# **TOPSAIL HILL PRESERVE STATE PARK**

## **UNIT MANAGEMENT PLAN**

**APPROVED** 

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION Division of Recreation and Parks

**OCTOBER 12, 2007** 

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#### INTRODUCTION

Topsail Hill Preserve State Park is located in Walton County (see Vicinity Map). Access to the park is from County Road 30-A off U.S. Highway 98, just east of Sandestin, Florida. (see Reference Map). Topsail Hill may be found in Township 2S, Range 20W, Sections 29, 30, 31, 32, and Township 2S, Range 21W, Sections 25 and 36. Currently the park contains 1,643.48 acres. U.S. Highway 98 forms the northern boundary of the property and the Gulf of Mexico is along the southern boundary. The vicinity map also reflects significant land and water resources existing near the park.

Topsail is named for its high, picturesque dunes, which rise like white sails against the blue-green Gulf waters. The preserve provides three miles of white quartz-sand beaches. The endangered Choctawhatchee beach mouse, first described on this property, is still found in the primary and secondary dune systems. The dune system stretches landward extensively providing a remnant example of Florida panhandle coastal ecosystems. The undeveloped coastal dune lakes, with their intermittent dynamic connection to the Gulf of Mexico, are especially important to migrating birds, and represent one of the most threatened rare natural community types in Florida. A mosaic of wetlands interspersed throughout the pine flatwoods add to the outstanding species richness of Topsail Hill Preserve State Park.

Typical of the dynamic and storm-impacted coastal landscape of the Florida Panhandle coast, natural communities in this preserve support diverse biota including shorebirds, beach mice, sea turtles, migratory birds and numerous rare plants. A nearby significant Native American site on the north side of U.S. Highway 98 at Four Mile Point Topsail Hill shares the heritage of nearby prehistoric Native American cultural resources. More specifically a significant Native American site is located just on the north side of U.S. Highway 98 at Four Mile Point off Mack Bayou Road.

At Topsail Hill Preserve State Park, public outdoor recreation and conservation is the designated single use of the property. There are no legislative or executive directives that constrain the use of this property. The original portion of the park was acquired in 1992 using CARL and P2000 funds (see Addendum 1).

#### PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Topsail Hill Preserve State Park as a unit of Florida's state park system. It identifies the objectives, criteria and 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 intended to be consistent with the State Lands Management Plan. With approval, this management plan will replace the October 17, 2000 approved plan. All development and resource alteration





encompassed 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.

The plan consists of two interrelated components. Each component corresponds to a particular aspect of the administration of the park. The resource management component provides a detailed inventory and assessment of the natural and cultural resources of the park. Resource management problems and needs are identified, and specific management objectives are established for each resource type. This component provides guidance on the application of such measures as prescribed burning, exotic species removal and restoration of natural conditions.

The land use component is the recreational resource allocation plan for the unit. Based on considerations such as access, population and adjacent land uses, an optimum allocation of the physical space of the park is made, locating use areas and proposing types of facilities and volume of use to be provided.

In the development of this plan, the potential of the park to accommodate secondary management purposes ("multiple uses") was analyzed. These secondary purposes were considered within the context of the Division's statutory responsibilities and an analysis of the resource needs and values of the park. This analysis considered the park 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. For Topsail Hill Preserve State Park, it was determined that timber removal for the purpose of natural community restoration could be accommodated in a manner that would be compatible with the primary purpose of outdoor recreation and conservation. This compatible secondary management purpose is addressed in the Resource Management Component of the plan.

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 or the management purposes of the park.

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.

#### 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 (Division) 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 to the tourist appeal of Florida.

The Trustees have also granted management authority of certain sovereign submerged lands to the Division 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 impact public recreational uses.

Many operating procedures are standard system wide and are set by policy. These procedures are outlined in the Division's Operations Manual (OM) that covers such areas as personnel management, uniforms and personal appearance, training, signs, communications, fiscal procedures, interpretation, concessions, camping regulations, resource management, law enforcement, protection, safety and maintenance.

In the management of Topsail Hill Preserve State Park preservation and enhancement of natural conditions is all important. Resource considerations are given priority over user considerations and development is restricted to the minimum necessary for ensuring its protection and maintenance, limited access, user safety and convenience, and appropriate interpretation. Permitted uses are primarily of a passive nature, related to the aesthetic, educational and recreational enjoyment of the preserve, although other compatible uses are permitted in limited amounts. Program emphasis is placed on interpretation of the natural and cultural attributes of the preserve.

#### Park Goals and Objectives

The following park goals and objectives express the Division's long-term intent in managing the state park. At the beginning of the process to update this management plan, the Division reviewed the goals and objectives of the previous plan to determine if they remain meaningful and practical and should be included in the updated plan. This process ensures that the goals and objectives for the park remain relevant over time.

Estimates are developed for the funding and staff resources needed to implement the management plan based on these goals, objectives and priority management activities. Funding priorities for all state park management and development activities are reviewed each year as part of the Division's legislative budget process. The Division prepares an annual legislative budget request based on the priorities established for the entire state park system. The Division also aggressively pursues a wide range of other funds and staffing resources, such as grants, volunteers and partnerships with agencies, local governments and the private sector, for supplementing normal legislative appropriations to address unmet needs. The ability of the Division to implement the specific goals, objectives and priority actions identified in this plan will be determined by the availability of funding resources for these purposes.

#### Natural and Cultural Resources

- 1. Protect, Restore, and Maintain Natural Communities
  - **A.** Maintain and restore community structure, function and composition
  - **B.** Maintain and restore ecotones between communities
  - C. Monitor natural communities by using photo points.
- 2. Design and implement restoration of highly altered communities or areas
  - **A.** Develop a restoration plan for those areas of the park that have been fire excluded. For example, wet prairie and seepage slope area located at the northeast portion of the park is shown to be more open in 1941 historical aerial photos and needs restoration.
  - **B.** Timber removal and vegetative clearing should be analyzed and conducted in appropriate zones to restore historic tree density and reduce fuel loading that prevents re-introduction of prescribed fire.
  - **C.** Develop a restoration plan for restoring the historical hydrology of the park. Three separate areas need to be addressed. The first is the hydrological connection that has been interrupted by Campbell Lake road. The second area is the connection flowing into Morris Lake that is bisected by Topsail Road. The third is the impediment of the movement of water north from the RV park through the wet prairie and basin marsh to the north.

**D.** Continue to restore dunes through sea oat and other dune species planting.

# **3.** Protect, restore and maintain native plant diversity and natural relative abundance

- A. Work toward developing a complete inventory of vascular plants.
- **B.** Work toward developing an inventory of bryophytes, algae, lichens and fungi, concentrating on those of primary ecological or conservation significance.
- **C.** Restore, monitor and maintain listed species (see Addendum 5; Designated Species List).
- **D.** Work toward identifying, restoring and maintaining distinctive populations (for example myrtle-leaved holly (*Ilex myrtifolia*) producing yellow fruits and Yellow trumpets (*Serracenia flava*).
- E. Repair and prevent habitat fragmentation within park.
- **F.** Locate and map listed plant species.
- **4.** Protect, restore and maintain native animal diversity and natural relative abundance
  - **A.** Work toward developing a complete inventory of vertebrates.
  - **B.** Work toward developing a complete inventory of macroinvertebrates including insects, arachnids, crustaceans, mollusks, corals, annelids, etc.
  - C. Restore, monitor and maintain listed species.
  - **D.** Survey suitable wetland habitats for flatwoods salamanders (*Ambystoma cingulatum*) annually.
  - **E.** Monitor the population of the Choctawhatchee Beach Mouse (*Peromyscus polionotus allophrys*) by conducting monthly tracking surveys and annual trapping.
  - **F.** Locate and map gopher tortoise (*Gopherus polyphemus*) burrows.
  - G. Annually renew, update and follow a shorebird management plan.
  - **H.** Locate, monitor and mark sea turtle nest in accordance with Florida Fish and Wildlife Conservation Commission sea turtle guidelines.
  - **I.** Work toward restoring and maintaining distinctive populations. (For example, the loggerhead sea turtle (*Caretta caretta*) that nests in the Florida Panhandle including Topsail is genetically distinct from those nesting in other parts of Florida).
  - **J.** Work toward identifying and developing strategies to address native animal nuisance problems, arthropod control plans, etc.
  - **K.** Repair and prevent habitat fragmentation within park.
  - **L.** Support acquisitions, conservation easements or zoning that provide landscape continuity.
  - **M.** Develop a fisheries management plan for the coastal dune lake prior to allowing fishing or non-motorized boating. Consider catch and release practices. Coordinate with the Florida Fish and Wildlife Conservation Commission when developing this plan.
- 5. Establish and maintain a prescribed fire program
  - A. Maintain or establish interfire intervals for each burn zone.

- **B.** Establish and maintain sufficient firebreaks in appropriate locations.
- **C.** Site facilities so they do not unduly impact the ability to burn adjacent or nearby areas.
- **D.** Protect sensitive resources. (e.g., cat-faced pines, stands of old growth including onsite hardwoods, or cemeteries).
- E. Control offsite/overly abundant woody species.
- **F.** Address problems associated with re-introduction of fire including high fuel loads and deep duff.
- **G.** Train staff and acquire appropriate equipment.
- 6. Establish and maintain invasive exotic plant species removal program
  - **A.** Control exotics that may alter the frequency of coastal dune lakes intermittent connection with the Gulf of Mexico.
  - **B.** Develop and follow an exotic species management plan.
- 7. Establish and maintain destructive exotic animal species removal program
  - A. Control predation of beach mice, shorebirds and sea turtle hatchlings
  - **B.** Develop and follow an exotic species management plan.
- 8. Protect, restore and maintain natural hydrological regimes
  - **A.** Work toward restoring and maintaining surface hydrology and hydroperiod. Restoration is especially needed for water flow across Topsail and Campbell Lake Roads.
  - **B.** Investigate the historical hydrology of the drainage area into the coastal dune lakes.
  - **C.** Maintain integrity of the coastal dune lake outfalls by allowing them to open and close naturally when possible.
  - **D.** Repair and maintain low water crossings so that they are "invisible" to water flow and allow sheet flow to continue.
  - **E.** Work toward establishing, restoring and maintaining minimum levels of coastal dune lakes.
- 9. Protect, restore and maintain water quality conditions
  - **A.** Prevent erosion along the shoreline of the coastal dune lakes.
  - **B.** Prevent nutrients and pollution from entering the coastal dune lakes so that they maintain their oligotrophic nature.
  - **C.** Leave native shoreline vegetation intact.
  - **D.** Monitor water quality to track changes.
  - **E.** Locate, map and protect old growth dwarf cypress/myrtle holly swamps.

#### **Recreational Goals**

- 1. Continue to provide quality resource based outdoor recreational and interpretive programs and facilities at the state park.
- 2. Seek funding to expand recreational and interpretive opportunities through the improvement of programs and the development of new use areas and facilities, as outlined in this management plan.

#### Park Administration/Operations

- 1. Protect park boundaries to improve resource management and avoid encroachment
  - **A.** Establish and protect the Park Boundary through signs, fencing and interpretation
- 2. Protect natural resources from impacts caused from park visitors and outside influences
  - **A.** Prevent the establishment of aquatic and terrestrial weeds in the coastal dune lakes by managing the lakes and visitor impacts within DEP's 400 feet management boundary into the water.
  - **B.** Review proposals affecting land use and development outside of park boundaries and support efforts that establish or maintain zoning, land use, water use policies, etc. that facilitate appropriate protection of park resources.
  - **C.** Designate and post sensitive areas for protection of flora and fauna and natural features to prevent visitor impacts.
  - **D.** Address vehicular access and use of the beach to ameliorate impacts to shorebirds and sea turtle hatchlings.
- **3.** Provide visitors with a quality recreation experience through visitor service.
  - **A.** Provide universally accessible public facilities to the extent possible.
  - **B.** Assure that appropriate training is provided to all staff in visitor services, park information and emergency procedures.
  - **C.** Conduct regular inspections of park grounds and facilities to ensure a safe, clean and well-maintained environment for visitors and staff.
  - **D.** Recruit and maintain volunteer support to assist park staff with the maintenance of park facilities and implementation of park programs.

#### **Management** Coordination

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

The Department of Agriculture and Consumer Services, Division of Forestry (DOF), assists Division staff in the development of wildfire emergency plans and provides the authorization required for prescribed burning. The Florida Fish and Wildlife Conservation Commission (FFWCC), assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish and other aquatic life existing within park boundaries. In addition, the FFWCC aids the Division with wildlife management programs, including the development and management of Watchable Wildlife programs. The Department of State, Division of Historical Resources (DHR) assists staff to assure protection of archaeological and historical sites. The Department of Environmental Protection (DEP), Office of Coastal and Aquatic Managed Areas (CAMA) aids staff in aquatic preserves management programs. The DEP, Bureau of

Beaches and Wetland Resources aids staff in planning and construction activities seaward of the Coastal Construction Line. In addition, the Bureau of Beaches and Wetland Resources aid the staff in the development of erosion control projects. Emphasis is placed on protection of existing resources as well as the promotion of compatible outdoor recreational uses.

#### **Public Participation**

The Division provided an opportunity for public input by conducting a public workshop and an advisory group meeting. A public workshop was held on March 15, 2007. The purpose of this meeting was to present this draft management plan to the public. An Advisory Group meeting was held on March 16, 2007. The purpose of this meeting was to provide the Advisory Group members the opportunity to discuss this draft management plan.

#### **Other Designations**

Topsail Hill Preserve State Park is not within an Area of Critical State Concern as defined in section 380.05, Florida Statutes and it is not under study for such designation. The park is a component of the Florida Greenways and Trails System.

The Choctawhatchee beach mouse habitat at Topsail Hill Preserve State Park has been identified as critical habitat by the United States Fish and Wildlife Service (USFWS) and as a Strategic Habitat Conservation Area by the FFWCC. The Endangered Species Act requires consultation with the USFWS prior to development in areas designated as critical habitat. The Division will closely coordinate with USFWS and FFWCC to insure that habitat needs of the Choctawhatchee beach mouse are met. The park is also included in the Coastal and Barrier Resource System as a fully protected unit designated by the Coastal Resources Barrier Act of 1982.

All waters within the unit have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302 Florida Administrative Code. Surface waters in this unit are also classified as Class III waters by DEP. This unit is not within or adjacent to an aquatic preserve as designated under the Florida Aquatic Preserve Act of 1975 (section 258.35, Florida Statutes).

#### **RESOURCE MANAGEMENT COMPONENT**

#### INTRODUCTION

The Division of Recreation and Parks 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. The stated management measures in this plan are consistent with the Department's overall mission in ecosystem management. Cited references are contained in Addendum 2.

The Division's philosophy of resource management is natural systems management. Primary emphasis is on restoring and maintaining, to the degree practicable, the natural processes that shape the structure, function and species composition of Florida's diverse natural communities as they occurred in the original domain. Single species management may be implemented when the recovery or persistence of a species is problematic provided it is compatible with natural systems management.

The management goal of cultural resources is to preserve sites and objects that represent all of Florida's cultural periods as well as significant historic events or persons. This goal may entail 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 is often affected by conditions and occurrences beyond park boundaries. Ecosystem management is implemented through a resource management evaluation program (to assess resource conditions, evaluate management activities and refine management actions), review of local comprehensive plans and review of permit applications for park/ecosystem impacts.

#### **RESOURCE DESCRIPTION AND ASSESSMENT**

#### Natural Resources

#### **Topography**

At this unit the major topographic features (see Topographic Map) are the coastal dunes, including the unit's namesake Topsail Hill Dune, that rise like white sails above the blue-green waters of the Gulf. The coastal area including Topsail Hill Preserve State Park has been shaped by erosional forces of wind and waves for much of the past two million years. A portion of the eastern end of the property lies on an ancient marine terrace, defined by a distinct escarpment at 25 feet above mean sea level (Schmidt 1984).

Throughout the property are relict marine dunes and beach ridges punctuated by the



intervening swales. In the past, the primary dunes of the state park have attained elevations approaching 32 feet above mean sea level. Significant changes to the dune system occurred when Hurricane Opal affected the coast in 1995. The highest dune at Topsail Hill Preserve State Park was eroded and washovers of the dunes from the gulf to the coastal dune lakes occurred. Hurricanes in the years 2004 and 2005 have reduced the height and mass of the primary dunes significantly. In contrast to the dunes, the more sheltered, interior flatwoods of the park are of minimal relief, except for interior sand ridges. The highest point in the park is at or about 55 feet above mean sea level, and occurs on a north-south oriented scrub ridge lying about halfway between Campbell and Stalworth Lakes.

#### **Geology**

The entire southern area of Walton County lies within the Gulf Coastal Lowlands. (Puri and Vernon 1964). Pleistocene to recent quartz sands covers the lower part of the county (Schmidt and Clark 1980). A quartz sand veneer is found above a wedge of the Intracoastal Formation at 50 feet (Schmidt 1984). That latter strata which is described as a soft, sandy limestone of Pliocene age with abundant microfossils (Schmidt and Clark 1980), overlies Bruce Creek Limestone at approximately 100 feet (Schmidt 1984). Although limestone is present at approximately 50 feet below land surface, Topsail Hill contains few obvious karst features. The dominant influence on the development of the landscape over time is storms and hurricane impact.

#### <u>Soils</u>

Soils at Topsail (see Soils Map) are interrelated with topography and climate regimes. Four soil families are found at Topsail Hill: entisols, spodosols, histosols and inceptisols (U.S.D.A. 1989). Soils of the dunes and interior ridges are excessively drained entisols, in which available water capacity and nutrients are low. Soils of the flatwoods matrix include spodosols in the scrubby flatwoods and savannahs, and histosols and inceptisols in the mucky cypress swamps and shallow basin depressions. In most areas, flatwoods soil is very poorly drained and nearly level; organic matter is low. The hardpan (a dark spodic layer) is a significant feature of the flatwoods soil. Addendum 3 contains detailed soil descriptions.

Limited soil erosion has occurred from unimproved roads and off road vehicle (ORV) impacts before the land was acquired by the State. These areas have been closed to vehicular access and are now recovering. Development of park roads will implement best management practices to prevent erosion. Other impacted areas will be conserved through active restoration or natural systems management. Management activities will follow generally accepted best management practices established in the Florida Department of Agriculture and Consumer Services 2003 Silviculture Best Management Practices to prevent soil erosion and conserve soil and water resources on site. Erosion from hurricanes to the beach dunes is part of a natural process that shapes this dynamic system. Hurricanes in the years 2004 and 2005 especially Ivan and Tropical Storm



Dennis has severely eroded the frontal dunes at Topsail up to 75% in many spots. A sea oat planting project in 2006-2007 is aiding in the recovery of these dunes.

Erosion on the shores of the coastal dune lakes will be prevented and managed through fencing, sign posting and interpretation.

#### <u>Minerals</u>

Heavy minerals such as ilmenite, rutite, kyanite, zircon, garnet, staurolite and leucoxene are found in neighboring beaches (Yon and Hendry 1969). There appear to be no known deposits of commercially valuable minerals within Topsail Hill.

#### <u>Hydrology</u>

**Regional hydrology.** The Choctawhatchee Basin encompasses 6000 square miles (NWFWMD 1978). This basin begins in southeast Alabama and flows through Alabama and northeast Florida for a distance of 175 miles (U.S. Corps of Engineers 1980). The flow discharges into Choctawhatchee Bay and then into the Gulf of Mexico (Esry 1987). According to Pascale (1974), two major aquifers are found in Walton County: the sand and gravel aquifer and the Floridan aquifer. The latter is the primary source of water for Walton County.

**Unit hydrology.** Water moves on a differential gradient over spodisols of the flatwoods, through elongated domes, wide wet prairies and into the lakes. Standing water can be found in the domes and basin swamps that connect eventually to the coastal dune lakes. Sheet flow is disturbed and interrupted by roads, ditches and other developments. The hydrology of the coastal dune lakes is not well understood. They are thought to hold surface water draining from a relatively small watershed. Old historic photos provide some clues as to the original surface flow in the park and into the coastal dune lakes.

#### Natural Communities

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 which are similar with respect to these factors will tend to have natural communities with similar species compositions. Obvious differences in species composition can occur, 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.

The park contains 16 distinct natural communities (see Natural Communities Map) in addition to ruderal and developed areas. Park specific assessments of the existing natural communities are provided in the narrative below. A list of plants and animals



occurring in the unit is contained in Addendum 4.

**Beach dune.** This community is comprised of several distinct vegetative components and zones. The seaward dunes are subject to more dynamic forces that have shaped them such as wind and water erosion and accretion. Sea oats (*Uniola paniculata*), beach morning glories (*Ipomea spp*), and other pioneer plants such as sea rocket (*Cakile spp*) and sea purslane (*Sesuvium portulacastrum*) cover much of the seaward facing frontal beach dunes. Storm surges from Hurricane Opal in 1995 had washed through the primary dune line, creating large blowouts. These blowouts were recovering and foredunes forming when the hurricanes of 2004 and 2005 washed again though these areas further eroding the dune system. Both the height and depth of the dune system at Topsail has been decreased. Some of the resulting disturbed areas have provided nesting habitat for shorebirds, specifically least terns and snowy plovers but decreased dune habitat for beach mice.

Salt pruned and windswept turrets of scrub vegetation with scrub oaks (*Quercus spp*), southern magnolia (*Magnolia grandiflora*), red bay (*Persea borbonia*), woody goldenrod (*Chrysoma paucifloculosa*), dune rosemary (*Conradina canescens*) and occasional old crooked-limbed slash pine (*Pinus elliotii*) are common on the landward side of the frontal dunes and in the secondary dune system. Many of these woody species have been killed by the storm surge or excessive salt spray. Recovery has been slow and the dunes are still absent of the abundant wildflowers that existed prior to the 2004 tropical storm season. In the fall, these wildflowers supported numerous migratory butterflies such as the Gulf Fritillary (*Agraulis vanillae*) and the Common Buckeye (*Junonia coenia*).

The secondary dunes originally suffered significant damage caused by ORV traffic prior to state acquisition, especially in the area around the juncture of the two lakes and on dunes abutting Campbell Lake. Some of these areas were regenerating naturally but additional foot traffic compounded by successive years of storms has degraded the Topsail Dune even further. These areas are being actively restored.

The beach dune community is the primary habitat of the endemic Choctawhatchee beach mouse (*Peromyscus polionotus allophrys*). Beach mice occur throughout the dune community at Topsail even stretching into the secondary dune by the south shore of Morris Lake.

The beach and dune areas along the eastern and western boundaries should be monitored heavily in order to detect impacts to beach mice, sea turtle nests or other species from offsite impacts such as domestic cats, house mice or modifications to the inlet; if necessary, prompt corrective action should be taken. Artificial lighting cast onto the dunes and beach from neighboring developments has caused a series of sea turtle disorientations and may affect foraging behavior of beach mice. **Maritime hammock.** Small maritime hammocks occur in the park. Each has developed in locations where some protection is afforded from fire, sea breezes and severe storms blowing in from the Gulf. Each formed adjacent to permanent bodies of fresh water, and two occur on the leeward side of dune ridges. They differ significantly in quality, with canopy heights ranging from roughly 15 to 30 feet. Dominant canopy species include southern magnolia (*Magnolia grandiflora*), live oak (*Quercus virginiana*) and sand-live oak (*Quercus geminata*). The highest quality hammock supports species that have not been observed elsewhere in the park, including pignut hickory (*Carya galbra*) and yellow foxglove (*Aureolaria flava*). Typical understory species include small-flowered pawpaw (*Asimina parviflora*), yaupon holly (*Ilex vomitoria*), wild olive (*Osmanthus americanus*), saw Palmetto (*Seranoa repens*), beautyberry (*Callicarpa americana*), and coral bean (*Erythrina herbacea*).

The biological significance of these sites is far greater than their small size might otherwise indicate. They not only enhance the biological diversity of the park but also are highly important stopover habitat for migrating neotropical migrant birds. This is because the sites are on the coast, and they provide protection from the elements, food sources and adjacent fresh water. Several species of migratory birds are often sighted by the park staff in these communities.

The hammocks of the park should be given a high degree of protection, due to their limited area. Significant removal of trees or underbrush cannot be done without negative impact to the natural community. Care should also be taken to provide the hammocks with reasonable protection during prescribed burning.

**Mesic flatwoods.** Mesic flatwoods occur at Topsail among a mosaic landscape interspersed with mesic, wet and scrubby flatwoods and a variety of wet prairies and domes. Mesic flatwoods here are dominated by a mix of slash (*Pinus elliotii*) and longleaf pine (*Pinus palustris*), a shrub layer of dwarf live oak (*Quercus minima*), fetterbush (*Lyonia lucida*) and gallberry (*Ilex glabra*), and an herbaceous layer dominated by wire grass (*Aristida stricta*). The mesic and wet flatwoods communities at Topsail contain uneven age stands of longleaf pine including ages that qualify many of these trees to be considered old-growth (128 years old). Over 1000 old-growth longleaf pine trees were counted during a 2007 inventory. The longleaf pines in these communities are relatively short in stature (30 – 40 ft) and many show cat-faces. On slightly higher topographic areas, mesic flatwoods tend to grade into scrubby flatwoods, and, on lower spots, wet flatwoods and/or wet prairies.

The mesic flatwoods in the northeast portion of the park is fire suppressed with a dense sub-canopy, deep duff and numerous ladder fuels. Restoration, mechanical fuel reduction and attention to deep duff conditions is needed to return this area to the structure and function of historic mesic flatwoods. **Scrub.** Dominant species of the interior scrub areas of the park include sand pine (*Pinus clausa*), sand-live oak and myrtle oak (*Quercus myrtifolia*). Frequently occurring groundcover species include reindeer moss (*Cladonia spp*); woody goldenrod (*Chrysoma pauciflosculosa*), false rosemary (*Conradina canescens*), red sage (*Salvia coccinea*) and large-leafed joint weed (*Polygonella macrophylla*) are commonly found in open, sunny patches. Because sand pine is less tolerant of salt spray, it gradually losses its dominance in the canopy closer towards the Gulf.

Gopher tortoises (*Gopherus polyphemus*) and burrows are found in the scrub at Topsail as are dusky pygmy rattlesnakes (*Sistrurus miliarius barbouri*). Bobcats (*Felis rufus*) have been sighted moving from the scrub into scrubby flatwoods.

The relative role that fire and hurricanes played historically in maintaining coastal Panhandle scrub is unknown. Sand pines are more susceptible to wind damage than the other pines. Many sand pines in the scrub are noticeably leaning inland, a result of high winds from hurricanes and tropical storms. The fire return interval of Florida Panhandle coastal scrub is unknown making fire management decisions difficult.

**Scrubby flatwoods.** Scrubby flatwoods are found over the distinctly thick hardpan soils, called haplohumods. In this community, the water table is about 40 inches below the surface of the soil during the summer. Indicator species of this community found at Topsail include rusty lyonia (*Lyonia ferruginea*), scattered scrub oaks (Quercus spp.) and saw palmetto with an overstory of longleaf pine, or occasionally slash pine. Scrubby flatwoods at this unit grade primarily into scrub and mesic or wet flatwoods. Typically, in the Panhandle, scrub and scrubby flatwoods are very similar in composition and appearance. Fire-excluded flatwoods areas have usually been invaded by sand pine, further blurring community distinctions. Recent prescribed burns in addition to recent hurricanes have opened the canopy in some scrubby flatwoods at Topsail.

**Basin swamp.** Basin swamps are found in the areas of sandy wet to mucky soils that, and are typically found in enclosed basins. They are often are dominated by blackgum (*Nyssa sylvatica*), pond cypress (*Taxodium ascendens*), and slash pine, and evergreen shrubs such as fetterbush, large-leafed gallberry (Ilex coriacea) and titi (*Cliftonia monophylla* and *Cyrilla racemiflora*). Several areas have been designated as basin swamp in the park that share vegetative characteristics of the community, but do not quite fit the FNAI description (i.e., they are at the edges of the large lakes rather than being self-contained in basins, or they run slowing into permanent water bodies). A good example of basin swamp occurs in association with the seepage slope in the northeast corner of the park. The interior of this swamp contains numerous pond cypress and blackgum approaching 18 inches dbh. Fuel loading is heavy around the ecotone of all the basin swamps found on the park.

Old photos of titi dominated basin swamps in the Florida panhandle show open prairie

like vistas up to the ecotone of the basin swamp and a small ribbon of titi and other woody wetlands plant species lining the ecotone. Some of the basin swamps identified at Topsail probably fit into a subcategory of basin marshes, especially where titi dominates small wetland rivulets running slowly into permanent water bodies. Historically fire burned into these ecotones keeping titi from dominating the canopy and creeping out into neighboring wetlands such as wet prairie.

**Dome.** This community is typically comprised of pond cypress, myrtle-leaf holly and blackgum. Some excellent examples of this community with characteristic dome profiles occur in the park despite recent absence of fire in adjacent communities. Some domes have a seasonal hydroperiod, fluctuating from flooded to very dry. In others, water remains throughout the year, and they occasionally serve as rookeries for little blue herons (*Egretta caerulea*), great blue herons (*Ardea herodias*), tricolor herons (*Egretta tricolor*), great egrets (Ardea alba) and snowy egrets (*Egretta thula*). A normally flooded dome is found just north of the area between the coastal dune lakes. This dome pops off into Morris Lake, a coastal dune lake. Black, mucky soils characterize these dome depressions. Milkworts (*Polygala spp*), and tall beakrushes (*Rhynchospora spp*.) are common sights in these isolated domes in the spring.

Other wetlands labeled as domes at Topsail do not fit the description of dome but there is no other FNAI category appropriate for these wetlands. They are dominated by cypress, myrtle holly and slash pine. They are similar to depression marshes where different rings of vegetation exist comprised of cypress in the center, then a ring of myrtle holly then an herbaceous layer and then a band of pine followed by saw palmetto or Curtiss's sand grass (*Calamovilfa curtissii*). These wetlands are not round but usually elongated and irregularly shaped. Their hydrology is linked to neighboring wetland communities such as wet flatwoods and wet prairies and they eventually drain into the coastal dune lakes.

**Seepage slope.** A long, thin band of formerly open seepage slopes has recently been identified in the park. It occurs on a relatively steep drop in topography (about 10 feet drop over 50-70 feet in distance) between scrubby flatwoods and basin swamp. Aerial photos from 1956 indicate that this ecotone had an open character and was dominated by herbaceous species.

The community is presently in poor condition due to fire exclusion. It has suffered from extensive invasion by titi, smilax and fetterbush. Two openings in the community have been located; species present include dew threads (*Drosera filiformis*), hat pins (*Eriocaulon spp.*), bog buttons (*Lachnocaulon spp.*), bog bachelor's button (*Polygala spp.*), Yellow trumpets (Sarracenia flava) and drumheads (*Polygala cruciata*). Thick mats of sphagnum are present. Restoration efforts for this community will focus primarily on a concerted effort to apply fire. The ladder fuel especially smilax is heavy. Efforts will need to focus on fuel reduction before re-introducing fire to this community. This effort

will be difficult being that seepage slope soils are not conducive to any type of heavy equipment needed for mechanical fuel treatment.

**Wet flatwoods.** Due to past-prolonged fire exclusion, it has been difficult to map the original extent of wet flatwoods in the park. This is largely due to encroachment by woody species, including pines. The slash pines in the northeast section of the park are even age and dense. Some areas now mapped as wet flatwoods probably tended more towards wet prairie in the past. Aerial photographs from 1941 show much less tree cover in these areas than now occurs over much of the park.

Core areas of true wet flatwoods do occur in the park. In such areas, the dominant vegetation is long leaf pine/wiregrass. The community shares much floristically with wet prairie (see below). By using increment borers, staff has determined that some individual longleaf pines are as much as 140 years of age. The wet flatwoods communities at Topsail contain uneven age stands of longleaf pine including old-growth trees. Over 1000 old-growth longleaf pine trees were counted during a 2007 park inventory. The longleaf pines in these communities are relatively short in stature (30 – 40 ft) and many show cat-faces. Deep duff has accumulated around the base of many of these trees creating lethal conditions for the trees. As natural community restoration progresses, the implementation of a prescribed fire program, will need to take into consideration the sensitivity of these old trees to duff fires that severely damage their roots and can be lethal.

Wet flatwoods are important to the hydrology of the park. They connect many of the parks wetland communities and eventually drain into the coastal dune lakes. Keeping sheet flow intact in these wet flatwoods is vital to the health of the interlinked wetlands at Topsail and its coastal dune lakes.

**Wet prairie.** Highly diverse wet prairies are found throughout the pinelands here and are noted for high species endemism. The wiregrass dominated wet prairies of the Panhandle are quite distinct from maidencane/ cutgrass wet prairies that occur over the northern peninsula (such as that at Paynes Prairie). Panhandle wet prairies often have a high degree of species overlap with seepage slope communities, and as such, often support much higher numbers of rare species than do peninsular wet prairies.

Some of the rarer and more-distinctive species in the park occur in wet prairies, including insectivorous sundews (*Drosera spp.*), butterworts (*Pinguicula spp.*), orchids (*Calopogon spp.* and *Spiranthes spp.*), lilies (*Lilium catesbaei* and *Aletris lutea*) and pitcherplants (*Sarracenia flava* and *S. psittacina*). Examples of this community in the park are often expansively open, appearing as a sea of grasses, sedges and lower herbaceous plants, with only scattered longleaf pine or cypress. They are characterized by grassy hummocks, mainly of wiregrass, but also of sedges and Chapman's St John's wort (*Hypericum fasciculatum*). When burned regularly, this type of community can exhibit

some of the highest plant diversity in North America (Walker and Peet 1983). At Topsail Hill Preserve State Park, fire exclusion and reduced fire frequency has adversely affected this community. A recent prescribed burn uncovered a wet prairie that now has white topped sedge (*Rhynchospora latifolia*), St Johns' wort, a sea of grasses and sedges, yellow trumpets (*Sarracenia flava*), parrot pitcher plants (*Sarracenia psittacina*), grass pinks (*Calopogon spp.*), colic root (*Aletris lutea*) and more. Hydrological alterations caused by ditching and road construction have also had an effect. Restoring the hydrological connection between the wetlands, flatwoods and the coastal dune lakes is important for the future of all of these communities.

**Coastal dune lake.** There are four coastal dune lakes occurring entirely within the park. A fifth, Stalworth Lake, is part of the eastern boundary. Of the four completely within the unit, the two largest are Campbell Lake and Morris Lake. Morris, Stalworth and Campbell Lakes have known intermittent outlets to the Gulf.

These are largely clear, oligotrophic lakes with coarse sand bottoms and sparse amounts of emergent and floating vegetation. The water of Morris Lake is normally tannic while Campbell Lake can remarkably colorless. Campbell Lake will become dark and tannic when rainfall is high and constant. Morris Lake's inlet regularly breaches, and flows into the Gulf of Mexico. In comparison, Campbell Lake flushes only during significant weather events and high rainfall. Torpedo grass has established along the inlet watercourses possibly preventing the inlets from connecting to the Gulf readily. The network of roots may stabilize the berm that holds the lake from connecting to the Gulf. Salinity in the lakes can vary depending on the connection to the Gulf and the amount of storm that overwashes the dunes. Significant amounts of rainfall can slowly return the lake to a freshwater condition especially when the saltwater sinks to the bottom leaving freshwater conditions on the upper surface of the lake.

These lakes are examples of some of the last remaining undeveloped coastal dune lakes left in Florida. They are of crucial importance in creating freshwater environments in barrier island conditions, enhancing animal and plant biodiversity. Monitoring and maintenance of the water quality and natural vegetation buffers around the lakes are of paramount concern to this park.

Two small coastal dune lakes to the east of Campbell Lake have not yet been given formal names. The lakes have no known outlet to the Gulf but probably connected to the Gulf historically. These lakes probably still connect to the Gulf intermittently on a geological timescale instead of on a human lifespan timescale. These lakes and the habitats around them are used heavily by neo-tropical birds as stopover sites for resting, feeding and cover during spring and fall migrations. Stalworth Lake is located along the eastern border of the park and is only partially within park boundaries.

**Estuarine tidal marsh.** The main area presently mapped as this community type is

associated with the outfall of Morris Lake. The area along the outfall contains some typical tidal marsh plants such as black needlerush (*Juncus roemerianus*) and sawgrass (*Cladium jamaicense*). This marsh is in a highly dynamic system and is subject to severe disturbance from hurricanes or tropical storms. Saltwater inundation and hurricane debris affect the marsh. The outfall itself wanders up and down the beach during a given year. The south side of the tidal marsh near the Gulf of Mexico is a prime resting/foraging area for shorebirds while wading birds use the main part of the marsh. Snags created from overwash are used heavily by woodpeckers and cavity nesting birds such as bluebirds.

**Upland mixed forest.** Small mesic hammocks are found on the park where they are protected from fire. In these fire shadows are hammocks dominated by live oak, magnolia and pignut hickory with a sparse understory with beautyberry. The hammock on the western edge of the park grades into a gum swamp that serves as a firebreak for the hammock. Eastern glass lizard (*Ophisaurus ventralis*), broadhead skink (*Eumeces laticpes*), pileated woodpecker (*Dryocopus pileatus*), green anole (*Anolis carolinensis*), white-tailed deer (*Odocoileus virginianus*) and gray squirrel (*Sciurus carolinensis*) can all be found in the hammock.

**Basin Marsh.** The basin marsh at Topsail is located between Morris Lake and Fuller Lake. Fuller Lake is located in a neighborhood adjacent to the park boundary. It is partially developed and drains into Morris Lake with no other drainage outlets. The connection between the two lakes comprises the basin marsh. As Fuller Lake drains into Morris Lake, it flows over a wide shallow, herbaceous area creating a basin marsh. Historic photos show a fluctuation in woody vegetation establishment. Storm overwash and salt inundation both probably help to keep woody vegetation from dominating. During dry periods, woody vegetation can establish but are then killed during periods of high water and saltwater overwash.

The outlet for Morris Lake regulates the water level in Fuller Lake and the basin marsh in between the two lakes. Opening the outlet artificially affects the hydrology of the basin marsh.

Woody vegetation surrounding the marsh includes buttonbush (*Cephalanthus occidentalis*) but the herbaceous community in the marsh includes grasses and sedges. The biggest threats to this community are invasion of Chinese tallow (*Sapium sebiferum*) and artificial opening of the Morris Lake outlet.

**Coastal interdunal swale.** The interdunal swales at Topsail were used to describe the FNAI natural community type. They are ephemeral wetlands in the saddles or swales of the dunes. These interdunal swales consist of sandy soils that can hold water temporarily after rains. Vegetation in these swales at Topsail includes Cordgrass (*Spartina patens*), pennywort (*Hydrocoytle spp.*), sedges (*Caryx spp.*), and redroot

(*Lachnanthes caroliana*). The swales have been recently overwashed by the tropical storm seasons of 2004-2005. Many of the freshwater species in these swales have yet to re-establish. Many of these swales were inundated with saltwater for an extended period, killing much of the vegetation and the woody vegetation that started to establish in these swales. Herbaceous vegetation is slowly recovering. The swales continue to be vulnerable to overwash as the primary dunes that protected the swales have been reduced to one-quarter of their previous height and width.

**Marine unconsolidated substrate.** This community is generally comprised of the beach proper. Sand, shells, shell mash, rack and debris are largely the components of this community type. The majority of the biotic components are plankton, and other invertebrates. Many fish species use the area as a prime feeding ground.

**Ruderal.** The roadsides, and other disturbed areas of the park that are regularly impacted from necessary development or use such as mowing, are included in this community type.

**Developed.** Structures, roads, parking lots and landscaped areas fall into this community type. Examples include the man-made lakes, paved tram road and the parking lot at the entrance to the RV resort.

#### **Designated Species**

Designated species are those that are listed by the Florida Natural Areas Inventory (FNAI), U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FFWCC), and the Florida Department of Agriculture and Consumer Services (FDA) as endangered, threatened or of special concern. Addendum 5 contains a list of the designated species and their designated status. Management measures will be addressed later in this plan.

This park contains a significant number of both federal and state listed species. Probably the most significant of these is the Choctawhatchee beach mouse. Critical habitat has been designated by the U. S. Fish and Wildlife Service for the beach mouse and is defined as 500 feet inland from the mean high tide line. Topsail Hill Preserve State Park serves as one of the few remaining relatively stable populations of this extremely vulnerable subspecies. Ongoing research by the Alabama Cooperative Wildlife Research Unit is improving our understanding of the habitat requirements of this sub-species.

Before state acquisition, red cockaded woodpeckers (RCW) historically occurred on the park and abandoned cavity trees can still be found. Although there is currently no known nesting or resident RCW's on the property, there was an active colony to the north of the park. Due to the fragmented habitat, surrounding the park there is no plan to re-introduce RCW's.

Federally listed endangered green and threatened loggerhead sea turtles use the beach and dunes for nesting habitat. Nesting season takes place between May-Oct. Although few sea turtles nest at Topsail each year, those that nest in the Panhandle are genetically distinct from those that nest in the rest of the peninsula.

Many shorebirds nest and rest on the beach at Topsail. Those that are state listed include snowy plovers, and least terns.

Several designated plant species occur on the property. Sundews, large-leafed jointweed, Curtiss' sandgrass, parrot pitcher, Godfrey's golden aster, Cruise's golden aster and Gulf coast lupine are among these.

Gopher tortoises are found in the scrub and dune communities.

#### **Special Natural Features**

The namesake of the preserve is an ancient dune that reportedly when enhanced by mirage effect, appears to be a large main sail when viewed from the Gulf. It has been used historically as a navigational landmark by local boaters. It is one of the highest spots in the park.

The two largest coastal dune lakes exhibit notable differences found in this community type. Morris Lake, normally tannic, is intermittently connected to the Gulf. The clear waters of Campbell Lake are normally isolated from the Gulf except during periods of abundant rainfall or storm surge typically associated with tropical weather events.

The elongated domes that are not easily categorized or found elsewhere outside of south Walton County can be considered special. These wetlands contain an unusual mixture of vegetation, such as cypress, myrtle holly and Curtiss' sandgrass.

Panhandle wet prairies are also considered a special natural feature. The presence of a diversity of carnivorous plants in Panhandle wet prairies is well recognized in the botanical community. Visitors to the park are also fascinated by carnivorous plants.

The ecosystem encompassed by the unit should be considered a special natural feature due to the extremely diverse natural communities that occur in such close proximity.

#### **Cultural Resources**

Evaluating the condition of cultural resources is accomplished using a three part evaluative scale, expressed as good, fair, and poor. These terms describe the present state of affairs, rather than comparing what exists against the ideal, a newly constructed component. 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 judgment is 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 to reestablish physical stability.

The Florida Master Site File (FMSF) lists nine sites within the park.

8 WL00064 Stalworth Lake. This site is a Fort Walton shell midden primarily located on private property to the southeast of the park boundary. The original FMSF form (1960) indicates that sherds and lithics were found. The 1998 FMSF update located a midden on this site. The site was visited in 2006 by park staff after a mowed fire line was installed. Shells were visible on the surface. The site appears to be in fair condition but because of encroaching development, there continue to be several casual trails in the area. The park staff monitors this site twice yearly for vandalism and signs of human activity.

8 WL 01360 Pinson I. According to the FMSF (1998), the site is a surface scatter consisting of Santa Rosa/Swift Creek material. It is in fair condition. The FMSF report calls for further investigation. Evaluation participants felt that it was highly likely that similar sites may be found along the perimeter of lakes at Topsail Hill. This is corroborated by Weisman's (1993) assessment of the importance of the dune-valley lake margin along the Gulf coast and the bayou or stream areas associated with the south shore of the Choctawhatchee Bay. Tropical storms were identified in 1998 as a threat to the site. The area is visited regularly by park staff to protect sites from vandalism. No artifacts were found during a site visit in 2006 by park staff. Contributing factors may have been the high storm surge during the 2004 and 2005 tropical storm seasons.

8 WL01421 Topsail #1. The site consists of exposed iron fragments (cables and wire mesh, as well as interlocking metal tracks) between the dunes, which is rapidly eroding. These may be the remains of WWII installations; Evaluation participants noted the site to be in poor condition due to the current state of preservation. Research is also needed to identify these remains and to map existing track routes. The 1935-38 Villa Tasso quad does not indicate any tram routes or rail routes, which suggests that these may be World War II era military installations. However, the area had also been utilized for missile development. Neighboring Four-Mile village still preserves some of the military's infrastructure from this era including a bunker and missile launch ramp. The tracks are presumed to link to this military site and were probably used to transport military vehicles along the dunes to the bunker and ramp. Park staff has set up and records photopoints regularly.

WL 01794 North Campbell Lake Site. This is a surface scatter site composed of Weeden

Island material found in 2000. The site is in fair condition although erosion is a threat to the site.

WL 1552 Tops'l Hill. This site is a shipwreck of a wooden vessel that was uncovered after Hurricane Opal in 1995. The date of the ship is unknown. By 2002 the site was completely covered by sand. The site is in fair condition but erosion and storm surge remain threats.

WL 01974 Beach Restroom. The site was found during shovel testing in 2003 in advance of construction of a restroom. Two small flakes were found. The site is in good condition.

WL 02021 Topsail Hill State Preserve. This site was found after a prescribed burn in 2000. This site consists of brick and metal pieces and is suspected to be an old camp or pump house. The site is in good condition.

WL 2022 Topsail Hill State Preserve — "The Quarters" Turpentine Stand. This is a significant turpentining area consisting of numerous cat-faced pine trees located north of Morris Lake. The land was previously owned by St Joe Paper Company. Artifacts found include clay herty cups, cat-faced trees and metal gutters still attached to trees. Staff has located and mapped the locations of many of the cat-faced trees on the park. Staff should submit an updated FMSF form for this site as more tree are mapped and the range of the turpentine artifacts that are found expands. Historical research is needed to document this site in the context of the turpentine industry in Florida.

WL 2129 Topsail Shell Midden 1. This midden is located near a marsh and consists of shell fragments in various stages of decomposition. The park recorded this site in 2006 and monitors it every 6 months. This site is in fair condition and is constantly invaded by invasive exotic, Chinese tallow (*Sapium sabiferum*). The park staff has been actively in controlling these invasive exotics in and around the midden.

The region also has been the site of several types of activities during the nineteenth and twentieth centuries. These include salt works, turpentining, and military installations.

#### **RESOURCE MANAGEMENT PROGRAM**

### **Special Management Considerations**

### **Timber Management Analysis**

Chapters 253 and 259, Florida Statutes, require an assessment of the feasibility of managing timber in land management plans for parcels greater than 1,000 acres if the lead agency determines that timber management is not in conflict with the primary management objectives of the land. The feasibility of harvesting timber at this park during the period covered by this plan was considered in context of the Division's

statutory responsibilities, and an analysis of the park's resource needs and values. The long-term management goal for forest communities in the state park system is to maintain or re-establish old-growth characteristics to the degree practicable, with the exception of early successional communities such as sand pine scrub and coastal strand.

A timber management analysis was conducted for this park (see Addendum 6). Timber management may be needed as a one-time treatment during this unit management plan cycle in order to restore certain natural communities. Timber density and fuel loading because of fire exclusion has degraded the structure and function of certain natural communities and made it impossible to manage these communities using natural processes that shaped these communities. Timber removal and vegetation management may be needed to return these areas to their target tree density and prepare them for the re-introduction of prescribed fire. As part of the restoration, prescribed fire needs to be re-introduced immediately after timber removal or understory growth of titi, fetterbush, smilax and gallberry will make further attempts at restoration and reintroduction of fire difficult.

#### Additional Considerations

The maritime hammock community requires special protection from unnatural disturbances. This community is a primary resting/foraging area for neotropical migrant birds as they arrive from their trans-gulf flights. Birds are extremely vulnerable during this migratory rest period and therefore rely on this community for refuge.

The legal critical habitat as well as actual utilized habitat for the Choctawhatchee beach mouse should be considered whenever any future use or development is planned on or near the beach or dunes.

Efforts should be made to prevent degradation of the pristine quality of the lake. A plan should be developed for managing impacts prior to any new activity in or around the lakes.

The inlets of coastal dune lakes have been historically artificially opened to alleviate neighbors concerns regarding docks that may be underwater during times of high water. The effect that artificial opening has on the character of the lake is not fully known. Efforts should be made to ensure that the inlet open naturally.

The hydrology of the park is important to the integrity of the coastal dune lakes and the wet communities that drain into the lake. Some of these hydrological connections between communities have been altered. These connections need to be restored so that structure and function of the lakes and their associated communities maintain their integrity.

Addressing 30+ year fire excluded "southern rough" is needed before some of the natural communities at Topsail can restored. This is a difficult task especially considering the wetland soils that are sensitive to current restoration techniques. Innovative fuel reduction of wetlands is needed prior to re-introducing fire and fully restoring these wetlands and associated communities.

Aquatic concerns stretching within the 400-foot sovereign submerged area include managing Gulf sturgeon habitat, fishing activity, sea turtle activity, beach nourishment and dredging, as well as boater activity.

A restoration plan has been developed and is being implemented to restore the primary dune community. This plan includes a massive planting of sea oats followed in subsequent years of planting of woody dune species.

Beach driving by local law enforcement and daily beach clean-up crews was raised as an issue in the 2005 Land Management Review. The park has recently established an MOU with local law enforcement to give them needed access for public safety while providing guidelines to insure natural resource protection. The park benefits from the beach clean up crew and they traverse the park as little as possible and near the water line. Guidelines have been given to these clean-up crews as well. The park will continue to work with both entities to ensure that any beach access is consistent with park guidelines and sensitive to the natural communities and wildlife.

#### **Management Needs and Problems**

The ability of the Division to implement the specific goals, objectives and priority actions identified in this plan will be determined by the availability of funding sources for these purposes.

- Upon acquisition, the majority of pyric communities were fire excluded. These fuel-loaded and deep duff areas require restoration through careful prescribed burning.
- > Designated species at the park require monitoring and protection.
- Existing exotic species on the park require removal. Plans should be made to safeguard introduction of exotics into the park, particularly into the coastal dune lakes.
- > Protection and restoration of sensitive natural communities is needed.
- Restoring hydrologic connections among the different wetland communities is needed.

#### **Management Objectives**

The resources administered by the Division are divided into two principal categories: natural resources and cultural resources. The Division primary objective in natural resource management is to maintain and restore, to the extent possible, to the conditions that existed before the ecological disruptions caused by man. The objective for managing cultural resources is to protect these resources from human-related and natural threats. This will arrest deterioration and help preserve the cultural resources for future generations to enjoy.

- > The hydrology of the wetlands should be restored.
- The fire regime of the parks fire dependent and maintained communities should be restored and maintained.
- > Listed species should be identified, mapped, monitored and protected.
- > The hydrology and integrity of the coastal dune lakes should be maintained.

#### Management Measures for Natural Resources

#### <u>Hydrology</u>

The parks interconnected wetlands contribute to the diversity of species at the park. These wetlands drain into the coastal dune lakes. The hydrological connections between these wetlands have been altered in places and need restoration. The division plans to restore many of the old service roads that bisect wetland communities as well as restructure some low water crossings so that historical sheet flow and hydrological connections are restored.

Artificial opening of the Morris Lake outlet should be minimized. A natural cycle of hydraulic connection with the Gulf of Mexico should be maintained. To ensure the natural cycle can work, efforts will be made to control torpedo grass along the Morris Lake outlet. The park should work to maintain high water quality in the coastal dune lakes.

The parks wetlands in the northeast of the park flow north to the Choctawhatchee Bay. Since the widening of Hwy 98 and installation of a turn lane to Scenic Hwy 30-A the park has experienced a higher than previous water level in the RV park and surrounding wetlands. The park is working with the county to find a solution to this problem.

### Prescribed Burning

The objectives of prescribed burning are to create those conditions that are most natural for a particular community, and to maintain ecological diversity within the unit's natural communities. To meet these objectives, the park is partitioned into burn zones, and burn prescriptions are implemented for each zone. The park burn plan is updated annually to meet current conditions. All prescribed burns are conducted with authorization from the Department of Agriculture and Consumer Services, Division of Forestry (DOF). Wildfire suppression activities will be coordinated between the Division and the DOF.

Wildfire during drought conditions is potentially threatening to natural systems;

especially those that have been fire excluded and have developed high fuel loads. The Division will work cooperatively with DOF to develop a wildfire contingency plan to reduce the negative impacts of wildfire.

An active prescribed burning program is a major priority at Topsail Hill Preserve State Park. Burn specifics are available in the District's annual burn plan. Fuel loads are high and underbrush is thick. The natural diversity of species has presumably been reduced by lack of burning. Wiregrass may be found vegetatively very thick in places. The major portion of fire-maintained communities is mesic and wet flatwoods, scrubby flatwoods and wet prairie. These communities are dominated by a mix of longleaf and slash pines.

Duff (or decomposing litter) is particularly problematic at Topsail. Duff depths reach over 12 inches at the base of trees in some areas of the park. Deep duff creates a smoke and control problem as it tends to smolder and is difficult to extinguish. Because of high fuel loads, restoration burns will be conducted in the winter until the fuel is brought under control, and maintenance burns can be undertaken in the spring and summer. Where deep duff conditions occur in conjunction with old-growth pines at Topsail prescribed burns should only be conducted within 3 days of significant rainfall that soaks though all the layers of duff (Varner et al. 2005).

Many of the rarer plant species such as Curtiss' sandgrass and parrot pitcher plant are fire adapted. The goal of prescribed burning is to conduct lightning season prescribed burns in the flatwoods on a 3-5 year cycle. Smoke management is a concern at this unit due to the proximity of U.S. Highway 98.

Scrub is also a fire maintained community. The fire regime for coastal scrub is not well known. This area should be managed with fire but caution and long term planning should be applied when planning burns in these areas. Smaller areas should be burned and monitored for response prior to burning the entire scrub community at the park.

The basin marsh is also considered a fire maintained community but many factors including adjacent development, and wetlands make the task of installing firebreaks, access and applying fire impossible presently. The park boundary runs through the middle of the marsh and neighboring cooperation is needed prior to any prescribed burn.

No known red-cockaded woodpecker colonies are currently found at Topsail Hill, but cavity trees have been identified. Policies governing burning around red-cockaded woodpecker cavity trees will be followed and surveys that are more thorough will be conducted.

#### **Designated Species Protection**

The welfare of designated species is an important concern of the Division. In many cases, these species will benefit most from proper management of their natural communities. At times, however, additional management measures are needed because of the poor condition of some communities, or because of unusual circumstances that aggravate the particular problems of a species. To avoid duplication of efforts and conserve staff resources, the Division will consult and coordinate with appropriate federal, state and local agencies for management of designated species. Specifically, data collected by the FFWC and USFWS as part of their ongoing research and monitoring programs will be reviewed periodically to inform management of decisions that may have an impact on designated species at the park.

Surveys should be made to record element occurrences of all FNAI tracked plant species within this unit. As very little is known concerning life histories of rare panhandle endemics such as large-leafed jointweed, Gulf coast lupine, and golden asters, research into the life histories of these plants should be encouraged. Potential adverse visitor use impacts to the beach dune community should be abated by interpretation, enforcement, and the use of boardwalks. Restoration of hydrology and natural fire regime should be encouraged to protect fire-dependent designated plant species.

Listed species surveys should be conducted prior to construction of trails, roads or other development to avoid impacts from construction and visitor use.

Appropriate measures to protect the Choctawhatchee beach mouse within this FFWCC designated strategic habitat conservation area and USFWS designated critical habitat as well as generally utilized habitat may include developing an educational/interpretive program, using scavenger-proof garbage receptacles and managing habitat. Surveys should be made for feral cats, and other non-native predators and their removal shall be accomplished according to Division policy. Monitoring with the use of transects and recording tracks should be conducted monthly when possible. Any visitor impacts should be minimized in beach mouse habitat.

Southeastern snowy plover, least terns and piping plover seasonal nesting and resting should be monitored and appropriate protection measures taken, according to FFWCC and Division guidelines, to ensure habitat protection for these species.

Southeastern snowy plover, least tern and black skimmer seasonal nesting habitat shall be monitored and appropriate measures shall be taken to ensure the protection and maintenance of the nesting habitat for these species. Management activities will include installation of appropriate signs to prohibit access, and use of other measures such as posts, high visibility string, tape, or line to prevent access to bird nesting areas before
and throughout seasonal nesting activities, in accordance with Division Resource Management Procedures Numbers 3 and 13.

All of the above species and the piping plover also tend to congregate in certain locations and use them for resting. Resting areas shall be monitored to determine levels of disturbance. If major disturbances are occurring, similar actions may be taken to limit the disturbances. In addition to the above actions, park visitors should be informed about sensitive bird habitats through interpretative handouts and programs.

In order to operate an effective shorebird protection program, it is essential to control non-native predators including coyotes and both feral and domestic cats and dogs in accordance with Division Resource Management Policy Number 1 and DEP Program Directive 930. Local pet ordinances shall be enforced and educational programs with nearby neighbors will be implemented.

Seasonal monitoring will be conducted for nesting sea turtles, following Department policies. Impacts from depredation, if evident, should be managed.

Gopher tortoise burrow survey and mapping should be undertaken in conjunction with prescribed fire and measures to protect habitat for this fire-dependent species should be implemented. The feasibility of supplementing the tortoise population should be considered and pursued in cooperation with the FFWCC.

## **Exotic Species Control**

Exotic species are those plants or animals that are not native to Florida, but were introduced because of human-related activities. Exotics have fewer natural enemies and may have a higher survival rate than do native species, as well. They may also harbor diseases or parasites that significantly affect non-resistant native species. Consequently, it is the strategy of the Division to remove exotic species from native natural communities.

Few exotic plants occur on the property. The primary threat of exotic plants is Chinese tallow, and the introduction of exotic aquatics into the coastal dune lakes. Chinese tallow has been observed in the RV resort portion of this unit, day use parking area and in the basin marsh. Measures are currently underway to eradicate this species from that location. Mimosa, and lantana were noted here, but they are limited to small numbers of individuals each. Continued vigilance is necessary to stay ahead of the invasion of exotics. A new invader of the park, Japanese climbing fern, was found in the RV portion of the park. Efforts are being made to vigilantly watch for any shoots of this species and treat them immediately. The potential exotic invasive species threat to the coastal dune lakes has been diminished by discontinuing the traditional use of private watercraft.

Adjacent landowners should be contacted and encouraged as necessary to control their domestic animals. Ranging house cats depredate ground-nesting birds as well as other small birds and mammals, including the endangered Choctawhatchee beach mouse. Their control will be encouraged. Dogs are not allowed on the beach and their control will be addressed through signage, and education. A coordinated effort to exclude and remove unaccompanied roaming dogs will be undertaken. Coyotes are potential predators of marine turtle nests and have impacts on the beach mouse. As problems arise, division policies will be followed to ensure protection of endangered species.

An exotic species management plan has been developed for the park. This plan will be updated annually.

## **Problem Species**

Problem species are defined as native species whose habits create specific management problems or concerns. Occasionally, problem species are also a designated species, such as alligators. The Division will consult and coordinate with appropriate federal, state and local agencies for management of designated species that are considered a threat or problem.

Problem species, which might be encountered, include alligators and beavers in the wetlands; sharks, jelly fish, and sting rays within the Gulf of Mexico; and biting flies, mosquitoes, "dog" flies and ticks within the interior areas.

Interpretation of these potential problem animals will be provided. If nuisance animals pose a threat to visitors or structures, Division policies will be followed.

# Management Measures for Cultural Resources

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. 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, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

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 prepare for locating and evaluating historic resources, both archaeological sites and historic structures.

Any ground-disturbing activities near the Stalworth Lake site including but not limited to fire lines will follow the DHR guidelines and standards. Fire lines should be hand cut or mowed to prevent any disturbance to the midden.

Because of the likelihood for prehistoric sites on the lake margin associated with the south shore of the Choctawhatchee Bay, the area should be visited regularly by park staff to protect sites and potential sites from vandalism.

The park has a significant number of Herty cups collected from the turpentining sites in the park. These should be inventoried and catalogued. As are all collection objects, these are property of the Department of State, Division of Historical Resources, Bureau of Archaeological Research. Staff will consult the BNCR Collections Manager as to the transfer of these objects. A Collections Management Plan has been developed for the park.

The park apparently has no prehistoric artifacts. Should artifacts result from survey work or other activities, these should be handled according to Division policy.

It is recommended that vandalism be discouraged using interpretive signage that includes warnings against collecting artifacts in both terrestrial and aquatic environments. This signage should be placed at access points or areas of high visitor concentration rather than at sites themselves.

## **Research Needs**

## Natural Resources

Any research or other activity that involves the collection of plant or animal species on park property requires a collecting permit from the Department of Environmental Protection. Additional permits from the Florida Fish and Wildlife Conservation Commission, the Department of Agriculture and Consumer Services, or the U.S. Fish and Wildlife Service may also be required.

1. Continuing research and management of the biology, conservation, habitat and recovery needs of the Choctawhatchee beach mouse. As one of the few relatively stable beach mouse populations, it is of extreme importance that this population be monitored. Impacts from offsite, non-native predators such as domestic cats and coyotes should be carefully documented and action taken when problems are noted. Impacts from house mice in nearby developments, particularly to the east

should be monitored in earnest, and measures taken when problems arise. Impacts of fragmentation and the effect of multiple tropical storms on habitat and vegetation are also needed. Continuing inventory of plant and animal species. A very large number of species is suspected for such a diverse array of habitats, and inventorying should continue at different seasons, in different habitats, and soil types.

- 2. Species biology of rare plants. Very little is known concerning life histories of rare panhandle endemics such as large-leafed jointweed (*Polygonella macrophylla*), Gulf coast lupine (*Lupinus westianus*), and golden asters (*Chryopsis spp.*). Understanding the biology of these species and the issues responsible for their rarity is of crucial importance in their maintenance and management. Studies such as those proposed by Massey and Whitson (1980) are essential to understanding rare species preservation.
- **3.** Status information on the gopher tortoise should be obtained to help determine the need for possible supplemental introductions to maintain genetic diversity.
- 4. Hydrological patterns and monitoring. Research should be conducted to pursue effective restoration measures for the wetland communities of the park. Management of the coastal dune lakes of Topsail Hill Preserve State Park may require basic knowledge of the geology, geomorphology and origin of these lakes. Baseline data is required to continue to measure the health of these lakes over the years.
- 5. Abandoned nest cavities of the red-cockaded woodpecker on the park should be located and mapped.
- 6. Continuing research on the management of scrub community. Research is needed to understand panhandle scrub and the vagaries of its management particularly as it relates to fire dependence. In most cases, weather conditions that would be favorable for burning scrub lie outside recommended conditions to obtain burn prescriptions. Initial research efforts (Huck et al 1997) have suggested that storms and hurricanes play a greater role in the ecology of this species than fire. Research efforts should be continued.
- 7. Research on reintroducing prescribed fire into long unburned pine forests is needed. At Topsail high levels of duff build-up coupled with old-growth trees of short stature makes prescribed burning extremely difficult. Research should focus on mapping old-growth trees, recording duff levels and developing strategies to reduce duff levels.
- 8. Research on dune restoration is also needed. Dunes are an important component of the coastal ecosystem that has been impacted by tropical storms. They have many functions including protecting other communities (natural and developed) from tropical storms as well as provide habitat for many rare species.

# Cultural Resources

**1.** Staff will pursue funding for a Level I archaeological survey to identify prehistoric settlement patterns (i.e., residential complexes associated with mounds and

middens) as well as historical land uses. A Phase I survey focuses on evaluating known resources, locating new resources and making some general statements about significance and recommendations for management.

**2.** Historical research should be conducted to identify salt works, turpentine camps and WWII installations in the area.

# **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 contained in Addendum 7. Cost estimates for conducting priority management activities are based on the most cost effective methods and recommendations currently available.

# Land Management Review

Section 259.036, Florida Statutes, established land management review teams to determine whether conservation, preservation, and recreation lands titled in the name of the Board of Trustees of the Internal Improvement Trust Fund (board) are being managed for the purposes for which they were acquired and in accordance with a land management plan adopted pursuant to s. 259.032, the board of trustees, acting through the Department of Environmental Protection (department). The managing agency shall consider the findings and recommendations of the land management review team in finalizing the required update of its management plan.

Topsail Hill Preserve State Park was subject to a land management review on December 12, 2005. 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 Division of Recreation and Parks. 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 park's natural and cultural resources, 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 Division's 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, adjacent land uses, and the park's interaction with other facilities.

## **Existing Use of Adjacent Lands**

Topsail Hill Preserve State Park is bounded on the north by U.S. Highway 98 (State Road 30), a two-lane arterial highway. To the south, the property includes a 3-mile stretch of undeveloped beachfront on the Gulf of Mexico.

Immediately west of the state property is the Coffeen Nature Preserve, managed by the Sierra Club, and the low-density Four Mile Village development, providing a buffer between the park property and the intensive land uses beyond. West of Four Mile Village is the most heavily developed portions of South Walton County. Development along U.S. Highway 98, extending from the Gulf of Mexico to Choctawhatchee Bay, includes large-scale resorts such as Sandestin, Hidden Dunes and Tops'l, commercial strip developments and mixed land uses. The Walton/Okaloosa County line and the city of Destin lie just beyond the Sandestin Resort.

North of the state property and U.S. Highway 98 are the expansion area of the Sandestin resort and a mixture of small subdivisions, older hamlets, single-family homes on large tracts and the checkerboard ownership pattern of Point Washington State Forest. Newly developed land lies immediately north of the highway along most of the highway frontage of the park, including a large hospital. South of U.S. Highway 98, a string of developed and undeveloped lots creates an intrusion into the state property, roughly at the park's midpoint along the highway. Allowable uses for these properties include high-density residential, commercial or lodging development.

Between the east boundary of the preserve and County Road 30-A are undeveloped land and single-family dwellings. Beyond County Road 30-A to the east lies an elementary school and coastal communities such as Beach Highlands, Dune Allen Beach, and Blue Mountain Beach.

U.S. Highway 98 has recently been upgraded to the Florida Intrastate Highway System of limited- and controlled-access highways. U.S. Highway 98 along the northern park boundary is a six-lane divided urban section from the western park boundary to County Road 457, and a six-lane divided rural section from County Road 457 to County Road 30-A and eastward to the Santa Rosa Beach community. Bicycle and pedestrian facilities are included in the reconstruction of the state road, and a bicycle path along County Road 30-A has been constructed.

# Planned Use of Adjacent Lands

South Walton County is an area experiencing rapid growth in resident and tourist population. Planned communities such as Seaside and Rosemary Beach, coastal villages such as Grayton Beach and large golf and beach resorts such as Sandestin have made the area a national and international destination for tourists and new residents.

A significant increase in developed area surrounding the state preserve is inevitable. Future land use changes may affect preserve management and visitor experiences by complicating prescribed fire operations, disrupting hydrologic regimes and creating point and non-point pollution sources within the park's watershed, increasing road kills on U.S. Highway 98, and increasing traffic congestion and traffic noise. The projected growth in resident and tourist populations will generate a large demand for access to the state preserve.

## **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.

Topsail Hill Preserve State Park contains over 1,600 acres of land. The upland natural communities on the property include pine flatwoods, scrub, beach dunes, and small maritime hammocks. Nearly 600 acres of the preserve are classified as wetlands, including basin swamps, depression marshes, cypress domes, wet prairies, and the unique coastal dune lakes. The beach dune community of the park is designated as critical habitat for the endangered Choctawhatchee Beach mouse, and numerous other designated plants and animal species have been recorded here.

The aesthetic quality of the property exceeds that of many other units of the Florida state park system. Views of massive sand dunes, a 3-mile stretch of undeveloped beach, and spectacular views available from the shorelines of the lakes and the fringes of other wetland communities are some of the outstanding visual resources of the preserve. Careful consideration must be given to the preservation of these visual resources in all planning, design and management decisions at the preserve.

Topsail Hill preserves a significant sample of the natural communities that were originally found in the Panhandle coast region of Florida. Standing on its own, this property provides outstanding opportunities for environmental education, field research, and guided or self-guided interpretive tours featuring northwest Florida's ecological diversity. In concert with the other state park units in the vicinity and the Point Washington State Forest, there is a great potential for interpretive and educational activities focused on an understanding, respect, and enjoyment of the natural landscape. Recreational and educational activities appropriate to the natural resources of the park include saltwater beach uses, canoeing or kayaking, hiking, biking, bird watching, photography and nature study, fishing and picnicking.

Topsail Hill Preserve State Park provides about three miles of beach frontage on the Gulf of Mexico. The park's five coastal dune lakes, Campbell Lake, Morris Lake, two unnamed lakes located east of Campbell Lake, and Stalworth Lake (which is bisected by the eastern preserve boundary) provides additional water area and shoreline. The total

lake shoreline is approximately 4.25 miles. Campbell Lake covers approximately 97.5 acres, and Morris Lake is about 67.8 acres in area.

The coastal dune lake community is classified by the Florida Natural Areas Inventory as globally imperiled and critically imperiled within the State of Florida. Restoration and protection of shoreline vegetation, protection of water quality and exclusion of invasive aquatic plants are priority measures for the preservation of these lakes. Restrictions on watercraft access to the lakes, and measures to restore shoreline vegetation are discussed in the resource management component of this plan.

# 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

Silviculture was the primary land use on the preserve prior to acquisition by the State. As a result, a network of logging roads and numerous cat-faced longleaf pines remain. Uncontrolled public access to the land before management authority was assigned to the Division resulted in extensive off-road vehicle damage to the beach dune zone. Unauthorized dumping occurred at several locations in the park, and one area, now the site of Florida Park Service support facilities, was operated in the past as a household garbage landfill. Since management as a state park was established, these activities have been curtailed. Landfill debris was removed from the park, and the effects of off road vehicle uses have naturally regenerated, for the most part.

# **Recreational Uses**

Beach use, picnicking, camping, swimming and fishing on Campbell and Morris Lakes, and water skiing on Campbell Lake were recreational uses on the property in the past. Recreational hunting for deer and waterfowl has also occurred here in the past, but is no longer provided on the property under management as a preserve in the Florida State Park system.

# Other Uses

There are no other uses of the state land at this time.

# 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 Topsail Hill, the beach dune zone, maritime hammocks and all lakes and wetlands are designated as protected zones (see the Conceptual Land Use Plan).

# **Existing Facilities**

**<u>Recreation facilities</u>**. A small composting restroom and shelter and an un-defined parking area are located at the beach access point on "Topsail Road" near the center of the property. Beach access has been provided at this point since the creation of the state park, but the road is planned to be closed once the proposed park development plans approved in 2000, and further discussed below, have been implemented. An interpretive boardwalk has been constructed west of "Topsail Road" to provide access to an overlook on the southern edge of Morris Lake.

In 1998, the 150-acre Emerald Coast RV resort was acquired by the State of Florida and added to the Division's management lease for the preserve. The RV resort provides 156 developed RV campsites with water, electric and sewer hookups, and 18 modular cabins, a resort office, a recreation building, swimming pool, and two campers' bathhouses.

Since 2000, the initial phase of development at the state preserve has been completed. New facilities include an entrance road and parking for 100 vehicles, a restroom, and a tram station, located at the northeastern corner of the property. A 16-foot wide paved tram road approximately one mile long provides access via park-operated shuttle to the beach access facilities located east of Campbell Lake. The beach facilities include a tram station, restroom and universally-accessible boardwalk to the beach. A third tram station is located within the developed area of the RV resort to provide access for the large number of camping visitors seeking access to the beach.

**Support facilities**. A small shop, equipment storage building and staff restroom and a modular home were installed shortly after the first acquisition of land at Topsail Hill Preserve State Park in 1993. The facilities are at a centrally located disturbed site (the former landfill) near U.S. Highway 98. The support facilities acquired with the RV resort include two staff residences, a shop building, a fuel storage building, a pump house, and a grounds maintenance building.

# 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 Map). 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 unit management plan, the Division assesses potential impacts of proposed uses on the resources of the property. Uses that could result in unacceptable impacts are not included in the conceptual land use plan. Potential impacts are more thoroughly identified and assessed through the site planning process once funding is available for the development project. At that stage, design elements, such as sewage disposal and stormwater management, and design constraints, such as designated species or cultural site locations, are more thoroughly investigated. 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. All federal, state and local permit and regulatory requirements are met by the final design of the projects. After new facilities are constructed, the park staff monitors conditions to ensure that impacts remain within acceptable levels.

#### **Potential Uses and Proposed Facilities**

Environmental education programs, interpretive tours, nature appreciation and nature photography, canoeing, kayaking and non-powered boating on Campbell Lake, fishing, beach access, picnicking, biking and hiking are the activities recommended for the main body of the state preserve (the "preserve area"). Interpretive trails, exhibits, boardwalks and overlooks are proposed to allow visitor access to each of the natural community types found here. Recreational vehicle camping and rental accommodations in the existing park homes in the RV resort are activities that will continue, and the development of up to 20 tent campsites and 16 additional rental cabins is recommended by this plan.

## **Recreation and Interpretation Facilities**

The visitor center approved by the previous management plan and a ranger station, campers parking area and a park road connecting the ranger station to the camping area should be located adjacent to the existing main parking area and tram station at the northeastern corner of the property. To further the goal to make Topsail Hill Preserve State Park a leader in the fields of interpretation and environmental education, the development of a vision plan and concept statement for the interpretive/educational programs of the Preserve is recommended as collaboration between Division staff and the local community. The interpretive programs of the proposed visitor center should include material on other heritage- and nature- based recreational and educational sites near the state preserve. Interpretive programs and information on the location of other sites provided at the state preserve will help to coordinate visitor's awareness of and access to the superlative collection of natural and cultural resource lands available in south Walton, Okaloosa and Gulf counties, in close proximity to the state preserve. The interpretive facilities of the state preserve could also help to popularize the local recreational greenway, and serve to distribute the coming demand for recreational access across the broad base of resources available to the area's residents and visitors.

An extension of the tram path approximately 1.2 miles in length and one new tram station are recommended to complete the in-park transportation system approved by the initial management plan for Topsail Hill Preserve State Park. The location of the tram station is proposed in an area of pine flatwoods north of Campbell Lake. The station should provide a waiting shelter, a restroom, and interpretive and directional exhibits. This location is immediately adjacent to an area cleared of understory by the St. Joe Company prior to public acquisition of the park. That area is recommended to provide a central picnic area and trailhead for access to areas of the preserve to the north and west. Two medium picnic shelters, scattered picnic tables and grills, and a canoe/kayak launch with rental watercraft provided by the park are the facilities recommended for the picnic area.

The existing and proposed tram paths will do second-duty as a universally accessible shared use trail facility for pedestrians and bicyclists. The alignment of the tram path will be incorporated with a network of other trails to allow visitors to explore the exceptional natural resources of the state park, while providing appropriate interpretation of these features and protective management of visitor impacts. In all, approximately 4 miles of trails are indicated on the conceptual plan. The majority of these trails will be natural-surface systems, and will, in most cases, share alignment with service roads or firebreaks maintained for other park management activities. Universally accessible interpretive trails will be established at appropriate locations. These trails will be constructed as elevated walkways or as paved pathways, depending on design requirements posed by the specific location, natural community, soil and hydrological conditions. In all cases, the trails will be aligned and designed to avoid disruption of the local hydrology and to minimize complications the trails may pose for the park's prescribed fire management program.

Boardwalks to carry the proposed trails across wetlands will be required at a number of locations within the park. Several interpretive overlooks are proposed to manage visitor access to wetland features and to provide environmental education opportunities along the trail network. These should include interpretive information and fencing or decking, as necessary, to control visitor access and behavior. Great care will be taken in the site planning and design of overlooks and other construction near the lake shorelines to minimize potential impacts to the natural resources and to the exceptional visual resources of this landscape.

The famous overlook vista on Topsail Dune may be formalized with fencing and steps, to create an overlook that will be sensitive to the aesthetic value of the namesake dune and consistent with dune restoration goals. These modifications will be designed in close coordination with the FWC and the USFWS to assure impacts to beach mice and their habitat and other natural resources are avoided. If it is determined that public access to the dune cannot be accomplished without unacceptable impacts to the listed species habitat, then access will not be provided. Universal accessibility is not feasible

at this site due to its extreme elevation and the sensitivity of the adjacent habitat.

The coastal dune lakes at Topsail Hill Preserve State Park are the only lakes of this type contained wholly within boundaries of publicly-owned land, and are therefore nearly free of the impacts of residential, commercial and highway development exhibited by other coastal dune lakes in the Florida Panhandle. Special management considerations for the lakes are recommended. Resource management priorities for the dune lakes are to protect water quality, restore and protect shoreline vegetation, prohibit the introduction of invasive aquatic plant species, and develop baseline data for future monitoring. Until more is known about their condition and ecological functioning, swimming recreation is not a recommended activity in these lakes.

Privately owned watercraft, which could introduce invasive aquatic plants, should not be brought from outside the preserve to any of the coastal dune lakes. Canoes, kayaks and small boats should be provided at Campbell Lake on a rental basis. A conservative limit on the numbers of users allowed at one time is recommended to protect the lake and to maintain a very high quality experience for visitors. As discussed in the resource management component, a fisheries management plan will be developed before fishing recreation is provided on Campbell Lake.

Fencing and overlook decks are protective measures recommended along the lakefronts proposed for the picnic area or trails. Visitors should be informed of the reasons for the restrictions on access through interpretive signs and staff contact. Picnic facilities and trails should be set back a reasonable distance from the shorelines, allowing visitors to appreciate the scenic vistas, while protecting the shoreline vegetation.

Connection of the preserve to the local greenway system will be coordinated with the Florida Department of Transportation, Walton County government, and local greenway organizations. Visitors arriving on the local bicycle/pedestrian system will enter from County Road 30-A through the park entrance facilities to gain access to the preserve.

The Gregory E Moore RV Resort at Topsail Hill is designed for large recreational vehicles, with most of each site covered with concrete pavement. These campsites do not provide an area suitable for tent camping, which causes operational difficulties and a degree of dissatisfaction among Florida State Parks' camping constituents. The addition of up to 20 campsites designed for tents is recommended to allow all camping visitors accommodation at the state park,. The tent camping area is proposed for an area impacted by use for RV storage prior to acquisition of the RV resort by the state.

Rental cabins are popular overnight accommodations in state and national parks throughout America. Over the next 10 to 15 years, as America's Baby Boom generation reaches retirement age, the proportion of Florida residents and visitors over the age of 65 is projected to double, and the popularity of cabins in Florida's state parks will grow. To plan for this shifting demographic and the resulting recreational demand, a second area affected by use for RV storage at the state preserve, located immediately west of the existing cabins, is recommended for development of up to 16 additional rental cabins. This project will include the restoration of the pre-exiting scrubby flatwoods natural community to all of the area not used for the cabins and their required circulation and infrastructure systems. An ample firebreak will be established between the cabin development and the restored natural community, which is fire-dependent.

#### **Support Facilities**

The tent camping area will include a small camper's bathhouse. Additional parking and a playground are recommended adjacent to this camping area and the tram station serving the RV resort, to alleviate existing congestion problems and provide needed recreation opportunities for camping families. As discussed above, the tram station proposed north of Campbell Lake will include a picnic area restroom. These facilities and the proposed cabins will all be connected to the local wastewater treatment system for sewage disposal.

With the closure of beach access via Topsail Road, the numbers of visitors at the existing developed beach recreation area is expected to increase dramatically. Peak visitation at that area currently amounts to from 300 to 350 persons at one time. The majority of these visitors are registered campers and cabin guests. With the proposed increase in overnight capacity for tent campers and additional cabins and the shift of day use beach access from Topsail Road to the developed beach use area, the Division anticipates a potential for overcrowding on the beach and has safety concerns regarding its ability to move beachgoers quickly during frequent summer afternoon thunderstorms or to respond to other emergencies. To address these issues, an expansion of the roofed-area of the tram station and construction of a second elevated boardwalk for access to the beach is recommended. These modifications will be designed in close coordination with the FWC and the USFWS to assure impacts to beach mice and their habitat and other natural resources are avoided.

A short park drive (approximately 0.2 mile) is proposed to connect the new ranger station to the park's camping area.

Topsail Hill Preserve State Park contains some of the most endangered natural communities found along Florida's Panhandle coast. As mentioned above, the coastal dune lakes in the park may be the only dune lakes that are without the threat of water quality degradation that results from shoreline and adjacent development, stormwater run off and other sources of surface and groundwater pollution. These lakes depend on functional upstream drainage systems to insure their continued health. Unfortunately, two of the old logging roads at Topsail Hill Preserve extend from U.S.98 to the beach and to Campbell Lake, cutting directly across and diverting these critical drainage systems. These hydrological disturbances must be restored to natural conditions to

protect the dune lakes. This has been a goal of the Division's management of the property since the initial park management plan was developed in 1997. Hydrological restoration at the state park will require that the subject roads are closed, re-graded and revegetated to allow the natural flow of water from east to west across the park. The easternmost road was closed to public traffic shortly after the property became a state park. Topsail Road has remained open to allow continued visitor access to the beach between the two lakes, as an interim measure, while the park's facilities are being developed.

To allow hydrological restoration while providing convenient public access, the Division's management plan approved in 1999 included the parking area and tram road to permit all park visitors to reach their preferred destinations via the new entrance on County Road 30A. The first phase of this plan was completed several years ago, and now provides a popular way for visitors to get to the beach east of Campbell Lake. Construction of the second phase of the approved plan, the tram road extension and Campbell Lake picnic area, will allow visitors to ride the tram, walk or ride bicycles from the parking area to a new picnic area on Campbell Lake. From that picnic area, visitors may walk to the middle portion of the beach, the area traditionally reached by Topsail Road, or follow one of the park's many hiking trails. The distance from the Campbell Lake picnic area to the existing small parking area at the southern end of Topsail Road is approximately 3000 feet.

To continue access from U.S. Highway 98 on Topsail Road by building a parking area north of the wetland crossing (at the nearest disturbed area north of the wetland), would result in visitors having to walk 3,000 feet to reach the existing southern terminus of the road. This is the same distance of travel from the proposed Campbell Lake picnic area. The wetland crossing for pedestrians, bicyclists, wheelchairs, and pull carts would require a boardwalk or other universally-accessible pathway to be constructed in place of the removed roadway, further complicating the resource management configuration of the park. Providing a second park entrance and parking area on Topsail Road would have additional problems, which would also apply if an entrance on Topsail Road were limited to bicyclists and pedestrians. First, either a duplication of the park entrance station and staff would have to be provided at the second entrance, or an un-attended entrance would effectively eliminate our ability to monitor the park's visitation. Supervised entry to the park is necessary if we are to provide the safest possible recreational setting and if we are to maintain a sustainable recreational carrying capacity in the park. Unfortunately, acquiring the additional staff to manage a second entry point to the state park is highly unlikely. For these reasons, it has been decided that the initial approved plan for the park should be implemented, which includes the closure of Topsail Road, when the Campbell Lake picnic area is competed.

# **Facilities Development**

A cost estimate for proposed facilities is provided in Addendum 7. The cost estimates are based on the most cost effective construction standards available.

The protection of the water resources of the preserve, the protection of listed plant and animal habitat areas, and the integration of public uses with resource management activities, such as prescribed fire, will be priority considerations in the design and construction of the facilities proposed by this plan. Guidelines for sustainable design and construction will be applied to development projects, and careful construction planning and management will be applied to minimize impacts to the preserve's natural resources during the development process. Pre-design and construction surveys for listed species will be conducted within development areas and to inform the trails planning process. This information will be developed into species-specific monitoring programs to aid in the management of potential visitor impacts to these species.

Site design, building orientation and selections of building materials will respond to the fact that many of the natural communities in the preserve will be burned periodically. Where possible, facilities have not been planned in fire dependent communities. However, where development is planned in such areas, specialized materials, carefully integrated site location, appropriate firebreaks and other measures will be incorporated in those designs to minimize the effects of development on the fire management regime of the preserve. In these cases, the area to be excluded from burning will be the minimum necessary to provide a safe and high-quality outdoor experience for the preserve's visitors and to allow for appropriate staff access for resource management activities. In all cases, the selection of environmentally sensitive building materials and construction methods, and the careful design and detailing of all structures, and especially all pavements and stormwater management systems will be priority efforts to integrate public use and resource protection purposes of the state preserve.

# Existing Use and Optimum 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 recreation 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 1).

The optimum 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.

	Existing Capacity		Proposed Additional Capacity		Estimated Optimum Capacity	
Activity/Facility	One Time	Daily	One Time	Daily	One Time	Daily
<u>PRESERVE AREA</u> Picnicking			50	100	50	100
Beach Use	635	1,270	61	122	696	1,392
<b>Boating</b> Canoeing/Kayaking. Small Boat Sailing			20	40	20	40
Universal Access and Shared Use Nature	10 40	20 160	19	38	29 40	58 160
TOTAL Subtotal	685	1,450	150	300	835	1,750
<u>RV RESORT AREA</u> Camping Cabins Environmental Education Programs	936 72	936 72	120 64 60	120 64 240	1,056 136 60	1,056 136 240
Subtotal	1,008	1,008	244	424	1,252	1,432
Total	1,693	2,458	394	724	2,087	3,182

#### Table 1 – Existing Use and Optimum Carrying Capacity

#### **Optimum Boundary**

As additional needs are identified through park use, development, research, and as adjacent land uses change on private properties, modification of the unit's optimum boundary may occur for the enhancement of natural and cultural resources, recreational values and management efficiency. At this time, no lands are considered surplus to the needs of the park.

The Optimum Boundary Map reflects lands identified as optimum boundary for Topsail Hill Preserve State Park. The parcels recommended for acquisition would "square" the boundary and enhance the natural resource base of the preserve by expanding buffers from adjacent development. The optimum boundary includes nearly all the undeveloped land between the current preserve boundary and U.S. Highway 98 and between the preserve and County Road 30-A. Unless these areas can be brought into public ownership, their development for commercial or other land uses is assured. That development will exacerbate existing problems related to surface water quality,



prescribed fire management, habitat fragmentation, noise and air pollution, and traffic congestion, noted previously in this plan as the primary impacts of adjacent land use on the resources of the state preserve.

Addendum 1 – Acquisition History and Advisory Group Staff Report

# **Sequence of Acquisition**

Topsail Hill Preserve State Park currently comprises approximately 1,643.48 acres. The initial acquisition of 348.85 occurred in 1992. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) obtained title to the property when the federal district court entered an order of Final Judgement of Foreclosure. The court directed a sale of the property at auction as part of the federal procedure to foreclose on this asset belonging to the Resolution Trust Corporation. The initial and subsequent acquisitions were funded through the CARL program.

# **Title Interest**

The Trustees hold fee simple title to the property. On October 9, 1992, the Trustees conveyed management authority to the Department of Environmental Protection, Division of Recreation and Parks for management as part of the state park system. Topsail Hill is managed under Lease No. 3967 for a period of 50 years.

## **Special Conditions on Use**

In accordance with the lease agreement with the Trustees, the property is to be managed only for the establishment and operation of a park within the state park system, along with other related uses necessary for the accomplishment of this purpose. Topsail Hill is designated single use to provide for resource-based public outdoor recreation and related purposes. Uses such as water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than the forest management activities mentioned above) are not consistent with this plan or the management purposes of the park.

The special conditions on use of the property included in Lease No. 3967, appears in the Special Warranty Deed from the Nature Conservancy to the Trustees that include:

- a. Public road rights-of-way;
- **b.** Access and utility easements in favor of third parties;
- c. Outstanding mineral reservations in favor of third parties
- d. Possible adverse claim by third to approximately ten acres;
- e. A lease in favor of Walton County for a tourist information;
- f. Residential restrictive covenants.

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Cathy Johnson, Chair Walton County Soil and Water Conservation District 14878 U.S. Highway 331 North DeFuniak Springs, Florida 32433

Mr. Harold Rhodes, President Friends of Topsail Hill 8833 St. Andrews Drive Destin, Florida 32550

The Honorable Cindy Meadows County Commissioner, District 5 Walton County Board of County Commissioners 90 Spires Lane, Unit 7-A Santa Rosa Beach, Florida 32459 Tiffany McCaskell Kriss Titus, Executive Director South Walton Tourist Development Council 25777 U.S. Highway 331 South Post Office Box 1248 Santa Rosa Beach, Florida 32459

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Anita Paige, Executive Director South Walton County Community Council P.O. Box 1661 Santa Rosa Beach, Florida 32459

Mr. Harvey Douglas 7525 W. Scenic 30A Santa Rosa Beach, Florida 32459

Mr. Robert Reid Florida Wildlife Federation 113 Davis Drive Niceville, Florida 32578

Ms. Celeste Cobena Beach to Bay Connection 412 Hilltop Drive Santa Rosa Beach, Florida 32459

Mr. Randy Harrelson Florida Native Plant Society P.O. Box 4792 Santa Rosa Beach, Florida 32459

Mr. Sidney Heath 244 Sandstone Road Santa Rosa Beach, Florida 32459 Mr. Bruce Paladini Coffeen Nature Preserve 146 Coffeen Hill Road Santa Rosa Beach, Florida 32459 The Advisory Group meeting to review the proposed land management plan for Topsail Hill Preserve State Park was held at the Walton County Branch Library on Friday, March 16, 2007.

Ms. Titus, South Walton TDC, was represented by Ms. Tiffany McCaskell, Mr. Palladini, Coffeen Nature Preserve, was represented by Ms. Susan Palladini and Ms. Johnson, Choctawhatchee River SWCD, was represented by Ms. Mellody Hughes. All other appointed Advisory Group members were present. Attending staff were Danny Jones, Eric Kiefer, Thomas Ervin, Tova Spector, John Bente and Lew Scruggs.

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

# Summary of Advisory Group Comments

**Ms. Paige** complemented the Division's plans for natural community and hydrological restoration in the park and for extension of the nature trails. She approved the addition of tent camping sites and noted that adequate separation and buffering of these sites from RV campers will be important. She expressed concern regarding the use of asphalt pavement to extend the tram road, explaining that she observes that roads tend to crumble at the edges and wonders if this might pose a pollution threat in the park. Staff explained that the tram road would carry traffic limited to one or two park-operated vehicles and should not experience the degradation noted in local highways that carry heavy truck and auto traffic.

**Mr. Dula** said that he is impressed with the level of detail provided by the management plan. He supported the addition of trail opportunities at the park.

**Ms. Cobena** asked if the Topsail Road would remain as a service road or firebreak after it is closed as an entrance to the park and inquired if it could provide a bicycle and pedestrian entrance if it were to remain. Staff explained that the roadbed would be removed in the area traversing wetlands, so it will not connect to the park's trails or the Lake Campbell picnic area. Staff explained that one entrance to the park is preferred in order for park staff to protect visitor safety provide information and guidance to the visitors. A controlled entrance is also needed to maintain a sustainable recreational carrying capacity in the park, and to efficiently collect the required park entrance fees.

Ms. Cobena cautioned that the proposed tram path could affect the coastal dune lakes if it is allowed to impede surface or sub-surface water flow. She observed that the County's paved bike path appears to leach an oily substance, and emphasized that the highest priority in managing the preserve should be protection of the ecosystem rather than maximizing visitation. She encouraged staff to pay close attention to construction details to minimize impacts to the park's natural systems. Ms. Cobena also urged that additional land acquisition should be vigorously pursued.

**Mr. Reid** said that he understands that provision of public access is important to the Division's mission, but that he believes that habitat restoration should receive the highest priority at the preserve. He noted that loss of habitat is a huge problem in this region of Florida. He expressed great interest in the park's prescribed fire program. He approved the elimination of some service roads to allow for restoration of natural communities. He asked how much of the park's burn acreage has not been burned, and staff replied that approximately 100 to 150 acres remain. Mr. Reid strongly recommended that the park continue its public outreach and education programs on the need for prescribed fire to maintain the park's natural resources.

**Commissioner Meadows** noted that the management plan calls for closure of Topsail Road, which traditionally has provided access from U.S. Highway 98 to the beach between Campbell and Morris Lakes. She stated that it is not good to see public access to the beach eliminated. She assured that she favors resource preservation, but feels that a better balance is needed. Commissioner. Meadows suggested that a new plan to build a parking area on Topsail Road, north of the area to be restored to wetland, would allow visitors to enter, park and walk to the beach between the lakes. Later in the discussion, Commissioner Meadows asked when the planned road closure would occur. She asked if this would be the trend, and if the Division had plans to close beach access to Grayton Beach State Park as well.

Staff explained the resource restoration purposes behind the proposed road closure. It was noted that access to the beach is not being eliminated, but is being relocated to allow for the variety of resource management activities necessary to preserve the park's resources, such as wetland restoration, prescribed fire management and other activities necessary to protect, restore and enhance the park's resource.

Staff assured Commissioner Meadows that Grayton Beach State Park would continue to provide public access to the beach, noting that the approved management plan for that park calls for future expansion of beach access.

Ms. Meadows repeated her objection to the planned closure of Topsail Road several times during the course of the meeting.

**Mr. Rhodes** said that he has been a volunteer at the park since 1996. He stated that he is opposed to the plan to close Topsail Road, since that will close half of the park. He said that he has no problem with the tram road extension and proposed picnic area on Campbell Lake, since they are to be located in disturbed areas of the park. He agreed that the proposed tent camping and additional cabins are needed. In all, he agreed that the draft plan is good.

**Ms. McCaskill** agreed that the proposed visitor center is a good idea, and that extensions to the park's trail system will be a great addition. She inquired if more parking can be added to the main entrance for the park, since public demand for access will be stimulated by other features of the plan and by population growth, in the future. Ms. McCaskill inquired about the park's methods for hurricane debris removal, and Mr. Ervin provided explanation.

**Mr. Harrelson** said that the plan looks good. He noted that only native plants either grown in the park or provided by Association of Florida Native Nursery members should be used in landscaping the developed areas. He recommended that interpretive signs and handouts featuring the park's listed species be provided so visitors can identify the park's unique species whey they encounter them. Mr. Harrelson said that the state park is "a jewel".

**Ms. Hughes** said that the draft management plan is good. She said that she is excited that "Real Florida" is being protected and restored at the park, and complemented the Division on doing a "great job."

**Mr. Douglass** advised that the proposed tent camping area should be designed for universal access, and that laundry facilities should be provided at the bathhouse. He questioned whether a nature trail in the beach dune community would be compatible with protection of the Choctawhatchee beach mice. Staff explained that a trail could be designed to provide public access to the Topsail dune without disturbance to the mouse or its habitat.

**Ms. Sneckenberger** noted that the draft management plan appears to be well thoughtout, and that it makes good use of existing disturbed areas for development of facilities. She noted that the plan continues the original consensus on the importance of habitat and ecological conservation in the park, important in light of the additional pressure for use that will come with the growing regional population, and the need for balance between protection and public use.

She questioned the location of the proposed additional beach boardwalk at the existing beach use area, noting that it would provide access to the beach only a short distance east of the existing access point. Staff replied that the conceptual drawing places the structure through an existing dune blow-out, and explained that this is a preliminary concept, not a site plan. It is included in the management plan in the event that the volume of public use grows to a point where a need for the second route to the beach can be demonstrated. If, and when that occurs, the Division will consult with the USFWS and the FWC, and will conduct a thorough study of the options for locating an additional boardwalk.

Ms. Sneckenberger pointed out that flatwoods salamanders should be monitored in the park, and that all future trail alignments need to be planned with the help of species

surveys to avoid impacts to any of the park listed species. She urged Division staff to protect shorebirds from beach driving activities related to patrol and maintenance. She recommended the addition to the plan of a goal to that effect. She also recommended use of pervious pavement for the tram road. Attached is a follow-up letter from Ms. Janet Mizzi, USFWS, which includes information on pervious pavement.

**Mr. Beitzel** noted that the goals and objectives in the plan are well developed, but that no target dates or deadlines for accomplishing them are provided. He recommended that some of the plan's goals, such as hydrological restoration, must receive the highest priority. Mr. Beitzel provided a number of corrections and editorial recommendations, which were noted by the authors. He stated that timber removal would be beneficial to some of the park's natural communities, in opposition to the tone of the timber management discussion in the text. Staff replied that the statements in the plan would be clarified.

**Mr. Heath** stated that Topsail Hill Preserve is a unique park and supports a national priority for environmental preservation. He urged the Division to take great care in implementation of its plans and to modify them if unacceptable impacts to the park's resources result from any activity. He noted that residents near the park are concerned about the threat of wildfire and recommended that the park have a system to notify neighbors of any controlled or uncontrolled fires occurring in the park. He also noted that regulations prohibiting dogs on the beach are often disregarded by some visitors.

**Mr. Himes stated** that Topsail Hill is a highly valued conservation asset. He stated that natural resource protection and visitor management are sometimes conflicting goals for park managers. He discussed the Division's wetlands restoration grant application to the FWC, and noted that the reviewers of the grant had stated that they would prefer Topsail Road to stay open, in keeping with their program goal to preserve public access.

Mr. Himes noted that the listed salamanders in the park could be affected if night use of the tram road is permitted. He recommended that the Division maintain monitoring programs for all of the park's listed species, and follow established best management practices as they apply to management of the park. Mr. Himes offered additions to the species list for the park. Overall, he said that the proposals of the draft plan appear to him to be sound. Attached is a follow-up letter from Mr. Himes.

# **Comments by Attending Citizens**

Mr. Jeffry Powell expressed his preference that Topsail Road remains open. He

thanked park staff for the outstanding work that they do.

#### **Staff Recommendations**

Generally, the members of the Advisory Group and the public attending the management plan workshop on May 15 agreed with the goals, objectives and recommendations of the draft management plan for Topsail Hill Preserve State Park. The proposed closing of Topsail Road was the single issue of disagreement among the members of the Advisory Group and among the workshop attendees. The following discussion is intended to explain the reasons for the Division's recommendations regarding closure of Topsail Road.

Topsail Hill Preserve State Park contains some of the most endangered natural communities found along Florida's Panhandle coast. The coastal dune lakes in the park may be the only dune lakes that are without the threat of water quality degradation that results from shoreline and adjacent development, stormwater run off and other sources of surface and groundwater pollution. These lakes depend on functional upstream drainage systems to insure their continued health. Unfortunately, two of the old logging roads at Topsail Hill Preserve extend from U.S.98 to the beach and to Campbell Lake, cutting directly across and diverting these critical drainage systems. These hydrological disturbances must be restored to natural conditions to protect the dune lakes. This has been a goal of the Division's management of the property since the initial park management plan was developed in 1997. Hydrological restoration at the state park will require that the subject roads are closed, re-graded and revegetated to allow the natural flow of water from east to west across the park. The easternmost road was closed to public traffic shortly after the property became a state park. Topsail Road has remained open to allow continued visitor access to the beach between the two lakes, as an interim measure, while the park's facilities are being developed.

To allow hydrological restoration while providing convenient public access, the Division's management plan approved in 1999 included the parking area and tram road to permit all park visitors to reach their preferred destinations via the new entrance on County Road 30A. The first phase of this plan was completed several years ago, and now provides a popular way for visitors to get to the beach east of Campbell Lake. Construction of the second phase of the approved plan, the tram road extension and Campbell Lake picnic area, will allow visitors to ride the tram, walk or ride bicycles from the parking area to a new picnic area on Campbell Lake. From that picnic area, visitors may walk to the middle portion of the beach; the areas traditionally reached by Topsail Road, or follow one of the park's many hiking trails. The distance from the Campbell Lake picnic area to the existing small parking area at the southern end of Topsail Road is approximately 3000 feet.

To continue access from U.S. Highway 98 on Topsail Road by building a parking area north of the wetland crossing (at the nearest disturbed area north of the wetland), would result in visitors having to walk 3,000 feet to reach the existing southern

terminus of the road. This is the same distance of travel from the proposed Campbell Lake picnic area. The wetland crossing for pedestrians, bicyclists, wheelchairs and pull carts would require a boardwalk or other universally-accessible pathway to be constructed in place of the removed roadway, further complicating the resource management configuration of the park. Providing a second park entrance and parking area on Topsail Road would have additional problems, which would also apply if an entrance on Topsail Road were limited to bicyclists and pedestrians. First, either a duplication of the park entrance station and staff would have to be provided at the second entrance, or an un-attended entrance would effectively eliminate our ability to monitor the park's visitation. Supervised entry to the park is necessary if we are to provide the safest possible recreational setting and if we are to maintain a sustainable recreational carrying capacity in the park. Unfortunately, acquiring the additional staff to manage a second entry point to the state park is highly unlikely.

For the reasons explained above, staff recommends against maintaining Topsail Road as a second entrance to the park. Approval of the management plan as it was presented at the public workshop and Advisory Group meeting is recommended, with the incorporation of the following changes suggested by members of the Advisory Group:

- the addition of a goal regarding shorebird protection as it relates to beach driving for patrol and maintenance;
- additional discussion on the sensitivity and monitoring needs of the park's salamander populations;
- identification of the need for surveys of all listed species in the park, and monitoring to inform the trails planning process and to aid in management of potential visitor impacts;
- additional discussion to emphasize the importance of environmentally sensitive design, detailing, materials selection and the construction process in the development of the proposed facilities (especially the tram path and any other paved surfaces);
- clarification regarding future planning and design processes for the proposed additional dune boardwalk and the proposed nature trail connection to the Topsail Dune.

It is true that the implementation of the recommended plan will change the way some traditional park visitors reach the beach at Topsail Hill. It cannot be said, however, that the Division has eliminated any access to the beach or from the park. The traditional access route is degrading the environmental quality of the park's coastal dune lakes. The alternative route along the existing and proposed tram paths addresses those impacts and increases the opportunities provided on this property for beachgoing. The Division is certain that this action is the best choice, both for enhancement of the natural resources in the park and for the safety and enjoyment of all park visitors.

The Division does not take lightly any decisions that change traditional public access to the state parks. This decision has been reviewed very thoroughly, both during the initial and second planning process in 1996-97 and 1999-2000, and during this update of the management plan. In recognition of the popularity of public access to the beach between the dune lakes at Topsail Hill, Topsail Road has remained open, despite its impacts to the natural resources and operational efficiency of the park. In keeping with that interim policy, it is recommended that the road not be closed until the tram road extension and Campbell Lake facilities are completed, so that convenient access to all the parts of the park is not interrupted.
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Addendum 3–Soils Descriptions

(8) Dorovan-Pamlico association frequently flooded - This association consists of soils that are nearly level and very poorly drained. They are in a regular and repeating pattern. The landscape is mainly large hardwood swamps and flood plains of the major drainageways. The Dorovan soil is in the middle of the delineation, and the Pamlico soil is on the outer part. Mapped areas range from 20 to more than 750 acres. Individual areas of each soil range from 10 to 200 acres. Dorovan makes up 50 to 70 percent of the association. Typically, this soil is black muck to a depth of at least 60 inches.

This Dorovan soil has a high water table near or above the surface for most of the year. This soil floods more than once every 2 years for periods of more than 1 month. Permeability is moderate and the available water capacity is very high. The organic matter content is very high. The internal drainage rate is slow because of the high water table. Response to drainage is rapid.

Pamlico soil makes up 15 to 25 percent of the association. Typically, this soil is dark reddish brown muck 2 inches thick and black muck to a depth of 30 inches. It is underlain by very dark grayish brown to a depth of at least 80 inches.

This Pamlico soil has a high water table at or above the surface for most of the year. This soil floods more than once every 2 years for periods of 7 days to 1 month. Permeability is moderate, and the available water capacity is very high. The organic matter content is very high. The internal drainage rate is slow because of the high water table. Response to drainage is rapid. Included with this association in mapping are areas of Rutlege, Bibb, Kinston and Leon soils. Rutlege soils are very poorly drained and are around the outer edge of delineations. Bibb, Kinston and Leon soils are the most significant of the included soils. These soils are poorly drained. Also included are areas of soils similar to Pamlico soil but they have a loamy substratum and areas of similar soils that have less than 16 inches of organic material. The included soils make up 15 to 25 percent of the association.

**(12)** Foxworth sand, 0 to 5 percent slopes - This soil is moderately well drained and nearly level to gently sloping. It is on uplands and in elevated areas on flatwoods. Individual areas of this soil range mostly from 10 to more than 200 acres; some areas are as small as 5 acres. Slopes are mostly smooth to convex but are concave in places.

Typically, this soil is sand throughout. The surface layer is about 7 inches thick. It is grayish brown to a depth of 3 inches and brown below that. The underlying material is yellowish brown to a depth of 18 inches, brownish yellow to a depth of 44 inches, yellow to a depth of 54 inches, very pale brown to a depth of 69 inches and light gray to a depth of at least 80 inches.

(21) Leon Sand - This soil is poorly drained and nearly level. It is on flatwoods.

Individual areas of this soil range from five to 90 acres. Slopes are smooth to convex and ranges from zero to 2 percent.

Typically, the surface layer is very dark gray sand 9 inches thick. The subsurface layer is gray sand to a depth of 18 inches. The subsoil is dark reddish brown sand to a depth of 22 inches, black loamy sand to a depth of 27 inches and yellowish brown sand to a depth of 31. Below that is white sand to a depth of 67 inches and very dark gray sand to a depth of at least 80 inches.

Included with this soil in mapping are small areas of Chipley, Hurricane, Mandarin and Rutlege soils. Rutelege soils are the most common inclusion. Also included are a few areas of soils similar to Leon soil except they have a surface layer that is thicker, have a Bh horizon that is more than 30 inches below the surface, or more than half of the dark color subsoil is weakly cemented. The included soils make up less than 15 percent of the map unit.

This Leon soil has a high water table at a depth of 10 to 40 inches for periods of more than 9 months during most years. The high water table is at a depth of less than 10 inches for 1 to 4 months during periods of high rainfall and recedes to a depth of more than 40 inches during very dry seasons. The available water capacity is very low in the surface and subsurface layers, and low in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate to moderately rapid in the subsoil and very rapid below that. The organic matter content is low to moderate.

(16) Kureb sand, 0 to 8 percent slopes - This excessively drained, nearly level to sloping soil is on broad, undulating ridges and short side slopes on upland sand hills and dune-like ridges. Individual areas of this soil range from 50 to 800 acres. Slopes are smooth to convex and concave.

Typically, the surface layer is gray sand 4 inches thick. The subsurface layer is white sand to a depth of 17 inches. The subsoil is sand to a depth of 68 inches. To a depth of 28 inches, it is brownish yellow with white tongues. It is yellowish brown to a depth of 37 inches, brownish yellow to a depth of 47 inches and yellow below that. The substratum is very pale brown sand that extends to a depth of at least 80 inches.

Included with this Kureb soil in mapping are small areas of Corolla, Mandarin, Newhan and Resota soils. Also included are some areas of Kureb soil mainly along bays and beaches that have an abrupt drop off. This soil is designated by the short, steep slope symbol. Included soils make up less than 20 percent of the map unit.

This Kerub soil has a loose, well-aerated root zone to a depth of more than 72 inches. This soil has very low available water capacity and permeability is very rapid. Organic matter content is low, and fertilizers are rapidly leached from the soil. Rainfall is rapidly absorbed in protected areas, and there is little runoff. This soil does not have a high water table within a depth of 6 feet.

(17) Lakeland sand, 0 to 5 percent slopes - This soil is excessively drained and nearly level to gently sloping. It is on broad ridgetops and on uplands. Individual areas of this soil range mostly from 40 to more than 300 acres; some areas are as large as 1,000 acres and others are as small as 5 acres. Slopes are mostly smooth to concave but are convex in places.

Typically, the surface layer is dark grayish brown sand 4 inches thick. The underlying material is sand. It is yellowish brown to a depth of 7 inches, brownish yellow to a depth of 60 inches and light yellowish brown to a depth of at least 80 inches.

Included with this soil in mapping are small areas of Bonifay, Chipley, Dorovan, Eglin, Foxworth, Kenansville, Pamlico and Troup soils. Also included are areas of soils that have slopes of more than 5 percent but are otherwise similar to Lakeland soils and soils that are similar but have a few thin lamellae below a depth of 65 inches. The lamellae have cumulative thickness of less than 1 centimeter. The soils containing lamellae are generally along areas near the Choctawhatchee River and are near delineations of Troup soils. A few small wet areas are shown by wet spot symbols. The included soils make up less than 15 percent of the map unit. This Lakeland soil has low available water capacity. Permeability is rapid. The organic matter content is very low or low. Rainfall is rapidly absorbed in protected areas and there is little runoff. This soil does not have a high water table within a depth of 6 feet.

**(18) Lakeland sand, 5 to 12 percent slopes** - This excessively drained, strongly sloping soil occurs mainly on upland side slopes leading to drainageways and around depressions. Individual areas of this soil range mostly from 30 to more than 100 acres; some areas are as small as 5 acres. Slopes are smooth to convex.

Typically, the surface layer is dark grayish brown sand 3 inches thick. The underlying layer is sand. The upper 37 inches is yellowish brown and yellowish brown over brownish yellow to a depth of at least 80 inches.

Included with this soil in mapping are small areas of Bonifay, Chipley, Foxworth and Troup soils. Also included are some areas of Lakeland soil that have abrupt drop off. This soil is designated by the short, steep slope symbol. Areas of soils that have slopes of less than 5 percent and soils that have slopes of more than 12 percent are also included. Small areas of poorly drained soils are at seepage spots in and along stream bottoms and drainageways. Included soils make up less than 20 percent of the map unit.

This Lakeland soil has a low available water capacity, and low or very low organic

matter content. Permeability is rapid. Rainfall is absorbed in protected areas, and there is little runoff. This soil does not have a seasonal high water table within a depth of 6 feet.

**(27) Rutlege fine sand** - This very poorly drained soil is nearly level. It is in shallow depressions (sometimes called ponds, bays or sinks) and on stream or creek floodplains and upland flats. Individual areas of this soil range from five to 80 acres. Slopes are smooth to concave and range from zero to 2 percent.

Typically, the surface layer is black fine sand 17 inches thick. The underlying material is fine sand to a depth of at least 80 inches. It is grayish brown to a depth of 22 inches, light brownish gray to a depth of 60 inches and light gray below that.

Included with this soil in mapping are small areas of Chipley, Hurricane, Leon, Pamlico and Pickney soils. Also commonly included are soils similar to this Rutlege soil except they have a dark color surface layer less than 10 inches thick, have dark color subsoil below a depth of 50 inches, have loamy subsoil that is mixed or stratified below a depth of 60 inches or have a loamy sand surface layer. Included soils make up less than 30 percent of the map unit.

This Rutlege soil has a high water table at or near the surface for long periods of the year. Shallow ponding is common. Brief flooding is common in areas adjacent to creeks and streams. Available water capacity is high in the surface layer and low in the underlying material. Permeability is rapid throughout. However, internal drainage is slow, when impeded by the high water table. Response to artificial drainage is rapid. The organic matter content is high or very high.

(50) Mandarin sand - This soil is somewhat poorly drained and nearly level. It is in slightly elevated areas on flatwoods. Individual areas of this soil range from three to 50 acres. Slopes are smooth to concave.Typically, the surface layer is gray sand about 8 inches thick. The subsurface layer is light gray sand to a depth of about 21 inches. The subsoil extends to a depth of 60 inches. It is black sand to a depth of 23 inches, very dark gray fine sand to a depth of 25 inches and dark reddish brown sand to a depth of 38 inches and yellowish brown sand below that. The substratum is white sand to a depth of at least 80 inches.

Included with this soil in mapping are small areas of Chipley, Foxworth, Hurricane, Leon, Resota and Rutlege soils. Also included are small areas of soils similar to Mandarin soil except they have dark color subsoil that is lighter in color than is typical for the Mandarin series. Small areas of similar soils that have dark color subsoil at a depth of more than 30 inches are also included. The included soils make up less than 20 percent of the map unit. This Mandarin soil has a high water table at a depth of 20 to 40 inches for 4 to 6 months during most years and below a depth of 40 inches for 6 to 8 months. The high water table is at a depth of 10 to 20 inches for up to 2 weeks after periods of heavy rainfall in some years. The available water capacity is very low or low in the surface and subsurface layers, and moderate or low in the subsoil. Permeability is rapid in the surface and subsurface layers, moderate in the upper part of the subsoil and rapid in the lower part. The organic matter content is very low to moderate.

(54) Newhan-Corolla sands, rolling - This map unit consists of Newhan and Corolla soils in undulating dune like areas adjacent to the Gulf of Mexico. These soils are gently sloping to steep. Newhan soil is excessively drained and Corolla soil is moderately well drained or somewhat poorly drained. Areas of these soils are too intricately mixed and too small to be mapped separately at the selected scale. Areas of this map unit range from 10 to 200 acres. Individual areas of soils within the map unit range from less than 1 to 5 acres.

Newhan soil makes up 35 to 55 percent of the map unit. Typically, the surface layer is light gray sand about 5 inches thick. The underlying material to a depth of 80 inches or more is white sand that contains horizontal bands of black heavy minerals.

Permeability of this soil is very rapid throughout. The available water capacity and organic content are very low. This soil does not have a high water table within a depth of 6 feet.

Corolla soil makes up about 25 to 40 percent of the map unit. Typically, the surface layer is light gray sand 8 inches thick. The upper part of the underlying matter is sand to a depth of 57 inches. It is white to a depth of 33 inches, light gray to a depth of 42 inches and gray below that. A buried dark gray sand surface layer is between depths of 57 and 67 inches. The lower part of the underlying material is gray sand to a depth of at least 80 inches. Horizontal bands of heavy minerals and lenses of gray sand are throughout the profile. They are remnants of a former surface layer that was moved and deposited by drifting and blowing sand.

This Corolla soil has a high water table 18 to 36 inches below the surface for 2 to 6 months during most years. The high water table is 36 to 60 inches below the surface the rest of the year. Permeability is very rapid throughout. The available water capacity and organic matter content are very low.

Included in this map unit are soils similar to Corolla and Newhan soils except they have a seasonal high water table at a depth of 36 to 72 inches for 2 to 6 months. Also included are Kureb, Leon, Mandarin, Resota and Rutlege soils and soils that have a BH horizon below a depth of 30 inches. Numerous wet spots that occur as small ponds or as narrow sloughs are shown by wet spot symbols. Also included are soils that have numerous short, steep slopes of up to 70 percent. The included soils make up 10 to 35 percent of the mapped unit.

(55) Beaches - Beaches are narrow strips of tide washed sand along the Gulf of Mexico. The sand is white and has few to common heavy minerals. Beaches range from 200 to 500 feet in width. As much as half of the beach can be covered with saltwater daily by high tide and wave action and all of it can be covered during storms. The shape and slope of the beaches commonly change with every storm. Most areas have a uniform, gentle slope, but a short, stronger slope is at the water's edge. Beaches generally have no vegetation, but inland edges are sometimes sparsely covered with sea oats.

The high water table ranges from the surface to a depth of 4 feet or more. The depth varies depending on the distance from the water, height of the beach, effect of storms, and time of year. Permeability is very rapid.

Included in mapping are sand dunes on the north side. The dunes are generally Newhan and Corolla soils. They are not subject to wave action except during storms, but they commonly receive salt spray.

**(57)** Hurricane sand, 0 to 5 percent slopes - This soil is somewhat poorly drained and nearly level. It is in slightly elevated areas on flatwoods. Individual areas of this soil range from 10 to more than 100; a few are as small as 3 acres. Slopes are smooth to slightly convex.

Typically, the surface layer is very dark gray sand 5 inches thick. The subsurface layer is sand to a depth of about 63 inches. It is brown to a depth of 14 inches, yellowish brown to a depth of 22 inches, brownish yellow to a depth of 47 inches and white below that. The subsoil black sand to a depth of at least 80 inches.

Included with this soil in mapping are small areas of Chipley, Foxworth, Leon, Mandarin and Rutlege soils. Also included are poorly drained soils in which the surface layer is underlain by shallow, weakly developed, dark color subsoil. Also included are soils similar to this Hurricane soil except they are poorly drained and areas of soils in which the content of clay increases just above the deep, dark color subsoil. The included soils make up less than 15 percent of the map unit.

This Hurricane soil has a high water table within 20 to 40 inches for 3 to 6 months during most years and below a depth of 40 inches for the rest of the year. The available water capacity is low in the surface and subsurface layers, and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers, and moderately rapid in the subsoil. The organic matter content is very low to moderately low.

(58) Duckston Muck frequently flooded - This soil is very poorly drained and

frequently flooded by heavy rains or high storm tides. It is on broad, level tidal marshes that border the Choctawhatchee Bay. Individual areas of this soil range from 10 to 400 acres. Slope is smooth and less than 1 percent. Typically, 4 inches of black muck is on the surface. The surface layer is sand to a depth of 21 inches. It is dark grayish brown to a depth of 6 inches and dark gray below that. The substratum is sand in shades of gray to a depth of at least 80 inches. Included with this soil mapping are small areas of Dirego, Leon, and Rutlege soils. Also included are soils that have more than 8 inches of muck on the surface. The included soils make up less than 20 percent of the map unit.

This Duckston soil has a high water table at a depth of 10 to 20 inches below the surface most of the year. It has more than a 50 percent chance of flooding for brief periods in any one-year. The available water capacity is very high in the organic layer and very low in the surface layer and substratum. Permeability is rapid or very rapid. The organic content is very high in the organic layer and low in the surface layer and substratum.

**(62) Resota fine sand, 0 to 5 percent slopes -** This soil is moderately well drained, nearly level to gently sloping. This soil occurs on moderately elevated ridges on flatwoods. Individual areas of this soil range mostly from 10 to more than 50 acres; some areas are as small as 5 acres. Slopes are generally convex to smooth, but are concave in places.

Typically, the surface layer is gray sand about 3 inches thick. The subsurface layer is light gray sand about 10 inches thick. The subsoil is sand to a depth of 53 inches. To a depth of 19 inches, it is yellowish brown with light gray tongues and to a depth of 31 inches, it is yellowish brown. It is brownish yellow to a depth of 40 inches and very pale brown below that. The substratum is white sand to a depth of at least 80 inches.

Included with this soil in mapping are small areas of Foxworth, Kureb and Mandarin soils. Also included are soils similar to Resota soil except they have slopes of more than 5 percent. Included soils make up less than 15 percent of the map unit.

This Resota soil has very low available water capacity, and a high water table between depths of 40 and 60 inches for up to 4 months in most years and at a depth between 60 and 80 inches in dry seasons. Permeability is very rapid throughout. Organic matter content is low or very low. Rainfall is readily absorbed and there is little runoff.

**(63) Pickney sand, depressional** - This soil is very poorly drained and nearly level. It is in drainage ways and depressional areas of the flatwoods. Individual areas of this soil range from five to 100 acres. Slopes are smooth to convex and are less than 2 percent.

Typically, the surface layer is black sand 37 inches thick. The underlying material is

dark gray or very dark gray sand to a depth of at least 80 inches.

Included with this soil in mapping are some small areas of Hurricane, Leon, Pamlico and Rutlege soils. The Rutlege soils occur more often than the other included soils. Also included are areas of soils that have deep, dark color subsoil. The included soils make up less than 20 percent of the map unit.

This Pickney soil is ponded for more than 4 months annually. During the drier seasons, the high water table can recede to a depth of 20 inches. The available water capacity is very low to moderate. Permeability is rapid throughout; however, internal drainage is low when impeded by the high water table. The organic matter content is high. Response to artificial drainage is rapid.

**(64) Pamlico Muck** - This soil is poorly drained and nearly level. It is in depressional areas of the flatwoods. Individual areas of this soil range from three to 100 acres. Slopes are smooth to convex and are less than 2 percent.

Typically, the surface layer is black muck 25 inches thick. The underlying material is sand to a depth of at least 60 inches. It is black to a depth of 28 inches, very dark gray to a depth of 35 inches, dark gray to a depth of 42 inches and gray below that.

Included with this soil in mapping are small areas of Dorovan, Leon, Pickney and Rutlege soils. The included soils make up less than 20 percent of the map unit.

This Palmico soil has a water table of up to 2 feet above the surface for 6 months in most years. Permeability is moderate or moderately rapid, and the available water capacity is very high. The organic matter content is very high. The internal drainage is slow because of the high water table.

Addendum 4 – Plants and Animals List

Common Name	Scientific Name	Primary Habitat Codes (for designated species)
Foxtail clubmoss	I uconodium alonecuroides	
Clubmoss	Lycopodium caroliniana	
Nodding clubmoss	Lycopodium cernuum	
Cinnamon fern	Osmunda cinnamomea	
Royal fern	Osmunda regalis	
Bracken fern	Pteriduim aquilinum	
Resurrection fern	Polypodium polypodioides	
PINES		
Slash pine	Pinus elliottii	
Longleaf pine	Pinus palustris	
Sand pine	Pinus clausa	
Pond cypress	Taxodium distichum var. im	bricarium
Bald cypress	Taxodium distichum var. dis	stichum
FLOWERING PLANTS		
Red maple	Acer rubrum	
Gerardia	Agalinis purpurea	
Mimosa*	Albizia julibrissin	
Yellow Colic Root	Aletris lutea	
Milkweed	Asclepias connivens	
Pine Milkweed	Asclepias humistrata	
Longleaf Milkweed	Asclepias longifolia	
Butterfly Milkweed	Asclepias tuberosa	
Whorled Milkweed	Asclepias verticillata	
Milkweed	Asclepias viridula	
Savannah Aster	Aster chapmanii	
Andropogon	Andropogon brachystachus	
Broomsedge	Andropogon virginicus	
Wiregrass	Aristida stricta	
Bottlebrush threeawn	Aristida spiciformis	
Small-fruited pawpaw	Asimina parviflora	
Aster	Aster eryngiifolius	
Seabeach orach	Atriplex pentandra	
Smooth yellow foxglove	Aureolaria flava	
Saltbush	Baccharis halimifolia	
Yellow buttons	Balduina angustifolia	
False indigo	Baptisia lanceolata	
Bartonia	Bartonia verna	

		Primary Habitat Codes
Common Name	Scientific Name	(for designated species)
Greeneyes	Berlandiera pumila	
Buckthorn	Bumelia lanuginosa	
Sea rocket	Cakile edentula	
Wild sage	Calamintha coccinea	
Curtiss' sandgrass	Calamovilfa curtissii	
Grass pink	Calopogon barbatus	
Beauty berry	Callicarpa americana	
Deer's tongue	Carphephorus odoratissimus	
False Liatris	Carphephorus pseudoliatris	
Pignut hickory	Carya glabra	
Coast sandspur	Cenchrus incertus	
Centella	Centella asiatica	
Buttonbush	Cephalanthus occidentalis	
Rosemary	Ceratiola ericoides	
Dune spurge	Chamaesyce ammannioides	
Sunbonnets	Chaptalia tomentosa	
Bush goldenrod	Chrysoma pauciflosculosa	
Godfrey's golden aster	Chrysopsis godfreyii	
Cruise's golden aster	Chrysopsis gossypina ssp. cruise	eana
Rosebud orchid	Cleistes divaricata	
Sawgrass	Cladium jamaicense	
Pepper bush	Clethra alnifolia	
Black titi	Cliftonia monophylla	
Butterfly-pea	Clitoria mariana	
Tread softly	Cnidoscolus stimulosus	
Dayflower	Commelina erecta	
Conradina	Conradina canesens	
Horseweed	Conyza canadensis	
Swamp coreopsis	Coreopsis nudata	
Hawthorn	Crataegus spp.	
Rabbit-bells	Crotalaria rotundifolia	
Toothache grass	Ctenium aromaticum	
Flatsedge	Cyperus retrorsus	
White titi	Cyrilla racemiflora	
White-top sedge	Dichromena latifolia	
Common persimmon	Diospyrus virginiana	
Saltgrass	Distichlis spicata	
Drosera	Drosera filiformis	
Drosera	Drosera intermedia	
Carolina elephant's foot	Elephantopus carolinianus	
Daisy fleabane	Erigeron vernuus	

Common Name	Scientific Name	Primary Habitat Codes (for designated species)
Hat ping	Emiscaulon decanoulars	
Hat pins		
Mild hardwale		
Rettlese also mester	Erlogonum tomentosum	
Carel have	Eryngium yuccijolium	
Corta bean	Erythrinu nerouceu	
Luch will a ward		
Unibrella grass	Futrena scirpoidea	
Milk-pea	Galactia microphylia	
Hairy beastraw	Gallium pilosum	
Blanketflower	Gaillaraia aestivalis	
Dwarf huckleberry	Gaylussacia dumosa	
Huckleberry	Gaylussacia mosieri	
Kockrose	Helianthemum corymbosum	
Rayless sunflower	Helianthus radula	
Camphor weed	Heterotheca subaxillaris	
Seaside pennywort	Hydrocotyle bonariensis	
Hypericum	Hypericum cistifolium	
St. Andrews cross	Hypericum crux-andreae	
Hypericum	Hypericum reductum	
Sand holly	Ilex ambigua	
Dahoon	Ilex cassine	
Large gallberry	Ilex coriacea	
Gallberry	Ilex glabra	
Myrtle-leaf holly	Ilex myrtifolia	
American holly	Ilex opaca	
Yaupon	Ilex vomitoria	
Beach morning-glory	Ipomoea imperati	
Seashore elder	Iva imbricata	
Black needlerush	Juncus roemarianus	
Little wicky	Kalmia angustifolia	
Redroot	Lachnanthes tinctoria	
Lantana*	Lantana camara	
Peppergrass	Lepidium virginianum	
Blazing star	Liatris tenuifolia	
Gopher apple	Licania michauxii	
Pine lily	Lilium catesbaei	
Florida toad-flax	Linaria floridana	
Yellow flax	Linum floridanum	
Lobelia	Lobelia floridana	
Seedbox	Ludwigia alterniflora	
Ludwigia	Ludwigia leptocarpa	

		Primary Habitat Codes
Common Name	Scientific Name	(for designated species)
Rattlebox	Ludzvioia maritima	
Gulf coast lupipe	Luninus mestianus	
Rose-rush	Lugodesmia anhulla	
Rusty lyonia	Lyzouesmu uprigiu Lyonia ferryginea	
Fetterhush	I vonia lucida	
Southern magnolia	Maonalia orandiflora	
Sweethay	Magnolia virginiana	
Barbara's buttons	Marshallia tenuifolia	
Partridge berry	Mitchella reneus	
Bayberry	Murica heterophulla	
Way myrtle	Murica cerifora	
Spatterdock	Nunhar luteum	
Waterlily	Numbaea odorata	
Floating bearts	Numhoides aquatica	
Blackgum	Nussa aquatica var hiflora	
Evening_primrose	Oenothera laciniata	
Prickly pear cactus	Omuntia stricta	
Wild olive	Osmanthus megacarna	
Torpedo grass*	Panicum ronons	
Beach papic grass	Panicum amarum	
Panic grass	Panicum sm	
Whitlow-wort	Paronuchia erecta	
Sand-squares	Paronuchia rugelii	
Spoonflower	Peltandra saoittifolia	
Red bay	Persea horbonia	
Yellow Butterwort	Pinguicula lutea	
Chapman's Butterwort	Pinguicula planifolia	
Silkgrass	Pituonsis sn.	
Fleabane	Pluchea rosea	
Rose pogonia	Pogonia ophioglossoides	
Drumhead	Polygala cruciata	
Milkwort	Polygala cymosa	
Yellow thimbles	Polygala lutea	
Wild bachelor's button	Polygala nana	
Large-leaved jointweed	Polygonella macrophylla	
October flower	Polygonella polygama	
Polypremum	Polypremum procumbens	
Pickerel weed	Pontederia cordata	
Chapman's oak	Quercus chapmanii	
Sand live oak	Quercus geminata	
Laurel oak	Quercus hemispherica	

Common Name	Scientific Name	Primary Habitat Codes (for designated species)
Plashingly only	Ourmains	
	Quercus incunu	
Turkey oak $D^2 = 11 (1)$	Quercus laevis	
Diamond leaf oak	Quercus laurifolia	
	Quercus marilanaica	
Myrtle oak	Quercus myrtifolia	
Water oak	Quercus nigra	
Live oak	Quercus virginiana	
Meadow beauty	Rhexia alifanus	
Meadow beauty	Rhexia petiolata	
Panhandle meadow beauty	Rhexia salicicola	
Yellow meadow beauty	Rhexia lutea	
Winged Sumac	Rhus copallina	
Blackrush	Rhynchospora melanocarpa	
Sand blackberry	Rubus cuneifolius	
Dock	Rumex hastatulus	
Cabbage palm	Sabal palmetto	
White Sabatia	Sabatia brevifolia	
Marsh pink (ten petals)	Sabatia dodecandra	
Duckpotato	Sagittaria spp.	
Chinese tallow tree*	Sapium sebiferum	
Parrott pitcher-plant	Sarracenia psittacina	
Trumpets	Sarracenia flava	
Sassafras	Sassafras albidum	
Gulf bluestem grass	Schizachyrium maritimum	
Sensitive briar	Schrankia microphylla	
Saw palmetto	Serenoa repens	
Bladderpod*	Sesbania vesicaria	
Sea purslane	Sesuvium portulacastrum	
Seymeria (black senna)	Seymeria cassiodes	
Blue-eved grass	Sisyrinchium rosulatum	
Greenbrier	Smilax auriculata	
Sarsaparilla vine	Smilax pumila	
Bristly greenbrier	Smilax tamnoides	
Sweet goldenrod	Solidago odarata	
Seaside goldenrod	Solidago sempervirons	
Marsh hay	Spartina patens	
Ladies tresses	Spiranthes spp.	
Coastal dropseed	Sporobolus virginicus	
Corkwood	Stillingia aquatica	
Spanish moss	Tillandsia usneoides	
Poison ivy	Toxiodendron radicans	

Common Name	Scientific Name	Primary Habitat Codes (for designated species)
Spidowwort	Tradaccantia hircutiflora	
Plue curle	Trudescurring dichotom	
Dive curis		
Deer tongue	Trilisa oaoratissima	
Venus' looking glass	Triodanis biflora	
Sea oats	Uniola paniculata	
Bladderwort	Utricularia biflora	
Horned bladderwort	Utricularia cornuta	
Purple bladderwort	Utricularia purpurea	
Small purple bladderwort	Utricularia resupinata	
Bladderwort	Utricularia subulata	
Tree Sparkleberry	Vaccinium arboreum	
Highbush blueberry	Vaccinium corymbosum	
Glaucous blueberry	Vaccinium darrowii	
Shiny blueberry	Vaccinium myrsinites	
Possum-haw viburnum	Viburnum nudem	
Bog white violet	Viola lanceolata	
Chaste tree*	Vitex angus – castus	
Muscadine grape	Vitus rotundifolia	
Wisteria	Wisteria frutescens	
Yellow-eyed grass	Xyris baldwinii	
Yucca	Yucca filamentosa	

Common Name	Scientific Name	Primary Habitat Codes (for all species)
	BIRDS	
Cooper's hawk	Accipiter cooperii	8,14
Sharp-shinned hawk	Accipiter striatus	8,14
Spotted sandpiper	Actitis macularia	1,77
Red-winged blackbird	Agelaius phoeniceus	8,63
Wood duck	Aix sponsa	29,44
Northern pintail	Anas acuta	29,44
Green-winged teal	Anas crecca	29,44
Blue-winged teal	Anas discors	29,44
Mallard	Anas platyrynchos	29,44
Anhinga	Anhinga anhinga	29,44,63
Water pipit	Anthus spinoletta	29,44
Ruby-throated hummingbird	Archilochus colubris	8,14,15
Great blue heron	Ardea herodias	29,30,44
Short-eared owl	Asio flammeus	8,15,44
Redhead	Aythya americana	29,44
Ring-necked duck	Aythya collaris	29,44
Greater scaup	Aythya marila	29,44
Cedar waxwing	Bombycilla cedrorum	8,14,15
American bittern	Botaurus lentiginosus	30,44
Cattle egret*	Bubulcus ibis	ALL
Bufflehead	Bucephala albeola	29,44
Common goldeneye	Bucephala clangula	29,44
Red-tailed hawk	Buteo jamaicensis	8,14,15
Red-shouldered hawk	Buteo lineatus	8,14,15
Broad-winged hawk	Buteo platypterus	8,14,15
Green-backed heron	Butorides striatus	29,30,44,63
Sanderling	Calidris alba	1,77
Dunlin	Calidris alpina	1,77
Semipalmated sandpiper	Calidris pusilla	1,77
Chuck-will's widow	Caprimulgus carolinensis	8,15,81
Whip-poor-will	Caprimulgus vociferus	8,15,81
Northern cardinal	Cardinalis cardinalis	8,14,15,81
Pine siskin	Carduelis pinus	8,14,15
American goldfinch	Carduelis tristis	8,14,15
House finch	Carpodacus mexicanus	8,81
Purple finch	, Carpodacus purpureus	8,14,15
Great egret	Casmerodius albus	29,30,44,63
Turkey vulture	Cathartes aura	ALL
Hermit thrush	Catharus guttatus	8,15

Common Name	] Scientific Name	Primary Habitat Codes (for all species)
Course should should be	California	0.15
	Catanrus minimus	8,15
Vvillet Baltad kin afiahan	Catoptrophorus semipaimatus	$\frac{1}{20.44.(2)}$
Chimer an arrift	Ceryle alcyon	29,44,03
Chimney Swift	Chaera duine alongo duinees tonevinget	$\frac{\partial I}{\partial 27}$
Southeastern showy plover	Charadrius melodus	ris 1,63,77
Fiping plover	Charadrius melodus	1,03,77
Villdoor	Charadrius semipaimatus	1,77
Wilcon's ployer	Charadrius zvileonia	1,77
Plack torra	Churuarius wisonia	1,77
Common nighthouse	Chardeiles minor	1,// Q 1/ 15
Northorn harrier	Chordenes minor	0,14,10
Sodao wron	Circus cyuneus Cistothorus platencis	29,03
Vellew billed cuckee	Cisioinorus piutensis	0,14,10
Black billed cuckoo	Coccyzus americanus	0,01 9 14 15
Northorn flickor	Colortes auratus	0,14,15 8 14 15
Northern hobwhite	Coluptes utratus	0,14,1J 8 15
Rock dovo*	Columba lizza	0,1J Q1
Common ground dovo	Coloumbing passaring	01 81
Eastern wood newee	Contonus virens	8 15
Black vulture	Contopus otrens	ΔΙΙ
Fish crow	Corrus ossifraque	29 44 63
Blue jay	Cuanocitta cristata	8 15 81
Vellow-rumped warbler	Dendroica coronata	8 14 15
Prairie Warbler	Dendroica discolor	8 15
Vellow-throated warbler	Dendroica dominica	8 15
Palm warbler	Dendroica nalmarum	8 15
Yellow warbler	Dendroica petechia	8 15
Pine warbler	Dendroica pinus	8 15
Bobolink	Dolichonyx orizyzorys	8 15
Pileated woodpecker	Druoconus nileatus	8 15
Grav cathird	Dumetella carolinensis	81.82
Little blue beron	Eoretta caerulea	29.30.44.63
Reddish egret	Egretta rufescens	29,30,44,63
Snowy egret	Egretta thula	29,30,44,63
Tricolored heron	Egretta tricolor	29.30.44.63
Acadian flycatcher	Empidonax virescens	8.15
White ibis	Eudocimus albus	29.30.44
Southeastern American kestrel	Falco sparverius naulus	8.15
American coot	Fulica americana	44
Common snipe	Gallinago gallinago	8,15
T	0 0 0	-, -

Common Name	Scientific Name	Primary Habitat Codes (for all species)
Common loon	Gavia immer	44
Common yellowthroat	Geothlypis trichas	8,15
Florida sandhill crane	Grus canadensis pratensis	44
Bald eagle	Haliaeetus leucocephalus	ALL
Barn swallow	Hirundo rustica	8,81
Wood thrush	Hylocichla mustelina	8,15
Mississippi kite	Ictinia mississippiensis	ALL
Orchard oriole	Icterus spurius	8,15,81
Least bittern	İxobrychus exilis	30,44
Loggerhead shrike	Lanius ludovicianus	8,15
Herring gull	Larus argentatus	1,77
Laughing gull	Larus atricilla	1,77
Ring-billed gull	Larus delawarensis	1,77
Bonaparte's gull	Larus phiadelphia	1,77
Hooded merganser	Lophodytes cucullatus	44
Red-bellied woodpecker	Melanerpes carolinus	8,81
Red-headed woodpecker	Melanerpes erythrocephalus	8,15
Red-breasted merganser	Mergus serrator	29,44
Wild turkey	Meleagris gallopavo	8,15
Northern mockingbird	Mimus polyglottos	81,82
Black and white warbler	Mniotilta varia	8,14
Brown-headed cowbird	Molothrus ater	81,82
Great crested flycatcher	Myiarchus crinitus	8,14,15
Yellow-crowned night heron	Nycticorax violaceus	30,44
Eastern screech owl	Otus asio	8,15
Osprey	Pandion haliaetus	44,63
Northern parula	Parula americana	8,15
Tufted titmouse	Parus bicolor	8,15
Carolina chickadee	Parus carolinensis	8,15
House sparrow*	Passer domesticus	8,81
Savannah sparrow	Passerculus sandwichensis	8,81
Indigo bunting	Passerina cyanea	8,14,15
American white pelican	Pelecanus erythrorhynchos	44,63
Brown pelican	Pelecanus occidentalis	1,63
Double-crested cormorant	Phalacrocorax auritus	44,63
Rose-breasted grosbeak	Pheucticus ludovicianus	44
Red-cockaded woodpecker	Picoides borealis	8
Hairy woodpecker	Picoides villosus	8,15
Rufous-sided towhee	Pipilo erythrophthalmus	8,15
Scarlet tanager	Piranga olivacea	8,14,15
Summer tanager	Piranga rubra	8,14,15

Common Name	Scientific Name	Primary Habitat Codes (for all species)
Black-ballied ployer	Pluzialis sauatarola	1.63
Hornod grobo	Podicens queitus	1,05
Pied-billed grebe	Podilumbus nodicens	44
Blue-gray gnateatcher	Poliontila caerulea	8 15
Purple gallinule	Pornhurula martinica	44
Sora	Porzana carolina	42 44
Purple martin	Progne subis	81
Prothonotary warbler	Protonotaria citrea	8 14 15
Boat-tailed grackle	Quiscalus major	44.63
Common grackle	Quisculus mujor Quiscalus auiscalus	81 82
Ruby-crowned kinglet	Quisculus quisculus Regulus calendula	8 15 30
Black skimmer	Runchons niger	1 77
Fastern phoebe	Savornis nhoehe	8 15
American woodcock	Scolonar minor	44.63
American redstart	Setonhaga ruticilla	8 14 15
Fastern bluebird	Sialia sialis	8 15
Red-breasted nuthatch	Sitta canadensis	8 15
Brown-headed nuthatch	Sitta nusilla	8 15
Yellow-bellied sansucker	Snhuranicus varius	8.81
Chipping sparrow	Spitylupicus ourius Snizella nasserina	81
Field sparrow	Spizella nusilla	81
Least tern	Sterna antillarum	1977
Forster's tern	Sterna forsteri	1977
Common tern	Sterna hirundo	19.77
Roval tern	Sterna maxima	1977
Sandwich tern	Sterna sandzicensis	1977
Northern rough-winged swallow	Steloidonterux serrinennis	42 44
Eurasian collared-dove*	Strentonelia decaocto	81
Barred owl	Strix varia	8
Eastern meadowlark	Sturnella maona	81
European starling*	Sturnus vuloaris	81
Northern gannet	Sula hassanus	1
Tree swallow	Tachycineta bicolor	1.29.63
Carolina wren	Thruothorus Iudovicianus	8.15.81
Brown thrasher	Toxostoma rufum	81
Greater vellowlegs	Tringa melanoleuca	1.63
House wren	Troglodytes aedon	8.15.81
Winter wren	Troglodytes troglodytes	15
American robin	Turdus migratorius	8.14.25.29.81
Eastern kingbird	Tyrannus tyrannus	8.15.81
Orange-crowned warbler	Vermivora celata	8,15

Common Name	Scientific Name	Primary Habitat Codes (for all species)
Yellow-throated vireo	Vireo flavifrons	30.42.81
White-eved vireo	Vireo griseus	8.14.15.30
Solitary vireo	Vireo solitarius	8,14,15,30
Red-eved vireo	Vireo olivaceus	8,14,15
Hooded warbler	Wilsonia citrina	8,30
Mourning dove	Zenaida macroura	8,14,15,25,29,63,81
White-throated sparrow	Zonotricha albicollis	8,15,25,81
	MAMMALS	
Coyote*	Canis latrans	ALL
Beaver	Castor canadensis	25,30,44
Nine-banded armadillo	Dasypus novemcinctus *	8,14,15,81
Oppossum	Didelphis marsupialis	8,14,15,81
River otter	Lutra canadensis	44
Striped skunk	Mephitis mephitis	8,15
Eastern woodrat	Neotoma floridana	8,15
White-tailed deer	Odocoileus virginianus	8,14,15
Cotton mouse	Peromyscus gossypinus	8,15,81
Choctawhatchee beach mouse	Peromyscus polionotus allophrys	1,9
Raccoon	Procyon lotor	ALL
Eastern mole	Scalopus aquaticus	8,15
Eastern gray squirrel	Sciurus carolinensis	8,14,15,81
Hispid cotton rat	Sigmodon hispidus	8,15,81
Eastern cottontail	Sylvilagus floridanus	8,15,81
Marsh rabbit	Sylvilagus palustris	8,29,63
Gray fox	Urocyon cinereoargenteus	8,14,15
Black bear	Ursus americanus	8,15,29,30
Red fox*	Vulpes fulva	1,8,15
	REPTILES	
Florida cottonmouth	Agkistrodon piscivorus conanti	8,15,29,42
American alligator	Alligator mississippiensis	44
Green anole	Anolis carolinensis carolinensis	8,14,15,81
Atlantic loggerhead turtle	Caretta caretta caretta	1,77
Green sea turtle	Chelonia mydas mydas	1,77
Common snapping turtle	Chelydra serpentina	29,44
Florida cooter	Chrysemys floridana floridana	25,29,44

Six-lined racerunner

Southern black racer

Cnemidophorus sexlineatus sexlineatus

Coluber constrictor priapus

ALL

8,14,15,81

Common Name	Scientific Name	Primary Habitat Codes (for all species)
Eastern diamondback rattlesnake	Crotalus adamanteus	8,42
Southern ringneck snake	Diadophis punctatus punctatus	8,15
Corn snake	Elaphe guttata guttata	8,15
Five-lined skink	Eumeces fasciatus	8,15
Southeastern five-lined skink	Eumeces inexpectatus	8,15
Broad-headed skink	Eumeces laticeps	8,15,30,42
Mud snake	Farancia abacura	8,15,29,30,42
Gopher tortoise	Gopherus polyphemus	8,14,15
Eastern kingsnake	Lampropeltis getulus getulus	29,44
Scarlet kingsnake	Lampropeltis triangulum elapsoid	es 8,15
Eastern coachwhip	Masticophis flagellum flagellum	8,14,15
Florida water snake	Nerodia fasciata pictiventris	25,29,30,44
Rough green snake	Opheodrys aestivus	30,44
Eastern glass lizard	<i>Ophisaurus ventralis</i>	8,14,15
Southern fence lizard	, Sceloporus undulatus undulatus	8,15,81
Ground skink	Scincella lateralis	8,14,15
Dusky pygmy rattlesnake	Sistrurus miliarius barbouri	8,14,15
Stinkpot	Sternotherus odoratus	29,44
Gulf coast box turtle	Terrapene carolina maior	8.14.15
Eastern ribbon snake	Thamnophis sauritus sauritus	8.15
Eastern garter snake	Thamnophis sirtalis sirtalis	8.15.81
Florida softshell	Trionux ferox	44
	i riongu jereu	
	AMPHIBIANS	
Florida cricket frog	Acris gryllus dorsalis	25,29,30,44
Southern toad	Bufo terrestris	8,14,15,25,29,44,63
Oak toad	Bufo quercicus	8,15
Three-lined salamander	Eurycea guttolineata	
Dwarf salamander	Eurycea quadridigitata	
Southern two-lined salamander	Eurycea cirrigera	
Eastern narrow-mouthed toad	Gastrophryne carolinensis	
Bird-voiced treefrog	Hyla avivoca	
Green treefrog	Hyla cinerea	25,29,30
Gray treefrog	Hyla chrysoscelis	
Southern spring peeper	Hyla crucifer	25,29,30
Pinewoods treefrog	Hyla femoralias	8,15,41
Squirrel treefrog	Hyla squirella	8,25,29,81
Southeastern slimy salamander	Plethodon grobmani	· · ·

\* Non-native Species

Southern chorus frog

Pseudacris nigrita nigrita

25,29,30

#### **Primary Habitat Codes** Scientific Name (for all species) **Common Name** Pseudacris ornata Ornate chorus frog North American bullfrog Rana catesbeiana Bronze frog Rana clamitans 25,29,30 Pig frog Rana grylio 25,42,44,63 Southern leopard frog Rana sphenocephala 25,29,30 Eastern spadefoot toad Scaphiopus holbrookii

### **Topsail Hill Preserve State Park – Animals**

#### <u>Terrestrial</u>

- 1. Beach Dune
- 2. Bluff
- **3**. Coastal Berm
- 4. Coastal Rock Barren
- 5. Coastal Strand
- 6. Dry Prairie
- 7. Maritime Hammock
- 8. Mesic Flatwoods
- 9. Mesic Hammock
- 10. Coastal Grasslands
- 11. Pine Rockland
- 12. Prairie Hammock
- 13. Rockland Hammock
- 14. Sandhill
- 15. Scrub
- 16. Scrubby Flatwoods
- 17. Shell Mound
- 18. Sinkhole
- 19. Slope Forest
- 20. Upland Glade
- 21. Upland Hardwood Forest
- 22. Upland Mixed Forest
- 23. Upland Pine Forest
- 24. Xeric Hammock

### <u>Palustrine</u>

- 25. Basin Marsh
- 26. Basin Swamp
- 27. Baygall
- 28. Bog
- 29. Bottomland Forest
- 30. Coastal Interdunal Swale
- **31**. Depression Marsh
- 32. Dome
- 33. Floodplain Forest
- 34. Floodplain Marsh
- **35**. Floodplain Swamp
- **36.** Freshwater Tidal Swamp
- **37**. Hydric Hammock
- **38.** Marl Prairie
- **39**. Seepage Slope
- 40. Slough
- 41. Strand Swamp
- 42. Swale
- 43. Wet Flatwoods
- 44. Wet Prairie

### Lacustrine

- 45. Clastic Upland Lake
- 46. Coastal Dune Lake
- 47. Coastal Rockland Lake
- **48.** Flatwood/Prairie Lake
- 49. Marsh Lake
- **50.** River Floodplain Lake
- **51**. Sandhill Upland Lake
- 52. Sinkhole Lake
- 53. Swamp Lake

### <u>Riverine</u>

- 54. Alluvial Stream
- 55. Blackwater Stream
- 56. Seepage Stream
- **57.** Spring-Run Stream

### <u>Estuarine</u>

- 58. Estuarine Algal Bed
- **59**. Estuarine Composite Substrate
- 60. Estuarine Consolidated Substrate
- 61. Estuarine Coral Reef
- 62. Estuarine Grass Bed
- 63. Estuarine Mollusk Reef
- 64. Estuarine Octocoral Bed
- **65**. Estuarine Sponge Bed
- 66. Estuarine Tidal Marsh
- 67. Estuarine Tidal Swamp
- 68. Estuarine Unconsolidated Substrate
- 69. Estuarine Worm Reef

### <u>Marine</u>

- 70. Marine Algal Bed
- 71. Marine Composite Substrate
- 72. Marine Consolidated Substrate
- 73. Marine Coral Reef
- 74. Marine Grass Bed
- 75. Marine Mollusk Reef
- 76. Marine Octocoral Bed
- 77. Marine Sponge Bed
- 78. Marine Tidal Marsh
- 79. Marine Tidal Swamp
- 80. Marine Unconsolidated Substrate
- 81. Marine Worm Reef

### <u>Subterranean</u>

- 82. Aquatic Cave
- 83. Terrestral Cave

### <u>Miscellaneous</u>

- 84. Ruderal
- 85. Developed
- MTC Many Types of Communities
- OF Over Flying

Addendum 5 – Designated Species List

The Nature Conservancy and the Natural Heritage Program Network (of which FNAI is a part) define an <u>element</u> 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 <u>element occurrence</u> (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 Game and Freshwater Fish 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 man-made
		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 and local throughout its range (21-100 occurrences or less than 10,000 individuals)
~ 1		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)
S1	=	Critically 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.
S2	=	Imperiled 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.
S3	=	Either very rare and 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.
S4	=	apparently secure in Florida (may be rare in parts of range)
S5	=	demonstrably 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
SA	=	accidental in Florida, i.e., not part of the established biota
SE	=	an exotic species established in Florida may be native elsewhere in North America
SN	=	regularly occurring, but widely and unreliably distributed; sites for conservation hard to determine
SU	=	due to lack of information, no rank or range can be assigned (e.g., SUT2).
S?	=	not yet ranked (temporary)

### LEGAL STATUS

Ν	=	Not currently listed, nor currently being considered for listing, by state or federal agencies.	
<b>FEDERAL</b>	(Li	sted 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 partice 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 C	=	Proposed for listing as Threatened Species. Candidate 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) T(S/A)	= =	Endangered due to similarity of appearance. Threatened due to similarity of appearance.	
<u>STATE</u>			
<u>Animals</u>		(Listed by the Florida Fish and Wildlife Conservation Commission - FFWCC)	
LE	=	Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.	
LT	=	Listed as Threatened Species by the FFWCC. 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 as a consequence is destined or very likely to become an endangered species within the foreseeable future	
LS	=	Listed as Species of Special Concern by the FFWCC. 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 which, in the foreseeable future, may result in its becoming a threatened species.	
<u>Plants</u>		(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.	
Common Name/		<b>Designated Species S</b>	<u>Status</u>
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Scientific Name	FDACS	USFWS	FNAI
Curtiss' sandgrass			
Calamovilfa curtissii	Т		S3
Grass Pink			
Calopogon barbatus	Т		
Godfrey's golden aster			
Chrysopsis godfreyi			G2/S2
Cruise's golden aster			
Chrysopsis gossypina			
sub. cruiseana	E		G5T2/S2
Sundew			
Drosera intermedia	Т		G5/S3
Gulf coast lupine			
Lupinus westianus	Т		G2/S2
Rose pogonia			
Pogonia ophioglossoides	Т		
Large-leaved jointweed			
Polygonella macrophylla	Т		G2/S2
Panhandle meadow beauty			
Rhexia salicicola			G2/S2
Parrot pitcher-plant			
Sarracenia psittacina	Т		

# **Topsail Hill Preserve State Park Designated Species – Plants**

Common Name/<br/>Scientific NameDesignated Species Status<br/>USFWSFDACSUSFWS

Common Name/	FFMCC	Designated Species State	<u>us</u>
Scientific Name	FFWCC	USFWS	FNAI
	REPTILES	;	
American alligator			
Alligator mississippiensis	LS	T (S/A)	G5/S4
Atlantic loggerhead turtle	_		/
Caretta caretta caretta	Т	1	G3/S3
Chelonia mudas mudas	F	F	$C_{3}/S_{2}$
Eastern diamondback rattlesnake	Ľ	Ľ	03/32
Crotalus adamanteus			G5/S3
Gopher tortoise			
Gopherus polyphemus	SSC		G3/S3
	BIRDS		
Cooper's hawk			
Accipiter cooperii			G4/S3?
Great egret			
Casmerodius albus			G5/S4
Southeastern snowy plover	T		
Charadrius alexandrinus tenuirostris	Т		G4/S2
Charadrius melodus	т	Т	$C_{3}/S_{2}$
Little blue beron	1	1	03/32
Egretta caerulea	SSC		G5/S4
Reddish egret			
Egretta rufescens	SSC		G4/S2
Snowy egret			/
Egretta thula	SSC		G5/S4
Iricolored heron	SSC.		
White ibis	55C		G3/ 54
Eudocimus albus	SSC		G5/S4
Southeastern American kestrel			00701
Falco sparverius paulus	Т		G5T3T4/S3?
Bald eagle			
Haliaeetus leucocephalus	Т	Т	G4/S3
Least bittern			
ixoorycnus exilis			G5/54

# **Topsail Hill Preserve State Park Designated Species – Animals**

Common Name/ Scientific Name	FFWCC	<u>Designated Species Statu</u> USFWS	<u>s</u> FNAI
Yellow-crowned night-neron			CE(C2)
Nycticorux ototuceus			G5/53?
Dandion haliantus			CE/C2C4
Brown policon			G3/ 5354
Diowit pencan Palacanus occidentalis	SSC		C1/S2
Ped cockeded woodpocker	55C		G4/33
Red Cockaded woodpecker	т	F	$C^{2}/S^{2}$
Hoim woodpocker	1	E	G3/ 52
Dissides milleous			CE/S2
Picolues olliosus			G5/55
Diack skilliner	SSC		CE/S2
Kynchops niger	55C		G5/55
American redstart			$C \in (C)$
Setophaga ruticilla			G5/S3
Least tern	T.		
Sterna antillarum	T		G4/S3
Royal tern			o= ( os
Sterna maxima			G5/S3
Sandwich tern			
Sterna sandvicensis			G5/S2
	MAMMAL	S	
Choctawhatchee beach mouse			
Peromuscus notionatus allonhrus	F	F	G5T1/S1
Florida black bear	Ц	L	0011/01
Ursus americanus floridanus	LT		G5T2/S2

# **Topsail Hill Preserve State Park Designated Species – Animals**

Addendum 6 – Timber Management Analysis

The timber assessment required by Chapters 253 and 259, Florida Statutes, was conducted Oct 10, 2006 by Jason Love, Other State Lands Forester, Florida Division of Forestry, and Tova Spector, Florida Park Service, District 1.

## Goals and Objectives:

The following are goals and objectives for Topsail Hill State Preserve that are related to a one-time timber harvest for restoration:

- **1.** Restoration of wet flatwoods and wet prairies.
- 2. Reduce the number of stems per acre to a historical level.
- 3. Reduce ladder fuels to allow for the reintroduction of fire.
- **4.** Reduce overgrown understory shrub vegetation.

All timber management practices done on the Topsail Hill Preserve State Park will be done in accordance with the most current version of the Silviculture Best Management Practices Manual (BMP's) for public lands

## **Recommendations:**

The area covered by this assessment is located at the intersection of Highway 98 and 30A. This area historically was a wet prairie and wet flatwoods complex. The construction of Highway 98 disrupted the water flow through the area. Also the construction of the highway has limited the burning of the understory both by natural and prescribed fire. Recent fire suppression has created a community that is badly overgrown with a 40-50 year "southern rough." In addition these heavily fuel loaded communities contain significant ladder fuels that need to be removed or reduced prior to re-introduction of fire. Current conditions of this stand require some action to be taken to reduce the number of stems per acre and reduce the amount of mid-story fuels.

Reduction of the number of stems per acre can be accomplished by conducting a timber sale. This sale should reduce the number of trees per acre from the current level of 150-200 down to 40-150. Trees of all diameter classes should be left in the area. These trees should be spaced so that the stand has an open park-like look. Any longleaf pines that are in the area should be protected from harvest as well as any cat-faced trees.

Typical flatwoods communities do not contain a midstory so reduction of these fuels is also necessary for restoration of the flatwoods communities. The soils are wet and mucky most of the year. In April and May during the dry season the soils in this stand can dry allowing for silviculture treatment. Fuel reduction will be partially done with a timber sale. Equipment used to harvest the timber will run over any small woody stems that are in its path. Any timber removal in this stand would need to be done when soils are very dry while using the "walk-down" technique. The "walk-down" technique is used in wetland soils where shrubs dominate the midstory. Silvaculture equipment "walk" on the bed created by laying down these overgrown midstory fuels thus avoiding impacts to wetland soils. In areas that timber harvesting equipment does not run over the ground cover other mechanical treatments will be necessary to make prescribed burning possible.

Addendum 7–Priority Schedule and Cost Estimates

Estimates are developed for the funding and staff resources needed to implement the management plan based on goals, objectives and priority management activities. Funding priorities for all state park management and development activities are reviewed each year as part of the Division's legislative budget process. The Division prepares an annual legislative budget request based on the priorities established for the entire state park system. The Division also aggressively pursues a wide range of other funds and staffing resources, such as grants, volunteers, and partnerships with agencies, local governments and the private sector for supplementing normal legislative appropriations to address unmet needs. The ability of the Division to implement the specific goals, objectives and priority actions identified in this plan will be determined by the availability of funding resources for these purposes.

### **Resource Management**

1.	Protect, Restore, and Maintain Natural Communities	\$500,000
2.	Design and implement restoration of highly altered communities or are	eas
		\$400,000
3.	Protect, restore and maintain native plant diversity and natural relative	2
	abundance	\$85,000
4.	Protect, restore and maintain native animal diversity and natural relativ	ve
	abundance	\$80,000
5.	Establish and maintain a prescribed fire program	\$1,500,000
6.	Establish and maintain invasive exotic plant species removal program.	\$200,000
7.	Establish and maintain destructive exotic animal species removal progr	ram
		\$200,000
8.	Protect, restore and maintain natural hydrological regimes	\$450,000
9.	Protect, restore and maintain water quality conditions	\$25,000
10.	Protect park boundaries to improve resource management and avoid	
	encroachment	\$80,000
11.	Protect natural resources from impacts caused from park visitors and o	utside
	influence	\$250,000
<b>T</b>		<b>**</b> • • • • • • • •
Estir	nated Cost:	\$3,370,000
<u>Adm</u>	ninistration	

1.	Outsourcing bathroom cleaning/mowing/vel	nicle maintenance\$120,000
	annually/\$1,200,000 over 10 years	
2.	Interpretive materials and program support	\$25,000.
3.	Maintenance of facilities	\$80,000 annually/ \$800,000.
Estir	nated Cost:	\$ 2,025,000

Total Estimated Cost:...... \$669,200 plus \$63,500/year reoccurring

## **Capital Improvements**

Beach Use Area	\$467,500.00
Camping And Cabins Area	\$2,730,000.00
Entrance	\$624,000.00
Lake Campbell Picnic Area	\$438,100.00
Support Facilities	\$528,000.00
Trails	<u>\$789,160.00</u>
Total w/contingency	\$6,692,112.00

**Additional Information** 

**FNAI Descriptions** 

**DHR Cultural Management Statement** 

This summary presents the hierarchical classification and brief descriptions of 82 Natural Communities developed by Florida Natural Areas Inventory and identified as collectively constituting the original, natural biological associations of Florida.

A Natural Community is defined as a distinct and recurring assemblage of populations of plants, animals, fungi and microorganisms naturally associated with each other and their physical environment. For more complete descriptions, see Guide to the Natural Communities of Florida, available from Florida Department of Natural Resources.

The levels of the hierarchy are:

Natural Community Category - defined by hydrology and vegetation.

Natural Community Groups - defined by landform, substrate, and vegetation.

**Natural Community Type** - defined by landform and substrate; soil moisture condition; climate; fire; and characteristic vegetation.

TERRESTRIAL COMMUNITIES	LACUSTRINE COMMUNITIES
XERIC UPLANDS COASTAL UPLANDS	<b>RIVERINE COMMUNITIES</b>
MESIC UPLANDS ROCKLANDS	SUBTERRANEAN COMMUNITIES
MESIC FLATLANDS	MARINE/ESTUARINE COMMUNITIES
<u>PALUSTRINE COMMUNITIES</u> <u>WET FLATLANDS</u> <u>SEEPAGE WETLANDS</u> <u>FLOODPLAIN WETLANDS</u> <u>BASIN WETLANDS</u>	Definitions of Terms Used in Natural Community Descriptions

**TERRESTRIAL** - Upland habitats dominated by plants which are not adapted to anaerobic soil conditions imposed by saturation or inundation for more than 10% of the growing season.

XERIC UPLANDS - very dry, deep, well-drained hills of sand with xeric-adapted vegetation.

**Sandhill** - upland with deep sand substrate; xeric; temperate; frequent fire (2-5 years); longleaf pine and/or turkey oak with wiregrass understory.

**Scrub** - old dune with deep fine sand substrate; xeric; temperate or subtropical; occasional or rare fire (20 - 80 years); sand pine and/or scrub oaks and/or rosemary and lichens.

**Xeric Hammock** - upland with deep sand substrate; xeric-mesic; temperate or subtropical; rare or no fire; live oak and/or sand live oak and/or laurel oak and/or other oaks, sparkleberry, saw palmetto.

**COASTAL UPLANDS** - substrate and vegetation influenced primarily by such coastal (maritime) processes as erosion, deposition, salt spray, and storms.

**Beach Dune** - active coastal dune with sand substrate; xeric; temperate or subtropical; occasional or rare fire; sea oats and/or mixed salt-spray tolerant grasses and herbs.

**Coastal Berm** - old bar or storm debris with sand/shell substrate; xeric-mesic; subtropical or temperate; rare or no fire; buttonwood, mangroves, and/or mixed halophytic herbs and/or shrubs and trees.

**Coastal Grassland** - coastal flatland with sand substrate; xeric-mesic; subtropical or temperate; occasional fire; grasses, herbs, and shrubs with or without slash pine and/or cabbage palm.

**Coastal Rock Barren** - flatland with exposed limestone substrate; xeric; subtropical; no fire; algae, mixed halophytic herbs and grasses, and/or cacti and stunted shrubs and trees.

**Coastal Strand** - stabilized coastal dune with sand substrate; xeric; subtropical or temperate; occasional or rare fire; dense saw palmetto and/or seagrape and/or mixed stunted shrubs, yucca, and cacti.

**Maritime Hammock** - stabilized coastal dune with sand substrate; xeric-mesic; subtropical or temperate; rare or no fire; mixed hardwoods and/or live oak.

**Shell Mound** - Indian midden with shell substrate; xeric-mesic; subtropical or temperate; rare or no fire; mixed hardwoods.

**MESIC UPLANDS** - dry to moist hills of sand with varying amounts of clay, silt or organic material; diverse mixture of broadleaved and needleleaved temperate woody species.

**Bluff** - steep slope with rock, sand, and/or clay substrate; hydric-xeric; temperate; sparse grasses, herbs and shrubs.

**Slope Forest** - steep slope on bluff or in sheltered ravine; sand/clay substrate; mesic-hydric; temperate; rare or no fire; magnolia, beech, spruce pine, Shumard oak, Florida maple, mixed hardwoods.

**Upland Glade** - upland with calcareous rock and/or clay substrate; hydric-xeric; temperate; sparse mixed grasses and herbs with occasional stunted trees and shrubs, e.g., eastern red cedar.

**Upland Hardwood Forest** - upland with sand/clay and/or calcareous substrate; mesic; temperate; rare or no fire; spruce pine, magnolia, beech, pignut hickory, white oak, and mixed hardwoods.

**Upland Mixed Forest** - upland with sand/clay substrate; mesic; temperate; rare or no fire; loblolly pine and/or shortleaf pine and/or laurel oak and/or magnolia and spruce pine and/or mixed hardwoods.

**Upland Pine Forest** - upland with sand/clay substrate; mesic-xeric; temperate; frequent or occasional fire; longleaf pine and/or loblolly pine and/or shortleaf pine, southern red oak, wiregrass.

**ROCKLANDS** - low, generally flat limestone outcrops with tropical vegetation; or limestone exposed through karst activities with tropical or temperate vegetation.

**Pine Rockland** - flatland with exposed limestone substrate; mesic-xeric; subtropical; frequent fire; south Florida slash pine, palms and/or hardwoods, and mixed grasses and herbs.

**Rockland Hammock** - flatland with limestone substrate; mesic; subtropical; rare or no fire; mixed tropical hardwoods, often with live oak.

**Sinkhole** - karst feature with steep limestone walls; mesic-hydric; subtropical or temperate; no fire; ferns, herbs, shrubs, and hardwoods.

**MESIC FLATLANDS** - flat, moderately well-drained sandy substrates with admixture of organic material, often with a hard pan.

**Dry Prairie** - flatland with sand substrate; mesic-xeric; subtropical or temperate; annual or frequent fire; wiregrass, saw palmetto, and mixed grasses and herbs.

**Mesic Flatwoods** - flatland with sand substrate; mesic; subtropical or temperate; frequent fire; slash pine and/or longleaf pine with saw palmetto, gallberry and/or wiregrass or cutthroat grass understory.

**Prairie Hammock** - flatland with sand/organic soil over marl or limestone substrate; mesic; subtropical; occasional or rare fire; live oak and/or cabbage palm.

**Scrubby Flatwoods** - flatland with sand substrate; xeric-mesic; subtropical or temperate; occasional fire; longleaf pine or slash pine with scrub oaks and wiregrass understory.

**PALUSTRINE** - Wetlands dominated by plants adapted to anaerobic substrate conditions imposed by substrate saturation or inundation during 10% or more of the growing season. Includes non-tidal wetlands; tidal wetlands with ocean derived salinities less than 0.5 ppt and dominance by salt-intolerant species; small (less than 8 ha), shallow (less than 2 m deep at low water) water bodies without waveformed or bedrock shoreline; and inland brackish or saline wetlands.

**WET FLATLANDS** - flat, poorly drained sand, marl or limestone substrates.

**Hydric Hammock** - lowland with sand/clay/organic soil, often over limestone; mesic-hydric; subtropical or temperate; rare or no fire; water oak, cabbage palm, red cedar, red maple, bays, hackberry, hornbeam, blackgum, needle palm, and mixed hardwoods.

**Marl Prairie** - flatland with marl over limestone substrate; seasonally inundated; tropical; frequent to no fire; sawgrass, spikerush, and/or mixed grasses, sometimes with dwarf cypress.

**Wet Flatwoods** - flatland with sand substrate; seasonally inundated; subtropical or temperate; frequent fire; vegetation characterized by slash pine or pond pine and/or cabbage palm with mixed grasses and herbs.

**Wet Prairie** - flatland with sand substrate; seasonally inundated; subtropical or temperate; annual or frequent fire; maidencane, beakrush, spikerush, wiregrass, pitcher plants, St. John's wort, mixed herbs.

**SEEPAGE WETLANDS** - sloped or flat sands or peat with high moisture levels maintained by downslope seepage; wetland and mesic woody and/or herbaceous vegetation.

**Baygall** - wetland with peat substrate at base of slope; maintained by downslope seepage, usually saturated and occasionally inundated; subtropical or temperate; rare or no fire; bays and/or dahoon holly and/or red maple and/or mixed hardwoods.

**Seepage Slope** - wetland on or at base of slope with organic/sand substrate; maintained by downslope seepage, usually saturated but rarely inundated; subtropical or temperate; frequent or occasional fire; sphagnum moss, mixed grasses and herbs or mixed hydrophytic shrubs.

**FLOODPLAIN WETLANDS** - flat, alluvial sand or peat substrates associated with flowing water courses and subjected to flooding but not permanent inundation; wetland or mesic woody and herbaceous vegetation.

**Bottomland Forest** - flatland with sand/clay/organic substrate; occasionally inundated; temperate; rare or no fire; water oak, red maple, beech, magnolia, tuliptree, sweetgum, bays, cabbage palm, and mixed hardwoods.

**Floodplain Forest** - floodplain with alluvial substrate of sand, silt, clay or organic soil; seasonally inundated; temperate; rare or no fire; diamondleaf oak, overcup oak, water oak, swamp chestnut oak, blue palmetto, cane, and mixed hardwoods.

**Floodplain Marsh** - floodplain with organic/sand/alluvial substrate; seasonally inundated; subtropical; frequent or occasional fire; maidencane, pickerelweed, sagittaria spp., buttonbush, and mixed emergents.

**Floodplain Swamp** - floodplain with organic/alluvial substrate; usually inundated; subtropical or temperate; rare or no fire; vegetation characterized by cypress, tupelo, black gum, and/or pop ash.

**Freshwater Tidal Swamp** - river mouth wetland, organic soil with extensive root mat; inundated with freshwater in response to tidal cycles; rare or no fire; cypress, bays, cabbage palm, gums and/or cedars.

**Slough** - broad, shallow channel with peat over mineral substrate; seasonally inundated, flowing water; subtropical; occasional or rare fire; pop ash and/or pond apple or water lily.

**Strand Swamp** - broad, shallow channel with peat over mineral substrate; seasonally inundated, flowing water; subtropical; occasional or rare fire; cypress and/or willow.

**Swale** - broad, shallow channel with sand/peat substrate; seasonally inundated, flowing water; subtropical or temperate; frequent or occasional fire; sawgrass, maidencane, pickerelweed, and/or mixed emergents.

**BASIN WETLANDS** - shallow, closed basin with outlet usually only in time of high water; peat or sand substrate, usually inundated; wetland woody and/or herbaceous vegetation.

**Basin Marsh** - large basin with peat substrate; seasonally inundated; temperate or subtropical; frequent fire; sawgrass and/or cattail and/or buttonbush and/or mixed emergents.

**Basin Swamp** - large basin with peat substrate; seasonally inundated, still water; subtropical or temperate; occasional or rare fire; vegetation characterized by cypress, blackgum, bays and/or mixed hardwoods.

**Bog** - wetland on deep peat substrate; moisture held by sphagnum mosses, soil usually saturated, occasionally inundated; subtropical or temperate; rare fire; sphagnum moss and titi and/or bays and/or dahoon holly, and/or mixed hydrophytic shrubs.

**Coastal Interdunal Swale** - long narrow depression wetlands in sand/peat-sand substrate; seasonally inundated, fresh to brackish, still water; temperate; rare fire; graminoids and mixed wetland forbs.

**Depression Marsh** - small rounded depression in sand substrate with peat accumulating toward center; seasonally inundated, still water; subtropical or temperate; frequent or occasional fire; maidencane, fire flag, pickerelweed, and mixed emergents, may be in concentric bands.

**Dome Swamp** - rounded depression in sand/limestone substrate with peat accumulating toward center; seasonally inundated, still water; subtropical or temperate; occasional or rare fire; cypress, blackgum, or bays, often tallest in center.

**LACUSTRINE** - Non-flowing wetlands of natural depressions lacking persistent emergent vegetation except around the perimeter.

**Clastic Upland Lake** - generally irregular basin in clay uplands; predominantly with inflows, frequently without surface outflow; clay or organic substrate; colored, acidic, soft water with low mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

**Coastal Dune Lake** - basin or lagoon influenced by recent coastal processes; predominantly sand substrate with some organic matter; salinity variable among and within lakes, and subject to saltwater intrusion and storm surges; slightly acidic, hard water with high mineral content (sodium, chloride).

**Coastal Rockland Lake** - shallow basin influence by recent coastal processes; predominantly barren oolitic or Miami limestone substrate; salinity variable among and within lakes, and subject to saltwater intrusion, storm surges and evaporation (because of shallowness); slightly alkaline, hard water with high mineral content (sodium, chloride).

Flatwoods/Prairie Lake - generally shallow basin in flatlands with high water table; frequently with a

broad littoral zone; still water or flow-through; sand or peat substrate; variable water chemistry, but characteristically colored to clear, acidic to slightly alkaline, soft to moderately hard water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

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

**River Floodplain Lake** - meander scar, backwater, or larger flow-through body within major river floodplains; sand, alluvial or organic substrate; colored, alkaline or slightly acidic, hard or moderately hard water with high mineral content (sulfate, sodium, chloride, calcium, magnesium); mesotrophic to eutrophic.

**Sandhill Upland Lake** - generally rounded solution depression in deep sandy uplands or sandy uplands shallowly underlain by limestone; predominantly without surface inflows/outflows; typically sand substrate with organic accumulations toward middle; clear, acidic moderately soft water with varying mineral content; ultra-oligotrophic to mesotrophic.

**Sinkhole Lake** - typically deep, funnel-shaped depression in limestone base; occurs in most physiographic regions; predominantly without surface inflows/outflows, but frequently with connection to the aquifer; clear, alkaline, hard water with high mineral content (calcium, bicarbonate, magnesium).

**Swamp Lake** - generally shallow, open water area within basin swamps; still water or flow-through; peat, sand or clay substrate; occurs in most physiographic regions; variable water chemistry, but characteristically highly colored, acidic, soft water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

**RIVERINE** - Natural, flowing waters from their source to the downstream limits of tidal influence and bounded by channel banks.

**Alluvial Stream** - lower perennial or intermittent/seasonal watercourse characterized by turbid water with suspended silt, clay, sand and small gravel; generally with a distinct, sediment-derived (alluvial) floodplain and a sandy, elevated natural levee just inland from the bank.

**Blackwater Stream** - perennial or intermittent/seasonal watercourse characterized by tea-colored water with a high content of particulate and dissolved organic matter derived from drainage through swamps and marshes; generally lacking an alluvial floodplain.

**Seepage Stream** - upper perennial or intermittent/seasonal watercourse characterized by clear to lightly colored water derived from shallow groundwater seepage.

**Spring-run Stream** - perennial watercourse with deep aquifer headwaters and characterized by clear water, circumneutral pH and, frequently, a solid limestone bottom.

**SUBTERRANEAN** - Twilight, middle and deep zones of natural chambers overlain by the earth's crust and characterized by climatic stability and assemblages of trogloxenic, troglophilic, and troglobitic organisms.

**Aquatic Cave** - cavernicolous area permanently or periodically submerged; often characterized by troglobitic crustaceans and salamanders; includes high energy systems which receive large quantities of organic detritus and low energy systems.

**Terrestrial Cave** - cavernicolous area lacking standing water; often characterized by bats, such as Myotis spp., and other terrestrial vertebrates and invertebrates; includes interstitial areas above standing

water such as fissures in the ceiling of caves.

**MARINE/ESTUARINE** (The distinction between the Marine and Estuarine Natural Communities is often subtle, and the natural communities types found under these two community categories have the same descriptions. For these reasons they have been grouped together.) - Subtidal, intertidal and supratidal zones of the sea, landward to the point at which seawater becomes significantly diluted with freshwater inflow from the land.

**Consolidated Substrate** - expansive subtidal, intertidal and supratidal area composed primarily of nonliving compacted or coherent and relatively hard, naturally formed mass of mineral matter (e.g., coquina limerock and relic reefs); octocorals, sponges, stony corals, nondrift macrophytic algae, blue-green mat-forming algae and seagrasses sparse, if present.

**Unconsolidated Substrate** - expansive subtidal, intertidal and supratidal area composed primarily of loose mineral matter (e.g., coralgal, gravel, marl, mud, sand and shell); octocorals, sponges, stony corals, nondrift macrophytic algae, blue-green mat-forming algae and seagrasses sparse, if present.

**Octocoral Bed** - expansive subtidal area occupied primarily by living sessile organisms of the Class Anthozoa, Subclass Octocorallia (e.g., soft corals, horny corals, sea fans, sea whips, and sea pens); sponges, stony corals, nondrift macrophytic algae and seagrasses spares, if present.

**Sponge Bed** - expansive subtidal area occupied primarily by living sessile organisms of the Phylum Porifera (e.g., sheepswool sponge, Florida loggerhead sponge and branching candle sponge); octocorals, stony corals, nondrift macrophytic algae and seagrasses sparse, if present.

**Coral Reef** - expansive subtidal area with elevational gradient or relief and occupied primarily by living sessile organisms of the Class Hydrozoa (e.g., fire corals and hydrocorals) and Class Anthozoa, Subclass Zoantharia (e.g., stony corals and black corals); includes deepwater bank reefs, fringing barrier reefs, outer bank reefs and patch reefs, some of which may contain distinct zones of assorted macrophytes, octocorals, & sponges.

**Mollusk Reef** - substantial subtidal or intertidal area with relief from concentrations of sessile organisms of the Phylum Mollusca, Class Bivalvia (e.g., molluscs, oysters, & worm shells); octocorals, sponges, stony corals, macrophytic algae and seagrasses sparse, if present.

**Worm Reef** - substantial subtidal or intertidal area with relief from concentrations of sessile, tubicolous organisms of the Phylum Annelida, Class Polychaeta (e.g., chaetopterids and sabellarids); octocorals, sponges, stony corals, macrophytic algae and seagrasses sparse, if present.

**Algal Bed** - expansive subtidal, intertidal or supratidal area, occupied primarily by attached thallophytic or mat-forming prokaryotic algae (e.g, halimeda, blue-green algae); octocorals, sponges, stony corals and seagrasses sparse, if present.

**Grass Bed** - expansive subtidal or intertidal area, occupied primarily by rooted vascular macrophytes, (e.g., shoal grass, halophila, widgeon grass, manatee grass and turtle grass); may include various epiphytes and epifauna; octocorals, sponges, stony corals, and attached macrophytic algae sparse, if present.

**Composite Substrate** - expansive subtidal, intertidal, or supratidal area, occupied primarily by Natural Community elements from more than one Natural Community category (e.g., Grass Bed and Algal Bed species; Octocoral and Algal Bed species); includes both patchy and evenly distributed occurrences.

**Tidal Marsh** - expansive intertidal or supratidal area occupied primarily by rooted, emergent vascular macrophytes (e.g., cord grass, needlerush, saw grass, saltwort, saltgrass and glasswort); may include various epiphytes and epifauna.

**Tidal Swamp** - expansive intertidal and supratidal area occupied primarily by woody vascular macrophytes (e.g., black mangrove, buttonwood, red mangrove, and white mangrove); may include various epiphytes and epifauna.

#### **DEFINITIONS OF TERMS Terrestrial and Palustrine Natural Communities**

#### **Physiography**

Upland - high area in region with significant topographic relief; generally undulating

**Lowland** - low area in region with or without significant topographic relief; generally flat to gently sloping

**Flatland** - generally level area in region without significant topographic relief; flat to gently sloping **Basin** - large, relatively level lowland with slopes confined to the perimeter or isolated interior locations **Depression** - small depression with sloping sides, deepest in center and progressively shallower towards the perimeter

**Floodplain** - lowland adjacent to a stream; topography influenced by recent fluvial processes **Bottomland** - lowland not on active floodplain; sand/clay/organic substrate

#### **Hydrology**

**occasionally inundated** - surface water present only after heavy rains and/or during flood stages **seasonally inundated** - surface water present during wet season and flood periods **usually inundated** - surface water present except during droughts

#### **Climatic Affinity of the Flora**

**tropical** - community generally occurs in practically frost-free areas **subtropical** - community generally occurs in areas that experience occasional frost, but where freezing temperatures are not frequent enough to cause true winter dormancy **temperate** - community generally occurs in areas that freeze often enough that vegetation goes into winter dormancy

#### <u>Fire</u>

annual fire - burns about every 1-2 years frequent fire - burns about every 3-7 years occasional fire - burns about every 8-25 years rare fire - burns about every 26-100 years no fire - community develops only when site goes more than 100 years without burning

#### LATIN NAMES OF PLANTS MENTIONED IN NATURAL COMMUNITY DESCRIPTIONS

anise - Illicium floridanum bays: swamp bay - Persea palustris gordonia - Gordonia lasianthus sweetbay - Magnolia virgiana beakrush - *Rhynchospora* spp. beech - Fagus grandifolia blackgum - Nvssa biflora blue palmetto - Sabal minor bluestem - Andropogon spp. buttonbush - Cephalanthus occidentalis cabbage palm - Sabal palmetto cacti - Opuntia and Harrisia spp., predominantly *stricta* and *pentagonus* cane - Arundinaria gigantea or A. tecta cattail - Typha spp. cedars: red cedar - Juniperus silicicola white cedar - Chamaecyparis thyoides or C. henrvi cladonia - Cladonia spp. cypress - Taxodium distichum dahoon holly - Ilex cassine diamondleaf oak - Quercus laurifolia fire flag - Thalia geniculata Florida maple - Acer barbatum gallberry - Ilex glabra gums: tupelo - Nvssa aquatica blackgum - Nyssa biflora Ogeechee gum - Nyssa ogeche hackberry - Celtis laevigata hornbeam - Carpinus caroliniana laurel oak - Quercus hemisphaerica live oak - Quercus virginiana loblolly pine - Pinus taeda longleaf pine - Pinus palustris magnolia - Magnolia grandiflora maidencane - Panicum hemitomon needle palm - Rhapidophyllum hystrix

overcup oak - Quercus lyrata pickerel weed - Pontederia cordata or P. lanceolata pignut hickory - Carya glabra pop ash - Fraxinus caroliniana pond apple - Annona glabra pond pine - Pinus serotina pyramid magnolia - Magnolia pyramidata railroad vine - Ipomoea pes-caprae red cedar - Juniperus silicicola red maple - Acer rubrum red oak - Ouercus falcata rosemary - Ceratiola ericoides sagittaria - Sagittaria lancifolia sand pine - Pinus clausa saw palmetto - Serenoa repens sawgrass - Cladium jamaicensis scrub oaks - Quercus geminata, Q. chapmanii, Q. myrtifolia,Q. inopina sea oats - Uniola paniculata seagrape - Coccoloba uvifera shortleaf pine - Pinus echinata Shumard oak - Quercus shumardii slash pine - Pinus elliottii sphagnum moss - Sphagnum spp. spikerush - *Eleocharis* spp. spruce pine - Pinus glabra St. John's wort - Hypericum spp. swamp chestnut oak - Quercus prinus sweetgum - Liquidambar styraciflua titi - Cyrilla racemiflora, and Cliftonia monophylla tuliptree - Liriodendron tulipfera tupelo - Nyssa aquatica turkey oak - Quercus laevis water oak - Quercus nigra waterlily - Nymphaea odorata white cedar - Chamaecyparis thyoides white oak - Quercus alba willow - Salix caroliniana vucca - Yucca aloifolia

These procedures apply to state agencies, local governments, and non-profits that manage stateowned 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 in the following:

Chapter 253, F.S. – State Lands

Chapter 267, F.S. – Historical Resources

Chapter 872, F.S. – Offenses Concerning Dead Bodies and Graves

Other helpful citations and references:

Chapter 1A-32, F.A.C. – Archaeological Research

Other helpful citations and references:

Chapter 1A-44, F.A.C. – Procedures for Reporting and Determining Jurisdiction Over Unmarked Human Burials

Chapter 1A-46, F.A C. – Archaeological and Historical Report Standards and Guidelines

The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings

#### 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, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

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, the following information, at a minimum, must be submitted for comments and recommendations.

**Project Description** – A detailed description of the proposed project including all related activities. For land clearing or ground disturbing activities, the depth and extent of the disturbance, use of heavy equipment, location of lay down yard, etc. For historic structures, specific details regarding rehabilitation, demolition, etc.

**<u>Project Location</u>** – The exact location of the project indicated on a USGS Quadrangle map, is preferable. A management base map may be acceptable. Aerial photos indicating the exact project area as supplemental information are helpful.

**Photographs** – Photographs of the project area are always useful. Photographs of structures are required.

**Description of Project Area** – Note the acreage of the project, describe the present condition of project area, and any past land uses or disturbances.

**Description of Structures** – Describe the condition and setting of each building within project area if approximately fifty years of age or older.

**Recorded Archaeological Sites or Historic Structures** – Provide Florida Master Site File numbers for all recorded historic resources within or adjacent to the project area. This information should be in the current management plan; however, it can be obtained by contacting the Florida Master Site File at (850) 245-6440 or Suncom 205-6440.

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Susan M. Harp Historic Preservation Planner 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) 245-6333 Suncom: 205-6333 Fax: (850) 245-6438