourage sustainable conservation of natural biodiversity. A list of these species previously seen within the Reserve is in Chapter 4. Typically, exotic plants are hand-pulled immediately upon identification. When necessary, prudent amounts of herbicide are used in conjunction with mechanical removal to ensure success in the management of exotic flora species. Location and treatment documentation are stored on a web application. Staff participate in the First Coast Invasive Working Group to share resources, lessons learned, and stay informed about new invasions and control methods with agency partners within and around the Reserve's boundary.

Prevention is the best strategy to protect the GTM Research Reserve's natural resources from damage by invasive exotic species. Many of these species are escaped pets or landscape plants from neighboring properties, or are transferred from other regions by vehicles, boats and other equipment. Resource management staff will work with Education and CTP staff to educate public and professional groups on the threats caused by exotic species and the prevention strategies to avoid them.

As native nuisance species are identified that threaten listed species, such as mosquitos or an excess population of raccoons, staff will work with appropriate partner agencies like Anastasia Mosquito Control District and the FWC Wildlife Management Area to develop management strategies that follow state and federal guidelines and best practices.
Applicable GTM Strategic Objectives: A.5

Prescribed Fire

Staff will continue prescribed fire as a management and public safety tool for appropriate fire dependent natural communities within the ORCP-managed uplands of the GTM Research Reserve. Prescribed fire areas within ORCP-managed lands include 20 acres of mesic flatwoods, 246 acres of freshwater marsh and other wetland habitat, 15 acres of oak scrub, two acres of sand pine scrub, and 677 acres of coastal strand. Specific details of the GTM Research Reserve Prescribed Fire Rotation are included in Appendix C. Staff partner with other prescribed burn professionals through FDEP, FWC and contractors if additional support is needed.
Applicable GTM Strategic Objective: A.4

Cultural Resource Protection

Staff will continue to monitor archaeological resources within the ORCP-managed lands. Some of these locations are described in Chapter 4. Staff will conduct routine condition assessments on historical sites, using protocols developed in collaboration with partners like the National Park Service and Florida Public Archaeology Network, to monitor for incremental change. Any new cultural sites will be documented with the Florida Division of Historical Resources to keep the Florida Master Site File form current. Site conditions are tracked and documented through the Heritage Monitoring Scouts program, a collaborative project of the Florida Public Archaeology Network.

Shoreline erosion from storm events has exposed the historic coquina well (see Map 3) and other artifacts at the Shell Bluff Landing site (SJ00032). Additionally, human remains were found within the shell midden, likely from the Late Archaic period. The Florida Division of Historical Resources recommends deterring visitor use in the highly erosive to protect and respect these resources. Visitor traffic will be guided a few yards to the north, where a sandy beach with existing visitor signage provides access to the Tolomato River.

For any actions within the ORCP-managed areas that may adversely affect archaeological or historical resources, GTM staff shall consult with Division of Historical Resources, Department of State.
Applicable GTM Strategic Objectives: E.1, E.2

Public Use

The following section describes components of this program applicable to GTM Strategic Objectives 4.1 and 4.2. The Resource Management staff is responsible for overseeing this program.

Compatible Public Use	Guana Preserve	Non-ORCP managed areas
Hunting	No	Yes
Fishing	Yes	Yes
Wildlife observation	Yes	Yes
Kayaking, canoeing, etc.	Yes	Yes
Motorized boat use	Yes	Yes
Hiking	Yes	Yes
Non-motorized Bicycling	Yes	Yes
Motorized Bicycling (E-Bikes)	No	Yes
Horseback riding	Yes	Yes
Timber harvest	No	Yes
Cattle grazing	No	No
Camping	No	Yes
Apiaries	No	No
Off-road vehicle use	No	Yes
Environmental Education	Yes	Yes

Figure 8. Compatible Public Use Assessment within the GTM Research Reserve

Allowable and Unallowable Uses

The table above lists compatible uses within the Reserve and on ORCP property. Allowable uses vary across the parcels managed by different agencies and some limitations may apply. Details on precise locations and timing of activities on non-ORCP managed areas can be found on the webpages for each area's managing agency. For the ORCP-managed areas, activities are only allowed on the Guana Preserve (Maps 11a and 11b). Fishers must follow the rules set by the Florida Fish and Wildlife Conservation Commission.

Non-consumptive uses of the Guana Dam and trail system include recreational kayaking, canoeing, paddle boarding, hiking, biking and horseback riding. Wildlife viewing, especially birds, is excellent. ORCP manages approximately 10 miles of trails on the Guana peninsula, which are open 8:00 AM to sundown. Kiosks throughout the trails provide information on the ecology and history of the peninsula, as well as maps for navigation. Visitor use surveys conducted in 2012 and 2018 found minimal user group conflicts for the dam, trail and beach users.

Most of the waters of GTM Research Reserve are currently managed for multi-use functions, including research, education, and public recreation. The waters of the GRMAP and the PCAP are classified as Outstanding Florida Waters (OFW). Sport fishing for estuarine species includes drum, menhaden, spotted sea trout, weakfish, spot and flounder. The Guana Dam is a popular location for estuarine fishing, crabbing and shrimping, and is open to the public from 4:00 AM to 8:00 PM daily. Fishing pressure at the dam can be intense during peak conditions and may apply excessive pressure on natural resources. Guana Lake and the dam itself are managed by FWC, while access to the dam and lakeshore are managed by ORCP. Collaboration is necessary to manage this area for long-term natural resource availability and any changes in management of this public area would need to be resolved cooperatively between the two agencies.

Limited recreational and commercial oyster and hard clam harvesting throughout the estuary occurs as well. Throughout the reserve, there are areas classified as conditionally restricted and areas classified as conditionally approved with regards to shellfish harvesting. Submerged lands within PCAP are unclassified, therefore shellfish harvesting is not permitted pending bacteriological and sanitary surveys. The most extensive area of conditionally approved shellfish harvesting occurs along the western shore of the Matanzas River just south of the CR206 Bridge and in Salt Run. More detailed and up-to-date information concerning shellfish harvesting can be found at http://www.freshfromflorida.com/Divisions-Offices/Aquaculture.

Other consumptive commercial resource use in the estuarine system include fishing for penaeid shrimp, blue crabs, clams, scallops, oysters, and various finfish species. Of these, blue crabs and shrimp are the most predominant. Sustainability of the habitats that support these resources is a management priority for the GTM Research Reserve.

The GTM Research Reserve also contains magnificent vistas and photographic opportunities across expansive salt marshes and miles of undeveloped beaches. ORCP directly manages nearly five miles of virtually undeveloped Atlantic coastal beachfront. The beach dunes are some of the highest in Florida and represent some of the last undisturbed high dune habitat along the Atlantic coast. Combined with the availability of platform overlooks, these beach dunes accommodate tens of thousands of visitors each year with grand vistas of some of Florida's last remaining barrier island scenery. Three separate parking lots in this area accommodate 248 vehicles. Recreational opportunities along these beaches include surfing, sunbathing, paddle boarding, walking and shoreline sport fishing. Oceanic sport fishing species include blue fish, sharks, wahoo, barracuda, mackerel, mahi mahi, cobia, snapper and grouper. Offshore fishing access points are maintained off-site by municipal and county authorities.

Horseback riding on the beach is allowed with the following conditions: horses are allowed only below mean high tide, and within three hours of daily low tide. These restrictions are necessary for resource protection. The trail system will also remain open for equestrian user groups seven days per week. Additional restrictions may be necessary but only if scientifically based monitoring results indicate natural resource damage.

Use of this site complies with the 1981 State Lands Management Plan and represent balanced public utilization, adhering to legal authorities described in Chapter 3.

Hunting, cattle grazing, camping, apiaries and off-road vehicle use are not considered suitable for the Guana Preserve due to the relatively small size of the parcel and heavy use by hikers, wildlife watchers, cyclists and horseback riders. Use conflicts have been few and increase of use types would likely lead to more conflict.

Surveillance and Enforcement Capacities

Enforcement of state statutes and rules relating to criminal violations and non-criminal infractions rests with the Florida Fish and Wildlife Conservation Commission (FWC) Marine Patrol, FWC law enforcement,

and local law enforcement agencies. Enforcement of administrative remedies rests with ORCP, the DEP Districts, and Water Management Districts.

Program Capacity

Facilities & Equipment

Resource Management staff has access to the facilities, vehicles and vessels already described including, vessels and vehicles that are owned by FDEP and include two Carolina Skiffs, one 20' SeaArk aluminum hulled boat, trucks with towing capacity, jon boats, canoes, and kayaks. Older vehicles and vessels are replaced per Florida Department of Management Services guidelines and as funds are available.

Most equipment is kept in the shop yard adjacent to the Visitor Center in Ponte Vedra Beach on the Guana Preserve. Equipment specific to upland management includes four trucks (one is four-wheel-drive), a Ford F350 truck modified for fire use, a tractor, multiple ATVs and UTVs, chainsaws, weed trimmers, safety gear and other items used for resource management. Staff also have access to cars, boats, and kayaks that are shared by all departments. Equipment specific to facility and maintenance support is described in the Facilities Plan in Chapter 8.

Staff

Resource Management staff consists of a full-time Manager who also oversees public use and facilities, five year-round rangers and one temporary ranger typically employed in the busy summer season. These staff have offices in the Visitor Center in Ponte Vedra Beach. In addition to the work described above, their duties include facility maintenance support for the public use areas (e.g., aquaria, parking lots, bathrooms, pavilions, trails, and boardwalks) and landscaping around the Visitor Center and Marineland offices.

When funding is available, additional part-time staff are utilized.

Partnerships

Because they manage adjacent areas, Resource Management staff frequently partner with FWC staff who manage the Guana River Wildlife Management Area. State park staff from the region are also excellent partners due to their similar functions overseeing public use areas, conducting prescribed fires and monitoring species. Opportunities throughout the year allow these partners to collaborate and learn from each other.

Future Opportunities

In addition to the available space, equipment, and partnerships mentioned earlier, the GTM Resource Management Program is supported by the Friends of the GTM Reserve that provides funding and administers grants at a low overhead cost. The GTM Research Reserve also has a strong volunteer program and many participants assist with resource management, including biological surveys, water quality sampling, and restoration activities.

Chapter 6. Strategic Plan

The vision of the Florida Department of Environmental Protection is to create strong community partnerships, safeguard Florida's natural resources and enhance its ecosystems. The mission of the GTM Research Reserve is to achieve the conservation of natural biodiversity and cultural resources by using the results of research and monitoring to guide science-based stewardship and education strategies.

The following chapter outlines the Issues, Goals, Objectives, Actions and Performance Measures (noted as PM under each Action) to guide the activities of the GTM Research Reserve over the next two to ten years. NOAA guidance for management plans is to focus on a five-year timeframe for these actions. However, most of these actions are anticipated to be relevant for ten years, which is the standard timeframe for FDEP management plans. All Objectives are anticipated to be acted upon within two years and last ten years. All Actions except for A.5.B. and those under Objectives A.4, D.1, D.2, E.1, and E.2 are intended to be applied where possible throughout the NERR boundary. Action A.5.B. and Actions under Objectives A.4, D.1, D.2, E.1, and E.2 are intended to be applied within the lands directly managed by GTM NERR staff, primarily the Guana PReserve. An update to this chapter will be submitted to NOAA and FDEP five years after this management plan is approved. See Appendix D for these action items and performance measures listed by lead program area.

Issue: Loss of Biodiversity

Goal: Improve natural biodiversity throughout the Reserve

- **Objective A.1:** Knowledge of the status and trends of habitats within the GTM Research Reserve and its watersheds is increased. *Short-term (2-year) – initiate actions, establish plans, and develop protocols where applicable. Long-term (10-year) – analyze and summarize findings, adapt management actions where necessary and include in next management plan.*

    - **Action A.1.A**: Monitor status and trends of salt marsh and mangrove habitat structure including areal extent and characteristics of sediment and vegetation structure. (*Lead: Research; Support: Stewardship*)
        - **PM**: Data, maps, summaries, and reports of status and trends in marsh/mangrove habitats
        - **PM:** Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results)

    - **Action A.1.B**: Monitor status and trends of beach habitats associated with storm impacts, beach nourishment, inlet management, and intracoastal waterway dredging. (*Lead: Research; Support: Stewardship*)
        - **PM**: Data, maps, summaries, and reports of status and trends in beach habitats as associated with storm and active management practices
        - **PM:** Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results)
        - **PM:** Post-Storm Assessments of habitat and species

- **Action A.1.C:** Map and monitor other habitats within the GTM Research Reserve that are recognized as a priority and monitor for changes in those areas. *(Co-Leads: Research, Stewardship; Support: Resource Management)*
    - **PM:** Habitat maps, including associated accuracy information and data on change in habitat area
    - **PM:** Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results)

- **Action A.1.D**: Identify and quantify primary causes of habitat change (structure, function, areal extent or condition) in the GTM Research Reserve through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field (*Co-Leads: Research, CTP; Support: Stewardship, Resource Management*)
    - **PM:** Summaries of the various causal factors in the change of habitat structure and function, data and reports quantifying their impacts
    - **PM:** Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results) associated with studies identifying and quantifying causes of habitat change and/or assessing restoration activities

- **Action A.1.E**: Prioritize and quantify ecosystem services (e.g., carbon storage/sequestration, habitat provision, water filtration, food provision) provided by natural habitats within the GTM Research Reserve through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research; Support: CTP, Stewardship, Resource Management)*
    - **PM:** Data regarding the quantification of ecosystem services
    - **PM:** Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results) associated with studies quantifying ecosystem services

- **Objective A.2:** Knowledge of the status and trends of keystone, sentinel, foundation, endangered and threatened species within the GTM Research Reserve and its watersheds is increased. *Short-term (2-year) – initiate actions, establish plans, and develop protocols where applicable. Long-term (10-year) – analyze and summarize findings, adapt management actions where necessary and include in next management plan.*

    - **Action A.2.A:** Conduct natural oyster reef assessments by examining reef structure and oyster population metrics. *(Lead: Research; Support: Stewardship)*
        - **PM:** Data and summaries of oyster metrics, updated as needed

    - **Action A.2.B:** Conduct plankton monitoring to detect harmful algal species and quantify community composition. *(Lead: Research; Support: Stewardship)*
        - **PM:** Data and summaries of plankton surveys

    - **Action A.2.C:** Conduct marine turtle nesting surveys along beaches within the Guana River Marsh Aquatic Preserve. *(Lead: Resource Management)*

        - **PM:** Data and summaries of marine turtle surveys

    - **Action A.2.D:** Develop a plan to monitor priority species listed in Appendix C-8 and not included above. Review protocols, ensure access to data, and provide volunteer support as needed for existing species surveys conducted within the GTM Research Reserve. *(Co-leads: Stewardship and Resource Management)*
        - **PM:** Monitoring plan for priority species complete
        - **PM:** Protocols, data and summaries of various surveys

    - **Action A.2.E**: Investigate changes and impacts to other keystone, sentinel, foundation, endangered and threatened species, and genetic diversity within the GTM Research Reserve through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research)*
        - **PM:** Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results) associated with habitat, species, and genetic diversity studies
        - **PM:** Data, summaries, and reports of status and trends in keystone, sentinel, foundation, endangered and threatened species and communities (e.g., sea turtles, gopher tortoises, birds, oysters, salt marsh vegetation, mangroves, plankton)

- **Objective A.3**: Estuarine habitat management techniques that maintain or enhance natural biodiversity are implemented. *Short-term (2-year) – initiate actions, establish plans, and develop protocols where applicable. Long-term (10-year) – analyze and summarize findings, adapt management actions where necessary and include in next management plan.*

    - **Action A.3.A:** Enhance inshore fisheries habitat through installation of reef modules and other artificial constructions, or by increasing marsh width through various shoreline protective methods (e.g., living shorelines or thin layer placement of dredged sediments). (*Lead: Stewardship; Support: Research*)
        - **PM:** Site analysis, project description, methods of implementation and monitoring plan of any new installation.
        - **PM:** Data and summaries of success metrics monitored at all active restoration locations

    - **Action A.3.B:** Based on information gained from activities under Objective A.1, prioritize habitat restoration targets that could mitigate or improve loss of habitat and/or ecosystem services. (*Lead: Stewardship; Support: Research)*
        - **PM:** Restoration prioritization document showing areas of declining habitat and/or ecosystem services

    - **Action A.3.C**: Investigate, test and assess new estuarine restoration treatments that mitigate or improve loss of habitat and/or ecosystem services identified under Objective A.1. (*Lead: Stewardship; Support: Research)*
        - **PM:** Site analysis, project description, methods of implementation and monitoring plan of any new installation
        - **PM:** Data and summaries of success metrics monitored

- **Objective A.4**: Prescribed fire and other management techniques that maintain or improve natural upland biodiversity are implemented. *Short-term (2-year) – continue with current plan outlined in Appendix C. Long-term (10-year) – analyze and summarize findings, adapt management actions where necessary and include in next management plan.*

    - **Action A.4.A**: Update the prescribed fire plan and continue fire management in appropriate habitats once per year. *(Lead: Resource Management)*
        - **PM:** Prescribed fire plan updated with habitat descriptions and rotation schedule
        - **PM:** The number of suitable acres burned annually
        - **PM**: Acreage defined in prescribed fire plan is kept in maintenance condition

    - **Action A.4.B:** Assess the efficacy of different pyrogenic techniques in coastal habitats and evaluate supplemental management methods, such as roller chopping, for use in natural habitat maintenance. *(Lead: Resource Management; Support: Research)*
        - **PM***:* Site analysis, description of management technique and implementation, and monitoring plan of any area managed with fire and/or supplemental techniques
        - **PM:** Data and summaries of comparison metrics monitored.

    - **Action A.4.C:** Maintain vegetation structure and diversity associated with freshwater depression marshes in the historical interdunal swale area of the Guana peninsula. *(Lead: Resource Management)*
        - **PM:** Photos of removal of encroaching vegetation, number of acres restored are documented, copy of monitoring plan and implementation reports.

    - **Action A.4.D:** Evaluate Cooperative Land Cover communities within the ORCP-managed areas for mapping accuracy and condition. Establish long term management goals. *(Lead: Resource Management)*
        - **PM:** Accurate CLC map and community descriptions for ORCP-managed areas.
        - **PM:** Long term management goals for managed area communities.

    - **Action A.4.E:** Work with the Florida Forest Service to reassess the timber inventory. *(Lead: Resource Management)*
        - **PM:** Updated timber inventory assessment

- **Objective A.5:** Invasive plant and animal species within the GTM Research Reserve and its watersheds are reduced. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

    - **Action A.5.A:** Continue efforts to determine (collaborate, test, monitor, assess) best practices for invasive species identification and control. (*Lead: Resource Management; Support: Research, CTP, Stewardship*)

        - **PM:** Documentation of best practices for invasive species control and their implementation

    - **Action A.5.B:** Monitor, treat, and remove aquatic and terrestrial invasive species populations on the GTM Research Reserve property. *(Co-Leads: Resource Management, Stewardship)*
        - **PM:** Invasive species database and EDDMapS records, and documentation of treatment occurring on property
        - **PM:** Documentation showing treated species are monitored bi-annually and retreated until no individuals are found for 2-3 years
        - **PM:** Documentation of fewer invasive species on GTM Research Reserve managed lands than on adjacent lands based on the Early Detection & Distribution Mapping System (EDDMapS; www.EDDMapS.org)

- **Objective A.6:** The public's, local decisionmakers', and local professionals' throughout the GTM NERR boundaries knowledge of GTM NERR biodiversity and relevant best management practices is increased. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

    - **Action A.6.A:** Provide informational and interpretive kiosks in public use areas highlighting important species, habitat communities, and natural resources. *(Lead: Education; Support: Research, Resource Management, Stewardship)*
        - **PM:** Interpretive kiosks with relevant information, updated as needed

    - **Action A.6.B:** Provide K-16 education programming to teach students and teachers about the natural biodiversity, habitats, ecosystem services and management techniques of the GTM Research Reserve. *(Lead: Education)*
        - **PM:** Annually revised curriculum based on results from student and teacher surveys and new information, as well as any changes to state curriculum standards
        - **PM:** Participant surveys to determine an increase in knowledge and awareness while attending onsite field experiences show at least 80% of students gain knowledge from pre to post surveys
        - **PM:** Increased educational opportunities in the southern boundaries of the GTM NERR through interpretive walks and kiosks

    - **Action A.6.C:** Include biodiversity, habitat and restoration information in annual Teachers on the Estuary (TOTE) training. *(Lead: Education)*
        - **PM:** Agenda, objectives, and survey results from each TOTE training

    - **Action A.6.D:** Provide opportunities for the public to gain awareness and understanding of the GTM Research Reserve's biodiversity, including guided outdoor explorations, lecture series, and traditional and new media. *(Lead: Education)*
        - **PM:** Participant surveys to determine increase in knowledge and awareness while attending an onsite guided program or presentation show at least 25% of participants report a knowledge gain

        - **PM:** Communications plan and resulting implementation pieces (e.g., screenshots of web content, blog posts, etc.)

    - **Action A.6.E:** Develop and provide training and/or information on biodiversity elements to internal staff, partner agencies, land managers, and relevant organizations regarding topics such as native species, invasive species, mapping technologies, restoration techniques, and management options. *(Lead: CTP; Support: Research, Stewardship, Resource Management)*
        - **PM:** Workshop participant surveys that have an overall satisfaction score of 4 (out of 5) or higher and 80% or more participants report an increase in knowledge
        - **PM:** Participant lists and informational materials provided

    - **Action A.6.F:** Develop a toolkit of best practices for professional and residential resource protection and habitat restoration. *(Lead: CTP; Support: Resource Management, Stewardship)*
        - **PM:** Documents showing toolkit (e.g., screenshots of web content)

    - **Action A.6.G:** Communicate causes of habitat, species and ecosystem service loss to decision-makers and policymakers with the anticipation that natural resource conservation be incorporated into municipality action plans when possible. *(Lead: CTP)*
        - **PM**: Meeting summaries and communication materials documenting knowledge transfer to decision-makers, policymakers, and partner agencies.
        - **PM**: Documentation of decision-makers, policymakers, and partner agencies incorporating concepts into plans and actions, if possible

    - **Action A.6.H:** Communicate management best practices and conservation action items based off the status and trends of habitats, species, and ecosystem services to stakeholders, including decision-makers, policymakers, and partner agencies *(Lead: CTP)*.
        - **PM:** Distribution of meeting summaries and communication materials and implementation of programs, workshops, or outreach events.

Issue: Water Quality Degradation

Goal: Improve water quality within the Reserve

- **Objective B.1**: Spatial and temporal trends in water quality are monitored and analyzed. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

    - **Action B.1.A:** Implement water quality components of the NERR System SWMP. *(Lead: Research)*
        - **PM:** SWMP water quality and nutrient data submitted to the Centralized Data Management Office more than 90% on time with less than 15% unexcused missing data

- **Action B.1.B:** Conduct spatial and temporal analyses of long-term water quality data. *(Lead: Research)*
  - **PM:** Agendas from professional development activities (e.g., trainings, workshops, classes) attended relating to methods for analyzing long-term datasets
  - **PM:** A prioritized list that identifies water quality sampling needs and locations throughout the GTM NERR boundaries, updated as needed.
  - **PM:** A report that summarizes spatial and temporal trends in water quality data
  - **PM:** At least three peer-reviewed publications in which SWMP water quality data were used to support research

- **Action B.1.C:** Monitor fecal coliforms, microplastics, and other parameters of emerging and/or local concern not required by the NERR SWMP and coordinate with partner agencies where possible to share resources, expand monitoring networks, and avoid duplication. *(Lead: Research; Support: Stewardship)*
  - **PM:** Data for second tier (optional) parameters submitted to the Centralized Data Management Office

- **Objective B.2:** Sources of and solutions to negative impacts caused by point and non-point source pollution are identified. *Short-term (2-year) – initiate actions, establish plans, and develop protocols where applicable. Long-term (10-year) – analyze and summarize findings, adapt management actions where necessary and include in next management plan.*

  - **Action B.2.A:** Investigate sources of negative impacts caused by point and non-point source pollution within the GTM Research Reserve through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research)*
    - **PM:** Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results)
    - **PM:** Data, summaries, and reports of impacts of degraded water quality

  - **Action B.2.B:** Management actions to improve or mitigate negative water quality impacts are investigated and evaluated for feasibility in the GTM Research Reserve watershed. *(Co-leads: CTP, Stewardship, Support: Resource Management)*
    - **PM:** Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results)
    - **PM:** Data, summaries, and recommendations for improving water quality

- **Objective B.3**: Biological indicators of changes in water quality are investigated. *Short-term (2-year) – initiate actions, establish plans, and develop protocols where applicable. Long-term (10-year) – analyze and summarize findings, adapt management actions where necessary and include in next management plan.*

  - **Action B.3.A:** Investigate the relationships between water quality and plankton, invertebrates, vegetation, and nekton within the GTM Research Reserve through

research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research)*
    - **PM:** Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results)
    - **PM:** Data, summaries, and reports the relationships of nekton, plankton, invertebrates and vegetation to water quality

- **Action B.3.B:** Evaluate the potential of biological components to serve as indicators of changes in water quality through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research)*
    - **PM:** Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results)
    - **PM:** Data, summaries, and reports regarding the use of biological indicators of water quality

- **Objective B.4:** The public's, local decisionmakers', and local professionals knowledge of GTM NERR water quality and relevant best management practices is increased. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

    - **Action B.4.A:** Provide informational and interpretive kiosks in public use areas highlighting local water quality, its relationship to ecosystem health and solutions to negative pollution impacts. *(Lead: Education; Support: Research, Resource Management, Stewardship)*
        - **PM:** Interpretive kiosks with relevant information, updated as needed

    - **Action B.4.B:** Provide K-16 education programming to teach students and teachers about water quality, its relationship to ecosystem health, solutions to negative pollution impacts and data collection techniques of the GTM Research Reserve. *(Lead: Education)*
        - **PM:** Annually revised curriculum based on results from student and teacher surveys and new information
        - **PM:** Participant surveys to determine an increase in knowledge and awareness while attending onsite field experiences show at least 80% of students gain knowledge from pre to post surveys

    - **Action B.4.C:** Include water quality, its relationship to ecosystem health, solutions to negative pollution impacts and data collection techniques to the annual TOTE training. *(Lead: Education)*
        - **PM:** Agenda, objectives, and survey results from each TOTE training

    - **Action B.4.D:** Provide opportunities for the public to gain awareness and understanding of the GTM Research Reserve's water quality, its relationship to ecosystem health, and actions and solutions to address point and non-point source negative pollution impacts, including guided outdoor explorations, lecture series, and traditional and new media. *(Lead: Education)*

        - **PM:** Participant surveys to determine increase in knowledge and awareness while attending an onsite guided program or presentation show at least 25% of participants report a knowledge gain
        - **PM:** Communications plan and resulting implementation pieces (e.g., screenshots of web content, blog posts, etc.)

    - **Action B.4.E:** Increase use of SWMP data by local stakeholders, including decision-makers, policymakers, and partner agencies by providing materials and delivery methods appropriate for target audiences. (*Lead: CTP; Support: Research, Education*)
        - **PM:** Documentation of an increase in the number of local stakeholders utilizing SWMP data as reported through surveyed workshops and visiting investigator research forms
        - **PM:** Data products (graphs, charts, etc.) that communicate the current trends in SWMP data, made available to stakeholders through printed or digital media and updated annually

    - **Action B.4.F:** Continue to coordinate, demonstrate, and provide workshops on low impact development options such as mitigation banking, payment of ecosystem services, conservation easements, bioswales, composting toilets, and rain gardens. *(Lead: CTP; Support: Resource Management)*
        - **PM:** Workshop participant surveys that have an overall satisfaction score of 4 (out of 5) or higher and 80% or more participants report an increase in knowledge
        - **PM:** Communications plan and resulting implementation pieces (e.g., screenshots of web content, blog posts, etc.)

    - **Action B.4.G:** Provide information on management actions to improve or mitigate identified water quality impacts and the actions that can be taken to address point and non-point source pollution to local stakeholders, including decision-makers, policymakers, and partner agencies. *(Lead: CTP)*
        - **PM:** Participant lists and informational materials provided

Issue: Impacts from Sea Level Rise and Climate Change

Goal: Enhance the understanding of impacts from sea level rise and climate change on estuarine systems using science-based information

- **Objective C.1:** Short- and long-term changes in local climatic variables are monitored and analyzed. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

    - **Action C.1.A:** Implement meteorological components of the NERR System Wide Monitoring Program (SWMP). (*Lead: Research*)
        - **PM**: SWMP meteorological data submitted to the Centralized Data Management Office more than 90% on time with less than 15% unexcused missing data

- **Action C.1.B**: Conduct spatial and temporal analyses of long-term SWMP meteorological data. (*Lead: Research*)
    - **PM**: Agendas from professional development activities (e.g., trainings, workshops, classes) attended relating to methods for analyzing long-term datasets
    - **PM:** Informational products that summarize spatial and temporal trends in ten years of meteorological data

- **Action C.1.C**: Install a new weather station in the northern GTM Research Reserve component. (*Lead: Research; Support: Resource Management, Stewardship*)
    - **PM:** A fully operational weather station in the northern GTM Research Reserve component

- **Objective C.2**: The effects of climate variability on ecosystem services, habitat distribution, biodiversity, migratory pathways, and community resilience are investigated. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

    - **Action C.2.A:** Assess habitat change in relation to changing water levels and other impacts of climate change through research conducted by staff, contractors and visiting investigators. *(Lead: Research; Support: Stewardship)*
        - **PM**: The number of water level instruments vertically stabilized and surveyed relative to NAVD88
        - **PM:** Data, analysis and informational products related to changes in elevation and community composition in intertidal habitats associated with changes in climate-related drivers such as water level, temperature, and meteorological events

    - **Action C.2.B:** Conduct a vulnerability assessment for the GTM Research Reserve through a collaborative process to inform coastal decision-makers and policymakers on the potential impacts of climate change on coastal habitats of ecological and economic importance and help prioritize resources and management actions. (*Lead: CTP; Support: All*)
        - **PM**: Vulnerability assessment report and informational products that are suitable for stakeholder audiences

    - **Action C.2.C**: Implement NERR System Sentinel Site Application Modules to determine vulnerability of estuarine habitats and ecosystem services to climate change both locally and across NERR sites. (*Lead: Research; Support: Stewardship*)
        - **PM**: Monitoring data and summarized results from established low marsh sediment elevation tables and vegetation plots at the Pellicer Creek Sentinel Station
        - **PM**: Elevation data and results from established benchmarks and vegetation transects at the Pellicer Creek Sentinel Station
        - **PM:** Incorporate results of the hydrodynamic study of the Pellicer Creek Sentinel Station and recommendations for placement of a temporary tide gauge

        - **PM**: Installation of a temporary tide gauge at the Pellicer Creek Sentinel Station
        - **PM:** New sediment elevation tables installed in the mid-high marsh at the Pellicer Creek Sentinel Station

- **Objective C.3:** The public's, local decisionmakers', and local professionals knowledge of GTM NERR sea level rise, storm, and climate change impacts on local habitats, including migratory pathways, species and human communities is increased. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

    - **Action C.3.A:** Provide informational and interpretive kiosks in public use areas highlighting sea level rise, storm, and climate change impacts on local habitats, species and human communities in the GTM Research Reserve watershed. *(Lead: Education; Support: Research, Resource Management, Stewardship)*
        - **PM:** Interpretive kiosks with relevant information, updated as needed

    - **Action C.3.B:** Provide K-16 education programming to teach students and teachers about sea level rise, storm, and climate change impacts on local habitats, species and human communities in the GTM Research Reserve watershed. *(Lead: Education)*
        - **PM:** Annually revised curriculum based on results from student and teacher surveys and new information
        - **PM:** Participant surveys to determine an increase in knowledge and awareness while attending onsite field experiences show at least 80% of students gain knowledge from pre to post surveys

    - **Action C.3.C:** Include sea level rise, storm, and climate change impacts on local habitats, species and human communities in the annual TOTE training. *(Lead: Education)*
        - **PM:** Agenda, objectives, and survey results from each TOTE training

    - **Action C.3.D:** Provide opportunities for the public to gain awareness and understanding of sea level rise, storm, and climate change impacts on local habitats, species and human communities in the GTM Research Reserve watershed, including guided outdoor explorations, lecture series, and traditional and new media. *(Lead: Education)*
        - **PM:** Participant surveys to determine increase in knowledge and awareness while attending an onsite guided program or presentation show at least 25% of participants report a knowledge gain
        - **PM:** Communications plan and resulting implementation pieces (e.g., screenshots of web content, blog posts, etc.)

    - **Action C.3.E**: Provide information and outreach on global processes, e.g., sea level rise and global climate change, through workshops, technical assistance, interpretive exhibits and web-based tools that serve as a clearinghouse for information for professional audiences. (*Co-Leads: CTP, Education; Support: Research*)
        - **PM:** Workshop participant surveys that have an overall satisfaction score of 4 (out of 5) or higher, or 80% or more participants report an increase in knowledge

        - **PM**: Communications plan and resulting implementation pieces (e.g., screenshots of web content, blog posts, etc.)
        - **PM**: Web content with information on climate related topics and accessibility to web-based tools such as select NOAA Digital Coast resources

- **Objective C.4**: The implementation of best management practices for resilient communities is facilitated. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

    - **Action C.4.A**: Work with local stakeholders, including decision-makers, policymakers, and partner agencies on planning for sea level rise through transferring and communicating the work and products developed through research conducted at the GTM Research Reserve, including Sentinel Sites. (*Lead: CTP; Support: Research, Stewardship*)
        - **PM:** Number of speaking engagements conducted on vulnerability of coastal community's process or products, and/or number of technical assistance requests fielded related to these products

    - **Action C.4.B:** Participate in local emergency response and resilience community groups identify needs and assist in the implementation of disaster response and mitigation strategies where possible within the reserve boundaries. *(Lead: CTP; Support: Research, Stewardship)*
        - **PM**: Meeting summaries and reports on assistance
        - **PM:** Disaster Response Plan updated annually and as needed

Issue: Sustainable Public Use

Goal: Improve visitor experiences and minimize resource damage and user group conflicts

- **Objective D.1**: Visitors' accessibility to and satisfaction with public use resources within the GTM NERR are increased. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

    - **Action D.1.A**: Conduct survey of visitors to public use areas every five years to determine satisfaction levels and whether there are persistent user group conflicts. (*Lead: Resource Management*)
        - **PM**: Survey methodology and results

    - **Action D.1.B**: Collaborate with representatives of groups with physical, mental, emotional and socioeconomic limitations to develop and implement plans to increase user access for these groups. (*Co-Leads: Education, Resource Management)*
        - **PM:** Documentation of meetings, participants, plans and implementation efforts

- **Action D.1.C**: Maintain all visitor use areas for safety, cleanliness and accessibility. (*Lead: Resource Management)*
  - **PM:** Maintenance records

- **Objective D.2**: Negative impacts of various public uses on natural resources within the GTM NERR are minimized. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

  - **Action D.2.A**: Document incidences of clear damage to natural resources caused by human use, i.e., vegetation damaged by off-road vehicles, animals entangled in fishing line, ingestion of marine debris, illegal take, and collection of wildlife, etc. Determine and implement solutions to prevent future incidences and provide training to area staff on wildlife rules and poaching. (*Lead: Resource Management; Support: Stewardship*)
    - **PM**: Incident reports and documentation of implemented changes

  - **Action D.2.B:** Investigate impacts of visitor use on biodiversity through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. (*Lead: Resource Management; Support: Stewardship, Research*)
    - **PM**: Documentation of facilitation activities (e.g., planning, providing data, assisting with field work, and interpreting and disseminating results)
    - **PM**: Data, summaries, and reports the relationships of nekton, plankton, invertebrates and vegetation to water quality

  - **Action D.2.C:** Promote good visitor use practices that do not impact natural resources through signage, direct outreach and social media campaigns. (*Lead: Resource Management; Support: Education)*
    - **PM:** Update interpretive kiosks as needed
    - **PM:** Communication plan implemented and documented

Issue: Impacts to cultural resources

Goal: Increase awareness of cultural history within the Reserve while preventing negative impacts to historical sites.

- **Objective E.1**: Public knowledge of cultural history within the GTM NERR is increased. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

  - **Action E.1.A:** Maintain information on cultural history at existing interpretive kiosks. (*Lead: Education; Support: Resource Management*)
    - **PM**: Cultural resources kiosks, updated as needed

  - **Action E.1.B**: Continue to integrate cultural topics into K-16 programming. (*Lead: Education*)

        - **PM**: Participant surveys to determine an increase in knowledge and awareness while attending onsite field experiences show at least 80% of students gain knowledge from pre- to post-surveys

    - **Action E.1.C**: Provide guided hikes led by trained volunteers, staff, or experts to interpret site-based cultural history. (*Lead: Education; Support: Resource Management*)
        - **PM**: Participant surveys to determine increase in knowledge and awareness while attending an onsite guided program or presentation show at least 25% of participants report a knowledge gain

    - **Action E.1.D**: Host or hold at least one cultural history-themed event per year to increase public awareness. (*Lead: Education; Support: Resource Management*)
        - **PM**: Communications plan and resulting implementation pieces (e.g., screenshots of web content, blog posts, etc.)

    - **Action E.1.E**: Investigate archaeological history of the Guana Peninsula through research conducted by visiting archaeologists, and by collaborating with other professionals in this field. (*Lead: Resource Management; Support: Education*)
        - **PM**: Documentation of site visits by archaeologists
        - **PM**: Reports of archaeological findings

- **Objective E.2**: Negative impacts to known cultural resources within the GTM Research Reserve are prevented. *Short-term (2-year) – continue current plans outlined in Chapter 5. Long-term (10-year) – assess efficacy of current plans, adapt management actions where necessary and include in next management plan.*

    - **Action E.2.A:** Train appropriate staff and volunteers to know cultural site locations, history, and best management practices, as needed. (*Lead: Resource Management; Support: CTP*)
        - **PM:** Workshop participant surveys that have an overall satisfaction score of 4 (out of 5) or higher and 80% or more participants report an increase in knowledge
        - **PM:** Participant list and informational materials provided
        - **PM**: Staff and volunteers receive Archaeological Resource Management training through the Florida Department of State's Division of Historical Resources as needed.

    - **Action E.2.B:** Document any new cultural sites with the Florida Department of Historical Resources and ensure Florida Master Site File forms are kept current. *(Lead: Resource Management)*
        - **PM:** Florida Master Site File records, updated as needed

    - **Action E.2.C:** Conduct routine condition assessments on historical sites, using protocols developed in collaboration with partners like the National Park Service and Florida Public Archaeology Network, to monitor for incremental change. (*Lead: Resource Management*)

        - **PM:** Condition Assessment Plan, protocols, and documentation of assessments that match that plan

    - **Action E.2.D:** Based on condition assessments and input from partners with expertise in cultural resources, determine best action plan for observed or anticipated negative impacts to cultural resources and enact that plan. (*Lead: Resource Management*)
        - **PM:** Written action plans and documentation of the fulfillment of that plan
        - **PM:** Shift visitor access area at Shell Bluff to the north of the coquina well, away from the rapidly eroding area where artifacts are routinely exposed and human remains have been documented.

Chapter 7. Administrative Plan

The goal of the GTM Research Reserve administration is to maintain efficient operations, infrastructure, and stature of the Reserve to better support and enable the education, research, and stewardship programs. Administration of a National Estuarine Research Reserve (NERR) is accomplished through federal, state and local partnerships. At the national level, the National Oceanic and Atmospheric Administration (NOAA) is responsible for the administration of the NERR System. NOAA's Office for Coastal Management (OCM) works with state agencies in developing a national network of estuarine research reserves. NOAA provides funding through competitive and non-competitive grants to eligible state agencies for the establishment and continued operation of reserves, as well as funding for construction and land acquisition activities; provides program guidance and oversight including the review and approval of management plans; and conducts periodic evaluations to validate that operations are consistent with NERR goals and objectives.

GTM Research Reserve Organizational Framework

The GTM Research Reserve Manager (also known as the Environmental Manager) reports to the ORCP East Region Environmental Administrator, often referred to as the Regional Administrator. Five program managers (Research, Stewardship, Resource Management, Education, and CTP) report to the Reserve Manager along with administrative and communications staff. The Environmental Administrator reports directly to the ORCP Director.

Administrative and support staff for the GTM Research Reserve include the Reserve Manager, the Operations Management Consultant, two Administrative Assistants, the Public Information Officer and the Volunteer Coordinator. The reserve is also supported by its Management Advisory Group and Citizen Support Organization as described below. Administrative support by NOAA, FDEP, and additional affiliations are described throughout this document.

Advisory Groups, Citizen Support Organization, and Strategic Partnerships

The Management Advisory Group (MAG) was established as a deliberate and organized means of obtaining advisory input from a cross-section of the community and from the active management partners in the Reserve. The MAG includes representatives from a variety of local community sectors, including estuarine ecology, environmental education, private property owners and government agencies. MAG members meet quarterly to assist FDEP in an advisory capacity by providing recommendations on matters associated with the implementation of the GTM Research Reserve Management Plan. The agencies and organizations represented on the MAG are

- City of St. Augustine
- Flagler County Commission
- St. Johns County Commission
- Town of Marineland
- St. Johns River Water Management District
- Florida Park Service
- National Park Service
- Florida Fish and Wildlife Conservation Commission
- St. Augustine Port, Waterway and Beach District Commission
- Florida Inland Navigation District
- Florida Forest Service

- Army Corps of Engineers
- Florida Department of Transportation
- Friends of the GTM Reserve

Additionally, there are twelve citizen representatives of whom there is at least one person tied to the estuarine science community, at least one person from the environmental education sector, a least one person from the cultural resources sector and at least one private property owner. The MAG also serves as the Coastal Training Program (CTP) Advisory Committee, which is explained in the CTP section in Chapter 5, page 79.

The **Citizen Support Organization (CSO)** for the GTM Research Reserve is called the Friends of the GTM Reserve ("Friends"). The Friends is a 501c3 non-profit established in 2000 via a memorandum of agreement with FDEP (available upon request). Its goal is to support and enhance environmental education, stewardship of natural and cultural resources, and scientific research of the reserve through volunteer initiatives, citizen involvement, and community partnerships. The Friends is led by a Board of Directors comprised of community members who employ a full-time Executive Director, and assistants as funding is available. The CSO maintains offices at the Visitor Center and works closely with the reserve staff to identify needs and implement opportunities to provide support via fundraising, outreach activities, grant administration, communications, and event management.

The reserve maintains **strategic partnerships** with additional organizations including the Audubon Florida, Flagler College, Florida Sea Grant, the University of Florida, the University of North Florida, St. Johns County School District, and many others in order to further its mission. Additional partnerships are described within the program-specific sections of Chapter 5.

Volunteer Plan

Volunteers at the GTM Research Reserve serve in a variety of positions that support the implementation of strategic actions outlined in Chapter 6. A full-time Volunteer Coordinator recruits, organizes and tracks the service hours of volunteers. Managers of the Education, Research, Stewardship, and Coastal Training programs provide the Volunteer Coordinator with a list of projects, the amount of time and frequency volunteers will be needed for those projects, and any experience required. The coordinator matches available volunteers with the appropriate project and assists the program managers with providing training, tools, and supplies necessary to complete projects.

Volunteer hours are reported through the Quarterly Measures reporting to FDEP and through the Environmental Reporting Database (ERD) annually to NOAA. All volunteers are required to sign a liability waiver that has been approved by the FDEP legal department.

Communications Plan

For the GTM Research Reserve to successfully fulfill its mission, the community that the reserve operates within and serves must recognize the GTM Research Reserve name, know the boundaries and areas of impact, and understand how the reserve serves the citizens and visitors of Northeast Florida. Communications for the GTM Research Reserve are managed by a team coordinated by the Manager. The team is comprised of a full-time Public Information Officer (PIO), a representative from each

program, and the reserve's CSO communications staff. Communications supports all programs at the reserve in achieving the strategic plan described in Chapter 6, as well as providing up-to-date site use information and other important updates to the public.

The key communications topics of the GTM Research Reserve are listed below:

- The benefits of the reserve and its programs
- Estuarine ecosystem structure and function; the species that make up the natural system within the Reserve and how they interact
- How and why components of the natural estuarine system are changing and the potential consequences of those changes to the biodiversity and other Reserve benefits (also known as ecosystem services)
- Individual actions and best management practices to maintain estuarine biodiversity and benefits
- How to visit the Guana Preserve and the activities that take place there
- The research taking place at the reserve and its importance; how to access the data; and how to conduct research at the reserve

The primary audience for the GTM Research Reserve can be broadly defined as anyone who may have an impact on or be impacted by the reserve and its operations. For communications to be effective, audiences must be segmented so that messages and methods of communications can be targeted for maximum effect. Key audience segments, and the program(s) that focuses on them, are listed below. Each of these audiences may be subdivided further on a case-by-case basis depending on the types of messages delivered.

- Public users of ORCP-managed sites: PIO, CSO, Education and Resource Management
- Students (kindergarten through undergraduate college): Education
- Students (graduate level and higher): Research and CTP
- Teachers: Education
- Professors: Research and CTP
- Local Businesses: CTP
- Locally represented government agencies: CTP
- Residents within the Reserve's watershed not otherwise covered here: PIO, CSO, Education

Most of the messaging delivered by GTM Research Reserve and CSO staff is focused on audiences who interact with the Reserve locally. Statewide and national messaging is generally handled by FDEP and NOAA staff, respectively.

The platforms used for communications vary widely and change often as technology and tastes change. At the time this plan was written, a website, on-site signage and in-person programs are the primary forms of communication by Reserve staff. The Friends of the GTM Reserve host a separate website, publish a newsletter, and manage multiple social media platforms.

Administration and Administrative Objectives

The GTM Research Reserve Administration conducts their work focused on the following priorities in addition to ensuring the implementation of the rest of this plan:

- Maintain a productive and collaborative relationship between NOAA and FDEP.

- Maintain productive and collaborative relationships with the MAG members, CSO staff and board, and other partners.
- Ensure the operating infrastructure is adequate to fulfill the program mission.
- Ensure the staff has the skills necessary to perform their jobs and can do so safely.

The GTM Research Reserve administrative activities support the goals, objectives and actions of the reserve, which are described in Chapter 6. Volunteers and communications are provided for specific actions as requested. Additional supportive administrative activities include:

- Permit review for relevant proposed activities within the Guana River Marsh Aquatic Preserve and Pellicer Creek Aquatic Preserve
- Budget management to fulfill program objectives efficiently
- Contract and grant management to ensure applications and reports are submitted on time, agreements are signed in a timely manner, and deliverables are completed
- Providing guidance on FDEP-required paperwork for personnel management, purchasing, travel and inventory
- Tracking management plan implementation and coordinating workplans
- Identifying cross-sector support needs and assisting when able

Staffing

The GTM Research Reserve staff assignments are organized to facilitate the implementation of this management plan and to accommodate the transition of the program's roles and responsibilities in response to increased workloads associated with new facilities, public use, and performance-based management since NERR designation in 1999.

Current staff consists of a reserve manager; program managers for research, education, coastal training, estuarine resource management, upland resource management, and volunteers; and support staff for most sectors. All staff operate on site based in the Ponte Vedra Beach or Marineland offices.

At the time of publication of this document, the GTM Research Reserve has thirteen State of Florida Career Service and Select Exempt Service positions, seven contracted employees, and twenty non-career service positions for a total potential of forty on-site staff. The following describes the GTM Research Reserve's organization chart, and each program sector's typical staffing and primary responsibilities. The number of support staff varies frequently based on funding and project needs.

Reserve Manager/Environmental Manager

Primary Responsibilities: This position directs the GTM Research Reserve in the implementation of policies and programs; acts as liaison for state, federal and local agencies in cooperative resource protection/management and overall operation of the GTM Research Reserve. This position also serves as the Aquatic Preserve Manager for GRMAP and PCAP.

Administration Sector - One Coordinator, Four Support Staff

Primary Responsibilities: This sector manages site revenue, grants and state funds to ensure proficiency in all fiscal matters. This team performs duties to include accounts payable/receivable, monitoring all expenditures, reconciles expenditures and receipts with Florida Accounting Information Resource

(FLAIR) reports. One position in this sector, the Public Information Officer, is employed by the University of North Florida and on contract with FDEP to complete tasks associated with this sector.

Research Program – One Coordinator, Five Support Staff
Primary Responsibilities: This program is responsible for overseeing the GTM Research Reserve's biotic and abiotic research, monitoring and database management as required to implement the management plan. Staff members within this program provide logistic support for visiting investigators and ensure that NERR System Wide Monitoring Program (SWMP) protocols and research performance measures are maintained and reported. They also coordinate with the Stewardship Program in maintaining and improving the GTM Research Reserve's Geographic Information Systems (GIS) program. Three positions in this program, the Research Coordinator, the SWMP Manager, and SWMP Technician, are employed by the UNF and on contract with FDEP to complete research tasks.

Education & Outreach Program - One Coordinator, Four Support Staff
Primary Responsibilities: This program provides on-site and off-site educational activities for public audiences and kindergarten through undergraduate college students and teachers. This includes the transfer of research and stewardship information to appropriate audiences as well as the development of curricula, educational products, and online content. This program offers an evaluated hands-on approach to advancing state science, technology, engineering and mathematics (STEM) education goals. Staff members track and report NOAA education activity related performance criteria as required.

Coastal Training Program (CTP) - One Coordinator, One Support Staff
Primary Responsibilities: This program is focused on the needs of government, academic, and non-profit organizations; agriculture, developers, real estate, marine trades, homeowner associations, landscapers and other coastal decision makers for up-to-date information. Staff members address these educational needs by cooperating with regional partners to deliver professional training programs and workshops based upon the best available scientific knowledge and expertise. This program tracks and reports NOAA CTP-related performance criteria as required and serves as the primary liaison to the GTM Research Reserve Management Advisory Group (MAG), which also acts in an advisory capacity for the Coastal Training Program. The coordinator is employed by the UNF and on contract with FDEP to complete research tasks; the support staff is employed by FDEP as an OPS.

Stewardship Program – One Coordinator, One Support Staff
Primary Responsibilities: This program is responsible for mapping habitats and restoration of intertidal and subtidal habitats of the GTM Research Reserve. This team also coordinates with the Research Program in maintaining and improving the GTM Research Reserve's Geographic Information Systems (GIS) program. The coordinator is employed by the UNF and on contract with FDEP to complete research tasks; the support staff is employed by FDEP as an OPS.

Resource Management Program (Including Public Use and Facilities) - One Coordinator, Eight Support Staff
Primary Responsibilities: This program serves as the GTM Research Reserve's upland habitat management group. It manages public use and facilities management needs of the GTM Research Reserve. Staff members ensure that the GTM Research Reserve lands are safe and available to the public

through trails and signage and is responsible for coordinating with local law enforcement, and implementing the GTM Research Reserve's prescribed fire management objectives. This program leads upland habitat species inventories and management activities like exotic invasive species control and prescribed fire. Resource Management tracks and reports land-management related performance criteria as required by the state and NOAA. They oversee contracted services for construction, maintenance and operation of all facility needs for the GTM Research Reserve, including the 21,282 square foot Visitor Center at Ponte Vedra Beach and the 2,500 square foot GTM Research Reserve office at Marineland. Additional services provided by this program include: aquariums, salt-water supply and filtration systems, auditorium, audio- visual theater, exhibit area, dock, vehicles, boats and all air-conditioning, plumbing, security system, janitorial/cleaning services, waste management, pest control, landscaping, or other infrastructure related needs.

Volunteer Program: One Coordinator

Primary Responsibilities: This program is responsible for coordinating the GTM Research Reserve volunteer activities. The Volunteer Coordinator develops, organizes, and manages GTM Research Reserve's volunteer recruitment, training, and recognition programs to expand the ability of the Reserve to accomplish its mission with volunteers. These volunteers assist with all aspects of the GTM Research Reserve program including resource management, research, education and outreach, and administrative activities.

Chapter 8. Facility Development and Improvement Plan

This facilities development and improvement plan is a required element of a NERR management plan, per the Federal Code of Regulations 15 CFR 921.13. By including the following elements as part of this facilities plan, they will be eligible for Property, Acquisition and Construction grant funds from NOAA. These funds are typically awarded annually on a competitive basis.

Reserve facilities provide functional space for reserve work and serve as the face to the public providing venues for learning and recreation. Reserve facilities must face all pressures that come with working and building in the coastal zone including withstanding storms, surge, erosion, and elements of wind, salt, sand, humidity among others. These challenges require reserves to build facilities that will withstand these pressures and serve their intended purpose for the life cycle of the structure.

All construction activities will be completed under the following principles to ensure the reserve meets its guiding principle of promoting good environmental stewardship and to meet the NERR System Sustainable Design Guidelines. Projects within the FDEP-managed areas and exceeding $35,000 will be guided by FDEP's Bureau of Design and Construction.

- Facilities and access routes will create minimal environmental impacts both within and beyond the component boundaries.
- Facilities will be designed and located to support multiple reserve goals to the greatest extent possible.
- Planning for significant new facilities will solicit input from representatives of user groups or those to be affected by the facilities.
- Facilities construction and equipment shall strive for energy efficiency, incorporate green building materials and techniques, and anticipate technological advances.
- Facility improvements will endeavor to provide opportunities for people with mobility issues, disabilities, or challenges to visit the reserve and participate in its activities/programs
- Repairs and maintenance will be conducted as needed to maintain safe, functional, efficient and clean facilities.

Current Facilities

Northern Component (see Map 2)

Facilities in the Northern Component include the Visitor Center and Headquarters building (formerly known as the Environmental Education Center), Recreation Areas (Guana Dam, Trails, and Beach Access Points), a shop yard and on-site residences. Features of these facilities are listed below.

The Visitor Center and Headquarters building:

- 21,282 sq ft
- Offices, restrooms, and storage spaces
- Aquaria and terraria workspace
- 71 parking spaces including an electric charging station
- Auditorium (max capacity = 150 people unless social distancing is implemented)

- Two classrooms (max capacity for each classroom = 30 people unless social distancing is implemented)
- Exhibit hall with live and interpretive exhibits
- Dry lab
- Amphitheater
- Kitchen
- Locker room with shower

Guana Dam & Trailhead

- Parking spaces: dam- 16 vehicle spaces, 10 trailer spaces; trailhead- 23 vehicle spaces
- Combined restroom and picnic pavilion at dam
- Restrooms at dam
- Concessionaire stand
- Paved boat ramps and walkways on north and south sides of the dam
- Picnic pavilion at trailhead
- Multiple boardwalks and paved paths in trail system
- Guard house with self-pay station

Guana Beach Access Points

- 3 parking lots on the west side of A1A with boardwalks to cross the dunes to the beach on the east side of the road. The Florida Department of Transportation provides photovoltaic-powered crossing signals between each parking lot and boardwalk. Each lot contains a self-pay station and portable restroom. Parking lot capacities are:
    - North Lot = 68 vehicle spaces
    - Middle Lot = 80 vehicle spaces
    - South Lot = 100 vehicle spaces

Shop Yard and Residences

- 7 storage bays for ATVs, UTVs and other equipment
- Workshop
- Small storage building
- Pole barn
- Ranger House (3 bedrooms)
- Dormitory (3 bedrooms) or Law Enforcement House

The Florida Fish and Wildlife Conservation Commission (FWC) shares and manages multiple areas within the Guana region, including:

- One large storage bay, two sheds and office space in the shop yard
- The Guana dam structure
- The unimproved boat ramp on the Guana Lake, Six Mile Landing, between the middle and north beach lots
- Southern access to the Guana River Wildlife Management Area (GRWMA) through the Reserve's trails

Additionally, there is an approximately seven-thousand-foot-long feral hog fence between the Reserve-managed lands and GRWMA to limit access by destructive, non-native animals like wild hogs and armadillos crossing over from the GRWMA. The fence was built in 2008.

Southern Component (see Map 2)
The Marineland Field Office in the Southern Component is owned by Flagler County and leased to the reserve. Details of this arrangement can be found in the MOU, "Facilities Use Agreement, in Appendix A. This facility includes the following features.

- 3,879 sq ft
- Offices, restrooms and storage spaces
- Meeting room (max capacity = 25 people)
- One-room dormitory
- Dry lab
- Kitchen

The Princess Place Preserve Legacy House and cabins are owned by Flagler County and are available for use by the Reserve per the terms of the MOU in Appendix A.

- Meeting room (max capacity = 35 people)
- Kitchen
- Restrooms
- 2 dormitory rooms (3 bedrooms each)
- Dry lab
- Lounge
- 3 cabins (2 bedrooms each)

Planned Facilities & Upgrades

In 2017 the GTM Research Reserve provided NOAA's Office for Coastal Management with a list of facility features that could be added or expanded upon to enhance the principles listed in the first section of this chapter. This list is included in Appendix E. Some of the major projects that are anticipated over the next five to ten years are described below.

Interpretive Exhibits – As part of a Property, Acquisition, and Construction Award received from NOAA in 2014, an interpretive master plan was developed for the exhibit hall in the Visitor Center. The full implementation of this plan is expected to take many years to complete, pending availability of funds. Overall, the goal of the redesign is to update exhibits and include more interactive opportunities.

Marine Field Station, Northern Component – In 2021, The University of North Florida (UNF) and the FDEP Florida State Lands office signed a sublease option for UNF to construct a marine field station near the Visitor Center. This facility would enhance the research opportunities at the Reserve and improve collaboration with staff from both groups. This structure would exemplify coastal resilience in its construction.

Marine Field Station, Southern Component – In partnership with the University of Florida Whitney lab, expand and renovate a flow-through sea water wet lab near the GTM Research Reserve field office in Marineland, Florida.

Nearshore Wave Gauge & Beachfront Weather Station – To better understand beach environmental processes, field infrastructure would be installed to measure nearshore wave spectra, current profiles, tide stage (including storm surge) and water temperature in conjunction with localized meteorological parameters. This field installation would include an Acoustic Doppler Current Profiler located approximately one half-mile offshore connected by a cable to an on-shore station with a power supply and ten-foot anemometer tower.

Pole Barn – A pole barn is needed for boat storage at the northern component to protect boats and trailers from sun and salt spray. This would significantly reduce the need for maintenance and increase the useful years of service of these vessels. This structure would exemplify coastal resilience in its construction.

Equipment Storage Building, Northern Component – Due to damage and wear caused by the marine salty and sunny environment, an additional storage building in the shop yard to the north of the Visitor Center would protect reserve equipment and vehicles currently stored outside. This structure would exemplify coastal resilience in its construction.

Equipment Storage Building, Southern Component – There is also a need for a structure at the Marineland field office to wash and store vehicles out of the elements. This structure would exemplify coastal resilience in its construction.

Keyless Entry – to increase security of the Visitor Center and Headquarters building, a keyless entry system would be installed. Access would be granted or revoked by individual when necessary. Alternative entry systems include key card access and biometric access.

Host/Visiting Investigator Site for Recreational Vehicles – One to two sites would be constructed for recreational vehicles to park. These sites could be used by individuals in exchange for research, maintenance or other work at the Reserve. The location of these pads would be close to an existing building in an already disturbed area.

National Water Level Observation Network (NWLON) - Managed by NOAA's Center for Operational Oceanographic Products and Services, this permanent monitoring network provides real-time water level information and is available twenty-four hours a day, seven days a week to everyone from commercial navigators and recreational boaters needing information to avoid groundings, to coastal planners whose marsh restoration efforts must account for changing water levels and the destructive potential of hurricane storm tides. This station would fill a gap in the network as the closest stations are in Mayport, Florida and Port Canaveral, Florida, approximately 140 miles apart.

Guana Lake and River Flow Gauges – Water flow gauges would be installed in the culverts under the input and output water control structures for Guana Lake. Equipment will include sensors to measure

velocity and water depth as well as a datalogger out of the water. An optional telemetry system would allow data to be streamed real-time for education and maintenance needs.

Guana Weather Station – To complement the Guana flow gauges, a weather station would be installed near the Guana dam to provide localized meteorological data. An optional telemetry system would allow data to be streamed real-time for education and maintenance needs.

Increased Accessibility and Inclusivity – In 2018, staff and volunteers coordinated with local experts on increased accessibility for members of the public who may not be able to currently access or fully utilize the facilities at the Reserve. This can apply to outdoor elements like boardwalks, pavilions, kayak launches, and restrooms as well as indoor elements like exhibits, the auditorium and restrooms.

Guana Peninsula Trail Improvements - Modeled after the extremely successful Depression marsh Restoration Project, the Reserve plans to improve storm water management and reduce exotic mosquitos by constructing additional low-water crossings and boardwalks at key locations within the Reserve trails system. These improvements will be designed to improve marsh migration, enhance visitor use (including visiting scientists), and restore natural flow-ways.

Chapter 9. Habitat Restoration

Background

The GTM Research Reserve is committed to restoring habitat structure and function in areas of the reserve which have been impacted by natural and anthropogenic factors. It is important that restoration activities be driven by science-based prioritization with consideration of available resources and long-term sustainability. As laid out in the Strategic Plan in this document (Chapter 6), prioritization of restoration projects will be a strong component of the Stewardship Program in the next five years. Along with project-based habitat restoration, it is important that the reserve serve as a test site for development and assessment of innovative restoration methods using hypothesis-driven designs. In this way, the work of staff and partners will enhance the science of restoration ecology internationally.

Recent and On-going Projects

Many pilot projects have been implemented in recent years to enhance habitats of the GTM Research Reserve, develop best practices for restoration, engage the local community, and empirically test innovative methods. Current projects include continued oyster reef and living shoreline development and interdunal swale freshwater marsh maintenance. Maps 10a and 10b show the location of these projects.

The eroding shorelines of the Tolomato River have been the focus of on-the-ground intertidal habitat enhancement projects. Linear treatments using bagged oyster shell and coconut fiber logs were installed to test the ability of this type of restoration to encourage live oyster growth, fish habitat, and shoreward vegetation growth. Ultimately, the coir fiber logs were not robust enough to persist in the high wave energy environment of that portion of the Tolomato River. While most of the bagged shell treatments continue to persist, some have broken apart. These sites continue to be monitored.

In 2016, the GTM Research Reserve and partners from University of Florida, University of New Hampshire, and Radboud University Nijmegen in the Netherlands initiated a project funded by the NERR System Science Collaborative to test a new shoreline stabilization design for high energy environments (Herbert et al. 2018). Gabions, which are wire mesh cages filled with recycled oyster shell, are intended to recruit oysters and accumulate sediment to encourage marsh expansion. Installed waterward of the gabions are permeable walls constructed of pilings and tree branches which are intended to act as breakwaters. Data were collected regularly on various aspects such as wave energy, wall strength, oyster recruitment, sediment accumulation, and marsh movement. While the structures successfully mitigated high energy boat wake impacts to salt marsh and allowed oyster recruitment and growth on constructed reefs, the maintenance of the structures was labor intensive. Scaling up this project would require excessive labor, so researchers are investigating different solutions.

Another area of conservation interest at the GTM Research Reserve is the 50-acre depression marsh, a remnant interdunal swale located on the peninsula that begins at southern boundary of the Guana River Wildlife Management Area and extends about half a mile south into ORCP-managed lands. This is often referred to as the "Freshwater Marsh". In the early 1960s mosquito ditches were dug with intent to drain this freshwater marsh area. Consequently, the natural freshwater marsh community began to transition into upland pine habitat. In 1993 and 1994 major strides were made to restore the marsh community. The mosquito ditches were filled in with existing spoil, the land was leveled according to aerial photographs from 1942, a shallow pond was scraped out, and a low water crossing was constructed to allow water flow across a portion of a hiking trail, reconnecting the marsh. Prescribed fire has been used as a tool to reduce and control the encroaching vegetation. Waterflow in the GRWMA continues to be managed via culverts and pumps, which alters the natural hydrology within the ORCP-managed lands. In 2016, improvements were made to the culvert systems that connect Big Savannah in the GRWMA to the Freshwater Marsh to increase water flow into the marsh. However, the water that enters the marsh from these culverts only reaches the northern portions and the rest of the marsh relies on rainwater. Trees such as slash pines and wax myrtle are starting to encroach in marsh habitat. Continuing efforts will be made to remove the encroaching trees to prevent water loss through transpiration, as well as deepening higher areas of the marsh using a tractor which will allow better water flow to larger areas of the marsh from the culvert.

A common challenge in estuarine restoration projects is the availability clean, local oyster shell and healthy, local cordgrass plugs. Reserve staff have implemented solutions for these problems:

- An oyster shell recycling program was developed to collect shell that would otherwise be sent to a landfill. Oyster roast events and local restaurants are provided with bins to collect oyster shell after patrons dine. Shell is deposited at a quarantine site located on Reserve property where it remains for at least six months to ensure harmful pathogens are killed by heat from sunlight. After quarantine, shell is bagged or used in gabion cages to be used in habitat enhancement projects.

- A portion of salt marsh within the Reserve boundary has been registered with Florida's Department of Agriculture and Consumer Services as a nursery for the exclusive purpose of collecting smooth cordgrass (*Sporobolus alterniflorus*) for transplant in restoration projects.

Determining Restoration Priorities

The Stewardship and Research programs are working to develop a restoration prioritization matrix based on ecological integrity needs, informing restoration science, long-term sustainability (considering stressors that may impact success), and reserve resources. Specific criteria and outcomes will be developed once prioritization matrices are completed. In the meantime, we will continue to deploy and assess new restoration treatments to assess the efficacy of techniques, quantify ecosystem services, and establish best management practices; however, outcomes will be based on knowledge gained rather than number of acres restored.

Projects that incorporate partner collaboration will remain a priority. The Stewardship and Research Programs work with the Coastal Training Program to facilitate several working groups including the GTM Oyster and Water Quality Task Force (OWQTF) to foster collaboration between research institutions and management agencies. Multiple members of GTM staff are a part of the Northeast Estuarine Restoration Team (NERT), a workgroup of restoration practitioners in Northeast Florida. All sectors work together to disseminate information gained from restoration projects and studies that contribute to prioritization matrices or best management practices.

Information gained from ongoing monitoring and habitat mapping projects, which are described in Chapter 5, will be critical to inform restoration prioritization. For example, the Reserve conducts emergent vegetation monitoring that will show changes in vegetation community structure over space and time. This shall help identify areas that may be candidates for restoration and provide context and baseline data to assess marsh restoration projects. However, a more spatially robust technique, such as remote sensing, is needed to track large scale changes in marsh health, especially because unexplained patches of marsh die-off continue to be observed throughout the reserve. Similar phenomena have been observed in other regions of the United States and this topic requires further study within the GTM Research Reserve.

Other specific local-scale data collected from the System Wide Monitoring Program (SWMP) is directly applicable to assessing priority restoration areas. Abiotic data such as patterns in tidal fluctuation, trends in salinity, and nutrient loads are all factors that may affect the vegetative and animal communities and therefore must be considered prior to and after restoration planning. Measurements of sedimentation rates will show whether salt marsh and mangrove habitats will keep up with sea level rise. Mitigation measures like thin layer placement will be considered and tested for emergent vegetation areas that prove to be drowning.

Factoring Climate Change into Restoration Planning

The most immediate threats to the reserve related to climate change are rising temperatures, rising sea levels, and extreme events. As a part of a broader knowledge and vulnerability assessment, staff will evaluate the vulnerability of coastal ecosystem services and biodiversity to anticipated climate change and use this in restoration prioritization and planning. In a changing climate it is especially important to use adaptable restoration techniques such as living shorelines that can naturally respond to drivers of change. For example, oyster reefs and salt marshes may be able to accrete vertically to keep pace with

sea level rise or recruit and incorporate new species as ranges shift northward. Hardened structures, on the other hand, are less resilient over time.

Assessment Strategies

Restoration project assessment will be built into project planning so that treatments are installed with experimental design consideration (including replication) and adequate pre- and post-installation monitoring can be conducted. Dissemination of findings will also be considered during project planning so that appropriate information can be collected throughout project implementation. Therefore, comprehensive restoration projects will take advantage of the interdisciplinary nature of the NERR System and rely on all sectors (Stewardship, Resource Management, Research, Education, Coastal Training, and Administration).

To ensure that monitoring and evaluation data allow for comprehensive and comparable results with regional significance, standardized protocols, such as the shoreline characterization and oyster reef condition assessment protocols mentioned above, will be employed. Whenever possible, strategies will be decided on in a collaborative process with stakeholders and partners through one of the existing working groups. Project assessment strategies will consider treatment success relative to project goals, project cost, changes in ecosystem services, and methodology efficacy and efficiency.

Chapter 10. Land Acquisition Plan

The land acquisition plan is a required element of a NERR management plan, per the Federal Code of Regulations, 15 CFR 921.13. Estuaries, and their associated habitats, offer numerous and diverse benefits to society and natural systems. Some of these benefits include storm buffers to protect property from hurricanes; nurseries for commercially important marine species; areas for to enjoy for recreation and aesthetics.

The managing agency for the GTM Research Reserve, Florida's Department of Environmental Protection, oversees the state's conservation land acquisition program via the Division of State Lands. The conservation acquisition program is called Florida Forever and serves as a blueprint for conserving natural resources and renewing Florida's commitment to conserve the state's natural and cultural heritage. Potential Florida Forever land acquisition projects are prioritized within six categories, with the approval of the state's Board of Trustees:

1. Critical Natural Lands Projects
2. Partnerships and Regional Incentives Projects
3. Less-than-Fee Projects
4. Climate Change Lands Projects
5. Substantially Complete Projects
6. Critical Historical Resources Projects

Of particular interest to the GTM Research Reserve are lands that buffer the estuarine system from point and non-point pollution, and that allow for marsh habitats to migrate as sea levels rise.

Priority Acquisition Areas

There are currently three projects on the Florida Forever list within the GTM Research Reserve watershed; The Northeast Florida Blueway, the Matanzas to Ocala Conservation Corridor, and Pringle Creek Forest. Details of these areas can be found at https://floridadep.gov/lands/environmental-services/content/florida-forever.

Northeast Florida Blueway: Some of the parcels within this project area have already been conserved and included within the NERR boundary, including the Matanzas State Forest and Faver-Dykes State Park. This project is composed of many publicly and privately-owned uplands and wetlands along both sides of the Intracoastal Waterway, the Tolomato and Matanzas rivers and selected tributaries, from the Duval County line south to the Flagler County line. Marshlands, open water, and small islands of shrub and hammock vegetation are 92 percent of the public lands. The intention of the project is to connect existing natural areas and greenspace to form a conservation lands corridor along the north-south waterway. There are 12,104 acres that remain to be potentially acquired for conservation. Only parcels within St. Johns or Flagler County would be considered for inclusion in the NERR boundary. This project is currently ranked "Medium/Low" on the Climate Change Lands Projects list approved by the Florida Board of Trustees in 2018.

Of particular interest for the GTM Research Reserve is the Patricia A. Rogers Parcel, St. Johns County parcel #142020 0000 (Figure 13). This is an 18.63 acre in-holding of uplands located on the Guana Peninsula that bisects the GTM Research Reserve's upland recreational trails. It consists primarily of

maritime oak hammock with the Tolomato River on its western shore and the Guana River on the eastern shore and is ¼ mile north of the confluence of these two rivers. It contains a portion of Wright's Landing, an archaeological site designated by Site File 8SJ3. Wright's Landing contains artifacts dating to the First Spanish Period of Colonization. It also contains an extensive shell midden with Pre-Columbian artifacts. Acquisition would protect natural and cultural resources within and adjacent to the site and ensure that the reserve's recreation trails are not disrupted by activities related to private ownership or development.

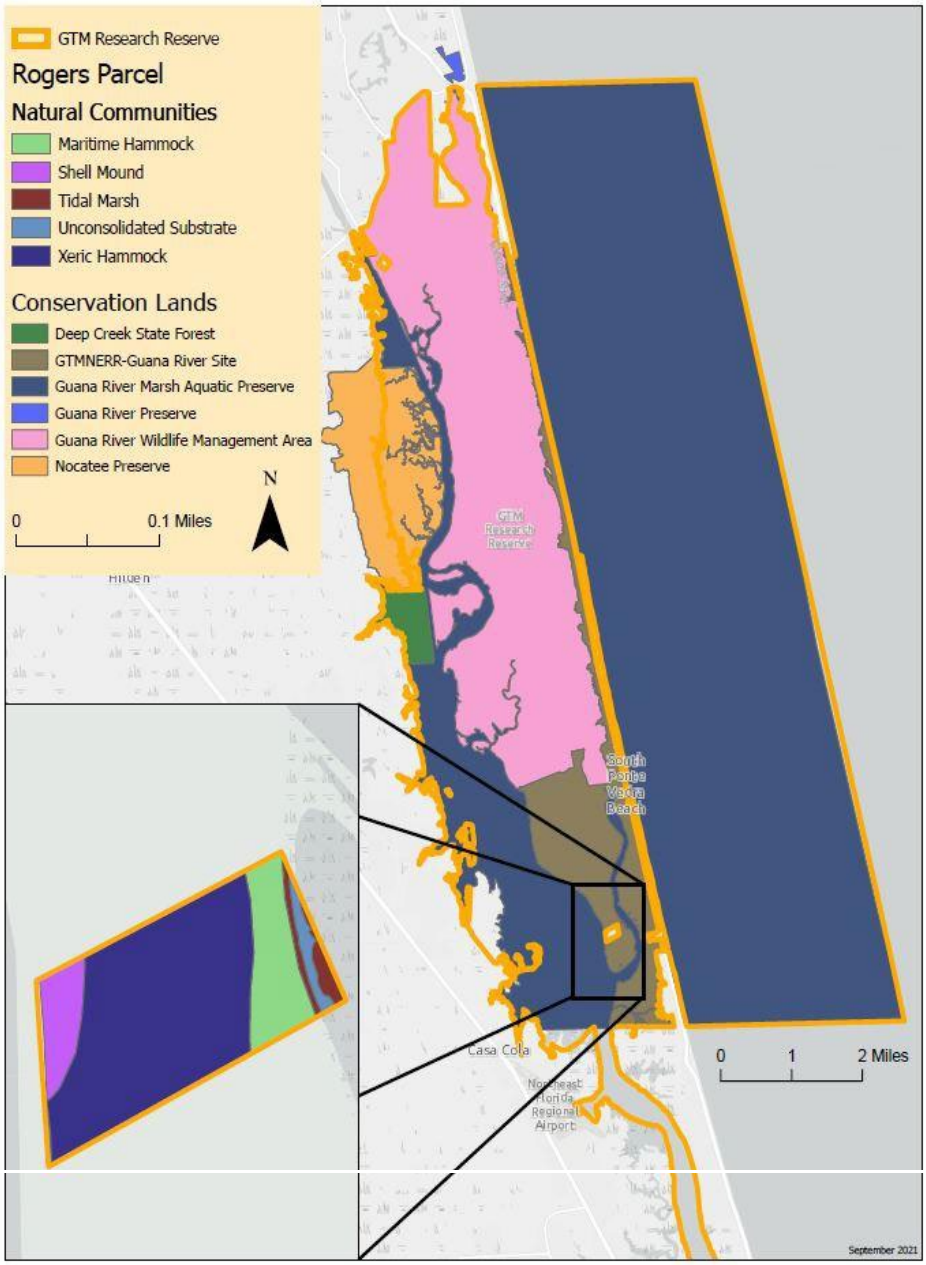

Figure 9. Rogers Parcel Map

Matanzas to Ocala Conservation Corridor: The GTM Research Reserve lies on the eastern edge of this corridor that would enhance the connections of at least 15 conservation lands (including the reserve) and conservation easements in this region of Florida, preserve natural areas for wildlife biodiversity, and protect surface waters and wetlands in this area, ensuring an adequate water supply for the current and the future needs of the natural systems and for the citizens of Florida.

The Matanzas to Ocala Conservation Corridor has 19 different landowners in Flagler, Putnam and St. Johns counties. It is in the Eastern Flatwoods physiographic district described as coastal lowlands, with flatwoods and swamps on silty sand soils. The land stretches from State Road 100 in Flagler and Putnam counties on the southwest end, east to US Highway 1 in St. Johns County and to Interstate Highway 95 on the northeast side. It is one contiguous piece with several outparcels.

There are approximately 108,000 acres of land within this Florida Forever project that are not currently conserved. Only parcels within the GTM watershed would be considered for inclusion into the NERR boundary if they are purchased for conservation. This project is currently ranked “Medium” on the Less-than-Fee Projects list approved by the Florida Board of Trustees in 2024.

Pringle Creek Forest: This 8,446-acre parcel lies to the east of the Matanzas to Ocala Conservation Corridor and would enhance the landscape mosaic of conservation lands that provides protection of the Pellicer Creek watershed and its tributaries. It would also retain functioning natural systems that reduce the possibilities of flood damage and water supply shortages, provide habitat protection and enhance numerous rare species and imperiled natural communities, and ensure and improve upon the ecosystem services this property provides for capturing, storing, filtering, and slowly releasing clean water to Pellicer Creek and its significant downstream estuary.

Pringle Creek originates in the northern portion of the project and flows north into Pellicer Creek which then flows eastward into the estuarine waters of the Matanzas River. In the proposal site, Pringle Creek is surrounded by a mostly natural forested wetland corridor. Acquiring the proposal would contribute to surface water protection of Pringle and Pellicer creeks as well as the Matanzas River. Aquifer recharge is thought to be high on this site due to the functional wetlands.

Over one-half (56 percent) of Pringle Creek Forest consists of pine plantations planted on former mesic and wet flatwoods communities. They are North Florida slash pine and almost all the trees 12 to 14 years old because of the 1998 wildfire. Slightly more than one-third (38 per cent) is represented by dome and basin swamps impacted by logging of cypress. Less than six percent is categorized as baygall, blackwater stream, hydric hammock, mesic/wet flatwoods, floodplain swamp, marsh/prairie, scrubby flatwoods, and mesic hammock natural communities.

This parcel is within the GTM watershed and would be considered for inclusion into the NERR boundary if purchased for conservation. This project is currently ranked “Low” on the Partnerships and Regional Incentives Projects list approved by the Florida Board of Trustees in 2024.

Land Acquisition Prioritization

Prioritization is described under Florida Statute Section 259.105, (4), (9) and (10) FLORIDA FOREVER GOALS, PERFORMANCE MEASURES, AND CRITERIA.

FLORIDA FOREVER GOALS AND PERFORMANCE MEASURES – SECTION 259.105(4), FLORIDA STATUTES

Goal A: Enhance The Coordination And Completion Of Land Acquisition Projects

- Measure A1: The number of acres acquired through the state's land acquisition programs that contribute to the enhancement of essential natural resources, ecosystem service parcels, and connecting linkage corridors as identified and developed by the best available scientific analysis;
- Measure A2: The number of acres protected through the use of alternatives to fee simple acquisition; or
- Measure A3: The number of shared acquisition projects among Florida Forever funding partners and partners with other funding sources, including local governments and the Federal Government.

Goal B: Increase The Protection Of Florida's Biodiversity At The Species, Natural Community, And Landscape Levels

- Measure B1: The number of acres acquired of significant strategic habitat conservation areas;
- Measure B2: The number of acres acquired of highest priority conservation areas for Florida's rarest species;
- Measure B3: The number of acres acquired of significant landscapes, landscape linkages, and conservation corridors, giving priority to completing linkages;
- Measure B4: The number of acres acquired of underrepresented native ecosystems;
- Measure B5: The number of landscape-sized protection areas of at least 50,000 acres that exhibit a mosaic of predominantly intact or restorable natural communities established through new acquisition projects or augmentations to previous projects; or
- Measure B6: The percentage increase in the number of occurrences of imperiled species on publicly managed conservation areas.

Goal C: Protect, Restore, And Maintain The Quality And Natural Functions Of Land, Water And Wetland Systems Of The State

- Measure C1: The number of acres of publicly owned land identified as needing restoration, enhancement, and management, acres undergoing restoration or enhancement, acres with restoration activities completed, and acres managed to maintain such restored or enhanced conditions; the number of acres which represent actual or potential imperiled species habitat; the number of acres which are available pursuant to a management plan to restore, enhance, repopulate, and manage imperiled species habitat; and the number of acres of imperiled species habitat managed, restored, enhanced, repopulated, or acquired;
- Measure C2: The percentage of water segments that fully meet, partially meet, or do not meet their designated uses as reported in the Department of Environmental Protection's State Water Quality Assessment 305(b) Report;
- Measure C3: The percentage completion of targeted capital improvements in surface water improvement and management plans created under s. 373.453(2), regional or master stormwater management system plans, or other adopted restoration plans;
- Measure C4: The number of acres acquired that protect natural floodplain functions;
- Measure C5: The number of acres acquired that protect surface waters of the state;

- Measure C6: The number of acres identified for acquisition to minimize damage from flooding and the percentage of those acres acquired;
- Measure C7: The number of acres acquired that protect fragile coastal resources;
- Measure C8: The number of acres of functional wetland systems protected;
- Measure C9: The percentage of miles of critically eroding beaches contiguous with public lands that are restored or protected from further erosion;
- Measure C10: The percentage of public lakes and rivers in which invasive, nonnative aquatic plants are under maintenance control; or
- Measure C11: The number of acres of public conservation lands in which upland invasive, exotic plants are under maintenance control.

Goal D: Ensure That Sufficient Quantities Of Water Are Available To Meet The Current And Future Needs Of Natural Systems And The Citizens Of The State

- Measure D1: The number of acres acquired which provide retention and storage of surface water in naturally occurring storage areas, such as lakes and wetlands, consistent with the maintenance of water resources or water supplies and consistent with district water supply plans;
- Measure D2: The quantity of water made available through the water resource development component of a district water supply plan for which a water management district is responsible; or www.FloridaForever.org Page 4 of 5
- Measure D3: The number of acres acquired of groundwater recharge areas critical to springs, sinks, aquifers, other natural systems, or water supply.

Goal E: Increase Natural Resource-Based Public Recreation Or Educational Opportunities

- Measure E1: The number of acres acquired that are available for natural resource-based public recreation or education;
- Measure E2: The miles of trails that are available for public recreation, giving priority to those that provide significant connections including those that will assist in completing the Florida National Scenic Trail; or
- Measure E3: The number of new resource-based recreation facilities, by type, made available on public land.

Goal F: Preserve Significant Archaeological Or Historic Sites

- Measure F1: The increase in the number of and percentage of historic and archaeological properties listed in the Florida Master Site File or National Register of Historic Places which are protected or preserved for public use; or
- Measure F2: The increase in the number and percentage of historic and archaeological properties that are in state ownership.

Goal G: Increase The Amount Of Forestland Available For Sustainable Management Of Natural Resources

- Measure G1: The number of acres acquired that are available for sustainable forest management;
- Measure G2: The number of acres of state-owned forestland managed for economic return in accordance with current best management practices;
- Measure G3: The number of acres of forestland acquired that will serve to maintain natural groundwater recharge functions; or

- Measure G4: the percentage and number of acres identified for restoration actually restored by reforestation.

Goal H: Increase The Amount Of Open Space Available In Urban Areas

- Measure H1: The percentage of local governments that participate in land acquisition programs and acquire open space in urban cores; or
- Measure H2: The percentage and number of acres of purchases of open space within urban service areas.

FLORIDA FOREVER CRITERIA - SECTION 259.105(9) AND (10), FLORIDA STATUTES

(9)(a) The project meets multiple goals described in subsection (4).
(b) The project is part of an ongoing governmental effort to restore, protect, or develop land areas or water resources.
(c) The project enhances or facilitates management of properties already under public ownership.
(d) The project has significant archaeological or historic value.
(e) The project has funding sources that are identified and assured through at least the first 2 years of the project.
(f) The project contributes to the solution of water resource problems on a regional basis.
(g) The project has a significant portion of its land area in imminent danger of development, in imminent danger of losing its significant natural attributes or recreational open space, or in imminent danger of subdivision which would result in multiple ownership and make acquisition of the project costly or less likely to be accomplished.
(h) The project implements an element from a plan developed by an ecosystem management team.
(i) The project is one of the components of the Everglades restoration effort.
(j) The project may be purchased at 80 percent of appraised value.
(k) The project may be acquired, in whole or in part, using alternatives to fee simple, including but not limited to, tax incentives, mitigation funds, or other revenues; the purchase of development rights, hunting rights, agricultural or silvicultural rights, or mineral rights; or obtaining conservation easements or flowage easements.
(l) The project is a joint acquisition, either among public agencies, nonprofit organizations, or private entities, or by a public-private partnership.
10) The Acquisition and Restoration Council shall give increased priority to those projects for which matching funds are available and to project elements previously identified on an acquisition list pursuant to this section that can be acquired at 80 percent or less of appraised value. The council shall also give increased priority to those projects where the state's land conservation plans overlap with the military's need to protect lands, water, and habitat to ensure the sustainability of military missions including:
(a) Protecting habitat on nonmilitary land for any species found on military land that is designated as threatened or endangered, or is a candidate for such designation under the Endangered Species Act or any Florida statute;
(b) Protecting areas underlying low-level military air corridors or operating areas; and
(c) Protecting areas identified as clear zones, accident potential zones, and air installation compatible use buffer zones delineated by our military partners, and for which federal or other funding is available to assist with the project.

Other Conservation Lands Acquisition

Additional lands may be purchased for conservation within the GTM watershed by non-governmental organizations like the North Florida Land Trust (NFLT). NFLT has prioritized two regions within GTM's watershed that would enhance protection of the estuary; the Guana River headwaters, which is north of the reserve boundary, and Palm Coast buffer zone, which includes parcels in the Pellicer Creek watershed. These additional conservation lands are noted for the potential support of conservation buffer areas for the Reserve, though they may not impact Reserve management.

NERR Boundary File

Up-to-date reserve and watershed boundaries are a requirement of the Central Data Management Office (CDMO) and must adhere to specific requirements before they will be accepted for posting on the CDMO website. For example, all boundary products must be projected using a Universal Transverse Mercator projection and have Federal Geographic Data Committee (FGDC) compliant metadata, which should include: (1) the base maps used to develop the boundaries and associated details about the base imagery or products, (2) the methodology for developing the boundaries, (3) projection, (4) the date the boundary was produced, (5) contact information, and (6) other required information. The FGDC compliant metadata for boundaries is specified in the standard metadata information accessible at the ESRI Support Center (http://support.esri.com/).

Surplus Lands Potential

Staff of the GTM Research Reserve have evaluated the land parcels included in Lease No. 3462, which is managed directly by the reserve under the Office of Resilience and Coastal Protection. The conclusion of this evaluation is that all portions of the area are being managed and operated for the original purposes of acquisition and remain integral to the continued conservation of important estuarine habitat and resource-based public outdoor recreational opportunities. Therefore, no portion of the GTM Research Reserve is recommended for potential surplus review.

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Appendices

Appendix A / Memoranda of Agreement/Understanding

Lease and sublease documents available upon request

A.1 / Memorandum of Agreement with NOAA

MOA-2021-034 / 12138

Memorandum of Understanding Between the National Oceanic and Atmospheric Administration and The Florida Department of Environmental Protection Detailing the State-Federal Roles in the Management of the Apalachicola, Rookery Bay, and Guana Tolomato Matanzas National Estuarine Research Reserves

PARTIES AND PURPOSE

This Memorandum of Understanding (MOU or agreement) establishes the framework for the cooperative management of Apalachicola, Rookery Bay, and Guana Tolomato Matanzas National Estuarine Research Reserves (the Reserves) in the State of Florida, between Florida Department of Environmental Protection (DEP) and the National Oceanic and Atmospheric Administration (NOAA), Office for Coastal Management. This agreement supersedes the previous agreement between NOAA and DEP regarding Apalachicola, Rookery Bay, and Guana Tolomato Matanzas Reserves made on December 21, 1998.

AUTHORITY

The authority for this agreement is the Coastal Zone Management Act of 1972, as amended (CZMA, 16 U.S.C. §§ 1451-65, 1461), and its implementing regulations at 15 C.F.R. Parts 921, 923.

BACKGROUND

The State of Florida has determined the waters and related coastal habitats of Apalachicola, Rookery Bay, and Guana Tolomato Matanzas provide unique opportunities for the study of natural and human processes to contribute to the science of estuarine ecosystem processes, enhance environmental education opportunities and public understanding of estuarine areas, and provide a stable environment for research through the long-term protection of reserve resources.

The State of Florida has determined that the resources of the Apalachicola, Rookery Bay, and Guana Tolomato Matanzas Reserves and the values they represent to the citizens of Florida and the United States will benefit from the management of these resources as part of the National Estuarine Research Reserve (NERR) System.

The DEP, as the State agency to whom Florida has delegated the authority and responsibility for maintaining, operating and managing the Apalachicola, Rookery Bay, and Guana Tolomato Matanzas Reserves in accordance with state law and Section 315 of the CZMA, 16 U.S.C. § 1461, acknowledges the value of state-federal cooperation for the long-term management and protection of the Reserves in a manner consistent with the purpose of each Reserve's designation.

NOAA finds that the State of Florida has satisfied the legal and procedural requirements for designation and, pursuant to its authority under Section 315 of the CZMA, 16 U.S.C. § 1461, and in accordance with implementing regulations at 15 C.F.R. Part 921, has designated the Apalachicola, Rookery Bay, and Guana Tolomato Matanzas Reserves.

The Apalachicola, Rookery Bay, and Guana Tolomato Matanzas management plans approved by NOAA describe the goals, objectives, strategies/actions, administrative structure, and institutional arrangements for these Reserves, including this agreement and others. In consideration of the mutual agreements herein, NOAA and DEP agree to the following roles indicated in Section IV of this agreement.

STATE-FEDERAL ROLES IN RESERVE MANAGEMENT

DEP's role in Management of the Apalachicola, Rookery Bay, and Guana Tolomato Matanzas Reserves

The DEP shall:

be responsible for compliance with all federal laws and regulations, and ensure that the Apalachicola, Rookery Bay, and Guana Tolomato Matanzas Reserve management plans are consistent with the provisions of the CZMA and implementing regulations;
ensure protection of the natural and cultural resources of the Reserves, and ensure enforcement of the provisions of state law and regulations aimed at protecting the reserves;
ensure adequate, long-term protection and management of lands and waters included within the Reserve boundaries;
cooperate with NOAA to apply for and manage funds to support the reserves in accordance with federal and state laws, the Reserve management plans, annual funding guidance from NOAA, and any other NOAA directives pertaining to reserve operations, research and monitoring, education and stewardship, and, as necessary, land acquisition and reserve facility construction;
conduct and coordinate research and monitoring programs that encourage scientists from a variety of institutions to work together to understand the ecology of the Reserve ecosystems to improve coastal management;
conduct and maintain programs that disseminate research results via materials, activities, workshops, and conferences to resource users, state and local agencies, school systems, the general public, and other interested parties;
provide staff and endeavor to secure state funding for the manager, education coordinator, and research coordinator;
secure facilities and equipment required to implement the provisions within the Reserve management plans;
ensure adequate support for facilities operation and maintenance;
maintain effective liaison with local, regional, state, and federal policy makers, regulators, and the general public;
serve as principal contact for issues involving proposed boundary changes and/or amendments to the Reserve management plans; and

cooperate with NOAA regarding review of performance pursuant to Section 312 of the CZMA, 16 U.S.C. § 1458, 15 C.F.R. § 921.40, and ongoing management plan approvals.

Federal Role in Management of the Apalachicola, Rookery Bay, and Guana Tolomato Matanzas Reserves

NOAA's Office for Coastal Management shall:

administer the provisions of the Sections 312 and 315 of the CZMA, 16 U.S.C. § 1458 and 16 U.S.C. § 1461, respectively, to ensure that the reserve operates in accordance with goals of the NERR system and the Apalachicola, Rookery Bay, and Guana Tolomato Matanzas Reserve management plans;

review and process applications for financial assistance from the DEP, consistent with 15 C.F.R. Part 921, for management and operation of the Reserves, and, as appropriate, land acquisition and facility construction;

advise DEP of existing and emerging national and regional issues that have bearing on the Reserves and NERR system;

maintain an information exchange network among reserves, including available research and monitoring data and educational materials developed within the NERR system; and

to the extent possible, facilitate the allocation of NOAA resources and capabilities in support of the Reserves' goals and programs.

General Provisions

Nothing in this agreement shall obligate either party in the expenditure of funds, or for future payments of money. Each party bears its own costs to implement this agreement. NOAA may provide Federal funding in accordance with the CZMA and any requirements of the U.S. Department of Commerce through financial assistance awards that are separate from this agreement.

A free exchange of research and assessment data between the parties is encouraged and is necessary to ensure success of cooperative studies.

Other Provisions

Nothing in this agreement diminishes the independent authority or coordination responsibility of either party in administering its respective statutory obligations. Nothing in this agreement is intended to conflict with current written directives or policies of either party. If the terms of this agreement are inconsistent with existing written directives or policies of either party entering this agreement, then those portions of this agreement that are determined to be inconsistent with such written directives or policies shall be invalid; but the remaining terms not affected by the inconsistency shall remain in full force and effect. In the event of the discovery of such inconsistency, and at the first opportunity for revision of this agreement, the parties shall seek to amend or terminate this agreement in accordance with the provisions of section VI of this agreement.

Any disagreement on the interpretation of a provision, amendment, or other matter related to this agreement shall be resolved informally at the lowest operating level of each party's respective organization. If such disagreement cannot be resolved, then the area(s) of disagreement shall be stated in writing and presented to the other party for further consideration. If agreement is not reached within thirty (30) days of presentation, then the parties shall forward the written presentation of the disagreement to their respective higher official for appropriate resolution.

PROGRAM EVALUATION

In accordance with section 312 of the CZMA, 16 U.S.C. § 1458, and 15 C.F.R. § 921.40, NOAA's Office for Coastal Management will schedule periodic evaluations of DEP's performance in meeting the terms of this agreement and the Apalachicola, Rookery Bay, and Guana Tolomato Matanzas Reserve management plans. Where findings of deficiency occur, NOAA may initiate action in accordance with the interim sanctions or withdrawal of designation procedures established by the CZMA and applicable regulations at 15 C.F.R. Part 921, Subpart E.

EFFECTIVE DATE, REVIEW, AMENDMENT, AND TERMINATION

This agreement is effective on the date of the last signature on this agreement and shall be in effect until terminated by either party.

This agreement will be reviewed periodically by both parties and may only be amended by the mutual written consent of both parties.

This agreement may be terminated by mutual consent of both parties or by unilateral termination by either party. Termination of this agreement may provide grounds for NOAA (at its discretion) to withdraw designation of the Apalachicola, Rookery Bay, and Guana Tolomato Matanzas Reserves from the NERR system, pursuant to applicable provisions of the CZMA and its implementing regulations as described under 15 C.F.R. Parts 921 (Subpart E) and 923 (Subpart L). Section 315 of the CZMA, 16 U.S.C. § 1461, provides that NOAA may withdraw designation of a NERR if: 1) NOAA finds that any of the criteria for establishing the reserve no longer exist; or

2) a substantial portion of the research conducted within the reserve fails to meet NERR system guidelines. In making any decision to withdraw designation, NOAA will take into consideration factors set forth in 15 C.F.R. § 921.40.

If any clause, sentence, or other portion of this agreement shall become illegal, null, or void for any reason, the remaining portions of this MOU shall remain in full force and effect.

No waiver of right by either party of any provision of this agreement shall be binding unless expressly confirmed in writing by the party giving the waiver.

IN WITNESS THEREOF, the parties have caused this agreement to be executed.

PAYNE.JEFFREY.L.DR.1365833881 Digitally signed by PAYNE.JEFFREY.L.DR.1365833881 Date: 2020.12.31 19:49:11 -05'00'

Jeffrey L. Payne, Ph.D.
Director
Office for Coastal Management
National Ocean Service
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Date

Alex Reed

Alex Reed
Director, Office of Resilience and
Coastal Protection
Florida Department
of Environmental Protection

Date 1/11/2021

A.2 / MOA- DRP-FWC-WMD-NPS-Flagler

MEMORANDUM OF AGREEMENT

among the

Florida Department of Environmental Protection (DEP) Division of Marine Resources

DEP's Division of Recreation and Parks,

Florida Game and Fresh Water Fish Commission,

St. Johns River Water Management District,

National Park Service,

and Flagler County,

for the cooperative management of the

GUANA TOLOMATO MATANZAS NATIONAL ESTUARINE RESEARCH RESERVE

Whereas, the Guana Tolomato Matanzas National Estuarine Research Reserve, hereinafter called the "Reserve", is established under authority of the Coastal Zone Management Act of l972 (P.L. 96-583) and its amendments of 1976 (P.L. 94-370) and 1980 (P.L. 96-464) to designate representative sites of America's estuaries as natural field laboratories for gathering data through scientific studies of natural and human processes to enhance the scientific knowledge, environmental education, and on-site management of this estuarine ecosystem for the Jong tem1 protection and benefit of the nation's coastlines; and,

Whereas, the National Estuarine Research Reserve (NERR) System is administered at the federal level.by the National Oceanic and Atmospheric Administration's Office of Coastal Resource Management (NOA.A/OCRM), and at the state level in Florida by the Department of Environment.al Protection (DEP), Division of Marine Resources (DMR), Bureau of Coastal and Aquatic Managed Areas (CAMA); and,

Whereas, DEP and all the parties hereto are property owners and/or managers of lands included within the boundaries of the reserve who desire to enter into this agreement to:

Acknowledge the designation of the estuarine ecosystem comprised of the Guana, Tolomato, and Mantanzas (GTM) Rivers estuarine ecosystem and the surrounding publicly owned uplands as a NERR;

Commit the publicly owned lands within the Reserve boundaries that are managed by the parties of this agreement to inclusion into the reserve, with the understanding by all parties

that neither the responsibility nor authority for the management of those uplands is altered whatsoever by this agreement;

Establish a partnership for the purpose of enhancing the ability to effectively manage this valuable ecosystem through cooperation, the sharing of knowledge, skills and abilities, and the recognition of the roles of each party in the 0perations and Financing of the Reserve;

Whereas, the parties recognize the fragile nature of the Reserve environment and that the routine activities in fulfilling their duties may affect the environmental quality of the Reserve;

Whereas, the parties recognize the need for continuing cooperation in managing the Reserve to ensure that the management of the Reserve remains consistent with the goals and objectives of the NERR System;

Whereas, it is mutually beneficial for Florida's NERRs to be operated on a permanent basis in a manner consistent with the guidelines of the NERR system as stated in 15 CFR Part 921, the objectives of the parties hereto, and the specific objective and goals as follows:

The objective of the Reserve is to establish and manage, through federal, state, and local government cooperation, a permanent NERR to provide opportunities for long-term scientific research and environmental education.

The goals of the NERR program for carrying out this objective are to:

Provide a scientific research and monitoring program in the Reserve which is responsive to the resource management needs of the cooperators for the purpose of ultimate improvement of the management of this coastal ecosystem; and,

Provide resource management by implementing a long-term management plan tailored to the site's specific resources; and,

Enhance public awareness and understanding of the estuarine environment through the implementation of environmental education programs in the local public schools and the nearby communities, and by conducting on-site interpretation of the natural and cultural resources within the Reserve; and,

Promote local, state, and federal government cooperation in the management of the Reserve.

BE IT THEREFORE RESOLVED, that the parties hereto covenant and agree to the following articles:

ARTICLE I - PURPOSE

The purpose of this agreement is to coordinate, through local, state, and federal government cooperation; the activities of all involved agencies to ensure the protection of the GTM estuary, to provide for the enhancement and promotion of scientific research and public environmental education, and to allow environmentally compatible public access and recreation.

ARTICLE II - RESPONSIBILITIES

DMR, in order to fulfill the obligations of this Agreement, shall:

Actively seek federal funding assistance that is available through the NOAA/OCRM and state funding assistance from the Florida Legislature for the development of the Reserve facilities and programs, and for the daily operations costs of the Reserve;

Manage the Reserve to the best of its ability at the level of funding and staffing provided by NOAA/OCRM and the Florida Legislature;

Accept sole responsibility for conformance with NERR program goals and objectives, as well as the administrative requirements, such as filing operations grant proposals, providing required financial and activity reports, and meeting other similar administrative functions required of the state partners of NOAA throughout the NERR system under federal and state law;

Develop, implement and update a management plan, which is compatible and consistent with the existing resource management plans of the parties hereto, as needed to achieve the federal and state program goals;

Provide the parties of this agreement the right of advance review and comment on the management plan and environmental impact statement for the reserve and any subsequent amendments thereto;

Provide a copy of the Reserve management plan to each of the parties of this agreement;

Provide scientific data and other infonnation on issues affecting the Reserve and adjacent areas (this may include, but is not limited to, research reports, research proposals, educational materials, scientific publications and, periodic status reports);

Actively seek the cooperation and assistance of appropriate local, state and federal agencies and the public to enhance the Reserve's programs;

Recognize and acknowledge that the Reserve does not play a direct role in the management of the properties within the reserve boundaries;

Conduct and facilitate scientific research projects that are beneficial to the health and preservation of the GTM estuarine ecosystem, and contribute to the accomplishment of the goals of the parties to this agreement;

Establish a Management Advisory Group (MAG) by charter and seek program management advice from the MAG to assist in program operations;

Assist the responsible public land owners with efforts to acquire privately owned lands within or adjacent to the Reserve to provide additional upland buffers for the protection of the GTM estuarine ecosystem;

Provide the use of any Reserve facilities, equipment, and personnel as availability permits and DMR deems appropriate, for support to scientific researchers, environmental educators, resource managers, and the parties of this agreement;

Encourage participation of the parties to this agreement in Reserve functions such as, but not limited to, environmental education and scientific research workshops; and,

Monitor activities within the Reserve and report any problems or violations to the appropriate agencies.

Each of the other parties hereto, in order to fulfill the obligations of this Agreement, shall:

Recognize the MAG and its role as set forth in its Charter;

Recognize and support the implementation of the Reserve Management Plan to the extent possible without compromising their own management goals and objectives as stated in their approved management plans;

Provide DMR with a final published copy of approved management plans for properties within or adjacent to the Reserve;

Provide DMR with copies of scientific data and other information, which may include but not be limited to periodic status or progress reports and scientific publication;

Cooperate in good faith with DMR and all other parties hereto toward the goal of maximum environmental protection and public benefit;

Provide the use of facilities, equipment and personnel as available and within reasonable limits, as determined by each party, to assist in carrying out the Reserve duties and functions;

Strive to provide DMR with advance notice of all activities, including but not limited to ecological burns, road construction, and dredging within or adjacent to the Reserve which may affect the Reserve; and,

Allow access to the properties of the parties to this agreement to DMR staff for carrying out the environmental education, scientific research and environmental monitoring function of the reserve, in a manner that is acceptable to each party for their respective properties.

ARTICLE III - MISCELLANEOUS

This agreement shall remain in effect until canceled by the parties hereto.

Cancellation of this agreement between DEP and individual parties shall not affect the other parties hereto.

Any party to this agreement may cease its participation and attendant responsibilities with 30 days advance notice to all parties as follows:

Florida Game and Fresh Water Fish Commission
620 South Meridian Street
Tallahassee, Florida 32399-1600

St. Johns River Water Management District
P.O. Box 1429
Palatka, Florida 32708-1429

Flagler County Board of County Commission
1200 East Moody Boulevard #1
Bunnell, Florida 32330

National Park Service Atlanta Federal Center
1924 Building
100 Atlanta Street, Southwest Atlanta, Georgia 30303

Department of Environmental Protection
Division of Recreation and Parks
3900 Commonwealth Boulevard
Tallahassee, Florida 32399

Department of Environmental Protection
Division of Marine Resources
3900 Commonwealth Boulevard
Tallahassee, Florida 32399

This agreement shall become effective upon the date of execution by the parties hereto and shall remain in full force and effect until terminated.

BE IT FURTHER RESOLVED that the parties hereto agree to negotiate in good faith to deal with any points, whether or not specifically covered by this agreement, to resolve any differences in the best interest of the Reserve program and the public.

Florida Game and Fresh Water Fish Commission

The Florida Game and Fresh Water Fish Commission (GFC) and the Department of Environmental Protection (DEP) do hereby agree to the inclusion of the Guana River WMA properties under GFC management and lease from the Trustees into the Reserve, and recognize and acknowledge the obligations of GFC and DEP as stated previously in this agreement and the specific paragraph below:

GFC will include Reserve staff in the review and comment of Conceptual Management Plans and updates for management plans for the Guana River WMA. This does not include minor changes in hunting schedules, policy, road grading or other minor administrative changes. DEP recognizes that the GFC maintains the water control structure(s) and associated berms on the Guana River WMA and agrees that the GFC shall continue to utilize such structures to manipulate water levels on said lakes.

IN WITNESS WHEREOF, the legally designated agents for the parties hereto have caused this agreement to be executed on this 30th day of December, 1998.

Florida Game and Fresh Water Fish Commission
Allan L. Egbert, Ph.D., Executive Director

Department of Environmental Protection
Kirby B. Green, III, Secretary

Date 12/21/98

The St. Johns River Water Management District

The St. Johns River Water Management District (hereinafter referred to as the District), does hereby recognize, acknowledge, and agree to the inclusion of the District owned Pellicer Creek, Moses Creek and Stokes Landing properties, and to the obligations of DMR and the District as stated in the Agreement and in recognition of further obligations shall:

Cooperate with DMR to establish a coordinated environmental education program;

Coordinate scientific research projects within and adjacent to the Reserve and share resulting data;

Provide technical expertise and personnel assistance, to the greatest degree practicable, on issues relating to the District's statutory responsibilities within its jurisdiction, which relate to the Reserve;

Provide funding assistance for environmental education, scientific research, and resource management projects of the Reserve to the degree appropriate and reasonable, to be determined by the District;

Provide DMR the opportunity of advance review and comment on its proposed management plans. major development plans, major policy changes, permit applications, or other activities within or adjacent to the Reserve which may affect the quality of the Reserve;

Liabilities of the parties to *this* agreement shall be determined by the applicable laws and regulations now or hereafter in force; However, DMR. nor any person or entity claiming by, or through DMR shall hold the District liable for any injury or damage to person or personal property which may occur on District-owners properties.

IN WITNESS WHEREOF, the legally designated agents for the parties hereto have caused this Agreement to be executed on this 30th day of December, 1998.

St. Johns Water Management District
Henry Dean, Executive Director

Department of Environmental Protection
Kirby D Green, III, Secretary

Date 12/28/98

National Park Service

The National Park Service (hereinafter reffered to as the NPS) does hereby agree to the inclusion of the Ft. Matanzas National Monument into the GTMNERR, and recognizes, acknowledges, and agrees to the obligations of the NPS and DEP as stated in the Agreement and in recognition of further obligations shall:

Provide DEP the opportunity of advance review and comment on its proposed management plans, major development plans, major policy changes, permit applications or other activities within or adjacent to the Reserve which may affect the environmental quality of the Reserve;

DEP further agrees to the following further obligations:

During the performance of this Agreement, DEP agrees *to* abide by the terms of Executive Order 11246 on nondiscrimination and will not discriminate against any person because of race, color, religion, sex, or national origin, and will take affirmative action to ensure that applicants are employed without regard to their race, color, religion, sex or national origin.

No member or delegate to Congress, or resident Commissioner, shall be admitted to any share or part of this agreement, or to any benefit that may arise therefrom, but his provision shall not be construed to extend to this Agreement if made with a corporation for its general benefit.

IN WITNESS WHEREOF, the legally designated agents for the parties hereto have caused this Agreement to be executed on this 20th day of October, 1998.

National Park Service
Jerry Belson, Regional Director

Department of Environmental Protection
Kirby B. Green, III, Secretary

Date: 12/28/98

The Flagler County Board of County Commissioners

The Flagler County Board of County Commissioners (hereinafter referred to as the Flagler Commission), does hereby agree to the inclusion of the upland properties of the "Princess Place", and recognizes and acknowledges the obligations of DMR and the Flagler Commission as stated in the Agreement and in recognition·of further obligations shall:
Cooperate with DEP to establish a coordinated environmental protection program between the Flagler Commission and the Reserve at no cost to Flagler County. This program shall include, but not be limited to, organism identification, biological studies related to estuarine ecology, resource conservation, and the management of upland and submerged coastal resources in Flagler County.

IN WITNESS WHEREOF, the legally designated agents for the parties heretofore identified have caused this Agreement to be executed on this 21st day of May, 1998.

Flagler County Board of Commissioners
James Darby, Chairman

Department of Environmental Protection
David B. Struhs, Secretary

Date: 5/4/99

Division of Recreation and Parks

The Divisions of Recreation and Parks (DRP) and Marine Resources (DMR) of the Florida Department of Environmental Protection recognize, acknowledge and agree to the inclusion of the Faver Dykes and Guana River State Parks and the Washington Oaks State Gardens into the GTMNERR and to the obligations of both divisions and the department in the management of the GTMNERR and vow to work cooperatively in carrying out their respective duties and responsibilities to develop this reserve into another well managed and effective coastal management project that will contribute to the accomplishment of the goals and objectives of both divisions and the department.

IN WITNESS WHEREOF, the legally designated agents for the parties hereto have caused this Agreement to be executed on this 28th day of December, 1998.

Department of Environmental Protectino
Edwin Conklin, Director
Division of Marine Resources

Department of Environmental Protection
Fran P. Mainella, Director
Division of Recreation and Parks

Memorandum of Understanding

between

The State of Florida, Fish and Wildlife Conservation Commission

and

The State of Florida, Department of Environmental Protection

WHEREAS, Section 9 of the Florida Constitution Article IV establishes the Florida Fish and Wildlife Conservation Commission, hereinafter called FWC, to manage wild animal life, fresh water aquatic life, and marine life to provide for the effective conservation of those natural resources;

WHEREAS, the Florida Department of Environmental Protection, hereinafter called DEP, as staff of the Board of Trustees of the Internal Improvement Trust Fund, manages the sovereignty submerged lands of Florida, which comprise all the components of marine habitat;

WHEREAS, DEP managed sites contain some of the most productive and popular saltwater recreation venues in the world including: 41 Aquatic Preserves that encompass more than 1.8 million acres of sovereignty submerged lands of the state; 160 state parks that include 100 miles of sandy white beaches; 3 National Estuarine Research Reserves that include over 350,000 acres of the most pristine and productive estuarine ecosystems in the nation; and the Florida Keys National Marine Sanctuary that covers over 2900 square nautical miles of diverse and unique saltwater fisheries habitats and species;

WHEREAS, these sites attract millions of people every year, many of whom come from all parts of the world to participate in Florida's marine recreational activities;

WHEREAS, the agencies' complementary responsibilities and authorities address the two major factors in marine resource conservation, which are the effective management of the habitat and the harvest of marine organisms;

WHEREAS, the accomplishment of each of these agencies' responsibilities is related to the effectiveness of their collective efforts;

WHEREAS, the coordination of efforts by these agencies shall facilitate achievement of their mutual marine resource conservation goal;

WHEREAS, both agencies have existing environmental outreach programs throughout the state aimed at informing the public about marine resource conservation issues and marine recreational opportunities; and,

WHEREAS, there are rapidly increasing demands on the marine resources and for information about those resources.

THEREFORE, BE IT RESOLVED, that FWC and DEP shall hereby establish the Marine Resource Conservation Partnership (MRCP) to effectively manage the marine resources of the State of Florida for the benefit of the public and future generations by designing and implementing non-regulatory saltwater recreational outreach and education programs through inter-agency coordination and cooperation in accordance with state-approved management plans, and contingent on available funding.

THEREFORE, BE IT FURTHER RESOLVED, that FWC and DEP shall solicit and welcome any other interested entities or individuals into the Marine Resource Conservation Partnership including local, state and federal government agencies, industry, non-government organizations, and conservation organizations that wish to protect the marine resources under the guidelines established by FWC and DEP policies and programs. The inclusion of those partners shall be acknowledged by execution of a Memorandum of Understanding by the authoritative party of the joining entity and the FWC and DEP project administrators, which will be included as an addendum to this document.

IN WITNESS HEREOF, the parties hereto have executed this agreement on the dates set forth below.

FOR FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION:

Michael W. Sole Michael W. Sole Date: February 21, 2007
Secretary (Signature)
Florida Department of Environmental Protection

FOR THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION:

Kenneth D. Haddad Ken D Haddad Date: 3/13/07
Executive Director (Signature)
Florida Fish and Wildlife Conservation Commission

Flagler County
Board of County Commissioners

1769 East Moody Boulevard, Building 2 • Bunnell, Florida 32110 • (386) 313-4000 • fax: (386) 313-4101 • www.FlaglerCounty.org

November 18, 2008

Michael Shirley, Ph.D.
Environmental Administrator
GTMNERR
505 Guana River Road
Ponte Vedra Beach, Fl 32082

Re: Interagency MOU between DEP/GTMNERR and Flagler County

Dear Dr. Shirley:

Thank you for the opportunity to review the Guana Tolomato Matanzas National Estuarine Research Reserve's (GTMNERR) draft Management Plan revision of June 2008. Per your request, we have reviewed the existing MOU, the May 2000 amendments, and remain satisfied with the terms contained therein.

Please note that we are pleased to have Princess Place Preserve and River to Sea Preserve within the boundary of GTMNERR. We would like to reemphasize what is stated by the previous MOU. While the aforementioned Preserves are included in the MOU, Flagler County retains the responsibility and authority for management of those lands. It is also interesting to note that the draft management plan, section 9.2.1, considers an expansion of the GTMNERR to include lands contiguous with River to Sea Preserve. Flagler County would be interested in discussing a partnership in pursuit of this property at your convenience.

We look forward to continuing our partnership with the GTMNERR through the sharing of knowledge, skills and abilities, and we continue to recognize the importance of GTMNERR in our local and national communities.

Sincerely,

Milissa Holland

Milissa Holland, Chair
Flagler County Board of County Commissioners

C: Flagler County Board of County Commissioners

James M. O'Connell, District 1 | Milissa Holland, District 2 | James A. Darby, District 3 | Bob Abbott, District 4 | George Hanns, District 5

FDACS CONTRACT #
014620

MEMORANDUM OF AGREEMENT

BETWEEN THE

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF COASTAL AND AQUATIC MANAGED AREAS

AND THE

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES
DIVISION OF FORESTRY

This Memorandum of Agreement (MOA) is entered into this 22 day of January, 2009, by and between the Florida Department of Environmental Protection, Office of Coastal and Aquatic Managed Areas, acting by and through its Director, under the authority of Chapter 258, Florida Statutes, hereinafter referred to as CAMA; and the Florida Department of Agriculture and Consumer Services, Division of Forestry, acting by and through its Director, under the authority of Chapters 589 and 590, Florida Statutes, hereinafter referred to as the DOF.

WHEREAS, CAMA manages certain state lands to provide protection to aquatic ecosystems which represent the original domain of the state; and

WHEREAS, CAMA manages these ecosystems but often seeks the advice of other agencies which share or exceed their expertise in particular areas; and

WHEREAS, CAMA in its ongoing ecosystem restoration activities periodically plans to remove or thin timber stands as one step of the restoration, which in some cases will also include replanting appropriate native species; and

WHEREAS, the DOF has expertise in timber management and silviculture operations; and

WHEREAS, CAMA and the DOF have cooperated on many occasions in the planning and contracting of restoration harvests, native seed harvesting, nursery services and other matters; and

WHEREAS, Section 253.036, Florida Statutes requires that timber management assessments be conducted for public lands which are greater than 1,000 acres if the lead management agency determines that the timber management is not in conflict with the primary management objectives of the parcel; and

WHEREAS, the Legislature intends that each lead management agency, whenever practicable and cost effective, use the services of the DOF or other qualified foresters in completing such feasibility assessments and implementing timber resource management;

WHEREAS, CAMA and the DOF have previously entered into an MOA, dated 5/2/07 and stamped FDACS Contract #012707, which was executed for similar purposes; they both wish to allow for completion of current contracts under that MOA and have all services rendered after execution of this MOA be governed by this MOA.

NOW THEREFORE, the parties hereto, for and in consideration of the mutual covenants and agreements hereinafter contained hereby covenant and agree as follows:

1. CAMA agrees:

A. To determine the CAMA managed parcels (1,000 acres or greater) where timber resource management is not in conflict with the primary management objectives of the parcel.

B. To use qualified professional foresters from its own staff, qualified private sector professional foresters, or the DOF to conduct the required timber management assessments and prepare a timber management component for the CAMA ten-year management plans for said parcels as specified in Section 253.036, Florida Statutes. If the DOF is requested to participate, CAMA and the DOF will jointly develop stand objectives for the timber management component.

C. Annually prepare a prioritized list of proposed timber sales that they wish to conduct on the above-mentioned parcels in conjunction with the DOF during the upcoming State of Florida fiscal year. CAMA shall submit this list to the DOF for review by June 1 of each year, and the two agencies will agree on a finalized list by June 30. CAMA may submit requests for additional sales to the DOF in writing with a reasonable amount of lead time.

CAMA may, if mutually agreed upon in advance, assist DOF with field administration of timber sales due to the remote location of CAMA properties. Such assistance may include activities such as site visits and tallying trucks.

D. To compensate the DOF for services performed under this MOA according to the following methods:

1. *Timber Sale Preparation and Administration*:
   a. *Revenue/payment structure*. The DOF shall receive revenues from all timber sales it administers on behalf of CAMA pursuant to this MOA. The DOF will be paid the greater of: (a) **15%** of the total sales revenue or (b) the actual cost of sale preparation plus 5% of the total sales revenue for an administrative fee. Timber sale proceeds will be received from buyers in two checks. One check will be made payable to **Florida Department of Environmental Protection, CAMA** for **85%** of the total sales revenue. The other check shall be made payable to the **Florida Department of Agriculture and Consumer Services** for **15%** of the total sales revenue. If,

at the completion of the sale, DOF determines that the actual cost of sale preparation and administration exceeds the 15% of revenue that was paid to the DOF, DOF shall request a transfer of the additional funds due from CAMA to the DOF. CAMA shall journal transfer these funds within forty- five (45) days of the request.

b. Costs:

i. If option D.1.a.(b) above is the amount for which the DOF is paid, the following shall be considered in calculating the total:

"Actual cost of sale preparation" shall include the cost of field consultation with CAMA staff, field reconnaissance to prepare the sale package, necessary timber cruising or marking, and purchase of expendable field supplies.

"Administrative fee" shall include the cost of solicitation and receipt of bids, execution of contracts, and supervision of the sale while in progress. These costs are not to be included in the actual costs of sale preparation but are considered liquidated by virtue of the 5% of total sales revenue.

ii. Accessibility- The cost for materials or other construction activities necessary for access to CAMA lands for the purpose of removing timber may, at the DOF's discretion, be paid for from CAMA's portion of the receipts of timber. Before the purchases of any materials are made, or the initiations of any construction activities necessary for access are made, the logger must consult with and receive the approval of the Forester-In-Charge and the CAMA land manager. The logger may deduct these expenses from sales receipts before submitting payments to the Forester-In-Charge. A copy of all receipts for materials must be included with payments.

iii. Post Harvest Road Repair- The timber sale contract shall hold the harvesting contractor responsible for repairing damages to roads, bridges, and culverts that occurred as a result of their operation.

2. *Timber Resource Assessment and Management Plan Development*: The CAMA shall reimburse the DOF for expenses related to developing reforestation plans for specific areas, assessing the feasibility of conducting a timber sale in a particular stand, or to provide input to ten-year Land Management Plans. Reimbursement shall consist of billable hours attributable to the project based upon the hourly rate for non-supervisory personnel as published in the most current DOF Fire Manual, plus vehicle mileage at the current State of Florida reimbursement rate, plus any applicable per diem.

3. *Other Silvicultural Activities*: CAMA shall reimburse the DOF for the supervision and management of other land management activities (not including prescribed fire) in the amount of 10% of the contract amount. CAMA shall solicit and receive all bids, execute all contracts, and pay all

contractors. DOF shall assist with field consultation, bid package preparation, and field management and supervision.

2. The DOF agrees:

A. To conduct the required timber management assessments for the CAMA unit management plans for said parcels, as specified in Section 253.036, Florida Statutes, when requested by CAMA and when feasible according to DOF's staff availability. If the DOF is requested to participate, CAMA and the DOF will jointly develop stand objectives for the timber management component.

B. To respond to requests from CAMA for assistance and complete agreed upon timber management assessments, timber sales, and reforestation activities in a timely manner.

i. Timber sale activities include, but are not limited to, sale preparation (field consultation with CAMA staff, field reconnaissance to prepare the sale package and timber cruising or marking) and administration (solicitation and receipt of bids, execution of contracts, supervision of the sale while in progress and expense and revenue tracking). The timber sale contract shall hold the harvesting contractor responsible for repairing damages to roads, bridges, and culverts that occur as a result of their operation.

C. To maintain books, records, and documents directly pertinent to performance under this MOA, including all invoices, purchase orders, bids, contracts, travel, and other receipts, in accordance with generally accepted accounting principles consistently applied, and to retain and allow DEP, the State of Florida, or their authorized agents access to those records during the term of this MOA and for five years following termination of this MOA.

3. The DOF and CAMA mutually agree:

A. CAMA may request the DOF to help conduct timber management assessments, as well as plan and manage timber harvests and reforestation on any other parcel managed by CAMA. These services are reimbursable to the DOF by the above methods or by other mutual agreement.

B. CAMA may request the DOF to provide assistance in prescribed burning, fire line rehabilitation and other forest management services. These services are reimbursable to the DOF by mutual agreement.

C. Written amendments to this MOA may be proposed by either party and shall become effective upon signature by both parties.

D. Either party may terminate this MOA by providing sixty (60) days written notice to the other party. Unless terminated by written notice, this MOA will indefinitely remain in effect.

E. This MOA may be unilaterally canceled by either party for refusal by the other party to allow public access to all documents, papers, letters, or other material made or received by either party in conjunction with this Agreement, unless the records are exempt from Section 24(a) of Article I of the Florida Constitution and Section 119.07(1), Florida Statutes.

F. Each party shall be solely responsible for the negligent or wrongful acts of its employees and agents. However, nothing contained herein shall constitute a waiver by either party of its sovereign immunity or the provisions of Section 768.28, Florida Statute.

G. Any and all notices shall be hand delivered or sent by United States Postal Service (certified mail) to the parties at the following addresses:

CAMA
Larry Nall or successor
Department of Environmental Protection
Office of Coastal and Aquatic Managed Areas
3900 Commonwealth Blvd., Mail Station 235
Tallahassee, FL 32399-3000

DOF
Jim Grubbs or successor
Forest Management Bureau
Division of Forestry
3125 Conner Blvd.
Tallahassee, FL 32399-1650

[THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK.]

IN WITNESS WHEREOF, the Florida Department of Agriculture and Consumer Services, Division of Forestry, and the Department of Environmental Protection, Office o Coastal and Aquatic Managed Areas, have caused this MOA to be duly executed ar effective as of the date last written below.

STATE OF FLORIDA
DEPARTMENT OF AGRICULTURE AND
CONSUMER SERVICES

WITNESSES:

CHARLES H. BRONSON, COMMISSIONER

BY: _____
MIKE GRESHAM, DIRECTOR
DIVISION OF ADMINISTRATION

WITNESSES

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

BY: _____
LEE EDMISTON, DIRECTOR
OFFICE OF COASTAL AND AQUATIC
MANAGED AREAS

Approved as to form and legality

_____
DEP Attorney

DATE: 1/22/09

A.4 / MOU- Flagler County Princess Place

Inst No: 2015032916 10/30/2015 1:35 PM
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RECORDED IN THE RECORDS OF
Gail Wadsworth Clerk of the Circuit Court & Comptroller
Flagler FL

MEMORANDUM OF UNDERSTANDING

BETWEEN

FLAGLER COUNTY

AND

THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (by and through the GUANA TOLOMATO MATANZAS NATIONAL ESTUARINE RESEARCH RESERVE)

AND BETWEEN

FLAGLER COUNTY

AND

FRIENDS OF GUANA TOLOMATO MATANZAS NATIONAL ESTUARINE RESEARCH RESERVE

This Memorandum of Understanding (MOU) entertains two agreements, the first between the Flagler County Board of County Commissioners ("County") and the Florida Department of Environmental Protection, by and though the Guana Tolomato Matanzas National Estuarine Research Reserve ("GTM NERR") and the second between the County and Friends of the Guana Tolomato Matanzas National Estuarine Research Reserve ("Friends"), collectively referred to as "the Parties". This MOU is intended to establish the terms and understanding of the booking procedures, timing, and rates of the three visiting investigator/ eco-tourism cottages at Princess Place Preserve. These three cottages are intended to be utilized for public tourism as well as provide space for visiting researchers' needs. This MOU will serve to memorialize the terms and conditions discussed over time between the Parties regarding project commitments, rates, and reservation procedures.

I. BACKGROUND

The coastal estuaries of Flagler County are within a county Coastal Greenway system that runs continuously from the north border of Flagler County at Marineland to the Volusia County line and North Peninsula State Park. Flagler received the Greenway Award from 1000 Friends of Florida in 1994 for this effort. The County has invested substantial resources in protecting the coastal estuaries.

The County's coastal estuary protection extends from the coastal area on the ocean to the west along the Pellicer Creek Aquatic Preserve where the County has acquired the entire upland property along Pellicer Creek located in Flagler County. This is the only Outstanding Florida Water whose uplands along a county's boundaries are in complete public ownership. This means that in the north end of Flagler County, the Greenway extends seven miles from the ocean to the west and then proceeds to the south along the coast for 19 continuous miles in large stands of hardwood hammock forest and coastal scrub.

In 1999, the GTM NERR was designated in St. Johns and Flagler counties, Florida as a part of the National Oceanic and Atmospheric Administration (NOAA) National Estuarine Research Reserve (NERR) system because of its outstanding representation of the east Florida sub-region of the Carolinian bioregion and its unique combination of natural and cultural resources. It covers 74,000 acres of coastal lands in northeast Florida from Ponte Vedra Beach to Palm Coast. The Reserve is comprised of salt marsh and mangrove tidal wetlands, oyster bars, estuarine lagoons, as well as several upland habitats. The GTM NERR is part of a national system of research reserves that focus on research, education and stewardship. As one of the 28 reserves in the National Estuarine Research Reserve system, the Research Team at GTM NERR is charged with implementing national, long-term research programs, investigating regional and scientific topics, and facilitating scientists and students who conduct their research in the myriad habitats within the reserve. The GTM NERR is a component of the Florida Department of Environmental Protection's Florida Coastal Office (FDEP FCO).

The Friends are a private non-profit citizen organization established to support and enhance environmental education, stewardship of natural and cultural resources, and scientific research of the GTM NERR through volunteer initiatives, citizen involvement, and community partnerships.

These efforts in the aggregate have protected water quality and habitat and have lessened the potentially adverse effects of having these properties develop. Flagler County was fortunate to learn from more urbanized and suburbanized areas along the coast that it was better to capture these properties in the public interest when real estate prices were relatively low and state subsidies were relatively high. It is worth noting that Flagler citizens in 1988, then a relatively small population of 27,000, passed a property tax millage generating revenues to purchase environmentally sensitive lands. The citizens of Flagler, even with its stunning population growth rate, voted two more times to renew the program with ad valorem tax millage. The most recent public referendum passed in 2008 when the county was already clearly in a recession.

To support both scientific research of these ecosystems and to promote tourism of environmentally conscious visitors, Flagler County, the GTM NERR, and the Friends have

conceived of three cottages located within the GTM NERR's boundary, on County land, which could house visiting scientific investigators and tourists alike. The cottages considered herein would allow visiting investigators more time on site for research and analysis. Understanding the ecological effect of changes from saltmarsh habitats to mangrove habitats has been identified by NOAA Oceans and Coasts Indicators Technical Team as a priority research need. When not used by investigators, these cottages will be in high demand by visitors who wish to experience immersion in a pristine natural setting while enjoying certain comforts that cottages provide.

II. BUDGET RECITALS

The Parties intend to execute agreements relating to the below cost expenditures. Notwithstanding this section, nothing in this agreement represents a funding obligation of the parties, as such obligations are intended to be set forth in other agreements:

- The GTM NERR was awarded federal funding for this project. On September 1, 2014, the National Oceanic and Atmospheric Association awarded NOAA Construction grant NA14NOS4200012, which authorized (through a contractual agreement with FDEP FCO) $330,000 for the cottages and $16,000 for associated research mesocosms.
- The Friends have committed to provide $60,000 for furnishings, energy efficient equipment and appliances, and other equipment for the facilities.
- Flagler County has committed to providing $120,000 of in-kind value through labor, cash, equipment, and oversight during the construction of the cottages. The land value is estimated at $100,000 for a total of $220,000 in County contribution.

III. COTTAGES OPERATIONAL UNDERSTANDING

General Statement of Cooperation and Future Modifications – With this project the Parties are entering relatively new territory for the County, GTM NERR, and the Friends. The parties have laid out these operational understandings in a good faith attempt to ensure the project meets the various interests of the parties to include research availability, public tourism usage, longevity and self-funding operations to name a few. It is understood that the operations protocols laid out today will likely evolve over time and that everyone will need to operate in good faith to ensure this quality working relationship and these cooperative attitudes carry forward even after the signatories of this agreement change. Any future changes in this MOU will require mutual written consent of the Parties.

Exhibit A, titled Rates and Special Booking Periods, as it may be amended from time to time, is attached hereto and incorporated herein. Exhibit A may be updated annually by mutual written consent without the need to amend this MOU.

Reservations to support the GTM NERR will be coordinated through the Friends and submitted by email directly to the designated County contact listed in Exhibit A.

Special Booking Provisions - Special booking periods are subject to annual review subject to mutual agreement of Flagler County and the Director of the GTM NERR as an amendment to Exhibit A.

Maintenance, Upkeep, Housekeeping

Maintenance, upkeep, and housekeeping for the eco-cabins is the responsibility of Flagler County.

IV. GENERAL TERMS AND CONDITIONS

All terms and conditions verbally agreed to and/or stated in this MOU are subject to approval by the Flagler County Board of County Commissioners, the Director of the GTM NERR, and the Friends. Any agreement made by Friends under this MOU must be submitted to the Director of the GTM NERR.

1. Term.

It is understood and agreed that the relationship established by this Agreement is meant to be for the benefit of the Parties, and that this Agreement shall be effective on the date of execution by the Parties and shall remain in effect until terminated, suspended or modified in writing by an appropriate amendment executed by the Parties. The Term of this Memorandum of Understanding shall be for a Term of twenty (20) years.

2. Default.

In the event that a Party becomes aware of a violation of the terms of this Memorandum of Understanding, the Party shall give Notice to the Party in Default in accordance with the Notice provisions of this section ("Notice of Violation"). Upon receiving the Notice of Violation, the Party who has committed the violation shall initiate corrective action within fifteen (15) days of receipt of the Notice of Violation and shall discontinue, abate, or cure the violations within thirty (30) days after receipt of the Notice of Violation, or a longer period of time if provided for in the Notice of Violation.

In the event that the violation is not discontinued, abated, or cured within the time provided in the preceding paragraph or by the Notice of Violation, the noticing Party shall be entitled to bring an action at law or in equity before a court of competent jurisdiction. Neither Party waives or forfeits their right to take such action as may be necessary to ensure compliance with

this Memorandum of Understanding by any prior failure to act. Nothing in this agreement shall constitute a waiver of sovereign immunity.

3. Notices.

Any notices, demand, request or other instrument which may be or is required to be given under this Memorandum of Understanding shall be delivered in person, sent by United States Certified mail, postage prepaid, or sent by a reputable overnight courier service and shall be addressed to the Parties at the address as hereinabove given. Any notice shall be deemed delivered upon hand delivery or three (3) business days after depositing in U.S. Mail, or one (1) business day after depositing such notice with a reputable overnight courier service. Any of the Parties may designate another address by giving written notice to the other PARTY. It is understood by the Parties that routine and non-agreement related communication will occur telephonically, via email and in person.

4. Amendments.

Amendments, except for changes or modifications to Exhibit A, may only be made by the mutual consent of the parties with the same formality by which the original Memorandum of Understanding was approved.

5. Public Records.

All records in conjunction with this Agreement shall be public records in accordance with the laws applicable to the parties.

6. Applicable Law/Venue.

This Memorandum of Understanding, the rights and obligations of the Parties hereto, and any claim or dispute relating thereto shall be governed by, interpreted, construed, and enforced in accordance with the laws of the State of Florida. Venue shall be in the Circuit Court for the Seventh Judicial Circuit in and for Flagler County, Florida.

7. Successors and Assigns.

Except as otherwise expressly provided, all provisions herein shall be binding upon and shall inure to the benefit of the Parties, their legal representatives, successors and assigns. This Memorandum of Understanding shall not be assigned without written consent of the County.

8. Entire Agreement.

This Memorandum of Understanding and any Exhibits attached hereto constitute the entire agreement between the Parties. Any prior conversations or writings are merged herein and extinguished.

9. Partial Invalidity/Severability.

If any provision of this Memorandum of Understanding, or any application thereof to any person or circumstances shall to any extent be declared invalid, the remainder of this Memorandum of Understanding or the application of such provision to persons or circumstances (other than those as to which it is held invalid) shall not be affected thereby and each provision of this Memorandum of Understanding shall be valid and enforced to the fullest extent permitted by law.

10. No Partnership.

Nothing contained in this Memorandum of Understanding shall be deemed or construed so as to create the relationship of employer-employee, principal-agent, joint ventures, co-adventurers, or partners between COUNTY, GTM NERR, and the Friends, and they are and shall remain independent one as to the other.

11. No Third-Party Beneficiaries

Nothing set forth herein shall be construed to give any rights or benefits in this Agreement to anyone other than COUNTY, GTM NERR, and the Friends, and all duties and responsibilities undertaken pursuant to this Memorandum of Understanding will be for the sole and exclusive benefit of COUNTY, GTM NERR, and the Friends and not for the benefit of any other party.

12. Counterparts

This Memorandum of Understanding may be executed in three or more counterparts, each of which may be executed by one or more of the Parties hereto, but all of which, when delivered and taken together, shall constitute but one agreement binding upon all of the Parties hereto.

13. Non-Exclusivity/Exclusivity

Nothing contained herein shall restrict either of the Parties from participating in similar activities with other public or private agencies, organizations, and individuals.

14. Interpretation

This Memorandum of Understanding shall not be construed more strictly against one of the Parties than against the others merely by virtue of the fact that it may have been prepared by

counsel for one of the Parties, it being recognized that COUNTY and GTM NERR have contributed substantially and materially to the preparation hereof.

15. Force Majeure

No party shall be considered in default in performance of its obligations hereunder to the extent that performance of such obligations, or any of them, is delayed or prevented by force majeure. Force Majeure shall include, but not be limited to, hostility, revolution, civil commotion, strike, epidemic, fire, flood, wind, earthquake, terrorism, hurricane, explosion, any emergency declaration under state law, or any act of God or any cause whether of the same or different nature, existing or future; provided that the cause whether or not enumerated in this Section is beyond the control and authority and without the fault or negligence of the party seeking relief under this Section.

16. Binding Authority

Each party hereto represents to the other that it has undertaken all necessary actions to execute this Memorandum of Understanding, and that it has the legal authority to enter into this Memorandum of Understanding and to undertake all obligations imposed on it.

17. Captions

The headings or captions of the sections and subsections contained herein are used for convenience and reference only, and do not, in themselves, have any legal significance and shall not be afforded any. They are in no way intended to describe, interpret, define or limit the scope, extent or intent of this Memorandum of Understanding, or any provision hereto.

18. Liability

Each party hereto agrees that it shall be solely responsible for the negligent or wrongful acts of its employees and agents. However nothing herein shall constitute a waiver by either party of sovereign immunity or statutory limitations on liability.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, the Parties represent their intent on the date set forth below:

COUNTY:

FLAGLER COUNTY BOARD OF COUNTY COMMISSIONERS

By: Craig M. Coffey

Craig Coffey

Flagler County Administrator

Date of Execution: 16 June 2015

GTM NERR:

By: Michael A Shirley

Dr. Michael Shirley

GTM NERR Director

Date of Execution: 24 July 2015

Friends of the Guana Tolomato Matanzas National Estuarine Research Reserve

By: Angela Christensen

Angela Christensen

Friends President

Date of Execution: 11 August 2015

Instrument No: 2019006737 2/27/2019 9:37 AM BK: 2337 PG: 1645 PAGES: 7 -
RECORDED IN THE OFFICIAL RECORDS OF Tom Bexley, Clerk of the Circuit Court & Comptroller Flagler, FL

AMENDED AND RESTATED EXHIBIT A, RATES AND RESERVATIONS, OF THE MEMORANDUM OF UNDERSTANDING BETWEEN FLAGLER COUNTY AND THE FLORIDA DEPARTMENT OF ENVIRONEMENTAL PROTECTION (BY AND THROUGH THE GUANA TOLOMATO MATANZAS NATIONAL ESTUARINE RESEARCH RESERVE) AND BETWEEN FLAGLER COUNTY AND FRIENDS OF GUANA TOLOMATO MATANZAS NATIONAL ESTUARINE RESEARCH RESERVE

This Amended and Restated Exhibit A of the Memorandum of Understanding between the Flagler County Board of County Commissioners ("County") and the Florida Department of Environmental Protection, by and through the Guana Tolomato Matanzas National Estuarine Research Reserve ("GTM NERR") and between the County and Friends of the GTM NERR ("Friends") is agreed to on the date of the last party to execute below.

WHEREAS, the parties hereto entered into that certain Memorandum of Understanding on August 11, 2015 (MOU), to establish the terms of the procedures and rates for booking cottages at the Princess Place Preserve; and

WHEREAS, the MOU provides for the periodic update of "Exhibit A, Rates and Special Booking Periods" by mutual written consent of the parties; and

WHEREAS, the parties wish to amend and restate Exhibit A of the MOU to update the rates and terms of cottage reservations and to provide for the utilization of Cottage D, the Legacy House, by the researchers of the GTM NERR.

NOW, THEREFORE, for the mutual covenants herein contained, the parties agree as follows:

Section 1. The findings above are incorporated as if set out fully herein.

Section 2. The Exhibit A of the MOU is hereby replaced in its entirety with "Exhibit A Rates and Reservations" which is attached hereto and incorporated herein. The remainder of the MOU remains unchanged.

Section 3. Each party represents that it has undertaken all necessary actions and has the legal authority to execute this Amended and Restated Exhibit A of the MOU.

[Signature Pages To Follow]

FLAGLER COUNTY BOARD OF COUNTY COMMISSIONERS

Donald T. O'Brien Jr., Chair

Date: 2-18-19

[THIS SPACE INTENTIONALLY LEFT BLANK. SIGNATURE PAGE TO FOLLOW.]

FRIENDS OF THE GUANA TOLOMATO MATANZAS NATIONAL ESTUARINE RESEARCH RESERVE

Signature

Ellen Leroy-Reed
Print Name

Executive Director
Title

2/20/19
Date

[THIS SPACE INTENTIONALLY LEFT BLANK. EXHIBIT A TO FOLLOW.]

GUANA TOLOMATO MATANZAS NATIONAL ESTUARINE RESEARCH RESERVE

Michael A. Shirley
Signature

Michael A. Shirley
Print Name

Director GTM NERR
Title

2-20-19
Date

[THIS SPACE INTENTIONALLY LEFT BLANK. SIGNATURE PAGE TO FOLLOW.]

Exhibit A. Rates and Reservations

Intent

It is intent of Flagler County, the GTM NERR, and the Friends of the GTM NERR that the cottages be filled to the greatest extent possible. The parties recognize that the GTM NERR seeks to encourage ecosystem research and environmental education. To directly benefit GTM NERR in that goal, and pursuant to this MOU, the GTM NERR and the Friends will receive a maximum of 420 days per year at GTM NERR Preferred Rates in accordance with this Exhibit. Preferred rates shall be for professional research activities with the exception of up to 30 days per year the Friends of the GTM NERR may use as fundraising activity.

Preferred Rates

Rates shall be 50% of normal County rates. The normal County rates are currently $125 per night Monday – Thursday and $150 Friday - Sunday. With a weekly (7 continuous day) rental, a one day discount equal to one weekday rate is applied.

These rates shall apply beginning December 1, 2018 and ending on July 31, 2035 for a maximum of 420 days per year as defined herein.

Reservations of Cottages

Max Days. The Friends may book the cottages at the GTM NERR Preferred Rate for scientific research purposes, subject to the terms below. Regardless of which of the four cottages the Friends utilize, in no case shall the Friends' rental of the cottages at the Preferred Rate exceed 420 days per year.

The following special advance booking conditions shall apply:

Cottage D. This cottage shall be designated as the primary research cottage. The GTM NERR and the Friends shall be permitted to book this cottage overnight for scientific research activities at the GTM NERR Preferred Rate at any time including holidays and special booking periods up to 12 months in advance. The GTM NERR and the Friends will follow County check-out procedures, and the County will clean the cottage after use as they would with other public guests. Non-overnight use of this cottage for GTM NERR functions (e.g., staff meetings, workshops, retreats and training) will not incur a charge, and the facility must be cleaned by the GTM NERR staff after each use. Daytime-use reservations of this facility, although first-come first-served, will be prioritized for GTM NERR functions. When the cottage is used by an overnight occupant, daytime use of this facility will be limited to the large

meeting room. The GTM NERR manager will be provided a key and access codes to facilitate GTM NERR non-overnight use to accommodate set-up, break-down and cleaning.

***Cottages A, B and* C.** The GTM NERR and the Friends will be allowed to book these cottages during non-holiday dates and during non-special booking periods to support scientific research activities at the Preferred Rate for a maximum of 56 days per year on a first come-first serve basis. These bookings may include up to 30 days for Friends' fundraiser activities directly supporting the Reserve's research program. The GTM NERR and the Friends may also book these cottages beyond the 56 days at the normal County rate.

Holidays rates apply to the these holidays and include the day prior to and the day following each:

New Year's Day
Memorial Day
4th of July
Labor Day
Veterans Day
Thanksgiving Day and Day after
Christmas Eve and Christmas Day

Special Events Periods:

Feb. – Daytona 500 Speed Week
Feb. - Native American Festival - Fri, Sat, Sun
March – Bike Week
Oct. - Creekside Festival - Fri, Sat, Sun
Thanksgiving Week (included Holiday)
Christmas Week (Includes Holiday)
New Year's Week (Week after Christmas Includes New Year Holiday)

Notes: The Parties understand that the actual dates of these special event periods will change annually. In addition, additional special event periods may be added with the mutual consent of the parties. The County may eliminate special event periods.

All other normal cottage rules of the County shall apply, to include but not be limited to, deposit, cancellations/changes, cottage rules, check-in and check-out procedures, and general park rules.

Reservation System

Reservations for the GTM NERR and the Friends at the Preferred Rate shall be made through Flagler County. Reservations for the GTM NERR and Friends at the Preferred Rate will be made by GTM NERR staff via email to the County staff

identified below and carbon copying Friends' staff identified below. The County will work toward an online system for the GTM NERR and Friends. Points of Contact for the Reservation System:

Flagler County

Name: Heidi Petito
Title: General Services Director
Phone: (386) 313-4185
Email: hpetito@flaglercounty.org

Friends of GTM Research Reserve

Name: Ellen Leroy-Reed
Title: Executive Director
Phone: 904-823-4527
Email: gtm_friends@gtmnerr.org

GTM NERR

Name: Lia Sansom
Title: Assistant Manager
Phone: 904-823-4500
Email: Lia.Sansom@dep.state.fl.us

Contacts

The principal contacts for this instrument are:

Flagler County Board of County Commissioners	***GTM NERR***	***Friends***
Attn: County Administrator	Attn: Director	Attn: Executive Director
1769 E. Moody Boulevard, Building 2 Bunnell, FL 31110 Phone: 386-313-4001 Fax: 386-313-4101	505 Guana River Road Ponte Vedra Beach, FL 32082 Phone:(904)-823-4500 Fax: (904) 825-6829	Friends of the GTM Reserve 450 Guana River Rd Ponte Vedra Beach, FL 32082 Phone: 904-823-4527
E-Mail:	E-Mail: Michael.Shirley@dep.state.fl.us	E-Mail: gtm_friends@gtmnerr.org

The parties will send notice of any change of the points of contact for reservations to the principal contacts listed in the table above.

A.5 / Facilities Use Agreement- Flagler County Marineland

FACILITIES USE AGREEMENT

WHEREAS, the Flagler County Board of County Commission (hereinafter called the "County") and the Town of Marineland (hereinafter called the "Town") acquired the River to Sea Preserve At Marineland located in Flagler County (hereinafter called the "Property") through the Florida Communities Trust land acquisition program; and,

WHEREAS, the Management Plan of the Florida Communities Trust for the Property describes use by the Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR) as an appropriate option for the former campground convenience store and bathhouse at 9741 Ocean Shore Boulevard, Marineland, Florida, 32086 (hereinafter called the "Building"); and,

WHEREAS, the GTMNERR was designated as the nation's 25th Reserve by the National Oceanic and Atmospheric Administration; and,

WHEREAS, the Florida Department of Environmental Protection (hereinafter called the "Department") is responsible for the administration and operation of the GTMNERR; and,

WHEREAS, the Department needs facilities to accommodate the GTMNERR's operations requirements including administrative offices, research headquarters, dormitory space for researchers, public visitation and environmental education; and,

WHEREAS, the Department has indicated that the Building would provide needed resources for effective operation of the GTMNERR; and,

WHEREAS, the Town, the County and the Department desire to cooperate as partners toward the most efficient management of the GTMNERR.

NOW, THEREFORE, BE IT RESOLVED, that the County and the Town agree to allow the Department to use the Building as a GTMNERR facility under the following terms and conditions of this Facilities Use Agreement (hereinafter called the "Agreement").

A. THE COUNTY SHALL in equal parts share the expenses of items noted as (1) through (5) with the Town of Marineland:

(1) Repair the structural components of the Building, the air conditioning and the heating systems, the electrical system, and the plumbing systems of the Building to normal functional integrity and aesthetic quality. Repairs beyond the normal operating budget of the County are to be conducted at the sole discretion of the County.

(2) Conduct general cleaning and removal of excess items including shelving, magazine racks, signs, loose materials, debris and other similar items identified by the Department as unnecessary.

(3) Provide a program of insurance or self-insurance covering its liabilities as prescribed by Sections 768.28, Florida Statutes.

(4) Obtain hazard insurance for the Building and maintain said hazard insurance during the period of the Department's occupancy of the Building.

(5) Complete the requirements of paragraphs A.(1) and A.(2), set forth herein, within 45 days of the approval of this Agreement so as not to delay renovation activities and occupation by GTMNERR.

B. THE DEPARTMENT SHALL, Throughout its occupancy of the Building:

(1) Obtain and assume the costs of custodial services, telephone service, electrical service, refuse collection and maintenance of the electrical, plumbing, heating and cooling systems.

(2) Assume the costs for the repair of any damage to the Building due to GTMNERR operations, except for that which results from normal wear and tear.

(3) Provide a program of insurance or self-insurance covering its liabilities as prescribed by Sections 768.28, Florida Statutes.

(4) Incur the cost of any and all structural alterations to the Building that it deems necessary for future GTMNERR operation. Proposed structural alterations shall be submitted for the approval of the Flagler County Administrator and the Mayor of the Town of Marineland.

(5) Not sublet any part of the Building.

(6) Not assume any responsibility for managing the property adjacent to the Building.

(7) Assume the responsibility for any damage to or loss of Department property resulting from fire, or other casualty, occurring to the Building.

C. MUTUAL PROVISIONS:

(1) The GTMNERR may utilize the Building for an initial term of ten (10) years from the date of execution. Thereafter, unless either party notifies the others in writing at least ninety (90) calendar days before the expiration date, this agreement shall automatically be renewed for a five-year term. Successive automatic renewals, if any, shall each be for a term of five (5) years.

(2) The Building and property shall be used only for the transaction of official Department business.

(3) The Building and the surrounding Property shall be designated "non-smoking".

(4) If circumstances change such that any party to this agreement wishes to make changes, all parties shall negotiate in good faith to produce a fair and equitable resolution.

Nothing in this Agreement shall be construed as a waiver of the sovereign immunity of the County, Town, or Department under Section 768.28, Florida Statutes; and,

Nothing contained in this Agreement shall be construed as a waiver of or contract with respect to the regulatory or permitting authority of the Department, the County or the Town as it exists now or hereafter under applicable laws, rules and regulations.

This Agreement may be amended only by a written instrument referring to this Agreement and executed with the same formalities as this Agreement.

IN WITNESS THEREOF, the parties have executed this Agreement on May 1, 2000.

James A. Darby, Chairman
Flagler County Board of County Commission
1200 E. Moody Blvd., #1,
Bunnell, Florida 32110

James C. Netherton, III, Mayor
City Commission of the Town of Marineland
9507 Ocean Shore Blvd.,
Marineland, Florida 32086

Anna Marie Hartman, Director
Office of Coastal and Aquatic Managed Areas
Florida Department of Environmental Protection
3900 Commonwealth Blvd., MS 235
Tallahassee, Florida 32399-3000

A.6 / MOA- Flagler County Marshview

MEMORANDUM OF AGREEMENT

BETWEEN THE

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF COASTAL AND AQUATIC MANAGED AREAS

AND THE

FLAGLER COUNTY BOARD OF COUNTY COMMISSIONERS

This Memorandum of Agreement (MOA) is entered into, by and between the Florida Department of Environmental Protection, Office of Coastal and Aquatic Managed Areas, acting by and through its Director, under the authority of Chapter 258, Florida Statutes, hereinafter referred to as CAMA; and the Flagler County Board of County Commissioners, a political subdivision of the State of Florida, whose mailing address is 1769 E. Moody Blvd., Bldg. #2, Bunnell, Florida 32110, hereinafter referred to as the "County".

This agreement does not create an interest in real property but merely authorizes conduct of certain management activities on and access to lands held by the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, hereinafter referred to as the Board.

WITNESSETH

WHEREAS, the Board currently owns approximately 187 acres of land located in northeast Flagler County, adjacent to and contiguous with lands the County owns known as Princess Place Preserve and Pellicer Flats; and

WHEREAS, the Board has leased this property to CAMA and designated Guana Tolomato Matanzas National Estuarine Research Reserve as the lead management entity; and

WHEREAS, the County actively manages Princess Place Preserve and Pellicer Flats for high ecological quality, public recreation and environmental education; and

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, CAMA and the County hereto agree as follows:

I. AGREEMENTS

1. DESCRIPTION OF PREMISES: The property subject to this agreement is more particularly described in Exhibit "A" attached hereto and hereinafter referred to as "The Parcel".
2. PURPOSE: The Parcel is adjacent to Flagler County lands currently managed for passive recreation use. This agreement will enhance compatible public use and resource protection through shared management of the parcel through this mutually beneficial agreement. Under this agreement, the County shall provide appropriate resources to protect, maintain, and enhance the park's natural resources allowing for passive recreation and environmental education opportunities compatible with the management plan of the Guana Tolomato Matanzas National Estuarine Research Reserve.
3. RIGHT OF USE: The County shall have the right of ingress and egress to, from, and upon the premises for all purposes necessary to fulfill the purpose of this agreement.
4. UNAUTHORIZED USE: The County shall, through its agents and employees, prevent unauthorized use of the premises or any use thereof not in conformance with this agreement.
5. NON-DISCRIMINATION: The County shall not discriminate against any individual because of that individual's race, color, religion, sex, national origin, age, handicaps, or marital status with respect to any activity occurring within the leased premises or upon lands adjacent to and used as an adjunct of the parcel.
6. RIGHT OF INSPECTION: CAMA or its duly authorized agents shall have the right at any and all times to inspect the premises and the works and operations thereon of the County, in any matter pertaining to this agreement.
7. LIABILITY: The County shall assist in the investigation of injury or damage claims either for or against the County or the State of Florida pertaining to the County's respective areas of responsibility under this agreement or arising out of the County's respective management programs or activities and shall contact CAMA regarding the legal action deemed appropriate to remedy such damage or claims. The County is responsible for all personal injury and property damage attributable to the negligent acts or omissions of the County and its officers, employees, and agents. The County shall, through the term of this MOA, provide, maintain, and keep in force a program of insurance or self-insurance covering its liabilities as prescribed by Section 768.28, Florida Statutes. Nothing in this MOA shall be deemed as a waiver of sovereign immunity of any of the parties beyond any statutorily limited waier which may have been or may be adopted by the Florida Legilature, and nothing in this MOA shall inure to the benefit of any third party of the purpose of allowing any claims which would otherwise be barred under the doctrine of sovereign immunity.
8. ARCHAEOLOGICAL AND HISTORIC SITES: Execution of the agreement in no way affects any of the parties' obligations pursuant to Chapter 267, Florida Statutes. The collection of artifacts or the disturbance of archaeological and historic sites on state-

owned lands is prohibited unless prior authorization has been obtained from the Division of Historical Resources of the Department of State. The management plan prepared pursuant to Section 253.034, Florida Statutes, shall be reviewed by the Division of Historical Resources to insure that adequate measures have been planned to locate, identify, protect and preserve the archaeological and historic sites and properties on the premises.

9. TIMBER RESOURCES: The Parcel contains planted pines over a significant portion of the property. In carrying out its duties as land manager, the County may consider selective thinning and/or prescribed fire in order to return the planted pine to a more appropriate and natural community.
10. COMPENSATION: Any monetary gains from the sale of planted pine must be used on the parcel to fulfill the management responsibilities outlined in this MOA. These responsibilities may include: revegetation of natural species, user trail construction and maintenance improvements, educational kiosks, prescribed fire preparation and execution, and basic tools and equipment. Other uses not stated here may be approved in writing by the GTMNERR manager.

II. TERM, AMENDMENTS, TERMINATION

A. This MOA shall become effective upon the date the last party signs the agreement, and shall remain in effect for twenty-five years or until modified or revoked.

B. This MOA may be amended upon mutual agreement of the Parties. Amendments shall be in writing and approved by all Parties.

C. Either party may terminate this MOA by providing ninety (90) calendar days written notice to the other party. Unless terminated by written notice, this MOA shall remain in effect for twenty-five years.

III. Notice

Notice recipients may be amended from time to time.

CAMA
Greg Munson, Acting Director
Department of Environmental Protection
Office of Coastal and Aquatic Managed Areas
3900 Commonwealth Blvd., Mail Station 235
Tallahassee, FL 32399-3000

Flagler County
C/o Tim Telfer, Environmental Planner / Land Manager
With copy to County Administrator
1769 E. Moody Blvd. Bldg. 2
Bunnell, FL 32110

IN WITNESS WHEREOF, the Florida Department of Environmental Protection, Office of Coastal and Aquatic Managed Areas, have caused this MOA to be duly executed and effective as of the date last written below.

WITNESSES:

JOYCE LEE PAPP
MY COMMISSION # EE 091794
EXPIRES: June 20, 2016
Bonded Thru Notary Public Underwriters

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____

~~GREG MUNSON, ACTING DIRECTOR~~ Kevin Claridge Director
OFFICE OF COASTAL AND AQUATIC
MANAGED AREAS

APPROVED AS TO FORM AND LEGALITY

DEP ATTORNEY

FLAGLER COUNTY BOARD

OF COUNTY COMMISSIONERS

ATTEST:

By: _____

Barbra Revels, Chair

Gail Wadsworth, Clerk and

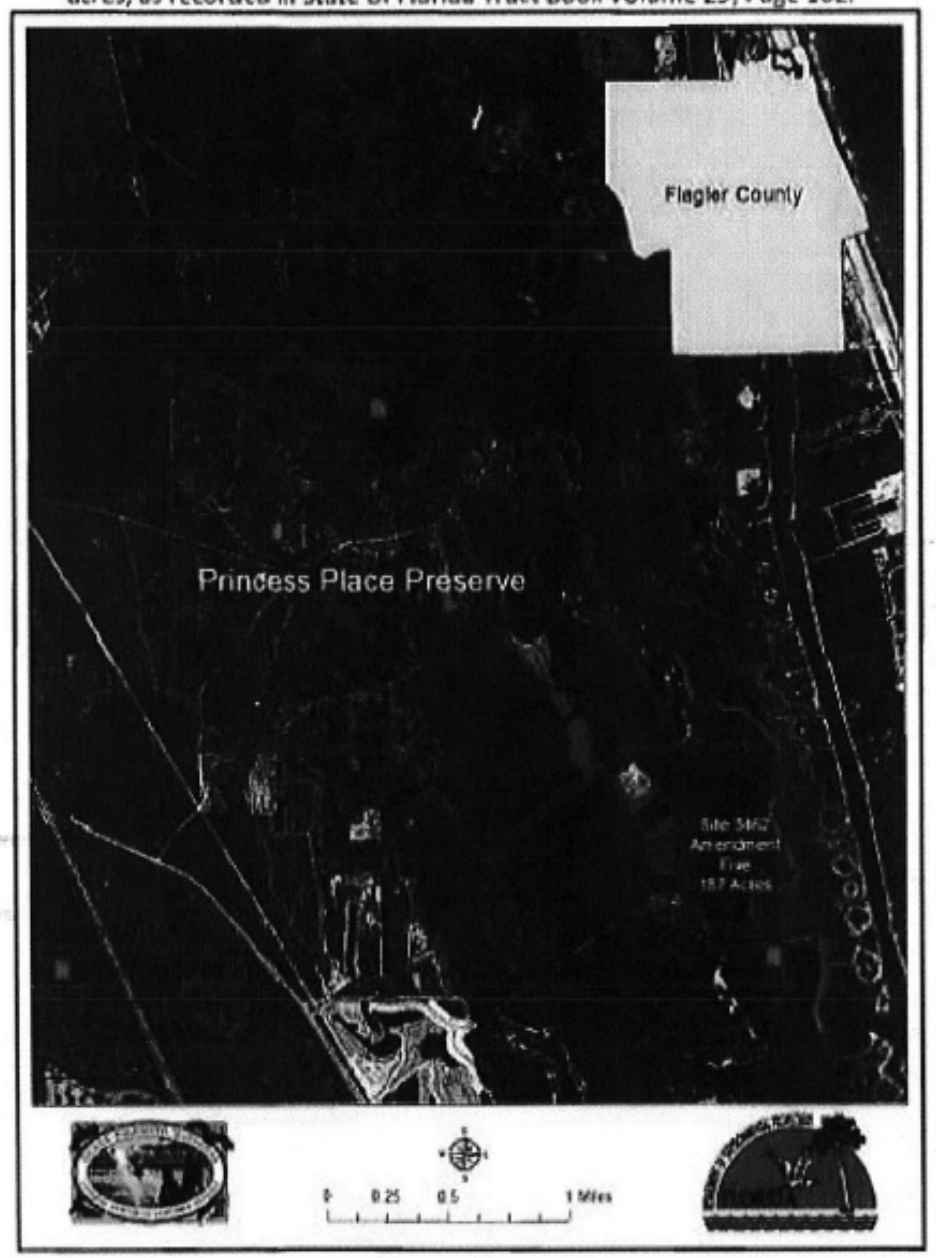
Ex Officio Clerk to the Board

APPROVED AS TO FORM:

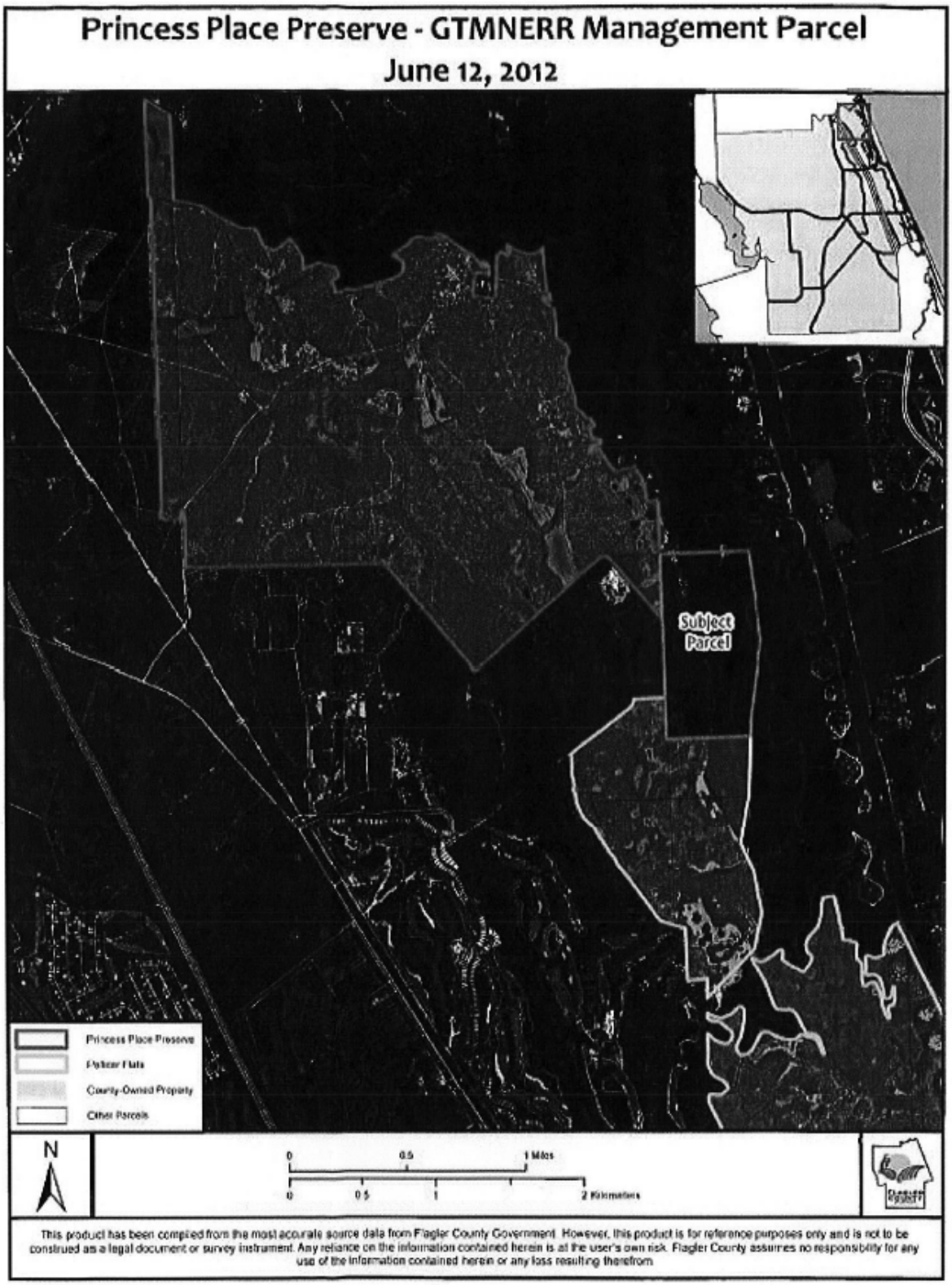
Deputy County Attorney

Exhibit "A"

Government Lots 1, 2, 3, Section 18, Township 10 South, Range 31 East, containing 187.11 acres, as recorded in State of Florida Tract Book Volume 29, Page 182.



ATTACHMENT 2


Princess Place Preserve - GTMNERR Management Parcel
June 12, 2012
Subject Parcel
Princess Place Preserve
Pellicer Flats
County-Owned Property
Other Parcels
N
0
0.5
1 Miles
0
0.5
1
2 Kilometers
This product has been compiled from the most accurate source data from Flagler County Government. However, this product is for reference purposes only and is not to be construed as a legal document or survey instrument. Any reliance on the information contained herein is at the user's own risk. Flagler County assumes no responsibility for any use of the information contained herein or any loss resulting therefrom.

KKS

Appendix B / State of Florida Requirements

B.1 / Aquatic Preserve Resolution

WHEREAS, the State of Florida, by virtue of its sovereignty, is the owner of the beds of all navigable waters, salt and fresh, lying within its territory, with certain minor exceptions, and is also the owner of certain other lands derived from various sources; and

WHEREAS, title to these sovereignty and certain other lands has been vested by the Florida Legislature in the State of Florida Board of Trustees of the Internal Improvement Trust Fund, to be held, protected and managed for the long range benefit of the people of Florida; and

WHEREAS, the State of Florida Board of Trustees of the Internal Improvement Trust Fund, as a part of its overall management program for Florida's state-owned lands, does desire to insure the perpetual protection, preservation and public enjoyment of certain specific areas of exceptional quality and value by setting aside forever these certain areas as aquatic preserves or sanctuaries; and

WHEREAS, the ad hoc Florida Inter-Agency Advisory Committee on Submerged Land Management has selected through careful study and deliberation a number of specific areas of state—owned land having exceptional biological, aesthetic and scientific value, and has recommended to the State of Florida Board of Trustees of the Internal Improvement Trust Fund that these selected areas be officially recognized and established as the initial elements of a statewide system of aquatic preserves for Florida;

NOW, THEREFORE, BE IT RESOLVED by the State of Florida Board of Trustees of the Internal Improvement Trust Fund:

THAT it does hereby establish a statewide system of aquatic preserves as a means of protecting and preserving in perpetuity certain specially selected areas of state-owned land: and

THAT specifically described, individual areas of state-owned land may from time to time be established as aquatic preserves and included in the statewide system of aquatic preserves by separate resolution of the State of Florida Board of Trustees of the Internal Improvement Trust Fund; and

THAT the statewide system of aquatic preserves and all individual aquatic preserves established thereunder shall be administered and managed, either by the said State of Florida Board of Trustees of the Internal Improvement Trust Fund or its designee as may be specifically provided for in the establishing resolution for each individual aquatic preserve, in accordance with the following management policies and criteria:

(1) An aquatic preserve is intended to set aside an exceptional area of state-owned land and its associated waters for preservation essentially in their natural or existing condition by reasonable regulation of all human activity which might have an effect on the area.

(2) An aquatic preserve shall include only lands or water bottoms owned by the State of Florida, and such private lands or water bottoms as may be specifically authorized for inclusion by appropriate instrument from the owner. Any included lands or water bottoms to which a private ownership claim might subsequently be proved shall upon adjudication of private ownership be automatically excluded from the preserve, although such exclusion shall not preclude the State from attempting to negotiate an arrangement with the owner by which such lands or water bottoms might be again included within the preserve.

(3) No alteration of physical conditions within an aquatic preserve shall be permitted except: (a) minimum dredging and spoiling for authorized public navigation projects, or (b) other approved activity designed to enhance the quality or utility of the preserve itself. It is inherent in the concept of the aquatic preserve that, other than as contemplated above, there be: no dredging and filling to create land, no drilling of oil wells or excavation for shell or minerals, and no erection of structures on stilts or otherwise unless associated with authorized activity, within the confines of a preserve - to the extent these activities can be lawfully prevented.

(4) Specifically, there shall be no bulkhead lines set within an aquatic preserve. When the boundary of a preserve is intended to be the line of mean high water along a particular shoreline, any bulkhead line subsequently set for that shoreline will also be at the line of mean high water.

(5) All human activity within an aquatic preserve shall be subject to reasonable rules and regulations promulgated and enforced by the State of Florida Board of Trustees of the Internal Improvement Trust Fund and/or any other specifically designated managing agency Such rules and regulations shall not interfere unduly with lawful and traditional public uses of the area, such as fishing (both sport and commercial), hunting, boating, swimming and the like.

(6) Neither the establishment nor the management of an aquatic preserve shall infringe upon the lawful and traditional riparian rights o private property owners adjacent to a preserve. In furtherance of these rights, reasonable improvement for ingress and egress, mosquito control, shore protection and similar purposes may be permitted by the State of Florida Board of Trustees of the Internal Improvement Trust Fund and other jurisdictional agencies, after review and formal concurrence by any specifically designated managing agency for the preserve in question.

(7) Other uses of an aquatic preserve, or human activity within a preserve, although not originally contemplated, may be permitted by the State of Florida Board of Trustees of the Internal improvement Trust Fund and other jurisdictional agencies, but only after a formal finding of compatibility made by the said Trustees on the advice of any specifically designated managing agency for the preserve in question.

IN TESTIMONY WHEREOF, the Trustees for and on behalf of the State of Florida Board of Trustees of the Internal Improvement Trust Fund have hereunto subscribed their names and have caused the official seal of said State of Florida Board of Trustees of the Internal Improvement Trust Fund to be hereunto affixed, in the City of Tallahassee, Florida, on this the 24th day of November A. D. 1969.

CLAUDE R. KIRK, JR, Governor TOM ADAMS, Secretary of State

EARL FAIRCLOTH, Attorney General FRED O. DICKINSON, JR., Comptroller

BROWARD WILLIAMS, Treasurer FLOYD T. CHRISTIAN, Commissioner of Education

DOYLE CONNER, Commissioner of Agriculture

As and Constituting the State of Florida Board of Trustees of the Internal Improvement Trust Fund

B.2 / Florida Statutes

All the statutes can be found according to number at:
http://www.leg.state.fl.us/Statutes
Florida Statutes, Chapter 253: State Lands
Florida Statutes, Chapter 258: State Parks and Preserves
Part II (Aquatic Preserves)
Florida Statutes, Chapter 267: Historical Resources
Florida Statutes, Chapter 370: Saltwater Fisheries
Florida Statutes, Chapter 372: Wildlife
Florida Statutes, Chapter 403: Environmental Control
(Statute authorizing the Florida Department of Environmental Protection (DEP) to create Outstanding Florida Waters is at 403.061(27))
Florida Statutes, Chapter 597: Aquaculture

B.3 / Florida Administrative Code

All rules can be found according to number at:
https://www.flrules.org/Default.asp
Florida Administrative Code, Chapter 18-20: Florida Aquatic Preserves
https://www.flrules.org/gateway/ChapterHome.asp?Chapter=18-20

Florida Administrative Code, Chapter 18-21: Sovereignty Submerged Lands Management
https://www.flrules.org/gateway/ChapterHome.asp?Chapter=18-21
Florida Administrative Code, Chapter 18-23: State Buffer Preserves
https://www.flrules.org/gateway/ChapterHome.asp?Chapter=18-23
Florida Administrative Code, Chapter 62-302: Surface Water Quality Standards (Rule designating Outstanding Florida Waters is at 62-302.700)
https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-302

B.4.1 / 2013 Report

2013 Land Management Review Team Report for Guana Tolomato Matanzas NERR

Table of Contents

1. Introduction

Section 259.036, F.S. requires a periodic on-site review of conservation and recreation lands titled in the name of the Board of Trustees to determine (1) whether the lands are being managed for the purposes for which they were acquired and (2) whether they are being managed in accordance with their land management plan adopted pursuant to s. 259.032, F.S. In case where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed review team "shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan."

The land management review teams are coordinated by the Division of State Lands and consist of representatives from the Division of Recreation and Parks (DEP), the Florida Forest Service (DACS), the Fish and Wildlife Conservation Commission, the local government in which the property is located, the DEP District in which the parcel is located, the local soil and water conservation district, a conservation organization member, and a local private land manager.

Each Land Management Review Report is divided into three sections. Section 1 provides the details of the property being reviewed as well as the overall results of the report. Section 2 provides details of the Field Review, in which the Review Team inspects the results of management actions on the site. Section 3 provides details of the Land Management Plan Review, in which the team determines the extent to which the Management Plan provides for and documents adequate natural and recreational resource protection.

Finally, each report may also contain an Appendix that lists individual team member comments. This is a compilation of feedback, concerns or other thoughts raised by individual team members, but not necessarily indicative of the final consensus reached by the Land Management Review Team.

1.1. Property Reviewed in this Report

Name of Site: Guana Tolomato Matanzas NERR

Managed by: OCAMA

Acres: 4,500.85 **County(ies):** St. Johns County

Purpose(s) for Acquisition:

Acquisition Program(s): CARL/SOC **Original Acquisition Date:** 7/11/84

Area Reviewed: Entire Property **Last Management Plan Approval Date:** 11/17/09

Review Date: 9/11/13

Agency Manager and Key Staff Present:

- Michael Shirley, Manager
- Gary Raulerson
- Joseph Burgess
- Penny Isom

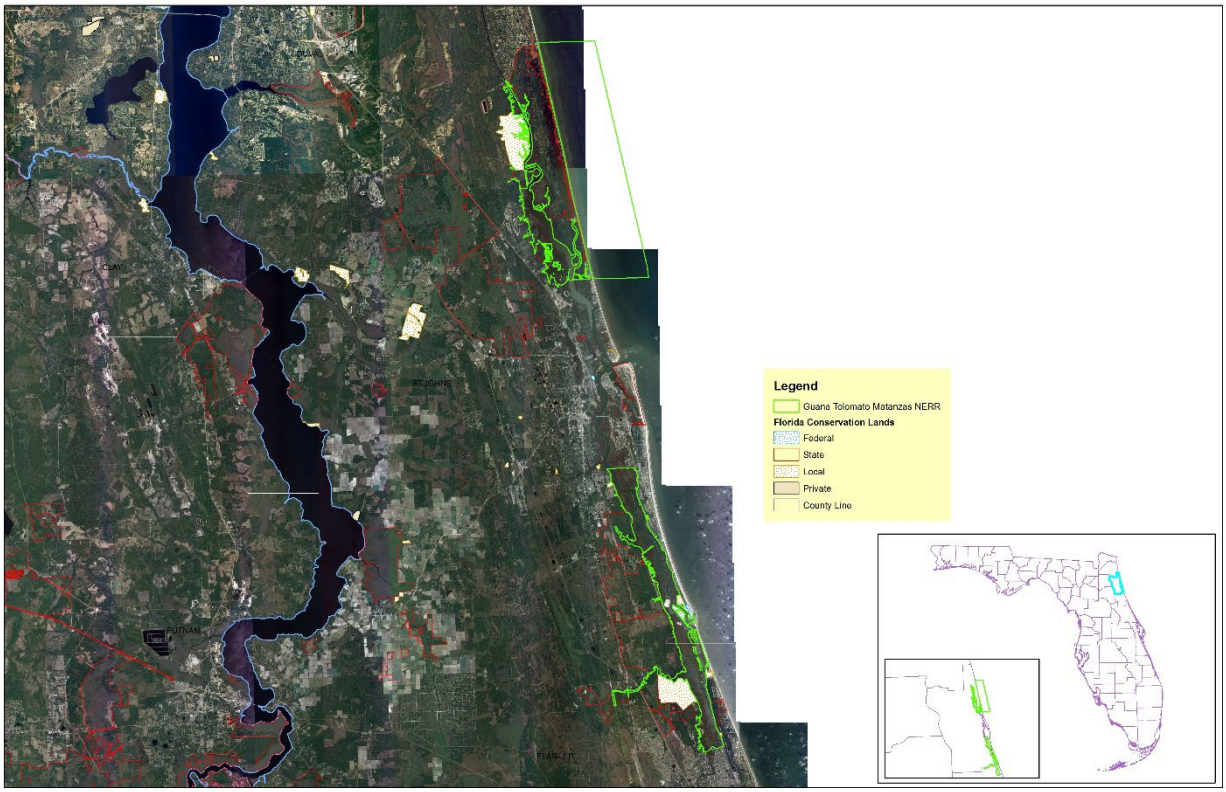
Review Team Members Present (voting)

- DRP: Alice Bard
- FWC: Justin Ellenberger
- FFS: Bill Korn
- DEP: Janice Price
- SWCD:
- Local gov't:
- Conservation organization: Michael Duggins
- Private land manager:

Other Non-Team Members Present (attending)

- Keith Singleton, DEP/DSL
- Paul Ferry, DEP/NE District
- Gail Duggins, FNPS

1.2 Property Map



1.3. Overview of Land Management Review Results

Is the property managed in accordance with the purposes for which it was acquired?

Yes = 5, No = 0

Are the management practices, including public access, in compliance with the management plan?

Yes = 5, No = 0

Table 1 shows the average scores received for each applicable category of review. *Field Review* scores refer to the adequacy of management actions in the field, while *Management Plan Review* scores refer to adequacy of discussion of these topics in the management plan. Scores range from 1 to 5 with 5 signifying excellence. For a more detailed key to the scores, please see *Appendix A*.

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	3.78	3.22
Prescribed Fire / Habitat Restoration	4.57	3.95
Hydrology	3.66	3.30
Imperiled Species	3.58	3.42
Exotic / Invasive Species	4.43	3.80
Cultural Resources	3.90	3.90
Public Access / Education / Law Enforcement	4.21	3.83
Infrastructure / Equipment / Staffing	3.93	N/A

Color Code (See Appendix A for detail)

1.3.1 Consensus Commendations for the Managing Agency

The following commendations resulted from discussion and vote of the review team members:

1. The team commends the staff on their excellent work and involvement in local and regional educational and research activities. (5+, 0-)

2. The team commends the staff for their superb efforts to recruit and effectively use volunteers, accumulating over 14,000 hours of service this past year. (5+, 0-)

3. The team commends the staff for their excellent effort to increase prescribed burning on the property, including in the basin marshes, mesic flatwoods, and portions of the coastal scrub and their efforts to keep units in rotation. (5+, 0-)

4. The team commends the staff for their cultural resource survey protection, restoration and interpretation efforts. (5+, 0-)

5. The team commends the staff for exotic animal control (especially feral hogs). (5+, 0-)

6. The team commends the staff for their wonderful interpretive resources, including trail side signs, kiosks, and a state of the art educational/visitor center. Special kudos to the efforts by a local scouting organization to design and erect sign/aerial photo map boards in trail intersections. (5+, 0-)

7. The team commends the staff for their efforts at community involvement in special management and restoration projects, including local collection of oyster shells for a salt marsh restoration project and coordination of donations/in kind services for a Ponce de Leon statue, coastal observation overlook, and Florida Discovery Celebration. (5+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The next management plan update should include information about how these recommendations have been addressed:

1. The team recommends that the staff establish protocols for desired structure and composition goals for each of the pyrogenic communities. (5+, 0-)
   Managing Agency Response: *When using prescribed fire as a management tool, GTM NERR staff apply fire to create a mosaic within that community. While grassy marsh habitat may experience a complete and thorough burn, when managing the pine flatwoods we encourage the fire to form a more natural behavior as it would experience in wildfire event. All burns are kept on the recommended fire rotation for the dominant habitat type. These protocols will be included in the next management plan.*

2. The team recommends that the staff research, assess, and remap as necessary, the natural communities occurring on the property. In addition, it is suggested consideration be given to providing more detailed analysis and management goals and objectives for each community type in the next management plan. (5+, 0-)
   Managing Agency Response: *GTM NERR staff is in the process of updating and correctly identifying all habitat types outlined in the management plan. When complete, the updated natural communities' portion of the management plan will be incorporated into GTM NERR's electronic operational master plan and available for review. Planned revision completion date is May 2014. The changes will be included in the next management plan.*

3. The team recommends that the staff assure adequate boundary signage and firebreak establishment on the south end of the property in the areas of heavy coastal scrub and wildland urban interface. (5+, 0-)
   Managing Agency Response: *GTM NERR staff have obtained survey maps of the property to ensure identification of the correct boundary. Several equipment types (brush cutter, mulchers and diskers) were brought in to establish the proper fire break. Two fire breaks measuring 50 feet wide were established, one on the north and one on the south of the urban interface.*

Although not in the recommendation, additional buffers along the coastal highway right-of-way were establish to enhance roadside safety during prescribed fire activities.

4. The team recommends that DEP/CAMA continue to make it a priority to acquire the 18-acre Rogers inholding. (5+, 0-)
   Managing Agency Response: *GTM NERR management will continue to keep this acquisition a high priority. Once adequate funding is identified and available, this parcel will be pursued to acquire. The Review Team should also recognize that the GTM NERR successfully competed for funding from NOAA's Coastal and Estuarine Land Conservation Program (CELCP) to acquire the parcel. If it were not for the economic downturn and subsequent falling land assessment prices, the parcel would be in State ownership today.*

2. Field Review Details

2.1 Field Review Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

1. **Natural Communities, specifically scrub, xeric hammock, beach dune, coastal strand, maritime hammock, mesic flatwoods, depression marsh/basin marsh, salt marsh and marine unconsolidated substrate**:
2. **Listed Species Protection and Preservation , animals in general, specifically sea turtles**:
3. **Natural Resources Survey/Monitoring Resources, specifically listed species or their habitat monitoring, other non-game species or their habitat and invasive species survey and monitoring**:
4. **Cultural Resources, specifically cultural resource survey, and protection and preservation**:
5. **Prescribed Fire, specifically area being burned, frequency and quality**:
6. **Restoration, specifically salt marsh restoration and basin marsh**:
7. **Non-Native, Invasive & Problem Species, specifically prevention and control of plant, animals and pest/pathogens:**
8. **Hydro-alteration, specifically roads and culverts**:
9. **Surface Water Monitoring, specifically quality and quantity**:
10. **Adjacent Property Concerns, specifically expanding development, A1A residences and inholdings and additions**:
11. **Public Access and Education, specifically parking**:
12. **Environmental Education & Outreach, specifically wildlife, invasive species, habitat management activities, interpretive facilities and signs, recreational opportunities and management of visitor impacts:**
13. **Management Resources, specifically waste disposal, sanitary facilities, buildings and staff:**

2.2. Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. **The management plan update should include information on how these items have been addressed**:

1. **Hydrologic/Geologic function Hydro-Alteration, specifically river bank erosion, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether consideration of past and present hydrologic and geologic functions are sufficient.**
   Managing Agency Response: *The GTM NERR has expended $70,000 grant funds to explore shoreline stabilization options for Shell Bluff. The revetment option recommended was not consistent with the natural shoreline, had the potential to cause greater erosion of adjacent natural lands, and was cost prohibitive. Recent efforts to use living shoreline and similar erosion control methods are being actively pursued. Over one thousand linear feet of shoreline has been protected in the last two years. Monitoring efforts are underway to assess the success of these methods.*

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Scrub	I.A.1	3	5	4	5	4				4.20
Xeric Hammock	I.A.2	4	5	4	5	4				4.40
Beach Dune	I.A.3	4	5	4	5	5				4.60
Coastal Strand	I.A.4	4	5	X	5					4.67
Maritime Hammock	I.A.6	4	5	4	5	5				4.60
Shell Mound	I.A.7	3	4	3	5	4				3.80
Mesic Flatwoods	I.A.8	4	3	4	5	4				4.00
Depression Marsh/Basin Marsh	I.A.9	4	3	5	5	4				4.20
Salt Marsh	I.A.10	4	5	5	5	4				4.60
Marine Unconsolidated Substrate	I.A.11	4	5	5	5	4				4.60
									Natural Communities Average Score	4.37
Listed species:Protection & Preservation (I.B)										
Animals	I.B.1		2		5	4				3.67
Sea Turtles	I.B.1.a	5	2	5	5	4				4.20
Anastasia Island Beach Mouse	I.B.1.b	3	2	3	5	3				3.20
Gopher Tortoise	I.B.1.c	3	2	4	5	4				3.60
Plants	I.B.2	4	2	X	4	3				3.25
									Listed Species Average Score	3.58

Natural Resources Survey/Monitoring Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	4	3	4	5	4				4.00
Other non-game species or their habitat monitoring	I.C.3	3	4	4	5	4				4.00
Fire effects monitoring	I.C.4	3	3	3	5	4				3.60
Other habitat management effects monitoring	I.C.5	4	4	3	5	3				3.80
Invasive species survey / monitoring	I.C.6	5	4	4	5	5				4.60
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	4	3	4	5	4				4.00
Protection and preservation	II.B	4	3	3	5	4				3.80
									Cultural Resources Average Score	3.90
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A1	4	4	4	5	5				4.40
Frequency	III.A.2	4	5	4	5	5				4.60
Quality	III.A.3	4	4	5	5	5				4.60
									Resource Management, Prescribed Fire Average Score	4.53
Restoration (III.B)										
Salt Marsh Restoration	III.B.1	5	4	5	5	5				4.80
Basin Marsh	III.B.2	4	4	5	4	5				4.40
									Restoration Average Score	4.60
Forest Management (III.C)										
Timber Inventory	III.C.1	4	3	1	5	3				3.20
									Forest Management Average Score	3.20
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	5	4	4	5	4				4.40
prevention - animals	III.D.1.b	4	4	4	5					4.25
prevention - pests/pathogens	III.D.1.c	4	4	X	5					4.33
Control										
control - plants	III.D.2.a	5	4	4	5	5				4.60
control - animals	III.D.2.b	4	4	5	5	5				4.60
control - pest/pathogens	III.D.2.c	4	4	4	5	5				4.40
									Non-Native, Invasive & Problem Species Average Score	4.43
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	4	3	4	X	5				4.00
Ditches	III.E.1.b	4	3	X	X	4				3.67
Hydro-period Alteration	III.E.1.c	3	3	4	X	5				3.75
Water Level Alteration	III.E.1.d	3	3	X	X					3.00
River Bank Erosion	III.E.1.f	3	1	2		4				2.50
									Hydrologic/Geologic function, Hydro-Alteration Average Score	3.38
Ground Water Monitoring (III.E.2)										
Ground water quality	III.E.2.a	3	3	3	5	4				3.60
Ground water quantity	III.E.2.b	3	3	3	5	4				3.60
									Ground Water Monitoring Average Score	3.60

Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	4	4	3	5	4				4.00
Surface water quantity	III.F.3.b	4	4	3	5	4				4.00
									Surface Water Monitoring Average Score	4.00
Resource Protection (III.F)										
Boundary survey	III.F.1	4	3	4	5	4				4.00
Gates & fencing	III.F.2	4	3	4	5	4				4.00
Signage	III.F.3	3	3	5	5	4				4.00
Law enforcement presence	III.F.4	4	3	5	5	5				4.40
									Resource Protection Average Score	4.10
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	5	3	5	5	2				4.00
A1A Residences	III.G.1.b	3	4	4	5	4				4.00
Inholdings/additions	III.G.2	X	3	5	5	4				4.25
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	3	4	4	5	3				3.80
Parking	IV.1.b	3	4	4	5	5				4.20
Boat Access	IV.1.c	3	4	4	5	3				3.80
Environmental Education & Outreach										
Wildlife	IV.2.a	4	4	4	5	5				4.40
Invasive Species	IV.2.b	4	5	5	5	5				4.80
Habitat Management Activities	IV.2.c	4	4	4	5	5				4.40
Interpretive facilities and signs	IV.3	4	5	5	5	5				4.80
Recreational Opportunities	IV.4	4	5	4	5	5				4.60
Management of Visitor Impacts	IV.5	3	3	4	5	5				4.00
									Public Access & Education Average Score	4.31
Management Resources (V.1, V.2, V.3. V.4)										
Maintenance										
Waste disposal	V.1.a	4	4	5	5	4				4.40
Sanitary facilities	V.1.b	4	4	4	5	4				4.20
Infrastructure										
Buildings	V.2.a	4	3	4	5	5				4.20
Equipment	V.2.b	3	3	4	4	4				3.60
Staff	V.3	3	5	4	4	4				4.00
Funding	V.4	4	2	3	3	4				3.20
									Management Resources Average Score	3.93

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

3. Land Management Plan Review Details

3.1 Items Requiring Improvements in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than 3.0 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The next management plan update should address the checklist items identified below:

1. **Natural Communities, specifically scrub and xeric hammock, received below average scores. This is an indication that the management plan does not sufficiently address current or desired condition and/or future management actions to protect or restore.**
   Managing Agency Response: *GTM NERR staff is in the process of updating and correctly identifying all habitat types outlined in the management plan. When complete, the updated natural communities' portion of the management plan will be incorporated into GTM NERR's electronic master operational plan and available for review. Planned revision completion date is May 2014. The changes will be included in the next management plan.*

   When using prescribed fire as a management tool, GTM NERR staff apply fire to create a mosaic within that community. While grassy marsh habitat may experience a complete and thorough burn, when managing the pine flatwoods we encourage the fire to form a more natural behavior as it would experience in wildfire event. All burns are kept on the recommended fire rotation for the dominant habitat type.

2. **Adjacent Property Concerns, specifically A1A residences, received a below average score. This is an indication that the management plan does not sufficiently address expanding development.**
   Managing Agency Response: *GTM NERR staff have obtained survey maps of the property to ensure identification of the correct boundary. Several equipment types (brush cutter, mulchers and diskers) were brought in to establish the proper fire break. Two fire breaks measuring 50 feet wide were established, one on the north and one on the south of the urban interface. Although not in the recommendation, additional buffers along the coastal highway right-of-way were establish to enhance roadside safety during prescribed fire activities.*

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	

Natural Communities (I.A)										
Scrub	I.A.1	3	2	2	4	2				2.60
Xeric Hammock	I.A.2	4	2	2	5	1				2.80
Beach Dune	I.A.3	4	3	2	5	2				3.20
Coastal Strand	I.A.4	4	3	2	4					3.25
Maritime Hammock	I.A.6	4	3	2	5	1				3.00
Shell Mound	I.A.7	3	3	3	5	1				3.00
Mesic Flatwoods	I.A.8	3	3	3	5	2				3.20
Depression Marsh/Basin Marsh	I.A.9	4	2	3	5	2				3.20
Salt Marsh	I.A.10	4	2	3	5	2				3.20
Marine Unconsolidated Substrate	I.A.11	4	2		5	1				3.00
									Natural Communities Average Score	3.05
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1		3	3	5	3				3.50
Sea Turtles	I.B.1.a	5	3	5	5	3				4.20
Anastasia Island Beach Mouse	I.B.1.b	3	3	2	5	3				3.20
Gopher Tortoise	I.B.1.c	4	3	2	5	2				3.20
Plants	I.B.2	3	2	2	5	3				3.00
									Listed Species Average Score	3.42
Natural Resources Survey/Monitoring Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	4	3	4	5	4				4.00
Other non-game species or their habitat monitoring	I.C.3	4	3	3	5	3				3.60
Fire effects monitoring	I.C.4	3	3	5	5	4				4.00
Other habitat management effects monitoring	I.C.5	4	3	4	5	3				3.80
Invasive species survey / monitoring	I.C.6	4	3	4	5	3				3.80
Cultural Resources (Archeological & Historic sites) (II.A,II.B)										
Cultural Res. Survey	II.A	4	3	5	5	3				4.00
Protection and preservation	II.B	4	3	4	5	3				3.80
									Cultural Resources Average Score	3.90
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	4	4	5	5	3				4.20
Frequency	III.A.2	4	4	5	5	3				4.20
Quality	III.A.3	4	4	5	5	3				4.20
									Resource Management, Prescribed Fire Average Score	4.20
Restoration (III.B)										
Salt Marsh Restoration	III.B.1	3	3	4	5	3				3.60
Basin Marsh	III.B.2	4	3	4	5	3				3.80
									Restoration Average Score	3.70
Forest Management (III.C)										
Timber Inventory	III.C.1	4	3	2	5	3				3.40
									Forest Management Average Score	3.40
Non-Native, Invasive & Problem Species (III.D)										
Prevention										

prevention - plants	III.E.1.a	4	3	3	5	3				3.60
prevention - animals	III.E.1.b	4	3	3	5	3				3.60
prevention - pests/pathogens	III.E.1.c	3	3	3	5	3				3.40
Control										
control - plants	III.E.2.a	4	3	5	5	4				4.20
control - animals	III.E.2.b	4	3	5	5	4				4.20
control - pest/pathogens	III.E.2.c	3	3	4	5	4				3.80
						Non-Native, Invasive & Problem Species Average Score				3.80
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.F.1.a	3	3			3				3.00
Ditches	III.F.1.b	3	3			3				3.00
Hydro-period Alteration	III.F.1.c	3	3							3.00
Water Level Alteration	III.F.1.d	3	3							3.00
River Bank Erosion	III.F.1.f	3	3	4		2				3.00
						Hydrologic/Geologic function, Hydro-Alteration Average Score				3.00
Ground Water Monitoring (III.E.2)										
Ground water quality	III.F.2.a	3	2	3	5	4				3.40
Ground water quantity	III.F.2.b	3	2	3	5	4				3.40
						Ground Water Monitoring Average Score				3.40
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a	3	2	4	5	4				3.60
Surface water quantity	III.F.3.b	3	2	3	5	4				3.40
						Surface Water Monitoring Average Score				3.50
Resource Protection (III.F)										
Boundary survey	III.G.1	4	3	5	5	3				4.00
Gates & fencing	III.G.2	3	3	3	5	3				3.40
Signage	III.G.3	3	3	3	5	3				3.40
Law enforcement presence	III.G.4	3	3	3	5	4				3.60
						Resource Protection Average Score				3.60
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.H.1.a	4	1	4	5	2				3.20
A1A Residences	III.H.1.b	3	1	3	5	2				2.80
Inholdings/additions	III.H.2	3	1	4	5	4				3.40
Discussion of Potential Surplus Land Determination	III.H.3	1	1	5	5	4				3.20
Surplus Lands Identified?	III.H.4	1	1	5	5	4				3.20
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	3	3	3	5	4				3.60
Parking	IV.1.b	3	3	3	5	4				3.60
Boat Access	IV.1.c	3	3	3	5	3				3.40
Environmental Education & Outreach										
Wildlife	IV.2.a	4	4	5	5	5				4.60
Invasive Species	IV.2.b	4	4	5	5	5				4.60

Habitat Management Activities	IV.2.c	4	4	5	5	5				4.60
Interpretive facilities and signs	IV.3	4	4	5	5	4				4.40
Recreational Opportunities	IV.4	4	3	4	5					4.00
Management of Visitor Impacts	IV.5	3	3	4	5					3.75
								Public Access & Education Average Score		4.06
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Fishing	VI.A.1	5	5	5	5	5				5.00
Canoeing/Kayaking	VI.A.2	5	5	5	5	5				5.00
Wildlife Viewing	VI.A.3	5	5	5	5	5				5.00
Horseback Riding	VI.A.4	5	3	5	5	4				4.40
Hiking	VI.A.5	5	5	5	5	5				5.00
Bicycling	VI.A.6	5	4	5	5	4				4.60
Beach Activities	VI.A.7	5	5	5	5	5				5.00
Research	VI.A.8	5	5	5	5	5				5.00
Environmental Education	VI.A.9	5	5	5	5	5				5.00
Proposed Uses										

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

Appendix A: Scoring System Detail
Explanation of Consensus Commendations:

Often, the exceptional condition of some of the property's attributes impress review team members. In those instances, team members are encouraged to offer positive feedback to the managing agency in the form of a commendation. The teams develop commendations generally by standard consensus processes or by majority vote if they cannot obtain a true consensus.

Explanation of Consensus Recommendations:

Subsection 259.036(2), F.S., specifically states that the managing entity shall consider the findings and recommendations of the land management review. We ask team members to provide general recommendations for improving the management or public access and use of the property. The teams discuss these recommendations and develop consensus recommendations as described above. We provide these recommendations to the managing agency to consider when finalizing the required ten-year management plan update. We encourage the manager to respond directly to these recommendations and include their responses in the final report when received in a timely manner.

Explanation of Field Review Checklist and Scores, and Management Plan Review Checklist and Scores:

We provide team members with a checklist to fill out during the evaluation workshop phase of the Land Management Review. The checklist is the uniform tool used to evaluate both the management actions and condition of the managed area, and the sufficiency of the management plan elements. During the evaluation workshop, team members individually provide scores on each issue on the checklist, from their individual perspective. Team members also base their evaluations on information provided by the managing agency staff as well as other team member discussions. Staff averages these scores to evaluate the overall conditions on the ground, and how the management plan addresses the issues. Team members must score each management issue 1 to 5: 1 being the management practices are clearly insufficient, and 5 being that the management practices are excellent. Members may choose to abstain if they have inadequate expertise or information to make a cardinal numeric choice, as indicated by an "X" on the checklist scores, or they may not provide a vote for other unknown reasons, as indicated by a blank. If a majority of members failed to vote on any issue, that issue is determined to be irrelevant to management of that property or it was inadequately reviewed by the team to make an intelligent choice. In either case staff eliminated the issue from the report to the manager.

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

B.4.2 / 2018 Report

2018 Land Management Review Team Report for Guana Tolomato Matanzas National Estuarine Research Reserve

Table of Contents

1. Introduction

Section 259.036, F.S. requires a periodic on-site review of conservation and recreation lands titled in the name of the Board of Trustees to determine (1) whether the lands are being managed for the purposes for which they were acquired and (2) whether they are being managed in accordance with their land management plan adopted pursuant to s. 259.032, F.S. In case where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed review team "shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan."

The land management review teams are coordinated by the Division of State Lands and consist of representatives from the Division of Recreation and Parks (DEP), the Florida Forest Service (DACS), the Fish and Wildlife Conservation Commission, the local government in which the property is located, the DEP District in which the parcel is located, the local soil and water conservation district or jurisdictional water management district, a conservation organization member, and a local private land manager.

Each Land Management Review Report is divided into three sections. Section 1 provides the details of the property being reviewed as well as the overall results of the report. Section 2 provides details of the Field Review, in which the Review Team inspects the results of management actions on the site. Section 3 provides details of the Land Management Plan Review, in which the team determines the extent to which the Management Plan provides for and documents adequate natural and recreational resource protection.

Finally, each report may also contain an Appendix that lists individual team member comments. This is a compilation of feedback, concerns or other thoughts raised by individual team members, but not necessarily indicative of the final consensus reached by the Land Management Review Team.

1.1. Property Reviewed in this Report

Name of Site: Guana Tolomato Matanzas National Estuarine Research Reserve

Managed by: Department of Environmental Protection, Florida Coastal Office

Acres: 2,981 **County:** St. Johns

Purpose(s) for Acquisition: to protect and restore the natural and cultural values of the property and provide the greatest benefit to the citizens of the state.

Acquisition Program(s): CARL/SOC **Original Acquisition Date:** 7/11/84

Area Reviewed: Entire Property **Last Management Plan Approval Date:** 11/17/10

Review Date: 6/10/18

Agency Manager and Key Staff Present:

- Michael Shirley, FCO, Manager

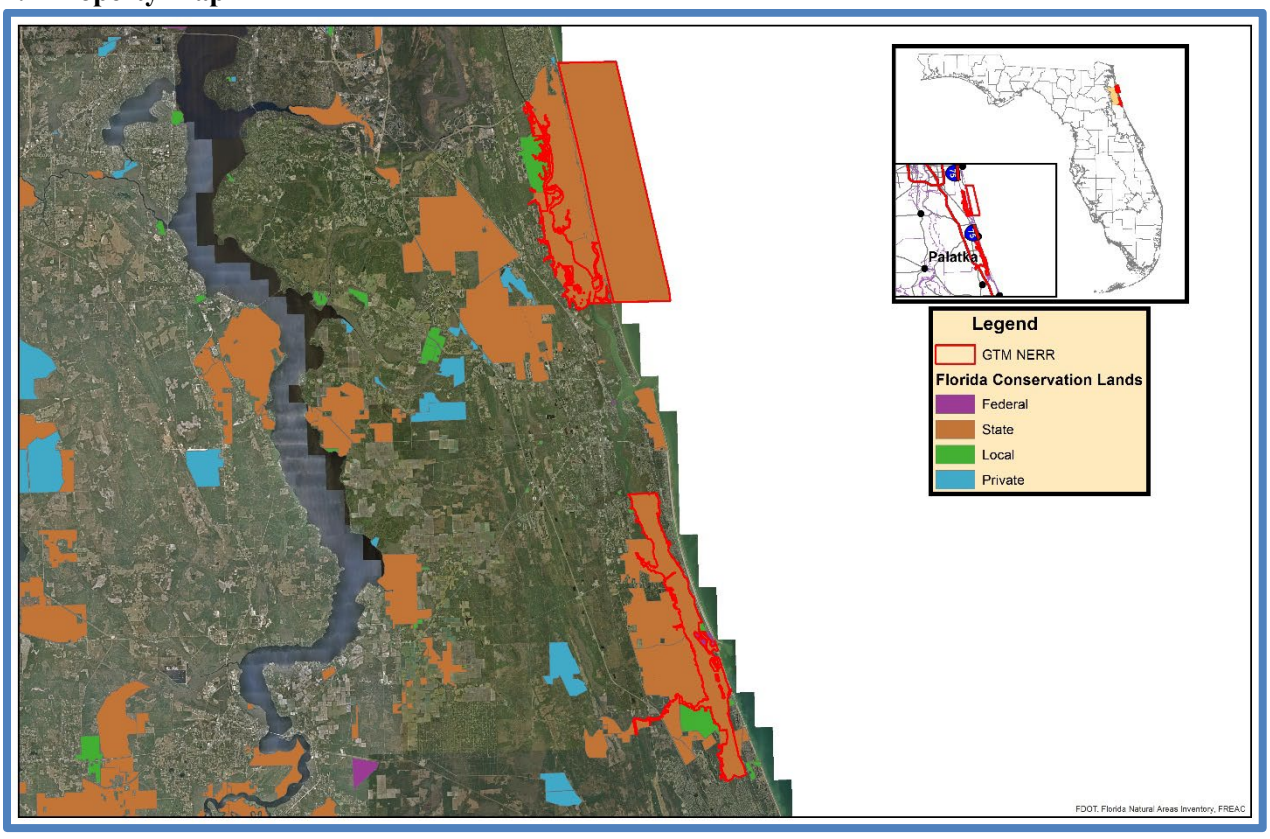
Review Team Members Present (voting)

- Alice Bard, DRP District
- Jeremy Cooper, Local Gov't.
- Jean Olbert, FWC
- Chrissy Sellers, DEP District
- Doug Longshore, FFS
- Tyler Mosteller, SJRWMD
- Walter Bryant, Cons. Organization
- Elizabeth Guthrie, Private Land Manager

Other Non-Team Members Present (attending)

- Keith Singleton, DEP/DSL
- Ray Spaulding, DEP/DSL
- Earl Pearson, FCO

1.2 Property Map



1.3. Overview of Land Management Review Results

Is the property managed for purposes that are compatible with conservation, preservation, or recreation?

Yes = 8, No = 0

Are the management practices, including public access, in compliance with the management plan?

Yes = 8, No = 0

Table 1 shows the average scores received for each applicable category of review. *Field Review* scores refer to the adequacy of management actions in the field, while *Management Plan Review* scores refer to adequacy of discussion of these topics in the management plan. Scores range from 1 to 5 with 5 signifying excellence. For a more detailed key to the scores, please see *Appendix A*.

Table 2: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	3.78	3.31
Prescribed Fire / Habitat Restoration	4.37	3.31
Hydrology	4.20	3.01
Imperiled Species	3.98	3.43
Exotic / Invasive Species	4.02	3.25
Cultural Resources	3.96	3.88
Public Access / Education / Law Enforcement	4.31	3.58
Infrastructure / Equipment / Staffing	3.83	N/A

Color Code (See Appendix A for detail)

Excellent	Above Average	Below Average	Poor

1.3.1 Consensus Commendations for the Managing Agency

The following commendations resulted from discussion and vote of the review team members:

1. The team commends the Florida Coastal Office (FCO) for ongoing efforts to detect and control or remove exotic plant and animal species. (8+, 0-)
2. The team commends the FCO for ongoing environmental education and outreach efforts, including excellent salt marsh erosion control. Great work on community involvement, education, outreach, and establishing a sense of place. (8+, 0-)
3. The team commends the FCO for ongoing prescribed burn program in such difficult burning conditions. (8+, 0-)
4. The team commends the FCO for ongoing efforts to preserve cultural and archaeological sites with partnerships and citizen involvement. (8+, 0-)
5. The team commends the FCO for using research and technology for monitoring habitats and directing management goals. (8+, 0-)
6. The team commends the FCO for working towards innovative solutions for erosion control and oyster reef restoration. (8+, 0-)
7. The team commends the FCO for their great use of volunteers. (8+, 0-)
8. The team commends the FCO for their great work on dune restoration. (8+, 0-)
9. The team commends the FCO for the excellent focus on applicable research to inform better management of resources. (8+, 0-)
10. The team commends the FCO for a great solution in working towards integrating OPS positions to university positions. (8+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The next management plan update should include information about how these recommendations have been addressed:

1. The team recommends that the FCO explore options to expand educational program beyond St. Johns County. (8+, 0-)
   Managing Agency Response:

   The Review team was not able to evaluate the full scope of the Reserve's Education Programming.

   The Reserve has education programming beyond St. Johns County. GTM NERR has assisted with teacher training in Collier and Franklin counties. Current education projects include an education grant to work through the Southeast US.

   The Reserve's Public Information Specialist serves the FCO East Coast of Florida by submitting monthly highlights to the DEP press office of stewardship, research, education and training programs conducted by Reserve and Aquatic Preserve teams from Nassau to Palm Beach County.

   The Reserve's Coastal Training Program serves as the co-chair for the First Coast Invasive Species Working Group. This group meets quarterly with members from Nassau, Duval, Baker, Clay, and St. Johns counties to discuss invasive species, management techniques, and various workshops/ trainings.

   The Reserve's Management Advisory Group, which meets quarterly, has representation from Duval, St. Johns, and Flagler counties.

   The Reserve has contract employees with UNF and supports student projects including the annual Florida Institute of Oceanography Summer Field School for students across the State of Florida.

2. The team recommends that the FCO consider burning the mesic flatwoods at more frequent intervals. (8+, 0-)
   Managing Agency Response:

   The Reserve will evaluate this recommendation and conduct a survey to study the impact of fire frequency on natural biodiversity for the 17 acres of mesic flatwoods. Comparisons of the biodiversity of nearby more frequently burned mesic flatwoods will serve to guide future fire intervals for this habitat.

3. The team recommends that the FCO describe desired future conditions and management objectives for different natural communities. (8+, 0-)
   Managing Agency Response:

   The managing agency concurs with this recommendation. This recommendation will be incorporated into the 2019 update to the site management plan.

4. The team recommends that the FCO consider adding more detailed monitoring and restoration and protection of habitat for striped newts and American oystercatchers to the next management plan. (8+, 0-)
   Managing Agency Response:

   Monitoring of habitat biodiversity of the depression marsh (striped newt habitat within the leased property) will be incorporated into the updated management plan. The Reserve has a long and cooperative history of working with FWC to monitor American oystercatchers. Facilitating FWC lead initiatives along the Tolomato and Matanzas River (outside the leased property) will continue, and be included in the updated management plan.

5. The team recommends that the FCO staff continue to assess BMP for burning coastal strand. (8+, 0-)
   Managing Agency Response:

   The managing agency concurs with this recommendation. This recommendation will be incorporated into the 2019 update to the site management plan.

6. The team recommends that the FCO investigate the effects of prescribed fire on maritime hammock communities. (8+, 0-)
   Managing Agency Response:

   The managing agency concurs with this recommendation. This recommendation will be incorporated into the 2019 update to the site management plan.

7. The team recommends that the FCO consider designs for public use or access that are low impact for the north/south firebreak/ecotone. (8+, 0-)
   Managing Agency Response:

   The managing agency concurs with this recommendation. This recommendation will be incorporated into the 2019 update to the site management plan.

2. Field Review Details

2.1 Field Review Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

1. **Natural communities, specifically scrub, xeric hammock, beach dune, coastal strand, maritime hammock, shell mound, depression marsh/basin marsh, salt marsh, and marine unconsolidated substrate.**
2. **Listed species: Protection & Preservation, specifically sea turtles, gopher tortoise, and plants.**
3. **Natural resources survey/monitoring specifically other non-game species or their habitat monitoring, fire effects monitoring, and other habitat management effects monitoring.**
4. **Cultural resources, specifically protection and preservation.**
5. **Resource management (prescribed fire), specifically area being burned, frequency, and quality.**

6. **Restorations, specifically salt marsh restoration, basin marsh, oyster reef restoration, and dune restoration.**
7. **Non-native, invasive, and problem species, specifically prevention and control of plants and animals, and control of pest/pathogens.**
8. **Hydrologic/geologic function hydro-alteration, specifically river bank erosion.**
9. **Surface water monitoring, specifically quality and quantity**.
10. **Resource protection, specifically boundary survey, gates and fencing, and signage.**
11. **Adjacent property concerns, specifically expanding development and A1A residences.**
12. **Public access, specifically roads, parking, and boat access.**
13. **Environmental education and outreach, specifically wildlife, invasive species, habitat management activities, interpretive facilities and signs, recreational opportunities, and management of visitor impacts.**
14. **Management resources, specifically waste disposal, sanitary facilities, and equipment**.

2.2. Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. **The management plan update should include information on how these items have been addressed**:

1. ***The maintenance condition of the Natural Communities, specifically mesic flatwoods received a below average score. The review team is asked to evaluate, based on their perspective, what percent of the natural community is in maintenance condition. The scores range from 1 to 5, with 1 being 0-20% in maintenance condition, 2 being 21-40%, 3 being 41-60%, 4 being 16-80% and 5 being 81-100%.***
   Managing Agency Response: The Reserve will conduct a survey to study the impact of fire frequency on natural biodiversity by comparing the biodiversity of nearby more frequently burned mesic flatwoods. The results of this study will serve to guide future fire intervals for this habitat.

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Scrub	I.A.1	5	4	5	5	X	5	5	5	4.86
Xeric Hammock	I.A.2	4	4	4	5	5	4	5	5	4.50
Beach Dune	I.A.3	5	5	3	4	5	4	5	5	4.50
Coastal Strand	I.A.4	5	5	5	4	5	5	5	5	4.88
Maritime Hammock	I.A.5	4	4	4	1	5	5	5	5	4.13
Shell Mound	I.A.6	5	5	4	5	5	5	5	4	4.75

Mesic Flatwoods	I.A.7	3	3	2	1	X	4	1	3	2.43
Depression Marsh/Basin Marsh	I.A.8	4	4	4	3	4	5	4	5	4.13
Salt Marsh	I.A.9	4	4	5	5	5	4	5	4	4.50
Marine Unconsolidated Substrate	I.A.10	4	4	4	5	5	5	5	4	4.50
								Natural Communities Average Score		4.32
Listed species:Protection & Preservation (I.B)										
Animals	I.B.1	4	4	4	5	4	4	2	4	3.88
Sea Turtles	I.B.1.a	4	5	4	5	5	5	5	5	4.75
Anastasia Island Beach Mouse	I.B.1.b	4	3	3	2	3	4	2	5	3.25
Gopher Tortoise	I.B.1.c	4	5	3	5	3	5	3	4	4.00
Plants	I.B.2	X	4	4			4		4	4.00
								Listed Species Average Score		3.98
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	4	5	3	5	4	4	2	4	3.88
Other non-game species or their habitat monitoring	I.C.3	4	4	4	5	5	5	4	4	4.38
Fire effects monitoring	I.C.4	3	4	5	4	X	5	4	4	4.14
Other habitat management effects monitoring	I.C.5	4	4	5	5	4	5	5	5	4.63
Invasive species survey / monitoring	I.C.6	3	4	2	4	5	5	4	4	3.88
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	3	4	3	5	4	4	3	3	3.63
Protection and preservation	II.B	4	4	4		5	5	3	5	4.29
								Cultural Resources Average Score		3.96
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A1	4	4	4	5	5	5	5	5	4.63
Frequency	III.A.2	4	3	4	5	4	5	4	5	4.25
Quality	III.A.3	3	4	4	5	5	5	5	5	4.50
								Resource Management, Prescribed Fire Average Score		4.46
Restoration (III.B)										
Salt Marsh Restoration	III.B.1	5	4	5	5	5	4	4	4	4.50
Basin Marsh	III.B.2	4	4	5	5	5	4	4	4	4.38
Oyster Reef Restoration	III.B.3	4	4	5	5	4	4	5	3	4.25
Dune Restoration	III.B.4	4	4	5	4	5	4	2	4	4.00
								Restoration Average Score		4.28
Forest Management (III.C)										
Timber Inventory	III.C.1	4	3	3	3	4	3	3	3	3.25
								Forest Management Average Score		3.25
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	3	4	5	5	5	4	4	4	4.25
prevention - animals	III.D.1.b	3	4	3	5	5	4	4	4	4.00
prevention - pests/pathogens	III.D.1.c	3	4	4	5	4	4	3	4	3.88
Control										

control - plants	III.D.2.a	4	4	2	5	5	4	4	4	4.00
control - animals	III.D.2.b	4	4	3	5	3	4	4	5	4.00
control - pest/pathogens	III.D.2.c	3	4	4	5	4	4	3	5	4.00
									Non-Native, Invasive & Problem Species Average Score	4.02
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	3	4	4	4	4	4	4	4	3.88
Ditches	III.E.1.b	X	4	4	4	3	4	4	4	3.86
Hydro-period Alteration	III.E.1.c	3	4	4	4	3	4	4	4	3.75
Water Level Alteration	III.E.1.d	3	4	4	4	3	4	4	4	3.75
River Bank Erosion	III.E.1.f	5	4	5	5	4	4	2	5	4.25
									Hydrologic/Geologic function, Hydro-Alteration Average Score	3.90
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	5	4	5	5	5	5	4	5	4.75
Surface water quantity	III.F.3.b	3	4	5	5	3	5	4	5	4.25
									Surface Water Monitoring Average Score	4.50
Resource Protection (III.F)										
Boundary survey	III.F.1	3	4	4	4	4	5	4	4	4.00
Gates & fencing	III.F.2	3	4	4	5	5	5	4	5	4.38
Signage	III.F.3	3	4	4	5	3	5	3	5	4.00
Law enforcement presence	III.F.4	3	3	3	3	3	4	2	3	3.00
									Resource Protection Average Score	3.84
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	4	4	5	5	5	4	4	4	4.38
A1A Residences	III.G.1.b	4	4	5	4	4	4	4	4	4.13
Inholdings/additions	III.G.2	3	4	3	5	4	4	3	4	3.75
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	5	4	5	5	4	5	4	4	4.50
Parking	IV.1.b	5	4	5	5	5	5	4	4	4.63
Boat Access	IV.1.c		4	5	5	4	5	4	4	4.43
Environmental Education & Outreach										
Wildlife	IV.2.a	5	5	5	5	5	5	5	5	5.00
Invasive Species	IV.2.b	5	5	5	5	5	5	5	5	5.00
Habitat Management Activities	IV.2.c	5	5	5	5	5	5	4	5	4.88
Interpretive facilities and signs	IV.3	5	5	5	5	5	5	5	5	5.00
Recreational Opportunities	IV.4	5	5	5	5	5	5	5	5	5.00
Management of Visitor Impacts	IV.5	5	5	5	5	3	5	4	5	4.63
									Public Access & Education Average Score	4.78
Management Resources (V.1, V.2, V.3. V.4)										
Maintenance										
Waste disposal	V.1.a	5	4	5	5	4	4	3	4	4.25
Sanitary facilities	V.1.b	5	4	5	5	5	4	3	4	4.38
Infrastructure										

Buildings	V.2.a	5	2	4	4	3	4	3	4	3.63
Equipment	V.2.b	5	4	4	5	5	3	3	3	4.00
Staff	V.3	5	4	2	2	4	4	2	3	3.25
Funding	V.4	5	4	3	3	4	3	2	4	3.50
									Management Resources Average Score	3.83

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

3. Land Management Plan Review Details

3.1 Items Requiring Improvements in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than 3.0 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The next management plan update should address the checklist items identified below:

1. ***Restoration, specifically oyster reef restoration and dune restoration, received below average scores. This is an indication that the management plan does not sufficiently address restoration.***

   Managing Agency Response: The updated management plan will specifically address ongoing efforts to restore oyster reefs and and dune restoration, as well as plans to respond to potential future losses in dune habitats.

2. ***Forest Management, specifically timber inventory, received a below average score. This is an indication that the management plan does not sufficiently address a timber inventory.***

   Managing Agency Response: GTM Research Reserve staff coordinated with the Florida Forestry Service regarding an assessment of timber resources of the leased property. Included inthis assessment was fifty acres of slash pine that had invaded a freshwater marsh on the Guana Peninsula. Removal of this timber was considered consistent with resource management goals including hydrological restoration of this marsh. The FFS assessment determined that the timber was not commercially viable primarily due to the Guana Dam not being able to support the weight of logging trucks. The Timber Assessment Letter is on page 163 of the 2009 Management Plan. In preparing the final 2019 Management Plan the Reserve will once again reach out to the Florida Forestry Service for an updated assessment. Since the 2009 Plan the 50 acres of pines were piled and burned as part of the depression marsh restoration. In addition, several large pine trees within the managed area were lost due to coastal erosion and damage from hurricane winds.

3. ***Non-native, Invasive & Problem Species, specifically prevention of pests/pathogens, received a below average score. This is an indication that the management plan does not sufficiently address prevention of invasive species.***

   Managing Agency Response: In cooperation with Anastasia Mosquito Control, the Reserve co-funded a biologist for several years to monitor pathogens and nuisance mosquito

populations within the Reserve. In addition to activities on the leased property the Reserve has implemented offsite initiatives to control invasive on nearby public and private lands. The Reserve has spearheaded efforts to establish and Invasive Species Task Force in Northeast Florida. The Reserve has facilitated and assisted with USDA experimental techniques to control invasive species. Details on these efforts and additional verbiage relating to preventing unintentional release of pests/pathogens from contractor equipment will be incorporated into the 2019 plan.

4. ***Hydrologic/Geologic function, Hydro-Alteration, specifically roads/culverts, ditches, hydro-period alteration, and water level alteration, received a below average score. This is an indication that the management plan does not sufficiently address hydrologic and geologic function.***

   Managing Agency Response: Issue Twenty-Three of the 2009 management plan specifically addressed this topic: Fire and hydrologic restoration have been implemented to expand and restore the critically endangered freshwater depression marsh habitat. In the updated plan, natural biodiversity of the GTM Research Reserve's freshwater depression marsh habitat will be used to monitor success of this restoration.

5. ***Resource Protection, specifically law enforcement presence, received a below average score. This is an indication that the management plan does not sufficiently address resource protection.***

   Managing Agency Response: There has been a significant decrease in vehicle break-ins over the last decade because of additional Ranger Patrols and the installation of security cameras at all beach parking lots. Significant improvements were also made to the revenue collection process and equipment. The Reserve plans install upgraded security cameras at four remote parking locations that will allow local and state law enforcement to remotely monitor these locations. These measures will be included in the updated plan.

6. ***Adjacent Property Concerns, specifically discussion of potential surplus land determination, received a below average score. This is an indication that the management plan does not sufficiently address adjacent property.***

   Managing Agency Response: The Reserve will seek input from the 24-member GTM NERR Management Advisory Group to review and comment on potential surplus land determination.

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Scrub	I.A.1	4	5	5	2	5	4	3	4	4.00
Xeric Hammock	I.A.2	4	5	4	2	5	4	2	4	3.75
Beach Dune	I.A.3	4	5	4	3	5	4	3	4	4.00

Coastal Strand	I.A.4	4	5	5	3	5	4	3	4	4.13
Maritime Hammock	I.A.5	4	4	4	2	5	4	3	4	3.75
Shell Mound	I.A.6	4	5	4	3	5	4	2	4	3.88
Mesic Flatwoods	I.A.7	4	4	3	3	5	4	2	4	3.63
Depression Marsh/Basin Marsh	I.A.8	4	5	3	3	5	4	3	4	3.88
Salt Marsh	I.A.9	5	4	4	4	5	4	2	4	4.00
Marine Unconsolidated Substrate	I.A.10	4	4	3	2	5	4	3	4	3.63
									Natural Communities Average Score	3.86
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	4	4	4	2	4	4	3	3	3.50
Sea Turtles	I.B.1.a	4	5	4	4	5	4	3	5	4.25
Anastasia Island Beach Mouse	I.B.1.b	4	4	3	2	5	4	1	3	3.25
Gopher Tortoise	I.B.1.c	4	5	3	3	2	4	1	2	3.00
Plants	I.B.2	3	4	4			4	1	3	3.17
									Listed Species Average Score	3.43
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	4	5	4	4	4	4	2	3	3.75
Other non-game species or their habitat monitoring	I.C.3	4	4	3	3	3	4	1	3	3.13
Fire effects monitoring	I.C.4	4	4	4	4	3	4	1	4	3.50
Other habitat management effects monitoring	I.C.5	4	4	4	3	5	4	2	4	3.75
Invasive species survey / monitoring	I.C.6		4	3	4	3	4	1	4	3.29
Cultural Resources (Archeological & Historic sites) (II.A,II.B)										
Cultural Res. Survey	II.A	3	4	3	4	5	4	3	5	3.88
Protection and preservation	II.B	4	4	4	3	5	4	2	5	3.88
									Cultural Resources Average Score	3.88
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	4	4	4	4	4	4	1	5	3.75
Frequency	III.A.2	4	4	4	4	4	4	2	5	3.88
Quality	III.A.3	4	4	4	4	4	4	2	5	3.88
									Resource Management, Prescribed Fire Average Score	3.83
Restoration (III.B)										
Salt Marsh Restoration	III.B.1	4	4	5	4	3	4	2	4	3.75
Basin Marsh	III.B.2	4	4	5	4	3	4	2	4	3.75
Oyster Reef Restoration	III.B.3	4	1	1	2	4	3	2	1	2.25
Dune Restoration	III.B.4	2	1	1	1	2	2	1	1	1.38
									Restoration Average Score	2.78
Forest Management (III.C)										
Timber Inventory	III.C.1	4	1	3	3	4	3	3	1	2.75
									Forest Management Average Score	2.75
Non-Native, Invasive & Problem Species (III.D)										
Prevention										

prevention - plants	III.E.1.a	4	4	4	3	5	4	1	2	3.38
prevention - animals	III.E.1.b	4	4	3	3	5	4	1	2	3.25
prevention - pests/pathogens	III.E.1.c	4	4	3	3	2	4	1	2	2.88
Control										
control - plants	III.E.2.a	4	4	3	4	3	4	3	2	3.38
control - animals	III.E.2.b	4	4	3	4	3	4	3	2	3.38
control - pest/pathogens	III.E.2.c	4	4	3	4	2	4	3	2	3.25
								Non-Native, Invasive & Problem Species Average Score		3.25
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.F.1.a	3	4	3	2	2	4	1	1	2.50
Ditches	III.F.1.b	3	4	3	2	2	4	1	3	2.75
Hydro-period Alteration	III.F.1.c	3	4	3	3	2	4	1	1	2.63
Water Level Alteration	III.F.1.d	3	4	3	3	2	4	1	3	2.88
River Bank Erosion	III.F.1.f	4	4	4	4		4	1	3	3.43
								Hydrologic/Geologic function, Hydro-Alteration Average Score		2.84
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a	4	4	5	3	3	4	1	2	3.25
Surface water quantity	III.F.3.b	3	4	5	3	3	4	1	2	3.13
								Surface Water Monitoring Average Score		3.19
Resource Protection (III.F)										
Boundary survey	III.G.1	3	4	4	3	4	4	1	2	3.13
Gates & fencing	III.G.2	3	4	4	2	4	4	1	2	3.00
Signage	III.G.3	3	4	4	3	3	4	1	2	3.00
Law enforcement presence	III.G.4	4	4	1	3	3	4	1	3	2.88
								Resource Protection Average Score		3.00
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.H.1.a		4	4	3	4	4	1	1	3.00
A1A Residences	III.H.1.b		4	4	3	4	4	1	1	3.00
Inholdings/additions	III.H.2	4	4	3	5	2	4	1	4	3.38
Discussion of Potential Surplus Land Determination	III.H.3	2	2	1	1	2	3	1	1	1.63
Surplus Lands Identified?	III.H.4	5	5	5	5	4	4	5	1	4.25
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	4	4	5	4	4	4	2	1	3.50
Parking	IV.1.b	4	4	5	4	5	4	2	1	3.63
Boat Access	IV.1.c	4	4	5	4	3	4	3	1	3.50
Environmental Education & Outreach										
Wildlife	IV.2.a	4	4	5	5	5	4	5	4	4.50
Invasive Species	IV.2.b	4	4	5	5	5	4	5	4	4.50
Habitat Management Activities	IV.2.c	5	4	5	5	5	4	5	4	4.63
Interpretive facilities and signs	IV.3	5	4	5	5	4	4	5	4	4.50

Recreational Opportunities	IV.4	4	4	5	5	5	4	5	4	4.50
Management of Visitor Impacts	IV.5	4	4	5	5	3	4	4	4	4.13
								Public Access & Education Average Score		4.15
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Fishing	VI.A.1	5	5	4	5	3	5	5	4	4.50
Canoeing/Kayaking	VI.A.2	5	5	4	5	4	5	5	4	4.63
Wildlife Viewing	VI.A.3	5	5	5	5	5	5	5	5	5.00
Horseback Riding	VI.A.4	4	4	2	5	3	5	4	3	3.75
Hiking	VI.A.5	5	5	5	5	4	5	5	4	4.75
Bicycling	VI.A.6	5	4	3	5	4	5	5	4	4.38
Beach Activities	VI.A.7	5	5	2	5	5	5	5	3	4.38
Research	VI.A.8	5	5	5	5	5	5	5	5	5.00
Environmental Education	VI.A.9	5	5	5	5	5	5	5	5	5.00

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

Often, the exceptional condition of some of the property's attributes impress review team members. In those instances, team members are encouraged to offer positive feedback to the managing agency in the form of a commendation. The teams develop commendations generally by standard consensus processes or by majority vote if they cannot obtain a true consensus.

Explanation of Consensus Recommendations:

Subsection 259.036(2), F.S., specifically states that the managing entity shall consider the findings and recommendations of the land management review. We ask team members to provide general recommendations for improving the management or public access and use of the property. The teams discuss these recommendations and develop consensus recommendations as described above. We provide these recommendations to the managing agency to consider when finalizing the required ten-year management plan update. We encourage the manager to respond directly to these recommendations and include their responses in the final report when received in a timely manner.

Explanation of Field Review Checklist and Scores, and Management Plan Review Checklist and Scores:

We provide team members with a checklist to fill out during the evaluation workshop phase of the Land Management Review. The checklist is the uniform tool used to evaluate both the management actions and condition of the managed area, and the sufficiency of the management plan elements. During the evaluation workshop, team members individually provide scores on each issue on the checklist, from their individual perspective. Team members also base their evaluations on information provided by the managing agency staff as well as other team member discussions. Staff averages these scores to evaluate the overall conditions on the ground, and how the management plan addresses the issues. Team members must score each management issue 1 to 5: 1 being the management practices are clearly insufficient, and 5 being that the management practices are excellent. Members may choose to abstain if they have inadequate expertise or information to make a cardinal numeric choice, as indicated by an "X" on the checklist scores, or they may not provide a vote for other unknown reasons, as indicated by a blank. If many members failed to vote on any issue, that issue is determined to be irrelevant to management of that property or it was inadequately reviewed by the team to make an intelligent choice. In either case staff eliminated the issue from the report to the manager.

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

B.4.3 / 2023 Report

2023 Land Management Review Team Report for Guana Tolomato Matanzas National Estuarine Research Reserve

Table of Contents

Introduction

Section 259.036, F.S. requires a periodic on-site review of conservation and recreation lands titled in the name of the Board of Trustees to determine (1) whether the lands are being managed for the purposes for which they were acquired and (2) whether they are being managed in accordance with their land management plan adopted pursuant to s. 259.032, F.S. In cases where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed review team "shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan."

The land management review teams are coordinated by the Division of State Lands and consist of representatives from the Division of Recreation and Parks (DEP), the Florida Forest Service (DACS), the Fish and Wildlife Conservation Commission, the local government in which the property is located, the DEP District in which the parcel is located, the local soil and water conservation district or jurisdictional water management district, a conservation organization member, and a local private land manager.

Each Land Management Review Report is divided into three sections. Section 1 provides the details of the property being reviewed as well as the overall results of the report. Section 2 provides details of the Field Review, in which the Review Team inspects the results of management actions on the site. Section 3 provides details of the Land Management Plan Review, in which the team determines the extent to which the Management Plan provides for and documents adequate natural and recreational resource protection.

Finally, each report may also contain an Appendix that lists individual team member comments. This is a compilation of feedback, concerns or other thoughts raised by individual team members, but not necessarily indicative of the final consensus reached by the Land Management Review Team.

Property Reviewed in this Report

Name of Site: Guana Tolomato Matanzas National Estuarine Research Reserve

Managed by: Department of Environmental Protection, Resilience and Coastal Protection

Acres: 2,981 **County:** St. Johns

Purpose(s) for Acquisition: to protect and restore the natural and cultural values of the property and provide the greatest benefit to the citizens of the state.

Acquisition Program(s): CARL/SOC **Original Acquisition Date:** 7/11/84

Area Reviewed: Entire Property **Last Management Plan Approval Date:** 5/13/09

Review Date: 7/19/23

Agency Manager and Key Staff:

- Lia Sansom, Reserve Manager
- Candace Killian, Resource Coordinator

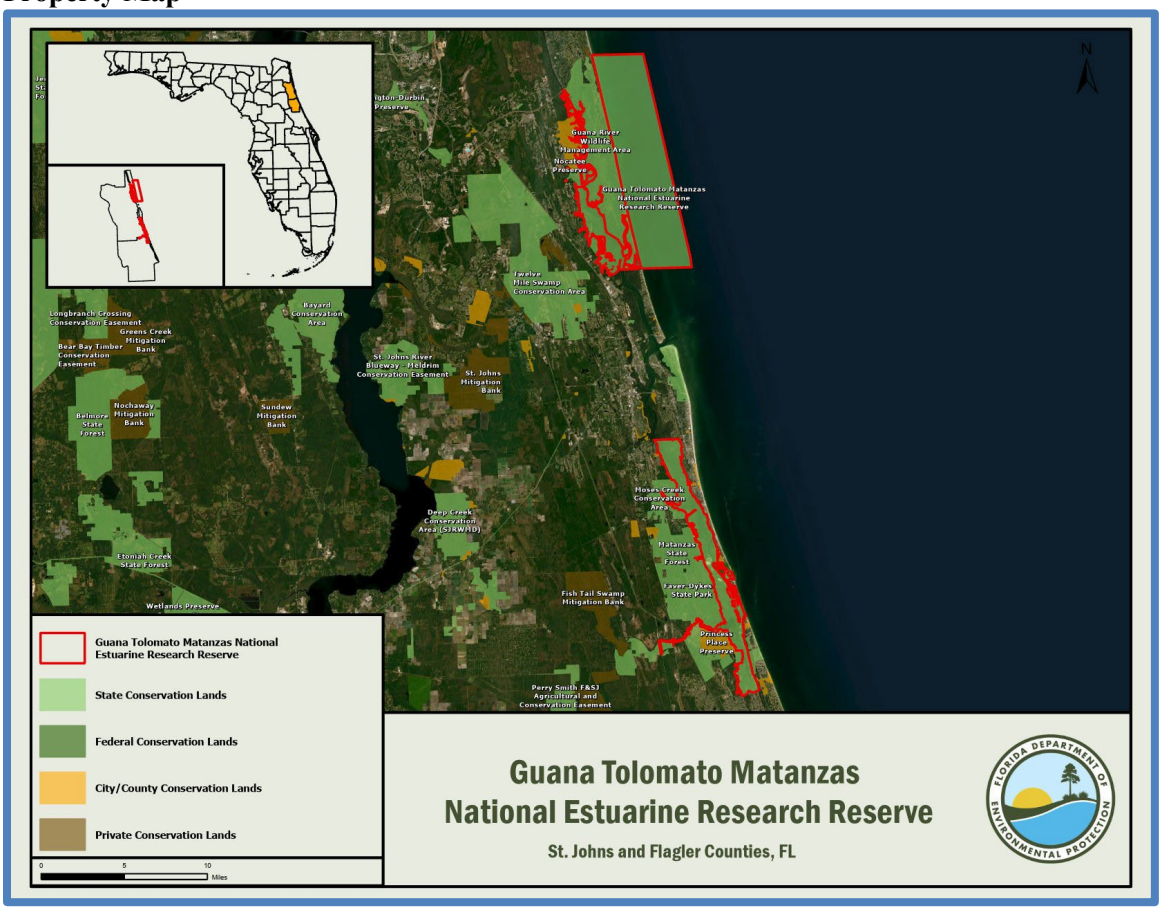
Review Team Members (voting)

- DRP District, None
- Local Gov't., None
- Wade Brenner, FWC
- Hayley Springer, DEP District
- Andrew Usina, FFS
- Chris Kinslow, SJRWMD
- Conservation Org., None
- Private Land Manager, None

Non-Team Members (attending)

- Keith Singleton, DEP/DSL
- Matthew Norton, DEP/DSL
- Earl Pearson, DEP/RCP

Property Map



Overview of Land Management Review Results

Is the property managed for purposes that are compatible with conservation, preservation, or recreation?

Yes = 4, No = 0

Are the management practices, including public access, in compliance with the management plan?

Yes = 4, No = 0

Table 1 shows the average scores received for each applicable category of review. Field Review scores refer to the adequacy of management actions in the field, while Management Plan Review scores refer to adequacy of discussion of these topics in the management plan. Scores range from 1 to 5 with 5 signifying excellence. For a more detailed key to the scores, please see Appendix A.

Table 3: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	3.77	3.19
Prescribed Fire / Habitat Restoration	3.89	3.43
Hydrology	4.29	3.66
Imperiled Species	4.55	4.32
Exotic / Invasive Species	4.46	4.04
Cultural Resources	4.50	4.38
Public Access / Education / Law Enforcement	4.60	4.28
Infrastructure / Equipment / Staffing	3.96	N/A

Color Code (See Appendix A for detail)

Excellent	Above Average	Below Average	Poor

Consensus Commendations for the Managing Agency

The following commendations resulted from discussion and vote of the review team members:

1. The team commends the staff on their invasive species management. (4+, 0-)
2. The team commends the staff for education and outreach efforts. (4+, 0-)
3. The team commends staff for providing excellent recreational opportunities to the public. (4+, 0-)

Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The next management plan update should include information about how these recommendations have been addressed:

1. The team recommends an archaeological resource survey of greater extent to describe in depth detail and interpretation of the cultural resources of the property. (4+, 0-)

   Managing Agency Response: The managing agency concurs with this recommendation. Upon completing the cultural resources questionnaire, it has become apparent that the Reserve could benefit from a new site assessment. The Reserve conducted a site visit with BAR and archaeological researchers and will pursue funding and other support for surveys and research. Staff will continue to conduct routine monitoring of existing archaeological sites per BAR guidelines.

2. The team recommends shorter fire return intervals for fire dependent community types. (4+, 0-)

   Managing Agency Response: The managing agency concurs with this recommendation. An updated prescribed fire plan has been added to the new draft management plan. With only two FTE positions allocated to resource management of the Reserve uplands, staff continue to rely on support from DRP, FWC, FFS, local burn crews, and contractors to fully implement the prescribed fire plan. The Reserve did not have a burn boss for 8 years but is now actively burning units containing communities requiring frequent fire as well as added units that have never had prescribed fire. The Reserve = intends to burn on the shorter end of the windows. For example, the depression marsh suggests a window of 2-25 years but the Reserve plans to burn it every 2-5 years.

Field Review Details

Field Review Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

15. **Natural communities, specifically xeric hammock, beach dune, coastal strand, maritime hammock, shell mound, mesic flatwoods, salt marsh, marine unconsolidated substrate, mesic hammock, and hydric hammock.**
16. **Listed species, listed animal and plant species in general, and specifically sea turtles, Anastasia Island beach mouse, and gopher tortoise.**
17. **Natural resources survey/monitoring resources, specifically listed species or their habitat monitoring, other non-game species or their habitat monitoring, other habitat management effects monitoring, and invasive species survey and monitoring.**
18. **Cultural resources, specifically cultural resource survey, and protection and preservation.**
19. **Restoration, specifically salt marsh restoration, basin marsh, oyster reef restoration, and dune restoration.**
20. **Non-native, invasive, and problem species, specifically prevention and control of plants, animals, and pest/pathogens.**
21. **Hydro-alteration, specifically roads and culverts, hydro-period alteration, and water level alteration.**
22. **Surface water monitoring, specifically quality and quantity.**
23. **Resource protection, specifically boundary survey, and gates and fencing, signage, and law enforcement presence.**
24. **Adjacent property concerns, land use, specifically expanding development, and inholdings and additions.**
25. **Public access, specifically roads, parking, and boat access.**
26. **Environmental education and outreach, specifically wildlife, invasive species, habitat management activities, interpretive facilities and signs, recreational opportunities, and management of visitor impacts.**
27. **Management resources, specifically waste disposal, sanitary facilities, and buildings.**

Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The management plan update should include information on how these items have been addressed:

The review team scores did not identify items requiring improvement actions in the field.

Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Xeric Hammock	I.A.2	5	5	4	5					4.75
Beach Dune	I.A.3	5	4	4	5					4.50
Coastal Strand	I.A.4	5	5	2	5					4.25
Maritime Hammock	I.A.5	5	5	4	5					4.75
Shell Mound	I.A.6	5	5	5	4					4.75
Mesic Flatwoods	I.A.7	4	4	3	5					4.00
Depression Marsh/Basin Marsh	I.A.8	4	5	2	4					3.75
Salt Marsh	I.A.9	5	4	5	5					4.75
Marine Unconsolidated Substrate	I.A.10	5	5	4	5					4.75
Mesic Hammock	I.A.11	5	5	x	5					5.00
Hydric Hammock	I.A.12	5	4	x	5					4.67
									Natural Communities Average Score	4.54
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	5		4	5					4.67
Sea Turtles	I.B.1.b	5	5	5	5					5.00
Anastasia Island Beach Mouse	I.B.1.c	x	5	4	4					4.33
Gopher tortoise	I.B.1.d	5	5	4	5					4.75
Plants	I.B.2	x		4	4					4.00
									Listed Species Average Score	4.55
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	5	4	2	5					4.00
Other non-game species or their habitat monitoring	I.C.3	5	5	4	5					4.75
Fire effects monitoring	I.C.4	4	5	1	5					3.75
Other habitat management effects monitoring	I.C.5	5	5	2	5					4.25
Invasive species survey / monitoring	I.C.6	5	4	4	5					4.50
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	4	4	4	5					4.25
Protection and preservation	II.B	5	5	4	5					4.75
									Cultural Resources Average Score	4.50
Resource Management, Prescribed Fire (III.A)										

Area Being Burned (no. acres)	III.A.1	3	5	1	3					3.00
Frequency	III.A.2	3	5	2	3					3.25
Quality	III.A.3	4	5	2	4					3.75
									Resource Management, Prescribed Fire Average Score	3.33
Restoration (III.B)										
Salt Marsh Restoration	III.B.1	4	5	5	4					4.50
Basin Marsh	III.B.2	5	5	4	4					4.50
Oyster Reef Restoration	III.B.3	4	4	5	4					4.25
Dune Restoration	III.B.4	5	5	4	4					4.50
									Restoration Average Score	4.44
Forest Management (III.C)										
Timber Inventory	III.C.1	3	3	3	3					3.00
									Forest Management Average Score	3.00
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	5	5	4	5					4.75
prevention - animals	III.D.1.b	4	4	4	5					4.25
prevention - pests/pathogens	III.D.1.c	4	5	4	5					4.50
Control										
control - plants	III.D.2.a	5	5	4	5					4.75
control - animals	III.D.2.b	4	4	4	4					4.00
control - pests/pathogens	III.D.2.c	4	5	4	5					4.50
									Non-Native, Invasive & Problem Species Average Score	4.46
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	5	4	4	3					4.00
Ditches	III.E.1.b	4	4	4	3					3.75
Hydro-period Alteration	III.E.1.c	5	4	4	4					4.25
Water Level Alteration	III.E.1.d	4	4	4	4					4.00
River Bank Erosion	III.E.1.f	5	3	3	4					3.75
									Hydrologic/Geologic function, Hydro-Alteration Average Score	3.95
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	5	5	4	5					4.75
Surface water quantity	III.F.3.b	5	5	4	4					4.50
									Surface Water Monitoring Average Score	4.63
Resource Protection (III.F)										
Boundary survey	III.F.1	5	5	4	4					4.50
Gates & fencing	III.F.2	5	5	4	5					4.75
Signage	III.F.3	5	4	3	5					4.25
Law enforcement presence	III.F.4	5	5	3	5					4.50
									Resource Protection Average Score	4.50
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	5	5	4	5					4.75
A1A Residences	III.G.1.b	4	5	4	5					4.50

Inholdings/additions	III.G.2	4	4	4	4					4.00
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	5	5	4	5					4.75
Parking	IV.1.b	4	4	4	4					4.00
Boat Access	IV.1.c	4	5	4	5					4.50
Environmental Education & Outreach										
Wildlife	IV.2.a	5	5	5	5					5.00
Invasive Species	IV.2.b	5	5	5	3					4.50
Habitat Management Activities	IV.2.c	4	5	5	5					4.75
Interpretive facilities and signs	IV.3	5	5	5	5					5.00
Recreational Opportunities	IV.4	5	5	5	5					5.00
Management of Visitor Impacts	IV.5	5	5	5	4					4.75
								Public Access & Education Average Score		4.69
Management Resources (V.1, V.2, V.3. V.4)										
Maintenance										
Waste disposal	V.1.a	5	5	4	5					4.75
Sanitary facilities	V.1.b	5	5	4	5					4.75
Infrastructure										
Buildings	V.2.a	4	5	4	4					4.25
Equipment	V.2.b	4	4	3	4					3.75
Staff	V.3	3	3	2	4					3.00
Funding	V.4	4	3	2	4					3.25
								Management Resources Average Score		3.96

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

Land Management Plan Review Details

Items Requiring Improvements in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than 3.0 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The next management plan update should address the checklist items identified below:

1. **The maintenance condition of the Natural Communities, specifically mesic hammock, and hydric hammock, received below average scores. The review team is asked to evaluate, based on their perspective, what percent of the natural community is in maintenance condition. The scores range from 1 to 5, with 1 being 0-20% in maintenance condition, 2 being 21-40%, 3 being 41-60%, 4 being 61-80% and 5 being 81-100%.**

   Managing Agency Response: The managing agency concurs with this recommendation. The maps in the current management plan do not show FNAI or Conservation Land Cover classifications for the managed portion of the Reserve (Lease 3462) and they will be added in the new management plan. Additionally, a short-term goal will be included in the management plan

to assess the natural communities within managed areas of the Reserve to determine the maintenance condition and establish a longer-term plan.

2. **Restoration, specifically oyster reef restoration, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether restoration is sufficient.**

   Managing Agency Response: From 2014 to 2022, the Reserve held two to four collaborative meetings a year of the Oyster and Water Quality Task Force, which was comprised of representatives from FDEP, FWC, FDACS, SJRWMD, researchers, and shellfish harvesters. There is anecdotal evidence that the extent of oyster reefs has been reduced over the past century along the Intracoastal Waterway (ICWW- Tolomato and Matanzas Rivers). However, given the altered structure and function of the ICWW, it is unlikely that restoration in these areas would be successful. Experimental designs for creating oyster habitat along this stretch have been tested but none have proven to be successful thus far due to the high energy nature of the ICWW. New treatments are under consideration and an objective regarding these activities will be included in the new management plan.

   Additionally, research staff and visiting scientists at the Reserve continue to monitor existing oyster habitat condition throughout the Guana, Tolomato, and Matanzas estuaries, and research is being conducted via Cornell University to determine historical oyster body size and extent. Collaboration meetings on this subject continue to be held at least once per year.

   Forest Management, specifically timber inventory, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether forest management is sufficient.

   Managing Agency Response: A timber inventory was done in 2009 and the letter can be found on page 163 of the management plan. An excerpt from the letter states "The pine flatwoods component, see letter dated 3-3-03, is extremely small and fragmented occurring in isolated pockets intermixed with the oak hammocks throughout the state park. Management options are very limited due to logistics which include the size and condition of interior roads and the position of the flatwoods component and oak hammocks. In my opinion it is in the best interest of the state to leave these areas intact."

   The Reserve will reach out to the Florida Forestry Service for an updated assessment.

   Hydrologic/Geologic function Hydro-Alteration, specifically river bank erosion, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether consideration of past and present hydrologic and geologic functions are sufficient.

   Managing Agency Response: The Guana peninsula functions as a barrier island within a bar-built estuary so it is expected to be a dynamic landform. Based on historic aerial imagery, the western edge of the Guana Peninsula has been eroding since at least the 1940's, which is approximately the time when the Intracoastal Waterway (ICWW) was fully dredged. The ICWW allows large commercial and recreational vessels to traverse the eastern side of Florida without the hazards of the open ocean and those vessels create large wakes that increase erosion. Additionally, there have been multiple strong storms, tropical and nor'easters, that have caused

erosion. Past installations and evaluations of revetment options have proven ineffective or excessively expensive. Staff continue to assess erosion mitigation options and objectives for these activities are included in the new management plan.

Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Xeric Hammock	I.A.2	4	5	2	3					3.50
Beach Dune	I.A.3	4	5	4	3					4.00
Coastal Strand	I.A.4	4	5	4	3					4.00
Maritime Hammock	I.A.5	4	5	2	3					3.50
Shell Mound	I.A.6	4	5	2	3					3.50
Mesic Flatwoods	I.A.7	4	5	4	3					4.00
Depression Marsh/Basin Marsh	I.A.8	4	5	4	3					4.00
Salt Marsh	I.A.9	4	5	4	3					4.00
Marine Unconsolidated Substrate	I.A.10	4	5	4	3					4.00
Mesic Hammock	I.A.11	4	3	1	3					2.75
Hydric Hammock	I.A.12	4	3	1	3					2.75
									Natural Communities Average Score	3.64
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	5		4	5					4.67
Sea Turtles	I.B.1.b	4	5	5	5					4.75
Anastasia Island Beach Mouse	I.B.1.c	4	5	3	5					4.25
Gopher tortoise	I.B.1.d	4	5	3	5					4.25
Plants	I.B.2	4		4	3					3.67
									Listed Species Average Score	4.32
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	4	5	2	3					3.50
Other non-game species or their habitat monitoring	I.C.3	4	4	2	3					3.25
Fire effects monitoring	I.C.4	4	4	3	5					4.00
Other habitat management effects monitoring	I.C.5	4	4	2	4					3.50
Invasive species survey / monitoring	I.C.6	4	4	2	4					3.50
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	5	4	4	4					4.25
Protection and preservation	II.B	5	5	4	4					4.50
									Cultural Resources Average Score	4.38
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	3	4	4	2					3.25
Frequency	III.A.2	4	4	2	4					3.50
Quality	III.A.3	4	4	4	5					4.25

										Resource Management, Prescribed Fire Average Score 3.67
Restoration (III.B)										
Salt Marsh Restoration	III.B.1	4	4	3	3					3.50
Basin Marsh	III.B.2	4	4	3	3					3.50
Oyster Reef Restoration	III.B.3	3	2	3	3					2.75
Dune Restoration	III.B.4	2	3	3	4					3.00
										Restoration Average Score 3.19
Forest Management (III.C)										
Timber Inventory	III.C.1	3	3	3	2					2.75
										Forest Management Average Score 2.75
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	4	4	4	5					4.25
prevention - animals	III.D.1.b	4	4	4	5					4.25
prevention - pests/pathogens	III.D.1.c	4	4	4	3					3.75
Control										
control - plants	III.D.2.a	4	4	4	5					4.25
control - animals	III.D.2.b	4	3	4	5					4.00
control - pests/pathogens	III.D.2.c	4	4	4	3					3.75
										Non-Native, Invasive & Problem Species Average Score 4.04
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	4	4	2	3					3.25
Ditches	III.E.1.b	4	4	2	3					3.25
Hydro-period Alteration	III.E.1.c	4	4	3	3					3.50
Water Level Alteration	III.E.1.d	3	4	3	3					3.25
River Bank Erosion	III.E.1.f	4	3	1	3					2.75
										Hydrologic/Geologic function, Hydro-Alteration Average Score 3.20
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	4	5	4	4					4.25
Surface water quantity	III.E.3.b	4	5	4	3					4.00
										Surface Water Monitoring Average Score 4.13
Resource Protection (III.F)										
Boundary survey	III.F.1	4	4	4	3					3.75
Gates & fencing	III.F.2	4	4	4	5					4.25
Signage	III.F.3	4	4	4	5					4.25
Law enforcement presence	III.F.4	4	4	3	4					3.75
										Resource Protection Average Score 4.00
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	4	4	3	4					3.75
A1A Residences	III.G.1.b	3	4	3	3					3.25
Inholdings/additions	III.G.2	4	2	3	5					3.50
Discussion of Potential Surplus Land Determination	III.G.3	2	4	4	5					3.75
Surplus Lands Identified?	III.G.4	5	5	2	5					4.25

Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	4	4	4	5					4.25
Parking	IV.1.b	4	4	4	5					4.25
Boat Access	IV.1.c	3	4	4	5					4.00
Environmental Education & Outreach										
Wildlife	IV.2.a	4	5	5	5					4.75
Invasive Species	IV.2.b	4	5	5	5					4.75
Habitat Management Activities	IV.2.c	4	5	5	5					4.75
Interpretive facilities and signs	IV.3	4	5	5	5					4.75
Recreational Opportunities	IV.4	4	5	5	5					4.75
Management of Visitor Impacts	IV.5	4	5	5	5					4.75
									Public Access & Education Average Score	4.56
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Fishing	VI.A.1	5	5	4	5					4.75
Canoeing/Kayaking	VI.A.2	5	5	5	5					5.00
Wildlife Viewing	VI.A.3	5	5	5	5					5.00
Horseback Riding	VI.A.4	4	4	5	5					4.50
Hiking	VI.A.5	5	5	5	5					5.00
Bicycling	VI.A.6	5	4	4	5					4.50
Beach Activities	VI.A.7	5	5	4	5					4.75
Research	VI.A.8	5	5	5	5					5.00
Environmental Education	VI.A.9	5	5	5	5					5.00

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

Often, the exceptional condition of some of the property's attributes impress review team members. In those instances, team members are encouraged to offer positive feedback to the managing agency in the form of a commendation. The teams develop commendations generally by standard consensus processes or by majority vote if they cannot obtain a true consensus.

Explanation of Consensus Recommendations:

Subsection 259.036(2), F.S., specifically states that the managing entity shall consider the findings and recommendations of the land management review. We ask team members to provide general recommendations for improving the management or public access and use of the property. The teams discuss these recommendations and develop consensus recommendations as described above. We provide these recommendations to the managing agency to consider when finalizing the required ten-year management plan update. We encourage the manager to respond directly to these recommendations and include their responses in the final report when received in a timely manner.

Explanation of Field Review Checklist and Scores, and Management Plan Review Checklist and Scores:

We provide team members with a checklist to fill out during the evaluation workshop phase of the Land Management Review. The checklist is the uniform tool used to evaluate both the management actions and condition of the managed area, and the sufficiency of the management plan elements. During the evaluation workshop, team members individually provide scores on each issue on the checklist, from their individual perspective. Team members also base their evaluations on information provided by the managing agency staff as well as other team member discussions. Staff averages these scores to evaluate the overall conditions on the ground, and how the management plan addresses the issues. Team members must score each management issue 1 to 5: 1 being the management practices are clearly insufficient, and 5 being that the management practices are excellent. Members may choose to abstain if they have inadequate expertise or information to make a cardinal numeric choice, as indicated by an "X" on the checklist scores, or they may not provide a vote for other unknown reasons, as indicated by a blank. If a majority of members failed to vote on any issue, that issue is determined to be irrelevant to management of that property or it was inadequately reviewed by the team to make an intelligent choice. In either case staff eliminated the issue from the report to the manager.

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

B.5 / Management Procedures for Archaeological and Historical Sites on State-Owned or Controlled Lands

(revised June 2021)

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

Historic Property Definition

Historic properties include archaeological sites and historic structures as well as other types of resources. Chapter 267, Florida Statutes states: " '*Historic property' or 'historic resource' means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state."*

Agency Responsibilities

Per Chapter 267, *F.S.* and state policy related to historic properties, state agencies of the executive branch must provide the Division of Historical Resources (Division) the opportunity to comment on any undertakings with the potential to affect historic properties that are listed, or eligible for listing, in the National Register of Historic Places, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the undertaking. (267.061(2)(a))

State agencies must consult with the Division when, as a result of state action or assistance, a historic property will be demolished or substantially altered in a way that will adversely affect the property. State agencies must take timely steps to consider feasible and prudent alternatives to the adverse effect. If no feasible or prudent alternatives exist, the state agency must take timely steps to avoid or mitigate the adverse effect. (267.061(2)(b))

State agencies must consult with Division to establish a program to locate, inventory and evaluate all historic properties under ownership or controlled by the agency. (267.061(2)(c))

State agencies are responsible for preserving historic properties under their control. State agencies are directed to use historic properties available to the agency when that use is consistent with the historic property and the agency's mission. State agencies are also directed to pursue preservation of historic properties to support their continued use. (267.061(2)(d))

Statutory Authority

The full text of Chapter 267, F.S. and additional information related to the treatment of historic properties is available at:

https://dos.myflorida.com/historical/preservation/compliance-and-review/regulations-guidelines/

Management Implementation

Although the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual and do not include detailed project information. Specific information for individual projects must be submitted to the Division for review and comment.
Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. The Division's recommendations may include, but are not limited to: approval of the project as submitted, recommendation for a cultural resource assessment survey by a qualified professional archaeologist, and modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions or alterations to historic structures as well as new construction must also be submitted to the Division for review. Projects involving structures fifty years of age or older must be submitted to the Division for a significance determination**.** In rare cases, structures under fifty years of age may be deemed historically significant.

Adverse effects to historic properties must be avoided when possible, and if avoidance is not possible, additional consultation with the Division is necessary to develop a mitigation plan. Furthermore, managers of state property should make preparations for locating and evaluating historic properties, both archaeological sites and historic structures.

Archaeological Resource Management (ARM) Training

The ARM Training Course introduces state land managers to the nature of archaeological resources, Florida archaeology, and the role of the Division in managing state-owned archaeological resources. Participants gain a better understanding of the requirements of state and federal laws with regard to protecting and managing archaeological sites on state managed lands. Participants also receive a certificate recognizing their ability to conduct limited monitoring activities in accordance with the Division's Review Procedure, thereby reducing the time and money spent to comply with state regulations. Additional information regarding the ARM Training Course is available at:

https://dos.myflorida.com/historical/archaeology/education/arm-training-courses/

Matrix for Ground Disturbance on State Lands

The matrix is a tool designed to help streamline the Division's Review Procedure. The matrix allows state land managers to make decisions about balancing ground disturbance and stewardship of historic resources. The matrix establishes types of undertakings that are either minor or major disturbances and then guides the land manager to consult the Division, conduct ARM-trained project monitoring, or proceed with the project.

Additional information regarding the matrix is available at:
https://dos.myflorida.com/historical/archaeology/education/dhr-matrix-for-ground-disturbance-on-state-lands/

Human Remains Treatment

Chapter 872, *Florida Statutes* makes it illegal to willfully and knowingly disturb human remains. In the event human remains are discovered, cease all activity in the area that may disturb the remains. Leave the bones and nearby items in place. Immediately notify law enforcement or the local district medical examiner of the discovery and follow the provisions of Chapter 872, FS. Additional information regarding the treatment of human remains and cemeteries is available at:

https://dos.myflorida.com/historical/archaeology/human-remains/
https://dos.myflorida.com/historical/archaeology/human-remains/abandoned-cemeteries/what-are-the- applicable-laws-and-regulations/

Division of Historical Resources Review Procedure

Projects on state owned or controlled properties may submit projects to the Division for review using the streamlined State Lands Consultation Form. The form provides instructions to submit projects for review and outlines the necessary information for the Division to complete the review process. The State Lands Consultation Form and additional information about the Division's review process is available at:

https://dos.myflorida.com/historical/preservation/compliance-and-review/state-lands-review/

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Compliance and Review Section
Bureau of Historic Preservation Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

StateLandsCompliance@dos.myflorida.com
Phone: (850) 245-6333
Toll Free: (800) 847-7278
Fax: (850) 245-6435

B.6 / ARC Checklist

Land Management Plan Compliance Checklist

Required for State-owned conservation lands over 160 acres

Section A: Acquisition Information Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
1	The common name of the property.	18-2.018 & 18-2.021	Ex. Summ.
2	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	p. 41-42
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	p.42
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	p. 42, App. A
5	A map showing the approximate location and boundaries of the property, and the location of any structures or improvements to the property.	18-2.018 & 18-2.021	p. 5, 9-10
6	An **assessment** as to whether the property, or any portion, should be declared surplus. *Provide Information regarding **assessment and analysis** in the plan, and provide **corresponding map**.*	18-2.021	p. 115
7	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. *Please clearly indicate parcels on a map.*	18-2.021	p. 110
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	p. 59-61
9	A statement of the purpose for which the lands were acquired, the projected use or uses as defined in 253.034 and the statutory authority for such use or uses.	259.032(10)	p. 35-38, 41-42
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	p. 6-7, 42-43

Section B: Use Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
11	The designated single use or multiple use management for the property, including use by other managing entities.	18-2.018 & 18-2.021	p. 23-24, 77-78
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	p. 77-78
13	A description of alternative or multiple uses of the property considered by the lessee and a statement detailing why such uses were not adopted.	18-2.018	p. 77-78
14	A description of the management responsibilities of each entity involved in the property's management and how such responsibilities will be coordinated.	18-2.018	p. 41, 63-79
15	Include a provision that requires that the managing agency consult with the Division of Historical Resources, Department of State before taking actions that may adversely affect archeological or historical resources.	18-2.021	p. 76, App. B.5

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
16	Analysis/description of other managing agencies and private land managers, if any, which could facilitate the restoration or management of the land.	18-2.021	p. 105-108
17	A determination of the public uses and public access that would be consistent with the purposes for which the lands were acquired.	259.032(10)	p. 23-24, 76-78
18	A finding regarding whether each planned use complies with the 1981 State Lands Management Plan, particularly whether such uses represent "balanced public utilization," specific agency statutory authority and any other legislative or executive directives that constrain the use of such property.	18-2.021	p. 78
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	App. B.7
20	An assessment of the impact of planned uses on the renewable and non-renewable resources of the property, including soil and water resources, and a detailed description of the specific actions that will be taken to protect, enhance and conserve these resources and to compensate/mitigate damage caused by such uses, including a description of how the manager plans to control and prevent soil erosion and soil or water contamination.	18-2.018 & 18-2.021	p. 63-79
21	*For managed areas larger than 1,000 acres, an analysis of the multiple-use potential of the property which shall include the potential of the property to generate revenues to enhance the management of the property provided that no lease, easement, or license for such revenue-generating use shall be entered into if the granting of such lease, easement or license would adversely affect the tax exemption of the interest on any revenue bonds issued to fund the acquisition of the affected lands from gross income for federal income tax purposes, pursuant to Internal Revenue Service regulations.	18-2.021 & 253.036	p. 57, 77-78
22	If the lead managing agency determines that timber resource management is not in conflict with the primary management objectives of the managed area, a component or section, prepared by a qualified professional forester, that assesses the feasibility of managing timber resources pursuant to section 253.036, F.S.	18-021	App. C.7
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	p. 78

*The following taken from 253.034(10) is not a land management plan requirement; however, it should be considered when developing a land management plan: The following additional uses of conservation lands acquired pursuant to the Florida Forever program and other state-funded conservation land purchase programs shall be authorized, upon a finding by the Board of Trustees, if they meet the criteria specified in paragraphs (a)-(e): water resource development projects, water supply development projects, storm-water management projects, linear facilities and sustainable agriculture and forestry. Such additional uses are authorized where: (a) Not inconsistent with the management plan for such lands; (b) Compatible with the natural ecosystem and resource values of such lands; (c) The proposed use is appropriately located on such lands and where due consideration is given to the use of other available lands; (d) The using entity reasonably compensates the titleholder for such use based upon an appropriate measure of value; and (e) The use is consistent with the public interest.

Section C: Public Involvement Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
24	A statement concerning the extent of public involvement and local government participation in the development of the plan, if any.	18-2.021	p. 28, App. F
25	The management prospectus required pursuant to paragraph (9)(d) shall be available to the public for a period of 30 days prior to the public hearing.	259.032(10)	App. F.1
26	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. *Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.*	259.032(10)	App. F.2
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	App. F.2.3
28	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. *Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.*	253.034(5) & 259.032(10)	App. F.1.2
29	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. *Include manager's replies to the team's findings and recommendations.*	259.036	App. B.4
30	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	App. B.4
31	If manager is not in agreement with the management review team's findings and recommendations in finalizing the required 10-year update of its management plan, the managing agency should explain why they disagree with the findings or recommendations.	259.036	App. B.4

Section D: Natural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
32	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. *Use brief descriptions and include USDA maps when available.*	18-2.021	p. 15-16, 45-46
33	Insert FNAI based natural community maps when available.	ARC consensus	p. 19-20, 50
34	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding outstanding native landscapes containing relatively unaltered flora, fauna and geological conditions.	18-2.021	p. 50-55

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
35	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding unique natural features and/or resources including but not limited to virgin timber stands, scenic vistas, natural rivers and streams, coral reefs, natural springs, caverns and large sinkholes.	18-2.018 & 18-2.021	p. 39-40
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	p. 19-20, 50-51
37	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding mineral resources, such as oil, gas and phosphate, etc.	18-2.018 & 18-2.021	p. 45
38	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding fish and wildlife, both game and non-game, and their habitat.	18-2.018 & 18-2.021	p. 39-40
39	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding State and Federally listed endangered or threatened species and their habitat.	18-2.021	p. 39-40, App. C.4, App. D.4
40	The identification or resources on the property that are listed in the Natural Areas Inventory. *Include letter from FNAI or consultant where appropriate.*	18-2.021	App. C.1
41	Specific description of how the managing agency plans to identify, locate, protect and preserve or otherwise use fragile, nonrenewable natural and cultural resources.	259.032(10)	p. 75-76, 80-85, 92-94, 105-108
42	Habitat Restoration and Improvement	259.032(10) & 253.034(5)	
42-A.	Describe management needs, problems and a desired outcome and the key management activities necessary to achieve the enhancement, protection and preservation of restored habitats and enhance the natural, historical and archeological resources and their values for which the lands were acquired.	259.032(10) & 253.034(5)	p. 62-94, 105-108
42-B.	Provide a detailed description of both short (2-year planning period) and long-term (10-year planning period) management goals, and a priority schedule based on the purposes for which the lands were acquired and include a timeline for completion.	259.032(10) & 253.034(5)	p. 80-92, App. D.2
42-C.	The associated measurable objectives to achieve the goals.	259.032(10) & 253.034(5)	p. 80-92
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. *Include fire management plans - they can be in plan body or an appendix.*	259.032(10) & 253.034(5)	p. 80-92, App. D.1, D.2
42-E.	A detailed expense and manpower budget in order to provide a management tool that facilitates development of performance measures, including recommendations for cost-effective methods of accomplishing those activities.	259.032(10) & 253.034(5)	p.80-92, App. D.2
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. *See footnote.*	253.034(5)	p. 56-57, App. C.7
44	Sustainable Forest Management, including implementation of prescribed fire management	18-2.021, 253.034(5) & 259.032(10)	

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	18-2.021, 253.034(5) & 259.032(10)	p. 75-76, 82-85, App. C.1, C.7
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	18-2.021, 253.034(5) & 259.032(10)	p. 82-85
44-C.	Measurable objectives (see requirement for #42-C).	18-2.021, 253.034(5) & 259.032(10)	p. 82-85
44-D.	Related activities (see requirement for #42-D).	18-2.021, 253.034(5) & 259.032(10)	p. 82-85
44-E.	Budgets (see requirement for #42-E).	18-2.021, 253.034(5) & 259.032(10)	App. D.2
45	Imperiled species, habitat maintenance, enhancement, restoration or population restoration	259.032(10) & 253.034(5)	
45-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	p. 81-82, App. D
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 81-82
45-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 81-82
45-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 81-82
45-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.2
45-F	Assess the feasibility of managing the lands > 40 contiguous acres as a recipient site for gopher tortoises consistent with rules of the Fish and Wildlife Conservation Commission, as prepared by the agency or cooperatively with a Fish and Wildlife Conservation Commission wildlife biologist.	259.105	p. 75
45-G	Economic feasibility of establishing a gopher tortoise recipient site, including the initial cost, recurring management costs and the revenue projections.	259.105	p. 75
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. *See footnote.*	253.034(5)	p. 75
47	Place the Arthropod Control Plan in an appendix. If one does not exist, provide a statement as to what arrangement exists between the local mosquito control district and the management unit.	BOT requirement via lease language	App. C.6
48	Exotic and invasive species maintenance and control	259.032(10) & 253.034(5)	
48-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	p. 75, 83-4
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 83-4
48-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 83-4
48-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 80-84, 105-108
48-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.2

Section E: Water Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
49	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. *If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.*	18-2.018 & 18-2.021	p. 41
50	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding water resources, including water classification for each water body and the identification of any such water body that is designated as an Outstanding Florida Water under Rule 62-302.700, F.A.C.	18-2.021	p. 41-42, 46-47
51	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding swamps, marshes and other wetlands.	18-2.021	p. 19-20, App. C.1
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. *See footnote.*	253.034(5)	App. C.1
53	Hydrological Preservation and Restoration	259.032(10) & 253.034(5)	
53-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	p. 85-91, 105-108
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 85-91
53-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 85-91
53-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 105-108
53-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.2

Section F: Historical, Archaeological and Cultural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
54	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. *Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.*	18-2.018, 18-2.021 & per DHR's request	p. 57-59, 76, 92-94
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	p. 57-59, App.C.8
56	A description of actions the agency plans to take to locate and identify unknown resources such as surveys of unknown archeological and historical resources.	18-2.021	p. 92-94
57	Cultural and Historical Resources	259.032(10) & 253.034(5)	
57-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	p. 76, 92-94
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 92-94
57-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 92-94
57-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 92-94
57-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.2

Section G: Facilities (Infrastructure, Access, Recreation)

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
58	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. *See footnote.*	253.034(5)	p. 101-105
59	Capital Facilities and Infrastructure	259.032(10) & 253.034(5)	
59-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	p. 101-105
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 101-105
59-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 101-105
59-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 101-105
59-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.2 (p. 266)
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	p. 101-105
61	Public Access and Recreational Opportunities	259.032(10) & 253.034(5)	
61-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	p. 78, 91-92, 101-102
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 91-92
61-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 91-92
61-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 76-78, 91-92, 101-105
61-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.2

Section H: Other/ Managing Agency Tools

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
62	Place this LMP Compliance Checklist at the front of the plan.	ARC and managing agency consensus	Beginning, App. B.6
63	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	Ex. Sum
64	If this LMP is a 10-year update, note the accomplishments since the drafting of the last LMP set forth in an organized (categories or bullets) format.	ARC consensus	Ex. Sum
65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	p. 84-104

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
66	Summary budget for the scheduled land management activities of the LMP including any potential fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitat, which fees shall be used to restore, manage, enhance, repopulate, or acquire imperiled species habitat for lands that have or are anticipated to have imperiled species or such habitat onsite. The summary budget shall be prepared in such a manner that it facilitates computing an aggregate of land management costs for all state-managed lands using the categories described in s. 259.037(3) which are resource management, administration, support, capital improvements, recreation visitor services, law enforcement activities.	253.034(5)	App. D.2, D.3
67	Cost estimate for conducting other management activities which would enhance the natural resource value or public recreation value for which the lands were acquired, include recommendations for cost-effective methods in accomplishing those activities.	259.032(10)	App.D.2
68	A statement of gross income generated, net income and expenses.	18-2.018	App. D.2

*** = The referenced inventories shall be of such detail that objective measures and benchmarks can be established for each tract of land and monitored during the lifetime of the plan. All quantitative data collected shall be aggregated, standardized, collected, and presented in an electronic format to allow for uniform management reporting and analysis. The information collected by the DEP pursuant to s. 253.0325(2) shall be available to the land manager and his or her assignee.

B.7 / Letter of Approval from Florida's Division of State Lands

FLORIDA DEPARTMENT OF
Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

September 12, 2024

Mr. Earl Pearson
Office of Resilience and Coastal Protection
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, MS 235
Tallahassee, Florida 32399-3000

RE: Guana Tolomato Matanzas National Estuarine Research Reserve Management Plan – Lease 3462

Dear Mr. Pearson:

On **September 12, 2024**, the Acquisition and Restoration Council (ARC) recommended approval of the **Guana Tolomato Matanzas National Estuarine Research Reserve** management plan. Therefore, Division of State Lands, Office of Environmental Services (OES), acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Guana Tolomato Matanzas National Estuarine Research Reserve** management plan. The next management plan update is due September 12, 2034.

Pursuant to s. 253.034(5)(a), F.S., each management plan is required to "describe both short-term and long-term management goals and include measurable objectives to achieve those goals. Short-term goals shall be achievable within a 2-year planning period, and long-term goals shall be achievable within a 10-year planning period." Upon completion of short-term goals, please submit a signed letter identifying categories, goals, and results with attached methodology to the Division of State Lands, Office of Environmental Services.

Pursuant to s. 259.032(8)(g), F.S., by July 1 of each year, each governmental agency and each private entity designated to manage lands shall report to the Secretary of Environmental Protection, via the Division of State Lands, on the progress of funding, staffing, and resource management of every project for which the agency or entity is responsible.

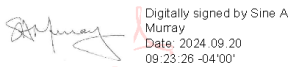
Pursuant to s. 259.032, F.S., and Chapter 18-2.021, F.A.C., management plans for areas less than 160 acres may be handled in accordance with the negative response process. This process requires small management plans and management plan amendments be submitted to the Division of State Lands for review, and the Acquisition and Restoration

Council (ARC) for public notification. The Division of State Lands will approve these plans or plan amendments submitted for review through delegated authority unless three or more ARC members request the division place the item on a future council meeting agenda for review. To create better efficiency, improve customer service, and assist members of the ARC, the Division of State Lands will notice negative response items on Thursdays except for weeks that have State or Federal holidays that fall on Thursday or Friday. The Division of State Lands will contact you on the appropriate Friday to inform you if the item is approved via delegated authority or if it will be placed on a future ARC agenda by request of the ARC members.

Pursuant to s. 259.036(2), F.S., management areas that exceed 1,000 acres in size, shall be scheduled for a land management review at least every 5 years.

Conditional approval of this land management plan does not waive the authority or jurisdiction of any governmental entity that may have an interest in this project. Implementation of any upland activities proposed by this management plan may require a permit or other authorization from federal and state agencies having regulatory jurisdiction over those particular activities. Pursuant to the conditions of your lease, please forward copies of all permits to this office upon issuance.

Sincerely,



Sine Murray
Office of Environmental Services
Division of State Lands

Appendix C / Resource Management Details

C.1 / Acreages by FNAI Community Type

FNAI/CLC Community Type	Total GRMAP	% of Area GRMAP	Total PCAP	% of Area PCAP	Total Lease 3462	% of Area Lease 3462
Uplands (acres)						
Basin Marsh	0	0.00%	0	0.00%	17	0.61%
Baygall	4	0.01%	0	0.00%	31	1.10%
Beach Dune	1	0.00%	0	0.00%	6	0.21%
Coastal Scrub	0	0.00%	0	0.00%	218	7.77%
Coastal Uplands	1	0.00%	0	0.00%	0	0.00%
Forest	75	0.20%	0	0.00%	23	0.82%
Freshwater Forested Wetland	2	0.01%	0	0.00%	46	1.64%
Hydric Hammock	1	0.00%	0	0.00%	0	0.00%
Maritime Hammock	32	0.09%	0	0.00%	1219	43.44%
Marsh	1	0.00%	0	0.00%	25	0.89%
Mesic Flatwoods	143	0.38%	0	0.00%	63	2.25%
Mesic Hammock	0	0.00%	0	0.00%	0	0.00%
Sand Bar	11	0.03%	0	0.00%	3	0.11%
Sandhill	0	0.00%	1	0.36%	0	0.00%
Wet Flatwoods	78	0.21%	0	0.00%	6	0.21%
Wet Prarie	0	0.00%	0	0.00%	3	0.11%
Xeric Hammock	0	0.00%	0	0.00%	0	0.00%
Non-Natural	47	0.13%	1	0.36%	31	1.10%
Upland Total	**396**	1.06%	**2**	0.72%	**1691**	60.26%
Intertidal (acres)						
Oyster Bar	176	0.47%	0	0.00%	12	0.43%
Tidal Flat	171	0.46%	0	0.00%	10	0.36%
Salt Marsh	6212	16.63%	34	12.32%	993	35.39%
Total Intertidal	**6559**	17.56%	**34**	12.32%	**1015**	36.17%

FNAI/CLC Community Type	Total GRMAP	% of Area GRMAP	Total PCAP	% of Area PCAP	Total Lease 3462	% of Area Lease 3462
Open Water (acres)						
Blackwater Stream	0	0.00%	54	19.57%	0	0.00%
Estuarine	4711	12.61%	186	67.39%	98	3.49%
Lacustrine	7	0.02%	0	0.00%	0	0.00%
Marine	25683	68.75%	0	0.00%	0	0.00%
Pond/Lake	0	0.00%	0	0.00%	2	0.07%
Total Open Water	**30401**	81.38%	**240**	86.96%	**100**	3.56%
Total All	**37356**		**276**		**2806**	

C.2 / Conservation Land Cover (CLC) Communities Descriptions

Note: Italicized communities are found within the Guana Preserve, Guana River Marsh Aquatic Preserve, and Pellicer Creek Aquatic Preserve, which are directly managed by ORCP staff.

Agriculture – Lands that are cultivated to produce food crops and livestock.

Basin Marsh *– Basin with peat or sand substrate; seasonally inundated; statewide; occasional fire; largely herbaceous; maidencane, sawgrass, bulltongue arrowhead, pickerelweed, Baker's cordgrass, white water lily.*

Basin Swamp – Typically, large basin wetland with peat substrate; seasonally inundated; still water or with water output; Panhandle to central peninsula; occasional or rare fire; forest of cypress/tupelo/mixed hardwoods; pond cypress, swamp tupelo.

Baygall *(Mixed Scrub-Shrub Wetland, Baygall, Bay Swamp) – Slope or depression wetland with peat substrate; usually saturated and occasionally inundated; statewide excluding Keys; rare or no fire; closed canopy of evergreen trees; loblolly bay, sweetbay, swamp bay, titi, fetterbush.*

Beach Dune *– Active coastal dune with sand substrate; xeric; statewide; rare or no fire; marine influence; open herbaceous vegetation with no canopy; sea oats, railroad vine, bitter panicum, and/or mixed salt- spray tolerant grasses and herbs.*

Blackwater Stream *(Riverine, Streams, Blackwater Stream) – Perennial or intermittent/seasonal watercourse characterized by tea-colored water with a high content of particulate and dissolved organic matter derived from drainage through swamps and marshes; generally lacking an alluvial floodplain.*

Bottomland Forest – Flatland with sand/clay/organic substrate; usually connected or adjacent to a riverine community; occasionally inundated; Panhandle to central peninsula; rare or no fire; closed canopy of mixed hardwoods; tuliptree, sweetbay, water oak, sweetgum, diamond leaved oak, red maple, loblolly pine, spruce pine, Atlantic white cedar.

Coastal Grassland – Coastal flatland behind dunes with stable sand substrate; mesic-hydric; statewide excluding Keys; occasional fire; marine influence; herbaceous vegetation with no canopy; salt-tolerant grasses and herbs; sea oats, bitter panicum, camphorweed, hairawn muhly, Gulf bluestem.

Coastal Interdunal Swale – Linear wetlands between dunes on sandy barrier islands; inundated by local rainfall events; Panhandle to central peninsula; herbaceous or shrubby; sawgrass, hairawn muhly, broomsedge, seashore paspalum, Baker's cordgrass, saltmeadow cordgrass, wax myrtle, coastalplain willow.

Coastal Scrub *– This scrub category represents a wide variety of species found in the coastal zone. A few of the more common components are saw palmetto, sand live oak, myrtle oak, yaupon, railroad vine, bay bean, sea oats, sea purslane, sea grape, Spanish bayonet and prickly pear. This cover type is generally found in dune and white sand areas.*

Coastal Strand – Stabilized coastal dune with sand substrate; xeric; peninsula; rare fire; marine

influence; primarily dense shrubs; saw palmetto in temperate coastal strand or seagrape and/or saw palmetto in tropical coastal strand.

Coastal Upland – Mesic or xeric communities restricted to barrier islands and near shore; woody or herbaceous vegetation; other communities may also occur in coastal environments.

Depression Marsh – Small, isolated, often rounded depression in sand substrate with peat accumulating toward center; surrounded by fire-maintained community; seasonally inundated; statewide excluding Keys; frequent or occasional fire; largely herbaceous; maidencane, sawgrass, pickerelweed, longleaf threeawn, sand cordgrass, and peelbark St. John's wort.

Dome Swamp – Small or large and shallow isolated depression in sand/marl/limestone substrate with peat accumulating toward center; occurring within a fire-maintained community; seasonally inundated; still water; statewide excluding Keys; occasional or rare fire; forested, canopy often tallest in center; pond cypress, swamp tupelo.

Estuarine *– Deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the ocean, with ocean-derived water at least occasionally diluted by freshwater runoff from the land. The upstream and landward limit is where ocean-de rived salts measure less than .5 ppt during the period of average annual low flow.*

Extractive – Encompass both surface and subsurface mining operations. Included are sand, gravel and clay pits, phosphate mines, limestone quarries plus oil and gas wells. Industrial complexes where the extracted material is refined, packaged or further processed are also included in this category.

Floodplain Marsh – Floodplain with organic/sand/alluvial substrate; seasonally inundated; Panhandle to central peninsula; frequent or occasional fire (ca. 3 years, much less frequent in freshwater tidal marshes); treeless herbaceous community with few shrubs; sawgrass, maidencane, sand cordgrass, and/or mixed emergents.

Floodplain Swamp – Along or near rivers and streams with organic/alluvial substrate; usually inundated; Panhandle to central peninsula; rare or no fire; closed canopy dominated by cypress, tupelo, and/or black gum.

Freshwater Forested Wetlands *(Cypress, Mixed Wetland Hardwoods, Mixed Hardwood Coniferous Swamps) – Floodplain or depression wetlands dominated by hydrophytic trees.*

Hydric Hammock *(Hydrick Hammock, Cabbage Palm Hammock) – Lowland with sand/clay/organic soil over limestone or with high shell content; mesichydric; primarily eastern Panhandle and central peninsula; occasional to rare fire; diamond-leaved oak, live oak, cabbage palm, red cedar, and mixed hardwoods.*

Lacustrine *– Wetlands and deepwater habitats (1) situated in a topographic depression or dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent mosses, or lichens with greater than 30% areal coverage; and (3) whose total area exceeds 8 hectares (20 acres); or area less than 8 hectares if the boundary is active wave-formed or bedrock or if 34 water depth in the deepest part of the basin exceeds 2 m (6.6 ft) at low water. Ocean derived salinities are always less than .5 ppt. (Cowardin et al.1979).*

Mangrove Swamp – Estuarine wetland on muck/sand/or limestone substrate; inundated with saltwater by daily tides; central peninsula and Keys; no fire; dominated by mangrove and mangrove associate species; red mangrove, black mangrove, white mangrove, buttonwood.

Marine *– Open ocean overlying the continental shelf and coastline exposed to waves and currents of the open ocean shoreward to (1) extreme high water of spring tides; (2) seaward limit of wetland emergents, trees, or shrubs; or (3) the seaward limit of the Estuarine System, other than vegetation. Salinities exceed 30 parts per thousand (ppt). (Cowardin et al. 1979)*

Marine Unconsolidated Substrate (Beach, Shore) - The portion of beach that lies seaward of the beach dune community and is largely devoid of plant species.

Maritime Hammock *– Stabilized coastal dune with sand substrate; xeric-mesic; statewide but rare in panhandle and Keys; rare or no fire; marine influence; evergreen closed canopy; live oak, cabbage palm, red bay, red cedar in temperate maritime hammock; gumbo limbo, seagrape, and white or Spanish stopper in tropical maritime hammock.*

Marshes *– Long hydroperiod; dominated by grasses, sedges, broadleaf emergents, floating aquatics, or shrubs.*

Mesic Flatwoods *(Palmetto Prairie) – Flatland with sand substrate; mesic; statewide except extreme southern peninsula and Keys; frequent fire (2-4 years); open pine canopy with a layer of low shrubs and herbs; longleaf pine and/or slash pine, saw palmetto, gallberry, dwarf live oak, wiregrass.*

Mesic Hammock *(Cabbage Palm) – Flatland with sand/organic soil; mesic; primarily central peninsula; occasional or rare fire; live oak, cabbage palm, southern magnolia, pignut hickory, saw palmetto.*

Oyster Bar *(Estuarine Mollusk Reef) - Faunal based natural community typically characterized as expansive concentrations of sessile mollusks occurring in intertidal and subtidal zones.*

Plantation – Tree plantations that are artificially generated by planting seedling stock or seeds.

Pond/Lake

> *Floating/Emergent Aquatic Vegetation – Includes both floating vegetation and vegetation which is found either partially or completely above the surface of water.,*
>
> *Cultural-Palustrine – Communities that are both created and maintained by human activities or are modified by human influence to such a degree that the physical conformation of the substrate, the hydrology, or the biological composition of the resident community is substantially different from the character of the substrate, hydrology, or community as it existed prior to human influence.*
>
> *Flatwoods/Prairie/Marsh Lake – Shallow basin in flatlands with high water table; frequently with a broad littoral zone; still water or flow-through; sand or peat substrate; variable water chemistry, but characteristically colored to clear, acidic to slightly alkaline, soft to moderately hard water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic. Marsh lakes are generally shallow, open water area within wide*

expanses of freshwater marsh; still water or flow-through; peat, sand or clay substrate; occurs in most physiographic regions; variable water chemistry, but characteristically highly colored, acidic, soft water with moderate mineral content (sodium, chloride, sulfate); oligomesotrophic to eutrophic

Cultural Estuarine - Communities that are either created and maintained by human activities or are modified by human influence to such a degree that the physical conformation of the substrate, or the biological composition of the resident community is substantially different from the character of the substrate or community as it existed prior to human influence.

Rural – Herbaceous or shrubby vegetated areas in a rural setting. Ground typically appears improved or disturbed to some degree.

Salt Marsh *(Non-vegetated Wetland, Non-Vegetated, Salt Marsh) – Estuarine wetland on muck/sand/or limestone substrate; inundated with saltwater by daily tides; statewide; occasional or rare fire; treeless, dense herb layer with few shrubs; saltmarsh cordgrass, needle rush, saltgrass, saltwort, perennial glasswort, seaside oxeye.*

Sand Beach (Dry) – Beaches are constantly affected by wave and tidal action. The fine clays and silts are washed away leaving sand. However, in protected bay and marsh areas, fine soil particles from surface drainage may settle out. The beach areas also are subject to water and wind erosion.

Sandhill – Upland with deep sand substrate; xeric; panhandle to central peninsula; frequent fire (1-3 years); open canopy of longleaf pine and/or turkey oak with wiregrass understory.

Scrub – Upland with deep sand substrate; xeric; statewide except extreme southern peninsula and Keys, mainly coastal in Panhandle; occasional or rare fire; open or dense shrubs with or without pine canopy; sand pine and/or scrub oaks and/or Florida rosemary.

Scrubby Flatwoods – Flatland with sand substrate; xeric-mesic; statewide except extreme southern peninsula and Keys; occasional fire (5-15 years); widely scattered pine canopy over saw palmetto and scrub oaks; longleaf pine, sand live oak, myrtle oak, Chapman's oak, saw palmetto, wiregrass.

Shell Mound *– Small hill of shells deposited by Native Americans; mesic-xeric; statewide; rare or no fire; marine influence; closed canopy of mixed hardwoods; soapberry, snowberry, white stopper.*

Tidal Flat *(Mud) – A community of quiet waters, with substrates composed of silt or sand that is rich in organic matter and poorly drained at low tide. The substrate may be covered with algae.*

Transportation – Transportation facilities are used for the movement of people and goods. Highways include areas used for interchanges, limited access rights-of-way and service facilities. The Transportation category encompasses rail-oriented facilities including stations, round-houses, repair and switching yards and related areas. Airport facilities include runways, intervening land, terminals, service buildings, navigational aids, fuel storage, parking lots and a limited buffer zone and fall within the Transportation category. Transportation areas also embrace ports, docks, shipyards, dry docks, locks and water course control structures designed for transportation purposes. The docks and ports include buildings, piers, parking lots and adjacent water utilized by

ships in the loading and unloading of cargo or passengers. Locks, in addition to the actual structures, include the control buildings, power supply buildings, docks and surrounding supporting land use (i.e., parking lots and green areas).

Upland Hardwood Forest (Upland Coniferous, Successional Hardwood Forest, Shrub & Brushland) – Upland with sand/clay and/or calcareous substrate; mesic; Panhandle to central peninsula; rare or no fire; closed deciduous or mixed deciduous/evergreen canopy; American beech, southern magnolia, hackberry, swamp chestnut oak, white oak, horse sugar, flowering dogwood, and mixed hardwoods.

Urban – Consists of areas of intensive use with much of the land occupied by man-made structures. Included in this category are cities, towns, villages, strip developments along highways such areas as those occupied by malls, shopping centers, industrial and commercial complexes and institutions that may, in some instances, are isolated from urban areas.

Utilities – Include power generating facilities and water treatment plants including their related facilities such as transmission lines for electric generation plants and aeration fields for sewage treatment sites. Small facilities or those associated with an industrial, commercial or extractive land use are included within these larger respective categories.

Wet Flatwoods *(Hydric Pine Flatwoods) – Flatland with sand substrate; seasonally inundated; statewide except extreme southern peninsula and Keys; frequent fire (2-4 years for grassy wet flatwoods, 5-10 years for shrubby wet flatwoods); closed to open pine canopy with grassy or shrubby understory; slash pine, pond pine, large gallberry, fetterbush, sweetbay, cabbage palm, wiregrass, toothache grass.*

Wet Prairie - *Flatland or slope with sand or clayey sand substrate; usually saturated but only occasionally inundated; statewide excluding extreme southern peninsula; frequent fire (2- 3 years); treeless, dense herbaceous community with few shrubs; wiregrass, blue maidencane, cutthroat grass, wiry beaksedges, flattened pipewort, toothache grass, pitcherplants, coastalplain yellow-eyed grass.*

Xeric Hammock *– Upland with deep sand substrate; xeric; primarily eastern Panhandle to central peninsula; rare or no fire; closed canopy of evergreen hardwoods; sand live oak, saw palmetto.*

C.3 / Guana Preserve (Lease 3462) Prescribed Fire Plan

Background

Fire is an integral part of many of the natural communities within the GTMNERR. From Coastal Strand to Pine Flatwoods, fire is used as a tool to restore and maintain fire-dependent species within these communities. Florida is known as the "lightning capital" because we have more lightning strikes per square mile than any other place in North America. For thousands of years, lightning has been the cause of wildfires and over this time the flora and fauna of many different Florida ecosystems have adapted and evolved to need occasional wildfire to survive. These fire-dependent communities are now at risk because of human suppression. With the ever-growing human population, fire in the native communities has been prevented, causing an overabundance of vegetation and a decline in the overall health of the natural communities.

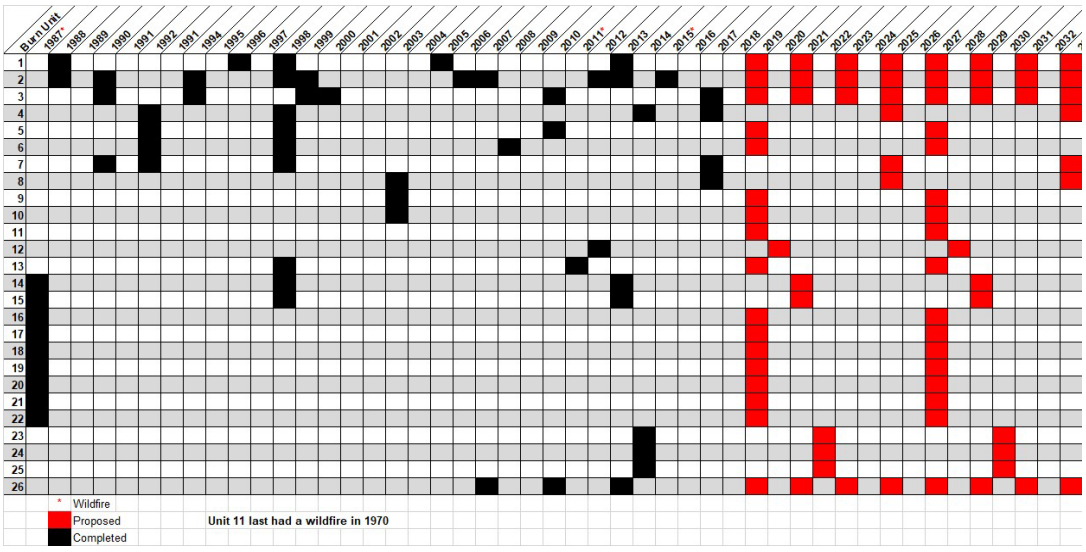
GTM is committed to restoring the natural biodiversity and health of fire-dependent communities using prescribed fire. Prescribed fire mimics wildfire caused by lightning strikes but is carefully controlled through detailed plans called "prescriptions." Along with protecting biodiversity, prescribed fires also play a vital part in reducing the chance of a catastrophic wildfire by reducing the buildup of pyrogenic vegetation or "fuels."

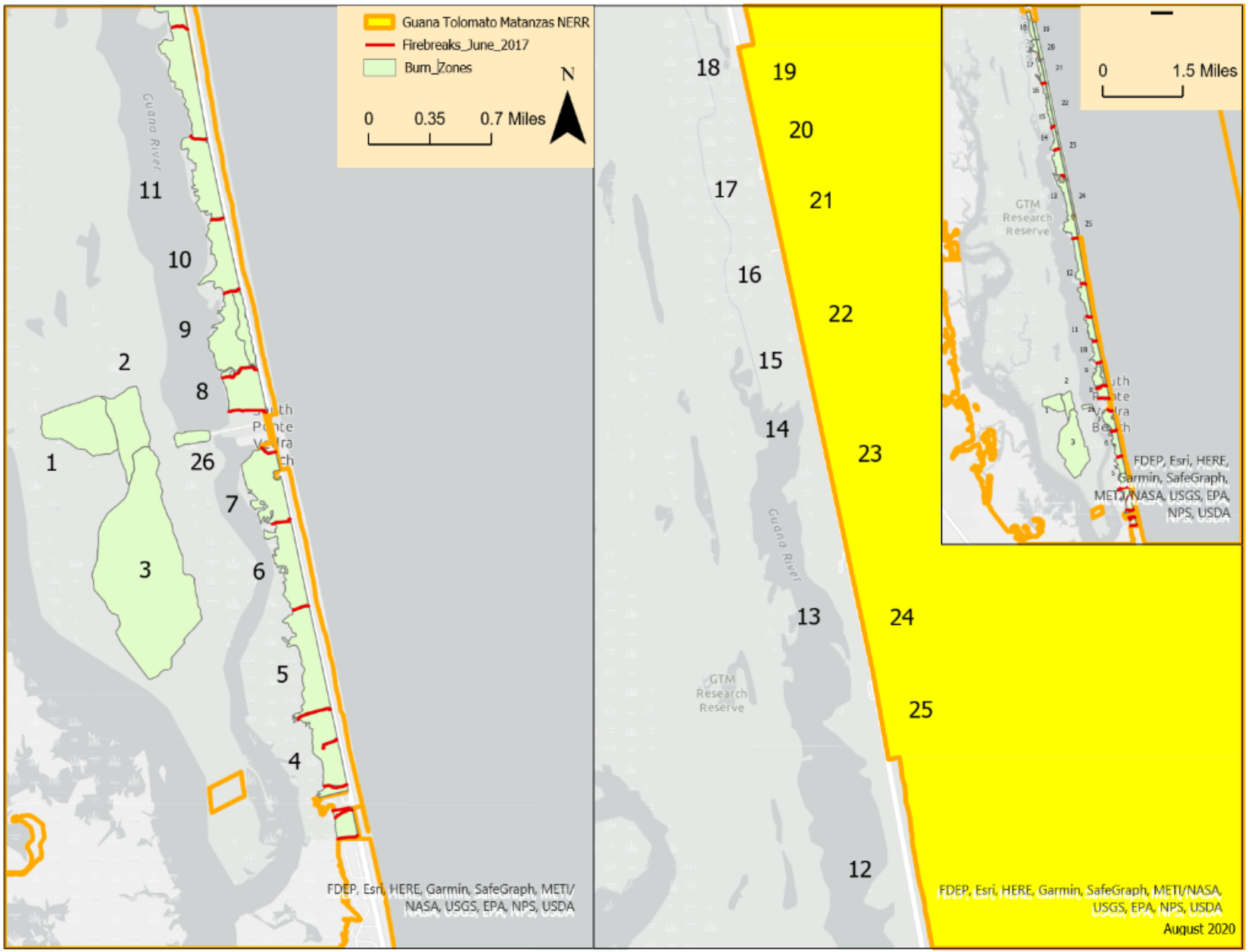
Burn Units

The northern component of the GTMNERR is divided into 26 burn units totaling 1,132 acres. Most of the units are characterized as either coastal strand or coastal dune and require infrequent fire from 8-100 years. There are three units within the trail system and one along the road to the trails. These four units require the most frequent fire; unit 1 and 26 every 2-8 years and unit 2 and 3 every 2-25 years. One unit, unit 18, is primarily maritime forest and requires fire every 8-25 years.

Burn Schedule

Currently, unit 18 is the only unit out of burn rotation. It was last burned in a wildfire in 1987 and is past the maximum of 25 years. The fire lines on the northern and southern boundary of the unit have not been cleared and have been overtaken by vegetation. The table below depicts a future burn schedule at the lowest burn interval.




Guana Tolomato Matanzas NERR
Firebreaks_June_2017
Burn_Zones
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Guana River
GTM Research Reserve
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FDEP, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA
August 2020

C.4 / Priority Species of the GTM Research Reserve

"Listed" species are those listed by the USFWS or FWC as Federally-designated Endangered (FE), Federally-designated Threatened (FT), State Endangered (SE), or State-designated Threatened (ST). If a species is listed by the USFWS, the same listing is used by FWC. Other notations are Yes (Y), No (N), U(Unknown) and designations by the International Union for Conservation of Nature (IUCN).

Genus/ Species	Common Name	Federal Listing	State Listing	Commercial or Recreational Value	Other Importance	ORCP Site Verified	Non-ORCP Site Verified
Plants							
Asplenium dentatum	Toothed Spleenwort	N	SE	N		N	N
Asplenium erosum	Auricled Spleenwort	N	SE	N		N	U
Marshalia ramosa	Southern Barbara's Butons	N	SE	N		N	N
Pecluma plumula	Plume Polypody	N	SE	N		N	U
Pecluma ptilodon	Swamp Plume Polypody	N	SE	N		N	N
Schoenolirion croceum	Yellow Sunnybell	N	SE	N		N	N
Mammals							
Eubalaena glacialis	North Atlantic Right Whale	FE	SE	N	IUCN - Endangered	Y	Y
Peromyscus polionotus phasma	Anastasia Island Beach Mouse	FE	SE	N		Y	Y
Trichechus manatus latirostris	Florida Manatee	FT	ST	N	IUCN - Vulnerable	Y	Y
Reptiles							
Alligator mississippienisis	American Alligator	FT	ST	Y	Keystone predator species	Y	Y
Caretta caretta	Loggerhead Sea Turtle	FT	ST	N		Y	Y

Genus/ Species	Common Name	Federal Listing	State Listing	Commercial or Recreational Value	Other Importance	ORCP Site Verified	Non-ORCP Site Verified
Chelonia mydas	Green Sea Turtle	FT	ST	N		Y	Y
Dermochelys coriacea	Leatherback Sea Turtle	FE	SE	N		Y	Y
Drymarchon couperi	Eastern Indigo Snake	FT	ST	N		Y	Y
Gopherus polyphemus	Gopher Tortoise	N	ST	N	IUCN - Vulnerable	Y	Y
Malaclemys terrapin	Diamondback Terrapin	N	N	Y		Y	Y
Pituophis melanoleucus mugitus	Florida Pine Snake	N	ST	N		N	U
Amphibians							
Ambystoma cingulatum	Frosted Flatwoods Salamander	FT	ST	N	IUCN - Vulnerable	U	U
Notophthalmus perstriatus	Striped Newt	N	ST	N	LMR Recommendation	Y	U
Birds							
Antigone canadensis pratensis	Florida Sandhill Crane	N	ST	N		Y	Y
Athene cunicularia	Burrowing Owl	N	ST	N		N	N
Charadrius melodus	Piping Plover	FT	ST	N		Y	Y
Egretta caerulea	Litle Blue Heron	N	ST	N		Y	Y
Egretta tricolor	Tricolored Heron	N	ST	N		Y	Y
Laterallus jamaicensis	Black Rail	N	N	N	Historically observed	N	N
Falco sparverius paulus	Southeastern American Kestrel	N	ST	N		N	N

Genus/ Species	Common Name	Federal Listing	State Listing	Commercial or Recreational Value	Other Importance	ORCP Site Verified	Non-ORCP Site Verified
Haematopus palliatus	American Oystercatcher	N	ST	N		Y	Y
Mycteria americana	Wood Stork	FT	ST	N		Y	Y
Platalea ajaja	Roseate Spoonbill	N	ST	N		Y	Y
Rynchops niger	Black Skimmer	N	ST	N		Y	Y
Sternula antillarum	Least Tern	N	ST	N		Y	Y
Fish/ Mollusks/ Crustaceans							
Anguilla rostrata	American Eel	N	N	N	IUCN - Endangered	Y	U
Archosargus probatocephalus	Sheepshead	N	N	Y		Y	Y
Brevoortia tyrannus	Menhaden	N	N	Y		Y	Y
Callinectes sapidus	Blue Crab	N	N	Y		Y	Y
Carynx hippos	Crevalle jack	N	N	Y		Y	Y
Centropomus undecimalis	Snook	N	N	Y		Y	Y
Centropristis striata	Black Sea Bass	N	N	Y		Y	Y
Crassostrea virginica	Eastern Oyster	N	N	Y		Y	Y
Cynoscion nebulosus	Spoted Sea Trout	N	N	Y		Y	Y
Cynoscion regalis	Weakfish	N	N	Y		Y	Y
Haemulon parri	Sailor's Choice	N	N	Y		Y	Y
Leiostomous xanthurus	Spot	N	N	Y		Y	Y

Genus/ Species	Common Name	Federal Listing	State Listing	Commercial or Recreational Value	Other Importance	ORCP Site Verified	Non-ORCP Site Verified
Lutjanus griseus	Gray Snapper	N	N	Y		Y	Y
Lutjanus synagris	Lane Snapper	N	N	Y		Y	Y
Menippe mercenaria	Stone Crab	N	N	Y		Y	Y
Mercenaria spp.	Quahog Clams	N	N	Y		Y	Y
Micropogon undulates	Croaker	N	N	Y		Y	Y
Mugil cephalus	Striped Mullet	N	N	Y		Y	Y
Mugil curema	White Mullet	N	N	Y		Y	Y
Myctoperca microlepis	Gag Grouper	N	N	Y		Y	Y
Opisthonema oglinum	Thread Herring	N	N	Y		Y	Y
Paralichthys lethostigma	Southern Flounder	N	N	Y		Y	Y
Paralichthys dentatus	Summer Flounder	N	N	Y		Y	Y
Penaeus setiferus	White Shrimp	N	N	Y		Y	Y
Penaeus aztecus	Brown Shrimp	N	N	Y		Y	Y
Pogonias cromis	Black Drum	N	N	Y		Y	Y
Pomatomus saltatrix	Bluefish	N	N	Y		Y	Y
Sciaenops ocellate	Red Drum	N	N	Y		Y	Y
Tarpon atlanticus	Tarpon	N	N	Y		Y	Y
Trachinotus carolinus	Florida pompano	N	N	Y		Y	Y

C.5 / Nonnative Invasive and Problem Species of the GTM Research Reserve

Plants

Common Name	Scientific Name	Nonnative/Invasive or Problem	FLEPPC Category (Plants)	Present in ORCP-Managed Areas?
Alligatorweed	*Alternanthera philoxeroides*	Nonnative Invasive	FLEPPC Cat II	Yes
Asparagus Fern	*Asparagus aethiopicus*	Nonnative Invasive	FLEPPC Cat I	Yes
Camphor Tree	*Cinnamomum camphora*	Nonnative Invasive	FLEPPC Cat I	Unknown
Durban crow's-foot grass	*Dactyloctenium aegyptium*	Nonnative Invasive	FLEPPC Cat II	Yes
Air Potato	*Dioscorea bulbifera*	Nonnative Invasive	FLEPPC Cat I	Unknown
Life Plant	*Kalanchoe pinnata*	Nonnative Invasive	FLEPPC Cat II	Yes
Mother of Millions	*Kalanchoe x houghtonii*	Nonnative Invasive	FLEPPC Cat II	Yes
Spotted Duckweed	*Landoltia punctata*	Nonnative Invasive	FLEPPC Cat II	Yes
Lantana	*Lantana strigocamera*	Nonnative Invasive	FLEPPC Cat I	Yes
Primrose Willow	*Ludwigia peruviana*	Nonnative Invasive	FLEPPC Cat I	Unknown
Natalgrass	*Melinis repens*	Nonnative Invasive	FLEPPC Cat I	Yes
Torpedo Grass	*Panicum repens*	Nonnative Invasive	FLEPPC Cat I	Yes
Vasey Grass	*Paspalum urvillei*	Nonnative Invasive	NA	Yes
Prickly Russian Thistle	*Salsola kali ssp. pontica*	Nonnative Invasive	NA	Yes
Beach Naupaka	*Scaevola taccada*	Nonnative Invasive	FLEPPC Cat I	Yes
Brazilian Pepper	*Schinus terebinthifolia*	Nonnative Invasive	FLEPPC Cat I	Yes
Wedelia/Creeping Oxeye	*Sphagneticola trilobata*	Nonnative Invasive	FLEPPC Cat II	Yes
Chinese Tallow	*Triadica sebifera*	Nonnative Invasive	FLEPPC Cat I	Yes
Caesarweed	*Urena lobata*	Nonnative Invasive	FLEPPC Cat I	Yes

Common Name	Scientific Name	Nonnative/Invasive or Problem	FLEPPC Category (Plants)	Present in ORCP-Managed Areas?
Wand Mullein	*Verbascum virgatum*	Nonnative Invasive	NA	Yes
Beach Vitex	*Vitex rotundifolia*	Nonnative Invasive	FLEPPC Cat I	Yes

Animals

Common Name	Scientific Name	Nonnative/Invasive or Problem	Present in ORCP-Managed Areas?
Cuban Brown Anole	*Anolis sagrei*	Nonnative Invasive	Yes
Indo-Pacific Swimming Crab	*Charybdis hellerii*	Nonnative Invasive	Yes
Nine-banded Armadillo	*Dasypus novemcinctus*	Problem	Yes
Greenhouse Frog	*Eleutheroactylus planirostris*	Nonnative Invasive	Yes
Brown Hoplo	*Hoplosternum littorale*	Nonnative Invasive	Yes
Nutria	*Myocastor coypus*	Nonnative Invasive	Yes
Cuban Tree Frog	*Osteopilus septentrionalis*	Nonnative Invasive	Yes
Green Porcelain Crab	*Petrolisthes armatus*	Nonnative Invasive	Yes
Invasive Pentastomes	*Raillietiella orientalis*	Nonnative Invasive	Yes
Wild Boar	*Sus scrofa*	Nonnative Invasive	Yes

C.6 / Arthropod Management Plan

CHARLES H. BRONSON
COMMISSIONER

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

Section 388.4111, F.S.
Telephone: (850) 922-7011

For use in documenting an Arthropod control plan for lands designated by the State of Florida or any political subdivision thereof as being environmentally sensitive and biologically highly productive therein.

Name of Designated Land:

Guana Tolomato Matanzas National Estuarine Research Reserve

Is Control Work Necessary: ❑ Yes ☑ No

Location:8 miles North of St. Augustine on SR A1A

Land Management Agency: DEP/CAMA

Are Arthropod Surveillance Activities Necessary? ☑ Yes ❑ No
If "Yes", please explain:

Arthropod surveillance takes place through Anastasia Mosquito Control's contract field biologist in place at GTMNERR.

Which Surveillance Techniques Are Proposed?
Please Check All That Apply:

❑ Landing Rate Counts	☑ Light Traps	❑ Sentinel Chickens
❑ Citizen Complaints	❑ Larval Dips	☑ Other

If "Other", please explain:

Contract Field Biologist performs monthly aquatic invertebrate and semiannual night-flying insect surveys.

Arthropod Species for Which Control is Proposed:

~~None~~ Salt marsh mosquito, Aedes taeniorhynchus if necessary.

Proposed Larval Control:

None

Proposed larval monitoring procedure:

Are post treatment counts being obtained: ❑Yes ❑ No

Biological Control of Larvae:

Might predacious fish be stocked: ❑ Yes ☑No

Other biological controls that might be used:

Bti, or other bactericides subject to manager's approval, only.

Material to be Used for Larvaciding Applications:

(Please Check All That Apply:)

☑Bti

~~❑~~Bs Bacteria

❑ Methoprene

❑ Non-Petroleum Surface Film

❑ Other, please specify:

Please specify the following for each larvacide:

Chemical or Common name:

❑ Ground ❑ Aerial

Rate of application:

Method of application:

Proposed Adult Mosquito Control: None

Aerial adulticiding ❑Yes ☑No

Ground adulticiding ❑ Yes ☑No

Other control method: Control trapping (mosquito magnets), toxic bait stations or necessary barrier/target treatments if needed.

Please specify the following for each adulticide:

Chemical or common name: N/A

Rate of application: N/A

Method of application: N/A

Proposed Modifications for Public Health Emergency Control: Arthropod control agency may request special exception to this plan during a threat to public or animal health declared by State Health Officer or Commissioner of Agriculture.

The reserve's manager or designee will be notified prior to a Public Health Emergency Control application. This notification will include the following information: 1) the species of disease-vectoring mosquito (or mosquitoes) to be targeted; 2) a map of the area and habitats to be treated; and 3) the control method to be applied. In accordance with Chapter 388 F.S., the control method selected must be the least environmentally damaging alternative necessary to protect human health and safety.

Proposed Notification Procedure for Control Activities:

Phone: (904)823-4500

Records:

Are records being kept in accordance with Chapter 388, F.S.:

❑ Yes ❑No

Records Location:

How long are records maintained:

Vegetation Modification:

What trimming or altering of vegetation to conduct surveillance or treatment is proposed?

None

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed:
No

Include proposed operational schedules for water fluctuations:
N/A

List any periodic restrictions, as applicable, for example peak fish spawning times.
N/A

Proposed Modification of Aquatic Vegetation:
None

Land Manager Comments:

Only Bti, and other bactericides subject to manager's approval, are to be used.

Arthropod Control Agency Comments:

Michael A. Smiley 4/12/2010
Signature of Lands Manager or Representative Date

Robert Howe 3-16-2010
Signature of Mosquito Control Director / Manager Date

Florida Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

August 31, 2016

To All Managing Agencies for The Board of Trustees
of the Internal Improvement Trust Fund and
Mosquito Control Programs of the State of Florida

Re: Updated Guidelines for Mosquito Control on State Owned Lands

Dear Colleagues:

I am writing on behalf of the State of Florida Department of Environmental Protection (the "Department"). The Department serves as staff and agent for the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (the "Board") for the administration of state owned lands, title to which is vested in the Board. You are also aware that the Department leases these lands to state agencies for management as state parks, preserves, forests, wildlife management areas and other conservation and recreation areas. It is the responsibility of the individual managing agencies to work in conjunction with the local mosquito control programs to maintain a public lands mosquito control plan for these lands.

In 1987, the Department of Natural Resources (which later became the Department of Environmental Protection) provided basic guidelines for mosquito control on environmentally sensitive and biologically highly productive ("ESBHP") lands owned by the Board. Flat fan, thermal fog technology used for the basis of the 1987 guidelines consisted of high volumes of mineral oil diluents with active ingredients (typically fenthion) at 21 to 50 ounces/acre.

Today, ultra-low volume (ULV) adulticide applications are used, which produce application rates from 0.5 to 2.5 ounce/acre. ULV technology produces very small droplets that impinge upon the flying mosquitoes rather than deposit within the environment, which results both in reducing environmental risk and a more efficacious control of mosquitoes.

In light of the ongoing public health risk associated with mosquito-borne disease, as well as the advancements in technology and chemistry over the past three decades, I am writing to inform each of the Board's managing agencies and the mosquito control programs of an update to the Department's guidelines for mosquito control on ESBHP lands owned by the Board.

The Department recommends the following guidelines for mosquito control on ESBHP lands owned by the Board.

A. **Non-ESBHP Lands**. Areas not designated ESBHP can be sprayed in accordance with EPA label restrictions and Rule 5E-13 of the Florida Administrative Code.

B. **State Owned Submerged Land (below mean or ordinary high water)**. These areas are not to be sprayed. Current EPA label restrictions already prohibit such spraying on submerged lands.

C. **Aquatic Preserves, Estuarine Research Reserves**. These areas are not to be sprayed, except in upland areas above the mean or ordinary high water mark. Materials must be applied in accordance with the EPA label restrictions. Adulticide treatment is permitted on non-submerged lands provided that:

   i. Adulticide is applied according to Rule 5E-13 of the Florida Administrative Code, and stipulated in the Arthropod Control Plan accepted by the land managers and the mosquito control program.

   ii. The applicator is a Florida Department of Agriculture and Consumer Services (FDACS) Public Health Pest Control licensee for a mosquito control program, an entity contracted by a mosquito control program, or an entity contracted by FDACS or the Florida Department of Health.

   iii. Adult mosquito population monitoring must occur within the boundaries of the treatment area just prior to any treatment.

D. **Upland Areas (such as parks, reserves, forests, wildlife management areas, educational research areas, and recreational lands)**. Spraying is allowed and materials must be applied in accordance with the EPA label restrictions. Adulticide treatment is permitted on non-submerged lands provided that:

   i. Adulticide is applied according to Rule 5E-13 of the Florida Administrative Code, and stipulated in the Arthropod Control Plan accepted by the land managers and the mosquito control program.

   ii. The applicator is a Florida Department of Agriculture and Consumer Services (FDACS) Public Health Pest Control licensee for a mosquito control program, an entity contracted by a mosquito control program, or an entity contracted by FDACS or the Florida Department of Health.

   iii. Adult mosquito population monitoring occurs within the boundaries of the treatment area just prior to any treatment.

E. **Public Health Emergencies**. The State Health Officer has the authority to declare that a threat to public health exists when the Department of Health discovers in the human or surrogate population the occurrence of an infectious disease that can be transmitted from mosquitoes or other arthropods to humans. The State Health Officer must immediately

notify the Commissioner of Agriculture of the declaration of this threat to public health. The Commissioner of Agriculture is authorized to issue a mosquito or other arthropod declaration in those counties needing additional mosquito or other arthropod control measures based on the State Health Officer's declaration of a threat to the public health. The Commissioner of Agriculture shall order such ameliorative mosquito or other arthropod control measures as are necessary to prevent the spread of disease, notwithstanding contrary provisions of Chapter 388, Florida Statutes, or Rule 5E-13, Florida Administrative Code.

The Department encourages all managing agencies of Board owned lands and the respective mosquito control programs to evaluate existing mosquito control plans for Board owned ESBHP lands considering these updated guidelines.

Sincerely,

Gary F. Clark
Deputy Secretary
Land and Recreation

GFC/dd/r

cc: State of Florida Department
of Agriculture and Consumer Services,
Division of Agricultural Environmental Services

State of Florida Department of Health

Florida Fish and Wildlife Conservation Commission

State of Florida Department of Environmental Protection,
Division of Recreation and Parks

State of Florida Department of Environmental Protection,
Florida Coastal Office

State of Florida Department of
Agriculture and Consumer Services, Florida Forest Service

C.7 / Forestry Assessment

Florida Department of Agriculture & Consumer Services
CHARLES H. BRONSON, Commissioner
The Capitol • Tallahassee, FL 32399-0800

Please Respond To:
Division of Forestry
2735 East Silver Springs Blvd
Ocala, FL 34470
(352) 369-2415

July 20, 2007

Forest Penny
Department of Environmental Protection
505 Guana River Rd.
Ponte Vedra Beach, FL. 32082

Dear Mr. Penny:

This letter should fulfill the timber resource assessment required by F.S. section 253.036.

The pine flatwoods component, see letter dated 3-3-03, is extremely small and fragmented occurring in isolated pockets intermixed with the oak hammocks throughout the state park. Management options are very limited due logistics which include the size and condition of interior roads and the position of the flatwoods component and oak hammocks. In my opinion it is in the best interest of the state to leave these areas intact.

The only exception to this observation is the 55 ac. wetland or marsh area located on the east side of the park. There is a chance albeit a small one our agency may assist in removal of the encroaching pine species facilitating your restoration of that marsh. This is dependent on the utilization of the Guana River Dam for ingress and egress.

Should you have any questions regarding this matter please advise. I remain,

Respectfully
Timothy S. Worley R.F.
Senior Forester O.P.L.

C.8 / Archaeological Sites

Site Number	Site Name	Location	Last Monitored	Condition
SJ05458	Mickler's Landing Shipwreck	Beach	9/23/2017	Fair
SJ05645	Ponte Vedra Shrimp Boat Wreck	Beach	7/24/2023	Good
SJ05646	Owen's A-Frame Wreck	Beach	10/9/2020	Not Listed
SJ06572	Spring Break Wreck	Beach	7/24/2023	Good
SJ07405	Vilano Beach Wreck Debris	Beach	No Records	
SJ03229	South Parking Lot	Coastal Strand	9/11/2023	Good
SJ03244	Guana Lake East	Coastal Strand	9/18/2023	Good
SJ03486	Three Mile	Coastal Strand	10/23/2023	Good
SJ05407	Black Soot Shell Midden	Coastal Strand	7/31/2023	Good
SJ05635	Scrub Burn Site	Coastal Strand	7/31/2023	Good
SJ00003	Wright's Landing	Peninsula	5/29/2023	Good
SJ00004	Sanchez Mound	Peninsula	6/5/2023	Good
SJ00032	Shell Bluff	Peninsula	3/15/2023	Fair
SJ00033	South of Wright's Landing	Peninsula	6/19/2023	Fair
SJ02548	Little Orange	Peninsula	7/3/2023	Good
SJ03150	Guana Ruins	Peninsula	5/15/2023	Good
SJ03151	Guana Shell Midden	Peninsula	10/30/2023	Fair
SJ03205	Guana North	Peninsula	11/27/2023	Fair
SJ03252	On the Line	Peninsula	11/6/2023	Good
SJ04801	Tolomato Bar Anchorage Site	Peninsula	5/1/2023	Fair
SJ05322	Evenden-Williams	Peninsula	6/5/2023	Good
SJ05353	Undetermined Ancient Shipwreck	Peninsula	5/15/2023	Good
SJ05464	Southern Midden	Peninsula	9/4/2023	Good
SJ08033	Gulliford Midden	Peninsula	12/4/2023	Good
SJ08034	Shirley Midden	Peninsula	5/15/2023	Fair
SJ08039	Coquina Block Site	Peninsula	12/4/2023	Good
SJ02550	Guana 1	Peninsula	4/24/2023	Good
SJ03235	Guana 2	Peninsula	5/19/2023	Good
SJ03236	Guana 3	Peninsula	3/27/2023	Good
SJ03237	Guana 4	Peninsula	4/17/2023	Good
SJ02552	Guana 6	Peninsula	2/27/2023	Good
SJ03238	Guana 7	Peninsula	6/12/2023	Good
SJ02547	NN	Peninsula	9/25/2023	Good
SJ02549	NN	Peninsula	6/26/2023	Good
SJ02551	NN	Peninsula	11/13/2023	Fair

SJ02553	NN	Peninsula	11/6/2023	Good
SJ00050	Booth Landing	Access by Boat	No Records	
SJ04872	Stokes Creek Barges	Access by Boat	No Records	

C.9 / Ecosystem Service List

Upland (non-beach natural open space)	Direct Use	Hiking, biking, horseback riding, etc.
		Hunting
		Wildlife watching
		Ecotours
		Timber harvesting
		Historical culture tourism
		Recreational driving
		Future visit option
		Bequest
	Indirect Use	Clean air/ oxygen
		Carbon sequestration
		Groundwater recharge
		Biodiversity
		Heat island mitigation
		Stormwater pollutant capture
		Erosion control
		Storm buffer (damaging winds and floods)
		Hedonic (adjacent property aesthetics)
	Non-use	Existence
Estuarine	Direct Use	Recreational shoreline fishing
		Non-shoreline recreational fishing
		Commercial fishing?
		Recreational shellfish harvesting
		Commercial shellfish harvesting
		Kayaking, canoeing, paddle-boards (non-fishing)
		Sailing
		Motorized boat recreation (yachting, cruises)
		Transportation
		Wildlife watching
		Ecotours
		Future visit option
		Bequest
	Indirect Use	Stormwater pollution capture
		Fish nursery habitat
		Storm buffer (damaging winds and floods)
		Sea level rise mitigation
		Hedonic (owned and tourism rentals)
		Biodiversity
		Carbon sequestration
	Non-use	Existence

Appendix D / NERR Program Details

D.1 / Strategic Plan Objectives and Actions by Sector

Chapter 6 lists all Objective, Actions and Performance Measures by Issue and Goal. The following lists the Objectives and Actions by sector; those they lead and those they support. The Volunteer, Communications and Administrative programs support all objectives and actions where needed.

Research & Monitoring – Lead

Objective A.1: Knowledge of the status and trends of habitats within the GTM NERR and its watersheds is increased

- **Action A.1.A**: Monitor status and trends of saltmarsh and mangrove habitat structure including areal extent and characteristics of sediment and vegetation structure. (*Lead: Research; Support: Stewardship*)
- **Action A.1.B**: Monitor status and trends of beach habitats associated with storm impacts, beach renourishment, inlet management, and intracoastal waterway dredging. (*Lead: Research; Support: Stewardship*)
- **Action A.1.C:** Map and monitor other habitats within the GTM NERR that are recognized as a priority and monitor for changes in those areas. *(Co-Leads: Research, Stewardship; Support: Resource Management)*
- **Action A.1.D**: Identify and quantify primary causes of habitat change (structure, function, areal extent or condition) in the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field (*Co-Leads: Research, CTP; Support: Stewardship, Resource Management*)
- **Action A.1.E**: Prioritize and quantify ecosystem services (e.g., carbon storage/sequestration, habitat provision, water filtration, food provision) provided by natural habitats within the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research; Support: CTP, Stewardship, Resource Management)*

Objective A.2: Knowledge of the status and trends of keystone, sentinel, foundation, endangered and threatened species within the GTM NERR and its watersheds is increased

- **Action A.2.A:** Conduct natural oyster reef assessments by examining reef structure and oyster population metrics. *(Lead: Research; Support: Stewardship, Volunteer)*
- **Action A.2.B:** Conduct plankton monitoring to detect harmful algal species and quantify community composition. *(Lead: Research; Support: Stewardship, Volunteer)*
- **Action A.2.E**: Investigate changes and impacts to other keystone, sentinel, foundation, endangered and threatened species, and genetic diversity within the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research; Support: Volunteer, Communications)*

Objective B.1: Spatial and temporal trends in water quality are monitored and analyzed

- **Action B.1.A:** Implement water quality components of the NERR SWMP. *(Lead: Research)*
- **Action B.1.B:** Conduct spatial and temporal analyses of long-term water quality data. *(Lead: Research)*

- **Action B.1.C:** Monitor fecal coliforms, microplastics, and other parameters of emerging and/or local concern not required by the NERRS SWMP and coordinate with partner agencies where possible to share resources, expand monitoring networks, and avoid duplication. *(Lead: Research; Support: Stewardship)*

Objective B.2: Solutions to negative impacts caused by point and non-point source pollution are identified

- **Action B.2.A:** Investigate sources of negative impacts caused by point and non-point source pollution within the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research)*

Objective B.3: Biological indicators of changes in water quality are investigated

- **Action B.3.A:** Investigate the relationships between water quality and plankton, invertebrates, vegetation, and nekton within the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research)*
- **Action B.3.B:** Evaluate the potential of biological components to serve as indicators of changes in water quality through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research)*

Objective C.1: Short- and long-term changes in local climatic variables are monitored and analyzed

- **Action C.1.A:** Implement meteorological components of the NERRS System-Wide Monitoring Program (SWMP). (*Lead: Research*)
- **Action C.1.B**: Conduct spatial and temporal analyses of long-term SWMP meteorological data. (*Lead: Research*)
- **Action C.1.C**: Install a new weather station in the northern GTM NERR component. (*Lead: Research; Support: Resource Management, Stewardship*)

Objective C.2: The effects of climate variability on ecosystem services, habitat distribution, biodiversity, migratory pathways, and community resilience are investigated

- **Action C.2.A:** Assess habitat change in relation to changing water levels and other impacts of climate change through research conducted by staff, contractors and visiting investigators. *(Lead: Research; Support: Stewardship)*
- **Action C.2.C**: Implement NERRS Sentinel Site Application Modules to determine vulnerability of estuarine habitats and ecosystem services to climate change both locally and across NERR sites. (*Lead: Research; Support: Stewardship*)

Research & Monitoring – Support

Objective A.3: Estuarine habitat management techniques that maintain or enhance natural biodiversity are implemented

- **Action A.3.A:** Enhance inshore fisheries habitat through installation of reef modules and other artificial constructions, or by increasing marsh width through various shoreline protective methods (e.g., living shorelines or thin layer placement of dredged sediments). (*Lead: Stewardship; Support: Research*)
- **Action A.3.B:** Based on information gained from activities under Objective A.1, prioritize

habitat restoration targets that could mitigate or improve loss of habitat and/or ecosystem services. (*Lead: Stewardship; Support: Research)*

- **Action A.3.C**: Investigate, test and assess new estuarine restoration treatments that mitigate or improve loss of habitat and/or ecosystem services identified under Objective A.1. (*Lead: Stewardship; Support: Research)*

Objective A.4: Prescribed fire and other management techniques that maintain or improve natural upland biodiversity are implemented

- **Action A.4.B:** Assess the efficacy of different pyrogenic techniques in coastal habitats and evaluate supplemental management methods, such as roller chopping, for use in natural habitat maintenance. *(Lead: Resource Management; Support: Research)*

Objective A.5: Invasive plant and animal species within the GTM NERR and its watersheds are reduced

- **Action A.5.A:** Continue efforts to determine (collaborate, test, monitor, assess) best practices for invasive species identification and control. (*Lead: Resource Management; Support: Research, CTP, Stewardship*)

Objective A.6: The public's, local decisionmakers', and local professionals' throughout the GTM NERR boundaries knowledge of GTM NERR biodiversity and relevant best management practices is increased.

- **Action A.6.A:** Provide informational and interpretive kiosks in public use areas highlighting important species, habitat communities, and natural resources. *(Lead: Education; Support: Research, Resource Management, Stewardship)*

- **Action A.6.E:** Develop and provide training and/or information on biodiversity elements to internal staff, partner agencies, land managers, and relevant organizations regarding topics such as native species, invasive species, mapping technologies, restoration techniques, and management options. *(Lead: CTP; Support: Research, Stewardship, Resource Management)*

Objective B.4: The public's, local decisionmakers', and local professionals knowledge of GTM NERR water quality and relevant best management practices is increased.

- **Action B.4.A:** Provide informational and interpretive kiosks in public use areas highlighting local water quality, its relationship to ecosystem health and solutions to negative pollution impacts.*(Lead: Education; Support: Research, Resource Management, Stewardship)*

- **Action B.4.E:** Increase use of SWMP data by local stakeholders, including decision-makers, policymakers, and partner agencies by providing materials and delivery methods appropriate for target audiences. (*Lead: CTP; Support: Research, Education*)

Objective C.2: The effects of climate variability on ecosystem services, habitat distribution, biodiversity, migratory pathways, and community resilience are investigated

- **Action C.2.B:** Conduct a vulnerability assessment for the GTM NERR through a collaborative process to inform coastal decision-makers and policymakers on the potential impacts of climate change on coastal habitats of ecological and economic importance and help prioritize resources and management actions. (*Lead: CTP; Support: All*)

Objective C.3: The public's, local decisionmakers', and local professionals knowledge of GTM NERR sea level rise, storm, and climate change impacts on local habitats, including migratory pathways, species and human communities is increased.

- **Action C.3.A:** Provide informational and interpretive kiosks in public use areas highlighting sea level rise, storm, and climate change impacts on local habitats, species and human communities in the GTM NERR watershed. *(Lead: Education; Support: Research, Resource Management, Stewardship)*

- **Action C.3.E**: Provide information and outreach on global processes, e.g., sea level rise and global climate change, through workshops, technical assistance, interpretive exhibits and web- based tools that serve as a clearinghouse for information for professional audiences. (*Co-Leads: CTP, Education; Support: Research*)

Objective C.4: The implementation of best management practices for resilient communities is facilitated

- **Action C.4.A**: Work with local stakeholders, including decision-makers, policymakers, and partner agencies on planning for sea level rise through transferring and communicating the work and products developed through research conducted at the GTM NERR, including Sentinel Sites. (*Lead: CTP; Support: Research, Stewardship*)

- **Action C.4.B:** Participate in local emergency response and resilience community groups identify needs and assist in the implementation of disaster response and mitigation strategies where possible within the reserve boundaries. *(Lead: CTP; Support: Research, Stewardship)*

Objective D.2: Negative impacts of various public uses on natural resources within the GTM NERR are reduced

- **Action D.2.B:** Investigate impacts of visitor use on biodiversity through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. (*Lead: Resource Management; Support: Stewardship, Research*)

Education – Lead

Objective A.6: The public's, local decisionmakers', and local professionals' throughout the GTM NERR boundaries knowledge of GTM NERR biodiversity and relevant best management practices is increased.

- **Action A.6.A:** Provide informational and interpretive kiosks in public use areas highlighting important species, habitat communities, and natural resources. *(Lead: Education; Support: Research, Resource Management, Stewardship)*

- **Action A.6.B:** Provide K-16 education programming to teach students and teachers about the natural biodiversity, habitats, ecosystem services and management techniques of the GTM NERR. *(Lead: Education)*

- **Action A.6.C:** Include biodiversity, habitat and restoration information in annual Teachers on the Estuary (TOTE) training. *(Lead: Education)*

- **Action A.6.D:** Provide opportunities for the public to gain awareness and understanding of the GTM NERR's biodiversity, including guided outdoor explorations, lecture series, and traditional and new media. *(Lead: Education)*

Objective B.4: The public's, local decisionmakers', and local professionals knowledge of GTM NERR water quality and relevant best management practices is increased.

- **Action B.4.A:** Provide informational and interpretive kiosks in public use areas highlighting local water quality, its relationship to ecosystem health and solutions to negative pollution impacts. *(Lead: Education; Support: Research, Resource Management, Stewardship)*

- **Action B.4.C:** Include water quality, its relationship to ecosystem health, solutions to negative pollution impacts and data collection techniques to the annual TOTE training. *(Lead: Education)*
- **Action B.4.B:** Provide K-16 education programming to teach students and teachers about water quality, its relationship to ecosystem health, solutions to negative pollution impacts and data collection techniques of the GTM NERR. *(Lead: Education)*
- **Action B.4.D:** Provide opportunities for the public to gain awareness and understanding of the GTM Research Reserve's water quality, its relationship to ecosystem health, and actions and solutions to address point and non-point source negative pollution impacts, including guided outdoor explorations, lecture series, and traditional and new media. *(Lead: Education)*
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Objective C.3: The public's, local decisionmakers', and local professionals knowledge of GTM NERR sea level rise, storm, and climate change impacts on local habitats, including migratory pathways, species and human communities is increased.

- **Action C.3.A:** Provide informational and interpretive kiosks in public use areas highlighting sea level rise, storm, and climate change impacts on local habitats, species and human communities in the GTM NERR watershed. *(Lead: Education; Support: Research, Resource Management, Stewardship)*
- **Action C.3.B:** Provide K-16 education programming to teach students and teachers about sea level rise, storm, and climate change impacts on local habitats, species and human communities in the GTM NERR watershed. *(Lead: Education)*
- **Action C.3.C:** Include sea level rise, storm, and climate change impacts on local habitats, species and human communities in the annual TOTE training. *(Lead: Education)*
- **Action C.3.D:** Provide opportunities for the public to gain awareness and understanding of sea level rise, storm, and climate change impacts on local habitats, species and human communities in the GTM NERR watershed, including guided outdoor explorations, lecture series, and traditional and new media. *(Lead: Education)*
- **Action C.3.E**: Provide information and outreach on global processes, e.g., sea level rise and global climate change, through workshops, technical assistance, interpretive exhibits and web- based tools that serve as a clearinghouse for information for professional audiences. (*Co-Leads: CTP, Education; Support: Research*)

Objective D.1: Visitors' accessibility to and satisfaction with public use resources within the GTM NERR are increased

- **Action D.1.B**: Collaborate with representatives of groups with physical, mental, emotional and socioeconomic limitations to develop and implement plans to increase user access for these groups. (*Co-Leads: Education, Resource Management)*

Objective E.1: Public knowledge of cultural history within the GTM NERR is increased

- **Action E.1.A:** Maintain information on cultural history at existing interpretive kiosks. (*Lead: Education; Support: Resource Management*)
- **Action E.1.B**: Continue to integrate cultural topics into K-16 programming. (*Lead: Education*)

- **Action E.1.C**: Provide guided hikes led by trained volunteers, staff, or experts to interpret site- based cultural history. (*Lead: Education; Support: Resource Management*)
- **Action E.1.D**: Host or hold at least one cultural history-themed event per year to increase public awareness. (*Lead: Education; Support: Resource Management*)

Education – Support

Objective B.4: The public's, local decisionmakers', and local professionals knowledge of GTM NERR water quality and relevant best management practices is increased.

- **Action B.4.E:** Increase use of SWMP data by local stakeholders, including decision-makers, policymakers, and partner agencies by providing materials and delivery methods appropriate for target audiences. (*Lead: CTP; Support: Research, Education*)

Objective C.2: The effects of climate variability on ecosystem services, habitat distribution, biodiversity, migratory pathways, and community resilience are investigated

- **Action C.2.B:** Conduct a vulnerability assessment for the GTM NERR through a collaborative process to inform coastal decision-makers and policymakers on the potential impacts of climate change on coastal habitats of ecological and economic importance and help prioritize resources and management actions. (*Lead: CTP; Support: All*)

Objective D.2: Negative impacts of various public uses on natural resources within the GTM NERR are reduced

- **Action D.2.C:** Promote good visitor use practices that do not impact natural resources through signage, direct outreach and social media campaigns. (*Lead: Resource Management; Support: Education)*

Objective E.1: Public knowledge of cultural history within the GTM NERR is increased

- **Action E.1.E**: Investigate archaeological history of the Guana Peninsula through research conducted by visiting archaeologists, and by collaborating with other professionals in this field. (*Lead: Resource Management; Support: Education*)

CTP – Lead

Objective A.1: Knowledge of the status and trends of habitats within the GTM NERR and its watersheds is increased

- **Action A.1.D**: Identify and quantify primary causes of habitat change (structure, function, areal extent or condition) in the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field (*Co-Leads: Research, CTP; Support: Stewardship, Resource Management*)

Objective A.6: The public's, local decisionmakers', and local professionals' throughout the GTM NERR boundaries knowledge of GTM NERR biodiversity and relevant best management practices is increased.

- **Action A.6.E:** Develop and provide training and/or information on biodiversity elements to internal staff, partner agencies, land managers, and relevant organizations regarding topics such as native species, invasive species, mapping technologies, restoration techniques, and management options. *(Lead: CTP; Support: Research, Stewardship, Resource Management)*
- **Action A.6.F:** Develop a tool-kit of best practices for professional and residential resource protection and habitat restoration. *(Lead: CTP; Support: Resource Management, Stewardship)*

- **Action A.6.G:** Communicate causes of habitat, species and ecosystem service loss to decision-makers and policymakers with the anticipation that natural resource conservation be incorporated into municipality action plans when possible. *(Lead: CTP)*
- Action A.6.H: Communicate management best practices and conservation action items based off the status and trends of habitats, species, and ecosystem services to stakeholders, including decision-makers, policymakers, and partner agencies *(Lead: CTP).*

Objective B.4: The public's, local decisionmakers', and local professionals knowledge of GTM NERR water quality and relevant best management practices is increased.

- **Action B.4.E:** Increase use of SWMP data by local stakeholders, including decision-makers, policymakers, and partner agencies by providing materials and delivery methods appropriate for target audiences. (*Lead: CTP; Support: Research, Education*)
- **Action B.4.F:** Continue to coordinate, demonstrate, and provide workshops on low impact development options such as mitigation banking, payment of ecosystem services, conservation easements, bioswales, compositing toilets, and rain gardens. *(Lead: CTP; Support: Upland Resource Management)*
- **Action B.4.G:** Provide information on management actions to improve or mitigate identified water quality impacts and the actions that can be taken to address point and non-point source pollution to local stakeholders, including decision-makers, policymakers, and partner agencies. *(Lead: CTP)*

Objective C.2: The effects of climate variability on ecosystem services, habitat distribution, biodiversity, migratory pathways, and community resilience are investigated

- **Action C.2.B:** Conduct a vulnerability assessment for the GTM NERR through a collaborative process to inform coastal decision-makers and policymakers on the potential impacts of climate change on coastal habitats of ecological and economic importance and help prioritize resources and management actions. (*Lead: CTP; Support: All*)

Objective C.3: The public's, local decisionmakers', and local professionals knowledge of GTM NERR sea level rise, storm, and climate change impacts on local habitats, including migratory pathways, species and human communities is increased.

- **Action C.3.E**: Provide information and outreach on global processes, e.g., sea level rise and global climate change, through workshops, technical assistance, interpretive exhibits and web- based tools that serve as a clearinghouse for information for professional audiences. (*Co-Leads: CTP, Education; Support: Research*)

Objective C.4: The implementation of best management practices for resilient communities is facilitated

- **Action C.4.A**: Work with local stakeholders, including decision-makers, policymakers, and partner agencies on planning for sea level rise through transferring and communicating the work and products developed through research conducted at the GTM NERR, including Sentinel Sites. (*Lead: CTP; Support: Research, Stewardship*)
- **Action C.4.B:** Participate in local emergency response and resilience community groups identify needs and assist in the implementation of disaster response and mitigation strategies where possible within the reserve boundaries. *(Lead: CTP; Support: Research, Stewardship)*

CTP – Support

Objective A.1: Knowledge of the status and trends of habitats within the GTM NERR and its watersheds is increased

- **Action A.1.E**: Prioritize and quantify ecosystem services (e.g., carbon storage/sequestration, habitat provision, water filtration, food provision) provided by natural habitats within the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research; Support: CTP, Stewardship, Resource Management)*

Objective A.5: Invasive plant and animal species within the GTM NERR and its watersheds are reduced

- **Action A.5.A:** Continue efforts to determine (collaborate, test, monitor, assess) best practices for invasive species identification and control. (*Lead: Resource Management; Support: Research, CTP, Stewardship*)

Objective E.2: Negative impacts to known cultural resources within the GTM NERR are prevented

- **Action E.2.A:** Train appropriate staff and volunteers to know cultural site locations, history, and best management practices, as needed. (*Lead: Resource Management; Support: CTP*)

Stewardship – Lead

Objective A.1: Knowledge of the status and trends of habitats within the GTM NERR and its watersheds is increased

- **Action A.1.C:** Map and monitor other habitats within the GTM NERR that are recognized as a priority and monitor for changes in those areas. *(Co-Leads: Research, Stewardship; Support: Resource Management)*

Objective A.2: Knowledge of the status and trends of keystone, sentinel, foundation, endangered and threatened species within the GTM NERR and its watersheds is increased

- **Action A.2.D:** Review protocols, ensure access to data, and provide volunteer support as needed for other species surveys conducted within the GTM NERR. *(Co-leads: Stewardship, Resource Management)*

Objective A.3: Estuarine habitat management techniques that maintain or enhance natural biodiversity are implemented

- **Action A.3.A:** Enhance inshore fisheries habitat through installation of reef modules and other artificial constructions, or by increasing marsh width through various shoreline protective methods (e.g., living shorelines or thin layer placement of dredged sediments). (*Lead: Stewardship; Support: Research*)
- **Action A.3.B:** Based on information gained from activities under Objective A.1, prioritize habitat restoration targets that could mitigate or improve loss of habitat and/or ecosystem services. (*Lead: Stewardship; Support: Research)*
- **Action A.3.C**: Investigate, test and assess new estuarine restoration treatments that mitigate or improve loss of habitat and/or ecosystem services identified under Objective A.1. (*Lead: Stewardship; Support: Research)*

Objective A.5: Invasive plant and animal species within the GTM NERR and its watersheds are reduced

- **Action A.5.B:** Monitor, treat, and remove aquatic and terrestrial invasive species populations on the GTM NERR property. *(Co-Leads: Resource Management, Stewardship)*

Objective B.2: Sources of and solutions to negative impacts caused by point and non-point source pollution are identified

- **Action B.2.B:** Management actions to improve or mitigate negative water quality impacts are investigated and evaluated for feasibility in the GTM NERR watershed. *(Co-leads: CTP, Stewardship, Support: Resource Management)*

Stewardship – Support

Objective A.1: Knowledge of the status and trends of habitats within the GTM NERR and its watersheds is increased

- **Action A.1.A**: Monitor status and trends of saltmarsh and mangrove habitat structure including areal extent and characteristics of sediment and vegetation structure. (*Lead: Research; Support: Stewardship*)
- **Action A.1.B**: Monitor status and trends of beach habitats associated with storm impacts, beach renourishment, inlet management, and intracoastal waterway dredging. (*Lead: Research; Support: Stewardship*)
- **Action A.1.D**: Identify and quantify primary causes of habitat change (structure, function, areal extent or condition) in the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field (*Co-Leads: Research, CTP; Support: Stewardship, Resource Management*)
- **Action A.1.E**: Prioritize and quantify ecosystem services (e.g., carbon storage/sequestration, habitat provision, water filtration, food provision) provided by natural habitats within the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research; Support: CTP, Stewardship, Resource Management)*

Objective A.2: Knowledge of the status and trends of keystone, sentinel, foundation, endangered and threatened species within the GTM NERR and its watersheds is increased

- **Action A.2.A:** Conduct natural oyster reef assessments by examining reef structure and oyster population metrics. *(Lead: Research; Support: Stewardship)*
- **Action A.2.B:** Conduct plankton monitoring to detect harmful algal species and quantify community composition. *(Lead: Research; Support: Stewardship)*

Objective A.5: Invasive plant and animal species within the GTM NERR and its watersheds are reduced

- **Action A.5.A:** Continue efforts to determine (collaborate, test, monitor, assess) best practices for invasive species identification and control. (*Lead: Resource Management; Support: Research, CTP, Stewardship*)

Objective A.6: The public's, local decisionmakers', and local professionals' throughout the GTM NERR boundaries knowledge of GTM NERR biodiversity and relevant best management practices is increased.

- **Action A.6.A:** Provide informational and interpretive kiosks in public use areas highlighting important species, habitat communities, and natural resources. *(Lead: Education; Support: Research, Resource Management, Stewardship)*
- **Action A.6.E:** Develop and provide training and/or information on biodiversity elements to internal staff, partner agencies, land managers, and relevant organizations regarding topics such as native species, invasive species, mapping technologies, restoration techniques and management options. *(Lead: CTP; Support:*

Research, Stewardship, Resource Management)

- **Action A.6.F:** Develop a tool-kit of best practices for professional and residential resource protection and habitat restoration. *(Lead: CTP; Support: Resource Management, Stewardship)*

Objective B.1: Spatial and temporal trends in water quality are monitored and analyzed

- **Action B.1.C:** Monitor fecal coliforms, microplastics, and other parameters of emerging and/or local concern not required by the NERRS SWMP and coordinate with partner agencies where possible to share resources, expand monitoring networks, and avoid duplication. *(Lead: Research; Support: Stewardship)*

Objective B.4: The public's, local decisionmakers', and local professionals knowledge of GTM NERR water quality and relevant best management practices is increased.

- **Action B.4.A:** Provide informational and interpretive kiosks in public use areas highlighting local water quality, its relationship to ecosystem health and solutions to negative pollution impacts. *(Lead: Education; Support: Research, Resource Management, Stewardship)*

Objective C.1: Short- and long-term changes in local climatic variables are monitored and analyzed

- **Action C.1.C**: Install a new weather station in the northern GTM NERR component. (*Lead: Research; Support: Resource Management, Stewardship*)

Objective C.2: The effects of climate variability on ecosystem services, habitat distribution, biodiversity, migratory pathways, and community resilience are investigated

- **Action C.2.A:** Assess habitat change in relation to changing water levels and other impacts of climate change through research conducted by staff, contractors and visiting investigators. *(Lead: Research; Support: Stewardship)*

- **Action C.2.B:** Conduct a vulnerability assessment for the GTM NERR through a collaborative process to inform coastal decision-makers and policymakers on the potential impacts of climate change on coastal habitats of ecological and economic importance and help prioritize resources and management actions. (*Lead: CTP; Support: All*)

- **Action C.2.C**: Implement NERRS Sentinel Site Application Modules to determine vulnerability of estuarine habitats and ecosystem services to climate change both locally and across NERR sites. (*Lead: Research; Support: Stewardship*)

Objective C.3: The public's, local decisionmakers', and local professionals knowledge of GTM NERR sea level rise, storm, and climate change impacts on local habitats, including migratory pathways, species and human communities is increased.

- **Action C.3.A:** Provide informational and interpretive kiosks in public use areas highlighting sea level rise, storm, and climate change impacts on local habitats, species and human communities in the GTM NERR watershed. *(Lead: Education; Support: Research, Resource Management, Stewardship)*

Objective C.4: The implementation of best management practices for resilient communities is facilitated

- **Action C.4.A**: Work with local stakeholders, including decision-makers, policymakers, and partner agencies on planning for sea level rise through transferring and communicating the work and products developed through research conducted at the GTM NERR, including Sentinel Sites. (*Lead: CTP; Support: Research, Stewardship*)

- **Action C.4.B:** Participate in local emergency response and resilience community groups identify needs and assist in the implementation of disaster response and mitigation strategies where possible within the reserve boundaries. *(Lead: CTP; Support: Research, Stewardship)*

Objective D.2: Negative impacts of various public uses on natural resources within the GTM NERR are reduced

- **Action D.2.A**: Document incidences of clear damage to natural resources caused by human use, i.e., vegetation damaged by off-road vehicles, animals entangled in fishing line, ingestion of marine debris, illegal take, and collection of wildlife, etc. Determine and implement solutions to prevent future incidences and provide training to area staff on wildlife rules and poaching. (*Lead: Resource Management; Support: Stewardship*)
- **Action D.2.B:** Investigate impacts of visitor use on biodiversity through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. (*Lead: Resource Management; Support: Stewardship, Research*)

Resource Management – Lead

- **Objective A.2:** Knowledge of the status and trends of keystone, sentinel, foundation, endangered and threatened species within the GTM NERR and its watersheds is increased
- **Action A.2.C:** Conduct marine turtle nesting surveys along beaches within the Guana River Marsh Aquatic Preserve *(Lead: Resource Management)*
- **Action A.2.D:** Review protocols, ensure access to data, and provide volunteer support as needed for other species surveys conducted within the GTM NERR. *(Co-leads: Stewardship, Resource Management)*
- **Objective A.4**: Prescribed fire and other management techniques that maintain or improve natural upland biodiversity are implemented
- **Action A.4.A**: Update the prescribed fire plan and continue fire management in appropriate habitats once per year. *(Lead: Resource Management)*
- **Action A.4.B:** Assess the efficacy of different pyrogenic techniques in coastal habitats and evaluate supplemental management methods, such as roller chopping, for use in natural habitat maintenance. *(Lead: Resource Management; Support: Research)*
- **Action A.4.C:** Maintain vegetation structure and diversity associated with freshwater depression marshes in the historical interdunal swale area of the Guana peninsula. *(Lead: Resource Management)*
- **Action A.4.D:** Evaluate Cooperative Land Cover communities within the ORCP-managed areas for mapping accuracy and condition. Establish long term management goals. *(Lead: Resource Management)*
- **Action A.4.E:** Work with the Florida Forest Service to reassess the timber inventory. (*Lead: Resource Management*)

Objective A.5: Invasive plant and animal species within the GTM NERR and its watersheds are reduced

- **Action A.5.A:** Continue efforts to determine (collaborate, test, monitor, assess) best practices for invasive species identification and control. (*Lead: Resource Management; Support: Research, CTP, Stewardship*)

- **Action A.5.B:** Monitor, treat, and remove aquatic and terrestrial invasive species populations on the GTM NERR property. *(Co-Leads: Resource Management, Stewardship)*

Objective D.1: Visitors' accessibility to and satisfaction with public use resources within the GTM NERR are increased

- **Action D.1.A**: Conduct survey of visitors to public use areas every five years to determine satisfaction levels and whether there are persistent user group conflicts. (*Lead: Resource Management*)
- **Action D.1.B**: Collaborate with representatives of groups with physical, mental, emotional and socioeconomic limitations to develop and implement plans to increase user access for these groups. (*Co-Leads: Education, Resource Management)*
- **Action D.1.C**: Maintain all visitor use areas for safety, cleanliness and accessibility. (*Lead: Resource Management)*

Objective D.2: Negative impacts of various public uses on natural resources within the GTM NERR are reduced

- **Action D.2.A**: Document incidences of clear damage to natural resources caused by human use, i.e., vegetation damaged by off-road vehicles, animals entangled in fishing line, ingestion of marine debris, illegal take, and collection of wildlife, etc. Determine and implement solutions to prevent future incidences and provide training to area staff on wildlife rules and poaching. (*Lead: Resource Management; Support: Stewardship*)
- **Action D.2.B:** Investigate impacts of visitor use on biodiversity through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. (*Lead: Resource Management; Support: Stewardship, Research*)
- **Action D.2.C:** Promote good visitor use practices that do not impact natural resources through signage, direct outreach and social media campaigns. (*Lead: Resource Management; Support: Education)*

Objective E.1: Public knowledge of cultural history within the GTM NERR is increased

- **Action E.1.E**: Investigate archaeological history of the Guana Peninsula through research conducted by visiting archaeologists, and by collaborating with other professionals in this field. (*Lead: Resource Management; Support: Education*)

Objective E.2: Negative impacts to known cultural resources within the GTM NERR are prevented

- **Action E.2.A:** Train appropriate staff and volunteers to know cultural site locations, history, and best management practices, as needed. (*Lead: Resource Management; Support: CTP*)
- **Action E.2.B:** Document any new cultural sites with the Florida Department of Historical Resources and ensure Florida Master Site File forms are kept current. *(Lead: Resource Management)*
- **Action E.2.C:** Conduct routine condition assessments on historical sites, using protocols developed in collaboration with partners like the National Park Service and Florida Public Archaeology Network, to monitor for incremental change. (*Lead: Resource Management*)
- **Action E.2.D:** Based on condition assessments and input from partners with expertise in cultural resources, determine best action plan for observed or anticipated negative

impacts to cultural resources and enact that plan. (*Lead: Resource Management*)

Resource Management – Support

Objective A.1: Knowledge of the status and trends of habitats within the GTM NERR and its watersheds is increased

- **Action A.1.C:** Map and monitor other habitats within the GTM NERR that are recognized as a priority and monitor for changes in those areas. *(Co-Leads: Research, Stewardship; Support: Resource Management)*
- **Action A.1.D**: Identify and quantify primary causes of habitat change (structure, function, areal extent or condition) in the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field (*Co-Leads: Research, CTP; Support: Stewardship, Resource Management*)
- **Action A.1.E**: Prioritize and quantify ecosystem services (e.g., carbon storage/sequestration, habitat provision, water filtration, food provision) provided by natural habitats within the GTM NERR through research conducted by staff, contractors, and visiting scientists, and by collaborating with other professionals in this field. *(Lead: Research; Support: CTP, Stewardship, Resource Management)*

Objective A.6: The public's, local decisionmakers', and local professionals' throughout the GTM NERR boundaries knowledge of GTM NERR biodiversity and relevant best management practices is increased.

- **Action A.6.A:** Provide informational and interpretive kiosks in public use areas highlighting important species, habitat communities, and natural resources. *(Lead: Education; Support: Research, Resource Management, Stewardship)*
- **Action A.6.E:** Develop and provide training and/or information on biodiversity elements to internal staff, partner agencies, land managers, and relevant organizations regarding topics such as native species, invasive species, mapping technologies, restoration techniques, and management options. *(Lead: CTP; Support: Research, Stewardship, Resource Management)*
- **Action A.6.F:** Develop a tool-kit of best practices for professional and residential resource protection and habitat restoration. *(Lead: CTP; Support: Resource Management, Stewardship)*

Objective B.2: Sources of and solutions to negative impacts caused by point and non-point source pollution are identified

- **Action B.2.B:** Management actions to improve or mitigate negative water quality impacts are investigated and evaluated for feasibility in the GTM NERR watershed. *(Co-leads: CTP, Stewardship, Support: Resource Management)*

Objective B.4: The public's, local decisionmakers', and local professionals knowledge of GTM NERR water quality and relevant best management practices is increased.

- **Action B.4.A:** Provide informational and interpretive kiosks in public use areas highlighting local water quality, its relationship to ecosystem health and solutions to negative pollution impacts. *(Lead: Education; Support: Research, Resource Management, Stewardship)*
- **Action B.4.F:** Continue to coordinate, demonstrate, and provide workshops on low impact development options such as mitigation banking, payment of ecosystem services, conservation easements, bioswales, compositing toilets, and rain gardens. *(Lead: CTP;*

Support: Resource Management)

Objective C.1: Short- and long-term changes in local climatic variables are monitored and analyzed

- **Action C.1.C**: Install a new weather station in the northern GTM NERR component. (*Lead: Research; Support: Resource Management, Stewardship*

Objective C.2: The effects of climate variability on ecosystem services, habitat distribution, biodiversity, migratory pathways, and community resilience are investigated

- **Action C.2.B:** Conduct a vulnerability assessment for the GTM NERR through a collaborative process to inform coastal decision-makers and policymakers on the potential impacts of climate change on coastal habitats of ecological and economic importance and help prioritize resources and management actions. (*Lead: CTP; Support: All*)

Objective C.3: The public's, local decisionmakers', and local professionals knowledge of GTM NERR sea level rise, storm, and climate change impacts on local habitats, including migratory pathways, species and human communities is increased.

- **Action C.3.A:** Provide informational and interpretive kiosks in public use areas highlighting sea level rise, storm, and climate change impacts on local habitats, species and human communities in the GTM NERR watershed. *(Lead: Education; Support: Research, Resource Management, Stewardship)*

Objective E.1: Public knowledge of cultural history within the GTM NERR is increased

- **Action E.1.A:** Maintain information on cultural history at existing interpretive kiosks. (*Lead: Education; Support: Resource Management*)
- **Action E.1.C**: Provide guided hikes led by trained volunteers, staff, or experts to interpret site- based cultural history. (*Lead: Education; Support: Resource Management*)
- **Action E.1.D**: Host or hold at least one cultural history-themed event per year to increase public awareness. (*Lead: Education; Support: Resource Management*)

D.2 / Current Goals, Objectives, and Strategies Budget Table

The following table provides a cost estimate for conducting the management activities identified in this plan. The data is organized by year and Management Program with subtotals for each program and year. The following represents the actual budgetary needs for managing the resources of the NERR. This budget was developed using data from the Office of Resilience and Coastal Protection (ORCP) and other cooperating entities, and is based on actual costs for management activities, equipment purchases and maintenance, and for development of fixed capital facilities. This budget assumes optimal staffing levels to accomplish these strategies, and includes the costs associated with staffing such as salary or benefits. Budget categories identified correlate with the NERR Management Program Areas. The Funding Source column depicts the source of funds with "NOAA" designated for National Oceanic and Atmospheric Administration, "LATF" for the state Land Acquisition Trust Fund, and "GDTF" for the state Grants and Donations Trust Fund.

Actions (full descriptions, objective and goals are in Chapter 6)	**Major Program Category**	**Start Date (Planned)**	**Length of Initiative**	**Est. Average Yearly Cost**	**Funding Source**	**24-25**	**25-26**	**26-27**	**27-28**	**28-29**	**29-30**	**30-31**	**31-32**	**32-33**	**33-34**
A.1.A. Monitor status and trends of saltmarsh and mangrove habitat	Research & Stewardship	Current, ongoing	Long-term	$113,206	NOAA, LATF, GDTF	$98,750	$101,713	$104,764	$107,907	$111,144	$114,478	$117,913	$121,450	$125,094	$128,846
A.1.B: Monitor status and trends of beach habitats	Research & Stewardship	Current, ongoing	Long-term	$41,557	NOAA, LATF, GDTF	$36,250	$37,338	$38,458	$39,611	$40,800	$42,024	$43,284	$44,583	$45,920	$47,298
A.1.C: Map and monitor other priority habitats	Research & Stewardship	Current, ongoing	Long-term	$61,519	NOAA, LATF, GDTF	$56,250	$57,938	$59,676	$61,466	$63,310	$63,310	$63,310	$63,310	$63,310	$63,310
A.1.D: Identify and quantify primary causes of habitat change	Research & Stewardship	Current, ongoing	Long-term	$61,519	NOAA, LATF, GDTF	$56,250	$57,938	$59,676	$61,466	$63,310	$63,310	$63,310	$63,310	$63,310	$63,310
A.1.E: Prioritize and quantify ecosystem services	Research & Stewardship	Current, ongoing	Long-term	$12,304	NOAA, LATF, GDTF	$11,250	$11,588	$11,935	$12,293	$12,662	$12,662	$12,662	$12,662	$12,662	$12,662
A.2.A: Conduct natural oyster reef assessments	Research & Stewardship	Current, ongoing	Long-term	$49,215	NOAA, LATF, GDTF	$45,000	$46,350	$47,741	$49,173	$50,648	$50,648	$50,648	$50,648	$50,648	$50,648
A.2.B: Conduct plankton monitoring	Research & Stewardship	Current, ongoing	Long-term	$49,215	NOAA, LATF, GDTF	$45,000	$46,350	$47,741	$49,173	$50,648	$50,648	$50,648	$50,648	$50,648	$50,648
A.2.C: Conduct marine turtle nesting survey	Resource Management & Public Use	Current, ongoing	Long-term	$12,304	NOAA, LATF, GDTF	$11,250	$11,588	$11,935	$12,293	$12,662	$12,662	$12,662	$12,662	$12,662	$12,662
A.2.D: Support other species surveys conducted within the GTM NERR	Resource Management & Public Use	Current, ongoing	Long-term	$24,608	NOAA, LATF, GDTF	$22,500	$23,175	$23,870	$24,586	$25,324	$25,324	$25,324	$25,324	$25,324	$25,324

Actions (full descriptions, objective and goals are in Chapter 6)	Major Program Category	Start Date (Planned)	Length of Initiative	Est. Average Yearly Cost	Funding Source	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34
A.2.E: Investigate changes and impacts to keystone, endangered and threatened species	Research & Stewardship	Current, ongoing	Long-term	$18,456	NOAA, LATF, GDTF	$16,875	$17,381	$17,903	$18,440	$18,993	$18,993	$18,993	$18,993	$18,993	$18,993
A.3.A: Enhance inshore fisheries habitat	Research & Stewardship	Current, ongoing	Long-term	$24,608	NOAA, LATF, GDTF	$22,500	$23,175	$23,870	$24,586	$25,324	$25,324	$25,324	$25,324	$25,324	$25,324
A.3.B: Prioritize habitat restoration targets	Research & Stewardship	Current, ongoing	Long-term	$6,152	NOAA, LATF, GDTF	$5,625	$5,794	$5,968	$6,147	$6,331	$6,331	$6,331	$6,331	$6,331	$6,331
A.3.C: Investigate, test and assess new estuarine restoration treatments	Research & Stewardship	Current, ongoing	Long-term	$36,911	NOAA, LATF, GDTF	$33,750	$34,763	$35,805	$36,880	$37,986	$37,986	$37,986	$37,986	$37,986	$37,986
A.4.A: Update the prescribed fire plan and continue fire management	Resource Management & Public Use	Current, ongoing	Long-term	$91,711	LATF, GDTF	$80,000	$82,400	$84,872	$87,418	$90,041	$92,742	$95,524	$98,390	$101,342	$104,382
A.4.B: Assess the efficacy of different pyrogenic techniques in coastal habitats	Resource Management & Public Use	Current, ongoing	Long-term	$6,152	LATF, GDTF	$5,625	$5,794	$5,968	$6,147	$6,331	$6,331	$6,331	$6,331	$6,331	$6,331
A.4.C: Maintain vegetation structure and diversity of freshwater depression marshes	Resource Management & Public Use	Current, ongoing	Long-term	$24,608	NOAA, LATF, GDTF	$22,500	$23,175	$23,870	$24,586	$25,324	$25,324	$25,324	$25,324	$25,324	$25,324
A.4.D: Evaluate Cooperative Land Cover communities	Resource Management & Public Use	2024	Short term to long-term	$3,426	LATF	$3,375	$3,476								
A.4.E: Reassess timber inventory	Resource Management & Public Use	2024	Short term to long-term	$3,426	LATF	$3,375	$3,476								
A.5.A: Continue efforts to determine best practices for invasive species control	Resource Management & Public Use	Current, ongoing	Long-term	$3,691	NOAA, LATF, GDTF	$3,375	$3,476	$3,581	$3,688	$3,799	$3,799	$3,799	$3,799	$3,799	$3,799
A.5.B: Monitor, treat, and remove aquatic and terrestrial invasive species	Resource Management & Public Use	Current, ongoing	Long-term	$24,608	NOAA, LATF, GDTF	$22,500	$23,175	$23,870	$24,586	$25,324	$25,324	$25,324	$25,324	$25,324	$25,324

Actions (full descriptions, objective and goals are in Chapter 6)	Major Program Category	Start Date (Planned)	Length of Initiative	Est. Average Yearly Cost	Funding Source	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34
A.6.A: Provide kiosks in public use areas on biodiversity, habitats, and ecosystem services	Education & CTP	Current, ongoing	Long-term	$3,691	NOAA, LATF, GDTF	$3,375	$3,476	$3,581	$3,688	$3,799	$3,799	$3,799	$3,799	$3,799	$3,799
A.6.B: Provide K-16 education programming on biodiversity, habitats, and ecosystem services	Education & CTP	Current, ongoing	Long-term	$75,375	NOAA, LATF, GDTF	$65,750	$67,723	$69,754	$71,847	$74,002	$76,222	$78,509	$80,864	$83,290	$85,789
A.6.C: Include biodiversity, habitat and restoration information in annual TOTE training	Education & CTP	Current, ongoing	Long-term	$12,304	NOAA, LATF, GDTF	$11,250	$11,588	$11,935	$12,293	$12,662	$12,662	$12,662	$12,662	$12,662	$12,662
A.6.D: Provide opportunities for the public to gain awareness of biodiversity	Education & CTP	Current, ongoing	Long-term	$18,456	NOAA, LATF, GDTF	$16,875	$17,381	$17,903	$18,440	$18,993	$18,993	$18,993	$18,993	$18,993	$18,993
A.6.E: Develop and provide training and/or information on biodiversity	Education & CTP	Current, ongoing	Long-term	$49,215	NOAA, LATF, GDTF	$45,000	$46,350	$47,741	$49,173	$50,648	$50,648	$50,648	$50,648	$50,648	$50,648
A.6.F: Develop a tool-kit of best practices for resource protection and habitat restoration	Education & CTP	Current, ongoing	Long-term	$3,691	NOAA, LATF, GDTF	$3,375	$3,476	$3,581	$3,688	$3,799	$3,799	$3,799	$3,799	$3,799	$3,799
B.1.A: Implement water quality components of the NERR S System-Wide Monitoring Program (SWMP)	Research & Stewardship	Current, ongoing	Long-term	$138,750	NOAA, LATF, GDTF	$138,750	$138,750	$138,750	$138,750	$138,750	$138,750	$138,750	$138,750	$138,750	$138,750
B.1.B: Conduct spatial and temporal analyses of long-term water quality data.	Research & Stewardship	Current, ongoing	Long-term	$12,304	NOAA, LATF, GDTF	$11,250	$11,588	$11,935	$12,293	$12,662	$12,662	$12,662	$12,662	$12,662	$12,662
B.1.C: Monitor fecal coliforms, microplastics, and other parameters of emerging and/or local concern	Research & Stewardship	Current, ongoing	Long-term	$110,734	NOAA, LATF, GDTF	$101,250	$104,288	$107,416	$110,639	$113,958	$113,958	$113,958	$113,958	$113,958	$113,958
B.2.A: Investigate negative impacts caused by point and non-point source pollution	Research & Stewardship	Current, ongoing	Long-term	$78,814	NOAA, LATF, GDTF	$68,750	$70,813	$72,937	$75,125	$77,379	$79,700	$82,091	$84,554	$87,090	$89,703

Actions (full descriptions, objective and goals are in Chapter 6)	Major Program Category	Start Date (Planned)	Length of Initiative	Est. Average Yearly Cost	Funding Source	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34
B.2.B: Assess management actions to improve or mitigate negative water quality impacts	Research & Stewardship	Current, ongoing	Long-term	$18,456	NOAA, LATF, GDTF	$16,875	$17,381	$17,903	$18,440	$18,993	$18,993	$18,993	$18,993	$18,993	$18,993
B.3.A: Investigate relationships between water quality and plankton, invertebrates, vegetation, and nekton	Research & Stewardship	Current, ongoing	Long-term	$12,304	NOAA, LATF, GDTF	$11,250	$11,588	$11,935	$12,293	$12,662	$12,662	$12,662	$12,662	$12,662	$12,662
B.3.B: Evaluate the potential of biological components to serve as indicators of changes in water quality	Research & Stewardship	Current, ongoing	Long-term	$12,304	NOAA, LATF, GDTF	$11,250	$11,588	$11,935	$12,293	$12,662	$12,662	$12,662	$12,662	$12,662	$12,662
B.4.A: Provide informational and interpretive kiosks in public use areas highlighting local water quality	Education & CTP	Current, ongoing	Long-term	$3,691	NOAA, LATF, GDTF	$3,375	$3,476	$3,581	$3,688	$3,799	$3,799	$3,799	$3,799	$3,799	$3,799
B.4.B: Provide K-16 education programming on water quality	Education & CTP	Current, ongoing	Long-term	$75,375	NOAA, LATF, GDTF	$65,750	$67,723	$69,754	$71,847	$74,002	$76,222	$78,509	$80,864	$83,290	$85,789
B.4.C: Include water quality in the annual TOTE training	Education & CTP	Current, ongoing	Long-term	$12,304	NOAA, LATF, GDTF	$11,250	$11,588	$11,935	$12,293	$12,662	$12,662	$12,662	$12,662	$12,662	$12,662
B.4.D: Provide opportunities for the public to learn about water quality and ecosystem health	Education & CTP	Current, ongoing	Long-term	$18,456	NOAA, LATF, GDTF	$16,875	$17,381	$17,903	$18,440	$18,993	$18,993	$18,993	$18,993	$18,993	$18,993
B.4.E: Increase use of SWMP data by local stakeholders	Education & CTP	Current, ongoing	Long-term	$4,922	NOAA, LATF, GDTF	$4,500	$4,635	$4,774	$4,917	$5,065	$5,065	$5,065	$5,065	$5,065	$5,065
B.4.F: Provide workshops on low impact development options	Education & CTP	Current, ongoing	Long-term	$36,911	NOAA, LATF, GDTF	$33,750	$34,763	$35,805	$36,880	$37,986	$37,986	$37,986	$37,986	$37,986	$37,986
B.4.G: Provide information on management actions to improve water quality	Education & CTP	Current, ongoing	Long-term	$36,911	NOAA, LATF, GDTF	$33,750	$34,763	$35,805	$36,880	$37,986	$37,986	$37,986	$37,986	$37,986	$37,986

Actions (full descriptions, objective and goals are in Chapter 6)	Major Program Category	Start Date (Planned)	Length of Initiative	Est. Average Yearly Cost	Funding Source	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34
C.1.A: Implement meteorological components of the NERRS SWMP	Research & Stewardship	Current, ongoing	Long-term	$36,911	NOAA, LATF, GDTF	$33,750	$34,763	$35,805	$36,880	$37,986	$37,986	$37,986	$37,986	$37,986	$37,986
C.1.B: Conduct spatial and temporal analyses of long-term SWMP meteorological data.	Research & Stewardship	Current, ongoing	Long-term	$4,922	NOAA, LATF, GDTF	$4,500	$4,635	$4,774	$4,917	$5,065	$5,065	$5,065	$5,065	$5,065	$5,065
C.1.C: Install a new weather station in the northern GTM NERR component	Research & Stewardship	Current, ongoing	Long-term	$4,922	NOAA, LATF, GDTF	$4,500	$4,635	$4,774	$4,917	$5,065	$5,065	$5,065	$5,065	$5,065	$5,065
C.2.A: Assess habitat change in relation to impacts of climate change	Research & Stewardship	Current, ongoing	Long-term	$64,484	NOAA, LATF, GDTF	$56,250	$57,938	$59,676	$61,466	$63,310	$65,209	$67,165	$69,180	$71,256	$73,393
C.2.B: Conduct a vulnerability assessment for the GTM NERR	Research & Stewardship	Current, ongoing	Long-term	$61,519	NOAA, LATF, GDTF	$56,250	$57,938	$59,676	$61,466	$63,310	$63,310	$63,310	$63,310	$63,310	$63,310
C.2.C: Implement NERRS Sentinel Site Application Modules	Research & Stewardship	Current, ongoing	Long-term	$61,519	NOAA, LATF, GDTF	$56,250	$57,938	$59,676	$61,466	$63,310	$63,310	$63,310	$63,310	$63,310	$63,310
C.3.A: Provide kiosks in public use areas highlighting local climate change impacts	Education & CTP	Current, ongoing	Long-term	$3,691	NOAA, LATF, GDTF	$3,375	$3,476	$3,581	$3,688	$3,799	$3,799	$3,799	$3,799	$3,799	$3,799
C.3.B: Provide K-16 education programming on local climate change impacts	Education & CTP	Current, ongoing	Long-term	$75,375	NOAA, LATF, GDTF	$65,750	$67,723	$69,754	$71,847	$74,002	$76,222	$78,509	$80,864	$83,290	$85,789
C.3.C: Include local climate change impacts in the annual TOTE training	Education & CTP	Current, ongoing	Long-term	$12,304	NOAA, LATF, GDTF	$11,250	$11,588	$11,935	$12,293	$12,662	$12,662	$12,662	$12,662	$12,662	$12,662
C.3.D: Provide opportunities for the public to gain awareness on local climate change impacts	Education & CTP	Current, ongoing	Long-term	$18,456	NOAA, LATF, GDTF	$16,875	$17,381	$17,903	$18,440	$18,993	$18,993	$18,993	$18,993	$18,993	$18,993

Actions (full descriptions, objective and goals are in Chapter 6)	Major Program Category	Start Date (Planned)	Length of Initiative	Est. Average Yearly Cost	Funding Source	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34
C.3.E: Provide information on local climate change impacts for professional audiences	Education & CTP	Current, ongoing	Long-term	$49,215	NOAA, LATF, GDTF	$45,000	$46,350	$47,741	$49,173	$50,648	$50,648	$50,648	$50,648	$50,648	$50,648
C.4.A: Work with local stakeholders on planning for sea level rise	Education & CTP	Current, ongoing	Long-term	$49,215	NOAA, LATF, GDTF	$45,000	$46,350	$47,741	$49,173	$50,648	$50,648	$50,648	$50,648	$50,648	$50,648
C.4.B: Participate in local emergency response and resilience community groups	Education & CTP	Current, ongoing	Long-term	$4,922	NOAA, LATF, GDTF	$4,500	$4,635	$4,774	$4,917	$5,065	$5,065	$5,065	$5,065	$5,065	$5,065
D.1.A: Conduct survey of visitors to public use areas every five years	Resource Management & Public Use	Current, ongoing	Long-term	$3,691	NOAA, LATF, GDTF	$3,375	$3,476	$3,581	$3,688	$3,799	$3,799	$3,799	$3,799	$3,799	$3,799
D.1.B: Increase access for individuals with physical, mental, emotional and socioeconomic limitations	Resource Management & Public Use	Current, ongoing	Long-term	$3,691	NOAA, LATF, GDTF	$3,375	$3,476	$3,581	$3,688	$3,799	$3,799	$3,799	$3,799	$3,799	$3,799
D.1.C: Maintain all visitor use areas for safety, cleanliness and accessibility	Resource Management & Public Use	Current, ongoing	Long-term	$515,875	NOAA, LATF, GDTF	$450,000	$463,500	$477,405	$491,727	$506,479	$521,673	$537,324	$553,443	$570,047	$587,148
D.2.A: Document incidences of clear damage to natural resources caused by human use	Resource Management & Public Use	Current, ongoing	Long-term	$9,843	NOAA, LATF, GDTF	$9,000	$9,270	$9,548	$9,835	$10,130	$10,130	$10,130	$10,130	$10,130	$10,130
D.2.B: Investigate impacts of visitor use on biodiversity	Resource Management & Public Use	Current, ongoing	Long-term	$4,922	NOAA, LATF, GDTF	$4,500	$4,635	$4,774	$4,917	$5,065	$5,065	$5,065	$5,065	$5,065	$5,065
D.2.C: Promote good visitor use practices that do not impact natural resources	Resource Management & Public Use	Current, ongoing	Long-term	$12,304	NOAA, LATF, GDTF	$11,250	$11,588	$11,935	$12,293	$12,662	$12,662	$12,662	$12,662	$12,662	$12,662
E.1.A: Maintain information on cultural history at existing interpretive kiosks	Education & CTP	Current, ongoing	Long-term	$3,691	NOAA, LATF, GDTF	$3,375	$3,476	$3,581	$3,688	$3,799	$3,799	$3,799	$3,799	$3,799	$3,799

Actions (full descriptions, objective and goals are in Chapter 6)	Major Program Category	Start Date (Planned)	Length of Initiative	Est. Average Yearly Cost	Funding Source	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34
E.1.B: Continue to integrate cultural topics into K-16 programming.	Education & CTP	Current, ongoing	Long-term	$36,911	NOAA, LATF, GDTF	$33,750	$34,763	$35,805	$36,880	$37,986	$37,986	$37,986	$37,986	$37,986	$37,986
E.1.C: Provide guided hikes to interpret site-based cultural history	Education & CTP	Current, ongoing	Long-term	$8,613	NOAA, LATF, GDTF	$7,875	$8,111	$8,355	$8,605	$8,863	$8,863	$8,863	$8,863	$8,863	$8,863
E.1.D: Host or hold at least one cultural history-themed event per year	Education & CTP	Current, ongoing	Long-term	$7,382	NOAA, LATF, GDTF	$6,750	$6,953	$7,161	$7,376	$7,597	$7,597	$7,597	$7,597	$7,597	$7,597
E.1.E: Investigate archaeological history of the Guana Peninsula	Resource Management & Public Use	Current, ongoing	Long-term	$24,608	NOAA, LATF, GDTF	$22,500	$23,175	$23,870	$24,586	$25,324	$25,324	$25,324	$25,324	$25,324	$25,324
E.2.A: Train staff and volunteers on Guana cultural site locations, history, and BMPs	Resource Management & Public Use	Current, ongoing	Long-term	$7,382	NOAA, LATF, GDTF	$6,750	$6,953	$7,161	$7,376	$7,597	$7,597	$7,597	$7,597	$7,597	$7,597
E.2.B: Document any new cultural sites with the Florida DHR	Resource Management & Public Use	Current, ongoing	Long-term	$3,691	NOAA, LATF, GDTF	$3,375	$3,476	$3,581	$3,688	$3,799	$3,799	$3,799	$3,799	$3,799	$3,799
E.2.C: Conduct routine condition assessments on historical sites	Resource Management & Public Use	Current, ongoing	Long-term	$7,382	NOAA, LATF, GDTF	$6,750	$6,953	$7,161	$7,376	$7,597	$7,597	$7,597	$7,597	$7,597	$7,597
E.2.D: Determine best action plan for observed or anticipated negative impacts to cultural resources	Resource Management & Public Use	Current, ongoing	Long-term	$6,152	NOAA, LATF, GDTF	$5,625	$5,794	$5,968	$6,147	$6,331	$6,331	$6,331	$6,331	$6,331	$6,331
Administrative, Support Services, Office Maintenance (Chapter 7)	Administrative	Current, ongoing	Long-term	$515,875	NOAA, LATF, GDTF	$450,000	$463,500	$477,405	$491,727	$506,479	$521,673	$537,324	$553,443	$570,047	$587,148
Capital Projects (Chapter 8)	Facilities	Current, ongoing	Long-term	$2,800,000	NOAA, LATF, GDTF	$1,000,000	$1,000,000	$1,000,000	$10,000,000	$10,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Totals				$5,872,839		$3,752,750	$3,831,170	$3,904,782	$12,987,762	$13,073,233	$4,121,762	$4,171,757	$4,233,232	$4,276,621	$4,330,881

D.3 / Budget Summary Table

	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	10 Year Total
Research & Stewardship	$998,375	$1,024,164	$1,050,726	$1,078,085	$1,106,266	$1,115,044	$1,124,087	$1,133,400	$1,142,993	$1,152,874	**$10,926,015**
Resource Management & Public Use	$694,250	$715,078	$736,530	$758,626	$781,384	$799,280	$817,713	$836,698	$856,253	$876,395	**$7,872,206**
Education & CTP	$603,375	$621,476	$640,121	$659,324	$679,104	$685,764	$692,624	$699,690	$706,968	$714,464	**$6,702,909**
Administration	$450,000	$463,500	$477,405	$491,727	$506,479	$521,673	$537,324	$553,443	$570,047	$587,148	**$5,158,746**
Capital Projects	$1,000,000	$1,000,000	$1,000,000	$10,000,000	$10,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	**$28,000,000**
Annual Total	**$3,746,000**	**$3,824,218**	**$3,904,782**	**$12,987,762**	**$13,073,233**	**$4,121,762**	**$4,171,747**	**$4,223,232**	**$4,276,261**	**$4,330,881**	**$58,659,876**

D.4 / On-going Monitoring Projects

Title	Start Date	PI Lead Affiliation	PI Lead Institution	Spatial location
North Atlantic Right Whale	1987	State Government	FL Fish and Wildlife Conservation Commission	Coastal waters of the GTM NERR
Nesting Sea Turtles	1987	Reserve Staff	GTMNERR	Beaches in the GRMAP
Shorebird	2000	Reserve Volunteers	GTMNERR	Beaches in the GRMAP
Gopher Tortoise	2005	Reserve Staff	GTMNERR	Guana Preserve Uplands
American Oyster-catcher	2007	State Government	FL Fish and Wildlife Conservation Commission	Tolomato and Matanzas Rivers
Butterfly	2008	Reserve Volunteers	GTMNERR	Guana Preserve Uplands
Salt Marsh Vegetation & Elevation	2012	Reserve Staff	GTMNERR	Six locations throughout the NERR
SWMP Weather	2001	Reserve Staff	GTMNERR	Pellicer Creek
SWMP Water Quality	2001	Reserve Staff	GTMNERR	Four locations throughout the NERR
Oyster shell "rakes"	2014	Reserve Staff	GTMNERR	Tolomato River
Oyster Reef	2014	Reserve Staff	GTMNERR	Throughout the NERR
Plankton	2012	Reserve Staff	GTMNERR	SWMP sites, Guana River, Guana Lake
Nekton	2016	Faculty	Flagler College	Throughout the NERR
Atlantic Coast Beach Mouse	2020	State Government	Florida Fish and Wildlife Conservation Commission	Atlantic coast beaches
Beach Profile	2019	Reserve Staff	GTMNERR	Beaches in the GRMAP
Guana Water Quality	2017	Reserve Staff	GTMNERR	Guana Lake and Guana River
Uplands Photo	2018	Reserve Staff	GTMNERR	Guana Preserve Uplands
American Eel	2001	State Government	Florida Fish and Wildlife Conservation Commission	Guana Dam
Cultural Site	2020	Reserve Staff/Volunteers	GTMNERR	Guana Preserve Uplands

Appendix E / Additional NOAA Requirements

E.1 / Facility Needs Identified for NOAA

Facility Type	Existing?	New or Additional Needed?	Upgrade Needed?
Staff Offices	Yes	Yes	No
Conference Room	Yes	No	Yes
Kitchen	Yes	No	No
Office Storage	Yes	Yes	Yes
Library	Yes	No	Yes
High Speed Internet	Yes	No	No
Wireless Network	Yes	Yes	Yes
Exhibits	Yes	Yes	Yes
Welcome Area	Yes	No	Yes
Auditorium	Yes	No	Yes
Parking Area	Yes	No	No
Gift Shop	No	No	NA
Sustainable Design Features	Yes	Yes	Yes
Facility Master Plan	No	Yes	NA
Dorms/ Visiting Investigator Housing	Yes	Yes	Yes
Existing Student Living Area/Kitchen/Laundry	Yes	Yes	Yes
Maintenance Shop	Yes	Yes	Yes
Classrooms	Yes	No	Yes
Education Labs	Yes	Yes	Yes
Outdoor Learning Area	Yes	Yes	Yes
Research Laboratories	Yes	Yes	Yes
Visiting Investigator Laboratories	Yes	Yes	Yes
Mud Room	No	No	No
Research Equipment Storage	Yes	Yes	Yes
Monitoring Infrastructure (e.g., SSAM-1 - SETs, stable infrastructure for datasondes, weather)	Yes	Yes	Yes
Field Station	Yes	Yes	Yes
Trails	Yes	Yes	Yes
Viewing Platforms	Yes	Yes	Yes
Docks/Piers	Yes	Yes	Yes
Kiosks	Yes	No	Yes
Trail Signage	Yes	Yes	Yes
Solar Energy Production	No	Yes	NA
Composting Toilets	No	Yes	NA
Green/ Native Landscaping	Yes	Yes	Yes
Rainwater Harvesting	Yes	Yes	Yes
Energy Heating Systems (geothermal and boilers)	No	No	NA
Wind Turbines	No	Yes	NA
Pervious Surfaces	Yes	Yes	Yes

Facility Type	**Existing?**	**New or Additional Needed?**	**Upgrade Needed?**
Stormwater features incorporating sustainable design features	Yes	Yes	Yes
Energy Audits	No	Yes	NA
Energy Efficient Windows	Yes	Yes	No
Conservation Lighting	Yes	Yes	Yes
Firewise Certification	No	No	No
Research Vessel	Yes	Yes	Yes
Education Vessel	Yes	Yes	Yes
Canoes/Kayaks	Yes	Yes	Yes
Boat Storage	No	Yes	NA

Appendix F / Public Involvement

F.1 / Formal Public Meeting

The following Appendices contain information about the Formal Public Meeting which was held Wednesday, March 20, 2024 in order to obtain input from the public about the Guana Tolomato Matanzas National Estuarine Research Reserve Draft Management Plan.

demonstrated that the purpose of the underlying statute has been met and that Petitioner would suffer a substantial hardship if required to comply with this rule (VW2024-025).
A copy of the Order or additional information may be obtained by contacting:
Division of Hotels and Restaurants, Bureau of Elevator Safety, 2601 Blair Stone Road, Tallahassee, Florida 32399-1013. dhr.elevators@myfloridalicense.com.

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
Division of Hotels and Restaurants
RULE NO.: RULE TITLE:
61C-5.001 Safety Standards
The Department of Business and Professional Regulation, Division of Hotels and Restaurants, Bureau of Elevator Safety hereby gives notice: On February 15, 2024 the Division issued an order. The Final Order was in response to a Petition for an emergency permanent Variance from Soluna Apartments located at 130 Amber Sun Way BLDG #5, Saint Augustine, 32092 filed February 5, 2024, and advertised on February 7, 2024 in Vol. 50, No. 26, of the Florida Administrative Register. No comments were received in response to the petition. The Final Order on the Petition for Variance grants the Petitioner a variance from Rules 2.4.1.5 and 2.15.9.2, ASME A17.1, 2016 Edition, as adopted by Rule 61C-5.001 Florida Administrative Code that requires a 5' foot pit, because the Petitioner has demonstrated that the purpose of the underlying statute has been met and that Petitioner would suffer a substantial hardship if required to comply with this rule (VW2024-026).
A copy of the Order or additional information may be obtained by contacting: Division of Hotels and Restaurants, Bureau of Elevator Safety, 2601 Blair Stone Road, Tallahassee, Florida 32399-1013. dhr.elevators@myfloridalicense.com.

FISH AND WILDLIFE CONSERVATION COMMISSION
Manatees
RULE NO.: RULE TITLE:
68C-22.026 Sarasota County Zones
The FISH AND WILDLIFE CONSERVATION COMMISSION hereby gives notice: that on February 14, 2024, the Florida Fish and Wildlife Conservation Commission issued an order granting Sarasota Ski-A-Rees, Inc. ("Ski-A-Rees") a temporary variance, with conditions, from subparagraph (2)(a)4 of the Sarasota County manatee protection rule (68C-22.026, Florida Administrative Code). The petition was filed with the Commission on December 01, 2023. The variance authorizes Ski-A-Rees to conduct show-ski tournament practice during the month of June 2024 in a portion of the City Island area that is designated as a slow speed zone. A variance was granted because the Commission determined (1) that a substantial hardship exists and (2) the purposes of the underlying statute would be achieved by other means, specifically through the setting of conditions and limitations on the activities.
A copy of the Order or additional information may be obtained by contacting: Ms. Emma Kindley, Florida Fish and Wildlife Conservation Commission, Imperiled Species Management Section 6A, 620 South Meridian Street, Tallahassee, FL 32399.

Section VI
Notice of Meetings, Workshops and Public Hearings

DEPARTMENT OF STATE
The Florida Department of State announces a public meeting to which all persons are invited.
DATE AND TIME: March 8, 2024, 3:00 p.m.
PLACE: 500 S. Bronough Street, R.A. Gray Building, Suite 428, Tallahassee, Florida 32399-0250
GENERAL SUBJECT MATTER TO BE CONSIDERED: Historic Structures Survey (Apalachicola) proposal opening on Friday, March 8, 2024 at 3:00 p.m.
A copy of the agenda may be obtained by contacting: David Shufflebotham, Procurement Officer, Telephone Number (850)245-6457 or purchasing@dos.myflorida.com
Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 72 hours before the workshop/meeting by contacting: David Shufflebotham, Procurement Officer, Telephone Number (850)245-6457. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).
For more information, you may contact: David Shufflebotham, Procurement Officer, Telephone Number (850)245-6457 or purchasing@dos.myflorida.com

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND
The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection announces a public meeting to which all persons are invited.
DATE AND TIME: Wednesday, March 20, 2024, 6:00 p.m.
PLACE: Willie Galimore Community Center, 399 Riberia Street, St. Augustine, Florida 32084
GENERAL SUBJECT MATTER TO BE CONSIDERED: The purpose is for members of the public to review the draft Guana Tolomato Matanzas National Estuarine Research Reserve management plan. The plan can be viewed at https://floridadep.gov/rcp/nerr-gtm.
A copy of the agenda may be obtained by contacting: Reserve Manager, Lia Sansom at Lia.Sansom@FloridaDEP.gov or (904)380-8602.

Public participation is solicited without regard to race, color, religion, sex, pregnancy, national origin, age, handicap or marital status. Persons who require special accommodations under the Americans with Disabilities Act (ADA) or persons who require translation services (free of charge) are asked to contact Stacie Taylor at (850)245-2118 or LEP@FloridaDEP.gov at least ten (10) days before the meeting. If you have a hearing or speech impairment, please contact the agency using the Florida Relay Service, (800)955-8771 (TDD) or (800)955-8770 (voice).

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection announces a public meeting to which all persons are invited.

DATE AND TIME: Thursday, March 21, 2024, 6:00 p.m.

PLACE: Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR), Visitor Center, 505 Guana River Road, Ponte Vedra Beach, FL 32082

GENERAL SUBJECT MATTER TO BE CONSIDERED: The purpose is for members of the Guana Tolomato Matanzas National Estuarine Research Reserve Management Plan Advisory Group to review the draft Guana Tolomato Matanzas National Estuarine Research Reserve management plan. The plan can be viewed at https://floridadep.gov/rcp/nerr-gtm.

A copy of the agenda may be obtained by contacting: Reserve Manager, Lia Sansom at Lia.Sansom@FloridaDEP.gov or (904)380-8602.

Public participation is solicited without regard to race, color, religion, sex, pregnancy, national origin, age, handicap or marital status. Persons who require special accommodations under the Americans with Disabilities Act (ADA) or persons who require translation services (free of charge) are asked to contact Stacie Taylor at (850)245-2118 or LEP@FloridaDEP.gov at least ten (10) days before the meeting. If you have a hearing or speech impairment, please contact the agency using the Florida Relay Service, (800)955-8771 (TDD) or (800)955-8770 (voice).

DEPARTMENT OF CITRUS

The Florida Department of Citrus announces a workshop to which all persons are invited.

DATE AND TIME: February 27, 2024, 9:00 a.m.

PLACE: Florida Department of Citrus, 605 East Main Street, Bartow, Florida 33830

GENERAL SUBJECT MATTER TO BE CONSIDERED: The purpose of the workshop is for the Florida Citrus Commission to review proposals from finalists of RFP 23-05 Media Relations and Issues Management.

A copy of the agenda may be obtained by contacting: Heather Anderson at handerson@citrus.myflorida.com or 1(863)537-3950. Pursuant to the provisions of the Americans with Disabilities Act, any person requiring reasonable accommodations to participate in this workshop/meeting is asked to advise the agency at least 48 hours before the workshop/meeting by contacting: Heather Anderson at handerson@citrus.myflorida.com or (863)537-3950. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

If any person decides to appeal any decision made by the Board with respect to any matter considered at this meeting or hearing, he/she will need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence from which the appeal is to be issued.

REGIONAL PLANNING COUNCILS

East Central Florida Regional Planning Council

The Local Emergency Planning Committee announces a public meeting to which all persons are invited.

DATE AND TIME: Thursday, March 21, 2024, 9:00 a.m.

PLACE: Osceola County Emergency Operations Center, 2586 Partin Settlement Road, Kissimmee, FL 34744

GENERAL SUBJECT MATTER TO BE CONSIDERED: General meeting of the Training Task Force subcommittee. TTF and LEPC Chairperson terms up for nominations.

A copy of the agenda may be obtained by contacting: Michelle Cechowski at MCechowski@ECFRPC.org or 407-245-0300, ext. 317.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least two (2) days before the workshop/meeting by contacting: Michelle Cechowski at MCechowski@ECFRPC.org or 407-245-0300, ext. 317. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

For more information, you may contact: Michelle Cechowski at MCechowski@ECFRPC.org or 407-245-0300, ext. 317.

REGIONAL PLANNING COUNCILS

East Central Florida Regional Planning Council

The Local Emergency Planning Committee announces a public meeting to which all persons are invited.

DATE AND TIME: Thursday, March 21, 2024, 10:00 a.m.

PLACE: Osceola County Emergency Operations Center, 2586 Partin Settlement Road, Kissimmee, FL 34744.

GENERAL SUBJECT MATTER TO BE CONSIDERED: General Local Emergency Planning Committee meeting. TTF and LEPC Chairperson terms up for nominations.

F.1.2 / Newspaper Advertisements

THE BEACHES LEADER/
PONTE VEDRA LEADER
Published Weekly
Jacksonville Beach, Duval County, Florida
STATE OF FLORIDA
COUNTY OF DUVAL

Before the undersigned authority personally appeared **Aline Bailey**, who on oath says that she is an **Authorized Agent** of **The Beaches Leader/Ponte Vedra Leader**, weekly newspapers published at **Jacksonville Beach** in **Duval** County, Florida; that the attached copy of advertisement, being a **Legal Notice** in the matter of:

PUBLIC NOTICE

The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection announces a public meeting to which all persons are invited. The purpose is for members of the public to review the draft Guana Tolomato Matanzas National Estuarine Research Reserve management plan. The plan can be viewed at https://floridadep.gov/rcp/nerr-gtm. This meeting will take place on Wednesday, March 20, 2024, at 6 p.m. at the Willie Galimore Community Center, 399 Riberia Street, St. Augustine, Florida 32084. A copy of the agenda may be obtained by contacting: Reserve Manager, Lia Sansom at Lia.Sansom@FloridaDEP.gov or (904)380-8602. Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 5 days before the workshop/meeting by contacting: Reserve Manager, Lia Sansom at Lia.Sansom@FloridaDEP.gov or (904)380-8602. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

was published in said newspaper in the issues of:

February 29, 2024

Affiant further says that the said **The Beaches Leader/Ponte Vedra Leader,** newspapers published at **Jacksonville Beach,** in said **Duval and St. Johns Counties**, Florida, and that the said newspaper has heretofore been continuously published in said **Duval and St. Johns** Counties, Florida, each **week** and has been entered as periodicals matter at the post offices in Jacksonville Beach, Atlantic Beach, Jacksonville and Ponte Vedra Beach, in said **Duval and St. Johns** Counties, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further sa--ys that she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Aline Bailey
(Signature of Affiant)
29th day of **February 2024** by

Marie A Adams
(Signature of Notary Public)

who is personally known to me.

MARIE A. ADAMS
Commission # GG 963116
Expires March 30, 2024
Bonded Thru Troy Fain Insurance 800-385-7019

(Print, Type, or Stamp Commissioned Name of Notary)

PUBLIC NOTICE

The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection announces a public meeting to which all persons are invited. The purpose is for members of the public to review the draft Guana Tolomato Matanzas National Estuarine Research Reserve management plan. The plan can be viewed at https://floridadep.gov/rcp/nerr-gtm. This meeting will take place on Wednesday, March 20, 2024, at 6 p.m. at the Willie Galimore Community Center, 399 Riberia Street, St. Augustine, Florida 32084. A copy of the agenda may be obtained by contacting: Reserve Manager, Lia Sansom at Lia.Sansom@FloridaDEP.gov or (904)380-8602. Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 5 days before the workshop/meeting by contacting: Reserve Manager, Lia Sansom at Lia.Sansom@FloridaDEP.gov or (904)380-8602. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

BL 2/29/202

LOCALiQ

FLORIDA

PO Box 631244 Cincinnati, OH 45263-1244

PROOF OF PUBLICATION

Kaitlyn Dietz
GTM Nerr Fdep
505 Guana River RD
Ponte Vedra Beach FL 32082-6527

STATE OF WISCONSIN, COUNTY OF BROWN

Before the undersigned authority personally appeared, who on oath says that he or she is the Legal Coordinator of the St Augustine Record, published in St Johns County, Florida; that the attached copy of advertisement, being a Public Notices, was published on the publicly accessible website of St Johns County, Florida, or in a newspaper by print in the issues of, on:

03/01/2024

Affiant further says that the website or newspaper complies with all legal requirements for publication in chapter 50, Florida Statutes.
Subscribed and sworn to before me, by the legal clerk, who is personally known to me, on 03/01/2024

Legal Clerk

Notary, State of WI, County of Brown 8.25.26

My commission expires

Publication Cost:	$47.60	
Order No:	9895154	# of Copies:
Customer No:	807799	1
PO #:		

THIS IS NOT AN INVOICE!

Please do not use this form for payment remittance.

MARIAH VERHAGEN
Notary Public
State of Wisconsin

The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection announces a public meeting to which all persons are invited. The purpose is for members of the public to review the draft Guana Tolomato Matanzas National Estuarine Research Reserve management plan. The plan can be viewed at https://floridadep.gov/rcp/nerr-gtm. This meeting will take place on Wednesday, March 20, 2024, at 6 p.m. at the Willie Galimore Community Center, 399 Riberia Street, St. Augustine, Florida 32084. A copy of the agenda may be obtained by contacting: Reserve Manager, Lia Sansom at Lia.Sansom@FloridaDEP.gov or (904)380-8602. Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 5 days before the workshop/meeting by contacting: Reserve Manager, Lia Sansom at Lia.Sansom@FloridaDEP.gov or (904)380-8602. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

F.1.3 / Flyer

Guana Tolomato Matanzas National Estuarine Research Reserve Management Plan

Public Meeting

6 p.m. EDT
Wednesday, March 20, 2024

Willie Galimore Community Center, 399 Riberia Street, St. Augustine, FL 32084

The purpose for this meeting is for members of the public to review the draft Guana Tolomato Matanzas National Estuarine Research Reserve management plan. The plan can be viewed at FloridaDEP.gov/rcp/nerr-gtm.

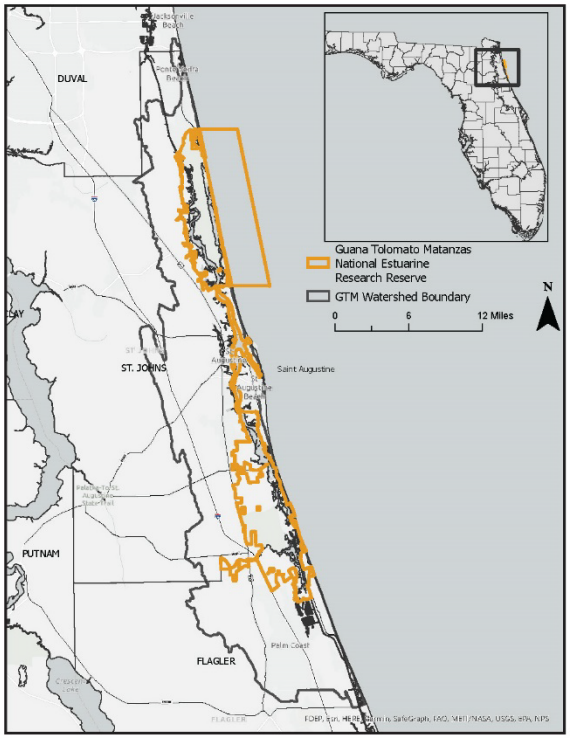
A copy of the agenda may be obtained by contacting: Reserve Manager, Lia Sansom at Lia.Sansom@FloridaDEP.gov or (904)380-8602.

Written comments are welcome and can be submitted by mail or email: FloridaCoasts@FloridaDEP.gov on or before April 4, 2024.

Persons who require special accommodations under the American with Disabilities Act (ADA) or persons who require translation services (free of charge) are asked to contact Stacie Taylor at 850-245-2118 or LEP@FloridaDEP.gov at least ten (10) days before the meeting.

If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

Scan to learn about Guana Tolomato Matanzas National Estuarine Research Reserve



The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection (RCP) manages more than 5.3 million acres of submerged lands and coastal uplands. RCP manages 42 aquatic preserves and three national estuarine research reserves and oversees programs to protect and conserve beaches, coastlines, waterways and Florida's Coral Reef.

F.1.4 / Summary of the Formal Public Meeting

Guana Tolomato Matanzas National Estuarine Research Reserve
Draft Management Plan
Public Meeting Comments
Wednesday, March 20, 2024

- **Education, Coastal Training, Research-** Increase efforts/ programming in southern portion of the reserve boundaries
- **Research-** Prioritize new non-SWMP water quality studies in Moses and Moultrie Creeks
    - Boats in shallow intertidal creeks west of Marineland are potentially artificially disturbing sediment
- **Shared resource(s)-** Flagler County's Tourism Development Council, Amy Lukasik (Director), has proposed a local visitor center that will offer ecotourism packages and educational presentations on the local environment and history. With this facility being proposed and the many other conservation areas within the reserve, it is important to have consistent branding as the reserve and all of the land managing partners within the boundaries

Public Comments Emailed to FloridaCoasts@FloridaDEP.gov

Name: Peter Copeland
Date: 3/17/2024
Comment:
I'm a yearly pass holder at GTM. I would like to know when renovations will start at the GTM North Beach access? The Middle Beach and South Beach accesses have been renovated but not the North Beach access.
The parking areas at all three beach accesses are now not large enough to support the summer demand due to the population increase in St. John's County. What is being done to add more parking or open new areas for parking and beach access?

Name: Benjamin Brandao
Organization: GeoTrippin Adventure Co.
Date: 3/14/2024
Comment:
Dear Review Panel,
I am writing to express my concerns regarding the lack of support and resources for ecotourism development in the Guana Tolomato Matanzas National Estuarine Research Reserve (GTM). After reviewing the draft plan for the upcoming meeting on March 20th, I feel compelled to bring attention to several critical issues that require consideration.

- Lack of Specific Ecotourism Information in Draft Plan:
    - The draft plan lacks specific information regarding support for the ecotourism industry within the GTM Reserve.

    - This omission fails to address the needs of stakeholders involved in ecotourism activities, despite their significance in the reserve's ecosystem.
- Removal of Training Workshops for Ecotour Operators:
    - The removal of training workshops for ecotour operators from the draft plan is concerning.
    - These workshops are essential for the development and professionalism of guides within the ecotourism industry.
- Denied Requests for Workshops
    - Requests for training workshops have been consistently denied by management, despite efforts initiated by the education director.
    - This lack of support from key entities within the reserve, including the Department of Environmental Protection (DEP), the Friends organization, and kayak vendors, is alarming.
- Lack of Support from Key Entities
    - The absence of support from key entities, such as the DEP, the Friends organization, and kayak vendors, highlights a systemic issue that must be addressed promptly.
- Limited Promotion of EcoTour Operators:
    - The promotion of only one kayak rental vendor on the reserve's website, which subsequently subcontracts tours to guides, raises concerns about fairness and equitable representation within the ecotourism sector.
- Call for Inclusion in Website Listings:
    - There is a clear need for a transparent process to include all ecotour companies on the reserve's website, ensuring equal opportunities for participation and representation.

In light of these concerns, I urge the review panel to prioritize the support and development of the ecotourism industry within the GTM Reserve. It is crucial to provide necessary resources, training opportunities, and fair representation to ensure the sustainability and growth of ecotourism activities in the area.

Thank you for your attention to these matters. I hope that my comments will be considered thoughtfully in the upcoming meeting.

Name: Eric Ziecheck
Organization: Marineland Marina
Date: 3/26/2024
Comment:
[initial question from Scott Eastman: I would really like to get you thoughts on what you are envisioning for the Marineland Field Station, the R2S Preserve, etc.. I know you have mentioned on multiple occasions more presence from the GTM Research Reserve, but I'm trying to get a better idea of what that looks like? An updated sign, increased number of walks and talks, an updated facility? I've got some thoughts, some more extreme than others, but let me know what you are thinking..]
[Comment from Eric Ziecheck]:

Sharing my perspective is for simplicity of the bigger picture for those in the area to see GTM NERR and be introduced to GTM NERR in particular the southern boundary. We can get in to greater details another time.
I share this perspective from the person standing along the ICW looking into the natural area wondering who, what, where, when and why, as well as visiting the partnering parks.
I don't think a sign or educational kiosk is an end all, but it's a starting point. The same is possible with every opportunity to create those chances for public to gather some information on their own and seek out web-based sources for further understanding. Classes and walks go further and provide further understanding for those whom continue to seek out GTM NERR related activities and educational opportunities.
The southern boundary has many partners as you know. Ideally every person visiting Washington Oaks, Matanzas Monument and Forest, Moses Creek, Favor Dykes, Princess Place and River to Sea has opportunity to do the same. Every person can walk in and out of these public spaces/areas with some type of awareness to GTM NERR.
Right now, Marineland Marina and Ripple Effect Ecotours are giving visitors an introduction to the southern boundary of the GTM NERR. We do this when boaters check in and learn about the area. We also give them more details while paddling into the system on a kayak ecotour.
I will continue to look at the southern boundary as an area at risk to misguided usage that overtime will increase and has opportunity for negative impacts.

F.2 / Advisory Committee Meeting

The following Appendices contain information about the Advisory Committee Meeting which was held Thursday, March 21, 2024 in order to share feedback from the public and obtain further input for the Guana Tolomato Matanzas National Estuarine Research Reserve Draft Management Plan.

F.2.1 / List of invited members and their affiliations

Present at 3/21/2024 Meeting	Name	Representation	Statute Match
Y	Sam Baker	Private Property Owner	private property owners
Y	Barbara Blonder	City of St. Augustine City Commission	comanaging entities, a local elected official
invited	Carl Blow	Florida Inland Navigation District	local elected official
invited	Wade Brenner	Florida Fish and Wildlife Conservation Commission	comanaging entities
invited	Jan Brewer	St. Johns County BOCC	local elected official
invited	Matt Brown	St. Augustine Port, Waterway, and Beach District	local elected official
Y	Stephen Brown	Flagler County Citizen Appointee	private property owners
invited	Jeff Darr	Florida Forest Service	comanaging entities
invited	Henry Dean	St. Johns County BOCC	local elected official

Present at 3/21/2024 Meeting	Name	Representation	Statute Match
Y	Kaitlyn Dietz	GTM Research Reserve	lead land managing agency
Y	Scott Eastman	Florida Department of Environmental Protection	lead land managing agency
invited	Chris Farrell	St. Johns County Citizen Appointee or Audubon Florida	private property owners / conservation organization
Y	Kurt Foote	National Park Service	comanaging entities
invited	Amber Hamilton-Smith	DEP, Florida Park Service	comanaging entities
invited	Gregory Hansen	Flagler County BOCC	local elected official
Y	Cori Hermle	SJRWMD	comanaging entities
Y	Scott Johns	Florida Department of Transportation	
Y	Candace Killian	GTM Research Reserve	lead land managing agency
Y	Abby Kuhn	GTM Research Reserve	lead land managing agency
Y	Zach Lepera	GTM Research Reserve	lead land managing agency
Y	Jen Lomberk	Matanzas Riverkeeper	local conservation organization
invited	Todd Osborne	Flagler County Citizen Appointee	private property owners
invited	Chuck Owen	St. Johns Soil and Water Conservation District	soil and water conservation district
invited	Renee Paolini	DEP, Florida Park Service	comanaging entities
Y	Ashley Raybould	St. Johns County BOCC	local elected official
Y	Tessa Ricker	FWC	comanaging entities
Y	Lia Sansom	GTM Research Reserve	lead land managing agency
invited	Eric Smith	St. Johns County Citizen Appointee	private property owners
invited	Kelly Smith	Duval County Citizen Appointee	private property owners
Y	Steve Swann	Duval County Citizen Appointee	private property owners
Y	Kirstin Thompson	GTM Research Reserve	lead land managing agency
invited	Frank Usina	St. Johns County Citizen Appointee	private property owners
invited	Dale Viger	Friends of the GTM Reserve	conservation organization
invited	Gordon J. Wilson	National Park Service	comanaging entities
Attended 3/20/2024 Meeting	Eric Ziecheck	St. Johns County Citizen Appointee	private property owners

F.2.2 / Florida Administrative Register Posting

Public participation is solicited without regard to race, color, religion, sex, pregnancy, national origin, age, handicap or marital status. Persons who require special accommodations under the Americans with Disabilities Act (ADA) or persons who require translation services (free of charge) are asked to contact Stacie Taylor at (850)245-2118 or LEP@FloridaDEP.gov at least ten (10) days before the meeting. If you have a hearing or speech impairment, please contact the agency using the Florida Relay Service, (800)955-8771 (TDD) or (800)955-8770 (voice).

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection announces a public meeting to which all persons are invited.

DATE AND TIME: Thursday, March 21, 2024, 6:00 p.m.

PLACE: Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR), Visitor Center, 505 Guana River Road, Ponte Vedra Beach, FL 32082

GENERAL SUBJECT MATTER TO BE CONSIDERED: The purpose is for members of the Guana Tolomato Matanzas National Estuarine Research Reserve Management Plan Advisory Group to review the draft Guana Tolomato Matanzas National Estuarine Research Reserve management plan. The plan can be viewed at https://floridadep.gov/rcp/nerr-gtm.

A copy of the agenda may be obtained by contacting: Reserve Manager, Lia Sansom at Lia.Sansom@FloridaDEP.gov or (904)380-8602.

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DEPARTMENT OF CITRUS

The Florida Department of Citrus announces a workshop to which all persons are invited.

DATE AND TIME: February 27, 2024, 9:00 a.m.

PLACE: Florida Department of Citrus, 605 East Main Street, Bartow, Florida 33830

GENERAL SUBJECT MATTER TO BE CONSIDERED: The purpose of the workshop is for the Florida Citrus Commission to review proposals from finalists of RFP 23-05 Media Relations and Issues Management.

A copy of the agenda may be obtained by contacting: Heather Anderson at handerson@citrus.myflorida.com or 1(863)537-3950. Pursuant to the provisions of the Americans with Disabilities Act, any person requiring reasonable accommodations to participate in this workshop/meeting is asked to advise the agency at least 48 hours before the workshop/meeting by contacting: Heather Anderson at handerson@citrus.myflorida.com or (863)537-3950. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

If any person decides to appeal any decision made by the Board with respect to any matter considered at this meeting or hearing, he/she will need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence from which the appeal is to be issued.

REGIONAL PLANNING COUNCILS

East Central Florida Regional Planning Council

The Local Emergency Planning Committee announces a public meeting to which all persons are invited.

DATE AND TIME: Thursday, March 21, 2024, 9:00 a.m.

PLACE: Osceola County Emergency Operations Center, 2586 Partin Settlement Road, Kissimmee, FL 34744

GENERAL SUBJECT MATTER TO BE CONSIDERED: General meeting of the Training Task Force subcommittee. TTF and LEPC Chairperson terms up for nominations.

A copy of the agenda may be obtained by contacting: Michelle Cechowski at MCechowski@ECFRPC.org or 407-245-0300, ext. 317.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least two (2) days before the workshop/meeting by contacting: Michelle Cechowski at MCechowski@ECFRPC.org or 407-245-0300, ext. 317. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

For more information, you may contact: Michelle Cechowski at MCechowski@ECFRPC.org or 407-245-0300, ext. 317.

REGIONAL PLANNING COUNCILS

East Central Florida Regional Planning Council

The Local Emergency Planning Committee announces a public meeting to which all persons are invited.

DATE AND TIME: Thursday, March 21, 2024, 10:00 a.m.

PLACE: Osceola County Emergency Operations Center, 2586 Partin Settlement Road, Kissimmee, FL 34744.

GENERAL SUBJECT MATTER TO BE CONSIDERED: General Local Emergency Planning Committee meeting. TTF and LEPC Chairperson terms up for nominations.

F.2.3 / Meeting Summary

Guana Tolomato Matanzas National Estuarine Research Reserve
Draft Management Plan
Advisory Board Comments
Thursday, March 21, 2024

- **Objective C-** Missing component about identifying and facilitating migratory pathways for species and habitats.
- **Coastal Training Program-** Include policy-makers and decision makers as a stakeholder group for all Coastal Training Program objectives.
- **Research-** There is a disconnect between the status/ trends and research/ monitoring to actions that can be taken such as land acquisition.
- **Action B.2.A-** In addition to understanding the negative impacts of point and non-point source pollution, investigations should be led to understand the sources and educate stakeholders/ community member of actions to take to address the sources.
- **Chapter 7-** Encourage the GTM Research to grow staff numbers to successfully achieve these management plan actions.
- **Resource Management-** Need clarification of management/ collaboration/ joint management of Guana Lake.
- **Shared resource(s)-**
    - Live Wildly

Florida Department of Environmental Protection
Office of Resilience and Coastal Protection
2600 Blair Stone Road MS #235
Tallahassee, FL 32399
www.floridacoasts.org