

**T.H. Stone Memorial
St. Joseph Peninsula State Park**

**APPROVED
Unit Management Plan**

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL
PROTECTION**

Division of Recreation and Parks

July 7, 2014





**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

MARJORY STONEMAN DOUGLAS BUILDING
3900 COMMONWEALTH BOULEVARD
TALLAHASSEE, FLORIDA 32399-3000

RICK SCOTT
GOVERNOR

CARLOS LOPEZ-CANTERA
LT. GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

July 7, 2014

Ms. Jennifer Carver
Planning Manager
Office of Park Planning, Division of Recreation and Parks
Department of Environmental Protection
3900 Commonwealth Boulevard, MS 525
Tallahassee, FL 32399-3000

Re: T.H. Stone Memorial St. Joseph Peninsula State Park – Lease # 3533

Dear Ms. Carver:

The Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the T.H. Stone Memorial St. Joseph Peninsula State Park management plan. The next management plan update is due July 7, 2024.

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,

Marianne S. Gengenbach
Office of Environmental Services
Division of State Lands

TABLE OF CONTENTS

INTRODUCTION	1
PURPOSE AND SIGNIFICANCE OF THE PARK	1
Park Significance.....	1
PURPOSE AND SCOPE OF THE PLAN	2
MANAGEMENT PROGRAM OVERVIEW	7
Management Authority and Responsibility	7
Park Management Goals.....	8
Management Coordination.....	9
Public Participation.....	9
Other Designations.....	9

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION	11
RESOURCE DESCRIPTION AND ASSESSMENT	12
Natural Resources	12
Topography.....	12
Geology.....	15
Soils.....	15
Minerals	16
Hydrology	16
Natural Communities (FNAI)	19
Imperiled Species	40
Exotic and Nuisance Species.....	48
Special Natural Features.....	52
Cultural Resources	53
Condition Assessment.....	53
Level of Significance	53
Prehistoric and Historic Archaeological Sites	54
Historic Structures.....	58
Collections	59
RESOURCE MANAGEMENT PROGRAM	64
Management Goals, Objectives, and Actions	64
Natural Resource Management.....	64
Hydrological Management	64
Natural Communities Management.....	66
Imperiled Species Management	70

Exotic Species Management.....	76
Special Management Considerations.....	78
Timber Management Analysis	78
Coastal/Beach Management.....	78
Sea Level Rise.....	79
Wilderness Preserve.....	80
Arthropod Control Plan	80
Cultural Resource Management.....	81
Cultural Resource Management.....	81
Resource Management Schedule.....	84
Land Management Review	84

LAND USE COMPONENT

INTRODUCTION	85
EXTERNAL CONDITIONS.....	85
Existing Use of Adjacent Lands.....	87
Planned Use of Adjacent Lands.....	87
PROPERTY ANALYSIS	88
Recreation Resource Elements.....	88
Land Area.....	88
Water Area	88
Shoreline	89
Natural Scenery	89
Significant Wildlife Habitat	89
Natural Features	90
Archaeological and Historical Features	90
Assessment of Use.....	93
Past Uses.....	93
Future Land Use and Zoning.....	93
Current Recreational Use and Visitor Programs	93
Wilderness Preserve.....	94
Other Uses	97
Protected Zones	98
Existing Facilities	98
Recreation Facilities	98
Support Facilities.....	99
CONCEPTUAL LAND USE PLAN	100
Potential Uses.....	100

Public Access and Recreational Opportunities	100
Proposed Facilities.....	102
Capital Facilities and Infrastructure	102
Facilities Development.....	109
Existing Use and Recreational Carrying Capacity.....	110
Optimum Boundary	112

IMPLEMENTATION COMPONENT

MANAGEMENT PROGRESS	117
Park Administration and Operations	117
Resource Management.....	117
Natural Resources	117
Cultural Resources	118
Recreation and Visitor Services.....	119
Park Facilities	119
MANAGEMENT PLAN IMPLEMENTATION	120

TABLES

TABLE 1 – Management Zones	12
TABLE 2 – Imperiled Species Inventory	45
TABLE 3 – Inventory of FLEPPC Category I and II Exotic Plant Species	50
TABLE 4 – Cultural Sites Listed in the Florida Master Site File	61
TABLE 5 – Prescribed Fire Management	68
TABLE 6 – Existing Use and Recreational Carrying Capacity.....	111
TABLE 7 – Implementation Schedule and Cost Estimates.....	121

MAPS

Vicinity Map	3
Reference Map.....	5
Management Zones Map	13
Soils Map.....	17
Natural Communities Map	21
Base Map.....	91
Conceptual Land Use Plan	105
Optimum Boundary Map	113

LIST OF ADDENDA

ADDENDUM 1

Acquisition History A 1 - 1

ADDENDUM 2

Advisory Group Members and Report..... A 2 - 1

ADDENDUM 3

References Cited..... A 3 - 1

ADDENDUM 4

Soil Descriptions A 4 - 1

ADDENDUM 5

Plant and Animal List A 5 - 1

ADDENDUM 6

Imperiled Species Ranking Definitions A 6 - 1

ADDENDUM 7

Cultural Information A 7 - 1

ADDENDUM 8

Land Management Review..... A 8 - 1

INTRODUCTION

T.H. Stone Memorial St. Joseph Peninsula State Park is located in Gulf County (see Vicinity Map) about 21 miles from Port St. Joe and 26 miles from Apalachicola. Access to the park is from State Roads 30A and 30E (see Reference Map). The Vicinity Map also reflects significant land and water resources existing near the park.

Acquisition of the park began in 1964, under the Land Acquisition Trust Fund program. On August 16, 1966, the Trustees leased the property to the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP), under Lease No. 3533. Public outdoor recreation is the designated single use of the property and there are no legislative or executive directives that constrain the use of this property (see Addendum 1). This park contains approximately 2,716 acres.

PURPOSE AND SIGNIFICANCE OF THE PARK

The purpose of T.H. Stone Memorial St. Joseph Peninsula State Park is to provide for public park and recreational activities. The park's natural areas and sandy beaches provide opportunities for resource-based outdoor recreation and conservation for the enjoyment of Florida residents and visitors.

Park Significance

- T.H. Stone Memorial St. Joseph Peninsula State Park protects some of the tallest intact dunes in the Florida panhandle and is one of the best examples of undeveloped dune habitat in the state.
- The park is one of the most important nesting areas for the threatened snowy plover (*Charadrius alexandrinus*), providing breeding ground for 17 percent of the statewide population in 2006.
- The park protects an integral area used by large numbers of rare and imperiled migratory bird species as a "jumping off" point for the trans-gulf flight.
- The park provides nesting beaches for three species of federally listed sea turtle, including green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and loggerhead (*Caretta caretta*).
- The park protects one of the remaining two "core" populations of the endangered St. Andrew beach mouse (*Peromyscus polionotus peninsularis*) on conservation lands.
- The park protects nearly twenty miles of beach and bay shoreline for wildlife habitat and resource-based public recreation.
- The park contains a designated Wilderness Preserve area that consists of over 1,900 acres of the northern 7 miles of the peninsula.
- The park provides Florida residents and visitors with the opportunity to experience and understand the dynamic natural ecosystems and processes at play on Florida's gulf coast.

T.H. Stone Memorial St. Joseph Peninsula State Park is classified as a state park in DRP's unit classification system. In the management of a state park, a balance is sought between the goals of maintaining and enhancing natural conditions and providing

various recreational opportunities. Natural resource management activities are aimed at management of natural systems. Development in the park is directed toward providing public access to and within the park, and to providing recreational facilities, in a reasonable balance, that are both convenient and safe. Program emphasis is on interpretation on the park's natural, cultural, aesthetic, and educational attributes.

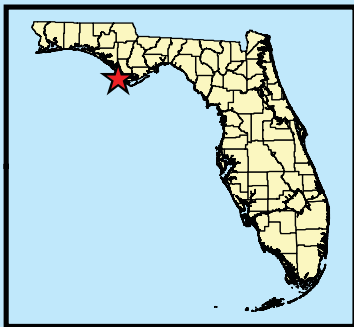
PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of T.H. Stone Memorial St. Joseph Peninsula State Park as a unit of Florida's state park system. It identifies the goals, objectives, actions and criteria or standards that guide each aspect of park administration, and sets forth the specific measures that will be implemented to meet management objectives. The plan is intended to meet the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and is intended to be consistent with the State Lands Management Plan. With approval, this management plan will replace the May 26, 2000 approved plan.

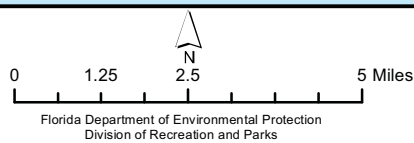
The plan consists of three interrelated components: the Resource Management Component, the Land Use Component and the Implementation Component. The Resource Management Component provides a detailed inventory and assessment of the natural and cultural resources of the park. Resource management needs and issues are identified, and measurable management objectives are established for each of the park's management goals and resource types. This component provides guidance on the application of such measures as prescribed burning, exotic species removal, imperiled species management, cultural resource management, and restoration of natural conditions.

The Land Use Component is the recreational resource allocation plan for the park. Based on considerations such as access, population, adjacent land uses, the natural and cultural resources of the park, current public uses, and existing development, measurable objectives are set to achieve the desired allocation of the physical space of the park. These objectives locate use areas and propose the types of facilities and programs and the volume of public use to be provided.

The Implementation Component consolidates the measurable objectives and actions for each of the park's management goals. An implementation schedule and cost estimates are included for each objective and action. Included in this table are (1) measures that will be used to evaluate DRP's implementation progress, (2) timeframes for completing actions and objectives, and (3) estimated costs to complete each action and objective.



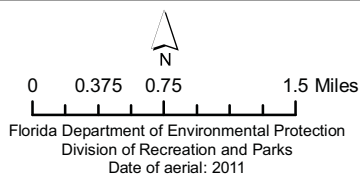
**T.H. STONE MEMORIAL
ST. JOSEPH PENINSULA
STATE PARK**



**VICINITY
MAP**



T.H. STONE MEMORIAL
ST JOSEPH PENINSULA STATE PARK



REFERENCE MAP

All development and resource alteration proposed in this plan is subject to the granting of appropriate permits, easements, licenses, and other required legal instruments. Approval of the management plan does not constitute an exemption from complying with the appropriate local, state, or federal agencies. This plan is also intended to meet the requirements for beach and shore preservation, as defined in Chapter 161, Florida Statutes, and Chapters 62B-33, 62B-36, and 62R-49, Florida Administrative Code.

In the development of this plan, the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park's natural and cultural resources, management needs, aesthetic values, visitation, and visitor experiences. For this park, it was determined that no secondary purposes could be accommodated in a manner that would not interfere with the primary purpose of resource-based outdoor recreation and conservation. Uses, such as water resource development projects, water supply projects, stormwater management projects, linear facilities, and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan), are not consistent with this plan.

The potential for generating revenue to enhance management was also analyzed. Visitor fees and charges are the principal source of revenue generated by the park. It was determined that multiple-use management activities would not be appropriate as a means of generating revenues for land management. Instead, techniques such as entrance fees, concessions, and similar measures will be employed on a case-by-case basis as a means of supplementing park management funding.

The use of private land managers to facilitate restoration and management of this park was also analyzed. Decisions regarding this type of management (such as outsourcing, contracting with the private sector, use of volunteers, etc.) will be made on a case-by-case basis as necessity dictates.

MANAGEMENT PROGRAM OVERVIEW

Management Authority and Responsibility

In accordance with Chapter 258, Florida Statutes and Chapter 62D-2, Florida Administrative Code, the Division of Recreation and Parks (DRP) is charged with the responsibility of developing and operating Florida's recreation and parks system. These are administered in accordance with the following policy:

It shall be the policy of the Division of Recreation and Parks to promote the state park system for the use, enjoyment, and benefit of the people of Florida and visitors; to acquire typical portions of the original domain of the state which will be accessible to all of the people, and of such character as to emblemize the state's natural

values; conserve these natural values for all time; administer the development, use and maintenance of these lands and render such public service in so doing, in such a manner as to enable the people of Florida and visitors to enjoy these values without depleting them; to contribute materially to the development of a strong mental, moral, and physical fiber in the people; to provide for perpetual preservation of historic sites and memorials of statewide significance and interpretation of their history to the people; to contribute to the tourist appeal of Florida.

The Board of Trustees of the Internal Improvement Trust Fund (Trustees) has granted management authority of certain sovereign submerged lands to DRP under Management Agreement MA 68-086 (as amended January 19, 1988). The management area includes a 400-foot zone from the edge of mean high water where a park boundary borders sovereign submerged lands fronting beaches, bays, estuarine areas, rivers or streams. Where emergent wetland vegetation exists, the zone extends waterward 400 feet beyond the vegetation. The agreement is intended to provide additional protection to resources of the park and nearshore areas and to provide authority to manage activities that could adversely affect public recreational uses. The boundaries of T.H. Stone Memorial St. Joseph Peninsula State Park, along the Gulf of Mexico and St. Joseph Bay, are adjacent to the St. Joseph Bay Aquatic Preserve.

Many operating procedures are standardized system-wide and are set by internal direction. These procedures are outlined in DRP's Operations Manual (OM) that covers such areas as personnel management, uniforms and personal appearance, training, signs, communications, fiscal procedures, interpretation, concessions, public use regulations, resource management, law enforcement, protection, safety, and maintenance.

Park Management Goals

The following park goals express DRP's long-term intent in managing the state park.

1. Provide administrative support for all park functions.
2. Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.
3. Restore and maintain the natural communities/habitats of the park. Maintain, improve, or restore imperiled species populations and habitats in the park.
4. Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.
5. Protect, preserve, and maintain the cultural resources of the park.
6. Provide public access and recreational opportunities in the park.
7. Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.

Management Coordination

The park is managed in accordance with all applicable laws and administrative rules. Agencies having a major or direct role in the management of the park are discussed in this plan.

The Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service (FFS), assists DRP staff in the development of wildfire emergency plans and provides the authorization required for prescribed burning. The Florida Fish and Wildlife Conservation Commission (FWC), assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish and other aquatic life existing within the park. In addition, the FWC aids DRP with wildlife management programs, including imperiled species management and Watchable Wildlife programs. The Florida Department of State (FDOS), Division of Historical Resources (DHR) assists staff to ensure protection of archaeological and historical sites. The DEP's Florida Coastal Office (FCO) aids staff in aquatic preserves management programs. In addition, DEP's Bureau of Beaches and Coastal Systems aids staff in planning and construction activities seaward of the Coastal Construction Line. In addition, the Bureau of Beaches and Coastal Systems aid the staff in the development of erosion control projects.

Public Participation

The DRP provided an opportunity for public input by conducting a public workshop and an Advisory Group Meeting to present the draft management plan to the public. These meetings were held on Tuesday, December 10th and Wednesday, December 11th respectively. Meeting notices were published in the Florida Administrative Weekly, December 2nd, 2013, Volume 39/Issue 232, included on the Department Internet Calendar, posted in clear view at the park, and promoted locally. The purpose of the Advisory Group meeting is to provide the Advisory Group members an opportunity to discuss the draft management plan (see Addendum 2).

Other Designations

T.H. Stone Memorial St. Joseph Peninsula State Park is not within an Area of Critical State Concern as defined in Section 380.05, Florida Statutes, and it is not presently under study for such designation.

All waters within the park have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302, Florida Administrative Code. Surface waters in this park are also classified as Class III waters by the Department. This park is adjacent to St. Joseph Bay Aquatic Preserve as designated under the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION

The Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) in accordance with Chapter 258, Florida Statutes, has implemented resource management programs for preserving for all time the representative examples of natural and cultural resources of statewide significance under its administration. This component of the unit plan describes the natural and cultural resources of the park and identifies the methods that will be used to manage them. Management measures expressed in this plan are consistent with the DEP's overall mission in ecosystem management. Cited references are contained in Addendum 3.

DRP's philosophy of resource management is natural systems management. Primary emphasis is placed on restoring and maintaining, to the degree possible, the natural processes that shaped the structure, function, and species composition of Florida's diverse natural communities as they occurred in the original domain. Single species management for imperiled species is appropriate in state parks when the maintenance, recovery, or restoration of a species or population is complicated due to constraints associated with long-term restoration efforts, unnaturally high mortality, or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes, and should not imperil other native species or seriously compromise park values.

DRP's management goal for cultural resources is to preserve sites and objects that represent Florida's cultural periods, significant historic events, or persons. This goal often entails active measures to stabilize, reconstruct, or restore resources, or to rehabilitate them for appropriate public use.

Because park units are often components of larger ecosystems, their proper management can be affected by conditions and events that occur beyond park boundaries. Ecosystem management is implemented through a resource management evaluation program that assesses resource conditions, evaluates management activities and refines management actions, and reviews local comprehensive plans and development permit applications for park/ecosystem impacts.

The entire park is divided into management zones that delineate areas on the ground that are used to reference management activities (see Management Zones Map). The shape and size of each zone may be based on natural community type, burn zone, and the location of existing roads and natural fire breaks. It is important to note that all burn zones are management zones; however, not all management zones include fire-dependent natural communities. Table 1 reflects the management zones with the acres of each zone.

Table 1: Management Zone Acreage and Prescribed Fire Management

Management Zone	Acreage	Managed With Prescribed Fire	Contains Known Cultural Resources
SJ-01	111.49	Yes	Yes
SJ-02	57.82	Yes	No
SJ-03	10.44	Yes	No
SJ-04A	14.72	Yes	No
SJ-04B	17.47	Yes	Yes
SJ-04C	42.23	Yes	Yes
SJ-04D	23.45	Yes	No
SJ-05A	29.19	Yes	Yes
SJ-05B	77.29	Yes	Yes
SJ-05C	10.8	No	Yes
SJ-06A	12.78	Yes	No
SJ-06B	34.01	Yes	No
SJ-07	48.98	Yes	Yes
SJ-08	18.55	Yes	No
SJ-09	47.95	Yes	No
SJ-10	49.86	Yes	No
SJ-11	87.08	Yes	No
SJ-12	2,096.73	No	Yes

RESOURCE DESCRIPTION AND ASSESSMENT

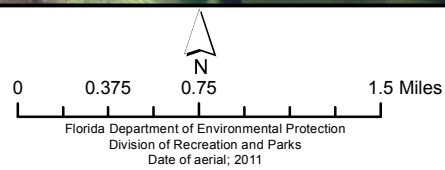
Natural Resources

Topography

T.H. Stone Memorial St. Joseph Peninsula State Park lies within the Coastal Lowlands physiographic region. The Coastal Lowlands form the entire coastline of Florida,



T.H. STONE MEMORIAL
ST JOSEPH PENINSULA STATE PARK



MANAGEMENT ZONES MAP

including the Florida Keys, and reach inland as much as sixty miles at some points. The inner edge generally lies at the one hundred-foot contour line. These lowlands were, in recent geologic times, marine terraces (sea floors) during at least three successive inundations by higher seas. The coastline of Florida has shifted significantly both seaward and landward in the past five million years. Many topographic features were formed when sea levels were higher than they are presently.

This region is flat except where old dune ridges occur or where the surface has been modified by erosion and underground solution. Elevation extremes on the park range from sea level to a height of 32 feet above mean sea level. The highest elevations on the park correspond to dune ridges that characterize some of the highest dunes in the Florida Panhandle. Many of these features were formed when sea levels were higher. Tropical storms, such as Hurricane Opal in 1995, Hurricane Earl in 1998, and Hurricane Dennis in 2005, caused significant damage and erosion to the primary dunes of the park. The Gulf shoreline along the southern end of the park is eroding and sand is being deposited on the northern tip of the peninsula, extending the peninsula northward.

Geology

The park is within the Gulf Coastal Lowlands geomorphic province (Puri and Vernon 1964) characterized by flat sandy terrain. St. Joseph Peninsula is a narrow sandy spit formed from bi-directional littoral drift. For much of geologic time the park has been inundated by higher sea levels. As a result, the underlying layers are of marine origin. The surface geology of the park is composed of holocene sediments deposited on beach dunes and ridges formed during the Pleistocene. Sea levels have been rising since the last glacial period, the Wisconsin glaciation, 15,000 to 18,000 years ago.

The beaches were formed by littoral drift of sediments composed mainly of quartz, originating from the Appalachians and transported by the Apalachicola River. Relict sand ridges overlain by aeolian dunes run parallel to the shoreline and can reach up to 50 feet above sea level. This is underlain by the Silver Bluff Marine Terrace followed by the Jackson Bluff formation, Intercoastal Formation and the Bruce Creek Limestone formation.

Portions of the bay and Gulf shorelines of Cape San Blas and the St. Joseph Peninsula are eroding. Some of the eroding sand is regularly deposited at or near the tip of the peninsula. In 95 years (between 1875 and 1970) the peninsula accreted one mile northward (Rupert 1991) and the peninsula has continued to accrete northward since that time at a rate of approximately 40 feet per year.

Soils

The general soil complex that occurs in the park includes the Corolla-Duckston-Kureb soil types. These soils comprise the successive series of sandy dunes and swales that parallel the shoreline. Kureb soils are excessively well drained, making up the dune

ridges found at the park. Duckston soils are very poorly drained, underlying swales. Corolla soils comprise the flatwoods and bayside flats, draining somewhat poorly.

Eleven soils have been identified for this park (see Soils Map). Addendum 4 contains detailed soils descriptions for soil types found within the park.

Minerals

There are no known minerals of commercial value in the park.

Hydrology

The park is bounded on the west by the Gulf of Mexico and on the east by St. Joseph Bay. Several small fresh water bodies classified as basin marshes, coastal interdunal swales, and a borrow pit occur in the park. In addition, ephemeral tidal pools occur throughout the marine unconsolidated substrate along the gulf. Several large pools that have persistent over time occur at or near the park tip. The largest of the pools is approximately 20 acres and occurs roughly one-half mile south of the tip along the Gulf shore. This large pool is particularly important for wildlife, including shorebirds, wading birds, waterfowl, alligators, and a variety of mammals.

The hydrology at the park can be divided into three layers: the surficial aquifer, the intermediate aquifer and confining layer, and the Floridan aquifer. The surficial aquifer is the water that is found on or right below the soil surface and is not confined. It is recharged by rainfall and moves topographically downhill into basins, swales and the Gulf of Mexico. The intermediate aquifer and confining layer undulates and can be of various depths holding little to large quantities of water.

The Floridan aquifer system underlays most of Gulf County and includes the park. It supplies most of the water needs for the county. The top of the Floridan aquifer system lays about 500 feet below sea level under the park at the top of the Bruce Creek Limestone Formation. The Middle Eocene Tallahatta formation confines the Floridan aquifer in Gulf County. Recharge to the aquifer takes place mostly from neighboring Jackson County where limestone karst formations are near the surface.

A 2-acre borrow pit in SJ-07, near the park drive, is highly altered and drains surrounding natural communities. Cattails (*Typha latifolia*) have invaded this borrow pit degrading it for wildlife use. Reclamation should be conducted.

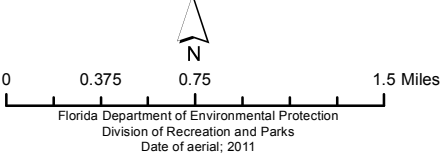
The box culverts under the park drive in SJ-06A and SJ-07 are not adequate for tidal exchange and bisect a tidal marsh. Water pools on either side of the culverts depending on which way the tide is moving. A bridge is needed and the existing roadway and culverts in the salt marsh should be removed if full hydrological flow and connection is to be restored. The only wet prairie in the park is bisected by a shell road that cuts the wet prairie in two. This road should be redesigned and re-constructed to restore the hydrology of the wet prairie.



Legend

07	- Bayvi and Dirego soils, frequently flooded
08	- Beaches
10	- Corolla fine sand, 1 to 5 percent slopes
14	- Duckston-Duckston depressional complex, frequently flooded
23	- Maurepas muck, frequently flooded
46	- Corolla-Duckston complex, gently undulating, flooded
47	- Newhan-Corolla complex, rolling
48	- Kureb-Corolla complex, rolling
49	- Quartzipsamments, undulating
99	- Water

T.H. STONE MEMORIAL
ST JOSEPH PENINSULA STATE PARK



SOILS MAP

The attempt to create a canoe and kayak boat basin at the Bay View Picnic Area in SJ-06A has altered the hydrology and shoreline vegetation and dynamics. The basin has artificially steep banks and a channel has been dug deeper in depth and landward of what was probably the original shoreline. While the shoreline is actively used for canoe and kayak launching, the landward portion of the basin does not appear to be used or to be useable for recreation. If this basin does not provide recreational boat access, a restoration plan should be developed to return it to a more natural state such as a salt marsh.

Natural Communities

This section of the management plan describes and assesses each of the natural communities found in the state park. It also describes the desired future condition of each natural community and identifies the actions that will be required to bring the community to its desired future condition. Specific management objectives and actions for natural community management, exotic species management, imperiled species management, and restoration are discussed in the Resource Management Program section of this component.

The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI). The premise of this system is that physical factors such as climate, geology, soil, hydrology, and fire frequency generally determine the species composition of an area, and that areas that are similar with respect to those factors will tend to have natural communities with similar species compositions. Obvious differences in species composition can occur, however, despite similar physical conditions. In other instances, physical factors are substantially different, yet the species compositions are quite similar. For example, coastal strand and scrub--two communities with similar species compositions--generally have quite different climatic environments, and these necessitate different management programs. Some physical influences, such as fire frequency, may vary from FNAI's descriptions for certain natural communities in this plan.

At the point in time when the park's natural communities have reached their desired future condition, they are considered to be in a maintenance status and share certain basic characteristics and management requirements. These include the maintenance of the optimal fire return intervals for fire dependent communities, the maintenance control of non-native plant and animal species, the maintenance of natural hydrological functions (including historic water flows and water quality), the maintenance of proper vegetative structure that represents the natural diversity of the community, the maintenance of healthy populations of plant and wildlife species (including those that are imperiled or endemic), and the maintenance of intact ecotones between natural communities across the landscape.

The park contains 14 distinct natural communities as well as altered land cover types and developed areas (see Natural Communities Map). A list of known plants and animals occurring in the park is contained in Addendum 5.

BEACH DUNE

Desired Future Condition: The beach dune community should include mounds and ridges of unconsolidated sediments formed by wind and wave action. Dunes should reach 30-35 feet in height in a series of ridges and swales paralleling the beach and connected to scrub. These ridges should be interrupted periodically by blowouts. The accumulation of wrack (e.g., organic marine flotsam, including seaweed and driftwood) is crucial for embryo dune formation. Wrack brought in by storm waves not only helps trap sand in place, but adds nutrients to allow pioneer species to colonize the dune habitat. Vegetation on dunes should be patchy with lots of bare sand exposed and include a diversity and richness of plants such as sea oats (*Uniola paniculata*), seashore elder (*Iva imbricata*), gulf coast bluestem (*Schizachyrium maritimum*), sandbur (*Cenchrus* spp.), saltmeadow cordgrass (*Spartina patens*), and panic grass (*Panicum amarum*). Occasionally shrubs may be scattered within the herbaceous vegetation such as Florida rosemary (*Ceratiola ericoides*), woody goldenrod (*Chrysoma paucifloculosa*), coastal ground cherry (*Physalis angustifolia*), and sand live oak (*Quercus geminata*).

A self-sustaining population of St. Andrew beach mice (*Peromyscus polinotus peninsularis*) should occupy available beach dune habitats. Nesting shorebirds including least terns (*Sternula antillarum*), snowy plovers (*Charadrius nivosus*), Wilson's plover (*Charadrius wilsonia*), American oystercatcher (*Haematopus palliatus*), and black skimmers (*Rynchops niger*) should successfully nest along the dune front, in dune vegetation and/or shell debris, on the dunes or in dune blowouts. Sea turtles should nest along a beach with no artificial light source. Exotic plants and animals should be absent.

The beach dune community is a dynamic system and is constantly changing depending on the stage of recovery after storm impacts. Although this community type may burn, fire return interval is unknown.

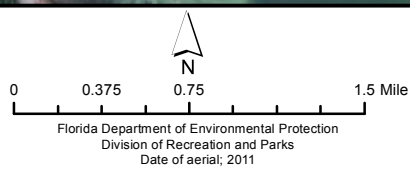
Description and assessment: At 30-35 feet in height, the beach dunes at the park are some of the tallest dunes in the Florida Panhandle, providing some of the best examples of undeveloped and intact dune habitats left in the state. In the park, the beach dune community is found on high ridges running parallel and adjacent to the shoreline of the Gulf of Mexico.

The beach dune community is in very good condition. This dynamic system has height, depth and is intact. Tropical storms and human alteration are the biggest threats to beach dunes at the park. Storm surge from tropical storms have eroded the primary dunes. Salt spray from tropical storms can impact dune vegetation by top-killing foliage and creating a moisture deficit that can desiccate plants. Recovery from tropical storms



Legend	
SC	Scrub 1054.68 ac.
WF	Wet Flatwoods 194.00 ac.
MF	Mesic Flatwoods 117.94 ac.
SCF	Scrubby Flatwoods 290.98 ac.
BD	Beach Dune 338.49 ac.
CG	Coastal Grassland 193.97 ac.
SHM	Shell Mound 3.54 ac.
WP	Wet Prairie 1.46 ac.
BM	Basin Marsh 202.40 ac.
CIS	Coastal Interdunal Swale 12.36 ac.
BS	Basin Swamp 7.3 ac.
SAM	Salt Marsh 105.38 ac.
EUS	Estuarine Unconsolidated Substrate 48.50 ac.
MUS	Marine Unconsolidated Substrate 162.59 ac.
DV	Developed 54.75 ac.
CR	Clearing .94 ac.
IAP	Impoundment/Artificial Pond 1.64 ac.

T.H. STONE MEMORIAL
ST. JOSEPH PENINSULA STATE PARK



NATURAL COMMUNITIES MAP

can be slow, with at least two years needed for vegetation to be capable of producing seeds and additional years for some woody species to recover.

The vegetative covers of the dunes vary, with some being vegetated in a patchy distribution and others being mostly vegetated. Vegetation on the primary dunes includes sea oats, seashore elder, bluestem, sandbur, and panic grass. Vegetation on the secondary dunes includes Florida rosemary, woody goldenrod, ground cherry, sand live oak, and sand pine (*Pinus clausa*). The swales primarily contain saltmeadow cordgrass and gulf coast bluestem. The dunes at the park are directly connected to high quality scrub, which allows for resiliency during tropical storm events.

These dunes are the primary habitat of the St. Andrew beach mouse, a federally listed endangered species. Beach mice make burrows in the dune and forage at night on dune plant and insect species. Maintaining the dune community at the park in good condition is extremely important for sustaining beach mice.

Several shorebird species nest in the dunes, within dune blowouts and in adjacent communities. Snowy plovers, American oystercatchers, least terns, and black skimmers find suitable nesting in sparsely vegetated dunes or blowouts. These three species thrive following storm activity that creates dune blowouts and washovers. However, established dunes are critical to overall shorebird productivity. The dunes provide cover for shorebird broods (i.e., flightless young) from opportunistic predators and when nesting adjacent to intact dunes, snowy plover fledge rates are higher (Pruner 2010). In contrast, Wilson's plover and eastern willet (*Tringa semipalmata semipalmatus*) tend to nest in moderate to heavily vegetated dune habitat. The park is one of the most important nesting areas for snowy plovers in the state. The last statewide census documented 17 percent of the breeding snowy plovers in Florida using the park (Himes et al. 2006). Main threats to shorebirds include predation and disturbance (e.g., dogs, trampling by park visitors, unauthorized access to nesting areas, etc.).

The park is an index-nesting beach for sea turtles as designated by FWC. Federally listed loggerhead (*Caretta caretta*), green (*Chelonia mydas*), and leatherback (*Dermochelys coriacea*) sea turtles nest on the beach and in the dunes at the park. Although some minor "sky glow" can be seen from the park, artificial lighting impacts to the beach dune community are low. Sea turtle disorientations from artificial lighting are very rare (FWC 2010 and 2009).

The dunes are vulnerable to erosion damage from foot traffic and recover slowly. Foot traffic can trample vegetation that holds dune sands in place. These denuded footpaths provide an avenue for storm surge to penetrate farther inland than a comparable vegetated dune. It also allows sands to be blown away thus scouring the trampled path and lowering the elevation of the dunes.

Exotic predators including coyotes (*Canis latrans*) and cats (*Felis catus*) have been present on the park and can affect the rare faunal populations in beach dunes. Additionally,

nuisance predator species (e.g., raccoons) have also been reported at the park and they have been documented preying on shorebird nests throughout the park.

General management measures: Park visitor access into and through beach dune areas should be controlled. Impacts from park visitors should be controlled as much as possible to prevent degradation of the beach dune community at the park. Dune crossover areas should be designated and protected in the form of boardwalks in the visitor use area. Unauthorized trails across dunes should be actively discouraged with interpretive signs, ranger interpretation, posts and rope, dune plantings and other natural barriers. On-grade dune walkovers within the designated Wilderness Preserve should be well marked and periodically monitored for overuse, degradation, and potential impacts to imperiled species (e.g., shorebirds).

Driving on dunes should be prohibited except through designated beach access areas. Beach driving by law enforcement, contractors, county officials, wildlife officials and assessment crews has increased since 2010 following the oil spill from the Mississippi Canyon block 252 oil well blowout. Vehicular rutting creates impacts to shorebird and sea turtle hatchling recruitment by increasing mortality rates. Details related to beach driving are discussed in the Resource Management Program section of this component.

After tropical storms, impacts to dunes should be assessed. Plantings and other dune restoration techniques should be considered when and where necessary to prevent further dune erosion. A plan should be developed prior to any planting to address dune restoration while maintaining low vegetated habitat and/or dune blowouts for nesting shorebirds.

Exotic predators should be controlled to prevent negative impacts to rare faunal populations such as St. Andrew beach mice, shorebirds and sea turtles. When present, coyotes regularly dig up sea turtle nests and depredate shorebird nests. Feral cats are rare at the park, but when present can cause substantial impacts to coastal wildlife.

Avian species such as fish crows (*Corvus ossifragus*) and laughing gulls (*Leucophaeus atricilla*) are increasing at the park due to the accumulation of garbage in areas with high recreation. When avian predators are present in high numbers, these species can be a major predator for nesting shorebirds. In addition to attracting potential avian predators, garbage and debris left on the beach can lead to wildlife entanglement. Garbage and beach debris should be removed from the beach whenever needed.

Efforts to avoid or minimize disturbance, including the impacts associated with the presence of humans around nesting shorebirds is critical to nesting success. Fencing or rope with interpretive signage and references to protective statutes should be placed around nesting and brood (flightless chicks) rearing habitat to provide disturbance free nesting opportunities and improve productivity. All protection efforts should follow the guidelines established by FWC and the Florida Shorebird Alliance (FSA) (Avisar et al. 2012) and adhere to the established locations where nesting occurs (see Pruner et al.

2011 for maps). Despite protection efforts with symbolic fencing, park visitors and dog tracks are regularly observed within the protected and closed areas. In addition, after busy weekends or holidays, signs and rope have been burned, cut, or ripped down. Occurrences of disturbance and vandalism are most pronounced at the northern portion of the peninsula in the Wilderness Preserve. Continued enforcement and education efforts are needed at the park, particularly, at the peninsula tip where there is minimal park staff presence.

Dogs can also directly impact coastal wildlife by hunting and eating shorebird or sea turtle eggs or young or by chasing adults or chicks. Dogs have been documented depredating shorebird and sea turtle nests throughout Florida, including on other state parks. Dogs are observed most frequently in the Wilderness Preserve at the peninsula tip. Education to park visitors and enforcement of park regulations regarding dogs are needed at the park.

Artificial lighting or glow should not be present on the beach dune. Artificial lights disorient sea turtles and can affect their ability to enter the marine environment. Care should be taken to ensure that artificial lighting is not seen on the beach or dunes.

COASTAL GRASSLAND

Desired future condition: Coastal grassland should be characterized by herbaceous recruitment on marine sands that alternately accrete and erode. In some of these cases, tropical storms form blowouts or flat areas between dune ridges. Sand can be deposited or eroded in these areas. Herbaceous species such as sea oats and panic grass may be at different stages of succession depending on the level of disturbance and time since the last occurrence of disturbance. Other species include bluestem grasses (*Andropogon* spp.), camphorweed (*Heterotheca subaxillaris*), and salt meadow cordgrass. With the exception of overwash from severe storms, it is a relatively stable community compared to the dynamic primary dunes. Exotic plants and animals should be absent

Description and assessment: The primary areas of coastal grassland are located toward the northwestern portion of the park where the peninsula is accreting in SJ-12. As sand accretes to the north and east, this grassland has formed in low areas that are periodically overwashed by storm surge. Panic grass and sea oats are some typical grasses found in this community. Since these areas are low, flat and close to the Gulf of Mexico, many of these areas wash over during tropical storms re-setting the succession stage. A various mosaic of herbaceous plants and bare ground can be found depending on the time and impact of the last disturbance by storm surge. The coastal grasslands can be important for shorebird nesting if found adjacent to the beach dune community. In particular, Wilson's plovers and eastern willets utilize the heavier vegetated substrates found in coastal grasslands. Additionally, St. Andrew beach mice forage in these areas.

The coastal grassland is in good condition in the park. The tip is currently accreting sand, creating more extensive coastal grasslands overtime. Storm surge has over washed the community during large tropical storms, creating swales and pockets of bare sand. However, due to the protection from the adjacent beach dune system, the coastal grasslands recover quickly.

General management measures: After tropical storms, non-organic and non-biodegradable manmade debris should be cleaned from the community as much as is feasible. In areas where shorebird nesting occurs posting and informative signage should be placed to minimize disturbance from visitors and free-roaming dogs. Exotic animal and plant removal should occur as needed.

MESIC FLATWOODS

Desired Future Condition: Mesic flatwoods are typically characterized as a scattered overstory of uneven-aged slash pine (*Pinus elliotii*) with a mixture of low herbaceous and woody species in the understory. Native herbaceous groundcover should cover at least 50 percent of the community and be low enough to form a vista. The saw palmetto (*Serenoa repens*) and shrub component should comprise no more than 50 percent of total understory cover, and should not grow more than 3 feet in height before being burned. Shrub species include saw palmetto, gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), runner oak (*Quercus pumila*), dwarf live oak (*Quercus minima*), shiny blueberry (*Vaccinium mysinites*), and dwarf huckleberry (*Gaylussacia dumosa*). Shrubs are generally knee-high or less, and there are few, if any, large trunks of saw palmetto along the ground. This fire dependent community should be burned every 2 to 5 years. Exotic plants and animals should be absent. The hydrology should not be altered as even a slight alteration, such as a fire plow scar, can interrupt hydrological connections and sheet flow.

Description and assessment: The mesic flatwoods areas of this park are found in the ancient swale areas wedged between scrub ridges and are in fair condition. At the mid to lower portion of the slope, the scrub ridges grade into scrubby flatwoods and then to mesic or wet flatwoods depending on elevation. The ecotone between these communities is extremely narrow; as the transition from one community to the next is very short. The undulating relief of the park, composed of ridges and swales, contributes to this mosaic of natural communities.

At the park, mesic flatwoods is composed of a scattered overstory of slash pine. Some of these are older slash pines are approximately 80 years old as indicated from tree ring cores (Spector 2010). The understory is transitional from scrubby flatwoods to wet flatwoods and basin marsh and contains fetterbush, saw palmetto, shiny blueberry, wiregrass (*Aristida stricta*), and broomsedges (*Andropogon* spp.). Prescribed fire has not been implemented to this community since park ownership. Therefore, the understory is dense and higher than 3 feet. Accumulation of litter is evident on the ground and draped in the understory branches. Duff has accumulated especially around older pine

trees. Despite the lack of fire in the flatwoods for the past several decades, the vegetative components and hydrology of the community are mostly intact.

General management measures: Prescribed fire is important to this community. The normal fire return interval is 2 to 5 years. Since examples of this community are found on slopes in extremely narrow bands imbedded in scrubby or wet flatwoods, the fire return interval may be longer in those locations as they will burn with the adjacent communities. With the reintroduction of fire and a continued prescribed burn program, the mesic flatwoods should return to desired future condition. Re-introduction of fire in these long suppressed communities must be undertaken sensitively to prevent tree crown consumption and duff smoldering, which can lead to tree mortality in older trees (Varner et al. 2005). Once fire has been reintroduced, it will take many years of careful burning before this community will return to good condition. Burns during the recovery period should take into account the duff moisture. The hydrology of this community is mostly intact. The park should continue to maintain the original hydrology and prevent future hydrological alteration. Care must be taken to prevent any further disruption to hydrology. Careful consideration should be given to the type, location, creation, and maintenance of fire lines.

SCRUB

Desired Future Condition: The scrub community should be dominated by evergreen shrubs, including sand live oak, Florida rosemary, myrtle oak (*Quercus myrtifolia*), and chapman's oak (*Quercus chapmanii*). Two variants of scrub occur – oak scrub and sand pine scrub. This community can either have sand pine present or absent. Scrub occurs on dry sandy ridges. The fire return interval for stand replacement fires in scrub on the peninsula of Florida is 4 to 15 years, but there is no evidence that fire is an important process that shapes the coastal scrub in the Florida Panhandle (Drewa et al 2008; Parker et al 2001). Coastal processes such as salt spray and tropical force winds are believed to play more of a role in regulating panhandle scrub than fire (Parker et al 2001; Huck et al 1996; FNAI 2010). Sand pines damaged by high winds and salt spray create gaps in the canopy for recruitment where seeds can germinate and grow. Non-serotinous cones exhibited by panhandle sand pine (*Pinus clausa* var *immuginata*) allow for continuous seed source that is not dependent on fire for release. In oak scrub, salt spray and wind regulate the community by creating openings and light gaps after tropical storms. Gaps or scattered openings in the canopy with bare patches of sand support many imperiled or endemic plant species. These species should flower regularly to replenish their seed banks. Groves of sand pine in select locations in the panhandle may exceed 100 to 150 years of age. Sand pine growing in scrub in the panhandle exhibits different characteristics such as non-serotinous cones and is considered a sub-species of sand pine (*Pinus clausa* var. *immuginata*; Clewell 1988). Stands of panhandle coastal sand pine scrub exhibit an uneven age character in marked contrast to Peninsular scrub where even-aged stands are created by infrequent but stand replacing fires (Drewa et al 2008; Parker et al 2001).). In oak scrub adjacent to beach dunes, contiguous mature cover of

seed producing scrub shrubs provide important refugia for St Andrew beach mice after tropical storms that damage the primary dunes. This oak scrub found on the sandy ridges closest to the Gulf of Mexico is most influenced by salt spray that “prunes” or shapes the structure of the evergreen oaks, preventing them from becoming tall and creating patches of dead vegetation. Salt spray and wind appear to take the place of fire in shaping panhandle coastal scrub. Scrub community should grade into beach dune and flatwoods communities without barriers such as roads, trails, etc. Exotic plants or animals should be absent.

Description and assessment: The park has two variations of scrub, sand pine scrub and oak scrub. The oak scrub is found on the sandy ridges of old dunes adjacent to the beach dunes. Sand pine scrub is found further inland sometimes adjacent to the oak scrub. This community covers the largest area of any community found on the park. Most of the sand pine scrub is mature and is forming a closed canopy. The majority of this community is found in the designated Wilderness Preserve. The scrub begins to appear landward of the beach dunes and between interdunal swales. This habitat is also very important to the survival of the St. Andrew beach mouse. This community serves as a reservoir for food and cover for beach mice during and after a catastrophic storm that may damage or destroy the primary dune systems. In general, the larger and more connected the contiguous area of habitat, the better survivability and habitat quality for beach mice. As with beach dune, the soils and vegetation are highly sensitive to and easily damaged by off road vehicle use and foot traffic.

The scrub community is in excellent condition at the park and serves as a reference site for coastal scrub (FNAI 2010). Most of it is mature and almost forming a closed canopy. Its uninterrupted connection with neighboring natural communities and its large intact area are factors that help to maintain this community. Management of most of the scrub community at the park as a wilderness preserve has been beneficial to this community.

General management measures: While prescribed fire will not be directly applied within this community, the park’s scrub will be routinely exposed to proximity fires applied within adjacent fire-dependent natural communities. Access to the scrub should be controlled through designated on-grade footpaths or boardwalks when appropriate. Special considerations, such as acceptable and appropriate carrying capacity, should be addressed to protect the condition of this natural community. Motor vehicle use in this area should continue to be limited. Exotic animals and plants should be controlled including coyotes, feral cats, red foxes (*Vulpes vulpes*), and armadillos (*Dasypus novemcinctus*).

SCRUBBY FLATWOODS

Desired future condition: Scrubby flatwoods should be characterized by an open overstory of scattered slash pine. There should be a diverse shrubby understory often with patches of bare white sand. Scrub oak “canopy” will vary in height from 3 to 8 feet and there will be a variety of oak age classes/heights across the landscape. Understory

species include false rosemary (*Conradina canescens*), rusty lyonia (*Lyonia ferruginea*), bluestem (*Andropogon* spp.), sand live oak, and myrtle oak. The understory can be scattered or dense, leaving various sizes and configurations of bare sandy patches. Due to the coastal influence, fire should burn in this community every 5 to 15 years and the return interval should vary within that range. Exotic plants and animals should be absent.

Description and assessment: This community is found throughout the park. Distribution of scrubby flatwoods ranges from narrow bands ringing scrub ridges to large patches found toward the northern tip of the peninsula in between dune ridges and swales. It is composed of a scattered slash pine overstory and an understory of mostly scrubby shrubs, including myrtle oak, false rosemary, rusty lyonia, and sand live oak. Godfrey's golden aster (*Chrysopsis godreyi*) is also present in the scrubby flatwoods at the park.

This community is in good condition. The park's management of this community using naturally set lightning fires, allowed to burn in the Wilderness Preserve has successfully maintained this community in good condition. Since many of the patches of scrubby flatwoods are ecotonal adjacent to mesic to wet flatwoods, the relative lack of human alteration of these ecotones has also kept the park's scrubby flatwoods communities in good condition.

General management measures: Scrubby flatwoods should burn every 5 to 15 years. The park and district are considering moving from management of this community through naturally set fires to developing a prescribed burn program for the Wilderness Preserve. Care should be taken to avoid hydrological disruptions if firelines are developed. If human alteration and/or disturbance increase in this community, the Godfrey's golden aster population should be assessed and protected to minimize disruption or alteration.

SHELL MOUND

Desired Future Condition: This community type is largely the result of human activities instead of natural and physical processes. Shell mounds are small hills or mounds made up almost entirely of mollusk shells discarded by Native Americans. The soils are circumneutral to slightly alkaline, contain minimal organic material and are very well drained. Undisturbed shell mounds support a variety of hardwood trees and shrubs, which may include cabbage palm (*Sabal palmetto*), red cedar (*Juniperus virginiana*), and red bay (*Persea borbonia*).

The vegetation derives from the calcareous soils that the mounds of shells provide. Calcium-loving vegetation including red bay, red cedar, and cabbage palm should form a closed canopy. Mesic species including wood oats grass (*Chasmanthium laxum*) and beauty berry (*Callicarpa americana*) are found in the understory. There should be no

erosion to the mound and no sign of potholes from looting. Exotic plants and animals should be absent.

Description and assessment: The shell mound community at the park includes an intact mound-shaped hill on the shore of St. Joseph Bay (SJ-01). Shells were deposited on a dune ridge so the layer of shell is underlain by sand. The shell mound at the park is mesic and dominated by red bay and red cedar. Cabbage palm, magnolia (*Magnolia grandiflora*), wild olive (*Osmanthus* spp.), and mulberry (*Morus rubra*) also found in this community. The understory is shady and composed of wood oats grass, beauty berry, and coral bean (*Erythrina herbacea*). Scattered shell fragments are noticeable on the ground. The shell layer sits on top of a small sand dune ridge overlooking St. Joseph Bay.

The remaining shell mound is in good ecological condition. Some minor digging has occurred on the site, but the main threat to the community is erosion along the bayshore of St. Joseph Bay. The impact of high surf and wave action has eroded the shell mound and this erosion is expected to continue due to the dynamics of this barrier island. A small patch of cogon grass (*Imperata cylindrica*) was found near the shell mound and was treated. This invasive exotic plant could alter the species composition of the shell mound if not controlled.

General management measures: The park should interpret the importance of the shell mound to visitors and discourage digging. The park should work with law enforcement officials to convey the importance of the site to help prevent digging by visitors. The patch of cogon grass should be assessed twice annually to determine if further treatment is needed. To ensure that the extent of cogon grass is known and can be managed accordingly, the area should be surveyed annually. As erosion and accretion are common natural processes that occur on barrier islands, no action is recommended to mitigate the erosion. Instead, the shell mound should be well studied and surveyed so that its physical features and documented history can continue to be interpreted once the shell mound has completely eroded.

WET FLATWOODS

Desired future conditions: Wet flatwoods should be represented by an overstory of scattered slash pine with a mixture of low shrubs and herbs in the groundcover. Sparse to no midstory should be present. Common shrubs include fetterbush, titi (*Cliftonia monophylla*), and wax myrtle (*Myrica cerifera*). Fire should burn through this community every 2 to 4 years. Soils should be saturated much of the year with little to no duff accumulation. No hydrological disruptions or alterations should prevent sheet flow of water. Even slight disruptions can cause large alterations in hydroperiod and water levels. Exotic plants and animals should be absent.

Description and assessment: Most of the wet flatwoods at the park are ecotonal, long and narrow. They occur in narrow strips that parallel the scrub ridge between scrub

ridges and swales. Many natural communities are found in gradients as one traverses the steep topography between the ridges and swales. The wet flatwoods at the park are generally dominated by slash pine; cabbage palm, saw palmetto, gallberry, fetterbush, titi, and wax myrtle are also found in this community at the park. Grape vines (*Vitis* spp.) and other woody vines are becoming co-dominant after the reintroduction of prescribed burns. Wet flatwoods at the park grade into freshwater marsh at the bottom of the gradient and scrubby flatwoods at the top of the gradient.

Most of the wet flatwoods are in fair ecological condition. Some older slash pines are still found in these communities on the park. Some minor hydrological alterations, such as plow scars through the flatwoods from fire suppression, have altered the community somewhat. In most cases, all the components of this community are intact and with the continued use of prescribed fire, the community should return to good condition. Some older slash pine tree mortality has occurred due to the reintroduction of prescribed burns. Even though woody vines are an important part of the community they should not be co-dominant as groundcover and canopy cover as they can suppress recruitment of other species.

General management measures: Prescribed fire should be used to maintain this community where it occurs south of the wilderness area and is included in the discussion of prescribed fire in the wilderness area. The fire return interval should range from 2 to 4 years. Older trees have duff accumulation around their base. Duff should be assessed prior to burning and duff moisture parameters should be included in prescriptions to prevent mortality of older trees and other species. If woody vines cannot be controlled after several prescribed burns then the park should consult with the district biologists to determine if other measures are needed for control. Hydrological disruptions or alterations should be avoided. Exotic plants should be controlled as needed.

BASIN MARSH

Desired future conditions: Basin marshes are dominated by sawgrass (*Cladium jamaicense*). Other emergent grasses and sedges are also present. Low shrub species such as wax myrtle, saltbush (*Baccharis halimifolia*), buttonbush (*Cephalanthus occidentalis*) and titi (*Cyrilla racemiflora*) may be present along the perimeter, however sedges and grasses will dominate the interior with an open vista. Trees are few and, if present, occur scattered. Other typical vegetation includes common reed (*Phragmites australis*), pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* spp.) and pineland St. John's wort (*Hypericum fasciculatum*). Although the marshes hold water year round, the emergent sawgrass will carry fires introduced from adjacent uplands. The Optimal Fire Return Interval for this community is 5 to 10 years depending on fire frequency of adjacent communities. Exotic plants and animals should be absent.

Description and assessment: Numerous basin marshes are scattered throughout the park and are in excellent condition. There are literally hundreds of these tiny isolated

wetlands throughout the peninsula. From aerial photographs, it is easy to see the intermittent ridge and swale system that comprises the majority of this peninsula. The ridges are almost linear curves that progress from the southwest to the northeast. These basin marshes are not typical basin marshes (based on FNAI descriptions) but are better described as successional coastal dune swales. They mostly occur as linear swales between scrub ridges. The linear marshes parallel the coast, as they were once dunes and swales. They are dominated by sawgrass, smooth cordgrass, and sedges. The hydrology of the majority of the marshes remains intact.

General management measures: Intact hydrology should be maintained even when installing or preparing firelines. Firelines should not ring these marshes to allow both fire and water into the basin marsh. Fires which should burn at the interval of the surrounding natural community are important to burn dead thatch and prevent duff accumulation. Prescribed fire is important for the marshes that are least influenced by coastal processes and saltwater intrusion. Outside of the Wilderness Preserve, a prescribed burn program has been developed to burn those marshes adjacent to pyric communities. A prescribed burn program is being considered for the Wilderness Preserve and, if adopted, will address this natural community.

Mosquitoes and other arthropods are important for many species dependent on these freshwater marshes at the park including birds, bats and frogs. Other herpetofauna also depend on these swales and are sensitive to pesticides and other pollutants. Spraying for nuisance invertebrates such as mosquitoes should only be carried out in areas adjacent to development and in a manner consistent with the Arthropod control plan. Exotic plants and animals should be controlled as needed.

BASIN SWAMP

Desired future conditions: Basin swamps are forested basin wetlands that are highly variable in shape and species composition and have an extended hydroperiod typically 200 to 300 days. The dominant trees include slash pine, sweetbay (*Magnolia virginiana*), and swamp red bay (*Persea palustris*). Depending upon fire history and hydroperiod, the understory shrub component can be throughout or concentrated around the perimeter. Shrub species can include a variety of species including Virginia willow (*Itea virginica*), wax myrtle, and titi. The herbaceous component is also variable and may include a wide variety of species such as ferns, arrowheads (*Sagittaria spp.*), lizard's tail (*Saururus cernuus*), and sphagnum moss (*Sphagnum spp.*). Soils are acidic and nutrient poor peats that overlay an organic lens. Hydrology should not be disrupted. Exotic plants and animals should be absent.

Description and Assessment: The basin swamp is located in the southern section of the park near the park boundary in SJ-01. The swamp is a linear feature with a closed canopy of slash pine, swamp red bay, and sweetbay. Woody vines are common including grape vine and Rattan vine (*Berchemia scandens*). Three species of ferns have been found growing abundantly including marsh fern (*Thelypteris palustris*), royal fern

(*Osmunda regalis*), and Virginia chain fern (*Woodwardia virginica*). The water in the swamp drains slowly toward the bay.

The basin swamp is in good condition despite a portion of the swamp lying outside the park boundary. The hydrology of the basin swamp may be disrupted outside of the park due to development.

General management measures: The hydrology of the basin swamp on the park should not be altered. Installation of fire lines or trails near or in the swamp must take care not to disrupt hydrology. Ferns found growing in this community might be sensitive to herbicides and pollutants from runoff.

Mosquitoes and other arthropods are important for many species dependent on these freshwater marshes at the park including birds, bats, and frogs. Other herpetofauna also depend on these swales and are sensitive to pesticides and other pollutants. Spraying for nuisance invertebrates such as mosquitoes should only be carried out in areas adjacent to development and in a manner consistent with the arthropod control plan. Exotic plants and animals should be controlled as needed.

COASTAL INTERDUNAL SWALE

Desired Future Condition: Coastal interdunal swales are an ephemeral to permanent wetland dominated mostly by grasses such as sawgrass and saltmeadow cordgrass. These linear wetlands are typically located in low swales between dune ridges. Some of these wetlands may have saltwater intrusion or connection to the gulf or bayside. Storm surge may change the species composition of the swale. Exotic plants and animals should be absent.

Description and assessment: Coastal interdunal swales are located adjacent to the Gulf of Mexico and along the bayshore. Some have saltwater influence during storm surge events and others are inundated periodically with freshwater. Sizes of the swales vary as well. All are linear in shape and are found between dune ridges. The swales closest to the coast are dominated by smooth cordgrass and sedges. The swales further inland are dominated by sawgrass and spikerush (*Eleocharis* spp.). Some of these swales do not fit the exact definition of coastal interdunal swale but also do not fit the definition of any of the other FNAI wetland communities as they are neither basin nor depression marshes. The influence of the coastal system in their formation and maintenance most closely fits with the description of coastal interdunal swale.

The coastal interdunal swales in the park are in very good condition. The hydrology remains intact and storm surge serves to keep these swales herbaceous. Fire can burn in these swales if the adjacent natural community also burns. Since many of these swales are located in dunes and dune scrub, beach mice will traverse the drier part of these areas to access other patches of habitat. The herbaceous cover may be an important reason that beach mice use these swales.

General management measures: Non-organic manmade, non-biodegradable storm debris should be removed from these communities after tropical storms to the extent feasible. Considerations should be given to evaluate the disruption caused by cleanup activities. Hydrological disruptions should be avoided in these communities. Exotic plants and animals should be controlled as needed.

SALT MARSH

Desired future conditions: Salt marshes are influenced by the mixture of fresh and saltwater creating expanses of grasses, rushes, and sedges along coastlines of low wave-energy and river mouths. Smooth cordgrass (*Spartina alterniflora*) and black needlerush (*Juncus roemarianus*) are indicator species that typically form dense stands and delineate by elevation. Smooth cordgrass can tolerate daily inundation and dominates at lower elevations while black needlerush is found where the marsh floods less frequently. Other common plants include saltwort (*Batis maritima*), seaside oxeye (*Borrchia frutescens*), saltgrass (*Distichlis spicata*), sawgrass, and seashore paspalum (*Paspalum vaginatum*). Soils range from saturated to inundated and vary considerably from deep mucks to fine sands but always contain a high salt content limiting biodiversity of plants. Hydrology should remain unaltered and tidal exchange uninfluenced by roads or culverts. An intact salt marsh will aid in trapping pollutants and preventing sediments from washing offshore. Salt marshes should be used by a variety of birds for foraging, resting and nesting. Invertebrates are an important component of salt marshes and should be present. Exotic plants and animals should be absent.

Description and Assessment: This community is found in several areas along the bay side of the park in almost every management zone. The salt marshes tend to be concentrated mainly along the southern half of the unit. Needle rush and sawgrass dominate these communities. Numerous wading birds feed in the tidal marshes including egrets, herons and bitterns. Shellfish, crustaceans, and fish species use the salt marshes during the early parts of their life-cycle. Additionally, American alligators (*Alligator mississippiensis*), herpetofauna, turtles (spp.), and mammals (spp.) rely on salt marsh habitat.

The salt marsh community at the park is in good condition. In a few locations, the tidal exchange has been restricted and should be addressed to allow full tidal exchange. Restoring the historical hydrological connection would help the salt marsh community.

General management measures: Hydrology should be maintained. Any alterations, such as restricted water flow due to culverts, should be corrected. Spraying for nuisance invertebrates such as mosquitoes should only be carried out in areas adjacent to development and in a manner consistent with the Arthropod control plan.

WET PRAIRIE

Desired future condition: Wet prairie should be dominated by a dense diversity of herbaceous wetland plant species. The canopy should be open with few to no trees.

Pitcher-plants, other carnivorous plant species, and terrestrial orchids may be present and abundant in some areas. Hydrology should be uninterrupted. Soil should be saturated much of the year. Exotic plants and animals should be absent.

Description and assessment: The wet prairie is located in the southern portion of the park near the park entrance. It is a linear feature wedged between scrubby flatwoods that may have been created or altered by the power line right of way. It contains a diversity of herbaceous bog species including yellow eyed grass (*Xyris* spp.), candy root (*Polygala nana*), bladderworts (*Utricularia* spp.), sundews (*Drosera* spp.), and ladies tresses (*Spiranthes praecox*). This community, although small, adds a tremendous diversity of species to the park. The prairie is now burned on the same fire return interval as SJ-01, every 2 to 5 years.

The wet prairie is in very good condition despite altered hydrology. The road to the visitor parking area for the shell mound trail bisects the wet prairie altering the flow between the bisected portions.

General management measures: The road bisecting the wet prairie should be redesigned and re-constructed to lessen the hydrological impact. Prescribed fire is important to maintain herbaceous cover and prevent woody species encroachment. Exotic plants and animals should be controlled as needed.

ESTUARINE UNCONSOLIDATED SUBSTRATE

Desired future condition: Estuarine Unconsolidated Substrates are generally characterized as low energy, relatively open areas of subtidal, intertidal, and supratidal zones which consist of expansive unvegetated areas composed of shell, mud, and/or sand. This natural community extends itself from the low tide line along the bayshore landward across the sparsely vegetated sediment to where it grades into adjacent communities. Sparse vegetation may be colonizing at the edges of this community depending on the amount of time since the last tropical storm. The vegetation type depends on the adjacent community and the level of salt water overwash. At low tide, much of the shoreline should consist of tidal flats of exposed sand and mud. This community should support a large population of infaunal organisms as well as a variety of transient planktonic and pelagic organisms (e.g., tube worms, sand dollars, mollusks, isopods, amphipods, burrowing shrimp, and an assortment of crabs) and should support a variety of foraging wading birds and shorebirds. When tidal flats are exposed during low tides, this habitat is heavily used for foraging by many migratory shorebirds such as piping plover (*Charadrius melodus*) and red knots (*Calidris canutus*) and nesting shorebird species such as snowy plovers. Ghost crabs are abundant in this community. Although ghost crabs need dry sand for their burrows, they are frequently observed on the wet tidal areas foraging and require the moisture from this community to survive. Organic marine debris, including seaweed and driftwood, should form a wrack line on the shore. This natural community is a dynamic system free of pollutants,

manmade debris, vehicular rutting, and dredging. Exotic plants and animals should be absent.

Description and assessment: Depending on the location along the peninsula, this community is either eroding or accreting. Along the southern section of the peninsula, the bay shoreline is heavily eroding. Tree stumps can be found along the mud flats indicating the amount of erosion. However, the northern portion of the peninsula, particularly the tip of the peninsula, is accreting. The erosion threatens many cultural sites located on the bayshore. Additionally, the boat basin ramp at Eagle Harbor is periodically dredged and has altered the bay shoreline.

Exposed tidal flats are important for foraging shorebirds. Exposed tidal flats are notably significant during the winter months and are used whenever they are exposed at low tide by foraging shorebirds such as piping plovers, snowy plovers and red knots. Wading birds and gulls also forage along the exposed flats, feeding on shellfish and other macroinvertebrates. Ghost crabs should be present close to the shoreline.

General management measures: Authorized vehicular driving for resource management and park operations should be minimized as it creates rutting and can affect infaunal populations. Driving on the shore can also disturb nesting, resting, and foraging wading birds, shorebirds and seabirds. Manmade non-organic, non-biodegradable debris should be cleaned off the bayshore as much as is feasible after tropical storms to prevent entanglements ingestion and pollution. Exotic plants and animals should be controlled as needed.

Wrack lines should not be moved or destroyed. A healthy wrack line on the wet bayshore is important for supporting macroinvertebrates. Birds and other fauna forage in the wrack line as well as in the wet shoreline. As high tides move wrack upland toward the dry sandy shore, it can then serve to trap sand and support colonizing vegetation. Disturbance to foraging, resting and nesting birds should be avoided along the bayshore. The bay shoreline towards the tip of the peninsula is the primary location where boaters land to access the island. Dogs often accompany boaters as they land on the bayshore. Frequently the dogs visiting the island are allowed to run freely, causing disturbance to foraging wading birds, shorebirds, and other wildlife along the shoreline. Currently, there is signage in key locations indicating the wilderness preserve rules, including those that prohibit pets. Signage needs to be maintained. Boater access points need to be assessed to ensure appropriate placement and amount of signage. These locations may need to be the focus for law enforcement and outreach efforts. In addition, interpretive kiosks placed near signage should be considered to improve visitors' understanding of why park statutes are in place.

MARINE UNCONSOLIDATED SUBSTRATE

Desired future condition: Marine unconsolidated substrate is a dynamic system that consists of expansive unvegetated, open areas of white sandy beaches with shell and

other organic debris. The backshore should be dry except during storm surge conditions when high water and large waves push water and sediment over the upper part of the beach. The surface of the backshore should be covered with ripples and hummocks formed by wind and with a surface layer of shells and other debris transported by wave action. Due to continual sediment reworking by wind, high energy waves, and tides, this community is highly dynamic. Seasonally, sediment is removed from the beach during storms and accretes during periods of calm weather when onshore winds and currents are present. Ephemeral tidal pools should form as sand accretion connects nearshore sand bars to the barrier beach front or from dips in the sand created from overwash and wave action. The lower or wet portion of the beach should contain a high density of infauna and pelagic organisms that support a variety of foraging shorebirds. Coquina (*Donax* spp.), mole crabs (*Emerita* spp.), sandhoppers (*amphipod* spp.), ghost shrimp (*Callinassa biformis*), and polychaete worms (*Nephtys buccera*) should also be present along the swash zone. Organic marine flotsam, including seaweed and driftwood, should form a wrack line on the beach. Abundant ghost crabs should be present throughout this community. Tiger beetles (*Cicindela* spp.) should be present in the dry sand during the larval stage and along the swash zone as adults. Nesting shorebirds such as snowy plover, Wilson's plover, American oystercatchers, least tern, and black skimmer should nest in the upper portion of the beach without disturbance. Foraging shorebird broods (i.e., flightless chicks) and migratory shorebird species (e.g., piping plover, red knots, etc.) should forage on the wet sand without disturbance. Sea turtles should use the Gulf side beach for nesting. Exotic plants and animals should be absent. Sparse vegetation may be colonizing on the upper beach depending on the amount of time since the last tropical storm. Desired conditions include preventing soil compaction, dredging activities, vehicle rutting, and disturbances such as the accumulation of pollutants or manmade debris.

Description and Assessment: This natural community extends itself from the low tide line along the Gulf shore landward across the sparsely vegetated sediment to the primary dune where it merges with the beach dune community along the entire length of the gulf beach. This community is in good condition. Erosion is the biggest factor changing the shoreline at this park. The southern portions of the park and areas south of the park have been identified as some of the most critically eroding areas of the state. In addition to erosion, high visitor use adjacent to access points (e.g., campgrounds, boat access at tip, etc.) and beach driving (e.g., natural resource activities, law enforcement, etc.) impacts this community.

This community is extremely important for many imperiled species, such as nesting sea turtles and shorebirds. Shorebirds use this habitat for nesting, loafing, resting, and foraging. Specifically, the park supports nesting snowy plover, Wilson's plover, American oystercatcher, least terns, black skimmer, and gull-billed terns. Based on the last statewide snowy plover census, this park supports the largest population of snowy plovers breeding in the state (Himes et al. 2006). The park is also an index-nesting beach

designated by FWC for sea turtle monitoring. The number of nests in the park is large (exceeding 100 nests annually) compared to other state parks in the Florida Panhandle.

This is a dynamic system so movement of sand changes the community constantly. Ephemeral tidal pools form from high water, rain events or through formation of sand bars throughout the park. Several large semi-permanent pools occur towards the tip of the peninsula. The largest is approximately 20 acres. This large pool is periodically closed off from the gulf, receiving fresh water from rainfall and from sheet flow as water percolates through the adjacent beach dune community. These pools are vital for shorebird nest site selection and brood rearing.

As dune vegetation colonizes in front of the adjacent dune habitat, embryo dunes begin to form into the next set of foredunes. These small hummocks and sparsely vegetated areas are important for nesting shorebirds. Most shorebirds nest adjacent to conspicuous items that break up the open front beach, including dune hummocks, clumps of vegetation, shell debris, human debris (e.g., plastics), or small pieces of driftwood (Pruner 2010). Protecting this habitat for nesting shorebirds speeds up the dune building process by minimizing trampling by park visitors and allowing dune vegetation to colonize. As vegetation and other debris traps sand the elevation increases minimizing the probability of washover for sea turtle and shorebird nests and creates beach mice habitat.

General management measures: Vehicular driving should be discouraged as it creates rutting and can affect infaunal populations. Beach driving by law enforcement, contractors, county officials, wildlife officials, and assessment crews has increased since 2010 following the oil spill from the Mississippi Canyon block 252 oil well blowout. Vehicular rutting creates impacts to shorebird and sea turtle hatchling recruitment success. Details related to beach driving are discussed in the Resource Management Program section of this component.

Manmade garbage and debris should be cleaned off the beach as much as is feasible after high tides and/or tropical storms. However, wrack lines should not be moved or destroyed. A healthy wrack line on the wet beach is important for supporting macroinvertebrates. Shorebirds forage in the wrack line as well as in the wet beach. As high tides move wrack up to the dry sandy beach, it can then serve to trap sand and support colonizing dune vegetation.

Disturbance to shorebirds should be prevented. Posting and roping of shorebird resting, nesting and brood rearing (i.e., with flightless chicks) will be used to minimize detrimental impacts associated with disturbance (e.g., vehicular driving, visitor impacts such as trampling, flushing from nests, etc.). Stewardship and educational outreach programs will target the peak shorebird nesting season to reduce disturbance impacts.

Exotic plants and animals should be controlled as needed.

ALTERED LAND COVER AREAS

Desired future condition: The borrow area should be reclaimed and covert into a basin marsh. Historically the barrow area was probably a dune ridge, but so much of the original substrate has been removed that the site should be reclaimed to mimic a natural community that is consistent with the other communities of the park. It is located adjacent to a dune ridge. The borrow pit should be reclaimed into an ephemeral wetland with herbaceous vegetation, such as a basin marsh.

Another altered land cover area occurs as a clearing around the shop compound. This area is used for piling hurricane debris after storms. Some of it should remain as a clearing for park operations but other portions should be restored to scrub.

Description and assessment: The borrow area is in management zone SJ-07. All of the substrate and original vegetation has been removed. Presently a shallow marsh-like pit holds freshwater. Wading birds have used the freshwater pit in the past, but the dominance and expansion of cattails in the pit make it less attractive to wading birds. Muck has accumulated in the bottom of the pit making control of cattails difficult. Access to control cattails is not feasible on foot or by boat.

The shop compound clearing retains much of its substrate, but much of the original vegetation has been removed or trampled. Some ruderal and exotic species have established. This area is in poor condition but can be restored.

A canal/ditch occurs in zone SJ-06A at the canoe basin at Mosquito Point where it was dredged, altering the hydrology and the configuration of the natural shoreline. This area should be restored to salt marsh.

General management measures: The borrow area within the park will be managed to remove priority invasive plant species (FLEPPC Category I and II species). Other management measures include limited restoration efforts designed to minimize the effect of the borrow area on adjacent natural areas. Cost-effectiveness, return on investment, and consideration of other higher priority restoration projects within the park will determine the extent of restoration measures in the borrow area.

Restoration plans should be developed for reclamation of the borrow pit, restoration of some of the clearing area around the shop, and restoration of the salt marsh at Mosquito Point. The perimeter of the use area around the shop that is not to be restored should be posted so that human disturbance does not creep into the surrounding natural communities. Exotic species should be controlled.

DEVELOPED

Desired future conditions: The developed areas within the park will be managed to minimize the effect of the developed areas on adjacent natural areas.

Description and assessment: Developed areas include parking areas, buildings, campgrounds, and other facilities as well as maintained rights-of-way and roadsides. The large box culvert under the main park drive is restricting tidal flow in the salt marsh community within management zone SJ-06A and SJ-07. If funding is available, this should be addressed to allow better tidal exchange.

General management measures: Priority invasive plant species (FLEPPC Category I and II species) will be controlled from all developed areas. Other management measures include proper stormwater management and development guidelines that are compatible with prescribed fire management in adjacent natural areas. Defensible space will be maintained around all structures in areas managed with prescribed fire or at risk of wildfires.

Imperiled Species

Imperiled species are those that are (1) tracked by FNAI as critically imperiled (G1, S1) or imperiled (G2, S2); or (2) listed by the U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FWC), or the Florida Department of Agriculture and Consumer Services (FDACS) as endangered, threatened or of special concern.

Numerous state and federally listed species occur within this unit. Only one listed plant species has been vouchered from the park, Godfrey's golden aster. This plant occurs on deep sands often on dunes in the western Florida Panhandle. It is listed by the State of Florida as endangered. In the park, this plant is found in scrubby flatwoods. Threats to the plant include development, dune erosion and trampling. Appropriate management actions for this species include conserving and maintaining suitable natural area with little to no human disruption or alteration. This management is identified as "Other" in the table below.

The St. Andrew beach mouse is listed as endangered by the USFWS and the FWC. This subspecies currently is known to exist only on St. Joseph Peninsula and on Crooked Island West (Tyndall Air Force Base). The Crooked Island population was translocated from the donor population at the park in 1998 and is one of the first attempts to re-introduce the subspecies into suitable areas of its former range. The park is the most important site for St. Andrew beach mice as it has had the most stable continuous population relative to any other known site (Spector 2009). Habitat loss all along its former range is the major contributing factor to the decline of the subspecies. Other threats include further development, hurricanes, introduction of competitors such as house mice, and exotic predators such as coyotes and feral cats. The park should continue tracking surveys in conjunction with FWC to document presence and distribution of mice. In addition tracking surveys help to alert management to the presence of non-native predators or other threats. Predator control is critical towards maintaining the population.

Florida black bear (*Ursus americanus floridanus*) are typically not found at the park. However, they are observed at the park occasionally. If observations increase and visitor impacts are observed, monitoring and managing of bear at the park may be needed (e.g., placement of bear proof dumpsters, visitor education, etc.).

The biggest threats to alligators at the park are from interactions with visitors. Visitors should be educated on the dangers of feeding or molesting alligators both in terms of harm to the alligator and to the visitor.

Three species of sea turtles are known to nest in this park. The vast numbers of nests are from loggerhead turtles. Occasional green turtles nest on the park and one leatherback is recorded every few years. This park is one of three areas in the panhandle that are identified as index-nesting beaches as designated by FWC for conducting Index Beach Nesting Surveys. Sea turtles nesting at the park are vulnerable to coyote predation. Predator control efforts alongside screening of active turtle nests are critical to maintaining nest productivity.

Gopher tortoises (*Gopherus polyphemus*) historically occupied the peninsula; however, they apparently were presumably extirpated before state acquisition. A small number of gopher tortoises have been observed recently at the southern end of the park. Presumably, these few tortoises were dropped off at the park by locals. The park, in conjunction with FWC, should assess the available habitat and condition to determine the current population and if population augmentation of gopher tortoises is appropriate.

The open beach along the Gulf of Mexico and the adjacent beach dune community provide shorebird nesting habitat. The park currently supports a fairly large abundance and diversity of nesting shorebirds, including several state and federally listed species (Himes et al. 2006, Pruner et al. 2011). The species that nest here include snowy plover, Wilson's plover, American oystercatcher, least tern, black skimmer, and gull-billed terns. The main threats to nesting shorebirds include vehicle rutting, predation, disturbance, and the presence of domestic dogs on the beach. Typically, hatch rates are fairly high at the park, but fledge rates are low. Nests and chicks are impacted primarily by coyote nest predation, off-leash dogs, and vehicle traffic within the primary foraging area near the shoreline. Coyotes are a severe threat to successful shorebird nesting at this park. In addition to coyote, nests are commonly depredated by ghost crabs, raccoons, Virginia opossum, and fish crows.

Dogs have been an additional threat to shorebirds at the park. Off-leash dogs have been observed chasing plover chicks and various foraging shorebirds including piping plovers, snowy plovers and red knots in the Wilderness Preserve. In addition, dog tracks are often regularly observed within the posted and presumably protected nesting habitat.

Management for these potential threats should continue, to support the successful shorebird nesting efforts at the park. In response to multispecies habitat management that includes predator removal and protection of nesting and brood-rearing habitat from human disturbance a substantial increase in the breeding shorebird population has occurred at the park (Pruner et al. 2011).

During the nesting season (February through August) the park is monitored for nesting activity on a weekly basis by district biologists. Nests are located and monitored for fate (i.e., hatch or fail). If nests fail, efforts are made to determine the cause for failure (e.g., predation, overwash, abandonment, etc.). For snowy plovers and Wilson's plover nests that hatch, efforts are made to color band adults and chicks. Bands are used in the short term to monitor fledge rates and establish local population abundance. Over the long term, banding is used to determine survival and dispersal. For example, since banding began in 2008, chicks that originally fledged from the park have been observed nesting throughout the state of Florida. For the banding program, emphasis is placed on the chicks to establish known-age cohorts. In the park, banding efforts for snowy plovers began in 2008, in 2010 for American oystercatchers and in 2012 for Wilson's plover. All banding efforts are in collaboration with FWC, USFWS, and the University of Florida. For colonial nesting species (i.e., least terns, black skimmers, and gull-billed terns) nests are monitored for fate. Once nests hatch, chicks at various stages are counted (e.g., downy, pin-feather, or fledged) to estimate hatch and fledge rates by species for the colony. All nesting data for all shorebird species is entered into the District 1 Shorebird Database and the Florida Shorebird Alliance (FSA) database. All nesting surveys should be completed following established protocol by District 1, DRP, FWC, and FSA.

During the non-breeding or winter months (August through February) a variety of shorebirds use the park. Snowy plovers are residents at the park; most of the individuals that nest at the park also winter there. The few snowy plovers that migrate for the winter have been observed at various beach locations around the Gulf coast including Sanibel Island, Fort DeSoto, and Dauphin Island, Alabama. In addition to resident nesters that overwinter, a suite of shorebirds migrate through or overwinter at the park including piping plovers and red knots. Many of the federally listed piping plover observed are individually marked by researchers on their breeding grounds throughout their range. Any marked individuals should be recorded, photographed if possible and reported following the guidelines on the FSA website. The piping plovers observed at the park have been traced back to the Great Lakes, Nebraska, South Dakota, Saskatchewan, and other various locations where they occur. Piping plovers have high winter site fidelity and the same marked individuals tend to return to the same site each winter. The piping plovers at the park typically use the bay shoreline, tidal flats, tidal pools and forage along the swash zone of the Gulf shoreline. While not foraging, piping plovers roost in tire ruts, behind hummocks, beach vegetation, and within dune blowouts. The level of site fidelity observed indicates the importance of preserving the coastal habitats they utilize at the park. Surveys and management for piping plover

should follow the *Comprehensive Conservation Strategy* (U.S. Fish and Wildlife Service 2012).

Additionally, the red knot is a candidate species for federal listing and is expected to be listed sometime in 2013. Red knots primarily use the park during the fall and spring migrations and typically forage along the swash zone and at tidal pools on the Gulf shore. A small number of red knots overwinter and based on individuals that are individually marked, move around sites in the panhandle. The park will be included in the USFWS critical habitat designated for red knots. General shorebird surveys are conducted year-round for non-breeding shorebirds in addition to piping plovers and red knots to determine habitat use, the number utilizing the park, and to provide protection measures from human or predator disturbance if needed. The non-breeding surveys include observations of all shorebird and seabird species using the park, including American avocets (*Recurvirostra americana*), sandwich terns (*Thalasseus sandvicensis*), Caspian terns (*Hydroprogne caspia*), and magnificent frigate birds (*Fregata magnificens*). American avocets are typically observed in small numbers foraging at the park, in tidal pools or along the swash zone, during spring and fall migration. Sandwich terns use the park during migration and as a roosting site for much of the year, a single sandwich tern attempted to nest at the park in 2012. Caspian terns are observed in small numbers at the park, primarily during migration and during winter months. However, they do nest in several locations in nearby Franklin County and can be observed at the park in small numbers year round. Magnificent frigatebirds are irregularly observed foraging off of the Gulf shoreline. Sooty terns and brown noddy have been observed at the park, but only after storm activity and are not included on Table 2. For the seabird species listed here, the park provides a roosting site and all foraging activity takes place over the adjacent waters in the Gulf. FWC is in the process of developing a non-breeding survey protocol and database. Surveys should be adjusted to fit any new requirements.

During the seasonal migrations, numerous other listed bird species use this peninsula as an important “jumping off” point for the trans-gulf flight. Southeastern American kestrels (*Falco sparverius paulus*), merlin (*Falco columbarius*), peregrine falcons (*Falco peregrinus*), swallow-tailed kites (*Elanoides forficatus*), American redstart (*Setophaga ruticilla*), and Louisiana waterthrush (*Parkesia motacilla*) are observed during migratory periods. A small number of kestrels, merlin, and peregrine falcons overwinter at the park, often using snags for perches. Snags should remain in place for these species in most habitats, however snags that occur near the beach or adjacent to shorebird nesting or roosting locations should be removed if possible to minimize predation of shorebirds by raptors. Appropriate management actions for these species include conserving and maintaining suitable natural area with little to no human disruption or alteration. This is considered Management Action 14 (Other) in the table below. American redstarts and Louisiana waterthrush are rare at the park, but may be observed during the spring and fall migrations. Swallow-tailed kites typically use the park only by flying over, however

they may also use the park for foraging since they tend to forage for insects over wet open areas.

Wading birds, such as black rail (*Laterallus jamaicensis*), little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*), tricolored heron (*Egretta tricolor*), reddish egret (*Egretta caerulea*), wood stork (*Mycteria americana*), and white ibis (*Eudocimus albus*) are found in the freshwater swales and brackish salt marsh and bayshore. Wood storks are at the park infrequently during migratory stopovers. Good quality wetlands are important for both foraging and nesting of wading birds. Hydrology should be maintained in these wetlands and spraying of insecticide should be minimized as much as possible. Although the little blue heron, snowy egret and tricolored heron are in the process of being delisting by FWC, it is still important to maintain quality wetlands for these species.

The brown pelican (*Pelecanus occidentalis*) utilizes the park for foraging and loafing. They can often be observed in large numbers loafing at the tip of the peninsula. These large seabirds are frequently observed gliding in formations along the surf line in search of bait fish, or loafing along the open beach. Brown pelicans are included in the non-breeding shorebird surveys conducted throughout the park by district biologists. The nearest active nesting site is located just outside of Apalachicola. Many of the core breeding sites in the western Gulf were heavily impacted by the 2010 Deep Water Horizon oil spill. The long term implications of this man-made environmental disaster on the brown pelican, shorebirds, seabirds, and wading birds are yet to be determined.

One imperiled insect is known at the park, the underfoot tiny sand-loving scarab (*Geopsammodius subpedalis*). It was last documented in 1998 at the park. The park should work with a conservation entomologist to determine if the species is still present at the park.

Table 2 contains a list of all known imperiled species within the park and identifies their status as defined by various entities. It also identifies the types of management actions that are currently being taken by DRP staff or others and identifies the current level of monitoring effort. The codes used under the column headings for management actions and monitoring level are defined following the table. Explanations for federal and state status as well as FNAI global and state rank are provided in Addendum 6.

Table 2. Imperiled Species Inventory

<i>Common and Scientific Name</i>	<i>Imperiled Species Status</i>				<i>Management Actions</i>	<i>Monitoring Level</i>
	<i>FWC</i>	<i>USFWS</i>	<i>FDACS</i>	<i>FNAI</i>		
PLANTS						
Godfrey’s golden aster <i>Chrysopsis godfreyi</i>			LE	G2/S2	10, 15	Tier 2
INVERTEBRATES						
Underfoot tiny sand-loving scarab <i>Geopsammodius subpedalis</i>				G2, G3/S2	1	Tier 1
REPTILES						
American alligator <i>Alligator mississippiensis</i>	FT(SA)	SAT		G5, S4	4, 10, 13	Tier 1
Loggerhead sea turtle <i>Caretta caretta</i>	FT	LT		G3/S3	8, 9, 10,13	Tier 3
Green sea turtle <i>Chelonia mydas</i>	FE	LE		G3/S2	8, 9, 10,13	Tier 3
Leatherback sea turtle <i>Dermochelys coriacea</i>	FE	LE		G2/S2	8, 9, 10,13	Tier 3
Gopher tortoise <i>Gopherus polyphemus</i>	LT	C		G3, S3	2, 8, 10	Tier 2
BIRDS						
Red knot <i>Calidris canutus</i>		C			10, 13, 15	Tier 5
Snowy plover <i>Charadrius nivosus</i>	LT			G4, S1	8, 10	Tier 4
Piping plover <i>Charadrius melodus</i>	LT	LT		G3, S2	8, 10, 14	Tier 5

Table 2. Imperiled Species Inventory

<i>Common and Scientific Name</i>	<i>Imperiled Species Status</i>				<i>Management Actions</i>	<i>Monitoring Level</i>
	<i>FWC</i>	<i>USFWS</i>	<i>FDACS</i>	<i>FNAI</i>		
Wilson’s Plover <i>Charadrius wilsonia</i>				G5,S2	8, 10, 13	Tier 4
Little blue heron <i>Egretta caerulea</i>	LS			G5, S4	4	Tier 1
Reddish Egret <i>Egretta rufescens</i>	LS			G4, S2	4, 10, 13	Tier 2
Snowy egret <i>Egretta thula</i>	LS			G5, S3	4	Tier 1
Tricolored heron <i>Egretta tricolor</i>	LS			G5, S4	4	Tier 1
Swallow-tailed kite <i>Elanoides forficatus</i>				G5, S2	15	Tier 1
White ibis <i>Eudocimus albus</i>	LS			G4, S4	4	Tier 1
Merlin <i>Falco columbarius</i>				G5, S2	15	Tier 2
Peregrine falcon <i>Falco peregrinus</i>	LE			G4, S2	15	Tier 2
Southeastern American kestrel <i>Falco sparverius paulus</i>	LT			G5, T4	15	Tier 2
Magnificent frigatebird <i>Fregata magnificens</i>				G5,S1	10, 13	Tier 2
Gull-billed tern <i>Gelochelidon nilotica</i>				G5, S2	8, 10, 13	Tier 3
American oystercatcher <i>Haematopus palliates</i>	LS			G5, S2	10, 13, 15	Tier 4
Caspian tern <i>Hydroprogne caspia</i>				G5, S2	10, 13	Tier 3
Black rail <i>Laterallus jamaicensis</i>				G4, S2	4	Tier 1

Table 2. Imperiled Species Inventory

<i>Common and Scientific Name</i>	<i>Imperiled Species Status</i>				<i>Management Actions</i>	<i>Monitoring Level</i>
	<i>FWC</i>	<i>USFWS</i>	<i>FDACS</i>	<i>FNAI</i>		
Wood Stork <i>Mycteria americana</i>	LE	FE		G3, G4, S2	4	Tier 1
Eastern brown pelican <i>Pelecanus occidentalis</i>	LS			G4, S3	4	Tier 2
American avocet <i>Recurvirostra americana</i>				G5, S2	15	Tier 2
Black skimmer <i>Rynchops niger</i>	LS			G5, S3	8,10	Tier 5
American redstart <i>Setophaga ruticilla</i>				G5, S2	15	Tier 1
Sandwich tern <i>Sterna sandvicensis</i>				G5, S2	8, 10	Tier 2
Least tern <i>Sternula antillarum</i>	LT			G4, S3	8, 10, 11, 13	Tier 3
MAMMALS						
St. Andrew Beach Mouse <i>Peromyscus polionotus peninsularis</i>	LE	LE		G5, T1, S1	3, 8, 9, 12, 13, 14	Tier 2
Florida black bear <i>Ursus americanus floridanus</i>				G5T2,S2	1,4,10, 13	Tier 1

Management Actions:

1. Prescribed Fire
2. Exotic Plant Removal
3. Population Translocation/ Augmentation/ Restocking
4. Hydrological Maintenance/ Restoration
5. Nest Boxes/ Artificial Cavities
6. Hardwood Removal
7. Mechanical Treatment
8. Predator Control

9. Erosion Control
10. Protection from visitor impacts (establish buffers)/law enforcement
11. Decoys (shorebirds)
12. Vegetation planting
13. Outreach & Education
14. U.S. Fish and Wildlife Service designated critical habitat
15. Other

Monitoring Level:

- Tier 1** Non-Targeted Observation/Documentation: includes documentation of species presence through casual/passive observation during routine park activities (i.e. not conducting species-specific searches). Documentation may be in the form of *Wildlife Observation Forms*, or other district specific methods used to communicate observations.
- Tier 2** Targeted Presence/Absence: includes monitoring methods/activities that are specifically intended to document presence/absence of a particular species or suite of species.
- Tier 3** Population Estimate/Index: an approximation of the true population size or population index based on a widely accepted method of sampling.
- Tier 4** Population Census: a complete count of an entire population with demographic analysis, including mortality, reproduction, emigration, and immigration.
- Tier 5** Other: may include habitat assessments for a particular species or suite of species or any other specific methods used as indicators to gather information about a particular species.

Detailed management goals, objectives, and actions for imperiled species in this park are discussed in the Resource Management Program section of this component and the Implementation Component of this plan.

Exotic and Nuisance Species

Exotic species are plants or animals not native to Florida. Invasive exotic species are able to out-compete, displace or destroy native species and their habitats, often because they have been released from the natural controls of their native range, such as diseases, predatory insects, etc. If left unchecked, invasive exotic plants and animals alter the character, productivity, and conservation values of the natural areas they invade.

Exotic plant infestation is currently very sparse throughout the extent of the park. Torpedo grass (*Panicum repens*) has been located in the developed areas of the park as well as proximal to the northern tip of the peninsula. Most of these locations are quite limited in area, though a site located east of the Shady Pines Campground occupies a

larger area. This latter infestation occurs in the back dunes area associated with a wooden walkway leading from the campground. It is also found growing usually in swales among many native species. Current methods are not adequate to control torpedo grass when mixed with native plants. Treating torpedo grass chemically will kill the above ground stems but not the rhizomes. Non-target natives that are treated due to their close proximity usually do not re-sprout but torpedo grass will re-sprout causing a worse infestation due to the lack of competition with native plants. Research is needed on controlling torpedo grass when it occurs among native plants. One small infestation of cogon grass has been found near the southeast boundary of the park. This patch is treated annually, but continues to persist. Chinaberry (*Melia azedarach*) is found along a 3-mile stretch of bayshore in SJ-12. The chinaberry was initially located in 2011 with 43 individual trees. The plants were cut and sprayed, but they still occur scattered along the stretch of beach. Two purple sesban (*Sesbania punicea*) plants were also observed in 2011. The purple sesban was treated and is currently in maintenance condition.

A patch of perennial ryegrass (*Lolium spp.*) was found along the road shoulder near the park office; it is possible that seeds of this species were spread following a construction project in the vicinity for groundcover and erosion control instead of the annual variety.

Nutsedge (*Cyperus esculentus*) has been found growing in the altered land cover-clearing area adjacent to the shop.

Common reed (*Phragmites australis*) has been controlled in the past on the park. Debate continues about whether different strains originated in Europe or North America. Therefore, the park does not consider it exotic but will control it when it dramatically expands its range and dominates other salt marsh vegetation.

Although native, cattails dominate and are expanding in the borrow pit degrading the shallow water for wading birds. Cattails are very difficult to control as no access can be made by boat due to the shallow water or by foot due to the deep muck. This area needs to be reclaimed to a more natural community. This will also allow for better control of cattails, see details under the Resource Management Program.

Table 3 contains a list of the Florida Exotic Pest Plant Council (FLEPPC) Category I and II invasive, exotic plant species found within the park (FLEPPC 2009). The table also identifies relative distribution for each species and the management zones in which they are known to occur. An explanation of the codes is provided following the table. For an inventory of all exotic species found within the park, see Addendum 5.

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species

Common and <i>Scientific Name</i>	FLEPPC Category	Distribution	Management Zone
PLANTS			
Cogon grass <i>Imperata cylindrica</i>	I	2	01
Chinaberry <i>Melia azedarach</i>	II	2	12
Torpedo grass <i>Panicum repens</i>	I	2	02, 04D, 05B, 06B, 09, 12
		3	05A, 07
Purple sesban <i>Sesbania punicea</i>	II	0	12

Distribution Categories:

- 0 No current infestation: All known sites have been treated and no plants are currently evident.
- 1 Single plant or clump: One individual plant or one small clump of a single species.
- 2 Scattered plants or clumps: Multiple individual plants or small clumps of a single species scattered within the gross area infested.
- 3 Scattered dense patches: Dense patches of a single species scattered within the gross area infested.
- 4 Dominant cover: Multiple plants or clumps of a single species that occupy a majority of the gross area infested.
- 5 Dense monoculture: Generally a dense stand of a single dominant species that not only occupies more than a majority of the gross area infested, but also covers/excludes other plants.
- 6 Linearly scattered: Plants or clumps of a single species generally scattered along a linear feature, such as a road, trail, property line, ditch, ridge, slough, etc. within the gross area infested.

Exotic animal species include non-native wildlife species, free ranging domesticated pets or livestock, and feral animals. Because of the negative impacts to natural systems attributed to exotic animals, DRP actively removes exotic animals from state parks, with priority being given to those species causing the ecological damage.

In some cases, native wildlife may also pose management problems or nuisances within state parks. A nuisance animal is an individual native animal whose presence or activities create special management problems. Examples of animal species from which nuisance cases may arise include raccoons, gray squirrels, venomous snakes, and alligators. Nuisance animals are dealt with on a case-by-case basis.

Coyotes harass nesting sea turtles and depredate sea turtle and shorebird nests and chicks. They also flush shorebirds, preventing birds from nesting within the habitat or causing nest abandonment. In addition, the presence of coyotes and other mammalian predators such as raccoons can flush nesting shorebirds, leaving eggs and chicks vulnerable to predation by other opportunistic species including ghost crabs, herons, crows, and gulls. Coyotes have historically been a larger problem at the park when they were not controlled. For example, in 1996, 52.8 percent of sea turtle nests were depredated by coyotes. Coyotes have also heavily depredated shorebird nests. Following a year of heavy coyote removal, productivity for nesting shorebirds drastically improved (Pruner et al. 2011). Predator control was initiated in 1997 and continues when funds are available. Predator removal will continue for the next five years (2013-2017) through the USDA using BP -Natural Resource Damage Assessment funds. Removal efforts should continue beyond this window due to the connectivity of the park to surrounding areas and the quick turnaround for coyotes to repopulate the park following removal efforts.

The presence of coyotes and other mammalian predators should be monitored and detected while monitoring for shorebirds, sea turtle nests, and beach mice. Any observations of known predation to nests should be recorded and reported. Park staff should work with district biologists to assess threats and work with trappers to decide the best method to achieve control. The screening of sea turtle nests to prevent successful nest depredation from coyotes should continue. Trapping coyotes in winter prior to shorebird and sea turtle nesting season is recommended as the most effective method of control due to cooler temperatures and to minimize disturbance to shorebird nests and chicks during the trapping process.

Raccoons can be a nuisance by raiding campsite dumpsters and stealing food from park visitors. Once raccoons become habituated, they can become a danger to visitors. In addition, raccoons can be effective predators of sea turtle and shorebird nests in coastal habitats. A group of raccoons can wipe out a nesting colony in a single night. Raccoon abundance tends to increase as coyotes are removed from the habitat. The raccoon population should be assessed and trapping efforts should coincide with coyote

removal. Animal-resistant dumpsters and garbage cans should be utilized to prevent attracting and habituating nuisance and exotic animals.

Virginia opossum have been documented depredating snowy plover, Wilson's plover and least tern nests at state parks around the state. As coyote removal efforts increase, trapping for opossum will likely become more important.

Feral cats can be detrimental to populations of beach mice. Feral cats are very effective at hunting small mammals including beach mice. A well-fed cat can range away from home and into the dune system where beach mice are found. Monitoring for the presence of feral cats should be integrated with the monitoring of beach mice. A feral cat track, detection and trapping program should continue at the park.

Nine-banded armadillo (*Dasyopus novemcinctus*) populations have recently increased at the park. The foraging behavior of armadillos can cause damage to the root systems plants in natural systems. Monitoring of the presence and damage and trapping of armadillos should continue at the park.

Hispid cotton rat (*Sigmodon hispidus*) populations are subject to fluctuations in numbers. Normally, cotton rat populations are relatively low. However, during years of population "explosion", cotton rats are extremely numerous at the park. Although every population eruption is followed by a crash in the population, during the peak population periods cotton rats are problematic in park use areas. Visitors feed and are often bit by the rats. Continued education and trapping efforts may be needed in high visitor use areas where they become a problem during population explosions.

Detailed management goals, objectives, and actions for management of invasive exotic plants and exotic and nuisance animals are discussed in the Resource Management Program section of this component.

Special Natural Features

The long uninterrupted beach and high dunes are the park's best natural features. The park was selected as the best beach in a 2002 beach survey (Leatherman 2002). The dunes at the park may be the highest in the Florida Panhandle exceeding 30 feet above sea level. The northern portion of the park is a designated Wilderness Preserve where human access and alteration is minimized. St. Joseph Bay is designated as an aquatic preserve. The park's dynamic marine system has developed a series of unique tidal pools that support a vast array of breeding, migratory and wintering shorebird species. Based on the last statewide survey, the park supports the largest snowy plover population in Florida. Additionally, because of the presence of the large tidal pools with minimal human presence, the park produces more snowy plover fledglings than any other site in Florida.

Cultural Resources

This section addresses the cultural resources present in the park that may include archaeological sites, historic buildings and structures, cultural landscapes, and collections. The Florida Department of State (FDOS) maintains the master inventory of such resources through the Florida Master Site File (FMSF). State law requires that all state agencies locate, inventory and evaluate cultural resources that appear to be eligible for listing in the National Register of Historic Places. Addendum 7 contains the FDOS, Division of Historical Resources (DHR) management procedures for archaeological and historic sites and properties on state-owned or controlled properties; the criteria used for evaluating eligibility for listing in the National Register of Historic Places, and the Secretary of Interior's definitions for the various preservation treatments (restoration, rehabilitation, stabilization, and preservation). For the purposes of this plan, significant archaeological site, significant structure, and significant landscape means those cultural resources listed or eligible for listing in the National Register of Historic Places. The terms archaeological site, historic structure, or historic landscape refer to all resources that will become 50 years old during the term of this plan.

Condition Assessment

Evaluating the condition of cultural resources is accomplished using a three-part evaluation scale, expressed as good, fair, and poor. These terms describe the present condition, rather than comparing what exists to the ideal condition. Good describes a condition of structural stability and physical wholeness, where no obvious deterioration other than normal occurs. Fair describes a condition in which there is a discernible decline in condition between inspections, and the wholeness or physical integrity is and continues to be threatened by factors other than normal wear. A fair assessment is usually a cause for concern. Poor describes an unstable condition where there is palpable, accelerating decline, and physical integrity is being compromised quickly. A resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests immediate action is needed to reestablish physical stability.

Level of Significance

Applying the criteria for listing in the National Register of Historic Places involves the use of contexts as well as an evaluation of integrity of the site. A cultural resource's significance derives from its historical, architectural, ethnographic or archaeological context. Evaluation of cultural resources will result in a designation of NRL (National Register or National Landmark Listed or located in an NR district), NR (National Register eligible), NE (not evaluated), or NS (not significant) as indicated in the table at the end of this section.

There are no criteria for use in determining the significance of collections or archival material. Usually, significance of a collection is based on what or whom it may represent. For instance, a collection of furniture from a single family and a particular era

in connection with a significant historic site would be considered highly significant. In the same way, a high quality collection of artifacts from a significant archaeological site would be of important significance. A large herbarium collected from a specific park over many decades could be valuable to resource management efforts. Archival records are most significant as a research source. Any records depicting critical events in the park's history, including construction and resource management efforts, would all be significant.

Prehistoric and Historic Archaeological Sites

Desired future condition: All significant archaeological sites within the park that represent Florida's cultural periods or significant historic events or persons are preserved in good condition in perpetuity, protected from physical threats, and interpreted to the public.

Description: The Florida Master Site File (FMSF) has eleven sites recorded at the park. These sites represent a wide range of periods.

There are three prehistoric sites at the park that were used during the Late Woodland Period culture, Weeden Island Period I and II (A.D. 500-2000). This culture occurred all along the Atlantic and Gulf coastal areas, exploiting marine and estuarine foods. Settlements appear to be more permanent, with establishment of large shell middens and burial mounds.

The Old Cedar Site (8GU00085) is a substantial Weeden Island Period II shell midden and possible burial mound located within the park limits. It is deposited on a dune ridge and supports a closed canopy with hammock type vegetation including red bay, cabbage palm, and red cedar. The Eagle Harbor Site (GU000081) was originally documented in 1983 as a scatter of 112 prehistoric sherds, dominated by the Weeden Island Period (unspecified time period) ceramics. However, there were also a few ceramic sherds attributed to Swift Creek (150-350 AD) or earlier predating Weeden Island components by up to 750 years. The Old Cedar Site and Eagle Harbor Site also include later Fort Walton components mixed in with assemblages of ceramics dominated by The Harrier Site (8GU00107) was documented as a scatter of ceramic sherds in a disturbed context, representing unspecified Weeden Island materials. All sherds were located in mudflats between the bay and salt marsh habitat.

The Spanish Period in Florida is characterized by Spanish settlements including forts, missions and ports. Two sites at the park were occupied during the First Spanish Period (1700-1763) and one site was occupied during the Second Spanish Period (1783-1821). By early 1701, the Spanish occupied St. Joseph Bay in order to prevent the French from taking the area and interrupting the supply line to Pensacola. The main garrison was placed on the mainland. However, a lookout station was situated on top of the peninsula across the bay on what is now the park. These settlements were abandoned in 1703 after skirmishes with the British. In early 1719, a new fort was constructed at the

tip of the St. Joseph Peninsula to combat arrival of French settlements. The fort was called Presidio San Jose (8GU00008) from which St. Joseph Bay and the park is named. It was the largest fort on the coast of the Gulf of Mexico for three years between 1720 and 1723. The chapel, storehouses, guardhouses, barracks, and powder magazines would have been inside the fort walls. At one point there may have been up to 1,200 soldiers accompanied by their families and numerous Native Americans. The fort was abandoned and dismantled in 1723 when the Spanish moved back to the Presidio Isla Santa Rosa in Pensacola. Benchley and Bense (2001) conclude that, "the site has been completely eroded into St. Joseph Bay and most of the surviving artifacts are buried in the mudflats just offshore".

A second site from the First Spanish Period, the Spanish/French Brick Site (8GU00097) was originally recorded in 1995 after two Spanish-style bricks were found after Hurricane Opal. The Sabal Palm Site (8GU00007) was occupied during the Second Spanish Period and based on artifacts found at the sites, was likely a seasonal fishing camp.

The Early American Period is characterized by the expansion of settlements in North America. At the park, this period is represented by seasonal occupation probably for fishing. The Sabal Palm Site (8GU00007), mentioned above, is the only site that was occupied during this period. The site continued as a fishing camp through the American Territorial Period (1821-1845). A second site, referred to as the lighthouse, has been reported in the vicinity, but has not yet been located. In 1839 a lighthouse began operating at the tip of the St. Joseph Peninsula and served as a guide to local shipping. Due to lack of commercial industry and a yellow fever epidemic, the lighthouse ceased operating in 1847, was destroyed by a hurricane in 1851 and remnants of the brick foundations were demolished by the military in the 1960s.

The American late 19th and early 20th century period is represented by a fish camp and military occupation. Five sites at the park were occupied during this period. The Fish Camp Site (8GU00106), based on artifacts and oral histories was likely a camp that served as a base for catching and processing fish for transport by boat to market during the American Late 19th to early 20th centuries. Two sites represent military occupation of the peninsula, the Military Site (8GU00108) and the Bomb Target Site (8GU00110). The Military site is a Vietnam era military training site consisting of a conical mound of sand surrounded by rows of planted pines and rectangular outlined dune formations. It was used from 1961 to 1963 by the United States Army Reserves for training exercises to prepare for combat in Vietnam. The Bomb Target site is a World War II era training site (1940-1945). Stacked bags of lime were targets for practicing aircraft bombers. When targets were hit, puffs of powdered lime would create a cloud that could be seen from a safe distance to verify that the pilot had hit the target. The Hudson Site (8GU00096) was recorded as late 19th to early 20th century based on artifacts that were discovered along the bay shoreline. After a more thorough survey of the site in 2001, Benchley and Bense did not find any significant artifacts. They concluded that the artifacts were either

transported to that site by ocean currents and wave action or that the location of the site was recorded improperly on the FMSF report. A fifth site, the SS Florida (8GU00109) is the site of an historic shipwreck. The site is exposed during low tides and is visible from the park in St. Joseph Bay.

Condition Assessment: The main threat to cultural sites at the park, such as the Sabal Palm site, Presidio San Jose, Old Cedar site, Fish Camp, and SS Florida site, is impacts from the marine environment where they occur (e.g., shoreline erosion, storm surges, and excessive tidal overwash from seasonal and tropical storm activity). According to Bense & Benchley (2001), approximately 300 feet of bay shoreline has eroded in places since the mid-19th century and if this rate consistent, then almost 900 feet have eroded since the Presidio San Jose was abandoned in 1722.

Two sites at the park are in good condition, the Military Site (8GU00108) and the Bomb Target Site (8GU00110). These are the only two sites at the park not heavily impacted by shoreline erosion. The Military Site has excellent integrity; however the site features are highly visible and as a result are susceptible to looting and/or collecting by the public. The Bomb Target Site is intact, but because the site is exposed, it is vulnerable to looting and/or natural impacts (e.g., storm activity).

Three sites at the park are in fair condition, the Sabal Palm Site (8GU00007), the Old Cedar Site (8GU00085), and the Fish Camp Site (8GU00106). The Sabal Palm Site maintains its horizontal integrity but lacks vertical integrity probably due to periodic tidal overwash. Its proximity to the bay shoreline makes it vulnerable to storm surge. The Old Cedar site is considered to be in fair condition due to the ever-present threat of erosion from tidal and storm activity, potential for looting and/or collecting by the public and past human activity (e.g., bulldozing during military occupation and park development). Several holes from past looting have been detected at the site in previous years. The Fish Camp site is in fair condition due to disturbance to the vertical context of the site. Most of the disturbance is a result of large quantities of storm debris and large washover areas from storm surges and excessive tides from associated with tropical storm activity. However, the horizontal context remains intact. Its proximity to the shoreline makes it vulnerable to continued impacts from tropical and seasonal storm activity.

Four sites at the park are in poor condition, the Presidio San Jose (8GU00008), the Eagle Harbor (8GU00081), the Harrier Site (8GU00107), and the SS Florida (GU00109). The Presidio San Jose was assessed in 2001 and most of the site was determined to be underwater, compromising its vertical integrity (Benchley and Bense 2001). The site continues to be subject to shoreline erosion. The Eagle Harbor site has been impacted by the development of the marina, road, and parking lot. Any remnants of the site not impacted by development are being eroded along the bay shoreline. The Harrier Site is presently submerged at high tide and exposed only during low tide. This site is considered to be in poor condition due to the continual disturbance by tidal and wave

action. Recent fieldwork indicated that the site has been completely disturbed by erosion. The SS Florida is at risk from both natural and cultural forces. Given the location the site is exposed to a high-energy marine environment and is susceptible to wave, tidal and wind erosion. Additionally, the shallow depth of the bayflats where it occurs makes the site susceptible to looting.

Two additional sites could not be relocated to assess site condition, the Hudson Site (8GU00096) and the Spanish/French Brick Site (8GU00097). After a more thorough survey of both of these site in 2001, Benchley and Bense did not find any relevant artifacts. They concluded that the artifacts were probably transported to that site from wave and surf action.

Level of Significance: The Park's two NRHP-eligible sites are a large prehistoric and historic settlement. The Old Cedar Site (8GU00085) is an extensive shell midden that dates to the Late Woodland Weeden Island period, and is considered significant under Criteria D for its research potential. The site is in good condition, possessing intact midden, subsurface features, abundant artifacts and food remains, and conch shell tools manufactured on-site that are rare in Northwest Florida. A submerged component may contain preserved organic material and additional shell midden. The Presidio San Jose (8GU00008) was a First Spanish period fort constructed in 1718 that was Spain's largest stronghold on the Gulf until the French transferred Pensacola back to Spanish hands in 1723. In 1720, over 1200 soldiers, their families and servants, and auxiliary persons resided at the fort, which contained residential houses and typical military infrastructure. While erosion has destroyed almost all of the site and thus its research potential, the site retains its original setting amongst the sand dunes and feeling of location near adjacent deep water. Additionally, the associated artifact assemblage contains all the significant diagnostics from this period, revealing information about the life ways and global connections of the fort. The site itself is eligible for listing on the NRHP under Criteria A for the significant role in played in Spanish colonization of the region. The significance of the presidio prompted local officials and organizations to support state acquisition and park development in the mid-1960s in order to preserve and interpret the site.

The four sites that are potentially NRHP eligible represent smaller-scale, short-term or seasonal uses of the peninsula, including two sites that may highlight the importance of fishing as an economic mainstay in the area over time. Sabal Palm (8GU00007) is a small late Colonial or early American period habitation and Fish Camp (8GU00106) may have been a fish processing facility owned by Captain John W. Anderson in the early 20th century. Both sites retain their horizontal integrity and may be significant under Criteria D for their research potential. Military activity in the area included substantial earth moving that destroyed significant archaeological deposits, but also created two recently recorded historic sites. Military (8GU00108) is a Vietnam-era training site that includes various artificial earthen structures and Bomb Target (8GU00110) is a World War II-era training site at which bags of lime were used for target practice. Both sites may be

significant under Criteria D, the latter site particularly as part of a Multiple Property listing of World War II sites in the area.

General management measures: The Park's coastal sites will likely face continued and increased erosion from rising sea levels and larger storms, and there are few effective solutions for their long-term preservation. The strategy is to monitor and record their changing condition and eventual loss, and prioritize the most significant sites for additional documentation/survey work (like Old Cedar). Site monitoring will be greatly aided by UWF maps that show artifact scatter and site feature locations and can serve as a baseline against which to compare the subsequent observations. Some of these sites are more intact than others. Since St. Joseph Peninsula is actually considered a spit, it is very dynamic. The spit is eroding in some areas and accreting in others. Unfortunately, preventing the natural movement and shifting of the spit to stabilize these sites can be difficult and is not recommended for the eroding sites at the park. The park will consult with DHR for shoreline stabilization measures if recommended in the future. If recommended, the park will work with DHR to seek grant funding to stabilize shorelines adjacent to cultural sites. Further research should be conducted on some these sites so that they can be documented for future generations once the sites have completely eroded.

Looting is a potential problem at the Old Cedar site. The site has three potholes from looters but otherwise is still in good condition. The holes should be filled to restore contours to an undisturbed appearance. Interpretation and law enforcement should be used to prevent further looting.

The Military Site is accreting sand. This sand may alter the configuration of the site layout. The site should be researched and thoroughly documented for future interpretation.

Historic Structures

Desired future condition: All significant historic structures and landscapes that represent Florida's cultural periods or significant historic events or persons are preserved in good condition in perpetuity, protected from physical threats, and interpreted to the public.

Description: Sixteen historic structures within the park are or will be recorded in the FMSF during this planning cycle. These structures were built between 1967 and 1969 and will therefore become 50 years of age during the ten-year Unit Management Plan period. All of these structures were constructed specifically for park visitor and staff use and include the entrance station (8GU00205), a concession building (8GU002010, previously the visitor center), a bathhouse (8GU00214), a campers' restroom (8GU00215), a camp shelter (8GU00216), two camp sub-centers (8GU00217 and 8GU00218), four shop/storage buildings (8GU00206, 8GU00207, 8GU00208, and

8GU00209), and five picnic shelters (8GU002011, 8GU00212, 8GU00213, 8GU00219, and 8GU00220).

Condition Assessment: The historic structures in the park are in fair to good condition. The entrance station (8GU00205), a shop/storage building (8GU00208, also known as Building 69003), a concession building (8GU002010), the three picnic shelters (8GU002011, 8GU00212, and 8GU00213) in the Eagle Harbor picnic area and the Eagle Harbor bathhouse (8GU00214) are generally in good condition. Three shop/storage area buildings, also known as Buildings 69012, 69020, and 69014 (8GU00206, 8GU00207, and 8GU00209); campers' restroom 1 (8GU00215) in the Gulf Breeze camping area, a camp shelter (8GU00216) and two camp sub-centers (8GU00217 and 8GU00218) in the Shady Pines camping area, and two picnic shelters (8GU00219 and 8GU00220) in the Mosquito Point or Bay View Picnic Area are in fair condition.

Most of buildings that are in fair condition are not severely threatened at this time and may be able to be brought into good condition with spot repair and regular maintenance. The primary threats to the building are environmental; heat and moisture have caused some wood deterioration and paint failure.

Level of Significance: None of the historic structures at the park that are listed on the FMSF meets the criteria for eligibility in the National Register of Historic Places either individually or as a district. All are standard park buildings, and none of the buildings is unique in either their style or design. Several of the buildings have had their original appearance altered by the addition of new materials; for example, the original design of the entrance station (8GU00205) was completely altered by adding a large addition, changing the roof line, and covering the original brick exterior with cedar board and batten siding. Although many of these structures constitute the original development of the park, they have lost the original design integrity and the physical proximity to each other necessary to be eligible for the National Register.

General management measures: Although none of the sixteen historic structures is significant in terms of National Register eligibility, all are regularly used for park functions. Therefore, rehabilitation is the preferred treatment for the structures until DRP may elect to demolish or otherwise remove the structures.

Collections

Desired future condition: All historic, natural history, and archaeological objects within the park that represent Florida's cultural periods, significant historic events or persons, or natural history specimens are preserved in good condition in perpetuity, protected from physical threats, and interpreted to the public.

Description: The park's collection consists of a small amount of aboriginal artifacts and natural history skeletal remains. The aboriginal collections include pottery sherds and shell tools gathered from the Old Cedar site. The natural history collection consists mainly of skeletal remains of marine organisms, including two sea turtle shells (one

loggerhead and one hawksbill), three sea turtle skulls and a shell display. Most of the collection has been gathered from the park with the exception of the sea turtle shells that are of unknown origin. The themes of the collection include Native American presence on the park and marine natural history. Because the park visitor center was converted for concessions, the collections are no longer on display at the park. The collections are now in storage in building 14.

Condition Assessment: The park's collections are in good condition. They are stored in a climate controlled building. If pests are detected, they are controlled in the park's storage building. The storage building is locked at all times. A fin wale vertebrate was previously part of the collection, but was given to the St. Joseph Bay State Buffer Preserve.

Level of Significance: Criteria do not exist which help in the evaluation of the significance of collections or archival material. Usually, significance of a collection is based on what or whom it may represent. For instance, a collection of furniture from a single family and a particular era in connection with a significant historic site would be considered highly significant. Likewise, a high quality collection of artifacts from a significant archaeological site would be of important significance. A large herbarium collected from a specific park over many decades could be valuable to resource management efforts. Archival records are most significant as a research source. Any records depicting critical events in the park's history, including construction and resource management efforts, would all be significant.

The park's Native American pottery shard collection represents the Late Woodland Weeden Island period. These pieces were supposedly gathered from the eroding shoreline along the park. Since these pieces were not documented when and where they were originally found, some of the information that these pieces may represent have been lost.

The natural resource objects in the park's collection are of minor significance as these items do not have historic value but are interesting for natural history interpretation. The objects that originated from listed species such as the sea turtles skulls are significant in that even though these species are endangered the objects are a reminder that the park has historically been and still is an important nesting area for these species.

General management measures: A draft of the Scope of Collections Statement has been developed and is being reviewed and revised. Pest control is conducted as needed. The park should periodically inventory the collection and keep records on its condition.

The park has three staff that is certified through the DHR as Archeological Resource Monitors. DHR Archeological Resource Monitors will monitor the park's cultural resources.

Detailed management goals, objectives, and actions for the management of cultural resources in this park are discussed in the Cultural Resource Management Program section of this component. Table 4 contains the name, reference number, culture or period, and brief description of all the cultural sites within the park that are listed in the Florida Master Site File. The table also summarizes each site’s level of significance, existing condition, and recommended management treatment. An explanation of the codes is provided following the table.

Table 4. Cultural Sites Listed in the Florida Master Site File

Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
Sabal Palm Site 8GU00007	Second Spanish-American Territorial Period (1783 - 1845)	Archaeological Site	NR	F	P
Presidio San Jose 8GU00008	First Spanish Period (1700-1763)	Archaeological Site	NR	P	P
Eagle Harbor Site 8GU00081	Prehistoric Late Woodland, Weeden Island Period; Swift Creek (150-350 AD)	Archaeological Site	NS	P	
Old Cedar Site 8GU00085	Prehistoric Late Woodland, Weeden Island Period	Archaeological Site	NR	F	P
Hudson Site 8GU00096	American Late 19 th to Early 20 th Century (1850-1930)	Archaeological Site	NE	NA	P
Spanish/French Brick Site 8GU00097	First Spanish Colonial Period (1700-1763)	Archaeological Site	NE	NA	P
Fish Camp Site 8GU00106	American Late 19 th to Early 20 th Century (1850-1930)	Archaeological Site	NR	F	P
Harrier Site 8GU00107	Prehistoric Late Woodland, Weeden Island Period	Archaeological Site	NS	P	
Military Site 8GU00108	American 20 th Century (1961-1963)	Archaeological Site	NR	G	P

Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
SS Florida 8GU00109	American 19 th Century (1821-1899)	Archaeological Site	NR		P
Bomb Target Site 8GU00110	American 20 th Century (1940-1945)	Archaeological Site	NR	G	P
Storage (Building 69012) 8GU00206	20 th Century (1967)	Historic Structure	NS	F	RH
Shelter-Old Shop (Building 69020) 8GU00207	20 th Century (1968)	Historic Structure	NS	F	RH
Shop/ Storage (Building 69003) 8GU00208	20 th Century (1967)	Historic Structure	NS	G	RH
Storage-Shop (Building 69014) 8GU00209	20 th Century (1968)	Historic Structure	NS	F	RH
Concession Building (Building 69002- Old Visitor Center) 8GU00210	20 th Century (1967)	Historic Structure	NS	G	RH
Picnic Shelter 5 (Building 69005) 8GU00211	20 th Century (1967)	Historic Structure	NS	G	RH
Picnic Shelter 6 (Building 69006) 8GU00212	20 th Century (1967)	Historic Structure	NS	G	RH
Picnic Shelter 7 (Building 69007) 8GU00213	20 th Century (1967)	Historic Structure	NS	G	RH
Eagle Harbor Bathhouse (Building 69004) 8GU00214	20 th Century (1967)	Historic Structure	NS	G	RH
Campers Restroom 1 (Building 69010) 8GU00215	20 th Century (1967)	Historic Structure	NS	F	RH

Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
Camp Shelter 2 (Building 69024) 8GU00216	20 th Century (1969)	Historic Structure	NS	F	RH
Camp Subcenter 1 (Building 69023) 8GU00217	20 th Century (1969)	Historic Structure	NS	F	RH
Camp Subcenter 2 (Building 69023) 8GU00218	20 th Century (1969)	Historic Structure	NS	F	RH
Picnic Shelter 8 (Building 69008) 8GU00219	20 th Century (1967)	Historic Structure	NS	F	RH
Picnic Shelter 9 (Building 69009) 8GU00220	20 th Century (1967)	Historic Structure	NS	F	RH

Significance:

NRL National Register listed
 NR National Register eligible
 NE Not evaluated
 NS Not significant

Condition:

G Good
 F Fair
 P Poor

Recommended Treatment:

RS Restoration
 RH Rehabilitation
 ST Stabilization
 P Preservation
 R Removal

RESOURCE MANAGEMENT PROGRAM

Management Goals, Objectives, and Actions

Measurable objectives and actions have been identified for each of DRP's management goals for T.H. Stone Memorial St. Joseph Peninsula State Park. Please refer to the Implementation Component of this plan for a consolidated spreadsheet of the recommended actions, measures of progress, target year for completion, and estimated costs to fulfill the management goals and objectives of this park.

While, DRP uses the ten-year management plan to serve as the basic statement of policy and future direction for each park, a number of annual work plans provide more specific guidance for DRP staff to accomplish many of the resource management goals and objectives of the park. Where such detailed planning is appropriate to the character and scale of the park's natural resources, annual work plans are developed for prescribed fire management, exotic plant management, and imperiled species management. Annual or longer-term work plans are developed for natural community restoration and hydrological restoration. The work plans provide DRP with crucial flexibility in its efforts to generate and implement adaptive resource management practices in the state park system.

The work plans are reviewed and updated annually. Through this process, DRP's resource management strategies are systematically evaluated to determine their effectiveness. The process and the information collected is used to refine techniques, methodologies and strategies, and ensures that each park's prescribed management actions are monitored and reported as required by Chapters 253.034 and 259.032, Florida Statutes.

The goals, objectives, and actions identified in this management plan will serve as the basis for developing annual work plans for the park. Since the plan is based on conditions that exist at the time the plan is developed, the annual work plans will provide the flexibility needed to adapt to future conditions as they change during the ten-year management planning cycle. As the park's annual work plans are implemented through the ten-year cycle, it may become necessary to adjust the management plan's priority schedules and cost estimates to reflect these changing conditions.

Natural Resource Management

Hydrological Management

Goal: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.

The natural hydrology of most state parks has been impaired prior to acquisition to one degree or another. Florida's native habitats are precisely adapted to natural drainage patterns and seasonal water level fluctuations. Variations in these factors frequently

determine the types of natural communities that occur on a particular site. Even minor changes to natural hydrology can result in the loss of plant and animal species from a landscape. Restoring state park lands to original natural conditions often depends on returning natural hydrological processes and conditions to the park. This is done primarily by filling or plugging ditches, removing obstructions to surface water “sheet flow,” installing culverts or low-water crossings on roads, and installing water control structures to manage water levels.

Objective: Conduct/obtain an assessment of the park’s hydrological restoration needs.

Several large hydrological disruptions are obvious in the park. These include an old borrow pit along the road between the two campgrounds in SJ-06A, an inadequate box culvert along the park drive that bisects a salt marsh between SJ-05C and SJ-06A and a dredged salt marsh at Mosquito Point canoe launch in SJ-06A. The old borrow pit in SJ-06A already functions as a freshwater marsh but its needs for reclamation should be addressed after an engineering survey is conducted to determine the bank and bottom contours. The extent of several minor hydrological disruptions, such as old jeep trails and fire plow scars, are not fully known. A complete assessment of the park’s hydrology can only be conducted by a thorough engineering survey. Once the status of the park’s hydrology is known then the disruptions can be assessed to determine restoration needs.

Objective: Restore natural hydrological conditions and functions to approximately 21 acres of salt marsh and 1.5 acres of wet prairie natural communities.

The concrete box culvert that connects 21 acres of salt marsh to St. Joseph Bay, located on the road between the two campgrounds in SJ-06A and SJ-07, is inadequate for functioning of the salt marsh community. An engineering survey is needed to determine the volume and timing of tidal flow to and from that salt marsh. A bridge may better address full hydrological restoration. Once an engineering survey is completed, planning for restoration can start.

The park’s only wet prairie (SJ-01), although small in size contains a rich diversity of species. Its hydrology has been altered by a shell road that allows visitor access to the parking lot for the Hammock Trail. This road should be re-designed and re-constructed to restore the hydrological connection between the two bisected portions of the wet prairie. A restoration plan complete with an engineering survey should be conducted prior to initiation of work.

The old canoe launch at the Bay View Picnic Area (SJ-06A) has been dredged to make a canal/ditch, but it is no longer used by visitors. This 0.5-acre area should be restored to a salt marsh natural community by bring the dredged area back to its original contours. An engineering survey and drawing are needed for this project. Once a survey is

completed, a restoration plan should be developed. Canoe and kayak launching at Mosquito Point will continue at the shoreline located seaward of the basin.

Natural Communities Management

Goal: Restore and maintain the natural communities/habitats of the park.

As discussed above, DRP practices natural systems management. In most cases, this entails returning fire to its natural role in fire-dependent natural communities. Other methods to implement this goal include large-scale restoration projects as well as smaller scale natural communities' improvements. Following are the natural community management objectives and actions recommended for the state park.

Prescribed Fire Management: Prescribed fire is used to mimic natural lightning-set fires, which are one of the primary natural forces that shaped Florida's ecosystem. Prescribed burning increases the abundance and health of many wildlife species. A large number of Florida's imperiled species of plants and animals are dependent on periodic fire for their continued existence. Fire-dependent natural communities gradually accumulate flammable vegetation; therefore, prescribed fire reduces wildfire hazards by reducing these wild land fuels.

All prescribed burns in the Florida state park system are conducted with authorization from the FDACS, Florida Forest Service (FFS). Wildfire suppression activities in the park are coordinated with the FFS.

Objective: Within ten years, have 308.8 acres of the park maintained within the optimum fire return interval.

Fire-dependent natural communities at the park include mesic flatwoods, wet flatwoods, basin marsh, wet prairie and scrubby flatwoods. Local wildlife populations that depend on or benefit from well-maintained fire adapted natural communities include ornate chorus frog (*Pseudacris ornata*), pygmy rattlesnake (*Sistrurus miliarius*), coachwhip (*Masticophis flagellum*), six-lined racerunner, (*Cnemidophorus sexlineatus*) bobcat (*Lynx rufus*), southeastern American kestrel, loggerhead shrike (*Lanius ludovicianus*), brown-headed nuthatch (*Sitta pusilla*), and pine warbler (*Setophaga pinus*). Prescribed burning is the primary management tool for mimicking natural process and improving and maintaining quality habitats for these and many other wildlife species.

The management area designated as Wilderness Preserve (SJ-12) is not included in expected acreage listed above. The past management strategy for the Wilderness Preserve has been to allow natural set fires to burn until naturally extinguished. This strategy precluded the need for a prescribed burn program in the Wilderness Preserve and allowed a natural systems approach to managing the Wilderness Preserve. To support this fire management plan, a wide well maintained fire line was installed on the boundary between the Wilderness Preserve and the rest of the park in order to prevent wildfires in the Wilderness Preserve from escaping. However, the "allow to burn" strategy has had an inconsistent implementation record. Past experience shows that

concerns for the protection of infrastructure and visitor safety would take precedent over natural process and the park would partner with the Florida Forest Service to contain the fire which involved the use of a fire plow in natural areas.

During this Unit Management Plan cycle the District prescribed fire coordinator will work with park management and others knowledgeable about coastal scrub to develop a limited prescribed fire program that would introduce fire to flatwoods and swales with large slash pines in the Wilderness Preserve where lightning fires would be expected to originate. In the implementation of a burn prescription, direct ignition of the scrub community will not occur. However, fire would be allowed to move from flatwoods or marsh communities into adjacent scrub in a manner that would mimic natural process. As prescribed burn zones are developed, they will be added to the prescribed burn program of the park, and DRP's statewide burn database.

Any prescribed burn program in the Wilderness Preserve must take into account the needs of the St. Andrew beach mouse. Coastal scrub is very important refugia for these mice after hurricanes when dune vegetation, cover, and forage are minimal. It is important to ensure that significant amounts of coastal scrub remain at a successional stage that will be sufficient to provide cover and food for beach mice at all times.

Burn zone descriptions, management objectives, GIS generated maps, and current burn prescriptions are reviewed annually and updated as necessary as part of the District 1 annual prescribed fire planning process. Specific management zone information such as burn histories, natural community configurations, backlog status as well as staff training, crew qualification status and burn experience is maintained in DRP's statewide burn database.

Park staff will coordinate with the district burn coordinator to identify yearly burn objectives. Once zones have been selected, burn prescriptions will be completed and reviewed by the end of the calendar year. All primary and secondary (contingency) fire lines for the planned burn zones will be completed by the end of the calendar year as well. In most cases, resource management roads are used as primary firebreaks and provide for a mineral soil component to the fire line. Burn plans and prescriptions will detail the extent that fire breaks may need to be widened by removing vegetation or disking. Segments of existing or well-established fire lines that require light disking shall be prepared well prior to burning. If disking is required, it is recommended that only the outer edge of the fire line be disked, in order to preserve vehicular access along the remaining majority of the fire line. Prior planning for any new fire lines must be coordinated through DHR and DRP's Bureau of Natural and Cultural Resources (BNCR).

Park staff will communicate with the district burn coordinator, and regional fire managers, in order to gather additional burn crew and equipment needed to conduct burns. Park staff will be responsible for tracking weather conditions throughout the burn season, and identifying potential burn windows based on weather forecasts.

All fire suppression equipment will be routinely inspected and operationally tested. Any necessary maintenance/repairs will be accomplished or facilitated by park staff, or if necessary, coordinated with the district burn coordinator. Accurate and complete rainfall data will be maintained on-site, in order to track the local drought index and plan prescribed fire activities.

Table 5 contains a list of all fire-dependent natural communities found within the park that are managed by prescribed burning, their associated acreage and optimal fire return interval, and the annual average target for acres to be burned.

Table 5. Prescribed Fire Management

Natural Community	Acres	Optimal Fire Return Interval (Years)
Mesic flatwoods	159	2-5
Wet flatwoods	8.3	2-4
Scrubby flatwoods	120	5-15
Basin marsh	20	5-15
Wet prairie	1.5	1-4
Annual Target Acreage	43.6 – 113.2	

The park is partitioned into burn zones, and burn prescriptions are implemented on the prescribed burn cycle for each zone (see Management Zones Map). The park’s burn plan is updated annually because fire management is a dynamic process. To provide adaptive responses to changing conditions, fire management requires careful planning based on annual and very specific burn objectives. Each annual burn plan is developed to support and implement the broader objectives and actions outlined in this ten-year management plan.

In order to track fire management activities, DRP maintains a statewide burn database. The database allows staff to track various aspects of each park’s fire management program including individual burn zone histories and fire return intervals, staff training/ experience, backlog, if burn objectives have been met, etc. The database is also used for annual burn planning which allows DRP to document fire management goals and objectives on an annual basis. Each quarter the database is updated and reports are produced that track progress towards meeting annual burn objectives.

In order to maintain the natural communities that are managed with prescribed burning, the park's annual target acreage is 43.6 to 113.2 acres within the fire dependent communities listed in the table above.

Natural Communities Restoration: In some cases, the reintroduction and maintenance of natural processes is not enough to reach the natural community desired future conditions in the park, and active restoration programs are required. Restoration of altered natural communities to healthy, fully functioning natural landscapes often requires substantial efforts that include mechanical treatment of vegetation or soils and reintroduction or augmentation of native plants and animals. For the purposes of this management plan, restoration is defined as the process of assisting the recovery and natural functioning of degraded natural communities to desired future condition, including the re-establishment of biodiversity, ecological processes, vegetation structure, and physical characters.

Examples that would qualify as natural communities' restoration, requiring annual restoration plans, include large mitigation projects, large-scale hardwood removal and timbering activities, roller-chopping, and other large-scale vegetative modifications. The key concept is that restoration projects will go beyond management activities routinely done as standard operating procedures such as routine mowing, the reintroduction of fire as a natural process, spot treatments of exotic plants, small-scale vegetation management, and so forth.

Following are the natural community/habitat restoration and maintenance actions recommended to create the desired future conditions in the beach dune and dune scrub communities at T.H. Stone Memorial St. Joseph Peninsula State Park.

Objective: Conduct habitat/natural community restoration activities on variable acres of beach dune community.

Tropical storms affect the beach and dune communities at the park. Erosion and species composition changes result from tropical storm impacts. Since tropical storms are a dynamic process, predicting the exact need for restoration in advance is impossible. After previous storms, some dune restoration has been conducted at the park to try to slow erosion and protect the beach dune community. Restoration after a tropical storm may include debris removal, and planting dune vegetation. Dune vegetation should only be planted outside of the Wilderness Preserve. Installation of posts, rope, and signs to prevent visitor trampling are needed to maintain the dune restoration efforts. A dune restoration plan should be created to ensure that areas of sparse vegetation, shell debris from storm activity and dune blowouts remain for nesting shorebirds.

Objective: Reclaim 1.5 acres of altered land cover-borrow pit to basin marsh.

An old borrow pit of less than 2 acres in size is located in zone SJ-07 on the road between the two campgrounds should be reclaimed to function as a natural community. The borrow pit is dominated by cattails. The open shallow pit holds water and was

used by a variety of wading birds. Since the pit has filled with cattails and deep muck, for the past 5 years the site is used less by wading birds. The deep muck and shallow water make control of cattails very difficult, as it cannot be accessed by foot or boat. An ecological assessment should be conducted to determine if this borrow pit can be reclaimed into a low swale that would be of greater biological benefit and reduce impact of the historical hydrological alteration created when digging the borrow pit. A restoration plan should be developed prior to proceeding with the reclamation of the borrow pit. The best fit for this location and existing substrate would be to reclaim the pit to an ephemeral basin marsh or swale. Reclamation is a process that returns land back to a useable or functioning level after being altered by mining activities. Full natural communities' restoration to scrub cannot be achieved due to the amount of substrate that was removed from the pit, but reclamation will allow this area to function, support wildlife and provide wildlife viewing opportunities (e.g., American alligators, wading birds, etc.) for park visitors. An engineering survey is needed prior to restoration planning in order to develop restoration plans and designs.

Natural Communities Improvement: Improvements are similar to restoration but on a smaller, less intense scale. This typically includes small-scale vegetative management activities or minor habitat manipulation. Following are the natural community/habitat improvement actions recommended at the park.

Objective: Maintain the natural communities of the designated Wilderness Preserve with natural process, minimizing human alteration and disturbance.

The Wilderness Preserve should be managed by a natural systems approach that minimizes the amount of human manipulation or interferences of natural processes. One exception to the natural process is the application of prescribed fire (see above under *Prescribed Fire Management* for details). Presence of park staff, law enforcement, and outreach is necessary to help protect the natural and cultural resources of the park.

Objective: Improve 0.9 acres of altered land cover- clearing to scrub.

A clearing adjacent to the shop compound (SJ-4C) is currently used for piling debris following tropical storm activity and/or debris from park maintenance activities (e.g., tree trimming). Although some of the clearing area should remain as is for park operations, the remainder of the clearing should be restored to scrub. A plan needs to be developed detailing where restoration/improvement activities should occur. Some scrub vegetation (e.g., Florida rosemary) may need to be planted in the area.

Imperiled Species Management

Goal: Maintain, improve, or restore imperiled species populations and habitats in the park.

DRP strives to maintain healthy populations of imperiled plant and animal species primarily by implementing effective management of natural systems. Single species management is appropriate in state parks when the maintenance, recovery, or

restoration of a species or population is complicated due to constraints associated with long-term restoration efforts, unnaturally high mortality, or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes, and should not imperil other native species or compromise park values.

In the preparation of this management plan, DRP staff consulted with staff of the FWC's Imperiled Species Management or that agency's Regional Biologist and other appropriate federal, state and local agencies for assistance in developing imperiled animal species management objectives and actions. Likewise, for imperiled plant species, DRP staff consulted with FDACS. Data collected by the FWC, USFWS, FDACS, and FNAI as part of their ongoing research and monitoring programs will be reviewed by park staff periodically to inform management of decisions that may have an impact on imperiled species at the park.

Ongoing inventory and monitoring of imperiled species in the state park system is necessary to meet DRP's mission. Long-term monitoring is also essential to ensure the effectiveness of resource management programs. Monitoring efforts must be prioritized so that the data collected provides information that can be used to improve or confirm the effectiveness of management actions on conservation priorities. Monitoring intensity must at least be at a level that provides the minimum data needed to make informed decisions to meet conservation goals. Not all imperiled species require intensive monitoring efforts on a regular interval. Priority must be given to those species that can provide valuable data to guide adaptive management practices. Those species selected for specific management action and those that will provide management guidance through regular monitoring are addressed in the objectives below.

Objective: Update baseline imperiled species occurrence inventory lists for plants and animals.

There is only one listed plant known at the park. No formal thorough plant survey has been conducted at the park. A full plant survey should be conducted at the park to determine presence and location of listed plant species.

Additionally, the park has not been fully surveyed for herptofauna and insects. If funding is available, surveys for herptofauna and insects should be conducted. Some of this survey work may be conducted by district biologists in partnership with FWC and others.

Objective: Monitor and document thirteen selected imperiled animal species in the park.

Sea turtle nests are monitored by staff using strict methods and protocols developed by FWC. FWC has established a marine turtle protocol developed to monitor nesting activity, hatchling success rates, disorientations, document mortalities and strandings

statewide, conduct research on the biology of the various species, and provide data for managing and evaluating coastal development effects (FWC Conservation Guidelines for Marine Turtles 2007). The Statewide Nesting Beach Survey (SNBS) program was initiated in 1979 under a cooperative agreement between the FWC and the USFWS. Its purpose is to document the total distribution, seasonality and abundance of sea turtle nesting in Florida. Three species of sea turtles, loggerhead, green and leatherback nest regularly at the park. All three species are listed as either threatened or endangered under the Endangered Species Act. The Index Nesting Beach Survey (INBS) is a detailed monitoring program in conjunction with SNBS. T.H. Stone Memorial St. Joseph Peninsula State Park is part of the INBS and staff will follow these protocols. This program was established to measure seasonal productivity, allowing comparisons between beaches and between years.

As part of the SNBS, sea turtle nesting surveys are conducted at the park each morning during the nesting season (May 15st – October 31st) by park staff and volunteers under the park's permit. All monitoring, nest marking activities, nest screening and data reporting are done in accordance with the FWC marine turtle program SNBS.

Although there is no standardized program for monitoring gopher tortoise, staff will conduct surveys of gopher tortoise burrows after each burn to determine the number of occupied and potentially occupied burrows present at the park. Burrow surveys will be conducted within any management zones with favorable habitat following prescribed burns. Tortoise surveys will follow established FWC protocol. The park staff will also document any burrows opportunistically observed outside of the burn program to establish tortoise distribution throughout the park.

Snowy plover, Wilson's plover, American oystercatcher, least tern, black skimmer, and gull-bill terns nesting is monitored to determine the number of nesting attempts, the number of nesting adults, nest fate, fledge rates, recruitment, sources of nest failure (e.g., predation, washover, abandonment, etc.) and annual productivity. The nesting surveys begin February 15th to reflect the earliest snowy plover found in Florida. The established nesting window for shorebirds in Florida is February to the end of August. However, broods may still be around in September if they hatched from late season nests in August. Shorebird breeding surveys should continue until nesting is completed for the season despite the date. Shorebird breeding surveys should follow the guidelines established by the district shorebird program protocol the DRP standard and FWC's Imperiled Beach-Nesting Bird Action Plan. All shorebird nesting data should be collected by and/or provided to the districts biologists and entered in the FSA shorebird database.

With a banding permit from FWC and coordination with the USFWS and the University of Florida, snowy plovers, American oystercatchers, and Wilson's plovers are currently banded by district biologists with individual color combinations to determine productivity, juvenile survival, adult survival, natal dispersal, and between-season and

within-season dispersal. These efforts will help determine the level of connectivity for these species from T.H. Stone Memorial St. Joseph Peninsula State Park to other beaches throughout Florida and in the long-term determine population growth in response to management actions or disturbances such as the Deepwater Horizon oil spill. Current monitoring at the park occurs on weekly basis during the breeding season (February to August) and bi-weekly during the non-breeding season (September to January). The current monitoring program requires a level and continuity of monitoring that is best met by well-trained and specialized staff, with primary focus on shorebird multi-species management. Funding of a full-time district or park shorebird monitor is needed to maintain this level of monitoring. Shorebird nest monitoring methods at the park may change during this unit planning cycle depending on funding of a district shorebird monitor. However, funding should be sought after to continue this level of monitoring. The current funding is provided by a coordinated effort between the DRP, FWC, and the USFWS as part of the State Wildlife Grant program. Several grant proposals have been funded in collaboration with Audubon of Florida (National Fish and Wildlife- Gulf Environmental Fund) and FWC (National Fish and Wildlife- NW FL Conservation Fund) to continue shorebird research, management and monitoring at the park.

Other shorebirds, including federally-listed piping plovers and federal candidate red knots will be monitored for presence, abundance, habitat use, and dispersal. These two species are regularly banded with individual color combinations on their breeding grounds and the observations of band re-sights allows for the determination of dispersal from breeding to wintering grounds. Banding resights should be recorded and reported following the guidelines established by FWC and FSA (see *band reporting guidelines*). In addition, all shorebird, seabird, raptor, and wading bird species observed are documented during surveys conducted twice monthly during the winter months (September to February) and weekly during the breeding season (February to August).

St. Andrew beach mice are currently monitored for presence, absence and relative distribution through sand tracking surveys. However, FWC will be helping the park reestablish tracking tubes during this unit planning cycle to replace the sand tracking method. The tracking tubes also determine presence, absence, and relative distribution but have an advantage of not being dependent on sand tracking conditions. Research of the beach dune community and its response after tropical storms is important for understanding baseline conditions and succession of dune community after storms. Additional staff time or funding for OPS staff is needed in order to conduct the tracking monitoring and dune community research.

Objective: Monitor and document one selected imperiled plant species in the park.

There is only one listed plant species found in the park – Godfrey’s goldenaster. This plant has been documented in two locations in the park. Park staff will check for

presence of the species annually. If any other imperiled plant species are detected at the park, they will be included in park annual monitoring protocols.

Objective: Augment gopher tortoise population.

Although gopher tortoises were presumably extirpated from the park, a small number have been observed in recent years at the southern end of the park. A monitoring protocol needs to be developed to determine the current tortoise abundance. Most of the scrub is in good condition for coastal scrub and should be able to support a healthy population of gopher tortoises. A detailed plan is needed for population augmentation. The park and district staff will work with FWC to develop a plan for augmentation, if feasible and appropriate, to determine ideal population size and locations for introduced tortoises.

Objective: Prevent disturbance and provide protection to shorebirds.

The DRP will seek a balanced approach to minimize visitor impacts to shorebirds and the park's sensitive coastal habitats, while managing resource-based recreational activities. In collaboration with FWC, other government agencies, local non-governmental organizations, and volunteers, park staff will identify and delineate habitats and educate the public about shorebird protection.

Management decisions will be informed by evaluation of data on nest settlement patterns, habitat use in the park, and observations of negative impacts during prior nesting seasons. Areas of importance, where focused management actions are needed, will be based on evaluation of data. These actions will typically include:

- Demarcating potential shorebird nesting and non-nesting habitat by enclosing the perimeter of the habitat and buffer area with appropriate fencing and signage.
- Encouraging and focusing visitor activities into areas less suitable for shorebird nesting habitat.
- Monitoring during the nesting and non-nesting season to identify and protect new breeding, foraging, or overwintering sites.
- Providing interpretive and educational outreach to the public prior to and during the nesting season to encourage visitor use that protects shorebirds and their habitat.
- When the same breeding sites are used year after year, posting the protected area will occur prior to the season (pre-posting).
- When new breeding sites are indicated, appropriate measures will be implemented, including demarcating new protected areas and expanding or initiating interpretive programs.
- Coordinating with FWC and local law enforcement agencies to ensure compliance with park rules and shorebird protection, as needed.

When it is necessary to limit recreational activities or visitor access to protect nesting habitat, park staff or volunteers will provide onsite interpretation to educate visitors about the management of imperiled shorebird habitat and identify suitable recreational areas. These outreach programs will commence prior to nesting seasons and prior to placing limits on access to recreational areas and will continue through the nesting season focusing on busy summer holiday weekends. Pre-posting the identified habitat areas combined with early public notification regarding the park's shorebird protection program will improve visitor compliance with park rules and promote broad-based public stewardship of shorebird nesting, resting, and foraging habitats in the park.

An increase in human-wildlife contact can alter animal use patterns within the landscape by excluding individuals from locations that provide potential foraging or breeding. Without protection during the breeding season, human disturbance can lead to trampling of nests or chicks, nest abandonment, indirect predation from opportunistic predators (e.g., ghost crabs, crows, laughing gulls, etc.) or exposure to the elements. The park should post and rope suitable shorebird areas annually prior to the start of the nesting season to prevent visitor disturbance to breeding shorebird and with the goal of increasing shorebird abundance and diversity at the park. Posting should follow the guidelines established by the FWC (Avissar et al. 2012). Protection of nesting habitat with symbolic fencing increases occurrence of nesting, abundance of nesting shorebirds and productivity (Pruner 2010). Ephemeral tidal pools are popular with visitors but are also quality foraging habitat for nesting shorebirds, shorebird broods, and foraging shorebirds during migration and winter. Protection of brood foraging area with symbolic fencing also increases fledge rates. In fact, twice as many chicks fledged in protected areas at coastal state parks (Pruner et al. 2011).

During the winter months the park is used by resident snowy plovers and Wilson's plovers as well as a variety of migratory shorebirds such as piping plovers and red knots that winter at the park. Park visitors may disrupt resting or actively foraging (migrant or wintering) shorebirds, thereby depleting energy reserves that the birds need for migration and survival. Protection efforts during the winter month should focus on protecting locations where high densities of roosting and foraging imperiled shorebirds occur.

Clear guidance to visitors of the location of sensitive areas and posting may help to reduce conflicts. Presence of law enforcement and/or interpretive programs during high visitor use periods (particularly holidays) is recommended to help protect shorebirds. The DRP will coordinate with the USWFS, FWC, Audubon of Florida, the American Bird Conservancy, and other agencies on interpretive programs aimed at educating and informing park visitors about shorebirds and the potential impacts recreation can have on nesting and foraging activities. Training for park staff by district biologists or other qualified biologists (e.g., Audubon of Florida staff) may also be necessary to ensure that staff are informed about shorebirds at the park.

Driving on the beach by authorized personnel for resource management and park operations should be limited as much as possible year-round. Vehicular rutting associated with beach driving impacts shorebird and sea turtle hatchling nest success and recruitment. Additionally, during the winter months, shorebird species such as snowy plovers frequently roost in tire ruts as a break against the wind. Roosting plovers are at risk from beach driving if they do not have ample response time from oncoming vehicles. For this reason all beach drivers should drive slow (under 10 mph), watch for roosting birds, should follow the guidelines in the FWC *Best Management Practices for Operating Vehicles on the Beach* (FWC 2010b) and try to keep from disturbing the wrack line. An education program aimed at individuals that drive the beach habitat (e.g., park staff, law enforcement, etc.) should be implemented at the park to reduce impacts to wildlife and the beach habitat associated with beach driving.

Posts and rope should be used to protect the beach dune habitat from potential detrimental impacts associated with beach driving. Moreover, efforts to protect the beach habitat should focus on protecting shorebird nesting habitat and dune areas while creating a corridor for driving access as close to the wet sand as possible.

Dogs have been an additional threat to shorebirds at the park. Off-leash dogs have been observed chasing plover chicks and various foraging shorebirds including piping plovers, snowy plovers and red knots. In addition, dog tracks are often regularly observed within the posted and presumably protected nesting habitat throughout the park. Informative signs or kiosks that refer to park regulations (such as those prohibiting dogs) need to be placed in obvious and visible locations. Having the area appropriately marked and providing information to park visitors will better inform visitors and make enforcement of regulations easier.

Exotic Species Management

Goal: Remove exotic and invasive plants and animals from the park and conduct needed maintenance control.

DRP actively removes invasive exotic species from state parks, with priority being given to those causing the ecological damage. Removal techniques may include mechanical treatment, herbicides or biocontrol agents.

Objective: Annually treat 31.5 acres of exotic plant species in the park.

Infested areas of cogon grass, torpedo grass, and perennial ryegrass will be checked annually and treated with herbicides as necessary until the areas are in maintenance condition. Although purple sesban is currently in maintenance condition, the area of previous infestation will be periodically checked. Maintenance condition describes a formerly active infestation that has been treated to the extent that any plants remaining are manageable with existing staff and resources, the total area is stable or declining, mature reproducing individuals are absent, and the species poses no significant threat to listed plants or animals. Thus, the actual treated zone may reduce in area over time

though the entire extent would need to be inspected indefinitely. An important exception is that instances in which the exotic plants are well mixed with native vegetation would need an accompanying restoration program to plant natives in the formerly infested area. This circumstance may occur when a hand removal or careful herbicide wicking program would not be effective. The reason for this caveat is that since herbicide application in this situation may result in significant non-target damage, the resulting area would be denuded of live vegetation and highly vulnerable to re-infestation by the exotic plant species. Such removal of native vegetation may lead to the necessity of perpetual treatment and subsequent loss of native plant species from that area. A restoration effort to replant the area with native vegetation appropriate for that habitat following treatment would be intended to preempt potential exotic growth into the open space.

Objective: Implement control measures on seven nuisance and exotic animal species in the park.

The park should continue the current program of controlling coyotes, raccoons, and feral cats at the park. The park will follow the DRP's Resource Management Standard for Nuisance and Exotic Animal Removal. All of these species are threats to imperiled coastal species. In fact, district biologists have found that with increased coyote removal there was a higher probability of hatching success for shorebird nests (Pruner et al. 2011). Gray foxes are not currently numerous or problematic at the park. However, because they are skilled predators, they should be included in the predator removal program if they are observed and predation of imperiled wildlife occurs. Foxes and feral cats can decimate coastal wildlife because they not only target nests and young, but also target adults. A tracking assessment of exotic and nuisance predator species should be conducted prior to the start of the shorebird nesting season and during beach mice, shorebird, and sea turtle monitoring to establish predator control needs. In addition, any documented predation event (e.g., shorebird or sea turtle nests) should be reported to the district office to coordinate predator removal efforts with the USDA and/or park staff. Coordinated efforts between the FWC, USFWS, and the DRP as part of the State Wildlife Grant program and money associated with the Deepwater Horizon BP oil spill Natural Resource Damage Assessment will adequately fund the predator removal program with the USDA at this park until 2017 after which additional funding should be pursued.

The predator community will likely adjust with continual removal efforts. Specifically, medium-sized predators will increase as top predators such as coyotes are removed from the system. Following coyote removal, species such as raccoons, feral cats, Virginia opossum, and foxes will increase in number. Tracking efforts need to focus on all potential predators at the park and removal efforts should target the species that are documented as responsible for observed predation.

Nine-banded armadillo populations have increased recently and have led to a subsequent increase to damage in natural areas. Monitoring of the presence and damage and trapping of armadillos should continue at the park.

Hispid cotton rat populations are subject to fluctuations in numbers and can be a nuisance and safety issue when populations are high. Continued education efforts are needed during periods of hispid cotton rat population explosion and trapping may be needed in use areas where they become a problem to visitors.

Special Management Considerations

Timber Management Analysis

During the development of this plan, an analysis was made regarding the feasibility of timber management activities in the park. It was determined that the primary management objectives of the unit could be met without conducting timber management activities for this management plan cycle.

Coastal/Beach Management

DRP manages over 100 miles of sandy beach, which represents one-eighth of Florida's total sandy beach shoreline. Approximately one-quarter of Florida's state parks are beach-oriented parks and account for more than 60 percent of statewide park visitation. The management and maintenance of beaches and their associated systems and processes is complicated by the presence of inlets and various structures (jetties, groins, breakwaters) all along the coast. As a result, beach restoration and nourishment have become increasingly necessary and costly procedures for protecting valuable infrastructure. All of these practices affect beaches for long distances on either side of a particular project. DRP staff needs to be aware of and participate in the planning, design and implementation of these projects to ensure that park resources and recreational use are adequately considered and protected.

T.H. Stone Memorial St. Joseph Peninsula State Park encompasses nine miles of beach. A portion of the beach is considered critically eroding by Division of Water Resource Management, Beaches and Mines Funding Assistance Program (Critically Eroded Beaches in Florida, 2009) from R-69 to the southern park boundary at R-75. Sand eroding from the southern end of the spit is deposited on the northern tip of the spit. Dune restoration may be needed after tropical storms but should be assessed after each storm to determine the need.

In 2006, over 300,000 sea oats and other dune species were planted along the foredunes from the southern park boundary to the southern boundary of the Wilderness Preserve to restore the dunes that were eroded from tropical storm damage in 2004 and 2005. A follow up planting of 30,000 sea oats was conducted in 2010. The plantings have accelerated foredune growth, thus protecting larger more stable back dunes. St. Andrew

beach mice tracks can be found in the newly formed foredunes. Survival of sea oats plantings after six months was greater than 85 percent.

Shorebirds, including snowy plovers and least terns, nest on the beach at the park. This park is one of the most significant snowy plover nesting areas in the state (Himes et al. 2006). Three species of sea turtles use this beach to nest. This beach is used as an Index Nesting Beach by FWC to determine sea turtle nesting trends. St. Andrew beach mice are found in the beach dune community in the park. The park has the largest and most stable population of St Andrew beach mice (Spector 2009). Human disturbance to these species should be minimized by posting nests and nesting and brood-rearing habitat and keeping visitors off dunes. The northern end of the peninsula is popular for boaters but is also an important shorebird nesting and resting area. Visitor impacts including those by boaters should be minimized through interpretation, signs and enforcement and reassessment of the Wilderness Preserve access. A park boat should be utilized for patrolling and monitoring impacts by boaters. Dogs are not currently allowed on the beach at the park and that policy should be enforced. Dogs can cause disturbance to nesting and brood-rearing shorebirds in addition to migratory shorebirds using the park as a stopover for foraging in a long-distance flight.

The park boundary follows the Gulf and St. Joseph Bay shorelines (the mean high water line). The actual park boundary is highly dynamic as it follows the natural accretion or erosion along the Gulf or bay shorelines and will need to be updated periodically through survey efforts. The intact beaches found in the park support a diverse suite of coastal wildlife. Continued management of an intact coastal community includes the protection of the nearshore environment. Extension of the park's boundary into sovereign submerged land, 150 feet beyond the Gulf of Mexico and St. Joseph Bay shoreline (the mean high water line) is needed to manage and protect the park's coastal communities, including the listed species that occur there (e.g., rare plants, sea turtles, shorebirds, and beach mice). This area comprises marine unconsolidated substrates, estuarine unconsolidated substrates, and seagrass beds of the park. The extension significantly increases the species diversity within the park, offer additional recreational opportunities for park visitors and provides the ability to improve management and protection efforts of imperiled species and cultural sites at the park. Visitors are able to access this community on the gulf and bayside of the park either from the beach or from a boat. Management actions include protection of seagrass beds, removal of trash, litter and other debris, public safety activities, and resource protection, inventories and monitoring.

Sea Level Rise

Potential sea level rise is now under study and will be addressed by Florida's residents and governments in the future. The DRP will stay current on existing research and predictive models, in coordination with other DEP programs and federal, state, and local agencies. The DRP will continue to observe and document the changes that occur

to the park's shorelines, natural features, imperiled species populations, and cultural resources. This ongoing data collection and analysis will inform the Division's adaptive management response to future conditions, including the effects of sea level rise, as they develop.

Wilderness Preserve

The park contains a designated Wilderness Preserve. The Wilderness Preserve is managed with as little human alteration or development as possible. The Wilderness Preserve begins at the end of the paved park drive north of the cabin area and extends to the tip of St. Joseph Peninsula. It encompasses 2,096.73 acres of relatively intact natural communities. This designation excludes facilities development and therefore has limited disturbance from visitors. The intact beach dunes, and scrub communities provide a stable habitat and protection for imperiled shorebirds and St. Andrew beach mice as well as a representative coastal ecosystem for passive use by visitors.

Arthropod Control Plan

All DRP lands are designated as "environmentally sensitive and biologically highly productive" in accordance with Ch. 388 and Ch. 388.4111 Florida Statutes. If a local mosquito control district proposes a treatment plan, DRP works with the local mosquito control district to achieve consensus. By policy of DEP since 1987, aerial adulticiding is not allowed, but larviciding and ground adulticiding (truck spraying in public use areas) is typically allowed. DRP does not authorize new physical alterations of marshes through ditching or water control structures. Mosquito control plans temporarily may be set aside under declared threats to public or animal health, or during a Governor's Emergency Proclamation.

The park is sampled prior to any mosquito control efforts. Surveillance at the park is completed by using landing rate counts, citizen complaints, and by dip-netting for larval mosquitoes. Once mosquitoes are detected, monitoring and surveillance efforts continue in order to determine mosquito prevalence, abundance, and the effects of control activities. Depending upon severity, mosquitoes will be controlled with ground larvicides or adulticides. Mosquitoes are controlled via ground-based fogging around the developed areas of the campgrounds, group camp, picnic areas, around the park staff residences, and at the cabins based on requests from the park manger. It is recommended that fogging not take place during high winds to prevent fog from effecting adjacent natural areas. Use of adulticide should also be avoided during the migration of butterflies and birds in the spring and fall in order to avoid detrimental impacts.

Cultural Resource Management

Cultural Resource Management

Cultural resources are individually unique, and collectively, very challenging for the public land manager whose goal is to preserve and protect them in perpetuity. DRP is implementing the following goals, objectives, and actions, as funding becomes available, to preserve the cultural resources found in T.H. Stone Memorial St. Joseph Peninsula State Park.

Goal: Protect, preserve, and maintain the cultural resources of the park.

The management of cultural resources is often complicated because these resources are irreplaceable and extremely vulnerable to disturbances. The advice of historical and archaeological experts is required in this effort. All activities related to land clearing, ground disturbing activities, or major repairs or additions to historic structures listed or eligible for listing in the National Register of Historic Places and collections care must be submitted to the DHR for review and comment prior to undertaking the proposed project. Recommendations may include, but are not limited to concurrence with the project as submitted, cultural resource assessment survey by a qualified professional archaeologist or modifications to the proposed project to avoid or mitigate potential adverse effects. In addition, any demolition or substantial alteration to any historic structure or resource must be submitted to DHR for consultation and DRP must demonstrate that there is no feasible alternative to removal and must provide a strategy for documentation or salvage of the resource. Florida law further requires that DRP consider the reuse of historic buildings in the park in lieu of new construction and must undertake a cost comparison of new development versus rehabilitation of a building before electing to construct a new or replacement building. This comparison must be accomplished with the assistance of DHR.

Objective: Assess and evaluate nine of eleven recorded cultural resources in the park.

The park will assess nine of the eleven listed cultural sites in the park within the next ten years. These assessments will include an examination of each site with a discussion of any threats to the site's condition, such as natural erosion, vehicular damage, pedestrian damage, looting, construction (including damage from firebreak construction), animal damage, plant or root damage, or other factors, which might cause deterioration of the site. This evaluation should attempt to compare the current condition with previous evaluations using photo points.

The park will setup a schedule for visiting and assessing each cultural site. After the park assesses each site, a site update will be submitted to the FMSF. Standard Archaeological Site forms, not Short Forms, are preferred for all original recording and updates. Benchley and Bense (2001) conducted a Phase I investigation of the cultural resources of the park in 2001. The report provides updated descriptions and photos of

the known sites. These documents as well as other available data (FMSF, Bureau of Archeological Research, etc.) should be examined, considered, and serve as reference(s) for assessments. The park will use assessments to prioritize the needs for stabilization of the sites. The park will establish photos points for each of the nine sites.

Benchley and Bense (2001) identified the Old Cedar Site (8GU00085) as eligible for the National Register of Historic Places (NRHP) and it should be nominated during this planning cycle based on existing information. Four sites have already been evaluated for NRHP registration, 8GU00081 and 8GU00107 were determined to be not significant and 8GU00096 and 8GU00097 were determined to be ineligible. The remaining six sites have not been evaluated and evaluations should be considered before they are lost to erosion or storm activity.

The Military Site (GU00108) became 50 years old in 2010, the site should be filed with the NHRP during this planning cycle.

The Hudson Site (8GU00096) and the Spanish/French Brick Site (8GU00097) do not need to be reassessed or reevaluated. Based on evaluations by Benchley and Bense (2001) these two sites were determined to be transported by natural forces and were not representative of cultural sites. They recommended that these sites cease to be identified as archaeological sites.

Objective: Compile reliable documentation for all recorded historic and archaeological resources.

The park was included in the Archaeological Resource Sensitivity Modeling conducted by The University of South Florida, Alliance for Integrated Spatial Technologies (AIST). AIST assessed the park on April 25, 2012. No new archaeological sites were identified at the park during this study. However, greater than 77 percent of the park was identified as having a high sensitivity for archaeological site locations.

As a result of the AIST park survey, the spatial locations of four previously recorded archaeological (8GU0007, 8GU00085, 8GU00106, and 8GU00108) sites were updated or corrected. All of these sites were previously plotted to larger than their actual extents. For buildings reaching the 50 year mark during this planning cycle, FMSF forms should be completed and submitted to the Division of Historical Review.

The sites that are eroding should be researched further in order to learn more about the sites before they are completely degraded by natural processes. For example, data recovery excavations along the eroding shoreline near the Old Cedar Site (8GU00081) and underwater surveys at the submerged SS Florida (8GU00109) should be considered. The Old Cedar Site may possess a submerged component in the adjacent salt marsh, however, the extent and condition of submerged areas are currently unknown.

The Presidio Site (8GU00008) should be a priority for further surveys before it becomes entirely eroded or submerged. Most of the site is already underwater or subject to storm

surge. A plan should be developed by DHR and BNCR for guidance and funding related to surveying this site. Archaeological investigations should be considered offshore to determine if any remains of wharves, ships, or cargo are preserved in the area. In addition, a historical research should be conducted in Spanish, Mexican, and Cuban archives to find more detailed records of the settlement.

The Fish Camp Site (8GU00106) should be further surveyed. Its vertical integrity has been disturbed by erosion and storm damage. It is vulnerable to storm surge. Test excavations should be conducted because the site has the potential to yield significant info about the fishing industry in the area during the early 20th century. A plan developed in conjunction with DHR is needed to provide guidance and funding for further surveys.

Phase II excavations should be considered at the Sabal Palm Site (GU00007) before it is further impacted by storm activity because it could yield significant information about the Second Spanish and Early American seasonal use of the peninsula.

Oral interviews should continue to be conducted as park staff identifies others who have knowledge of the sites or park. The park has developed a Scope of Collections Statement. This statement is in the process of being reviewed and revised and will be finalized during this planning cycle.

Objective: Bring 2 of 11 recorded cultural resources into good condition.

The park should create and implement a cyclical maintenance program for all cultural sites. The park should develop a schedule and a list of items at each site that need to be checked by staff. All sites should be monitored for damage from storms, human disturbance, vehicular traffic, heavy equipment use, looting, and any other ground disturbance. Ground disturbance anywhere in the park should be carefully examined for the presence of artifacts and features, and any new sites or site boundaries properly documented. The two primary goals of monitoring should be (1) keeping track of impacts from storm activity and natural erosion and (2) check for potential looting.

Two sites, the Military Site (8GU00108) and the Bomb Target Site (8GU00110) are already in good condition. Preservation, monitoring, and maintenance activities should continue at these sites, particularly in relation to potential storm damage. Maintenance activities should be continued if damage is observed.

The Eagle Harbor Site (8GU00081) and Harrier Site (8GU00107) are both in poor condition given the level of natural erosion that occurs in the area and destroyed vertical and horizontal integrity. However, they both have been evaluated as non-significant with the NRHP and as such, should not be actively managed. Three additional sites: the Sabal Palm Site (8GU00007), the Presidio San Jose (8GU00008), and the SS Florida (8GU00109) cannot be brought in to good condition because of continued erosion due to natural forces and complete submersion by St. Joseph Bay waters.

The Hudson Site (8GU00096) and the Spanish/French Brick Site (8GU00097) do not need to be maintained. Benchley and Bense (2001) recommended that these sites cease to be identified as archaeological sites.

Stabilization should be considered for two cultural sites at the park, the Old Cedar Site (8GU00085) and the Fish Camp (8GU00106). The first priority for stabilization is the Old Cedar Site as it is eroding but much of the site remains intact and is currently in fair condition. Although the fish camp lacks vertical integrity due to storm surge and seasonal use of the site, it still maintains horizontal integrity. Stabilization efforts will help preserve this potentially significant site. Additionally, the holes created from previous looting at the Old Cedar Site should be filled in to natural grade. The park should consult DHR and BNCR for guidance and funding related to the management of this site.

Resource Management Schedule

A priority schedule for conducting all management activities that is based on the purposes for which these lands were acquired, and to enhance the resource values, is located in the Implementation Component of this management plan.

Land Management Review

T. H. Stone Memorial St. Joseph Peninsula State Park was subject to a land management review on August 7, 2012. The review team made the following determinations:

1. The land is being managed for the purpose for which it was acquired.
2. The actual management practices, including public access, complied with the management plan for this site.

LAND USE COMPONENT

INTRODUCTION

Land use planning and park development decisions for the state park system are based on the dual responsibilities of the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP). These responsibilities are to preserve representative examples of original natural Florida and its cultural resources, and to provide outdoor recreation opportunities for Florida's citizens and visitors.

The general planning and design process begins with an analysis of the natural and cultural resources of the unit, and then proceeds through the creation of a conceptual land use plan that culminates in the actual design and construction of park facilities. Input to the plan is provided by experts in environmental sciences, cultural resources, park operation, and management, through public workshops, and environmental groups. With this approach, the DRP objective is to provide quality development for resource based recreation throughout the state with a high level of sensitivity to the natural and cultural resources at each park.

This component of the unit plan includes a brief inventory of the external conditions and the recreational potential of the unit. Existing uses, facilities, special conditions on use, and specific areas within the park that will be given special protection are identified. The land use component then summarizes the current conceptual land use plan for the park, identifying the existing or proposed activities suited to the resource base of the park. Any new facilities needed to support the proposed activities are described and located in general terms.

EXTERNAL CONDITIONS

An assessment of the conditions that exist beyond the boundaries of the unit can identify any special development problems or opportunities that exist because of the unit's unique setting or environment. This also provides an opportunity to deal systematically with various planning issues such as location, regional demographics, adjacent land uses, and park interaction with other facilities.

T.H. Stone Memorial St. Joseph Peninsula State Park is located on Cape San Blas in southwestern Gulf County, approximately 20 miles from the town of Port St. Joe. The park is bounded on the east by St. Joseph Bay and on the west by the Gulf of Mexico. Cape San Blas Road (County Road 30E) provides access to the park from U.S. Highway 98 and State Road 30.

The Northwest Vacation Region, in which the park is located, also includes the Forgotten Coast region of Florida's panhandle. Summer in the Forgotten Coast region yields the busiest visitation in the state relative to other regions, with 48 percent of visitors to this region staying during the summer months. Of the total visitors to this area, nearly half report participating in beach and waterfront recreation. Ninety-three

percent of visitors arrive to the region by car. A minority of visitors arrive to the region by flight. One-fourth of all visitor groups traveled with children - the second largest proportion statewide. Nearly two-thirds of all visitors to this region came for a vacation or weekend getaway (Visit Florida! 2010).

Several state and federal managed lands located within twenty miles of the park provide public opportunities for outdoor resource based recreation. Constitution Convention Museum State Park, located in Port St. Joe, interprets regional and state history. The St. Joseph Bay State Buffer Preserve provides opportunities for wildlife observation, nature study, hiking and picnicking, and includes part of the Great Florida Birding Trail. Apalachicola National Estuarine Research Reserve offers interpretive programs, a visitor center, and opportunities for wildlife viewing and nature study. St. Vincent National Wildlife Refuge offers boating, fishing, wildlife observation and nature study opportunities, and a visitor center. Primitive camping is permitted in the St. Vincent NWR during annual management hunts. Box-R Wildlife Management Area provides opportunities for hunting, paddling, hiking, off-road cycling, and horseback riding.

Gulf County maintains two public beach access points, Dunes Drive and Troy Deal, along Cape San Blas Road, a few miles south of the park. Two county parks, Salinas Park and Cape Palms Park, are located within ten miles of the state park. Each county park provides opportunities for beach activities and picnicking. Each park features trails, boardwalks, and a playground.

In total population and population density, Gulf County ranks 58th and 57th, respectively, out of Florida's 67 counties. According to U.S. Census estimates, the county had 15,863 permanent residents in 2010. There are two incorporated cities in Gulf County: Port St. Joe and Wewahitchka. Port St. Joe is located on the west side of the county mainland, on the east coast of St. Joseph Bay, across from the park. Wewahitchka is located in the northeast corner of the county, south of Dead Lakes County Park. In 2010, an estimated 3,445 individuals lived in Port St. Joe and 1,981 lived in Wewahitchka. The remaining majority of county residents, roughly 68 percent of the population, resided in the unincorporated areas (University of Florida, Bureau of Economic and Business Research 2013).

Despite a small population of permanent residents, Gulf County has a significant number of seasonal residents. According to the latest Evaluation and Appraisal Report (EAR) adopted in 2007, the seasonal population is estimated to be more than 30,000. This is nearly two times the permanent resident population, making the population during peak season closer to 45,000. Several neighboring municipalities, such as Mexico Beach and Panama City, have even larger seasonal residents populations. Considering that a quarter-million permanent residents live within 50 miles of the park boundary, it is possible for the peak season population to be two to three times that amount.

According to the U.S. Census, approximately three-fourths of permanent Gulf County residents identify as non-Hispanic white. About one-fifth identify as black, while other minorities make up less than six percent of the county population. Working age adults (those aged 20 to 59) make up two-thirds of the county population. While older adults (those over the age of 59) make up just over 20 percent, and children under the age of 19 each make up less than one-fifth of the county's permanent population.

According to U.S. Census estimates, the population of Gulf County rose by approximately 1,200 residents, or 8 percent, from 2000 to 2009; approximately half the statewide rate of growth during the same period. Population projections for the county predict slow to negative growth over the next decade (BEBR 2010). Projected growth rates apply to the permanent resident population only, and it is expected that the seasonal population will likely increase.

Existing Use of Adjacent Lands

The park consists of two disconnected land areas. The larger part, roughly 2,630 acres, encompasses the northern part of St. Joseph Peninsula. The smaller part, just over 20 acres, is located approximately one mile south of the larger tract on Cape San Blas Road. Several residential lots are located between the two portions of the park. Many of the parcels are vacant. Residential development on the cape is limited to two or three dwelling units (DU) per acre (Gulf County Comprehensive Plan 2009). Development on the peninsula trends toward upscale single-family homes and vacation rental properties. Two multi-family developments are located adjacent to the park, and a small commercial development is located two miles south of the park entrance.

Planned Use of Adjacent Lands

Gulf County is within one of three Rural Areas of Critical Economic Concern (RACEC) in Florida. Counties that carry this designation are eligible for funding to market their communities to prospective industry and are eligible for a number of targeted 'catalyst' projects designed to attract growth (Enterprise Florida 2010). This designation, along with several employment initiatives underway within the county, could indicate that industrial and commercial land uses will increase in coming years. In particular, redevelopment of the commercial port on St. Joseph Bay (the former paper mill site) is expected to continue. Industrial land uses are also located on the mainland close to Port St. Joe, and it is possible that this area will develop into an industrial district.

A review of proposed comprehensive plan amendments revealed a number of development trends within the county; namely, a transition from agriculture to low density residential and commercial land uses, increased resort-style development, and provision of affordable housing. Perhaps the most significant change in development that occurred recently within the county is designed to focus residential development outside of the Coastal High Hazard Area (CHHA). The CHHA covers the entirety of the park and much of the adjacent land. Language adopted into the Gulf County Comprehensive Plan (adopted December 2009) caps development density and limits

development of vacant residential land within the CHHA. This language affects several properties within and surrounding the optimum park boundary. Due to this change, intense development of residential land uses is not expected on the peninsula. Instead, development in the county is expected to occur around the incorporated cities, with affordable single-family development centered in Wewahitchka and vacation and seasonal residential development near Port St. Joe.

PROPERTY ANALYSIS

Effective planning requires a thorough understanding of the unit's natural and cultural resources. This section describes the resource characteristics and existing uses of the property. The unit's recreation resource elements are examined to identify the opportunities and constraints they present for recreational development. Past and present uses are assessed for their effects on the property, compatibility with the site, and relation to the unit's classification.

Recreation Resource Elements

This section assesses the unit's recreation resource elements those physical qualities that, either singly or in certain combinations, supports the various resource based recreation activities. Breaking down the property into such elements provides a means for measuring the property's capability to support individual recreation activities. This process also analyzes the existing spatial factors that either favor or limit the provision of each activity.

Land Area

Fourteen natural communities are represented on the park's uplands, providing diverse wildlife habitat and wide-ranging natural experiences for park visitors. Picnicking, hiking, and camping are suitable activities currently offered within the park's upland areas.

Water Area

As a barrier island peninsula, the park is intrinsically linked to water. The park is adjacent to two major bodies of water, the Gulf of Mexico on the west and St. Joseph Bay to the east. The bay is managed as an aquatic preserve contiguous to the park's shoreline. Both water bodies provide significant opportunities for resource based recreational activities, including saltwater fishing, swimming, and boating. A canoe and kayak launch is located at the Bay View picnic area on Mosquito Point, and visitors can launch larger boats from Eagle Harbor. Landing along the beaches of the Wilderness Preserve or anchoring closely offshore are popular activities for boaters of all types.

On occasion, boaters entering the park from the water have allowed their dogs onto the beaches of the Wilderness Preserve. Control measures, such as signage and interpretation, should be implemented to remind boaters that dogs are not allowed on

state park beaches because they can leave waste and disturb wildlife, particularly shorebirds.

Shoreline

The park's greatest recreational resource may be its nearly 20 miles of shoreline. Beaches along the Gulf and bay shorelines provide opportunities for many activities, including swimming, picnicking, shoreline fishing, wildlife viewing, nature study, and other beach activities.

The sensitive dune communities that line the shoreline can become rapidly degraded if visitor access is not controlled. The dunes also provide habitat for wildlife and help to protect inland structures and facilities from storm impacts. Boardwalks provide controlled access through the dunes and serve as accessible paths to the beach. From the boardwalks, visitors can enjoy a close look at the dune community without disturbing this delicate resource.

Natural Scenery

The high dune ridges, pristine beaches, and emerald water that are characteristic of the gulf coast have been compromised in many areas by encroaching development. However, the integrity of these features remains at the park, providing visitors with exceptional opportunities for enjoying natural scenery and scenic vistas. The pristine natural areas also provide opportunities for nature study and wildlife viewing, particularly bird watching.

Significant Wildlife Habitat

The large area of pristine coastal habitat, including beach dune and coastal scrub communities, that is offered at the park provides notable habitat for native wildlife. A number of migratory bird species use the park area for rest, freshwater and foraging before embarking on the long flight across the Gulf of Mexico. Nearly one-fifth of the statewide population of snowy plover nest at the park. Three species of marine turtle are also known to nest on the park's beaches. In addition, the park contains a self-sustaining population of St. Andrew beach mice, one of only two populations known to inhabit conservation land. The park's context as one of the last remaining natural areas of this particular size and quality that is located in the Florida panhandle, illustrates the importance of the park's habitat to the survival of these species.

The natural communities present at the park are of regional significance in that they provide a large area of contiguous natural habitat in a region where few undisturbed areas remain. Many rare and imperiled species use the park's patchwork of intact communities, often favoring particular communities for different seasons or activities. The scrub and beach dune communities are used by the St. Andrew beach mouse, but can also provide superb natural setting for recreational activities, such as wildlife viewing and hiking. Careful consideration of the importance of these communities to

wildlife flora and fauna should be balanced with recreational needs, in order to ensure minimal impact to pristine areas.

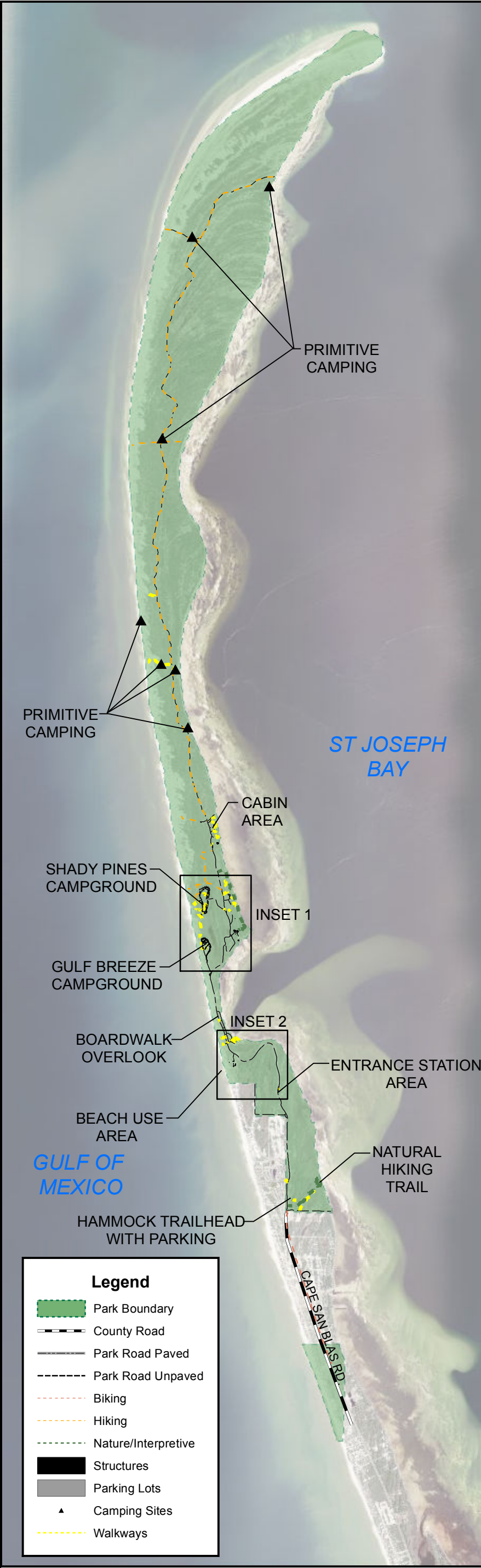
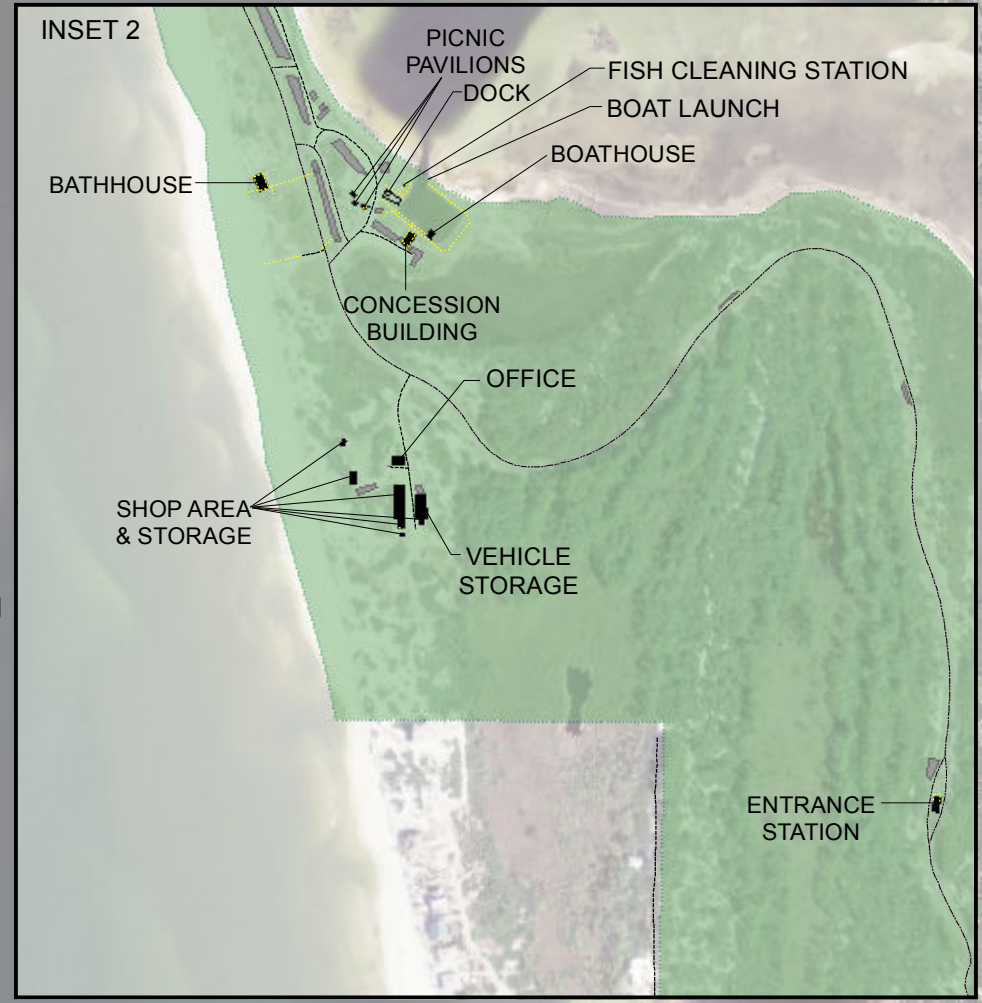
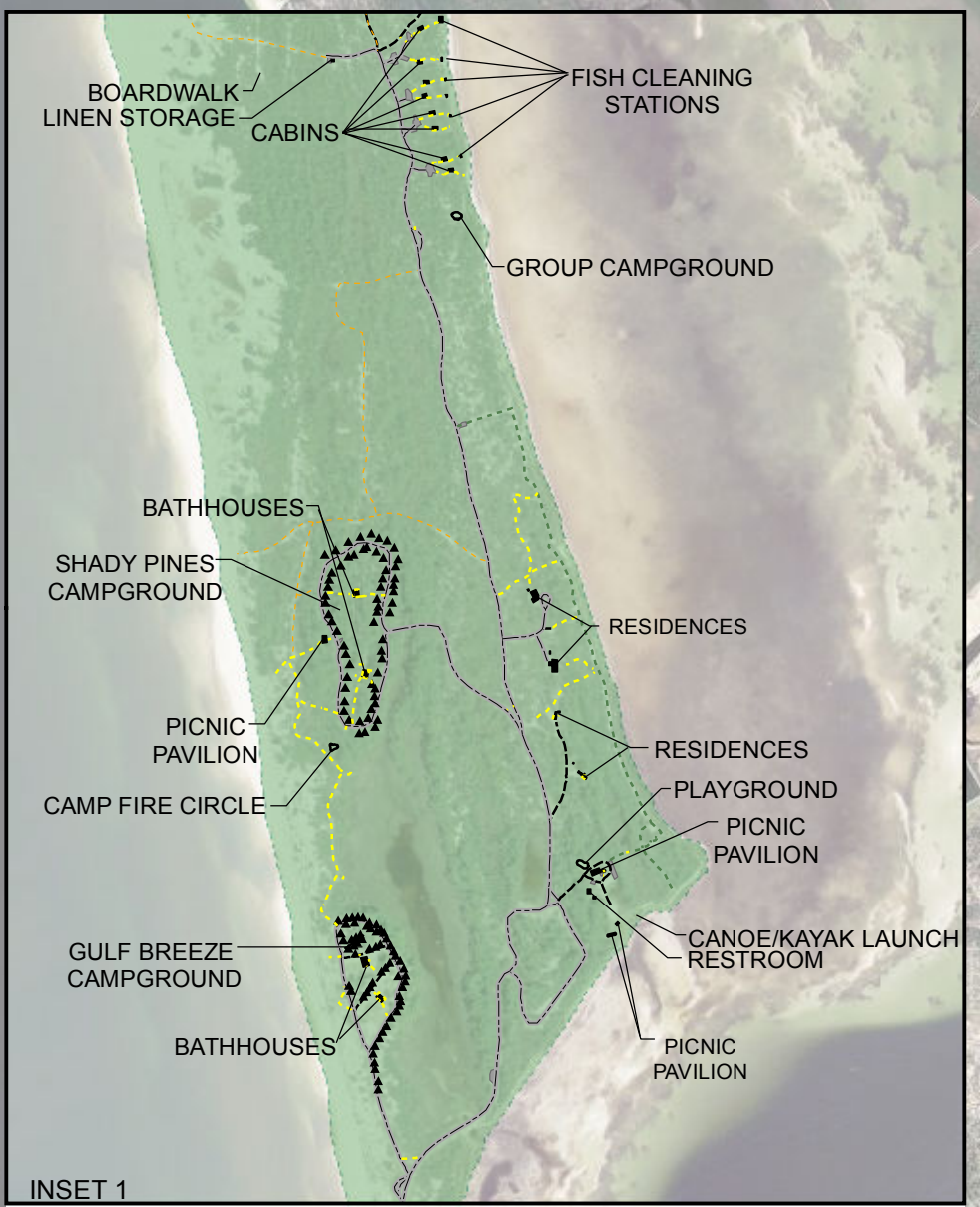
The importance of the wildlife habitat at the park should be interpreted for park visitors. The Forgotten Coast region has experienced increased development over the last decade, particularly of vacation home communities. Interpretative programming that addresses the importance of protecting natural areas and wildlife may be especially appropriate.

Natural Features

The dynamic shoreline communities along the gulf and bay are spectacular natural resources, which are likely unparalleled in the state. The park's tall white sand dunes, pristine beaches and native scrub are a remarkable example of natural Florida. These features provide natural scenery, wildlife habitat and opportunities for resource-based activities, such as hiking, nature study, and wildlife observation. The park's beaches and water area also provide opportunities for saltwater fishing, boating, paddling, and swimming.

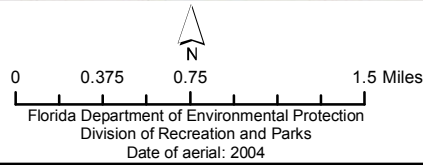
Archaeological and Historical Features

Ten sites at the park are recorded in the FMSF. These sites represent nearly 3,000 years of human activity on the peninsula, from prehistory to the modern period. Two sites are eligible for listing in the National Register of Historic Places: the Presidio San Jose site and the Old Cedar site. Presidio San Jose is the site of an old Spanish fort that was abandoned in 1723. The site is located at the far northeast edge of the Wilderness Preserve and is completely eroded and buried. The Old Cedar site is a shell midden that is located on a bay shore dune ridge. The location and sensitivity of these sites make them unsuitable for onsite interpretation. However, interpretation of these and the other recorded sites should be featured elsewhere at the park, such as in established use areas or as part of the park's educational programming.



Legend	
	Park Boundary
	County Road
	Park Road Paved
	Park Road Unpaved
	Biking
	Hiking
	Nature/Interpretive
	Structures
	Parking Lots
	Camping Sites
	Walkways

T.H. STONE MEMORIAL
ST. JOSEPH PENINSULA STATE PARK



BASE MAP

Assessment of Use

All legal boundaries, significant natural features, structures, facilities, roads and trails existing in the unit are delineated on the base map (see Base Map). Specific uses made of the unit are briefly described in the following sections.

Past Uses

As discussed in the Cultural Resources section of the Resource Management Component, human activity has occurred on the peninsula since prehistoric times. More recently, but prior to its use as a state park, the U.S. Army used the northern portion of the peninsula for training purposes.

Future Land Use and Zoning

The DRP works with local governments to establish designations that provide both consistency between comprehensive plans and zoning codes and permit uses and facilities necessary for the provision of resource-based recreation opportunities at the state park.

Two future land use (FLU) designations occur within the park. The northern portion of the park peninsula, approximately coinciding with the Wilderness Preserve boundary, is designated as "Conservation." The southern remaining park area is designated as "Recreation." Both designations are subject to use restrictions that generally limit allowable uses to low-intensity and recreational uses, water-related and passive recreational uses, and open space. Maximum floor area ratio (FAR) is also limited in each designation. Conservation is limited to .1 FAR, while Recreation is limited to .2 FAR. Despite these restrictions, no conflicts are anticipated between these FLU designations and development that is typical of a state park (Gulf County BOCC 2009).

Current Recreational Use and Visitor Programs

Recreational activities available at the park include beach use, saltwater swimming, fishing, picnicking, camping, hiking, canoeing, kayaking, bird watching, and nature study. Offshore fishing and boating (including a large amount of personal watercraft use) are popular activities in the waters surrounding the park.

The northern third of the peninsula is a designated Wilderness Preserve. In this area, a wilderness experience is available to park visitors for hiking, primitive camping, paddling, and nature study. Visitors may also arrive to the Wilderness Preserve by boat, where landing is permitted.

The park offers an array of interpretive, recreational or educational programming for the enjoyment of park visitors. Programs include in-person presentations, guided walks, self-guided tours, interpretive facilities, and publications. Ranger-led programs are offered seasonally and by special appointment. In-person presentations have covered a wide range of topics and formats, including park ecology and wildlife, "how

to” presentations, and organized recreational activities. Guided walks are also offered on the park’s nature trails.

In Fiscal Year (FY) 2012-13, more than 228,000 people visited the park. Park attendance has risen approximately 25 percent since FY 2005-2006. In the last five years, park visitors have contributed an estimated \$38.9 million to the state economy. In the last fiscal year alone, visitors contributed approximately \$10.7 million, generating an additional \$692,000 in sales tax revenue and 171 new jobs (DEP DRP 2013).

Wilderness Preserve

The Wilderness Preserve, which encompasses the tip of the cape, is mostly undisturbed and miles away from outside development, allowing it to function normally as a barrier island peninsula. The natural processes of wave action and sand movement that formed the peninsula are still at work today. Interpretation of these processes would be beneficial for park visitors and could include aerial photographs that show how the landforms are changing over time.

In 2001, a workgroup was held to discuss use of the Wilderness Preserve. The workgroup consisted of park and DRP staff, local business representatives, adjacent landowners, recreational users, and other stakeholders. In order to ensure that the high-quality recreational experience offered by the Wilderness Preserve can be maintained, the workgroup developed recommendations to balance sustained visitor access with resource protection. The workgroup recommendations are listed and described below:

- Allow visitors to access the preserve by boat within designated zones of the preserve shoreline without registering or paying a fee.
- Visitors interested in accessing the interior of the preserve for day use or overnight camping can do so by registering with the park office and paying the standard fees for park admission or primitive camping.
- Document visitor use, gather information on visitor experiences, and document impacts to the natural and cultural resources in the preserve.
- Initiate a public information program to encourage responsible public use and to educate visitors about the rules governing use of the Wilderness Preserve.

The Gulf and bay shorelines of the Wilderness Preserve total approximately 13.5 miles. Boat access is permitted at any point along the shoreline, except where shorebird protection areas are posted. Shorebird protection areas are posted and marked during nesting seasons. Outside of posted areas, visitors may arrive to the Wilderness Preserve by boat and enjoy day use of the beach seaward of the vegetation line without registering at the park office or paying a fee. All visitors must abide by state park rules, which prohibit consuming drugs or alcohol, bringing dogs onshore, building ground fires, lighting fireworks, hunting, or removing or damaging natural and cultural

resources. Collecting empty seashells is permitted. Visitors may enter the interior of the Wilderness Preserve at three designated points along the bay shore. Access trails at each point guide visitors through the delicate scrub vegetation for hiking, camping, wildlife observation, or nature study. Visitors accessing the preserve from the interior of the park must register with the park office and pay standard fees for park admission or primitive camping.

It is recommended that the park implement a regular monitoring program in order to document and assess use of the Wilderness Preserve. The monitoring program also surveys the area for potential resource impacts and documents these impacts over time. A component of the monitoring program includes gaining input from park visitors about the condition of the preserve and the quality of recreational experience that it offers. This public input would be used to determine if additional actions are needed to protect and conserve resources and maintain a high-quality visitor experience.

A component of managing the Wilderness Preserve is the public information program to educate visitors about policies regarding use of the preserve. Signage, brochures, and other methods are used to communicate the permitted landing and access points, educate visitors about state park rules, and inform visitors how to contact the park office for interior access or other issues.

A routine monitoring program will be implemented in the wilderness preserve to identify and track visitor use impacts on natural resources. Methods will include surveys and photo-points of popular, sensitive, or vulnerable sites within the wilderness preserve (i.e., shorebird nesting, resting, and foraging habitat, marine seagrass beds, beach dune, boat landing sites, and campsites). Monitoring will be scheduled to assess conditions both before and after times of high-use when large numbers of boaters and visitors are present at the park.

Current monitoring and stewardship programs for shorebirds and sea turtles in the Wilderness Preserve to address:

- *Impacts on shorebird habitat use, nesting patterns, and nest productivity*

A current collaborative project funded through FWC's State Wildlife Grant program (August 2012 to August 2014) involving the Florida Shorebird Alliance, the American Bird Conservancy, Audubon of Florida, and FWC. Several proposals through the National Fish and Wildlife Foundation are currently in review to continue monitoring efforts beyond 2014. The impacts from human visitor use are measured by documenting observed visitors, boats, and dogs during shorebird surveys. Regular shorebird surveys occur weekly during breeding season (February to August) and biweekly during non-breeding season (September to January). Quarterly index counts are conducted to establish spatial and temporal variation in visitor use of the park. Transects are set along 500 meter increments of the beach for 24-hour periods to capture visitor and dog

tracks. Additionally, opportunistic disturbance observations are conducted to determine the impacts that visitors, dogs, and various forms of recreation have on nesting, foraging, or roosting shorebirds. Shorebird habitat use (nesting, resting, foraging), nest distribution, and nest productivity are modeled as a function of visitor data that is collected.

- Effectiveness of shorebird protected areas

The Effectiveness of posting shorebird habitat is measured through recording tracks (i.e., visitors or dogs) observed within closed areas during each weekly or biweekly survey. Additionally, through quarterly index counts (see above), visitor tracks within closed areas are compared to overall beach use.

- Sea turtle surveys

Surveys are conducted daily during turtle nesting season (May 1 to October 31) by park staff. Surveys typically occur shortly after sunrise.

- Beach mice tracking surveys

Surveys are completed by park staff to primarily determine beach mice distribution. The DRP is currently working with FWC to reestablish monthly tracking-tube surveys which have a higher detection rate because they are not limited by weather conditions. Monthly surveys will be conducted by park staff and volunteers.

Park staff and volunteers work with the public to improve knowledge and awareness of sensitive coastal habitat for imperiled species through various programs:

- Beach stewarding program

Audubon of Florida, with NRDA funding, is recruiting, training, and leading a stewardship program that includes St. Joseph Peninsula State Park (current funding until 2017). Previous efforts were a collaborative effort between Audubon and the American Bird Conservancy with funding through the National Fish and Wildlife Foundation. Audubon intends to seek funding to extend the stewarding program beyond 2017. Locations and need for stewarding are gleaned from disturbance observations conducted during regular shorebird monitoring.

- Assessing changes in park visitors' knowledge and awareness

In collaboration with beach steward volunteers, DRP district biologists are using a questionnaire to assess potential changes (in response to stewarding efforts) in the public knowledge and awareness of coastal habitats and associated species. Questionnaires are tailored to the topic of shorebird protection, but also include additional coastal species (e.g., sea turtles, beach mice, etc.).

- Shorebird kiosk

The American Bird Conservancy provided an educational kiosk for the park providing information on nesting shorebirds, shorebird habitat, and the potential impacts from human disturbance. The current kiosk is placed in the Wilderness Preserve near the tip of the peninsula. Additional kiosks should be placed throughout the preserve at regularly used access points.

- Additional interpretation and education

Although interpretation and education are not standard practice in the current sea turtle or beach mice monitoring program, park staff regularly interact with park visitors through impromptu education opportunities. Interactions with the public are well-received and have resulted in improved compliance with park rules. Throughout the year, the park offers interpretive programs on coastal wildlife including sea turtles and shorebirds.

Additional monitoring protocols are proposed to evaluate visitor use impacts at:

The primitive campsites in the Wilderness Preserve, including damage to woody vegetation, extent of human waste, creation of unauthorized trails, litter, etc.

Dunes and dune vegetation in the Wilderness Preserve, focusing on erosion along trails through the dunes and access points.

Boat landing and anchorage points on marine seagrass beds in submerged areas on the bay side of the Wilderness Preserve, primarily where propeller scarring has occurred.

Educational signage or kiosks at frequently visited sites in the Wilderness Preserve to inform visitors of the wilderness preserve designation and reduce potential impacts.

Other Uses

A portion of the park is under sublease to the Agency for Persons with Disabilities (APD). The approximately 87-acre parcel is operated by APD as William J. (Billy Joe) Rish Recreational Park, a universally accessible recreation area that is available to Florida residents with disabilities and their families. Rish Park features day use and overnight facilities, including beach boardwalks, picnic pavilions, cabins, event space, a canoe and kayak launch, swimming pool, and other amenities. Rish Park is located on Cape San Blas Road/County Road 30E, two miles south of the park ranger station. Management of the Rish Park portion of T.H. Stone Memorial St. Joseph Peninsula State Park is guided by a separate management plan, which was developed by the Florida Department of Children and Families, the predecessor to APD, in 2010.

Protected Zones

A protected zone is an area of high sensitivity or outstanding character from which most types of development are excluded as a protective measure. Generally, facilities requiring extensive land alteration or resulting in intensive resource use, such as parking lots, camping areas, shops, or maintenance areas, are not permitted in protected zones. Facilities with minimal resource impacts, such as trails, interpretive signs, and boardwalks are generally allowed. All decisions involving the use of protected zones are made on a case-by-case basis after careful site planning and analysis.

At T.H. Stone Memorial St. Joseph Peninsula State Park, the estuarine tidal marsh, beach dune, scrub communities, and Wilderness Preserve have been designated as protected zones as delineated on the Conceptual Land Use Plan. Protected zones encompass approximately 2,294 acres or more than 84 percent of the park.

Existing Facilities

Recreation Facilities

The park's recreational facilities are located seven in primary areas: the Maritime Hammock Trailhead, Eagle Harbor, beach day use area, Gulf Breeze campground, Shady Pines campground, Bay View picnic area, and cabin area. The Maritime Hammock Trailhead is located on County Road 30E, south of the park entrance; it features a boardwalk and nature trail. Eagle Harbor features a concession building, picnic pavilions, fish cleaning station, boat launch, and marina basin. The beach day use area features beach boardwalks. The camping area includes two campground loops, a campfire circle, and boardwalks. The Gulf Breeze campground currently features 59 family campsites. The Shady Pines campground features 60 family campsites, a recreation center, and picnic pavilion. The Bay View Picnic Area features picnic pavilions and a shoreline canoe and kayak launch. The cabin area features cabins, fish cleaning stations, boardwalks, and a hiking trail. The group camp is also located near the cabin area and features a campfire circle. The Wilderness Preserve features a hiking trail and provides opportunity for primitive camping at seven designated campsites with fire rings.

Eagle Harbor features restrooms, which are located at the concession building, and a large paved parking area, which also serves the beach day use area. Each campground loop features two bathhouses. The Bay View Picnic Area features a restroom and stabilized parking area. The residence area features permanent and mobile home residences, storage buildings, boardwalks, and a short hiking trail. The cabin area features linen storage and paved parking areas. Parking for primitive camping in the Wilderness Preserve is located at the cabin area. The primitive group camp features restrooms and shower stalls. In addition, the park features several miles of roadway.

Support Facilities

The park entrance features a ranger station and paved parking area. There are two ranger residences located centrally in the park. A shop and maintenance area is located toward the southern end of the park and includes an office, three storage buildings, equipment shelter, two utility buildings, storage for flammable materials, and a three-bay shop building with offices and a restroom.

The following is a list of recreation and support facilities at the park:

Maritime Hammock Trailhead

Nature trail (0.4 miles)
Boardwalk
Unpaved parking (4 spaces)

Entrance

Ranger station
Paved parking (8 spaces)

Shop Compound

Office
Storage buildings (3)
3-bay shop building
Equipment shelter
Utility buildings (2)
Flammable storage

Eagle Harbor

Concession building
Marina basin
Picnic pavilions (3)
Boat launch
Fish cleaning stations (2)
Restroom (in concession building)
Stabilized parking (30 spaces)

Beach Day Use Area

Boardwalks (3)
Bathhouse

Bay View Picnic Area

Picnic pavilions (3)
Shoreline canoe and kayak launch
Restroom
Stabilized parking (24 spaces)
Overflow parking loop (40 spaces)

Residence Area

Residences (4)
Storage buildings (5)
Boardwalks
Nature trail (0.7 miles)

Camping Area

Gulf Breeze Camping Area
Family campsites (59)
Bathhouses (2)
Shady Pines Camping Area
Family campsites (60)
Bathhouses (2)
Picnic pavilion
Boardwalks
Dump station

Cabin Area

Cabins (8)
Fish cleaning stations (5)
Boardwalks (8)
Paved parking (24 spaces)

Group Camp

Campfire circle
Single-unit restrooms (2)
Shower stalls (2)

Wilderness Preserve

Hiking trails (6.3 miles)
Designated primitive campsites (7)
Stabilized parking (24 spaces)
Boardwalk (from parking area to beach)

Roads

Park drive (3 miles)
Service roads (3.8 miles)

CONCEPTUAL LAND USE PLAN

The following narrative represents the current conceptual land use proposal for this park. As new information is provided regarding the environment of the park, cultural resources, recreational use, and as new land is acquired, the conceptual land use plan may be amended to address the new conditions (see Conceptual Land Use Plan). A detailed development plan for the park and a site plan for specific facilities will be developed based on this conceptual land use plan, as funding becomes available.

During the development of the management plan, the DRP assessed potential impacts of proposed uses or development on the park resources and applied that analysis to decisions on the future physical plan of the park as well as the scale and character of proposed development. Potential impacts are more thoroughly identified and assessed as part of the site planning process once funding is available for facility development. At that stage, design elements (such as existing topography and vegetation, sewage disposal, and stormwater management) and design constraints (such as imperiled species or cultural site locations) are more thoroughly investigated. Municipal sewer connections, advanced wastewater treatment, or best available technology systems are applied for on-site sewage disposal. Stormwater management systems are designed to minimize impervious surfaces to the greatest extent feasible, and all facilities are designed and constructed using best management practices to avoid impacts and to mitigate those that cannot be avoided. Federal, state, and local permit and regulatory requirements are met by the final design of the projects. This includes the design of all new park facilities consistent with the universal access requirements of the Americans with Disabilities Act (ADA). After new facilities are constructed, the park staff monitors conditions to ensure that impacts remain within acceptable level.

Potential Uses

Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities in the park.

The existing recreational activities and programs of this state park are appropriate to the natural and cultural resources contained in the park and should be continued. Improved activities and programs are also recommended and discussed below.

Objective: Maintain the park's current recreational carrying capacity of 3,813 users per day.

The park will continue to provide opportunities for wildlife observation and nature study, hiking and walking, bicycling, picnicking, swimming and beach activities, shoreline fishing, boating, paddling, and camping - including cabin, standard

facility, group, and primitive camping. The park's ability to accommodate current visitation levels will be enhanced. Interpretive and educational exhibits will continue to be offered throughout the park.

Objective: Expand the park's recreational carrying capacity by 280 users per day.

Opportunities for bicycling, nature walking, and wildlife observation within the park will be expanded through addition of bicycle lanes and trails. Recreational opportunity expansion is discussed in further detail below.

Objective: Continue to provide the current repertoire of twenty interpretive, educational, and recreational programs on a regular basis.

The park provides numerous interpretive, recreational, and educational programs for visitor enjoyment. Seventeen in-person presentations are offered that address topics such as plant and wildlife identification, ecological systems and cycles, and recreational activities. *Snakes of St. Joseph Peninsula* teaches visitors how to identify venomous and non-venomous snakes and educates visitors about the importance of all snakes to the park's ecosystems. *Sea Turtles: The Ancient Mariners* explains the history and life cycle of sea turtles and describes what actions are taken at the park to ensure their survival. *Water, Sand, and Sun: What There Is to See and Do at St. Joseph Peninsula State Park* provides visitors with a recreational guide of activities and amenities offered at the park. *Leave No Trace Camping* educates visitors on the importance of leaving little or no impact on the natural communities while camping, whether at the campground or at a primitive campsite. *Nature's Cleaners* explains the natural cycle of decay and educates visitors on the importance of scavenger organisms, as well as what impacts can result when non-biodegradable manmade items are not disposed of properly. *Sea Shells of the Cape* explains the importance of shells and identifies shells that are commonly found at the park. *Edible and Medicinal Plants Found at St. Joseph Peninsula State Park* identifies park plants that were used by native and early Americans, and teaches visitors which plants are considered safe or harmful to humans. Two historical programs, *History of St. Joe and the Signing of the Constitution* and *History of the Early Fur Trade*, educate visitors about the history and culture of the park and surrounding areas. Additional program topics offered at the park include tides and ocean currents, beach ecology, alligators of the area, and prescribed fire.

Recreational programs offered at the park include activities such as beachcombing, cast netting, and shoreline fishing. In addition to the in-person presentations listed above, guided walks currently offered along the Maritime Hammock Trail, Bay View Trail, and Camp-to-Camp Trail should also be continued.

Objective: Develop seven new interpretive, educational, and recreational programs.

The sea turtle and wildlife programs currently offered are very popular with park guests. Developing additional programs on these topics could benefit the park by encouraging new and repeat participation by park visitors. There is also potential for expanding the interpretive, educational, and recreational programming at the park to include additional themes. Additional interpretive and educational topics could include shore birds, animal tracks, and cultural resources. Recreational program topics could include bird watching, instruction on safe boating, and scalloping in St. Joseph Bay.

Proposed Facilities

Capital Facilities and Infrastructure

Goal: Develop and maintain the capital facilities and infrastructure necessary to implement the recommendations of the management plan.

At this time, the use areas and facilities offered at the park provide a sufficient level of public access and a wide range of recreational activities that are appropriate for the park's resources. Extensive development of additional facilities is not necessary; however, many existing facilities are nearing the end of their functional lives. The improvements recommended in this plan focus on renovation and improvement of existing facilities and use areas to improve the quality of the visitor experience that is offered at the park.

The existing facilities of this state park are appropriate to the natural and cultural resources contained in the park and should be maintained. New construction, as discussed further below, is recommended to improve the quality and safety of the recreational opportunities that visitors enjoy while in the park, to improve the protection of park resources, and to streamline the efficiency of park operations. The following is a summary of improved, renovated, and new facilities needed to implement the conceptual land use plan for T.H. Stone Memorial St. Joseph Peninsula State Park:

Objective: Maintain all public and support facilities in the park.

All capital facilities, trails, and roads within the park will be kept in proper condition through the daily or regular work of park staff and/or contracted help.

Objective: Improve/repair five existing facilities and use areas and 1.9 miles of road.

Major repair projects for park facilities may be accomplished within the ten-year term of this management plan, if funding is made available. These include the modification of existing park facilities to bring them into compliance with the Americans with Disabilities Act (a top priority for all facilities maintained by the

DRP). The following discussion of other recommended improvements and repairs are organized by use area within the park.

Bicycle Lanes - Gulf County is extending the three-mile bicycle lane along County Road 30E. The current facility, which terminates at the park boundary, will be expanded by approximately seven miles to the State Road 30A intersection. This plan recommends that bicycle lanes be constructed along the park drive from Eagle Harbor to the park boundary to merge with the County's expanded bike lane project. While park visitors already participate in bicycling on the park drive, the addition of designated bicycle lanes would increase the safety of bicycle riders by separating them from motorized vehicular traffic. Bicycle lanes will be separated from the park road by vegetated landscaping or a safety buffer.

Improvement to Maritime Hammock Trailhead - The road into the parking area at the Maritime Hammock Trailhead is prone to flooding and bisects a narrow ribbon of wet prairie community, as described under "Hydrological Management" in the Resource Management Program section of the Resource Management Component. Roadway improvements, such as a low-water crossing or culvert, should be completed to accommodate visitor use of the trail and trailhead parking area and to restore hydrologic function to the wet prairie.

Replace Culverts with Bridge - Northeast of the existing dump station, the park drive bisects a salt marsh. Roadway culverts allow for moderate hydrologic flow beneath the roadway; however, they are too small to accommodate the maximum volume of water that flows through the salt marsh at certain times. At times, the water rises over the roadway, making the cabins, residences, Wilderness Preserve, and Bay View Picnic Area inaccessible to park staff and visitors. This not only causes operational issues for park staff, but also poses a significant safety concern for visitors. Flooding occurs with heavy rains or storm events and may complicate or stall evacuation of the park. In addition, the force of the restricted water is eroding the underside of the roadway, particularly at each end of the culverts. To adequately repair the park drive and restore hydrologic flow to the salt marsh, it is recommended that the roadway culverts be removed and the entire section of roadway be replaced with a bridge. Despite the potential expense of a bridge project, it is the best long-term solution for resolving the flooding, erosion, operational issues, and safety concerns that presently occur. The bridge project is also discussed under "Hydrological Restoration" in the Resource Management Program section of the Resource Management Component.

Campground Improvements - The campground facilities are aging and in need of update. Several improvements are recommended in order to meet visitor needs and changing recreational trends.

This plan recommends the addition of up to six campsites in the Gulf Breeze loop near the southern bathhouse close to the front of Gulf Breeze camp area.

If reviewed and permitted water and electric utilities could be placed to the proposed additional sites with minimal cost and material. The park has most of the electrical wiring and plumbing needed to accommodate the proposed additional campsites. The facilities and septic system should have adequate capacity to support the additional sites.

The 30-amp electrical service boxes featured at each campsite are prone to breakage and failure, and are insufficient to meet the needs of many campers. This plan recommends upgrading the electrical boxes and wiring at each campsite to 50-amp service.

Large RVs occasionally have difficulty navigating campground roads or fitting into certain sites. To better accommodate the RVs, certain campsites in each loop are specifically designated as preferred RV sites. This plan recommends that a number of these preferred sites, up to 25 percent of the total sites, be renovated to accommodate 40-foot vehicles. Site improvements that should be considered may include camping pad area and surface, driveway geometry and angle of approach, pruning adjacent vegetation, and type and capacity of utility hookup services. Improving sites that are already preferred by campers with larger RVs, will lessen the likelihood that other campers, such as tent and pop-up campers, will be adversely affected by these improvements. By limiting development of oversize sites to one-quarter of the total sites, the likelihood that these improvements will change the character of the campground will also be diminished.

Several additional campground facilities are in need of repair or replacement. The boardwalk trail that connects the two campground loops is badly degraded and should be replaced. The boardwalk trail is a popular amenity for campers and provides access between facilities and use areas. Three of the four bathhouse structures located in the camp area are original to the campground and should be replaced with universally accessible facilities. The fourth bathhouse was renovated in 2005, but should be assessed to ensure that it meets the ADA standards for universal accessibility.

Infrastructure Improvements - The park's water system is in need of repair and rerouting to improve efficiency. Numerous water breaks have occurred in recent years that proved difficult to locate and repair. Line breaks that are not easily located have resulted in substantial expense to the park. In order to lessen the chance of future waterline breaks, it is recommended that the park's water system undergo thorough inspection and repair to improve maintenance accessibility and reduce water loss.

The condition of the park's electrical system should also be examined in order to ensure safe operation of park facilities. It is also recommended that an assessment be completed by an electrical engineer to identify system deficiencies and determine needed repairs. An estimate for repairs to the water utility infrastructure



Campground Improvements

- Replace boardwalk
- Replace bathhouses
- Upgrade to 50 amp electric
- Develop oversize sites

Replace Existing Residences with Stilt Residences

Borrow Pit Restoration

- Redesign Bay View Picnic Area**
- Remove waterfront parking
 - Reorganize parking for more spaces
 - Replace restroom
 - Restore dredged inlet

New Dump Station

Remove Old Dump Station and Restore Area

INSET 1

Redesign Use Area at Eagle Harbor

- New bathroom with concession space
- Reorganize parking and improve traffic flow

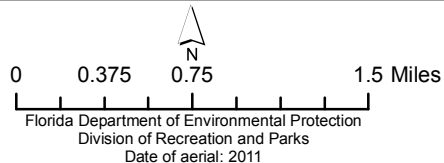
Remove Bathroom and Restore Area

INSET 2

Legend

- Improvement Area
- Proposed Restoration Area
- Proposed Development Area
- Proposed Bicycle Lane
- Proposed Bridge Improvement
- Wilderness Preserve
- Protected Area
- Park Boundary
- County Road
- Park Road Paved
- Park Road Unpaved

T.H. STONE MEMORIAL
ST JOSEPH PENINSULA STATE PARK



CONCEPTUAL LAND USE PLAN

at the north end of the park drive has already been obtained. Completion of these repairs is also recommended.

Objective: Develop a master plan to redesign and improve the park's existing use areas.

Master Plan - A Type 1 master plan is recommended for three key areas within the park, including Eagle Harbor, the day use beach area and the Bay View picnic area. The purpose of the master plan project should be to streamline activities and functions, increase efficiency and identify additional capacity within each area. The plan should consider interpretive programming, recreational activities, special events, pedestrian circulation, accessibility, natural viewsheds, and potential resource impacts in each area. In addition, the plan should consider how each use area relates to one another and how they function in the context of the whole park.

Eagle Harbor and the beach day use area should be redesigned to function as a single use area. Currently, the two areas share parking, but have separate bathroom facilities. The master plan should include reorganizing the parking area at Eagle Harbor to improve traffic flow and identify additional parking capacity. Special attention should be paid to how visitors will move between Eagle Harbor and the beach. Due to the sensitivity of the adjacent natural area and its importance as wildlife habitat, facilities should be redesigned within the existing developed area. As part of the redesign project, the existing concession building at Eagle Harbor and the bathhouse in the beach day use area should be demolished. Construction of a new multi-use facility that will serve both areas is recommended. The multi-use facility is described under the next objective. Following removal of the existing beach bathhouse, the area should be restored for beach mouse habitat. Boardwalks and other facilities in the beach day use area should remain in place for visitor use.

The Bay View Picnic Area should be redesigned to alleviate flooding and erosion issues. The small parking area close to the waterside is prone to flooding and the adjacent area is eroding due to visitors dragging canoes and kayaks to the shoreline launch. It is recommended that the waterside parking and adjacent eroding area be restored to a more natural condition. This restoration could be carried out in conjunction with restoration of the dredged inlet at Mosquito Point, as described in the Resource Management Program that currently serves no recreational purpose. The larger stabilized parking area should be reorganized to accommodate additional parking spaces within the footprint of the existing disturbed area. The restroom should be replaced or upgraded to a universally accessible facility, and the picnic structures should remain in their current locations, including the pavilion adjacent to the water's edge.

Objective: Construct 14 new facilities and 1 mile of trail.

New ranger station - The existing ranger station is too small to meet the increasing needs of the park. The current building does not include administrative space,

which is needed by park staff. A larger ranger station that includes a check-in area, two offices, and meeting room would be sufficient to meet the park's administrative needs. The existing ranger station is located within viable beach mouse habitat; therefore, the new ranger station should utilize the footprint of the existing development.

Multi-use Facility at Eagle Harbor - In conjunction with the redesign of the Eagle Harbor day use area, a new multi-use facility should be constructed. The multi-use facility would include a visitor center, bathroom/restroom facilities, and space for a concession operation, such as a canoe and kayak rental. The new multi-use facility should have adequate capacity to accommodate visitors to both Eagle Harbor and the beach day use area.

New Dump Station - The current dump station is undersized to accommodate the number and size of recreational vehicles that frequent the park's campground. At the current level of use, the dump station facility must be pumped more frequently than once per year. In addition, at peak demand times, RVs line up to use the facility, which complicates traffic flow on the park drive. This congestion leads to operational issues and could potentially result in conflicts between pedestrians and other vehicles that attempt to pass the line of RVs.

The existing dump station is surrounded by viable beach mouse habitat. Due to the type and extent of improvements that are necessary, it is not possible to improve the dump station within the existing footprint. Therefore, a new dump station is recommended at a different location in the park. The proposed location is a disturbed area located south of the park drive, just west of the Bay View Picnic Area. A section of roadway was constructed at this location previously, but no formal uses were established there. Currently, the area adjacent to the roadway is used to store spoil material. The area is underutilized and does not contain significant natural features or wildlife habitat. The new dump station should be sited to prevent RV traffic from backing up onto the park drive, and two service lanes should be considered for the new facility. Following construction of the new dump station, the old facility should be removed, and the old location restored to match the surrounding natural community.

Replace Staff Residences - At present, there are two permanent and two mobile home residences at the park. The existing residences were constructed at grade and are prone to recurrent flooding. As the existing residences require replacement or substantial repair, the on-grade and mobile home structures should be phased out and replaced with permanent stilted structures that comply with current hurricane codes.

1-mile trail - A new trail is proposed to connect the terminus of the Bay View Trail back to the Bay View Picnic Area, making the Bay View Trail a loop. The proposed trail will continue from the existing terminus on the opposite side of Cabin Road.

The proposed trail will traverse between the Shady Pines Campground and the salt marsh back to the entrance of the Bay View Picnic Area where the trail starts. The proposed trail will provide an opportunity to interpret the salt marsh and other resources found in the park.

Facilities Development

Preliminary cost estimates for these recommended facilities and improvements are provided in the Ten-Year Implementation Schedule and Cost Estimates (Table 6) located in the Implementation Component of this plan. These cost estimates are based on the most cost-effective construction standards available at this time. The preliminary estimates are provided to assist the DRP in budgeting future park improvements, and may be revised as more information is collected through the planning and design processes. New facilities and improvements to existing facilities recommended by the plan include:

Maritime Hammock Trailhead

Low-water crossing or culvert

Entrance

Improve ranger station

Eagle Harbor

Redesign use area

New multi-use facility with bathroom, visitor center, and concession space

Addition of bicycle lane along park drive from entrance to Eagle Harbor

Beach Day Use Area

Remove bathhouse and restore area

Residence Area

Stilt residences (4)

Camping Area

Replace camp-to-camp boardwalk

Replace bathhouses (3)

Upgrade electric service boxes

Renovate existing sites to accommodate large RVs (up to 28 sites)

Add sites to Gulf Breeze campground (6)

New dump station

Remove old dump station and restore area

Bay View Picnic Area

Redesign use area

Replace or upgrade restroom

Restore dredged area

Add 1-mile trail

Infrastructure

Replace culverts in park drive with bridge

Assess and repair water system

Assess condition of electrical system

Existing Use and Recreational Carrying Capacity

Carrying capacity is an estimate of the number of users a recreation resource or facility can accommodate and still provide a high quality recreational experience and preserve the natural values of the site. The carrying capacity of a unit is determined by identifying the land and water requirements for each recreational activity at the unit, and then applying these requirements to the unit's land and water base. Next, guidelines are applied which estimate the physical capacity of the unit's natural communities to withstand recreational uses without significant degradation. This analysis identifies a range within which the carrying capacity most appropriate to the specific activity, the activity site, and the unit's classification is selected (see Table 6).

Table 6--Existing Use and Recreational Carrying Capacity

	Existing Capacity*		Proposed Additional Capacity		Estimated Recreational Capacity	
	One Time	Daily	One Time	Daily	One Time	Daily
Interpretive Facilities						
Wildlife Observation	36	72			36	72
Camping						
Cabins	64	64			64	64
Standard	952	952	48	48	1,000	1,000
Group	60	60			60	60
Trails						
Nature	45	180	30	120	75	300
Bicycling	19	76	28	112	47	188
Picnicking	48	96			48	96
Picnicking / Swimming	755	1,510			755	1,510
Shoreline Fishing	100	200			100	200
Boating	256	256			256	256
Canoeing / Kayaking	24	48			24	48
Park Use Area Totals	2,359	3,514	106	280	2,465	3,794

Activity/Facility	Existing Capacity		Proposed Additional Capacity		Estimated Recreational Capacity	
	One Time	Daily	One Time	Daily	One Time	Daily
Wilderness Preserve						
Hiking	32	64			32	64
Boating**	200	200			200	200
Primitive camping	35	35			35	35
Preserve Area Totals	267	299			267	299
TOTAL	2,626	3,813	106	280	2,732	4,093
*Existing capacity has been revised from approved plan to better follow DRP carrying capacity guidelines.						
**Capacity is based on the recommendations for boater access by the Wilderness Preserve Work Group (2001)						

The recreational carrying capacity for this park is a preliminary estimate of the number of users the unit could accommodate after the current conceptual development program has been implemented. When developed, the proposed new facilities would approximately increase the unit's carrying capacity as shown in Table 6.

Optimum Boundary

The optimum boundary map reflects lands that have been identified as desirable for direct management by the DRP as part of the state park. These parcels may include public as well as privately owned lands that improve the continuity of existing parklands, provide the most efficient boundary configuration, improve access to the park, provide additional natural and cultural resource protection or allow for future expansion of recreational activities. The map also identifies lands that are potentially surplus to the management needs of the DRP. As additional needs are identified through park use, development, or research, and changes to land use on adjacent private property occurs, modification of the park's optimum boundary may be necessary.



GULF COUNTY



INSET



INSET

150 ft.

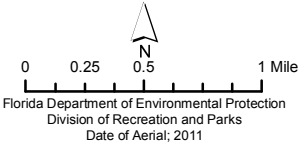
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

- Optimum Boundary
- Park Boundary

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping,

**T.H. STONE MEMORIAL
ST. JOSEPH PENINSULA STATE PARK**



OPTIMUM BOUNDARY MAP

Identification of parcels on the optimum boundary map is intended solely for planning purposes. It is not to be used in connection with any regulatory purposes. Any party or governmental entity should not use a property's identification on the optimum boundary map to reduce or restrict the lawful rights of private landowners. Identification on the map does not empower or suggest that any government entity should impose additional or more restrictive environmental land use or zoning regulations. Identification should not be used as the basis for permit denial or the imposition of permit conditions.

The current optimum boundary includes approximately 43 acres of land southwest of the park boundary. The adjacent land is designated for development of single-family residential land uses. At least part of the identified area is associated with the Secluded Dunes residential subdivision. Most of the area consists of natural vegetated area. Some development of roads and single-family homes has occurred in the southeastern portion of the identified area.

In addition, this plan recommends that the park boundary (and leased area) be extended around the perimeter of the park to include an additional 150 feet from the existing boundary (the mean high water line) into the Gulf of Mexico and St. Joseph Bay. Extending the park boundary would give the DRP the authority to manage and protect the park's submerged resources, in accordance with Chapter 258, Florida Statutes and Chapter 62D-2, Florida Administrative Code, for the purposes of visitor safety and resource protection.

IMPLEMENTATION COMPONENT

The resource management and land use components of this management plan provide a thorough inventory of the park's natural, cultural, and recreational resources. They outline the park's management needs and problems, and recommend both short and long-term objectives and actions to meet those needs. The implementation component addresses the administrative goal for the park and reports on the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) progress toward achieving resource management, operational, and capital improvement goals and objectives since approval of the previous management plan for this park. This component also compiles the management goals, objectives, and actions expressed in the separate parts of this management plan for easy review. Estimated costs for the ten-year period of this plan are provided for each action and objective, and the costs are summarized under standard categories of land management activities.

MANAGEMENT PROGRESS

Since the approval of the last management plan for T.H. Stone Memorial St. Joseph Peninsula State Park in 2000, significant work has been accomplished and progress made towards meeting DRP's management objectives for the park. These accomplishments fall within three of the five general categories that encompass the mission of the park and DRP.

Acquisition

- No subsequent acquisitions to date.

Park Administration and Operations

- The Citizen Support Organization, Friends of St. Joseph Peninsula State Park, continues to expand membership and fund raising initiatives, including tee shirt, hat, and ice, and firewood sales, to support park operations and raise the level of visitor services.
- The volunteer program has contributed approximately 85,000 hours in assistance in the areas of facility repairs, campground maintenance, and hosting.

Resource Management

Natural Resources

- Since January 1, 2001, a total of 844 acres have been burned across 12 of the park's Management Zones. Nearly 75 percent, or 625 acres, of the above total were backlogged prior to burning. Ten of the park's Management Zones were brought out of backlog burn status over the last 10 years.
- More than two miles of fire lines have been established or improved.

- Mechanical reduction has been accomplished on approximately 10 acres of previously hazardous interface fuel loads. The park's holding/fire suppression resources have been expanded with the addition of a 350-gallon water buffalo equipped with pump and hose reel, as well as a 150 gallon slide-in suppression unit. Additionally, an active partnership has been forged with the local volunteer fire department, which has routinely provided holding support during prescribed burns.
- Approximately 10,000 linear feet of beach was planted in sea oats, resulting in a significant accretion of sand at the base of the primary dune.
- Sensitive dune areas are posted and interpreted to reduce visitor disturbance.
- The protection of habitat for nesting shorebirds has been increased by posting and roping nesting areas, continuing education of visitors through signage and interpretation.
- Shorebird nesting, hatching and fledging has been monitored twice per month for the past two years resulting in better management of shorebird nesting.
- Tracking surveys have been conducted for St. Andrew beach mouse (*Peromyscus polionotus peninsularis*). The park is working with the Florida Fish and Wildlife Conservation Commission (FWC) to transition to a different method of tracking.
- The park has continued to monitor sea turtle nesting in accordance with the FWC Marine Turtle Conservation Guidelines for index nesting beaches.
- The park has continued to implement exotic wildlife and predator control programs. This program has resulted in relatively low predation of imperiled species.
- The park cooperated with FWC, US Coast Guard, and US Fish and Wildlife Service during the Mississippi Canyon block 252 oil well blowout to reduce impacts to coastal ecosystems.
- The park property has been surveyed and 9,000 feet of boundary fence has been established.
- An exotic plant survey was conducted and exotic plant species mapped.
- Two exotic plant species have been found and controlled including cogon grass (*Imperata cylindrica*) and citron melon (*Citrullus lanatus*).

Cultural Resources

- In 2001, phase 1 of an Archaeology and History Survey was completed by the University of West Florida Archaeology Institute.

Recreation and Visitor Services

- Park Rangers annually conduct approximately 30 regular scheduled interpretive programs from March September. The subjects include, but are not limited to, the identification and protection of the flora and fauna in the park, beach and bay characteristics and recreational opportunities.
- The park has been certified as a “Clean Marina” and a “Green Lodging Facility.”
- A comprehensive beach flag warning system has been established to educate and inform visitors of dangerous rip currents and marine conditions.
- As a visitor service, clothes washing and drying appliances have been provided at the Gulf Breeze and the Shady Pines campgrounds.
- Access to the restroom in the Bay View Picnic Area has been upgraded to meet ADA standards.
- Improvement and standardization of the cabin amenities and storage facility has been implemented.
- Parking spaces have been added to the Wilderness Preserve entrance area.

Park Facilities

- Approximately 950 linear feet of boardwalk has been repaired or replaced with new pressure treated lumber. These boardwalks are universally accessible.
- All eight cabins have been remodeled to include new siding, interior renovation and modern appliances. One cabin has been remodeled to ADA compliance.
- Three miles of Park Drive has been resurfaced.
- The cabins, concession building, and main shop buildings have been roofed with galvanized metal.
- An ADA compliant restroom has been added in Gulf Breeze campground and concession building.
- A 200-linear foot ADA compliant boardwalk has been added in Gulf Breeze campground.
- Twelve ADA accessible RV pads have been added in the campgrounds.
- The Eagle Harbor boat basin was dredged in the summer of 2010.

MANAGEMENT PLAN IMPLEMENTATION

This management plan is written for a timeframe of ten years, as required by Section 253.034 Florida Statutes. The Ten-Year Implementation Schedule and Cost Estimate (Table 7) summarizes the management goals, objectives, and actions that are recommended for implementation over this period, and beyond. Measures are identified for assessing progress toward completing each objective and action. A time frame for completing each objective and action is provided. Preliminary cost estimates for each action are provided and the estimated total costs to complete each objective are computed. Finally, all costs are consolidated under the following five standard land management categories: Resource Management, Administration and Support, Capital Improvements, Recreation Visitor Services, and Law Enforcement.

Many of the actions identified in the plan can be implemented using existing staff and funding. However, a number of continuing activities and new activities with measurable quantity targets and projected completion dates are identified that cannot be completed during the life of this plan unless additional resources for these purposes are provided. The plan's recommended actions, time frames, and cost estimates will guide DRP's planning and budgeting activities over the period of this plan. It must be noted that these recommendations are based on the information that exists at the time the plan was prepared. A high degree of adaptability and flexibility must be built into this process to ensure that DRP can adjust to changes in the availability of funds, improved understanding of the park's natural and cultural resources, and changes in statewide land management issues, priorities, and policies.

Statewide priorities for all aspects of land management are evaluated each year as part of the process for developing DRP's annual legislative budget requests. When preparing these annual requests, DRP considers the needs and priorities of the entire state park system and the projected availability of funding from all sources during the upcoming fiscal year. In addition to annual legislative appropriations, DRP pursues supplemental sources of funds and staff resources wherever possible, including grants, volunteers, and partnerships with other entities. DRP's ability to accomplish the specific actions identified in the plan will be determined largely by the availability of funds and staff for these purposes, which may vary from year to year. Consequently, the target schedules and estimated costs identified in Table 7 may need to be adjusted during the ten-year management planning cycle.

Table 7
T.H. Stone Memorial St. Joseph Peninsula State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 1 of 6

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal I: Provide administrative support for all park functions.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Continue day-to-day administrative support at current levels.	Administrative support ongoing	C	\$1,634,938
Objective B	Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.	Administrative support expanded	C	\$56,048
Goal II: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Conduct/obtain an assessment of the park's hydrological needs.	Assessment conducted	UFN	\$20,000
Action 1	Conduct a thorough engineering survey of the park's hydrologic conditions, particularly the old borrow pit, the access road to Hammock Trail, and the boat basin.	Assessment conducted	UFN	\$20,000
Objective B	Restore natural hydrological conditions and function to approximately 21.5 acres of salt marsh and 1.5 acres of wet prairie.	# Acres restored or with restoration underway	LT	\$1,025,000
Action 1	Restore hydrologic function between salt marsh community and St. Joseph Bay by replacing the box culvert with a bridge or other appropriate improvements.	Project completed	LT	\$1,000,000
Action 2	Redesign access road to the Hammock Trail parking area, thus restoring hydrologic function of wet prairie natural community.	Project completed	UFN	\$5,000
Action 3	Complete an engineering assessment and develop a restoration plan for the dredged basin at Mosquito Point to salt marsh community.	Project completed	UFN	\$20,000

* 2011 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 7
T.H. Stone Memorial St. Joseph Peninsula State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 2 of 6

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal III: Restore and maintain the natural communities/habitats of the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Within 10 years have 309.4 acres of the park maintained within optimal fire return interval.	# Acres within fire return interval target	LT	\$72,500
Action 1	Update and implement annual burn plan.	Plan updated and implemented	C	\$16,000
Action 2	Manage fire dependent communities for ecosystem function, structure and processes by burning approximately 43.7-113.2 acres annually, as identified by the annual burn plan.	Average # acres burned annually	C	\$56,500
Objective B	Conduct habitat/natural community restoration activities on variable acres of beach dune community and 1.5 acres of ruderal.	# Acres restored or with restoration underway	C	\$4,527,450
Action 1	Assess and implement restoration needs following storm events.	Project completed	C	\$4,000,000
Action 2	Install post, rope, and signs to discourage trampling on dunes.	Project completed	LT	\$52,450
Action 3	Conduct an engineering study of the borrow pit to determine restoration needs.	Assessment conducted	LT	\$25,000
Action 4	Develop and implement a plan to reclaim borrow pit to a basin marsh natural community.	Project completed	UFN	\$450,000
Objective C	Conduct habitat/natural community improvement activities on variable acres of beach dune community.	# Acres improved or with improvements underway	ST or LT	\$453,350
Action 1	Assess and evaluate restoration needs of beach dune community following storm events.	Improvements ongoing	C	\$400,000
Action 2	Develop and implement a restoration plan for degraded dune walkovers.	Project completed	UFN	\$53,350
Objective D	Incorporate management zones in the Wilderness Preserve into the prescribed fire program incrementally after consulting with USFWS and FWC.	# Acres improved or with improvements underway	UFN	\$153,962
Action 1	Coordinate with USFWS and FWC to plan and delineate Wilderness Preserve management zones.	Improvements ongoing	UFN	\$3,962
Action 2	Plan and implement necessary prescribed burn infrastructure.	Project completed	UFN	\$150,000

* 2011 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 7
T.H. Stone Memorial St. Joseph Peninsula State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 3 of 6

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal IV: Maintain, improve, or restore imperiled species populations and habitats in the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Update baseline imperiled species occurrence inventory lists for plants and animals, as needed.	List updated	C	\$124,800
Action 1	Conduct/obtain a thorough plant survey to determine presence and location of listed plant species.	Survey completed	UFN	\$62,400
Action 2	Conduct/obtain a thorough survey of herptofauna and insects.	Survey completed	UFN	\$62,400
Objective B	Monitor and document 8 selected imperiled animal species in the park.	# Species monitored	C	\$387,379
Action 1	Implement FWC monitoring protocols for 3 imperiled animal species including loggerhead, green, and leatherback sea turtles.	# Species monitored	C	\$155,498
Action 2	Implement monitoring protocols for 8 imperiled animal species including those listed in Action 1 and snowy plover, America oystercatcher, piping plovers, red knots, and St. Andrew Beach mice.	# Species monitored	C	\$228,935
Action 3	Continue monitoring efforts for raptors, wading and other migratory bird species.	# Species monitored	C	\$2,946
Objective C	Monitor and document 1 selected imperiled plant species in the park.	# Species monitored	C	\$1,923
Action 1	Implement monitoring protocols for 1 imperiled plant species including Godfrey's golden aster.	# Species monitored	C	\$1,923
Objective D	Explore the feasibility of reintroducing gopher tortoises.	Assessment conducted	LT	\$3,846
Action 1	Coordinate with FWC to develop reintroduction plan, if feasible and appropriate.	Plan developed	LT	\$3,846
Objective E	Prevent disturbance to nesting shorebirds.	Protection ongoing	ST	\$115,673
Action 1	Annually post and rope suitable shorebird nesting areas.	# Areas protected	C	\$76,200
Action 2	Develop and implement visitor guidance program for sensitive nesting habitat at the tip of the spit.	Program implemented	UFN	\$37,933
Action 3	Develop and implement plan to minimize beach driving, including coordinating with FWC to disseminate <i>Beach Driving Best Management Practices</i> .	Program implemented	ST	\$1,540
Objective F	Develop an arthropod control plan.	Protection ongoing	LT	\$385

* 2011 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 7
T.H. Stone Memorial St. Joseph Peninsula State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 4 of 6

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal V: Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Annually treat 0.3 acres of exotic plant species in the park.	# Acres treated	C	\$2,723
Action 1	Annually update and implement exotic plant management work plan.	Plan updated and implemented	C	\$1,100
Action 2	Implement annual work plan by treating 0.3 acres in park, annually, and continuing maintenance and follow-up treatments, as needed.	Plan implemented	C	\$1,623
Objective B	Implement control measures on 3 exotic and nuisance animal species in the park.	# Species for which control measures implemented	C	\$186,932
Action 1	Continue predator control program focusing on removal of coyotes, raccoons, and feral cats.	Removal ongoing	C	\$186,932
Goal VI: Protect, preserve and maintain the cultural resources of the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Assess and evaluate 9 of 10 recorded cultural resources in the park.	Documentation complete	LT	\$716
Action 1	Complete 9 assessments/evaluations of archaeological sites. Prioritize preservation and stabilization projects.	Assessments complete	LT	\$716
Objective B	Compile reliable documentation for all recorded historic and archaeological sites.	Documentation complete	UFN	\$17,423
Action 1	Complete a predictive model for high, medium, and low probability of locating archaeological sites within the park.	Probability Map completed	LT	\$13,764
Action 2	Finalize and adopt a Scope of Collections Statement.	Document adopted	ST	\$2,229
Action 3	Continue to conduct oral history interviews.	Interviews ongoing	LT	\$1,430
Objective C	Bring 0 of 10 recorded cultural resources into good condition.	# Sites in good condition	LT	\$1,700
Action 1	Design and implement regular monitoring programs for 9 cultural sites.	# Sites monitored	C	\$1,700

* 2011 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 7
T.H. Stone Memorial St. Joseph Peninsula State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 5 of 6

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal VII: Provide public access and recreational opportunities in the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Maintain the park's current recreational carrying capacity of 3,813 users per day.	# Recreation/visitor	C	\$1,831,130
Objective B	Expand the park's recreational carrying capacity by 280 users per day.	# Recreation/visitor	LT	\$62,774
Objective C	Continue to provide the current repertoire of 20 interpretive, educational, and recreational programs on a regular basis.	# Interpretive/education programs	C	\$25,000
Objective D	Develop 7 new interpretive, educational, and recreational programs.	# Interpretive/education programs	LT	\$17,250
Action 1	Develop/update and implement Statement for Interpretation.	Document completed/implemented	ST	\$5,000
Action 2	Develop 7 new interpretive programs.	# Interpretive/education programs	LT	\$12,250
Goal VIII: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Maintain all public and support facilities in the park.	Facilities maintained	C	\$1,961,925
Objective B	Continue to implement the park's transition plan to ensure facilities are accessible in accordance with the American with Disabilities Act of 1990.	Plan implemented	ST or LT	\$84,000
Objective C	Improve and/or repair 5 existing facilities and use areas and 1.9 miles of road as identified in the Land Use Component.	# Facilities/Miles of Trail/Miles of Road	UFN	\$2,281,290
Objective D	Develop a master plan to redesign and improve the park's existing use areas.	Master plan completed	UFN	\$20,000
Objective E	Construct 14 new facilities as identified in the Land Use Component.	# Facilities/Miles of	UFN	\$2,937,814
Objective F	Expand maintenance activities as existing facilities are improved and new facilities are developed.	Facilities maintained	C	\$67,257

* 2011 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 7
T.H. Stone Memorial St. Joseph Peninsula State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 6 of 6

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Summary of Estimated Costs

Management Categories	Total Estimated Manpower and Expense Cost* (10-years)
Resource Management	\$7,095,763
Administration and Support	\$1,690,986
Capital Improvements	\$5,323,104
Recreation Visitor Services	\$3,965,337
Law Enforcement Activities ¹	
	1 Law enforcement activities in Florida State Parks are conducted by FWC Division of Law Enforcement and by local law enforcement agencies.

* 2011 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Addendum 1 – Acquisition History

T.H. Stone Memorial St. Joseph Peninsula State Park

Purpose of Acquisition

The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) acquired T.H. Stone Memorial St. Joseph Peninsula State Park for public park and public recreational purposes. In addition, the Trustees hold fee simple title to the park.

Sequence of Acquisition

On February 4, 1964, the Trustees obtained title to a 1,956-acre property constituting the initial area of T.H. Stone Memorial St. Joseph Peninsula State Park. The property was purchased from the United States Administration of General Services. This acquisition was funded under the Land Acquisition Trust Fund (LATF) program.

Since the initial acquisition, the Trustees acquired several individual parcels under LATF, through patents and donations, as well as incorporation of submerged lands and some accretions and artificial accretions into the park, and added them to the T.H. Stone Memorial St. Joseph Peninsula State Park. Presently the park comprises approximately 2,716 acres.

Lease Agreement

On August 16, 1966, the Trustees leased the property to the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP), under Lease No. 3533. This lease is for a period of ninety-nine (99) years and will expire on August 1, 2065.

According to the lease, DRP manages T. H. Stone Memorial St. Joseph Peninsula State Park for the specific purpose of public outdoor recreation, park, conservation, and related purposes.

Special Conditions on Use

T.H. Stone Memorial St. Joseph Peninsula State Park is designated single-use to provide resource-based public outdoor recreation and other related uses. Uses such as water resource development projects, water supply projects, storm-water management projects, linear facilities, and sustainable agriculture and forestry, other than those forest management activities specifically identified in this plan, are not consistent with the management purposes of the park.

T.H. Stone Memorial St. Joseph Peninsula State Park

Outstanding Reservations

Following is a listing of outstanding rights and encumbrances that apply to T.H. Stone Memorial St. Joseph Peninsula State Park:

Type of Instrument:Sublease Agreement
Sublessor:.....DRP
Sublessee:State of Florida Agency for Persons with Disabilities
Beginning Date:December 1, 1996
Ending Date:November 30, 2021
Outstanding Rights, Uses, Etc.:The sublease agreement allows the State of Florida Agency for Persons with Disabilities to establish and operate a recreation park for disabled persons and their families on a portion of T. H. Stone Memorial St. Joseph Peninsula State Park.

Type of Instrument:Certificate of Patent
Patent issuer:.....U.S. Bureau of Land Management
Patentee:State of Florida, Outdoor Recreational Development Council
Beginning Date:August 6, 1964
Ending Date:The patent was granted in perpetuity unless it is revoked for breach of terms of patent
Outstanding Encumbrance:.....According to the patent, if the State of Florida does not use the land for intended purpose or use the property for anything other than the stated purpose without consent of the Secretary of the Interior or his/her designee, the Secretary can require the State to forfeit title to the property or pay specified amount of money.

Type of Instrument:Easement
Grantor:DRP
Grantee:The Lighthouse Utilities Company
Beginning Date:February 28, 1987
Ending Date:Coterminous with Lease No. 3533
Outstanding Encumbrance:.....This easement grants the Lighthouse Utilities Company the right to construct, install, operate and maintain a water pipeline over, under, and across a portion of the park.

T.H. Stone Memorial St. Joseph Peninsula State Park

Type of Instrument:Easement
Grantor:DRP
Grantee:Florida Power Corporation
Beginning Date:December 12, 1985
Ending Date:When the lands cease to be used for intended purpose.
Outstanding Encumbrance:This easement grants the Florida Power Corporation the right to construct, install, operate and maintain a single-phase distribution system for the transmission and distribution of electricity over, under and across a portion of the park. If said lands are not used for purposes stated in the easement document, they shall revert to the grantor.

Type of Instrument:Easement
Grantor:DRP
Grantee:Florida Power Corporation
Beginning Date:December 3, 1974
Ending Date:When the lands cease to be used for intended purpose.
Outstanding Encumbrance:This easement grants the Florida Power Corporation the right to construct, install, operate and maintain a single-phase distribution system for the transmission and distribution of electricity over, under and across a portion of state parkland. If said lands are not used for purposes stated, they will revert to the grantor.

Type of Instrument:Quitclaim Deed
Grantor:U.S. Administrator of General Services
Grantee:Trustees
Beginning Date:July 11, 1966
Ending Date:Perpetuity
Outstanding Encumbrance:According to this Quitclaim Deed, the state of Florida cannot sell, lease, assign or dispose of any portion of the subject property except to another local governmental agency approved by the Secretary of the Interior. If the state breached this condition, it would forfeit all right, title and interest in the property.

T.H. Stone Memorial St. Joseph Peninsula State Park

Type of Instrument:Quitclaim Deed
Grantor:U. S. Administrator of General Services
Grantee:Trustees
Beginning Date:February 4, 1964
Ending Date:Perpetuity
Outstanding Encumbrance:According to this Quitclaim Deed, the State of Florida could use the property only for public park and recreational purposes, beginning on the date of the conveyance, February 4, 1964.

Addendum 2 – Advisory Group Members and Report

**Department of Environmental Protection
Division of Recreation and Parks**

T.H. Stone Memorial St. Joseph Peninsula State Park
Unit Management Plan
Advisory Group
December 11th, 2013

Local Government Representatives

The Honorable Warren Yeager, Commissioner
Gulf County Board of Commissioners, District 5
1000 Cecil G. Costin, Sr. Boulevard
Port St. Joe, Florida 32456

Mark Godwin, Councilman
Tupelo Soil and Water Conservation District
127 Heritage Lane
Port St. Joe, Florida 32456

Agency Representatives

Dylan Shoemaker, Preserve Manager
St. Joseph Bay State Buffer Preserve
Florida Coastal Office
3915 State Road 30-A
Port St. Joe, Florida 32456

Amy Raybuck, Assistant Regional Biologist
Northwest Region
Florida Fish & Wildlife Conservation
Commission
Species Conservation Planning Section
3911 Highway 2321
Panama City, Florida 32409

John Sabo, Chipola River District Manager
Florida Forest Service
Florida Department of Agriculture and
Consumer Services
715 West 15th Street
Panama City, Florida 32401

Kristi Yanchis, Ecologist
U.S. Fish & Wildlife Service
1601 Balboa Avenue
Panama City, Florida 32405

Tourism Development Council Representative

Jennifer Jenkins, Director
Gulf County Tourism Development Council
Gulf County Welcome Center
150 Captain Fred's Place
Port St. Joe, Florida 32456

**Environmental and Conservation
Representatives**

David Printiss, Project Manager
The Nature Conservancy
625 North Adams Street
Tallahassee, Florida 32301

Sean McGlynn, Chapter President
Apalachee Audubon Society
Post Office Box 1237
Tallahassee, Florida 32302

Recreational User Representatives

Ronald Peterson, Chairman
Panhandle Chapter
Florida Trail Association
5415 Southwest 13th Street
Gainesville, Florida 32608

David Russell, Commodore
Port St. Joe Yacht Club
340 Marina Drive
Port St. Joe, Florida 32456

Adjacent Landowner

Patricia Hardman, President
Coastal Community Association
6773 Cape San Blas Road
Port St Joe, Florida 32456

Citizen Support Organization Representative

Dewey Blaylock, President
Friends of St. Joseph Peninsula State Park
8899 Cape San Blas Road
Port St. Joe, Florida 32456

T.H. Stone Memorial St. Joseph Peninsula State Park Advisory Group Staff Report

The Advisory Group meeting to review the proposed unit management plan (UMP) for T.H. Stone Memorial St. Joseph Peninsula State Park was held at the St. Joseph Bay State Buffer Preserve, Center, Port St. Joe, Florida on Wednesday, December 11, 2013, at 9:00 AM.

Lisa Lehnhoff represented the United States Fish & Wildlife Service. Joe Danford represented the Gulf County Soil and Water Conservation District. Patrick McElhone was in attendance with Amy Raybuck. Ron Shaeffer represented the Coastal Community Association. Lisa Lehnhoff. David Printiss was not in attendance. Ronald Peterson was not in attendance but provided written comments. Amy Raybuck provided written notes on a printed copy of the plan.

Attending Division of Recreation and Parks staff members were Daniel Jones, Tony Tindell, Mark Knapke, Raya Pruner, and Daniel Alsentzer.

Mr. Alsentzer began the meeting by explaining the purpose of the Advisory Group and reviewing the meeting agenda. He provided a brief overview of the Division of Recreation and Parks' (DRP) planning process. Mr. Alsentzer summarized public comments received during the previous evening's public workshop. Mr. Alsentzer then asked each member of the Advisory Group to express his or her comments on the draft plan.

Summary of Advisory Group Comments

Amy Raybuck (Florida Fish & Wildlife Conservation Commission (FWC)) commended the extent of prescribed burning in the park's resource management program. She noted the accretion of the north tip of the peninsula and erosion south of the Cape. Recognizing the dynamic nature of the peninsula, she inquired whether there are plans to dredge the boat channel at Eagle Harbor or renourish stretches of beach within the park where erosion has occurred. She inquired about the benefits to resource management that could be gained by acquiring parcels at the southern boundary of the park. She also inquired about the condition of the shell mound that is located near Eagle Harbor, encouraging greater protection as Eagle Harbor is redesigned. Ms. Raybuck suggested adding detail to the description of the park's salt marsh communities and offered editorial changes to the text of the draft UMP, including imperiled species listings.

Patrick McElhone (FWC) inquired about details of the prescribed fire plan for the Wilderness Preserve. He recognized that the plan calls for a modified "let it burn" policy and commended the park's continued burning of 16 out of 18 management zones. Mr. McElhone identified potential risk where fuel loads in the Wilderness Preserve are accumulating. He advised that the Wilderness Preserve would benefit from more frequent fire and accordingly recommends mitigating the intense and widespread fire that could occur. Adverse impacts of an intense fire could include stand replacement in the mature growth of the Wilderness Preserve and loss of beach mice. On the other hand, Mr. McElhone recognized the potential ecological disturbances that could result from plow lines. Selecting soil lines to burn may be an alternative strategy to plowing fire lines.

T.H. Stone Memorial St. Joseph Peninsula State Park Advisory Group Staff Report

Joe Danford (Gulf County Soil & Water Conservation Commission) noted that the abundant rainfall of the last year has resulted in an increased mosquito population and inquired whether spraying or any form of chemical treatment against mosquitos is used at the park. Mr. Danford also inquired to what extent exotic-invasive species have become established in the park, noting that the Gulf and bay typically provide an effective buffer. He further inquired how the DRP removes nuisance predators, such as raccoons and coyotes.

David Russell (Port St. Joe Yacht Club) suggests posting or marking the deepwater passes or navigable areas in the bay near the park boundary or within the aquatic preserve. He commented that buoys and channel markers throughout St. Joseph Bay are currently in disrepair or altogether lacking. Mr. Russell stated that improved navigational signage would help boaters to identify shallow seagrass beds from a distance and would reduce propeller scarring. He suggested that funding from the RESTORE Act may be available for improvements to navigational markers.

Dylan Shoemaker (St. Joseph Bay Buffer Preserve) asked for a more detailed overview of the Eagle Harbor redesign plan. He affirmed that removal of the Gulfside bathhouse will optimize the development of the beach dunes. Mr. Shoemaker emphasized that as use of Eagle Harbor continues and increases, seagrass protection will become increasingly important. He emphasized that the St. Joseph Bay Aquatic Preserve will benefit from collaborative efforts with the park.

Sean McGlynn (Apalachee Audubon Society) compliments the park's resource management program for its successful protection of a diverse range of plant and animal species. He remarked that the park is unique with much to offer for its visitors.

Jennifer Jenkins (Gulf County Tourism Development Council (TDC)) notes that Gulf County's Tourism Development Council has a strong relationship with the park. The park is a gateway to tourism in Gulf County as a whole. Many visitors are first introduced to the area through the park. The TDC would like to continue working with the park to clean the beaches and during the County's upcoming safety and stewardship initiative. The TDC plans to post a series of new signs throughout the County's coastal areas as part of the "Beach Ambassador" program to help promote stewardship by residents and visitors. Ms. Jenkins added that public information regarding seagrass protection will be increasingly significant as recreational use of the bay becomes more popular and that there is great potential for distributing boating guides and pamphlets on resource protection. Gulf County supports efforts to educate residents and visitors on these topics, as boating and fishing are among the most economically significant activities in the area. Ms. Jenkins inquired whether the park is available for weddings or other organized events and commented that the redesigned Bay View Picnic Area will improve its suitability for events.

Commissioner Warren Yeager (Gulf County Board of Commissioners) affirmed that tourism and environmental stewardship are closely linked and essential to Gulf County's development.

T.H. Stone Memorial St. Joseph Peninsula State Park Advisory Group Staff Report

He noted the significant value of ecotourism and environmentally conscious land use planning in both Gulf and Franklin counties. He recognized that the area forms one continuous ecosystem. The park attracts sustainable tourism and thereby contributes on a broad scale to the economy of Gulf County. Likewise, Gulf County's environmental stewardship is vital to the unique natural resources that continue to draw visitors to the park. Commissioner Yeager cited the Fiscal Year 2012-2013 visitation and economic impact estimates from the UMP. Among various environmental initiatives that Gulf County organizes, including a sea turtle stewardship program, coastal clean-ups routinely receive popular support and yield an immediate positive impact for both wildlife and the visitor experience.

Ron Shaeffer (Coastal Community Association) has enjoyed the park's outdoor recreational opportunities for many years. He commented that the primitive camping available in the Wilderness Preserve is unlike any other in Florida. Noting the shared interest between the park and Gulf County in public outreach and education, Mr. Shaeffer commented that vacation rental homes are effective for disseminating information to the public since visitors to the area who rent vacation homes are typically interested in brochures and flyers that may convey information about the park or environmental stewardship. Mr. Shaeffer inquired whether the park and Gulf County have recently evaluated the feasibility of a recycling program.

John Sabo (Florida Forest Service (FFS)) commended the quality of writing throughout the descriptions of complex resource management and land use planning concepts. He inquired whether DRP staff strategizes to preserve mature growth trees during prescribed burns. Comparing the park's coastal scrub environment to Topsail Hill Preserve State Park and Pine Log State Forest, he recommended raking fuel from around groups of significant trees to reduce the intensity of fire that reaches them. He further recommended recruiting new slash pines in the mesic flatwoods of the Wilderness Preserve where natural recruitment may not occur due to the shade of the closed canopy.

Dewey Blaylock (Friends of St. Joseph Peninsula State Park) commented on the potential for a snorkeling trail over the seagrass beds along the park's shoreline. He proposes that the trail could be marked by buoys and would encourage visitors to explore the park's submerged resources. Mr. Blaylock noted that heightened awareness of seagrass beds would in turn promote protection. He stated that similar aquatic trails have been developed in the Florida Keys.

Lisa Lehnhoff (U.S. Fish & Wildlife Service (USFWS)) commended the cooperative relationship between the park, Gulf County government, and the local tourism enterprises. She noted that the park maintains a critical balance between high recreational visitation and wildlife conservation. Ms. Lehnhoff commented that various funding sources are available or may become available to enhance monitoring of sea turtle and shorebird nesting and protection of the peninsula's critical habitat. Ms. Lehnhoff inquired whether beaches in the park have been proposed for tilling, noting that tilling is typically not advised unless sand has become overly

T.H. Stone Memorial St. Joseph Peninsula State Park Advisory Group Staff Report

compacted from recreational use. She explained that tilling may improve suitability of beach sand for sea turtle nesting habitat but also increases the rate of erosion. The UMP does not propose tilling.

Summary of Written Comments

Ronald Peterson (Florida Trail Association) stated that the UMP comprehensively addresses all aspects of resource management and land use planning. He commented that the Implementation Component of the plan lacks detail, compared to the highly detailed Resource Management Component. To improve the Implementation Component, he recommended prioritizing objectives and actions. Additionally, he recommended identifying actions that are appropriate for volunteers. Mr. Peterson inquired whether the DRP tracks usage statistics to help guide and prioritize improvements, i.e., the numbers of the visitors that participate in various recreational opportunities and use certain facilities. He further inquired whether visitor surveys are administered to assess public perception of park conditions and needs. He noted that visitor surveys would be useful to justify land use proposals such as expansions to the campground. Mr. Peterson also suggested providing a more detailed analysis of the support provided by volunteers relative to staff and contractors to help guide future funding needs.

Amy Raybuck (FWC) provided a written version of her comments that were stated at the Advisory Group meeting, including editorial corrections.

T.H. Stone Memorial St. Joseph Peninsula State Park Advisory Group Staff Report

Staff Recommendations

Division staff recommends approval of the proposed management plan for T.H. Stone Memorial St. Joseph Peninsula State Park as presented, with the following changes:

- Add language to the general management measures for mesic flatwoods in the Resource Management Component to assess the level of recruitment of slash pines within the Wilderness Preserve and consider planting if needed, especially after fire events.
- The state status of the Florida black bear will be revised to reflect its recent down-listing according the FWC imperiled species ranking.
- The salt marsh community description will be revised to reflect more of the faunal species diversity.

Additional revisions were made throughout the document to address editorial corrections, consistency of spellings and notations, and other minor corrections.

Notes on Composition of the Advisory Group

Florida Statutes Chapter 259.032 Paragraph 10(b) establishes a requirement that all state land management plans for properties greater than 160 acres will be reviewed by an advisory group:

“Individual management plans required by s. 253.034(5), for parcels over 160 acres, shall be developed with input from an advisory group. Members of this advisory group shall include, at a minimum, representatives of the lead land managing agency, co-managing entities, local private property owners, the appropriate soil and water conservation district, a local conservation organization, and a local elected official.”

Advisory groups that are composed in compliance with these requirements complete the review of State park management plans. Additional members may be appointed to the groups, such as a representative of the park’s Citizen Support Organization (if one exists), representatives of the recreational activities that exist in or are planned for the park, or representatives of any agency with an ownership interest in the property. Special issues or conditions that require a broader representation for adequate review of the management plan may require the appointment of additional members. DRP’s intent in making these appointments is to create a group that represents a balanced cross-section of the park’s stakeholders. Decisions on appointments are made on a case-by-case basis by DRP staff.

Addendum 3 – References Cited

T.H. Stone Memorial St. Joseph Peninsula State Park

- Avissar N., C. Burney and N. Douglass. 2012. Guidelines for posting shorebird and seabird sites in Florida. Florida Shorebird Alliance, 21pp.
- Benchley, E.D. and J.A. Bense, 2001. Archaeology and history of St. Joseph Peninsula State Park. Phase I investigations. University of West Florida Archaeology Report of Investigations, No. 89. 131 pp.
- Bureau of Beaches and Coastal Systems. 2009. Critically eroded beaches in Florida 2009. Florida Department of Environmental Protection. 77 pp.
- Campbell, K.M., 1984. A Geologic Guide to the State Parks of the Florida Panhandle Coast, St George Island, St Joseph Peninsula, St. Andrews and Grayton Beach Parks and Recreation Areas. Leaflet No. 13. 23pp.
- Drewa, P.B., W.J. Platt, C. Kwit and T.W. Doyle. 2008. Stand structure and dynamics of sand pine differ between the Florida panhandle and peninsula. *Plant Ecology* 196: 15-25.
- Enterprise Florida. 2010. Rural Strategic Marketing.
<http://www.eflorida.com/FloridasFuture.aspx?id=2108>. Accessed October 26, 2010.
- FDEP, Division of Recreation and Parks (DRP). 2000. T.H. Stone Memorial St. Joseph Peninsula State Park Unit Management Plan. Tallahassee, Florida. 104 pp.
- FDEP, DRP. 2010. FY 2009/2010 Florida State Park System Economic Impact Assessment. Tallahassee, Florida. 9 pp.
- Florida Fish and Wildlife Conservation Commission (FWC). 2005. Florida's Wildlife Legacy Initiative. Florida's Comprehensive Wildlife Conservation Strategy. Tallahassee, Florida, USA.
- FWC. 2007. Marine Turtle Conservation Guidelines. Fish and Wildlife Research Institute, St. Petersburg, Florida.
- FWC. 2009. Fish and Wildlife Research Institute, Sea Turtle Nesting Report for 2009 at St Joseph Peninsula State Park. Permit holder 147-31.
- FWC. 2010a. Fish and Wildlife Research Institute, Sea Turtle Nesting Report for 2010 at St Joseph Peninsula State Park. Permit holder 147-31.
- FWC 2010b. *Best Management Practices for Operating Vehicles on the Beach*.
http://myfwc.com/docs/Conservation/beach_drive_flyer_clr.pdf
- Florida Natural Areas Inventory (FNAI). 2010. Guide to the Natural Communities of Florida: 2010 edition. Florida Natural Areas Inventory. Tallahassee, FL

T.H. Stone Memorial St. Joseph Peninsula State Park

- Galvez, J. 1997. The Florida Elusive Snowbird. University of Florida: Bureau of Economic and Business Research. 2 pp. http://www.bebr.ufl.edu/files/snowbirds_0.pdf. Accessed July 22, 2011.
- Gulf County Board of County Commissioners (BOCC). 2007. Gulf County, Florida, Evaluation and Appraisal Report (EAR). <http://www.gulfcounty-fl.gov/forms.cfm>. Accessed July 22, 2011.
- Gulf County BOCC. No date. *Gulf County BOCC Strategic Plan 2006-2011*. <http://www.gulfcounty-fl.gov/forms.cfm>. Accessed July 22, 2011.
- Gulf County BOCC. Revised thru 2009. *Gulf County Comprehensive Plan*. <http://www.gulfcounty-fl.gov/forms.cfm>. Accessed July 22, 2011.
- Gulf County BOCC. Adopted December 2010. *Gulf County, Florida 2006-2020 Future Land Use Map*. <http://www.gulfcounty-fl.gov/forms.cfm>. Accessed July 22, 2011.
- Himes, J. G., N. J. Douglass, R. A. Pruner, A. M. Croft, and E. M. Seckinger. 2006. Status and Distribution of the Snowy Plover in Florida. 2006 study final report. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, 27 pp.
- Huck, R., A.F. Johnson, A.J. Parker, W.J. Platt and D.B. Ward. 1997. Management of Natural Communities of Choctawatchee sand pine (*Pinus clausa* (Egelm.) Sarg. Var. *immuginata* Ward) in the Florida panhandle. Resource Management Notes, Florida Park Service, Florida Department of Environmental Protection. 8 (4): 89-91.
- Leatherman, S.P. 2002. Best Beaches in America. <http://www.drbeach.org/pastwinners.htm>
- Parker, A.J., K.C. Parker and D.H. McCay. 2001. Disturbance-mediated variation in stand structure between varieties of *Pinus clausa* (sand pine). *Annals of the Association of American Geographers*. 91(1): 28-47.
- Pruner, R.A. 2010. Conservation and management of the Snowy Plover along the Florida Gulf Coast: Habitat selection, reproductive performance, and the effects of anthropogenic disturbance [thesis]. The University of Florida, Gainesville, FL, 103p.
- Pruner, R.A, M. J. Friel, and J. A. Zimmerman. 2011. Interpreting the influence of habitat management actions on shorebird nesting activity at coastal state parks in the Florida panhandle. 2010-11 study final report. Department of Environmental Protection, Florida Park Service, Panama City, Florida.
- Puri, H.S. and R.O. Vernon. 1964. Geologic Map of Florida, Florida Bureau of Geology Map Series 18.
- Rupert, F. 1991. Geology of Gulf County, Florida. Florida Geological Survey, Bulletin #63.

T.H. Stone Memorial St. Joseph Peninsula State Park

- Smith, S.K. and M. House. 2004. Snowbirds and Other Temporary Residents. University of Florida: Bureau of Economic and Business Research. 8 pp.
- Spector, T. 2009. Summary of St Andrew Beach Mice (*Peromyscus polionotus peninsularis*) sand tracking data from 1997-2009. Florida Park Service, District 1, Department of Environmental Protection. Dec 2009. 10pp.
- Spector, T. 2010. Collected cores for St Joseph Preserve State Park old growth tree assessment. FDEP, Division of Recreation and Parks, District 1.
- U.S. Census Bureau. 2010. State and County Quickfacts: Gulf County, Florida. <http://quickfacts.census.gov/qfd/states/12/12101.html>. Accessed December 3, 2010
- U.S. Department of Commerce, Bureau of Economic Analysis (BEA). 2011. Regional Economic Accounts, Personal income and employment summary: Gulf County, Florida. <http://www.bea.gov/regional/reis/action.cfm>. Accessed May 31, 2011.
- U.S. Department of Labor, Bureau of Labor Statistics (BLS). 2010. Labor Force Data by County, 2009 Annual Averages. <ftp://ftp.bls.gov/pub/special.requests/la/laucnty09.txt>. Accessed October 26, 2010.
- U.S. Fish and Wildlife Service. 2012. Draft Comprehensive Conservation Strategy for the Piping Plover (*Charadrius melodus*) in its Coastal Migration and Wintering Range I the Continental United State. East Lansing, Michigan.
- Visit Florida!. 2010. 2009 Domestic Visitor Profile by Florida Vacation Region. 13 pp. In *Florida Visitor Survey/2009*.
- Varner J.M., D.R. Gordon, F.E. Putz, and J.K. Hiers, 2005. Restoring fire to long unburned *Pinus palustris* ecosystems: Novel fire effects and consequences for long unburned ecosystems. *Restoration Ecology* 13:539-544.
- University of Florida, Bureau of Economic and Business Research (BEBR). 2010. *Florida Statistical Abstract*.

Addendum 4 – Soil Descriptions

(2) Albany Sand- This very deep, somewhat poorly drained soil is on broad flats and knolls on the southern Coastal Plain. Slopes range from 0 to 2 percent. Individual areas are elongated or irregular in shape. They range from 5 to 100 acres in size.

Typically, the surface layer is very dark gray sand about 7 inches thick. The subsurface layer, to a depth of 41 inches, is loamy sand. It is light yellowish brown in the upper part and very pale brown in the lower part. The subsoil extends to a depth of 80 inches. In the upper part, it is light gray sandy clay loam that has light olive brown, light reddish brown and pink mottles.

Albany and similar soils make up 72 to 88 percent of the map unit in 80 percent of the areas mapped as Albany sand. Included in mapping are Blanton, Leefield, Ortega, Plummer, Ridgewood and Sapelo soils. The moderately well drained Blanton and Ortega soils are on the higher ridges and knolls. Leefield soils are in positions similar to those of the Albany soil and have plinthite in the subsoil. The poorly drained Plummer soils are in the depressions. Ridgewood soils are sandy throughout. The poorly drained Sapelo soils are in slight depressions and along the edges of the lower depressions.

The seasonal high water table is at a depth of 12 to 30 inches from December through March. Available water capacity is low. Permeability is moderate or moderately slow in the subsoil.

The soil is in the North-Florida Flatwoods ecological community. In most areas the natural vegetation includes slash pine, longleaf pine, live oak, laurel oak and sweetgum and an understory of saw palmetto, huckleberry, greenbrier and wiregrass.

(7) Bayvi and Dirego soils, frequently flooded- These very deep, very poorly drained soils are in salt marshes and tidal bays along the coast. Slopes are 0 to 1 percent. Individual areas are generally elongated. They range from 5 to 600 acres in size. The composition of this map unit is variable, but the mapping was sufficiently controlled to evaluate the soils for expected uses. Some areas consist mainly of one of the soils, and other areas contain both soils in variable proportions.

The Bayvi soil makes up about 45 percent of the map unit. Typically, the surface layer extends to a depth of 26 inches. In the upper part, it is very dark brown fine sand. In the lower part, it is very dark grayish brown fine sand. The underlying material extends to a depth of 80 inches. In the upper part, it is dark gray fine sand that has light gray mottles. In the lower part, it is light brownish gray fine sand. The Dirego soil makes up about 40 percent of the map unit. Typically, the surface layer extends to a depth of 19 inches. In the upper part, it is very dark grayish brown muck. In the lower part, it is very dark brown muck. The underlying material extends to a depth of 80 inches. In the upper part, it is dark brown mucky sand. In the lower part, it is grayish brown sand that has dark grayish brown mottles.

Bayvi, Dirego, and similar soils make up 85 to 100 percent of the map unit in 95 percent of the areas mapped as Bayvi and Dirego soils, frequently flooded. Included in mapping are poorly drained Duckston and Leon soils. Duckston soils are on the edges of tidal marshes on low coastal flats. Leon soils are in the slightly higher positions and have dark subsoil layers. Also included are soils that are similar to the Bayvi soil but have either a thin surface layer or a loamy underlying layer.

The water table is at the surface to a depth of 12 inches year around. Flooding occurs daily during normal high tides. Available water capacity is very low. Permeability is very rapid in the Bayvi soil and rapid in the Dirego soil. The Bayvi soil is very slightly saline to strongly saline. The Dirego soil is strongly saline. The content of sulfur in the surface layer of the Dirego soil ranges from 0.75 to 5.5 percent.

(8) Beaches- Beaches are narrow strips of nearly level, mixed deposits of sand and shell fragments along the Gulf of Mexico and adjacent bays. Beaches range in width from less than 100 feet to more than 300 feet. As much as half of a mapped area may be flooded daily by high tides, and all of the area can be flooded by storm tides. The most extensive areas of this map unit are on the coast near Cape San Blas, St. Joe Peninsula, and St. Joe Beach. Slopes range from 0 to 2 percent. Beaches typically consist of loose, gray and white fine sand or sand containing various quantities of broken shells throughout. Shell fragments are mostly sand sized but may be larger in some parts of the profile. Layers differ primarily in color or in shell content. Some profiles appear uniform throughout.

Included in mapping are small areas of Corolla and Duckston soils. These soils are on the landward edges of the mapped areas. The moderately well drained Corolla soils are on low dunes. The poorly drained and very poorly drained Duckston soils are in swales. Beaches are partly or entirely covered by saltwater daily during high tides and are subject to movement by the wind and tide.

The water table is dependent on tide and elevation and is too variable to predict. Permeability generally is rapid or very rapid.

(10) Corolla fine sand, 1 to 5 percent slopes- This very deep, moderately well drained and somewhat poorly drained soil is on nearly level flats, on small dunes, and in swales on large dunes along the gulf coast beaches. Slopes generally are less than 3 percent but range to 5 percent. Individual areas are narrow and elongated. They range from 5 to 100 acres in size. Typically, the surface layer is very pale brown fine sand about 4 inches thick. The upper part of the substratum, to a depth of 24 inches, is very pale brown fine sand. Below this, from a depth of 24 to 29 inches, is a buried surface horizon of light gray fine sand that has black pockets and streaks. The next part of the substratum, from a depth of 29 to 45 inches, is white fine sand. It has mottles in shades of brown below a depth of 39 inches. Below this, from a depth of 45 to 52 inches, is a second buried

surface horizon of very dark gray fine sand. The lower part of the substratum, to a depth of 80 inches, is light gray and gray sand that has black pockets and streaks.

Included in mapping are Beaches and Duckston, Kureb, Newhan, and Resota soils. The poorly drained Beaches are on low flats adjacent to the gulf and bays. The poorly drained and very poorly drained Duckston soils are in low swales and on low, broad flats. The excessively drained Kureb soils and the moderately well drained Resota soils are on high, stable, remnant dunes. The excessively drained Newhan soils are on high coastal dunes. The seasonal high water table is at a depth of 18 to 36 inches from November through May. Available water capacity is very low. Permeability is very rapid throughout.

(14) Duckston-Duckston, depressional, complex, frequently flooded- These poorly drained and very poorly drained, very deep soils are on level flats adjacent to coastal dunes and marshes and in low dune swales. The poorly drained Duckston soil is on broad flats between dune ridges. The very poorly drained Duckston, depressional, soil is in closed or seasonally closed depressions on the broad flats or in low, flat areas that are transitional to the coastal marshes. Slopes range from 0 to 2 percent. This map unit consists of about 60 percent poorly drained Duckston soil and 35 percent very poorly drained Duckston, depressional, soil. Individual areas are so intermingled on the landscape that it was impractical to separate them at the scale selected for mapping. Mapped areas are elongated in shape and range from 5 to 50 acres in size. Typically, the surface layer of the Duckston soil is very dark gray sand about 2 inches thick. The substratum extends to a depth of 80 inches. In the upper part, it is light brownish gray sand. In the lower part, it is light gray sand that has 5 to 10 percent, by volume, shell fragments. Typically, the surface layer of the Duckston, depressional, soil is black mucky sand about 2 inches thick. The substratum extends to a depth of 80 inches. It is light brownish gray sand in the upper part and white sand in the lower part.

Duckston and similar soils make up 75 to 100 percent of the map unit in 95 percent of the areas mapped as Duckston-Duckston, depressional, complex, frequently flooded. Included in mapping are somewhat poorly drained Corolla soils in the higher positions on low dunes. The poorly drained Duckston soil has a continuous high water table at the surface to a depth of 6 inches year around. The very poorly drained Duckston, depressional, soil has a continuous high water table 12 inches above the surface to the surface year around.

The depth to the water table fluctuates slightly because of the tides. Flooding is likely when heavy rain occurs in combination with high tides or during strong coastal storms. Some areas are flooded by high tides several times each month. Available water capacity is very low. Permeability is very rapid throughout.

(23) Maurepas muck, frequently flooded- This very deep, very poorly drained soil is on flood plains consisting of slightly brackish swamps and marshes. Slopes are 0 to 1 percent. Individual areas are elongated or irregular in shape and range from 5 to several hundred acres in size. This soil is flooded at least several times each month by high tides. The elevation and frequency of flooding generally are greater in the areas closer to the coast. Typically, the surface layer is very dark brown muck about 3 inches thick. The subsurface layer is black muck to a depth of 80 inches or more.

Maurepas and similar soils make up 80 to 100 percent of the map unit in 95 percent of the areas mapped as Maurepas muck, frequently flooded. Included in mapping are very poorly drained Bayvi and Pickney soils on slight rises.

The seasonal high water table is 12 inches above the surface to a depth of 6 inches year around. The depth to the water table fluctuates slightly because of the tide. This soil is flooded by high tides at least several times each month. Available water capacity is very high. Permeability is rapid throughout.

(46) Corolla-Duckston complex, gently undulating, flooded- These very deep, moderately well drained to poorly drained soils are on low ridges, on flats, and in swales. They are on the coast. The somewhat poorly drained to moderately well drained Corolla soil is on low ridges. The poorly drained Duckston soil is on broad flats. Slopes range from 0 to 2 percent in areas of the Duckston soil and from 0 to 6 percent in areas of the Corolla soil.

This map unit consists of about 50 percent Corolla soil, 40 percent poorly drained Duckston soil, and 10 percent very poorly drained Duckston soil. Individual areas of these soils are so narrow that it was impractical to separate them at the scale selected for mapping. Mapped areas are elongated in shape and range from 15 to several hundred acres in size. Typically, the surface layer of the Corolla soil is very pale brown sand about 4 inches thick. The upper part of the substratum, to a depth of 24 inches, is very pale brown fine sand. Below this, from a depth of 24 to 29 inches, is a buried surface horizon of very dark gray fine sand that has black pockets and streaks. The next part of the substratum, from a depth of 29 to 45 inches, is white fine sand. This part of the substratum has mottles in shades of brown below a depth of 39 inches. A second buried surface horizon is at a depth of 45 to 52 inches. It is very dark gray fine sand. The lower part of the substratum, to a depth of 80 inches, is light gray and gray sand that has black pockets and streaks. Typically, the surface layer of the Duckston soil is very dark gray sand about 2 inches thick. The upper part of the substratum is light brownish gray sand to a depth of 7 inches. The lower part to a depth of 80 inches or more is light gray sand containing shell fragments.

Corolla, Duckston, and similar soils make up 95 to 100 percent of the map unit in 95 percent of the areas mapped as Corolla-Duckston complex, 0 to 6 percent slopes, flooded. Included in mapping are Bayvi and Kureb soils. The very poorly drained Bayvi soils are in the tidal marshes. The excessively drained Kureb soils are on high, stable, secondary dunes.

The seasonal high water table is at a depth of 18 to 36 inches from November through May in the Corolla soil. The Duckston soil has a continuous high water table at the surface to a depth of 6 inches throughout most years.

The depth to the water table in the Duckston soil fluctuates slightly because of the tide. Flooding on the Duckston soil is likely when heavy rain occurs in combination with high tides or during coastal storms. The Corolla soil is subject to rare flooding during strong coastal storms. Available water capacity is low or very low. Permeability is very rapid throughout.

(47) Newhan-Corolla complex, rolling- These very deep, excessively drained and somewhat poorly drained soils are on remnant coastal dunes and in swales. Slopes generally are 5 to 15 percent but range from 2 to 20 percent. Individual areas are long and narrow and range from 25 to 250 acres in size. The Newhan soil is in the higher dune positions. The Corolla soil is on low dunes and in high swales between dunes. This map unit consists of about 65 percent Newhan soil and 30 percent Corolla soil. Individual areas of these soils are so narrow and intermingled that it was impractical to separate them at the scale selected for mapping. Typically, the surface layer of the Newhan soil is gray fine sand about 1 inch thick. The substratum is white fine sand to depth of 80 inches or more. Typically, the surface layer of the Corolla soil is gray fine sand about 5 inches thick. The underlying material extends to a depth of 80 inches or more. It is light gray fine sand in the upper part, white fine sand in the next part, and light gray fine sand that has coarse white patches in the lower part.

Newhan, Corolla, and similar soils make up 95 to 100 percent of the map unit in 95 percent of the areas mapped as Newhan-Corolla complex, rolling. Included in mapping are poorly drained and very poorly drained Duckston soils in low swales and depressions.

The seasonal high water table is below a depth of 72 inches throughout the year in areas of the Newhan soil. It is at a depth of 18 to 36 inches from November through May in areas of the Corolla soil. Available water capacity is very low. Permeability is very rapid.

(48) Kureb-Corolla complex, rolling- These very deep, excessively drained to somewhat poorly drained soils are on remnant coastal dunes and in swales. Slopes generally are 5 to 15 percent but range from 2 to 20 percent. Individual areas are

elongated and range from 25 to 250 acres in size. The Kureb soil is on high dunes. The Corolla soil is on low dunes and in high swales between dunes.

This map unit consists of about 65 percent Kureb soil and 30 percent Corolla soil. Individual areas of these soils are so narrow and intermingled that it was impractical to separate them at the scale selected for mapping. Typically, the surface layer of the Kureb soil is gray fine sand about 2 inches thick. The subsurface layer is white fine sand to a depth of 12 inches. It tongues into the subsoil, which is light yellowish brown fine sand to a depth of 35 inches. The upper part of the underlying material, to a depth of 50 inches, is white fine sand that has thin strata of light yellowish brown sand. The lower part, to a depth of 80 inches or more, is white fine sand that has strata of black heavy minerals. Typically, the surface layer of the Corolla soil is very pale brown fine sand about 4 inches thick. The upper part of the substratum, to a depth of 24 inches, is very pale brown fine sand. Below this, from a depth of 24 to 29 inches, is a buried surface horizon. It is light gray fine sand that has black pockets and streaks. The next part of the substratum, from a depth of 29 to 45 inches, is white fine sand. It has mottles in shades of brown below a depth of 39 inches. Below this, from a depth of 45 to 52 inches, is a second buried surface horizon. It is very dark gray fine sand. The lower part of the substratum, to a depth of 80 inches, is light gray and gray sand that has black pockets and streaks.

Kureb, Corolla, and similar soils make up 95 to 100 percent of the map unit in 95 percent of the areas mapped as Kureb-Corolla complex, rolling. Included in mapping are poorly drained and very poorly drained Duckston soils in low swales and in depressions.

The seasonal high water table is below a depth of 72 inches throughout the year in the Kureb soil. It is at a depth of 18 to 36 inches from November through May in the Corolla soil. Available water capacity is very low. Permeability is rapid in the Kureb soil and very rapid in the Corolla soil.

(49) Quartzipsamments, undulating- These very deep, somewhat poorly drained to excessively drained, modified soils are on high deposits of sandy dredge spoil, primarily along the Gulf County Canal. Slopes range from 0 to 5 percent. Individual areas are elongated and blocky in shape and range from 15 to 100 acres in size. Quartzipsamments formed in sandy dredge spoil. No single pedon is typical of this map unit. In a commonly encountered profile, however, the surface layer is light gray coarse sand about 4 inches thick. The underlying material is very pale brown coarse sand to a depth of 80 inches or more.

Quartzipsamments and similar soils make up 90 to 100 percent of the map unit in 95 percent of the areas mapped as Quartzipsamments, undulating. Included in mapping are poorly drained Duckston soils on low flats. Also included are soils that are similar

to Quartzipsamments but have thin loamy layers within a depth of 60 inches. These similar soils are in landscape positions similar to those of the Quartzipsamments.

The seasonal high water table is at a depth of more than 72 inches. Other soil properties are so variable that they cannot be adequately predicted without onsite investigation.

Addendum 5 – Plant And Animal List

T.H. Stone Memorial St. Joseph Peninsula State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat (for imperiled species)
-------------	------------------------	--

FUNGI

Sand amanita	<i>Amanita baccata</i>
Indigo milky caps.....	<i>Lactarius indigo</i>

LICHENS

Ressurrection cladonia.....	<i>Cladonia prostrata</i>
-----------------------------	---------------------------

PTERIDOPHYTES

Royal fern	<i>Osmunda regalis</i>
Resurrection fern.....	<i>Polypodium polypodoides</i>
Bracken fern	<i>Pteridium aquilinum</i>
Marsh fern.....	<i>Thelypteris palustris</i>
Virginia chain fern	<i>Woodwardia virginica</i>

GYMNOSPERMS

Southern red cedar.....	<i>Juniperus silicicola</i>
Sand pine.....	<i>Pinus clausa</i>
Slash pine	<i>Pinus elliottii</i>

ANGIOSPERMS

MONOCOTS

Bushy bluestem	<i>Andropogon glomeratus</i>
Broomsedge	<i>Andropogon virginicus</i>
Wiregrass.....	<i>Aristida stricta</i>
Wood oats grass	<i>Chasmanthium laxum</i>
Sawgrass.....	<i>Cladium jamaicense</i>
Witchgrass.....	<i>Dichanthelium spp.</i>
Fimbristylis	<i>Fimbristylis caroliniana</i>
Umbrella sedge.....	<i>Fuirena scirpoidea</i>
Beach elder	<i>Iva imbricata</i>
Needlerush.....	<i>Juncus roemerianus</i>
Muhly grass	<i>Muhlenbergia capillaris</i>
Woodsgrass.....	<i>Oplismenus hirtellus</i>
Bitter panicum	<i>Panicum amarum amarulum</i>
Fall panicum	<i>Panicum dichotomiflorum</i>
Switchgrass	<i>Panicum virgatum</i>
Knotgrass.....	<i>Paspalum distichum</i>
Natalgrass.....	<i>Rhychelytrum repens</i>
Horned beaksedge	<i>Rhynchospera inudata</i>

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Plants

Common Name	Scientific Name	Primary Habitat (for imperiled species)
-------------	-----------------	--

Sandy field beaksedge.....	<i>Rhynchospera megalocarpa</i>	
Longbeak beaksedge	<i>Rhynchospera scirpoides</i>	
Arrowhead	<i>Sagittaria lancifolia</i>	
Gulf Bluestem	<i>Schizachyrium maritimum</i>	
Knotroot Foxtail	<i>Setaria geniculata</i>	
Greenbrier	<i>Smilax auriculata</i>	
Catbriar	<i>Smilax bona-nox</i>	
Jackson-brier	<i>Smilax smallii</i>	
Saltmarsh cordgrass.....	<i>Spartina alterniflora</i>	
Marshhay.....	<i>Spartina patens</i>	
Smutgrass.....	<i>Sporobolus indicus</i>	
Virginia dropseed	<i>Sporobolus virginicus</i>	
Arrowgrass.....	<i>Triglochin striata</i>	
Sea oats	<i>Uniola paniculata</i>	
Shortleaf yellow eyed grass.....	<i>Xyris brevifolia</i>	
Carolina yellow eyed grass.....	<i>Xyris caroliniana</i>	
Spanish bayonet	<i>Yucca aloifolia</i>	

DICOTS

Tenlobe false foxglove.....	<i>Agalinis obtusifolia</i>	
Purple false foxglove	<i>Agalinis purpurea</i>	
Common ragweed.....	<i>Ambrosia artemisiifolia</i>	
Pepper-vine.....	<i>Ampelopsis arborea</i>	
Red chokeberry.....	<i>Aronia arbutifolia</i>	
Milkweed.....	<i>Asclepias humistrata</i>	
Salt marsh aster	<i>Aster subulatus</i>	
Perennial salt marsh aster	<i>Aster tenuifolius</i>	
Seabeach orach	<i>Atriplex cristata</i>	
Silverling	<i>Baccharis glomeruliflora</i>	
Salt bush	<i>Baccharis halimifolia</i>	
Yellow buttons.....	<i>Balduina angustifolia</i>	
Saltwort.....	<i>Batis maritima</i>	
Rattan vine	<i>Berchemia scandens</i>	
Sea oxeye	<i>Borrichia frutescens</i>	
Deer's tongue.....	<i>Carphephorus odoratissimus</i>	
Mockernut hickory.....	<i>Carya tomentosa</i>	
Partridge-pea	<i>Cassia fasciculata</i>	
Wild sensitive plant	<i>Cassia nictitans</i>	
Seaside bean.....	<i>Canavalia rosea</i>	
Centella.....	<i>Centella asiatica</i>	
Butterfly-pea	<i>Centrosema virginianum</i>	

T.H. Stone Memorial St. Joseph Peninsula State Park Plants

Common Name	Scientific Name	Primary Habitat (for imperiled species)
Buttonbush.....	<i>Cephalanthus occidentalis</i>	
Florida rosemary	<i>Ceratiola ericoides</i>	
Sensitive pea	<i>Chamaecrista nictitans</i>	
Sand-dune spurge	<i>Chamaesyce ammannoides</i>	
Snowberry	<i>Chiocacca alba</i>	
Woody goldenrod	<i>Chrysoma pauciflosculosa</i>	
Godfrey's golden aster	<i>Chrysopsis godfreyi</i>	SC, SCF
Bull thistle	<i>Cirsium vulgare</i>	
Tread softly	<i>Cnidocolus stimulosus</i>	
Conradina.....	<i>Conradina canescens</i>	
*Rattle-box.....	<i>Crotalaria pallida</i>	
Rabbit-bells	<i>Crotalaria rotundifolia</i>	
Croton	<i>Croton glandulosus</i>	
Beach tea.....	<i>Croton punctatus</i>	
Dodder	<i>Cuscuta pentagona</i>	
Gulf coast swallow wort	<i>Cynanchum angustifolium</i>	
Zarabacoa comun.....	<i>Desmondium incanum</i>	
Starrush.....	<i>Dichromena colorata</i>	
Poor joe	<i>Diodia teres</i>	
Buttonweed	<i>Diodia virginiana</i>	
Dwarf sundew	<i>Drosera brevifolia</i>	
Pink sundew	<i>Drosera capillaris</i>	
Southern fleabane	<i>Erigeron quercifolius</i>	
Coralbean	<i>Erythrina herbacea</i>	
Dog fennel	<i>Eupatorium capillifolium</i>	
Late flowering thoroughwort.....	<i>Eupatorium serotinum</i>	
Goldenrod	<i>Euthamia minor</i>	
Creeping morning-glory	<i>Evolvulus sericeus</i>	
Cottonweed.....	<i>Froelichia floridana</i>	
Milk-pea.....	<i>Galactia microphylla</i>	
Woolly huckleberry	<i>Gaylussacia mosieri</i>	
Scratch daisy	<i>Haplopappus divaricatus</i>	
Diamond-flower	<i>Hedvotis nigricans</i>	
Rockrose	<i>Helianthemum arenicola</i>	
Rockrose	<i>Helianthemum corymbosum</i>	
Telegraph weed	<i>Heterotheca subaxillaris</i>	
Hydrocotyle	<i>Hydrocotyle bonariensis</i>	
St. John's wort.....	<i>Hypericum cistifolium</i>	
St. Peter's wort.....	<i>Hypericum crux-andrae</i>	
Pineweed	<i>Hypericum gentianoides</i>	
St. Andrew's Cross.....	<i>Hypericum hypericoides</i>	

T.H. Stone Memorial St. Joseph Peninsula State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat (for imperiled species)
Hypericum	<i>Hypericum tetrapetalum</i>	
Gallberry.....	<i>Ilex glabra</i>	
Dahoon holly	<i>Ilex cassine</i>	
Yaupon.....	<i>Ilex vomitoria</i>	
Cogon grass.....	<i>Imperata cylindrica</i>	
Beach morning-glory	<i>Ipomoea imperati</i>	
Railroad vine.....	<i>Ipomoea pes-caprae</i>	
Saltmarsh morning-glory.....	<i>Ipomoea sagittata</i>	
Marsh elder	<i>Iva frutescens</i>	
Beach elder	<i>Iva imbricata</i>	
Saltmarsh mallow	<i>Kosteletzkya virginica</i>	
Peppergrass.....	<i>Lepidium virginicum</i>	
Chapman's blazing star.....	<i>Liatris chapmanii</i>	
Blazing star.....	<i>Liatris tenuifolia</i>	
Gopher apple	<i>Licania michauxii</i>	
Flax.....	<i>Linum spp.</i>	
Ludwigia	<i>Ludwigia alata</i>	
Staggerbush.....	<i>Lyonia ferruginea</i>	
Fetterbush.....	<i>Lyonia lucida</i>	
Southern magnolia.....	<i>Magnolia grandiflora</i>	
Sweetbay.....	<i>Magnolia virginiana</i>	
Barbara's buttons.....	<i>Marshallia graminifolia</i>	
White sweet-clover	<i>Melilotus alba</i>	
Mikania.....	<i>Mikania scandens</i>	
Spotted beebalm.....	<i>Monarda punctata</i>	
Wax myrtle.....	<i>Myrica cerifera</i>	
White-water-lily	<i>Nyphaea odorata</i>	
Seaside evening-primrose.....	<i>Oenothera humifusa</i>	
Prickly pear	<i>Opuntia humifusa</i>	
Tuna cactus	<i>Opuntia pusilla</i>	
Prickly pear	<i>Opuntia stricta stricta</i>	
Wild olive	<i>Osmanthus americanus</i>	
Sand-squares.....	<i>Paronychia rugelii</i>	
Woodbine	<i>Parthenocissus quinquefolia</i>	
Knotgrass.....	<i>Paspalum distichum</i>	
Redbay	<i>Persea borbonia</i>	
Swamp redbay.....	<i>Persea palustris</i>	
Ground-cherry.....	<i>Physalis angustifolia</i>	
Pokeweed	<i>Phytolacca americana</i>	
Golden aster	<i>Pityopsis graminifolia</i>	
Stinking camphorweed	<i>Pluchea foetida</i>	

T.H. Stone Memorial St. Joseph Peninsula State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat (for imperiled species)
Salt marsh fleabane	<i>Pluchea odorata</i>	
Milkwort.....	<i>Polygala brevifolia</i>	
Milkwort.....	<i>Polygala grandiflora</i>	
Candyroot	<i>Polygala lutea</i>	
Candyroot	<i>Polygala nana</i>	
October-flower.....	<i>Polygonella polygama</i>	
Proserpinaca	<i>Proserpinaca pectinata</i>	
Black cherry.....	<i>Prunus serotina</i>	
Mock Bishop's-weed.....	<i>Ptilimnium capillaceum</i>	
Sand-live oak	<i>Quercus geminata</i>	
Myrtle oak	<i>Quercus myrtifolia</i>	
Live oak	<i>Quercus virginiana</i>	
Meadow beauty	<i>Rhexia cubensis</i>	
Red mangrove	<i>Rhizophora mangle</i>	
Winged sumac	<i>Rhus copallina</i>	
Dewberry.....	<i>Rubus trivialis</i>	
Sourdock.....	<i>Rumex hastatulus</i>	
Cabbage palm.....	<i>Sabal palmetto</i>	
Marsh pink	<i>Sabatia brevifolia</i>	
Coastal plain willow	<i>Salix caroliniana</i>	
Saw-palmetto	<i>Serenoa repens</i>	
Bladderpod	<i>Sesbania vesicaria</i>	
Sea purslane	<i>Sesuvium portulacastrum</i>	
Knotroot foxtail	<i>Setaria geniculata</i>	
Black senna.....	<i>Seymeria cassioides</i>	
Sida.....	<i>Sida cordifolia</i>	
Nightshade.....	<i>Solanum americanum</i>	
Black nightshade	<i>Solanum nigrescens</i>	
Goldenrod	<i>Solidago chapmanii</i>	
Anise scented goldenrod	<i>Solidago odora</i>	
Seaside goldenrod.....	<i>Solidago sempervirens</i>	
Goldenrod	<i>Solidago tortifolia</i>	
Corkwood.....	<i>Stillingia aquatica</i>	
Shoe buttons.....	<i>Syngonanthus flavidulus</i>	
Spanish moss	<i>Tillandsia usneoides</i>	
Poison ivy	<i>Toxidendron radicans</i>	
Bladderwort	<i>Utricularia biflora</i>	
Zigzag bladderwort.....	<i>Utricularia subulata</i>	
Darrow's blueberry.....	<i>Vaccinium darrowii</i>	
Shiny blueberry	<i>Vaccinium myrsinites</i>	
Vervain	<i>Verbena brasiliensis</i>	

T.H. Stone Memorial St. Joseph Peninsula State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat (for imperiled species)
Yellow crownsbeard	<i>Verbesina occidentalis</i>	
Frost weed	<i>Verbesina virginica</i>	
Summer grape	<i>Vitis aestivalis</i>	
Scuppernong	<i>Vitis rotundifolia</i>	
Hercules' club	<i>Zanthoxylum clava-herculis</i>	

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
-------------	-----------------	--------------------------------------

FRESHWATER FISHES

Sailfin molly*Pomoxis latipinna* BM, RU

SALTWATER FISHES

Spotted eagle ray	<i>Aetobatus saxatilis</i>	adjacent waters
Sheepshead	<i>Archosargus probacephalus</i>	"
Hardhead catfish	<i>Arius felis</i>	"
Southern stargazer	<i>Astroscopus y-graecum</i>	"
Gafftopsail catfish	<i>Bagre marinus</i>	"
Silver perch	<i>Bairdiella chrysoua</i>	"
Gulf menhaden.....	<i>Brevoortia patronus</i>	"
Crevalle jack.....	<i>Caranx hippos</i>	"
Blue runner	<i>Caranx crysos</i>	"
Bull shark.....	<i>Cacharhinus leucas</i>	"
Blacktip shark	<i>Carcharhinus limbatus</i>	"
Black sea bass.....	<i>Centropristis striata</i>	"
Atlantic spadefish	<i>Chaetodipterus faber</i>	"
Striped burrfish	<i>Chilomycterus schoepfi</i>	"
Sand seatrout	<i>Cynoscion arenarius</i>	"
Spotted seatrout	<i>Cynoscion nebulosus</i>	"
Silver seatrout.....	<i>Cynoscion nothus</i>	"
Atlantic stingray.....	<i>Dasyatis sabina</i>	"
Sand perch.....	<i>Diplectrum formosum</i>	"
Spottail pinfish	<i>Diplodus holbrooki</i>	"
Ladyfish.....	<i>Elops saurus</i>	"
Nurse shark.....	<i>Ginglymostoma cirratum</i>	"
Smooth butterfly ray.....	<i>Gymnura micrura</i>	"
White grunt.....	<i>Haemulon plumieri</i>	"
Lined seahorse.....	<i>Hippocampus erectus</i>	"
Blenny	<i>Chasmodes spp</i>	adjacent waters
Scrawled cowfish	<i>Lactophrys quadricornis</i>	"
Pinfish	<i>Lagodon rhomboides</i>	"
Spot.....	<i>Leiostomus xanthurus</i>	"
Mangrove snapper	<i>Lutjanus griseus</i>	"
Atlantic manta	<i>Manta birostris</i>	"
Tarpon.....	<i>Megalops atlanticus</i>	"
Southern king croaker	<i>Menticirrhus americanus</i>	"
Atlantic croaker	<i>Micropogonias undulatus</i>	"
Fringed filefish.....	<i>Monacanthus ciliatus</i>	"
Planehead filefish.....	<i>Monacanthus hispidus</i>	"

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Striped mullet	<i>Mugil cephalus</i>	"
White mullet	<i>Mugil curema</i>	"
Grouper	<i>Mycteroperca spp.</i>	"
Polka dot batfish.....	<i>Obcocephalus radiatus</i>	"
Gulf toadfish	<i>Opsanus beta</i>	"
Gulf flounder	<i>Paralichthys albigutta</i>	"
Southern flounder	<i>Paralichthys lethostigma</i>	"
Black drum.....	<i>Pogonias cromis</i>	"
Leopard searobin	<i>Prionotus scitulus</i>	"
Bluefish	<i>Promatomus saltatix</i>	"
Atlantic bonito	<i>Sarda sarda</i>	"
Red drum.....	<i>Scianenops ocellatus</i>	"
Spanish mackerel	<i>Scomberomorus maculatus</i>	"
King mackerel.....	<i>Scomberomorus caualla</i>	"
Look-down	<i>Selene vomer</i>	"
Greater amberjack.....	<i>Seriola dumerilli</i>	"
Southern puffer	<i>Sphoeroides nephelus</i>	"
Greater barricuda.....	<i>Sphyraena borealis</i>	"
Greater hammerhead shark.....	<i>Sphyrna mokarran</i>	"
Bonnethead shark	<i>Sphyrna tiburo</i>	"
Gulf pipefish	<i>Syngnathus scovelli</i>	"
Inshore lizardfish	<i>Synodus foetens</i>	"
Florida pompano.....	<i>Trachinotus carolinus</i>	adjacent waters

DIADROMOUS FISH

Atlantic needlefish	<i>Stronglyura marina</i>	adjacent waters
---------------------------	---------------------------------	-----------------

ARTHROPODS

Crustaceans

Blue crab	<i>Callinectes sapidus</i>	EUS, SAM
Striped hermit crab	<i>Clibanaius vittatus</i>	EUS
Star-eyed hermit crab	<i>Dardanus venosus</i>	EUS
Atlantic mole crab.....	<i>Emerita talpoida</i>	MUS
Common spider crab	<i>Libinia emarginata</i>	EUS
Horseshoe crab	<i>Limulus polyphemus</i>	EUS
Ghost crab	<i>Ocypode quadrata</i>	MUS, BD
Brown shrimp.....	<i>Penaeus aztecus</i>	SAM
White shrimp	<i>Penaeus setiferus</i>	SAM
Pink shrimp.....	<i>Penaeus duoraum</i>	SAM
Leopard crab	<i>Hepatus epheliticus</i>	EUS, SAM

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
--------------------	------------------------	--

Purse crab	<i>Persephona punctata</i>	EUS, SAM
Sargassum crab	<i>Potunus sayi</i>	EUS, SAM
Fiddler crab.....	<i>Uca spp.</i>	SAM, EUS

Insects

Underfoot tiny sand-loving scarab	<i>Geopsammodius subpedalis</i>	BD, SC
-----------------------------------	---------------------------------------	--------

ECHINODERMS

Armored sea star	<i>Astropecten armatus</i>	MUS
------------------------	----------------------------------	-----

GASTROPODS

Lightning whelk.....	<i>Busycon contrarium</i>	MUS, EUS
Pear whelk.....	<i>Busycon spiratum</i>	MUS, EUS
Cancellate cantharus.....	<i>Cantharus cancellarius</i>	MUS, EUS
Florida cone.....	<i>Conus floridanus</i>	MUS, EUS
Jasper cone	<i>Conus jaspideus</i>	MUS, EUS
Pitted murex	<i>Favartia cellulosa</i>	MUS, EUS
Banded tulip	<i>Fasciolaria liliium huntera</i>	MUS, EUS
True tulip.....	<i>Fasciolaria tulipa</i>	MUS, EUS
Crown conch.....	<i>Melongena corona</i>	EUS
Lace murex.....	<i>Murex florifer</i>	EUS, MUS
Giant eastern murex	<i>Murex fulvoescens</i>	EUS, MUS
Florida horse conch.....	<i>Pleuroploca gigantea</i>	EUS
Shark's eye.....	<i>Polinices duplicatus</i>	EUS, MUS
Common baby's ear	<i>Sinum perspectivum</i>	EUS, MUS
Fighting conch	<i>Strombus alatus</i>	EUS
Gulf oyster drill	<i>Urosalpinx perrugata</i>	MUS, EUS

PELYCYPODS

Stiff pen shell	<i>Atrina rigida</i>	EUS, MUS
Bay scallop	<i>Argopecten irradians concentricus</i>	EUS, MUS
Sunray venus	<i>Macrocallista nimbosa</i>	EUS, MUS
Southern qhahog.....	<i>Mercenaria campechiensis</i>	EUS

CEPHALOPODS

Joubin's octopus	<i>Octopus joubin</i>	adjacent waters
Common Atlantic octopus.....	<i>Octopus vulgaris</i>	"

HYDROZOANS

Sea nettle.....	<i>Chrysaora quinquecirrha</i>	EUS, MUS, SAM
Portuguese man-o-war	<i>Physalia physalis</i>	"

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Blue buttons	<i>Porpita linneana</i>	MUS
Cannonball jellyfish	<i>Stomolophu meleagris</i>	EUS, MUS, SAM

AMPHIBIANS

Salamanders

Southeastern slimy salamander <i>Plethodon grobmani</i>	MF, WF
---	--------

Frogs and toads

Southern cricket frog	<i>Acris gryllus</i>	BM, WF, MF
Oak Toad	<i>Anaxyrus quercicus</i>	MF, SCF
Southern toad	<i>Anaxyrus terrestris</i>	SF
Eastern narrowmouth toad.....	<i>Gastrophryne carolinensis</i>	MTC
Green treefrog.....	<i>Hyla cinerea</i>	BM, BS, RU, WF, MF
Gray treefrog.....	<i>Hyla chrysoscelis</i>	MTC
Southern spring peeper.....	<i>Hyla crucifer</i>	BM,BS, WF
Pine woods treefrog.....	<i>Hyla femoralis</i>	MTC
Barking treefrog.....	<i>Hyla gratiosa</i>	BM, BS
Squirrel treefrog	<i>Hyla squirella</i>	MTC
American bullfrog.....	<i>Lithobates catesbeianus</i>	BM,BS
Bronze frog.....	<i>Lithobates clamitans</i>	BM, BS
Southern leopard frog	<i>Lithobates sphenoccephala</i>	BM, BS
Southern chorus frog.....	<i>Pseudacris nigrita nigrita</i>	BM
Little grass frog.....	<i>Pseudacris ocularis</i>	BM
Ornate chorus frog.....	<i>Pseudacris ornata</i>	BM
Eastern spadefoot toad.....	<i>Scaphiopus holbrookii</i>	MTC

REPTILES

Crocodylians

American alligator	<i>Alligator mississippiensis</i>	BM, BS, SAM
--------------------------	---	-------------

Turtles

Atlantic loggerhead turtle.....	<i>Caretta caretta</i>	BD, MUS
Green turtle	<i>Chelonia mydas</i>	BD, MUS
Leatherback turtle	<i>Dermochelys coriacea</i>	BD, MUS
Eastern mud turtle	<i>Kinosternon subrubrum</i>	BM, BS
Ornate diamondback terrapin.....	<i>Malaclemys terrapin</i>	BM, BS
Florida cooter	<i>Pseudemys floridana</i>	BM,BS
Common musk turtle	<i>Sternotherus odoratus</i>	BM,BS
Yellow-bellied slider.....	<i>Trachemys scripta scripta</i>	BM,BS

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
-------------	-----------------	--------------------------------------

Lizards

Green anole	<i>Anolis carolinensis carolinensis</i>	MTC
Six-lined racerunner	<i>Cnemidophorus sexlineatus sexlineatus</i>	SC, SCF
Slender glass lizard	<i>Ophisaurus attenuatus</i>	MTC
Eastern glass lizard	<i>Ophisaurus ventralis</i>	MTC
Southeastern five-lined skink	<i>Plestiodon inexpectatus</i>	SC, SCF
Broad-headed skink	<i>Plestiodon laticeps</i>	MTC
Southern fence lizard	<i>Sceloporus undulates undulatus</i>	SC, SCF

Snakes

Florida cottonmouth	<i>Agkistrodon piscivorus conanti</i>	BM, BS
Brown-chinned racer	<i>Coluber constrictor helvigularis</i>	MTC
Eastern coachwhip	<i>Coluber flagellum flagellum</i>	BD, SC, SCF
Eastern Diamondback	<i>Crotalus adamanteus</i>	MF, SC, SCF
Eastern mud snake	<i>Farancia abacura abacura</i>	BM, BS
Eastern hognose snake	<i>Heterodon platirhinos</i>	MTC
Southern hognose snake	<i>Heterodon simus</i>	MTC
Scarlet kingsnake	<i>Lampropeltis triangulum elapsoides</i>	MTC
Banded water snake	<i>Nerodia fasciata fasciata</i>	BM, BS, MF, WF
Gulf salt marsh snake	<i>Nerodia clarkii clarkii</i>	SAM
Brown water snake	<i>Nerodia taxispilota</i>	BM, BS, MF, WF
Rough green snake	<i>Ophedrys aestivus</i>	MTC
Corn snake	<i>Pantherophis guttatus guttatus</i>	MTC
Gray rat snake	<i>Pantherophis spiloides</i>	MTC
Dusky pygmy rattlesnake	<i>Sistrurus miliarius barbouri</i>	BD, SC
Eastern ribbon snake	<i>Thamnophis sauritus sauritus</i>	SCF
Eastern garter snake	<i>Thamnophis sirtalis sirtalis</i>	MF

BIRDS

Swans and Geese

Canada Goose	<i>Branta canadensis</i>	OF
Snow goose	<i>Chen caerulescens</i>	OF
Tundra swan	<i>Cygnus columbianus</i>	OF

Ducks

Northern pintail	<i>Anas acuta</i>	MTC
American wigeon	<i>Anas americana</i>	BM, BS, RU, MUS
Northern shoveler	<i>Anas clypeata</i>	AW, MUS
Green-winged teal	<i>Anas carolinensis</i>	BM, BS, RU, MUS
Blue-winged teal	<i>Anas discors</i>	BM, BS, RU, SAM, MUS

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Mallard	<i>Anas platyrhynchos</i>	BM, BS, RU, MUS
American black duck	<i>Anas rubripes</i>	BM,BS, RU, MUS
Gadwall	<i>Anas strepera</i>	BM, BS, RU, MUS
Lesser scaup	<i>Aythya affinis</i>	AW, MUS
Redhead	<i>Aythya americana</i>	AW, MUS
Ring-necked duck	<i>Aythya collaris</i>	AW, MUS
Greater scaup	<i>Aythya marila</i>	AW, MUS
Canvasback	<i>Aythya valisineria</i>	AW, MUS
Bufflehead	<i>Bucephala albeola</i>	AW, MUS
Common goldeneye	<i>Bucephala clangula</i>	AW, MUS
Long-tailed duck	<i>Clangula hyemalis</i>	OF, AW
Hooded merganser	<i>Lophodytes cucullatus</i>	BM, BS, MUS, AW
Black scoter	<i>Melanitta americana</i>	AW, MUS
Surf scoter	<i>Melanitta perspicillata</i>	AW, MUS
Red-breasted merganser	<i>Mergus serrator</i>	MTC
Ruddy duck	<i>Oxyura jamaicensis</i>	AW, MUS
Loons		
Common loon	<i>Gavia immer</i>	AW, MUS
Red-throated loon	<i>Gavia stellata</i>	AW, MUS
Grebes		
Horned grebe	<i>Podiceps auritus</i>	AW, MUS
Pied-billed grebe	<i>Podilymbus podiceps</i>	MTC
Sulids		
Northern gannet	<i>Morus bassanus</i>	OF, MUS
Masked booby	<i>Sula dactylatra</i>	OF, MUS
Pelicans		
Brown pelican	<i>Pelecanus occidentalis</i>	AW, OF, MUS
American white pelican	<i>Pelecanus erythrorhynchos</i>	AW, OF
Darters		
Anhinga	<i>Anhinga anhinga</i>	AW, OF
Frigatebirds		
Magnificent frigatebird	<i>Fregata magnificens</i>	AW, OF
Cormorants		
Double-crested cormorant	<i>Phalacrocorax auritus</i>	MTC

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
-------------	-----------------	--------------------------------------

Bitterns and Herons

Great egret.....	<i>Ardea alba</i>	MTC
Great blue heron.....	<i>Ardea herodias</i>	MTC
American bittern	<i>Botaurus lentiginosus</i>	BM, BS, RU
Cattle egret.....	<i>Bubulcus ibis</i>	MTC
Green heron	<i>Butorides virescens</i>	MTC
Little blue heron	<i>Egretta caerulea</i>	MTC
Reddish egret.....	<i>Egretta rufescens</i>	SAM, EUS, MUS
Snowy egret	<i>Egretta thula</i>	MTC
Tricolored heron.....	<i>Egretta tricolor</i>	MTC
Least bittern	<i>Ixobrychus exilis</i>	BM, SAM
Black-crowned night-heron.....	<i>Nycticorax nycticorax</i>	MTC
Yellow-crowned night-heron	<i>Nycticorax violaceus</i>	MTC

Ibises, Spoonbills and storks

White ibis.....	<i>Eudocimus albus</i>	MTC
Wood stork.....	<i>Mycteria americana</i>	OF

Vultures

Turkey vulture.....	<i>Cathartes aura</i>	MTC
Black vulture.....	<i>Coragyps atratus</i>	OF, MTC

Ospreys

Osprey.....	<i>Pandion haliaetus</i>	OF, AW, BD
-------------	--------------------------------	------------

Hawks, Eagles and Kites

Cooper’s hawk.....	<i>Accipiter cooperii</i>	OF
Sharp-shinned hawk.....	<i>Accipiter striatus</i>	OF
Golden eagle	<i>Aquila chrysaetos</i>	OF
Red-tailed hawk	<i>Buteo jamaicensis</i>	OF
Red-shouldered hawk	<i>Buteo lineatus</i>	OF
Broad-winged hawk	<i>Buteo platypterus</i>	OF
Northern harrier.....	<i>Circus cyaneus</i>	OF
Swallow-tailed kite	<i>Elanoides forficatus</i>	OF
Bald eagle	<i>Haliaeetus leucocephalus</i>	OF, MTC

Falcons

Merlin.....	<i>Falco columbarius</i>	OF, MUS, BD
Peregrine falcon.....	<i>Falco peregrinus</i>	OF, MUS, BD
Southeastern American kestrel	<i>Falco sparverius paulus</i>	OF, MUS, BD

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
-------------	-----------------	--------------------------------------

Rails and Coots

American coot.....	.....<i>Fulica americana</i>	BM, BS, RU, SAM
Common moorhen.....	.....<i>Gallinula galeata</i>	BM, BS, RU, SAM
Black rail.....	.....<i>Laterallus jamaicensis</i>	BM, BS, RU, SAM
Sora.....	.....<i>Porzana carolina</i>	BM, BS, RU, SAM
Clapper rail.....	.....<i>Rallus longirostris</i>	BM, BS, RU, SAM
King rail.....	.....<i>Rallus elegans</i>	BM, BS, RU, SAM

Cranes

Sandhill crane..... <i>Grus canadensis</i>	OF
---------------------	------------------------------------	----

Plovers and Oystercatchers

Snowy plover.....	.....<i>Charadrius nivosus</i>	BD, EUS, MUS
Piping plover.....	.....<i>Charadrius melodus</i>	BD, EUS, MUS
Semipalmated plover.....	.....<i>Charadrius semipalmatus</i>	BD, EUS, MUS
Killdeer.....	.....<i>Charadrius vociferus</i>	BD, EUS, MUS
Wilson’s plover.....	.....<i>Charadrius wilsonia</i>	BD, EUS, MUS
American oystercatcher.....	.....<i>Haematopus palliatus</i>	BD, MUS
American golden-plover.....	.....<i>Pluvialis dominica</i>	BD, MUS
Black-bellied plover.....	.....<i>Pluvialis squatarola</i>	BD, EUS, MUS

Recurvirostrids

Black-necked stilt.....	.....<i>Himantopus mexicanus</i>	EUS, MUS
American avocet.....	.....<i>Recurvirostra americana</i>	EUS, MUS

Snipes and Sandpipers

Spotted sandpiper.....	.....<i>Actitis macularia</i>	BD, EUS, MUS
Ruddy turnstone.....	.....<i>Arenaria interpres</i>	BD, EUS, MUS
Sanderling.....	.....<i>Calidris alba</i>	BD, EUS, MUS
Dunlin.....	.....<i>Calidris alpina</i>	BD, EUS, MUS
Bairds sandpiper.....	.....<i>Calidris bairdii</i>	BD, MUS, EUS
Red knot.....	.....<i>Calidris canutus</i>	BD, MUS, EUS
White-rumped sandpiper.....	.....<i>Calidris fuscicollis</i>	BD, MUS, EUS
Stilt sandpiper.....	.....<i>Calidris himantopus</i>	BD, MUS, EUS
Western sandpiper.....	.....<i>Calidis mauri</i>	BD, EUS, MUS
Pectoral sandpiper.....	.....<i>Calidres melanotos</i>	BD, EUS, MUS
Least sandpiper.....	.....<i>Calidres minutilla</i>	BD, MUS, EUS
Semipalmated sandpiper.....	.....<i>Calidris pusilla</i>	BD, EUS, MUS
Wilson’s snipe.....	.....<i>Gallinago delicata</i>	MF, WF
Short-billed dowitcher.....	.....<i>Limnodromus griseus</i>	BD, EUS, MUS

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>	BD, EUS, MUS
Marbled godwit.....	<i>Limosa fedoa</i>	BD, EUS, MUS
Long-billed curlew	<i>Numenius americanus</i>	BD, EUS, MUS
Whimbrel.....	<i>Numenius phaeopus</i>	BD, EUS, MUS
Wilson’s phalarope	<i>Phalaropus tricolor</i>	BM, EUS, MUS
Lesser yellowlegs	<i>Tringa flavipes</i>	BD, EUS, MUS
Greater yellowlegs	<i>Tringa melanoleuca</i>	BD, EUS, MUS
Western willet.....	<i>Tringa semipalmata inornata</i>	BD, EUS, MUS
Eastern willet	<i>Tringa semipalmata semipalmata</i>	BD, EUS, MUS
Solitary sandpiper.....	<i>Tringa solitaria</i>	BD, EUS, MUS
Buff-breasted sandpiper.....	<i>Tryngites subruficollis</i>	BD, EUS, MUS

Gulls and Terns

Black tern.....	<i>Childonias niger</i>	BD, EUS, MUS
Bonaparte's Gull	<i>Chroicocephalus philadelphia</i>	BD, MUS, AW
Gull-billed tern	<i>Gelochelidon nilotica</i>	BD, CIS, MUS, AW
Herring gull	<i>Larus smithsonianus</i>	BD, MUS, EUS, AW
Laughing gull	<i>Leucophaeus atricilla</i>	MTC
Ring-billed gull.....	<i>Larus delawarensis</i>	BD, MUS, EUS, AW
Caspian tern.....	<i>Hydroprogne caspia</i>	BD, MUS, EUS, AW
Black skimmer	<i>Rynchops niger</i>	BD, MUS, EUS, AW
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	AW, MUS
Forster’s tern	<i>Sterna forsteri</i>	BD, MUS, EUS, AW
Common tern.....	<i>Sterna hirundo</i>	BD, MUS, EUS, AW
Arctic tern.....	<i>Sterna paradisaea</i>	BD, MUS, EUS, AW
Royal tern	<i>Thalasseus maximus</i>	BD, MUS, EUS, AW
Sandwich tern.....	<i>Thalasseus sandwicensis</i>	BD, MUS, EUS, AW
Least tern.....	<i>Sternula antillarum</i>	BD, MUS, EUS, AW

Doves

Common ground-dove.....	<i>Columbina passerina</i>	MTC
Eurasian collared dove.....	<i>Streptopelia decaocto</i> *	MTC
White-winged dove	<i>Zenaida asiatica</i> *.....	MTC
Mourning dove.....	<i>Zenaida macroura</i>	MTC

Cuckoos

Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	MTC
Yellow-billed cuckoo	<i>Coccyzus americanu</i>	MTC

Owls

Great horned owl	<i>Bubo virginianus</i>	MTC
------------------------	-------------------------------	-----

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Eastern Screech-owl.....	<i>Megascops asio</i>	MTC
Barred owl.....	<i>Strix varia</i>	MTC
Barn owl	<i>Tyto alba</i>	MTC
Goatsuckers		
Chuck-will's-widow	<i>Antrostomus carolinensis</i>	MTC
Whip-poor-will.....	<i>Antrostomus vociferus</i>	MTC
Common nighthawk.....	<i>Chordeiles minor</i>	MTC
Hummingbirds		
Ruby-throated hummingbird.....	<i>Archilochus colubris</i>	MTC
Kingfishers		
Belted kingfisher	<i>Megaceryle alcyon</i>	BM, BS, RU, SAM
Woodpeckers		
Northern flicker.....	<i>Colaptes auratus</i>	MF, SCF,WF
Pileated woodpecker	<i>Dryocopus pileatus</i>	MF,SCF
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	MTC
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	MTC
Downy woodpecker	<i>Picoides pubescens</i>	MTC
Hairy woodpecker	<i>Picoides villosus</i>	MTC
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	MF, SCF
Flycatchers and Kingbirds		
Eastern wood-pewee	<i>Contopus virens</i>	MTC
Least flycatcher.....	<i>Empidonax minimus</i>	MTC
Acadian flycatcher	<i>Empidonax verescens</i>	MTC
Great Crested flycatcher.....	<i>Myiarchus crinitus</i>	MTC
Eastern phoebe	<i>Sayornis phoebe</i>	MTC
Gray kingbird	<i>Tyrannus dominicensis</i>	MTC
Scissor-tailed flycatcher.....	<i>Tyrannus forficatus</i>	MTC
Eastern kingbird.....	<i>Tyrannus tyrannus</i>	MTC
Western kingbird	<i>Tyrannus verticalis</i>	MTC
Shrikes		
Loggerhead shrike	<i>Lanius ludovicianus</i>	MTC
Vireos		
Black-whiskered vireo.....	<i>Vireo altiloquus</i>	MTC
Yellow-throated vireo.....	<i>Vireo flavifrons</i>	MTC

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
White-eyed vireo.....	<i>Vireo griseus</i>	MTC
Red-eyed vireo.....	<i>Vireo olivaceus</i>	MTC
Solitary vireo.....	<i>Vireo solitarius</i>	MTC
Jays and Crows		
American crow	<i>Corvus brachyrhynchos</i>	MTC
Fish crow	<i>Corvus ossifragus</i>	MTC
Groove-billed ani	<i>Crotophaga sulcirostris</i>	SAM, SC
Blue jay	<i>Cyanocitta cristata</i>	MTC
Swallows and Martins		
Barn swallow	<i>Hirundo rustica</i>	OF
American cliff swallow	<i>Petrochelidon pyrrhonota</i>	OF
Purple martin.....	<i>Progne subis</i>	MTC
Bank swallow.....	<i>Riparia riparia</i>	MTC
N. Rough-winged swallow.....	<i>Stelgidopteryx serripennis</i>	OF
Tree swallow.....	<i>Tachycineta bicolor</i>	OF
Tits and Chickadees		
Tufted titmouse	<i>Baeolophus bicolor</i>	MTC
Carolina chickadee.....	<i>Poecile carolinensis</i>	MTC
Nuthatches		
Brown creeper.....	<i>Certhia Americana</i>	MF, WF
Red-breasted nuthatch	<i>Sitta canadensis</i>	MF, SCF
White-breasted nuthatch.....	<i>Sitta carolinensis</i>	MTC
Brown-headed nuthatch	<i>Sitta pusilla</i>	MTC
Wrens		
Marsh wren.....	<i>Cistothorus palustris</i>	BM, RU, SAM
Sedge wren.....	<i>Cistothorus platensis</i>	BM, RU, SAM
Carolina wren.....	<i>Thryothorus ludovicianus</i>	MTC
House wren.....	<i>Troglodytes aedon</i>	MTC
Winter wren	<i>Troglodytes hiemalis</i>	MTC
Kinglets		
Ruby-crowned kinglet.....	<i>Regulus calendula</i>	MTC
Golden-crowned kinglet	<i>Regulus satrapa</i>	MTC, OF
Gnatcatchers and bluebirds		
Blue-gray gnatcatcher.....	<i>Polioptila cearulea</i>	MTC

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Eastern bluebird	<i>Sial sialis</i>	MTC
Thrushes		
Veery	<i>Catharus fuscescens</i>	MTC
Hermit thrush	<i>Catharus guttatus</i>	MTC
Gray-cheeked thrush	<i>Catharus minimus</i>	MTC
Swainson's thrush	<i>Catharus ustulatus</i>	MTC
Wood thrush	<i>Hylocichla mustelina</i>	MTC
American robin	<i>Turdus migratorius</i>	MTC
Thrashers		
Gray catbird	<i>Dumetella carolinensis</i>	MTC
Northern mockingbird	<i>Mimus polyglottos</i>	MTC
Brown thrasher	<i>Toxostoma rufum</i>	MTC
Starlings		
European starling	<i>Sturnus vulgaris</i> *	MTC
Pipits		
American pipet	<i>Anthus rubescens</i>	MTC
Waxwings		
Cedar waxwing	<i>Bombycilla cedrorum</i>	MTC
Warblers		
Canada warbler	<i>Cardellina canadensis</i>	MTC
Wilson's warbler	<i>Cardellina pusilla</i>	MTC
Kentucky warbler	<i>Geothlypis formosa</i>	MTC
Common yellowthroat	<i>Geothlypis trichas</i>	MTC
Worm-eating warbler	<i>Helmitheros vermivorum</i>	MTC
Yellow-breasted chat	<i>Icteria virens</i>	MTC
Black-and-white warbler	<i>Mniotilta varia</i>	MTC
Orange-crowned warbler	<i>Oreothlypis celata</i>	MTC
Tennessee warbler	<i>Oreothlypis peregrina</i>	MTC
Nashville warbler	<i>Oreothlypis ruficapilla</i>	MTC
Louisiana Waterthrush	<i>Parkesia motacilla</i>	MTC
Prothonotary warbler	<i>Protonotaria citrea</i>	MTC
Ovenbird	<i>Seiurus aurocapilla</i>	MTC
Northern parula	<i>Setophaga americana</i>	MTC
Black-throated blue warbler	<i>Setophaga caerulescens</i>	MTC
Bay-breasted warbler	<i>Setophaga castanea</i>	MTC

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Hooded warbler	<i>Setophaga citrina</i>	MTC
Yellow-rumped warbler.....	<i>Setophaga coronata coronata</i>	MTC
Prairie warbler	<i>Setophaga discolor</i>	MTC
Yellow-throated warbler	<i>Setophaga dominica</i>	MTC
Blackburnian warbler	<i>Setophaga fusca</i>	MTC
Magnolia warbler	<i>Setophaga magnolia</i>	MTC
Palm warbler.....	<i>Setophaga palmarum</i>	MTC
Chestnut-sided warbler.....	<i>Setophaga pensylvanica</i>	MTC
Yellow warbler	<i>Setophaga petechia</i>	MTC
Pine warbler	<i>Setophaga pinus</i>	MTC
American redstart	<i>Setophaga ruticilla</i>	MTC
Blackpoll warbler	<i>Setophaga striata</i>	MTC
Cape May warbler.....	<i>Setophaga tigrina</i>	MTC
Black-throated green warbler	<i>Setophaga virens</i>	MTC
Blue-winged warbler	<i>Vermivora cyanoptera</i>	MTC

Towhees

Eastern towhee	<i>Pipilo erythrophthalmus</i>	MTC
----------------------	--------------------------------------	-----

Sparrows

Nelson’s sharp-tailed sparrow	<i>Ammodramus nelsoni</i>	CIS, SAM, EUS
Song sparrow	<i>Melospiza melodi</i>	MTC
Swamp sparrow	<i>Melospiza georgiana</i>	BM, BS, SAM
Savannah sparrow	<i>Passerculus sandwichensis</i>	MTC
Vesper sparrow	<i>Pooecetes gramineus</i>	MTC
Chipping sparrow	<i>Spizella passerina</i>	MTC
Field sparrow.....	<i>Spizella pusilla</i>	MTC
White-throated sparrow.....	<i>Zonotrichia albicollis</i>	MTC
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	MTC

Cardinals, Tanagers, Grosbeaks, and Buntings

Northern cardinal.....	<i>Cardinalis cardinalis</i>	MTC
Blue Grosbeak.....	<i>Passerina caerulea</i>	MTC
Painted bunting.....	<i>Passerina ciris</i>	MTC
Indigo bunting.....	<i>Passerina cyanea</i>	MTC
Rose-breasted grosbeak.....	<i>Pheucticus ludovicianus</i>	MTC
Scarlet tanager	<i>Piranga olivacea</i>	MTC
Summer tanager	<i>Piranga rubra</i>	MTC

Meadowlarks, Blackbirds and Orioles

Red-winged blackbird	<i>Agelaius phoeniceus</i>	MTC
----------------------------	----------------------------------	-----

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Bobolink.....	<i>Dolichonyx oryzivorus</i>	MTC
Baltimore oriole	<i>Icterus galbula</i>	MTC
Orchard oriole	<i>Icterus spurius</i>	MTC
Brown-headed cowbird.....	<i>Molothrus ater</i>	MTC
Boat-tailed grackle	<i>Quiscalus major</i>	MTC
Common grackle.....	<i>Quiscalus quiscula</i>	MTC
Eastern meadowlark.....	<i>Sturnella magna</i>	MTC
Yellow-headed blackbird.....	<i>Xanthocephalus xanthocephalus</i>	BM, MUS

Finches

Pine siskin	<i>Carduelis pinus</i>	MTC
American goldfinch	<i>Carduelis tristis</i>	MTC
House finch.....	<i>Haemorhous mexicanus</i>	DV
Purple finch.....	<i>Haemorhous purpureus</i>	MTC

Old World Sparrows

House sparrow	<i>Passer domesticus</i> *	MTC
---------------------	----------------------------------	-----

MAMMALS

Cigulata

Nine-banded armadillo.....	<i>Dasypus novemcinctus</i> *	MTC
----------------------------	-------------------------------------	-----

Didelphids

Virginia opossum.....	<i>Didelphis virginiana</i>	MTC
-----------------------	-----------------------------------	-----

Lagomorphs

Marsh rabbit.....	<i>Sylvilagus palustris</i>	BM, SAM
-------------------	-----------------------------------	---------

Soricomorphs

Eastern mole	<i>Scalopus aquaticus</i>	MF
--------------------	---------------------------------	----

Rodents

North American beaver	<i>Castor canadensis</i>	BM, BS
Marsh rice rat.....	<i>Oryzomys palustris</i>	BM
Cotton mouse.....	<i>Peromyscus gossypinus</i>	MTC
House mouse	<i>Mus musculus</i>	DV
St. Andrew beach mouse	<i>Peromyscus polionotus peninsularis</i>	BD, SC
Eastern gray squirrel	<i>Sciurus carolinensis</i>	MTC
Hispid cotton rat	<i>Sigmodon hispidus</i>	MF, SCF,SC, DV

Carnivores

* Non-native Species

T.H. Stone Memorial St. Joseph Peninsula State Park Animals

Common Name	Scientific Name	Primary Habitat (for all species)
Coyote.....	<i>Canis latrans*</i>	MTC
Domestic cat.....	<i>Felis catus *</i>	MTC
Bobcat.....	<i>Lynx rufus</i>	MTC
North American river otter.....	<i>Lutra canadensis</i>	BM, BS, SAM
Striped skunk.....	<i>Mephitis mephitis</i>	MTC
Raccoon	<i>Procyon lotor</i>	MTC
Gray fox.....	<i>Urocyon cinereoargenteus</i>	MTC
Florida black bear.....	<i>Ursus americanus floridanus</i>	MTC
 Sirens		
Florida manatee.....	<i>Trichechus manatus</i>	AW
 Cetaceans		
Bottle-nosed dolphin	<i>Tursiops truncatus</i>	AW
 Artiodactyla		
White-tailed deer.....	<i>Odocoileus virginianus</i>	MTC

* Non-native Species

Natural Community Habitat Codes

TERRESTRIAL

Beach Dune	BD
Coastal Berm.....	CB
Coastal Grassland	CG
Coastal Strand.....	CS
Dry Prairie.....	DP
Keys Cactus Barren.....	KCB
Limestone Outcrop	LO
Maritime Hammock	MAH
Mesic Flatwoods.....	MF
Mesic Hammock.....	MEH
Pine Rockland.....	PR
Rockland Hammock	RH
Sandhill.....	SH
Scrub	SC
Scrubby Flatwoods	SCF
Shell Mound.....	SHM
Sinkhole	SK
Slope Forest	SPF
Upland Glade	UG
Upland Hardwood Forest.....	UHF
Upland Mixed Woodland.....	UMW
Upland Pine	UP
Wet Flatwoods.....	WF
Xeric Hammock.....	XH

PALUSTRINE

Alluvial Forest	AF
Basin Marsh.....	BM
Basin Swamp.....	BS
Baygall	BG
Bottomland Forest.....	BF
Coastal Interdunal Swale.....	CIS
Depression Marsh	DM
Dome Swamp	DS
Floodplain Marsh.....	FM
Floodplain Swamp.....	FS
Glades Marsh.....	GM
Hydric Hammock	HH
Keys Tidal Rock Barren.....	KTRB
Mangrove Swamp.....	MS

Natural Community Habitat Codes

Marl Prairie	MP
Salt Marsh.....	SAM
Seepage Slope	SSL
Shrub Bog.....	SHB
Slough	SLO
Slough Marsh.....	SLM
Strand Swamp	STS
Wet Prairie	WP

LACUSTRINE

Clastic Upland Lake.....	CULK
Coastal Dune Lake	CDLK
Coastal Rockland Lake.....	CRLK
Flatwoods/Prairie.....	FPLK
Marsh Lake.....	MLK
River Floodplain Lake	RFLK
Sandhill Upland Lake.....	SULK
Sinkhole Lake.....	SKLK
Swamp Lake.....	SWLK

RIVERINE

Alluvial Stream.....	AST
Blackwater Stream	BST
Seepage Stream.....	SST
Spring-run Stream.....	SRST

SUBTERRANEAN

Aquatic Cave	ACV
Terrestrial Cave	TCV

ESTUARINE

Algal Bed	EAB
Composite Substrate.....	ECPS
Consolidated Substrate	ECNS
Coral Reef.....	ECR
Mollusk Reef.....	EMR
Octocoral Bed.....	EOB
Seagrass Bed.....	ESGB
Sponge Bed.....	ESPB

Natural Community Habitat Codes

Unconsolidated Substrate.....	EUS
Worm Reef	EWR

MARINE

Algal Bed	MAB
Composite Substrate.....	MCPS
Consolidated Substrate	MCNS
Coral Reef.....	MCR
Mollusk Reef.....	MMR
Octocoral Bed.....	MOB
Seagrass Bed.....	MSGB
Sponge Bed.....	MSPB
Unconsolidated Substrate.....	MUS
Worm Reef	MWR

ALTERED LANDCOVER TYPES

Abandoned field.....	ABF
Abandoned pasture	ABP
Agriculture.....	AG
Canal/ditch.....	CD
Clearcut pine plantation.....	CPP
Clearing	CL
Developed	DV
Impoundment/artificial pond	IAP
Invasive exotic monoculture	IEM
Pasture - improved	PI
Pasture - semi-improved.....	PSI
Pine plantation.....	PP
Road	RD
Spoil area.....	SA
Successional hardwood forest.....	SHF
Utility corridor.....	UC

MISCELLANEOUS

MTC Types of Communities	MTC
Overflying	OF
Adjacent water.....	AW

Addendum 6 – Imperiled Species Ranking Definitions

Imperiled Species Ranking Definitions

The Nature Conservancy and the Natural Heritage Program Network (of which FNAI is a part) define an element as any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave or other ecological feature. An element occurrence (EO) is a single extant habitat that sustains or otherwise contributes to the survival of a population or a distinct, self-sustaining example of a particular element.

Using a ranking system developed by The Nature Conservancy and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks to each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element occurrences, estimated abundance (number of individuals for species; area for natural communities), range, estimated adequately protected EOs, relative threat of destruction, and ecological fragility.

Federal and State status information is from the U.S. Fish and Wildlife Service; and the Florida Fish and Wildlife Conservation Commission (animals), and the Florida Department of Agriculture and Consumer Services (plants), respectively.

FNAI GLOBAL RANK DEFINITIONS

- G1 Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or fabricated factor.
- G2 Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- G3 Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
- G4 apparently secure globally (may be rare in parts of range)
- G5 demonstrably secure globally
- GH of historical occurrence throughout its range may be rediscovered (e.g., ivory-billed woodpecker)
- GX believed to be extinct throughout range
- GXC extirpated from the wild but still known from captivity or cultivation
- G#? Tentative rank (e.g., G2?)
- G#G# range of rank; insufficient data to assign specific global rank (e.g., G2G3)
- G#T# rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)
- G#Q rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
- G#T#Q same as above, but validity as subspecies or variety is questioned.
- GU due to lack of information, no rank or range can be assigned (e.g., GUT2).
- G? Not yet ranked (temporary)

Imperiled Species Ranking Definitions

- S1Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- S2Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- S3Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
- S4apparently secure in Florida (may be rare in parts of range)
- S5demonstrably secure in Florida
- SH.....of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
- SX.....believed to be extinct throughout range
- SAaccidental in Florida, i.e., not part of the established biota
- SE.....an exotic species established in Florida may be native elsewhere in North America
- SNregularly occurring but widely and unreliably distributed; sites for conservation hard to determine
- SUdue to lack of information, no rank or range can be assigned (e.g., SUT2).
- S?.....Not yet ranked (temporary)
- NNot currently listed, nor currently being considered for listing, by state or federal agencies.

LEGAL STATUS

FEDERAL

(Listed by the U. S. Fish and Wildlife Service - USFWS)

- LE.....Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species that is in danger of extinction throughout all or a significant portion of its range.
- PE.....Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
- LT.....Listed as Threatened Species. Defined as any species that is likely to become an endangered species within the near future throughout all or a significant portion of its range.
- PT.....Proposed for listing as Threatened Species.
- CCandidate Species for addition to the list of Endangered and Threatened Wildlife and Plants. Defined as those species for which the USFWS currently has on file sufficient information on biological vulnerability and threats to support proposing to list the species as endangered or threatened.
- E(S/A).....Endangered due to similarity of appearance.
- T(S/A).....Threatened due to similarity of appearance.
- EXPE, XEExperimental essential population. A species listed as experimental and essential.

Imperiled Species Ranking Definitions

EXPN, XN.....Experimental non-essential population. A species listed as experimental and non-essential. Experimental, nonessential populations of endangered species are treated as threatened species on public land, for consultation purposes.

STATE

ANIMALS(Listed by the Florida Fish and Wildlife Conservation Commission - FWC)

FE.....Federally-designated Endangered

FT.....Federally-designated Threatened

FXNFederally-designated Threatened Nonessential Experimental Population

FT(S/A)Federally-designated Threatened species due to similarity of appearance

STListed as Threatened Species by the FWC. Defined as a species, subspecies, or isolated population, which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat, is decreasing in area at a rapid rate and therefore is destined or very likely to become an endangered species within the near future.

SSCListed as Species of Special Concern by the FWC. Defined as a population which warrants special protection, recognition or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance or substantial human exploitation that, in the near future, may result in its becoming a threatened species.

PLANTS(Listed by the Florida Department of Agriculture and Consumer Services - FDACS)

LE.....Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973,as amended.

LT.....Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered.

Addendum 7 – Cultural Information

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised March 2013)

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, '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."

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, 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 project, permit, grant, etc.

State agencies shall preserve the historic resources which are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found at:
<http://www.flheritage.com/preservation/compliance/guidelines.cfm>

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

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. Recommendations may include, but are not limited to: approval of the project as submitted, cultural resource assessment survey by a qualified professional archaeologist, or modifications to the proposed project to avoid or mitigate potential adverse effects.

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised March 2013)

Projects such as additions, exterior alteration, or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination. In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case by case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should make preparations for locating and evaluating historic resources, both archaeological sites and historic structures.

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at:

http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf .

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Deena S. Woodward
Division of Historical Resources
Bureau of Historic Preservation
Compliance and Review Section
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

Phone: (850) 245-6425

Toll Free: (800) 847-7278

Fax: (850) 245-6435

Eligibility Criteria for National Register of Historic Places

The criteria to be used for evaluating eligibility for listing in the National Register of Historic Places are as follows:

- 1)** Districts, sites, buildings, structures, and objects may be considered to have significance in American history, architecture, archaeology, engineering, and/or culture if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
 - a)** are associated with events that have made a significant contribution to the broad patterns of our history; and/or
 - b)** are associated with the lives of persons significant in our past; and/or
 - c)** embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or
 - d)** have yielded, or may be likely to yield, information important in prehistory or history.

- 2)** Ordinarily cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years shall not be considered eligible for the *National Register*. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
 - a)** a religious property deriving its primary significance from architectural or artistic distinction or historical importance; or
 - b)** a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
 - c)** a birthplace or grave of an historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
 - d)** a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, distinctive design features, or association with historic events; or
 - e)** a reconstructed building, when it is accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and no other building or structure with the same association has survived; or a property primarily commemorative in intent, if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
 - f)** a property achieving significance within the past 50 years, if it is of exceptional importance.

Preservation Treatments as Defined by Secretary of Interior's Standards and Guidelines

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

Stabilization is defined as the act or process of applying measures designed to reestablish a weather resistant enclosure and the structural stability of an unsafe or deteriorated property while maintaining the essential form as it exists at present.

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Addendum 8 – Land Management Review



FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

MARJORY STONEMAN DOUGLAS BUILDING
3900 COMMONWEALTH BOULEVARD
TALLAHASSEE, FLORIDA 32399-3000

RICK SCOTT
GOVERNOR

JENNIFER CARROLL
LT. GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

MEMORANDUM

TO: Marianne Gengenbach, Program Administrator
Division of State Lands

FROM: Parks Small, Chief, Bureau of Natural and Cultural Resources *PS*
Division of Recreation and Parks

Albert Gregory, Chief, Office of Park Planning *AG*
Division of Recreation and Parks

SUBJECT: Response to Draft Land Management Review (LMR) T.H. Stone Memorial St.
Joseph Peninsula State Park

DATE: December 19, 2012

The Land Management Review draft report provided to DRP determined that management of T.H. Stone Memorial St. Joseph Peninsula State Park by the Division of Recreation and Parks met the two tests prescribed by law. Namely, the review team concluded that the land is being managed for the purposes for which it was acquired and in accordance with the land management plan.

Below are Additional Recommendations and Checklist Findings (items the LMR determined should be further addressed in the management plan update) of the draft LMR report, with our manager's response to each. The responses were prepared via a coordinated effort of the park, district office, and our offices.

The team recommends that the unique character and lack of understanding of the natural forces that shape the peninsular coastal scrub community be considered when contemplating any changes in fire management policy in the Wilderness Area. (VOTE: 4+, 0-)

Managing Agency Response: Agree; Natural Areas description and associated management recommendations in the updated management plan acknowledge the unique character of panhandle coastal scrub and the significant body of research (Drewa et al 2008, Parker et al 2001; Huck et al 1996; FNAI 2010) regarding natural process within these areas. This research indicates that stand replacing fire is not a primary factor that shapes and maintains panhandle coastal scrub. The vegetation type and structure within this natural community are primarily influenced by the immediate and constant maritime forces (wind and salt spray). Any management measures regarding the use of prescribed fire at the park will be consistent with this information and will be intended to sustain / mimic natural process according to the most recent, reliable scientific data. Prescribed fire will only be directly applied to mesic flatwoods,

basin marsh and other natural communities where this management measure is a universally accepted means of sustaining natural process. The park's wilderness area, comprised mostly of scrub, will continue to be managed by natural process.

The team recommends that aggressive cogongrass control be extended beyond park boundaries onto adjacent properties. (VOTE: 4+, 0-)

Managing Agency Response: The revised unit management plan will include recommendations for park staff to coordinate with the FFWCC, Bureau of Invasive Plant Management in order to reach out to adjacent landowners and make effort to address the control of invasive exotic plants outside of the park.

PLAN REVIEW

The review team average score indicates a need for acknowledgement of the protection and maintenance of natural communities, specifically mesic flatwoods. Please provide documentation in the management plan.

Managing Agency Response: Agree; The park's unit management plan is currently in the regularly scheduled revision process. The protection and maintenance of the park's natural communities, including specific management measures will be more adequately addressed in the newly revised plan.

FIELD REVIEW

No field review comments were made

Thank you for your attention.

/gk

CC: Danny Jones, Chief, Bureau of Parks District 1
Tony Tindell, Assistant Chief, Bureau of Parks District 1
Mark Knapke, Park Manager, T.H. Stone Memorial St. Joseph Peninsula State Park
John Bente, Environmental Specialist, Bureau of Parks District 1