ITEM 7:

Consider a Management Plan for Lignumvitae Key Aquatic Preserve.

LOCATION:

Monroe County

APPLICANT:

Office of Resilience and Coastal Protection

STAFF REMARKS:

Background

Under the Aquatic Preserve Resolution of 1969 and then in Chapter 258, Part II, Florida Statutes, aquatic preserves are set aside to be maintained in essentially the natural condition for the benefit of future generations. Lignumvitae Key Aquatic Preserve (LKAP) was designated in 1972.

LKAP comprises 6,700 acres surrounding Lignumvitae Key itself. LKAP is located in the Village of Islamorada at the boundary between the Upper and Lower Keys, protecting the water between Upper and Lower Matecumbe Keys and the waters north to Everglades National Park.

The Florida Division of Historical Resources has documented 22 historical structures and archeological sites that fall nearby the aquatic preserve, including prehistoric native American burial mounds and shell middens, the Matheson House built in 1919 and the San Pedro, a submerged shipwreck from the 16th century Spanish flotilla.

Management Plan Overview

The hallmark of Florida's Aquatic Preserve Program is that each site's natural resource management efforts are designed in direct response to unique local and regional issues. In this management plan, LKAP characterizes its issues and delineates the unique goals, objectives, and strategies that will set the framework for meeting the challenges presented by these issues. The goals, objectives, and strategies employed to address issues of LKAP are specific to the ecological and socioeconomic conditions present within and around this site.

The management plan identifies the following issues and objectives:

- **Water Quality– Goals**
  - Improve LKAP's long-term water quality monitoring in order to understand current status and future changes in LKAP's natural resources.
  - Improve water quality within LKAP.
- **Wildlife and Habitat Protection – Goals**
  - Obtain better data on LKAP's natural resources to more effectively manage and protect them
  - Reduce damage from marine debris to habitats and wildlife, including seagrass beds, hardbottom, and mangrove islands.
  - Increase enforcement of existing regulations.
  - Expand community volunteer opportunities in resource management activities, including marine debris removal and resource monitoring.
  - Identify and locate unknown archaeological and historical resources within LKAP.

- **Public Awareness – Goals**
    - Enhance knowledge of natural resources in LKAP and how visitors can be good stewards.
    - Improve education and outreach programs of LKAP to protect the wildlife and habitats found within the aquatic preserve.
- **Public Access – Goal**
    - Improve visitor access potential into LKAP.

Public Involvement

A scoping meeting was held on Thursday, Jan. 16, 2020 prior to the development of the plan. An advisory committee meeting was held online on Thursday, November 18, 2021 and a public meeting was held at the Keys History & Discovery Center on Tuesday, Jan. 25, 2022, to obtain public input about the LKAP draft management plan. Top concerns at the meetings were about water quality and monitoring, and concerns about maintaining, but not expanding public access in the aquatic preserve, and were incorporated into the draft plan.

STAFF RECOMMENDATION:

Approve the management plan.

ARC RECOMMENDATION:

( ) APPROVE
( ) APPROVE WITH MODIFICATIONS: _____
( ) DEFER
( ) WITHDRAW
( ) NOT APPROVE
( ) OTHER: _____

Executive Summary

Lead Agency: Florida Department of Environmental Protection's (DEP) Office of Resilience and Coastal Protection (ORCP)

Common Name of Property: Lignumvitae Key Aquatic Preserve (LKAP)

Location: Monroe County, Florida
Acreage: 6,700

Management Agency: DEP's ORCP, DEP's Florida Park Service, National Oceanic and Atmospheric Administration (NOAA)

Designation: Aquatic Preserve

Unique Features: Lignumvitae Key Aquatic Preserve (LKAP) is recognized as an outstanding water resource of the state. The aquatic preserve encompasses 6,700 acres of seagrass meadows, deep water channels and hard bottom communities that provide nursery and settlement habitat for a wide variety of marine species. The three navigable channels that traverse the preserve from north to south are a transitional zone between Florida Bay and the Atlantic Ocean. The channels are flanked on either side by broad seagrass flats that may be partially exposed during low tide. The shallow water flats are prime feeding areas for many wading birds and valuable nursery area for juvenile fish and invertebrates, including many of commercial interest. Hard bottom areas exhibit soft and hard corals, marine algae and a host of colorful invertebrates and fish. The aquatic preserve is named after Lignumvitae Key, one of the islands in the aquatic preserve. Lignumvitae Key draws its name from the now rare lignum vitae tree (*Guaiacum sanctum*) which translates from Latin as "wood of life." This key has one of the largest stands of lignum vitae keys and minimally disturbed tropical hammocks left in the state.

Archaeological/Historical Sites: The Florida Division of Historical Resources has documented 22 historical structures and archeological sites that fall within or adjacent to the aquatic preserve, including prehistoric native American burial mounds and shell middens, the Matheson House built in 1919 and the San Pedro, a submerged shipwreck from the 16th century Spanish flotilla. The Henry Flagler railroad company constructed the fills that bisect the aquatic preserve longitudinally between 1908-1910. After the closing of the railroad in 1935 many of its fill Keys were taken over by the Overseas Highway.

FNAI Natural Community	Global Rank	Local Rank	Acreage	Percentage of Submerged Acreage
Mangrove Swamp	G5	S4	289	4.30%
Marine Composite Substrate	G3	S3	688	10.23%
Marine Consolidated Substrate	G3	S3	77	1.15%
Marine Seagrass Bed	G2	S2	5356	79.72%
Marine Unconsolidated Substrate	G5	S5	309	4.60%

Management Needs

Ecosystem Science: Research is critical to determining the status of existing resources and to provide a baseline from which to compare current trends. Many of the natural resources within LKAP have little baseline information, although there has been research conducted by state park staff since the 1990s focusing on seagrass restoration techniques. The management issue associated primarily with ecosystem science is continuing our water quality monitoring and implementing long-term monitoring of benthic communities and wildlife will be crucial in understanding the impacts water quality have on these resources. Continued water quality monitoring will help establish water quality trends and may help identify sources of pollution (pages 53-54, 57-58).

Resource Management: The primary management objectives for resource management are the protection and restoration of seagrass beds, bird rookery monitoring, and the reduction of marine debris. High boat traffic leads to impacts from prop scars, grounding events, and fishing-associated marine debris. Many of these impacts could be prevented or minimized with improved channel markings, improved markings of the no-motor zones established by the State Park, enhanced enforcement, and public education. This management plan established goals and objectives to address these and other management issues (pages 57-59).

Education and Outreach: Education, outreach, and encouraging engagement in stewardship activities will be critical in achieving management goals. Many of the issues affecting the aquatic preserve can be ameliorated by enhanced outreach to the public, especially in regard to the seagrass damage from improper boating activities and other impacts from marine debris (pages 60-62). Outreach to local law enforcement, residents, and visitors will be critical in achieving our management goals.

Public Use: The three navigation channels in the aquatic preserve provide the most convenient access from the Bay to the Atlantic for several miles on either side of the Lignumvitae channels. This area therefore experiences a lot of boat traffic traversing through the preserve but is also a popular destination for flats anglers and trappers who take advantage of the bountiful seagrass beds. Visitor use conflict is an issue at the Indian Key Fill boat ramp, the most popular access point into the aquatic preserve. Finding ways to address visitor use conflict and enhancing visitor access at designated access points are key management goals (pages 64-65).

Public Involvement: Public support is vital to the success of conservation programs. The goal is to foster understanding of the problems facing these fragile ecosystems and the steps needed to adequately manage this important habitat. LKAP staff held a public meeting on January 16, 2020 at Founders Park in Islamorada. An advisory committee meeting was held on Thursday, Nov. 21, 2021, and a second public meeting was held on Tuesday, January 25, 2022 to receive input on the draft management plan. An additional public meeting will be held in Tallahassee when the Acquisition and Restoration Council reviews the management plan.

Coastal Zone Management Issues:

The main impacts to the aquatic preserve's natural resources stem mainly from recreational activities, boating and fishing activities. The navigation channels in the aquatic preserve provide the most convenient access from Florida Bay to the Atlantic Ocean for several miles on either side of the Lignumvitae pass. This area therefore experiences a lot of boat traffic traversing

through the aquatic preserve and is also a popular destination for flats anglers who take advantage of the bountiful seagrass beds. Major impacts from boating include prop scars and blowholes on the seagrass beds and groundings. Fishing can also contribute to prop scars and groundings, but impacts are also felt from discarded fishing line and other debris. Marine debris is also an issue due to hurricanes and intense visitor use of adjacent uplands. At least one of the mangrove islands within the aquatic preserve's boundaries is a rookery island for wading and sea birds and be particularly sensitive to entanglement and nest abandonment as the result of relatively minor disturbances, such as boats and personal watercraft (PWCs) approaching the island too closely.

Goals:

Many of the issues impacting LKAP could be prevented or minimized with improved channel markings, improved markings of the no-motor zones established by Lignumvitae Key Botanical State Park, enhanced enforcement, and public education campaigns. Better resource monitoring and analysis will guide our management practices and make them more effective overall. Reducing user conflict at the most popular access point will also reduce other negative impacts associated with overuse and encourage more sustainable use of the aquatic preserve.

Issue One – Water Quality

Goal One: Improve LKAP's long-term water quality monitoring in order to understand current status and future changes in LKAP's natural resources.

Objective One: Understand water quality trends in LKAP from existing data.

Objective Two: Seek ways to improve existing water quality collection**.**

Goal Two: Improve water quality within LKAP.

Objective One: Identify water quality problem areas within LKAP, both point and non-point sources of pollution.

Objective Two: Reduce or eliminate identified water quality problem areas.

Issue Two – Wildlife and Habitat Protection

Goal One: Obtain better data on LKAP's natural resources to more effectively manage and protect them

Objective One: Develop and establish monitoring programs for submerged habitats

Objective Two: Maintain monitoring programs for birds.

Objective Three: Determine if iguanas pose a threat to nesting birds on rookery islands in LKAP.

Goal Two: Reduce damage from marine debris to habitats and wildlife, including seagrass beds, hardbottom, and mangrove islands.

Objective One: Continue recently established marine debris removal program.

Objective Two: Reduce likelihood of marine debris entering the water.

Objective Three: Reduce potential for fishing-related equipment to negatively impact natural resources, especially mangrove shorelines and rookery islands.

Objective Four: Identify areas of high physical impact (i.e. seagrass scarring and grounding damage).

Goal Three: Increase enforcement of existing regulations.

Objective One: Improve enforcement of no-motor zones within LKBSP.

Goal Four*:* Strengthen management partnerships with co-managing agencies.

Objective One: Assist LKBSP and FKNMS with submerged area stewardship activities.

Goal Five: Expand community volunteer opportunities in resource management activities, including marine debris removal and resource monitoring.

Objective One: Establish volunteer program.

Goal Six: Identify and locate unknown archaeological and historical resources within LKAP.

Objective One: Assist with management and monitoring of existing archaeological and historical resources.

Issue Three – Public Awareness

Goal One: Enhance knowledge of natural resources in LKAP and how visitors can be good stewards.

Objective One: Improve education and outreach programs of FKAP regarding awareness of the Florida Aquatic Preserve Program and how the public can help protect it.

Objective Two: Provide a permanent space for the public to learn about the Florida Keys Aquatic Preserves.

Goal Two: Improve education and outreach programs of LKAP to protect the wildlife and habitats found within the aquatic preserve.

Objective One: Use outreach and communication on how to be good stewards of the seagrass beds and decrease prop scarring and other seagrass damage by raising awareness of no-motor zones and how to safely navigate the aquatic preserve.

Objective Two: Use outreach and communication regarding the marine debris issue and how aquatic preserve users can reduce their impact to the aquatic preserve.

Goal Three: Increase awareness of management activities inside the aquatic preserve.

Objective One: Provide timely and accurate water quality data to the public and other interested parties

Objective Two: Improve public knowledge of aquatic preserve status and trends.

Issue Four: Public Access

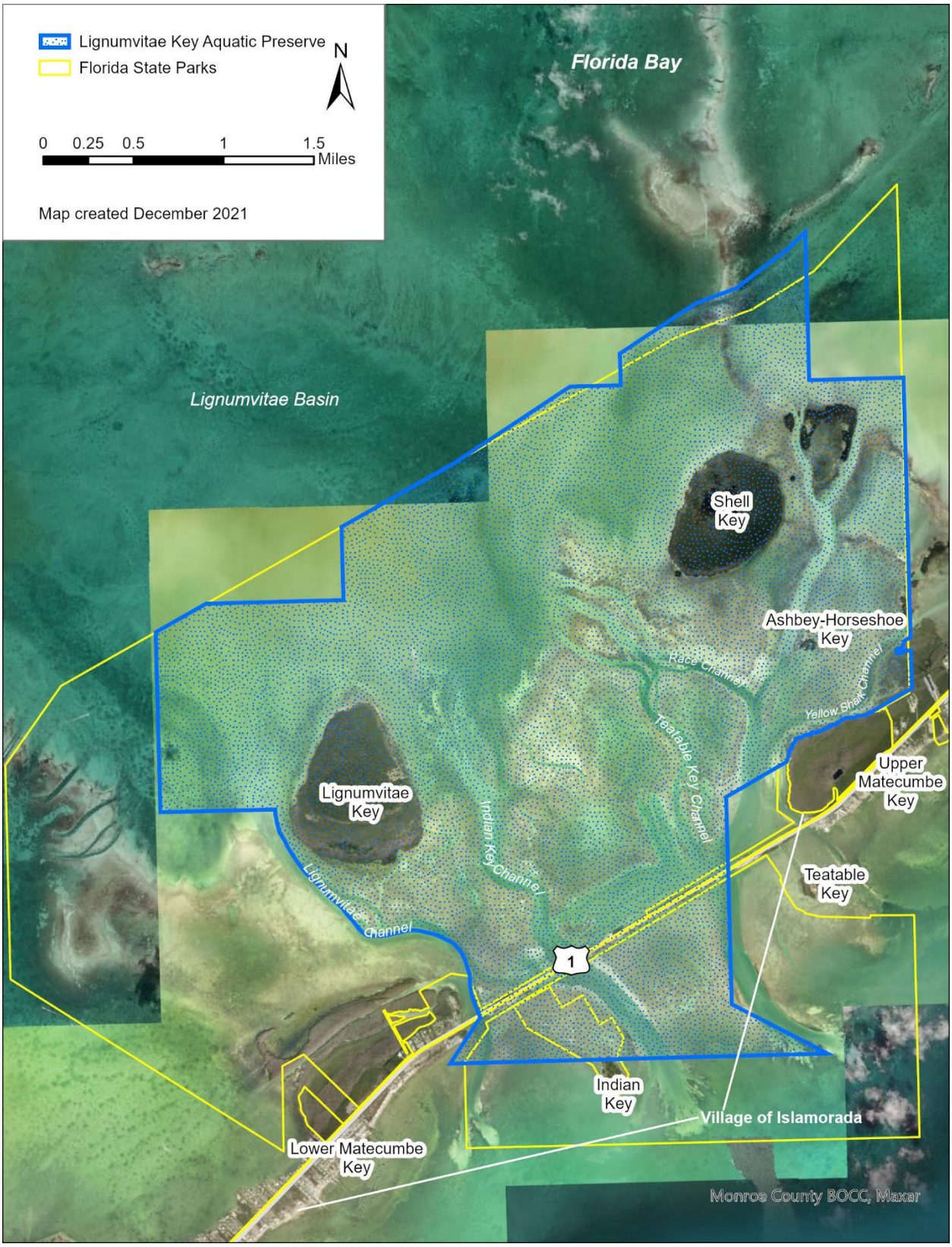
Goal One: Improve visitor access potential into LKAP.

Objective One: Facilitate access to LKAP through enhanced visibility of existing designated access points.

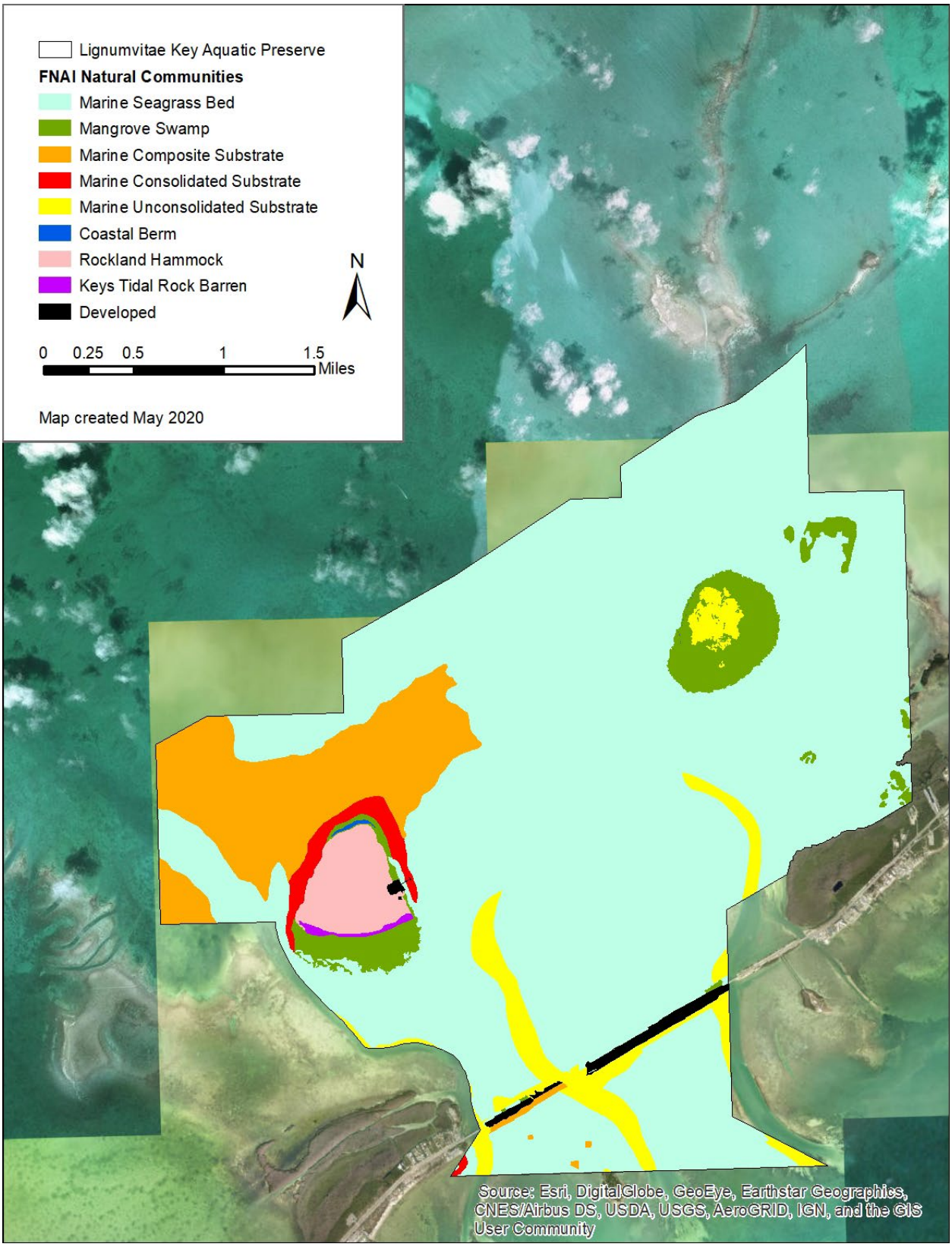
Objective Two: Increase Americans with Disabilities Act (ADA) compliant access opportunities to LKAP.

Objective Three: Attempt to understand levels of use and potential carrying capacity limits to protect preserve resources.

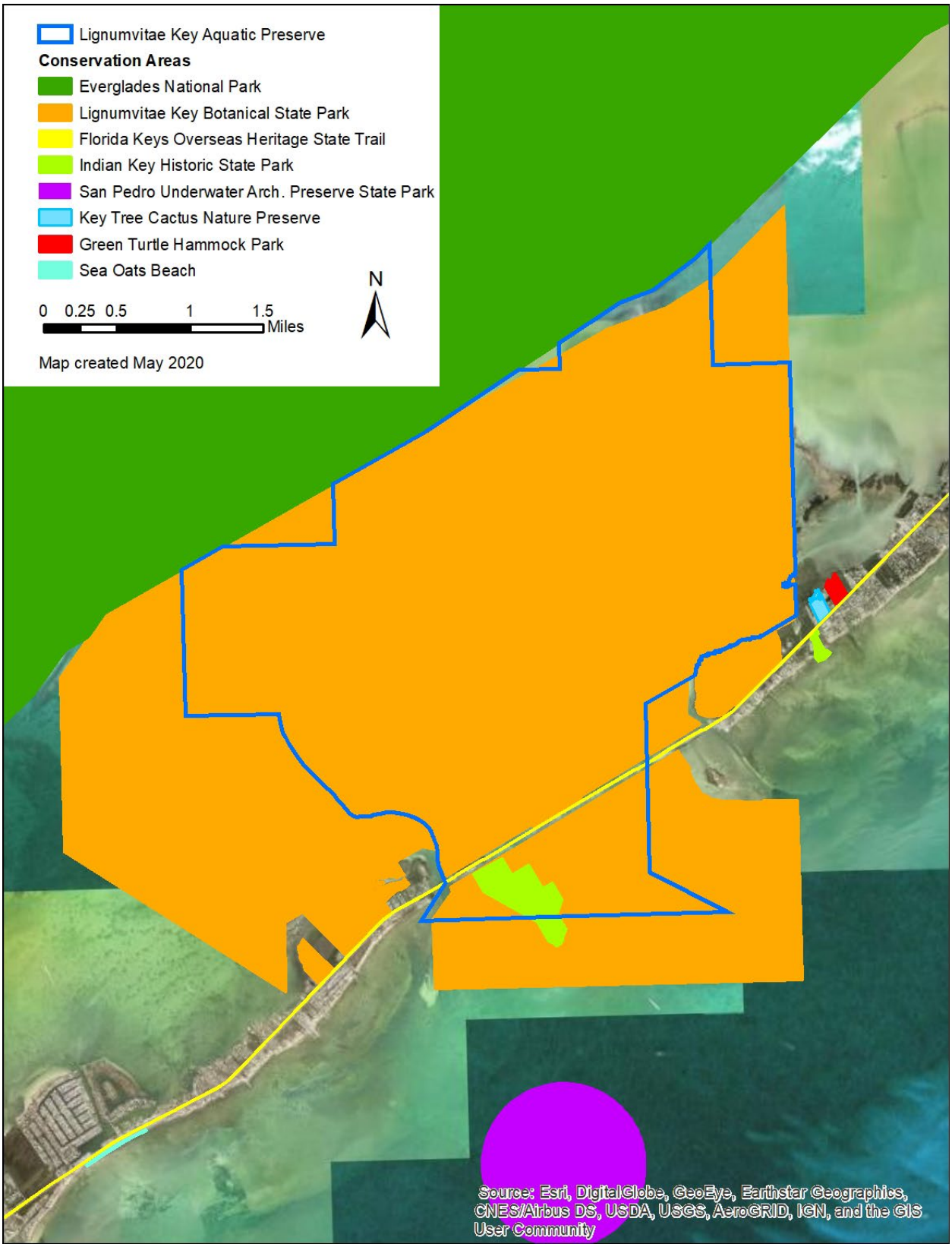
Objective Four: Partner with ecotourism operators to provide visitors with an educational experience that increases their appreciation of the resources.



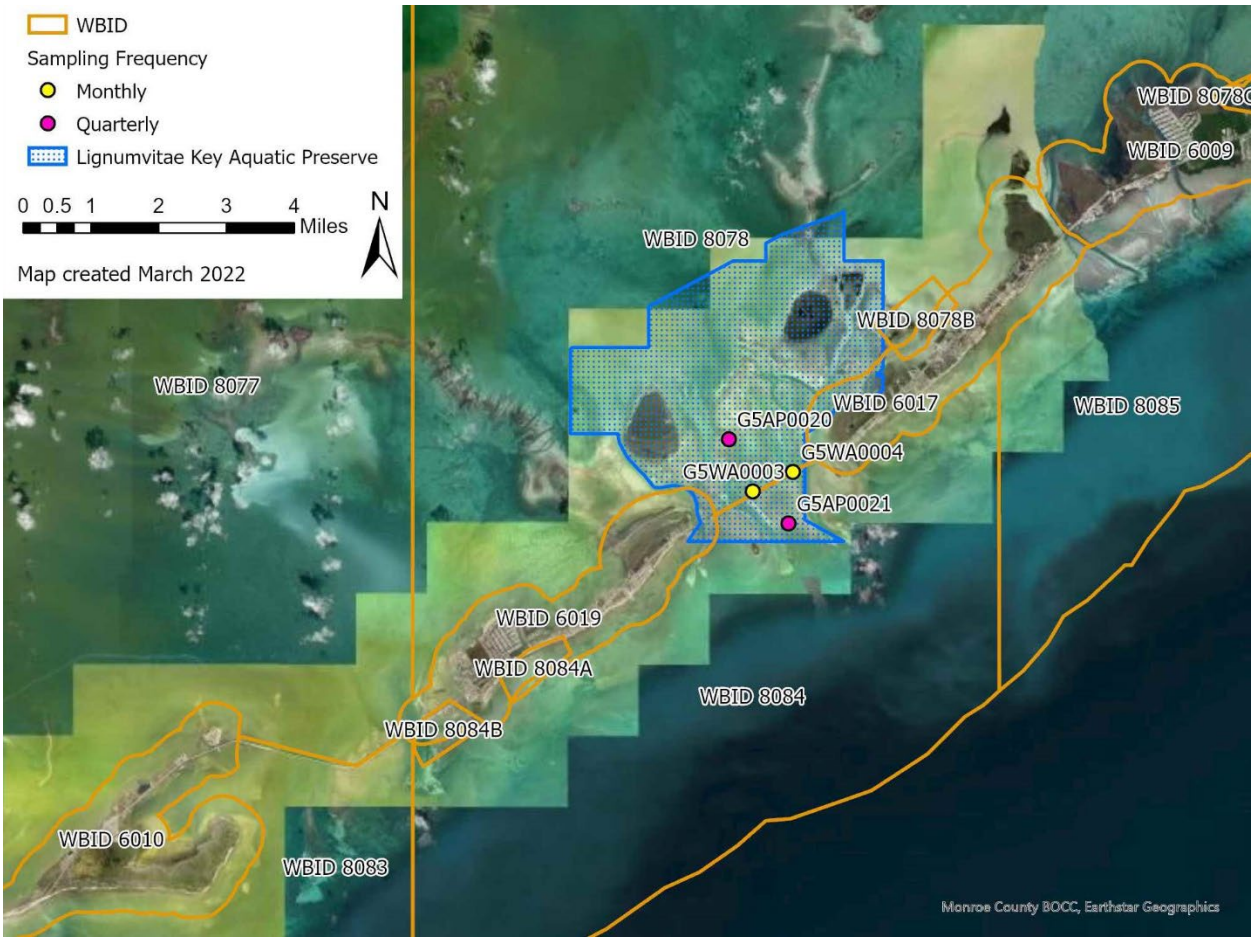
Map 1 / Lignumvitae Key Aquatic Preserve.



Map 2 / Florida Natural Areas Inventory natural communities in Lignumvitae Key Aquatic Preserve.



Map 3 / Conservation lands near Lignumvitae Key Aquatic Preserve.



Map 4 / Water quality sampling stations in Lignumvitae Key Aquatic Preserve.