

**TARKILN BAYOU PRESERVE  
STATE PARK**

**UNIT MANAGEMENT PLAN**

**APPROVED**

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

**OCTOBER 13, 2006**



# Department of Environmental Protection

Jeb Bush  
Governor

Marjorie Stoneman Douglas Building  
3900 Commonwealth Boulevard, MS 140  
Tallahassee, Florida 32399-3000

Colleen M. Castille  
Secretary

October 17, 2006

Ms. BryAnne White  
Office of Park Planning  
Division of Recreation and Parks  
3900 Commonwealth Blvd.; M.S. 525  
Tallahassee, Florida 32399

Re: Tarkiln Bayou Preserve State Park

Lease # 4192

Dear Ms. White:

On October 13, 2006, the Acquisition and Restoration Council recommended approval of the Tarkiln Bayou Preserve State Park management plan. Therefore, the Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, approved the management plan for the Tarkiln Bayou Preserve State Park. Pursuant to Sections 253.034 and 259.032, Florida Statutes, and Chapter 18-2, Florida Administrative Code this plan's ten-year update will be due on October 13, 2016.

Approval of this land management plan does not waive the authority or jurisdiction of any governmental entity that may have an interest in this project. Implementation of any upland activities proposed by this management plan may require a permit or other authorization from federal and state agencies having regulatory jurisdiction over those particular activities. Pursuant to the conditions of your lease, please forward copies of all permits to this office upon issuance.

Sincerely,

A handwritten signature in black ink that reads "Paula L. Allen". The signature is written in a cursive style with a large loop at the end.

Paula L. Allen  
Office of Environmental Services  
Division of State Lands  
Department of Environmental Protection

*"More Protection, Less Process"*

*Printed on recycled paper.*

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## **INTRODUCTION**

Tarkiln Bayou Preserve State Park is located in southeastern Escambia County (see Vicinity Map) and contains approximately 4,197 acres. Access to the park is from County Road 293 also known as Bauer Road (see Reference Map). The vicinity map also reflects significant land and water resources existing near the park.

At Tarkiln Bayou, 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 (see Addendum 1).

### **PURPOSE AND SCOPE OF THE PLAN**

This plan serves as the basic statement of policy and direction for the management of Tarkiln Bayou 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 June 17, 1999 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 selective timber removal operations for the intent of natural communities restoration, could be accommodated in a manner that would be compatible and not interfere with the primary purpose of resource-based outdoor recreation and conservation. This compatible secondary management purpose is addressed in the Resource Management Component of this 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 and should be discouraged.



**Legend**

- Interstates
- FDOT US Routes
- FDOT State Roads
- FDOT Local Roads
- Park Boundary

**Public Lands**

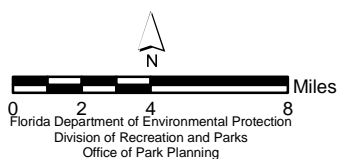
- Federal Managed Areas
- State Managed Areas
- Local Managed Areas
- Private Managed Areas
- Aquatic Preserves

**Private Lands**

- Developed
- Undeveloped

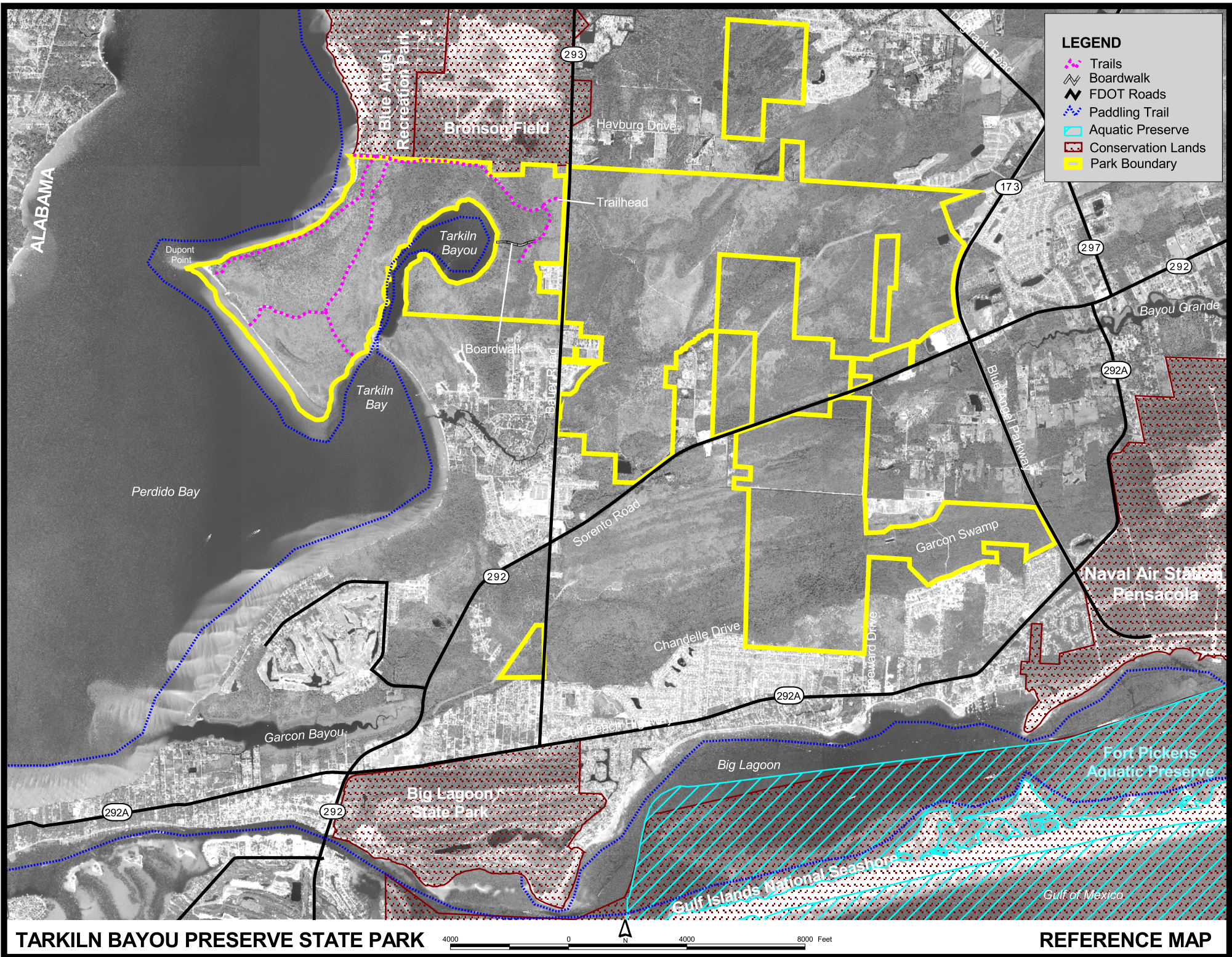
Sources: Florida Natural Areas Inventory, 2004  
Florida Land Use, Cover and Forms Classification System, 2001

**TARKILN BAYOU  
PRESERVE STATE PARK**



**VICINITY  
MAP**





TARKILN BAYOU PRESERVE STATE PARK



REFERENCE MAP



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 selective timber removal operations would be appropriate at this park as an additional source of revenue for land management since it is compatible with the park's primary purpose of resource-based outdoor recreation and conservation.

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

## **MANAGEMENT PROGRAM OVERVIEW**

### **Management Authority and Responsibility**

In accordance with Chapter 258, Florida Statutes and Chapter 62D-2, Florida Administrative Code, the Division of Recreation and Parks (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 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 Tarkiln Bayou 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 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 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. Design and implement restoration of highly altered communities or areas.
  - A. Continue negotiations with the U.S. Navy to obtain access onto the Tarkiln Peninsula from Bauer Road.
  - B. Develop management objectives for the area of planted pines located just east of Bauer Road. Retaining random polygons within the pines may promote diversity.
  - C. Remove off-site hardwoods from pinelands, wet prairie and ecotonal areas by mechanical means or selective herbicide, if fire alone proves inadequate.
  - D. Consider removal of off-site pines, in areas of the preserve that were historically more open and dominated by grasses and other low herbaceous plants.
  - E. Develop and refine specific resource restoration/management projects based on the needs and priorities identified in the Resource Management Component of this plan.
2. Protect, restore and maintain native plant diversity, and natural relative abundance.
  - A. Contact the appropriate department of the various State Universities in Florida to convey the need for an inventory of the park's flora.
  - B. GPS map the colonies of large-leaved jointweed and monitor as needed.
  - C. GPS map the colonies of white-top pitcherplants and red pitcherplants. Map larger colonies of parrot pitcherplants and purple pitcherplants as well. Monitor all mapped populations at least yearly.
  - D. Continue to request and encourage study of the effects of prescribed fire on pitcherplants. Establish permanent study plots to record the response of pitcherplants to the various removal methods for competing woody species, in addition to the effects on any other changes that result from resource management.
3. Protect, restore and maintain native animal diversity, and natural relative abundance.
  - A. Advise the staff of the Bureau of Entomology, Nematology and Plant Pathology (DACS) of the need to compile a list of macroinvertebrates for the park. Note that a research/collection permit is required.
  - B. Conduct gopher tortoise burrow surveys and GPS mapping in coordination with prescribed burning. Consult with FWCC with regard to a possible reintroduction.
4. Establish and maintain prescribed fire program.
  - A. Develop a detailed prescribed fire plan including land use history, fire history,

- program implementation challenges/concerns, fire use justification, implementation strategies, training/experience requirements; adjacent site fuels/fire management issues, risk/complexity analysis, burn zone prescriptions, smoke screening, recommended firing plans, appropriate fire return intervals, mop-up and contingency planning, and fire line construction/maintenance.
- B.** Request any necessary assistance with burn planning, fire line preparation, and holding from local Division of Forestry staff.
  - C.** Maintain accurate and complete rain gage data necessary for effective drought index monitoring and burn planning.
  - D.** Coordinate with local Division of Forestry, Forest Area Supervisor to request that a DOF weather and fuel moisture monitoring station be placed at the preserve.
5. Establish and maintain invasive exotic plant species removal program.
    - A.** Conduct yearly surveys to locate and GPS map invasive exotic plants.
    - B.** Coordinate with district biological staff to remove exotic plants via in-house or contractual services.
    - C.** Track exotic removal efforts at the park, using GIS technology, and District 1 exotic removal tracking forms.
  6. Protect, restore and maintain natural hydrological regimes.
    - A.** Coordinate with the USDA Natural Resources Conservation Service and the DEP northwest district office to develop a detailed plan for the restoration of major rutted road sections necessary for the passage of resource management vehicles/equipment.
    - B.** Coordinate with the USDA Natural Resources Conservation Service, the DEP northwest district office and the U.S. Navy (Bronson Field) in order to develop a conceptual plan for some acceptable level of restoration of the Bronson Field ditch. (level of restoration that does not impact developed areas that are dependent upon the ditch for storm water outflow)
    - C.** Continue to communicate the need for development of a Regional Offsite Mitigation Area (ROMA) for large-scale hydrological restoration projects, on the preserve, to the DEP northwest district office.
    - D.** Coordinate with the DEP northwest district office to permit the construction of low water stream crossings and other appropriate, low impact wetland crossings necessary for effective resource management of the property.
    - E.** Contact the DEP northwest district office to request installation of a series of wells to monitor ground water levels.
    - F.** Investigate feasibility and benefit of backfilling the drainage ditch at the north end of burn zone J with any remaining, unconsolidated side cast soil.
    - G.** Seek DEP assistance in acquiring existing water quality data, or if needed, conducting base-line water quality analysis of Tarkiln Bayou and the un-named creek that flows beneath Bauer Road.
  7. Protect, park boundaries to improve resource management and avoid encroachment.
    - A.** Request funding for additional boundary fencing, where necessary to protect the preserve's resources. Park boundaries adjacent to the Leeward residential area are a priority due to significant encroachment issues.
    - B.** Continue to improve access into areas of the preserve in order to perform resource management activities, routine patrolling, and provide low impact visitor access.
    - C.** Pursue acquisition of the parcel needed to protect the inlet of Tarkiln Bayou fully within the park boundary.
    - D.** Ensure that park access is posted and maintained at the end of the cul-de-sac at the terminus of Leeward Lane. This is the park's only access into the Garcon Swamp parcel from the south.



- E. Park, District and Division staff should develop access agreements, wherever necessary, with adjacent landowners to ensure that park staff will have required access points into remote and isolated tracts of the preserve for land management purposes. Access issues at the end of Leeward Drive and along the northern park boundary (east of Bauer Road) should be a priority.
- 8. Develop and maintain an adequate interpretive and educational program.
  - A. Discuss the need for a Statement of Interpretation with BOS staff.
- 9. Protect and manage the park's cultural resources.
  - A. Coordinate with the Bureau of Natural & Cultural Resources to request funding for a phase I archaeological survey of the entire preserve.
  - B. Encourage local research projects that investigate the historical land uses associated with the preserve.
  - C. Conduct further investigations for all known sites, with particular emphasis on reported human grave locations. If identified, mark permanently to protect the site as necessary.
- 10. Request funding for Resource Management infrastructure and equipment.
  - A. Request FCO project funding for a shop facility and accompanying permanent ranger residences necessary to begin developing vital land management infrastructure.
  - B. Request funding to meet resource management project needs, including cost of outsourcing, and in-kind equipment needs such as tractors, lowboy trailer and appropriate tow vehicle, roller choppers, ATVs, and additional fire suppression equipment tailored for the environmental conditions of the preserve.

### **Recreational Goals**

- 1. Continue to provide quality resource based outdoor recreational and interpretive programs and facilities at the state park.
  - A. Design park facilities to facilitate and appropriately manage visitor use of the park.
  - B. Continue to provide opportunities for hiking, picnicking and nature appreciation.
- 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.
  - A. Pursue development of a new entrance station and park road that will allow visitors to access the Tarkiln peninsula from Bauer Road.
  - B. Develop a beach use area for picnicking and swimming. Construct an open-air interpretive facility for this area.
  - C. Provide boater access facilities for visitors arriving by water.
  - D. Develop a trail system using the existing jeep trails. This should include trailheads, interpretive stations and observation platforms.
  - E. Provide a primitive camping area.
  - F. Provide a group camp.

### **Park Administration/Operations**

- 1. Continue to provide quality administrative and operational services.
  - A. Provide necessary administrative and field support in order to ensure a high quality visitor experience.
  - B. Continue to ensure that essential maintenance measures are implemented in order to provide attractive, clean and serviceable facilities for park visitors.
  - C. Provide staff with appropriate training opportunities in visitor services, resource management, park operations, general maintenance and interpretation.
  - D. Maintain park signage, equipment and support facilities in good condition.

### **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 May 22, 2006. The purpose of this meeting was to present this draft management plan to the public. An Advisory Group meeting was held on May 23, 2006. The purpose of this meeting was to provide the Advisory Group members the opportunity to discuss this draft management plan.

### **Other Designations**

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

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**

Tarkiln peninsula is nearly flat. Relief is 5 to 25 feet in the central portion of the peninsula and along Bauer road, and slopes gradually toward the bay and Tarkiln Bayou. The large portions of the preserve located east of Bauer Road are very low flatwoods and wet prairies with very subtle topographic relief. Very subtle downslope drainage occurs along the various titi dominated seepage streams.

##### **Geology**

Tarkiln Bayou Preserve State Park lies in the Coastal Plain Province, a major physiographic division of the United States. The Coastal Lowlands consist of a series of broad, nearly level, marine terraces that extend several miles in from the coast in the southwestern part of the county and merge with the narrow terraces along the Perdido and Escambia rivers.

##### **Soils**

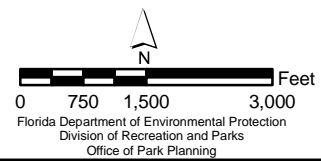
The park consists of a variety of sandy, poorly drained soils (see Addendum 3). These include: Klej sand, Lakeland sand, Leon sand, Plummer sand, Plummer find sand, (Portsmouth, Grady and Bayboro soils), Rutledge sand and Tidal marsh (see Soils Map).



LEGEND

- 4 - Pickney sand
- 5 - Croatan and Pickney soils, depressional
- 6 - Dirego muck, tidal
- 9 - Leon sand
- 11 - Hurricane sand, 0 to 5 percent slopes
- 12 - Croatan muck, depressional
- 13 - Lakeland sand, 0 to 5 percent slopes
- 14 - Allanton-Pottsburg complex
- 18 - Pits
- 19 - Foxworth sand, 0 to 5 percent slopes
- 49 - Doravan muck and Fluvaquents, frequently flooded
- Water

TARKILN BAYOU  
PRESERVE STATE PARK



SOILS  
MAP

Natural community restoration techniques such as prescribed fire will help provide for the conservation of soil resources. Cessation of recreational four-wheel drive use will help prevent soil erosion in sensitive areas. Estuarine tidal marsh provides a natural barrier against erosive wave action. Protection of estuarine tidal marsh from development will help prevent shoreline erosion.

### **Minerals**

No commercially valuable minerals are known to occur on the Tarkiln property.

### **Hydrology**

There are only four appreciable tracts of high, well drained land within the roughly 4,000 acre preserve. Two of these areas are best described as sand hill communities based on plant associations and relatively drier habitat conditions (see natural community map). The third area is the high maritime hammock community located along the western edge of the Tarkiln Peninsula. The fourth area is located at the southern end of the Garcon Swamp Tract, and is accessed via Leeward Lane off Gulf Beach Highway. The remaining majority of the property, particularly more recent acquisitions east of Bauer Road, is poorly drained wet flatwoods, mesic flatwoods, wet prairies, or baygall communities where standing water is present for much of the year. Up to two feet of water can stand in the areas delineated as wet prairie and wet flatwoods. These areas will nearly always hold some level of standing water following significant rainfall, making them a haven for pitcherplants.

Most soil types at the preserve stay saturated during all but the driest of times, creating a vast mosaic of wetland and semi-wetland environments. For the majority of the park, surface and near surface flow is directed into small streamlets that tend to drain to the southwest. Much of the property east of Bauer Road is drained by three seepage streams. These streams collect surface and near surface water in sections 9 and 10 of Township 3S, Range 31W, and can carry a great deal of water during rainy periods. Two of the streams converge in the northeast quarter of section 11. This merged stream converges with the other stream in the northwest quarter of section 11. The resulting unified stream has a well defined channel that continues to the southwest and underneath Bauer Road, before changing course to the northwest and draining into Perdido Bay.

Wetlands in the far eastern portion of the park feed two small seepage streams that flow southeast into a single stream that flows into the western end of Bayou Grande.

Surface and near surface drainage west of Bauer Road tends to form small, irregular streamlets that generally flow southwest into Tarkiln Bayou. There is a drainage ditch that runs along the northern park boundary west of Bauer, that impacts hydrology. This ditch is located on the Bronson Field, U.S. Naval Installation, and runs from the beaver pond west into the bay. Additionally, decades of recreational, off-road vehicle use, prior to state acquisition, has left major rutting along traditional jeep trails. Some of these holes are 50-100 feet long and hold up to 3 – 4 feet of water. Some of the larger holes hold water year round. Many of the damaged jeep trails are essential for resource management activities such as prescribed burning. Park and District staff should continue to work with the DEP northwest regulatory office and other appropriate agencies to develop a plan that identifies appropriate measures to begin restoration of these roads

A second ditch is located along the preserve's northern boundary, east of Bauer Road. This ditch was installed in the early 1980s to help drain the property to the immediate north for silviculture. Water flow within this 2,030 ft. ditch is directed to the east where it eventually drains, via

artificial channelization into wet prairie at the head waters of a seepage stream. The portion of the preserve immediately south of the ditch is a vast area of wet prairie that is rapidly succeeding towards wet flatwoods. Based on 50 year old aerial photos, this area of the preserve was wet grassland with virtually no pines. The high level of recent pine recruitment in this area appears to be a result of both lack of frequent fire and alteration of hydrology due to the ditch.

A third area of ditching occurs on the Garcon Swamp tract of the preserve which is located south of Sorrento Road (County Road 292). Again, ditching appears to have been connected with silviculture, and appear to have occurred within the past 25 years. A 4,440 ft. east/west running ditch cuts through the entire width of this tract of the preserve. This ditch flows into a north/south running ditch situated along the tract's eastern boundary. From this intersection, the north/south running ditch continues for 2,550 ft. along the eastern property line. Water flow in the east/west ditch is directed east into the north/south ditch. Water flow in the north/south ditch is directed north into a seepage stream that eventually drains into the far western end of Bayou Grande. A few smaller ditches flow into the north/south ditch, and were intended to expedite drainage of the flatwoods.

A fourth ditch is located along a portion of the northern boundary of timber stand 1 (see timber map). This ditch is approximately 800 ft. in length and was installed to expedite drainage of the plantation pine site. This ditch rarely holds water, aside from periods of heavy rain. The ditch ties into a major seepage stream to the east, and it is assumed that water flow, when present, is directed into this natural drainage.

A fifth ditch is located just north of Sorrento Road, east of the large ruderal pond. This ditch runs 660 ft. along the southern edge of the power line easement. The area of the park located southeast of the ditch is a small, triangular sliver of mesic flatwoods.

A sixth ditch was installed in recent years along the park's northern boundary to drain poorly placed residential development near Blue Angel Parkway. The ditch is approximately 10 feet wide and holds water year round. The adjacent park land is wet flatwoods that have a pronounced hydroperiod following periods of significant rainfall.

There appears to be a seventh ditch running along the southern boundary of the southwestern most parcel, just west of Bauer Road and east of the power line right-of-way.

Decades of recreational off-road vehicle use, prior to state acquisition, created major rutting along traditional jeep trails. Some of these holes are 50-100 feet long and hold up to 3 – 4 feet of water. Some of the larger holes hold water year round. Many of the damaged jeep trails are essential for resource management activities such as prescribed burning. Park and District staff should continue to work with the DEP northwest regulatory office and other appropriate agencies to develop a plan that identifies appropriate measures to begin restoration of these roads.

Three ruderal ponds occur on the preserve, and are associated with past road construction. The largest pond is located in the southern portion of the preserve, just north of Sorrento Road. A second, slightly smaller, pond is located in the far eastern portion of the preserve near Blue Angel Parkway. A third, much smaller pond is located just east of Bauer Road. These square shaped ponds now provides habitat to a variety of animals, chiefly frogs and fish.

The most notable water body at the preserve is Tarkiln Bayou. This is a shallow sand and mud bottom, estuarine area rimmed by juncus marsh and flatwoods. Water depth generally ranges

from 3 to 6 feet, with water levels at the narrow neck and mouth of the bayou shallow enough to walk across during low tide. The bayou receives freshwater via sheet flow and small, irregular streamlets through the adjacent baygall and flatwoods natural communities. Obvious inhabitants of the bayou are mullet, red fish, speckled sea trout, blue crab, oysters, and a variety of wading birds and migratory waterfowl.

Consideration should be given to initiating a Regional Offsite Mitigation Area (ROMA) through the DEP district office. A ROMA consists of an environmental creation, enhancement, and/or preservation that can provide a net environmental benefit. The ROMA must be approved by the FDEP and the memorandum of agreement (MOA) must meet the criteria of section 373.4135, Florida Statutes. A ROMA could provide mitigation banking for restoration needs within this unit.

The Floridan aquifer underlies Escambia County, and is the source of municipal water for the area.

### **Natural Communities**

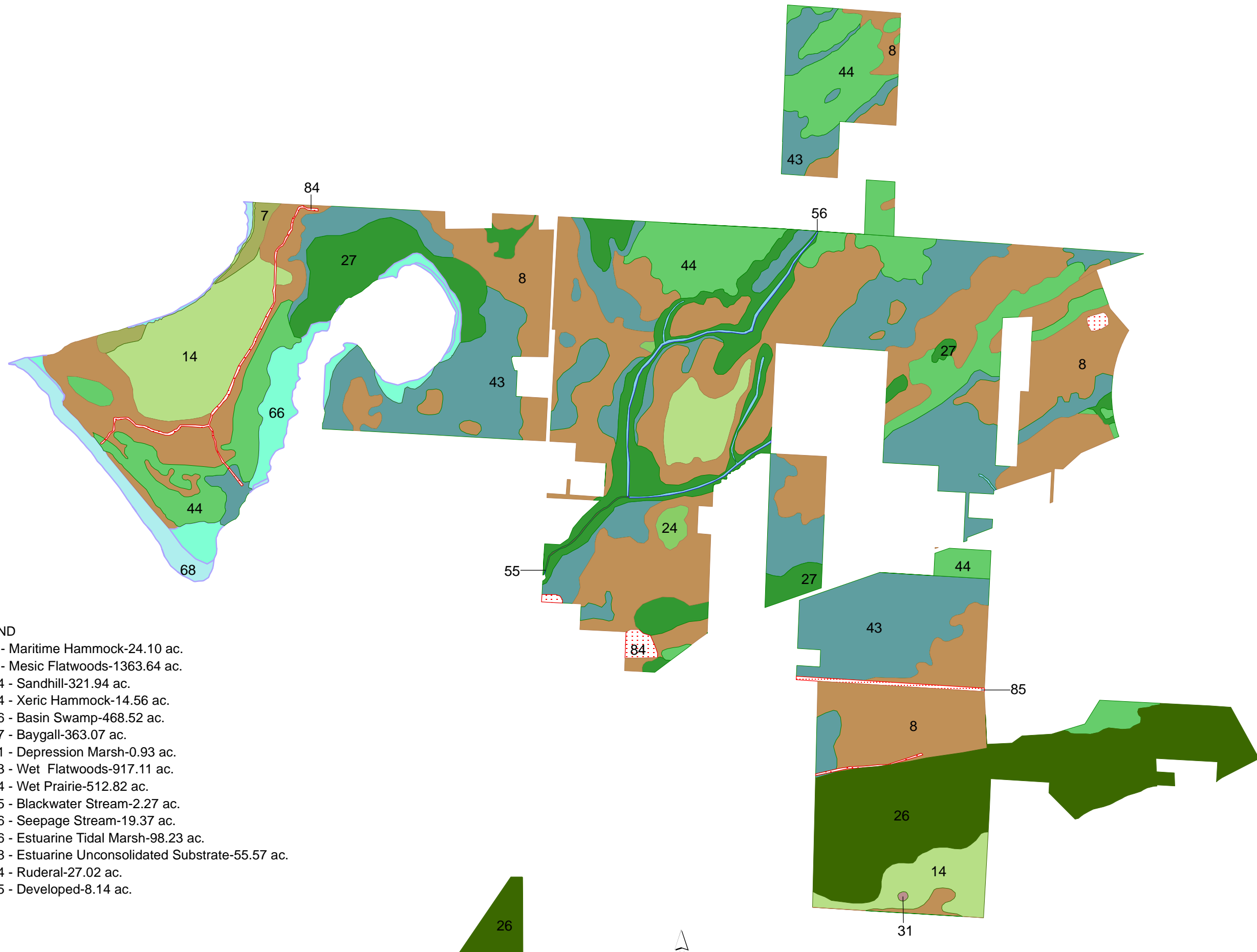
The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI). The premise of this system is that physical factors, such as climate, geology, soil, hydrology and fire frequency generally determine the species composition of an area, and 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 12 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.

**Maritime hammock.** A linear stretch of mixed hardwoods and pines near the southwestern tip of Tarkiln Peninsula (DuPont Point) is described as maritime hammock. A partially closed canopy comprised mostly of live oak, laurel oak, sand hickory, red bay and southern magnolia has developed here and provides a shaded habitat in contrast of the more open pine uplands of the interior peninsula. The understory here is relatively open. A few shade tolerant species such as beauty berry, blue curls, and coral bean grow in the filtered light beneath the canopy.

Additionally, the slightly elevated area just south of the Bronson Field recreation area has been delineated as maritime hammock. This is a picturesque area where sand live oak and longleaf pines intergrade. In places, the oaks have formed a nearly closed canopy covering a number of acres, and provide a shady habitat with ample mast for squirrels, deer and other foragers. Additionally, this area provides good resting habitat for neo-tropical migratory birds. The shady conditions, accumulation of oak leaves, and relatively low soil nutrient tends to limit dense groundcover. The scattered understory plants include saw palmetto, gopher apple, woody goldenrod and conradina. Large-leaved jointweed, a state listed species, occurs sparingly along the subtle dune line at the hammock's edge.

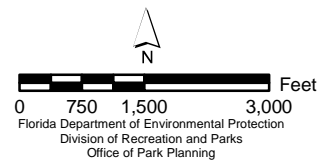
**Mesic flatwoods.** Vast areas of the park are covered by longleaf pine forests that are best described as mesic flatwoods. This natural community varies considerably from site to site. In



**LEGEND**

- 7 - Maritime Hammock-24.10 ac.
- 8 - Mesic Flatwoods-1363.64 ac.
- 14 - Sandhill-321.94 ac.
- 24 - Xeric Hammock-14.56 ac.
- 26 - Basin Swamp-468.52 ac.
- 27 - Baygall-363.07 ac.
- 31 - Depression Marsh-0.93 ac.
- 43 - Wet Flatwoods-917.11 ac.
- 44 - Wet Prairie-512.82 ac.
- 55 - Blackwater Stream-2.27 ac.
- 56 - Seepage Stream-19.37 ac.
- 66 - Estuarine Tidal Marsh-98.23 ac.
- 68 - Estuarine Unconsolidated Substrate-55.57 ac.
- 84 - Ruderal-27.02 ac.
- 85 - Developed-8.14 ac.

TARKILN BAYOU  
PRESERVE STATE PARK



NATURAL COMMUNITIES  
MAP



general, the park's mesic flatwoods are the longleaf/palmetto/gallberry variety, and occur on poorly drained soils that hold standing water, during rainy periods. Slash pines also occur throughout areas mapped as mesic flatwoods.

Mesic flatwoods communities, west of Bauer Road (County Road 293), are beginning to develop a multi-aged overstory, in some cases comprised of both longleaf and on-site slash pines. In some areas, one species may be more prevalent. Pine density is higher here, although it appears healthy for a natural stand located on a mesic site (~100 – 150 stems/acre). Natural regeneration is apparent throughout this area, and may favor either species of pine depending on the specific site.

Dominant understory vegetation can vary. Some areas are dominated by saw palmetto and gallberry, while other areas have a lower, more open understory. Other plants typically found include vaccinium, wiregrass, grass pink orchid, sweet pepperbush, red bay, bracken fern, dwarf huckleberry, dangleberry, large sweet gallberry, wax myrtle, deer tongue, blazing star, lyonia, yaupon holly, grape vine, milkworts, live oak, meadow beauty, hairy wicky, and winged sumac. Understory fine fuels, such as needle cast, accumulate fast as do live fuel loads comprised chiefly of palmetto and gallberry. A fire return interval of 2-3 years is recommended for these areas. However, due to current fuel loading, mesic flatwoods near Bauer Road will likely benefit from 2 to 3 years of successive burns in order to effectively reduce fuel loads and better re-establish understory species proportions.

**Sandhill.** Longleaf pine/turkey oak/post oak/bluejack oak dominated areas also occur at Tarkiln Bayou. These areas occur on slightly elevated and deeper sandy soils with improved drainage. Although these areas lack the picturesque rolling hills of classic sandhill communities, the scattered overstory of longleaf pine, prevalence of turkey oak, slightly xeric conditions, and in some cases the occurrence of old gopher tortoise burrows, are enough to describe them as sandhill.

One large area of sandhill occurs in the interior of Tarkiln Peninsula. Some of the park's oldest longleaf pines occur here. This sandhill community is in relatively good condition. There is ample longleaf pine regeneration, particularly following the 1999 prescribed fire. Additionally, maritime influence may help reduce the encroachment of gallberry, titi, and wax myrtle along ecotonal areas as seen in flatwoods portions of the park. Wiregrass is the dominant groundcover species here, and can be contiguous in places. Other plant species include green eyes, rock rose, prickly pear cactus, sandhill milkweed, variegated milkweed, Eupatorium, sparkleberry, gopher apple, and goldenrod.

Another large area of sandhill occurs east of Bauer Road in portions of burn zones O, N and L. This area appears to have been selectively timbered in recent decades. A number of large longleaf stumps are found throughout. There is a scattering of mature overstory pines. There is ample longleaf pine regeneration occurring throughout this sandhill community. The oldest generation of regrowth appears to have occurred shortly after harvest. This has been followed by regrowth from several seed years, resulting in multi-aged regeneration. This area is probably the best example of sandhill on the park. Elevations are typically higher here, and soils consist of deeper, well drained sands. Vegetation found here includes scattered wiregrass, green eyes, turkey oak, bluejack oak, sand live oak, post oak, gopher apple, croton, bracken fern and broomsedge. This eastern tract of sandhill grades into flatwoods along a streamside baygall community.

**Xeric hammock.** Two relatively small areas east of Bauer Road are best described as xeric hammock. The first of these areas consists of a closed canopy of sand live oak, post oak and laurel oak surrounding an abandoned dip vat along a service road. This oak hammock is only a few acres in size, and has an understory dominated by saw palmetto, bracken fern, and smilax. It is likely that vegetation growth patterns in this area was influenced by past land use associated with the dip vat. Nevertheless, some of the post oaks and sand live oaks appear to be old trees indicating that this stand of hardwoods is well established.

A second area of xeric hammock is located south of the unnamed blackwater stream. This natural community map section encompasses an area where islands of very large live oaks occur. The vegetation found between these live oak islands is indicative of a ruderal area. These large live oaks show up very clearly on the 1950s soil survey aerial. Very little herbaceous vegetation occurs beneath these larger oaks.

**Basin swamp.** The large portions of Garcon Swamp that occur within the park boundaries are delineated as basin swamp. Garcon Swamp encompasses approximately 1,500 acres of freshwater swamp soil type, situated in a wide band of low-lying poorly drained land. This area was most likely a former shallow lagoon or large swale in a past geologic era characterized by higher sea level. Garcon Swamp still retains a well defined drainage connection into Bayou Garcon and The Perdido Bay to the west. The oldest available maps and land surveys have always delineated this area as a swamp. Large portions of Garcon Swamp can have standing water year round, ranging from six inches to three feet in depth. Vegetation along the periphery is dominated by titi trees. The overgrowth of various age titi and other wetland shrubs make access further into the swamp very difficult. However, once past the tangled overgrowth, interior portions of the swamp are characterized by either much larger canopy forming titi and bay, or nearly inaccessible islands of black gum and cypress. As with the large canopy forming titi dominated areas just east of Tarkiln Bayou, drainage beneath the titi canopy often takes the form of small irregular streamlets.

**Baygall.** A large area on the northern sides of the bayou is mapped as baygall. It is dominated by dense stands of titi. Slash pine, bald cypress, sweetbay, redbay and gallberry also occur here. More interior portions of this large baygall are a dense even aged canopy of old titi trees. These areas characterized by very large titi appear to have been heavily shaded for many decades. The size and corresponding age of the titi trees tends to diminish as one moves out away from the “old growth” center. It is in these peripheral areas where relict groundcover such as wiregrass, pitcherplants, sundews, club moss and milkworts, may be indicators of a once more open, savanna-like habitat. Again, fire exclusion has blurred the distinctions between natural communities in this area. According to Dr. Hilsenbeck and Jon Blanchard (pers. communication), the baygall community at this unit may have originally been shrub bog, wet prairie, wet flatwoods, or perhaps a mosaic of all three.

Other baygall communities occur throughout the park. Many of the titi dominated stream margins are mapped as this community type. These streamside baygalls should abruptly grade into wet prairie or flatwoods communities.

The objectives of prescribed fire in regards to this and other areas mapped as baygall should focus on re-establishing well delineated ecotonal boundaries. While this and other baygall communities may be included within burn zones, firing plans should focus on the pineland portions of those zones. In general, firing plans for adjacent flatwoods communities should allow fires to burn into the periphery of baygall communities. With adherence to a 2-3 year prescribed

fire regime, habitat conditions and corresponding plant diversity, along baygall/flatwoods ecotonal boundaries should improve considerably.

**Wet flatwoods.** This community type occurs throughout the park, and is very similar to wet prairie. Longleaf pine dominated wet flatwoods at Tarkiln Bayou tend to occur in conjunction with mesic flatwoods, wet prairie and baygall. These wet pinelands occur on poorly drained soils and have an extended hydro period. In some cases the wet flatwoods are dominated by thick beds of wiregrass and have relatively open vistas across a low herbaceous understory, with a widely scattered overstory of longleaf pine. In other cases, lack of frequent fire has left large areas of wet flatwoods heavily overgrown with titi, bay trees, wax myrtle, lyonia, gallberry, sweet pepperbush and other wetland, hardwood trees and shrubs.

Some of the wet flatwoods areas are large tracts, while others are small pockets within mesic flatwoods or linear communities along the edges of titi dominated baygall. Many of these smaller ecotonal communities are included in with the mesic flatwoods map unit. Wet flatwoods along baygall communities can quickly become overgrown with titi. These herbaceous plant dominated wetlands rely on frequent fires every 2-3 years in order to remain open. The wet flatwoods at the preserve are generally characterized by the presence of at least a few of the following plants: dense wiregrass, clubmoss, redroot, sundews, bog buttons, American snowbell, white-top pitcherplant, parrot pitcherplant, gold cress, yellow-eyed grass, tall meadow beauty, yellow meadow beauty, milkworts and St. John's wort. These understory plants are less frequent in wet flatwoods areas that have been overgrown by woody species.

Wet flatwoods, together with wet prairie form large, contiguous areas east of Bauer Road. These areas must be burned frequently, yet present serious access problems due to standing water and/or heavily saturated soils. It is common for standing water to inhibit fire suppression vehicle access when drought conditions are feasible for prescribed burning. Additionally, resource management roads/fire lines through thick grassy fuels must be disked to mineral soil in order to effectively contain prescribed fires. Remaining sensitive to the resource regarding the timing and execution of fire line prep for these wetland burn zones is a formidable challenge.

**Wet prairie.** Aerials taken in the 1950s clearly show vast areas, particularly east of Bauer Road, as open grasslands either completely void of overstory pines, or very low overstory density. Many of these wet prairies are now preserved on park land. However, lack of frequent fire, and in some cases alteration of natural hydrology, has resulted in some degree of habitat degradation. Overstory pine density has increased significantly, and linear baygall, streamside communities have expanded into former open prairie. Suppressed wiregrass sprigs and pitcher plants struggle for sunlight underneath more recent titi shrubs. The objectives of prescribed burning in these areas should focus on thinning out recent pine recruitment and top kill of young titi shrubs that have invaded former prairie. Re-establishing former ecotonal boundaries between wet prairie and streamside baygall will be accomplished gradually over many successive burns.

Wet prairie at Tarkiln Bayou is very similar to areas described as wet flatwoods except that prairie is characterized by the low number or complete lack of overstory pines. As already stated, burning is needed in most of these areas to restore this characteristic. In general, understory plants include at least a few of the following: dense wiregrass, red root, white-top pitcher plant, purple pitcher plant, parrot pitcher plant, red pitcher plant, butterworts, yellow eyed grass, bog buttons, hat pins, sundews, clubmoss, meadow beauty, savanna aster, rush featherling (*Pleea sp.*), grass pink orchids, platanthera orchids, milkworts, fen flowered milkweed, toothache grass, yellow colic root and yellow star grass.

Extensive areas along the eastern and southern portions of the Tarkiln Peninsula are wet prairies that have become overgrown in recent decades. These areas historically had dense wiregrass understories with pitcherplants. The Escambia County soil survey specifies these areas as Plummer sand where native vegetation consists only of a ground cover of water-tolerant herbs and grasses. This is consistent with much of the area delineated as wet prairie west of Bauer Road, although habitat conditions have degraded.

**Blackwater stream.** The characteristics of the stream, beginning downstream of the seepage stream convergence (described under Hydrology) are more indicative of a blackwater stream. This is a permanent stream with a well-defined streambed. The flowing water is very dark with tannic acid, and very nearly fully canopied by titi, blackgum and bay. This stream is navigable by canoe from Bauer Road to Tarkiln Bay.

**Seepage stream.** The vast, low, wet areas of the preserve are ultimately drained by various seepage streams. Most of these streams are small and have somewhat poorly defined streambeds. Many of these smaller streams are commonly referred to as a titi or wetland branch. Most of the smaller streams are ephemeral. A few of the seepage streams east of Bauer Road are fairly well defined, and can have flowing water year round. Much of the property east of Bauer Road is drained by the three larger seepage streams mentioned in the section entitled Hydrology.

In general, surface and near surface water flow is eventually directed into the preserve's seepage streams. The water in these streams is generally clear, except following heavy rain events. With few exceptions, the streams are heavily shaded by a surrounding thicket of streamside baygall. Dominant trees in these streamside forests are titi, sweet bay, slash pine, pond cypress, and black gum. Some streamside areas are low and swampy with a lush carpet of sphagnum moss. Animals found within these stream habitats include mosquito fish, killifish, gopher frog, cricket frog, pig frog and cottonmouth. Additional streamside biota surveys would be helpful in determining future management decisions.

Ecotones between streamside hardwood communities and more open flatwoods communities have degraded due to lack of frequent fire. Surveys have identified many streamside areas where pitcherplants and wiregrass are now overgrown with titi. Burn prescriptions for these zones should focus on reducing shrubby hardwoods in these areas.

**Estuarine tidal marsh** Large areas of black needle rush line the shoreline of Tarkiln Bayou and the southwest tip of Tarkiln Peninsula. These areas are influenced by the regular ebb and flow of tidal waters, and provide a nutrient rich environment for a great many marine animals. Estuarine systems such as this are considered to be the nurseries of the sea. Marine fish hatch out as fry and spend the early stages of life in tidal marsh areas where food and protection from open water predators is readily provided. The solitary tunicate, a tiny filter feeder, occurs in these waters, often obscured by sand and silt. Marine worms form u-shaped burrows in the muddy bottom and feed on nutrient rich sediments. Their sandy/silt-like deposits can be seen in the clear shallows at low tide. Other animals inhabiting the marsh include segmented worms, marsh snails, top snails, olive snails, hermit crabs, saltmarsh mud crabs, fiddler crabs, saltmarsh beachhoppers and barnacles.

Salt marsh plants, such as black needle rush, help anchor the soft silty bottom sediments, therefore serving to protect against shoreline erosion. Additionally, these marsh areas offer some of the most spectacular open vistas in northwest Florida.

**Estuarine unconsolidated substrate.** The narrow sandy beaches along the western and southern shorelines on Tarkiln Peninsula are examples of marine unconsolidated substrate. This narrow beach provides habitat for burrowing crustaceans and worms, as well as resting and foraging habitat for a variety of shorebirds and wading birds.

**Ruderal.** Three borrow pits associated with past road construction considered ruderal ponds. One small pond is located very near Bauer Road. The other two ponds are much larger and are located along Sorrento Road and Blue Angel Parkway. These water bodies, although ruderal in origin, have taken on more natural appearances and now provide habitat for aquatic plants and animals. The two larger ponds, in particular, support bluegill, red ear sunfish, mosquito fish, and a number of frog species just to name a few.

**Developed.** The small starter kit just west of Bauer Road offers basic amenities for daily visitors. This is currently the only development on the preserve.

### **Designated Species**

Designated species are those which 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 6 contains a list of the designated species and their designated status for this park. Management measures will be addressed later in this plan.

Listed plants found within the preserve include large-leaved jointweed, white-topped pitcher plant and red pitcher plant. Designated animal species include several birds of prey, neotropical migrants, and waterfowl. This list will be amended, as efforts to complete a more accurate and complete inventory of biota progress.

### **Special Natural Features**

The shallow estuarine water body of Tarkiln Bayou, surrounded entirely by undeveloped shoreline, is a special natural feature. The bayou provides excellent habitat to highly visible wildlife such as wading birds and ducks. Additionally, this area provides high quality, natural vistas for park visitors to enjoy.

The maritime hammock community, located along the slightly elevated western shoreline of Tarkiln Peninsula, is a picturesque natural area that provides excellent resting habitat for neotropical migratory birds. The majority of the hammock consists of old sand live oaks with a relatively open understory that offers scenic vistas of the Perdido Bay. The twisting and intertwining branches laced with Spanish moss form a shady canopy that adds to the site's appeal.

The preserve harbors large tracts of wet prairie and wet flatwoods. These seasonally wet grasslands are pitcherplant prairies and are examples of expansive pitcherplant habitats that are fast becoming rare.

## **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 describe 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.

According to the Florida Master Site File (FMSF), the present boundaries of Tarkiln Bayou Preserve State Park encompass seven known cultural resources, including six recorded sites and one known but unrecorded site. One additional site has been reported by local informants but not located by park staff or archaeologists. After a 2000 survey, CARL archaeologists reported that the known sites probably represent only a portion of the sites located in the park and that there was a high probability of encountering additional sites.

Tarkiln Bayou Preserve State Park contains three sites with prehistoric components; two of these sites also contain historical components. One of the three sites contains artifacts associated with the early Middle to Late Archaic culture period, marked in northwest Florida by shared cultural adaptations that included increasingly complex tool kits, more sedentary habitation sites, wider range of food sources, and the introduction of fiber tempered pottery. All three sites contain artifacts associated with the Weeden Island culture period, marked in northern Florida by a distinctive ceramic complex, burial ceremonialism with ornate grave ceramics, and more varied site types in more varied locations.

**Black Jack Hammock Site (not recorded).** Shell (oyster) midden and artifact scatter, late Weeden Island cultural period. This site is approximately 1000 square meters, bisected by a dirt road, and located on a terrace to the south of Tarkiln Bayou, its boundaries unknown. The site is composed of two shallow, in situ shell deposits with associated artifacts. The prehistoric site has been interpreted as a small habitation site or resource exploitation camp, or associated with a nearby Weeden Island village site to the northeast. In 1997 PAL excavated 14 shovel tests (one positive) that failed to establish site boundaries or reveal internal variations, and 3 test units (all positive). PAL concluded that despite small in situ shell midden deposits and a few diagnostic artifacts, the site lacked features and dense artifact concentrations, and thus held little research potential although PAL stated that the site provided substantial historical information. Site condition was most recently assessed during a 2003 site visit by Bureau of Natural and Cultural Resources staff, at which time it was in fair condition. The site has been adversely impacted.

Tarkiln Bayou Preserve State Park contains six sites with historical components. All six sites contain historical material that dates from the late 19<sup>th</sup> to the early 20<sup>th</sup> century. Many of the sites have been interpreted as associated with the logging or naval stores industry; official records from the first half of the 20<sup>th</sup> century document timbering, naval stores and turpentine activities. The CARL survey report stated that all of these historic sites might be related to each other. These industries figure significantly into the African-American history of the area. In addition to the six recorded sites, rectangular metal turpentine cups and cat face trees are commonly observed within park boundaries.

**Elizabeth (8ES2835):** Artifact scatter, early 20<sup>th</sup> century American period. The site is located along a dirt road that runs parallel to Perdido Bay, its boundaries are unknown. CARL archaeologists located and recorded the site in 2000, excavated one shovel test (negative for artifacts), and collected artifacts from the surface. They concluded that further testing was needed to determine site boundaries and assess site significance, and recommended such testing in advance of any ground disturbing activity in the site. At that time, the site was in fair to poor

condition and few traces of the site remained.

**Franklin (8ES2961):** Artifact scatter, late 19<sup>th</sup> to early 20<sup>th</sup> century American period. The site is located near the property line shared with the naval base to the north, its boundaries are unknown. CARL archaeologists located and recorded the site in 2000 based on observable surface artifacts. They concluded that further testing was needed to determine site boundaries and assess site significance, and recommended such testing in advance of any ground disturbing activity in the site. At that time, the site was in poor condition and with few visible remains.

**DuPont Cove Site (8ES2962):** Artifact scatter and structural remains, early 19<sup>th</sup> to early 20<sup>th</sup> century American period. The site is approximately 2000 square meters, located adjacent to Perdido Bay, its boundaries are unknown. The site is composed of a handmade brick and mortar foundation and a low density scatter of artifacts and architectural elements. The historic site has been interpreted as associated with the naval stores industry, although no historical documentation of the site has been found. In 1997 PAL located the site, excavated 11 shovel tests (one positive), and collected artifacts from the surface. They concluded that the highly disturbed site was unlikely to contain features, in situ deposits, dense artifact concentrations or diagnostic artifacts, and thus held little research potential. CARL archaeologists revisited the site and recorded it with the Florida Master Site File in 2000. They concluded that further testing was needed to determine site boundaries and assess site significance, and recommended such testing in advance of any ground disturbing activity in the site. At that time, the site was in poor condition. Past disturbances have included road construction, logging, pedestrian traffic and modern dumping.

**Tarkiln Bayou Wharf (8ES2963):** Wooden wharf or dock, late 19<sup>th</sup> to early 20<sup>th</sup> century American period. The site is located on the east side of Tarkiln Bayou. The site is composed of a partially submerged, overgrown, partially rotted wooden structure that has been interpreted as associated with the naval stores industry; many “cat face” pine trees have been observed in the vicinity. CARL archaeologists located and recorded the site in 2000. They concluded that further testing was needed to determine site boundaries and assess site significance, and recommended such testing in advance of any ground disturbing activity in the site. At that time, the structure was in poor condition.

**Historic Cemetery (unsubstantiated).** According to local informants, a historic cemetery with wooden markers is located adjacent to the western property line. The CARL pedestrian and metal detector survey in 2000 and searches by park personnel have not located the site.

**DuPont Point (8LE1048):** Shell (Rangia, oyster, quahog) midden and artifact scatter, Weeden Island culture period *and* artifact scatter, late 19<sup>th</sup> to early 20<sup>th</sup> century American period. The site is adjacent to Perdido Bay, its boundaries are unknown; the site area was expanded after surveys in 1988 and again in 2000. The site is composed of a general prehistoric and historic artifact scatter over its entire length, with a concentration of prehistoric material on the west end (shoreline) and historic material on the east end. The prehistoric site has been interpreted as a small encampment or associated with a Weeden Island village site located less than 3 kilometers to the northeast. The site’s prehistoric component, however, appeared to have eroded completely into the bay by the 2000 CARL survey. The historic site has been interpreted as a logging camp or house site, its location corresponding to three structures depicted on a 1919 Army Corps of Engineers map. Archaeologists from the University of West Florida recorded the site with the Florida Master Site File and collected artifacts (housed at UWF) from the surf zone in 1983. Pensacola Archaeology Lab (PAL) recovered historic artifacts from the surface of adjacent dirt

roads in 1988, and excavated 95 shovel tests (18 positive for artifacts) in the area in 1997. PAL concluded that the site was highly disturbed, contained few diagnostic artifacts and possessed no research potential. In 2000, CARL (Conservation and Recreational Lands) archaeologists revisited the site and concluded that further testing was needed to determine site boundaries and assess site significance; they recommended such testing in advance of any ground disturbing activity in the site. Site condition was most recently assessed during a 2003 site visit by Bureau of Natural and Cultural Resources staff, at which time it was in poor condition. The site has been and continues to be heavily impacted by erosion, to an undetermined but apparently substantial extent. Other past disturbances have included historic activity, road construction and grading, 4-wheel vehicular traffic, forestry activity, and vandalism.

**Catfish Point (8ES2836):** Artifact scatter, Middle to Late Archaic and Weeden Island period and artifact scatter, late 19<sup>th</sup> to early 20<sup>th</sup> century American period. The site is adjacent to Perdido Bay, an estimated 240 meters in length, its boundaries unknown. The site is composed of a general, low to moderate density prehistoric and historic artifact scatter over its entire length, with concentrations of partially submerged historic artifacts and architectural material at both the north and south ends. The prehistoric site has been interpreted as a campsite. The historic site has been interpreted as a historic structure, logging camp or house site, its location corresponding to structures depicted on a 1919 Army Corps of Engineers map. Both the prehistoric and historic components, however, appeared to have eroded almost completely into the bay by the 1997 PAL survey. Pensacola Archaeology Lab (PAL) located the site, recorded it with the Florida Master Site Files, excavated 15 shovel tests and collected artifacts from the surface and surf zone in 1997. PAL concluded that the site was highly disturbed and almost completely destroyed, contained no features or dense artifact concentrations, and possessed little research potential. In 2000 CARL archaeologists revisited the site, excavated two shovel tests (both positive), and concluded that further testing was needed to determine site boundaries and assess site significance. Site condition was most recently assessed during a 2003 site visit by Bureau of Natural and Cultural Resources staff, at which time it was in poor condition. The site has been and continues to be heavily impacted by erosion, to an undetermined but apparently substantial extent.

## **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.

Approximately 100 acres of mesic and wet flatwoods were converted to slash pine plantation before state acquisition. This is a contiguous square-shaped block located just east of Bauer Road. This timber management area actually encompasses 163 acres, but a significant portion of this area is a vast baygall wetland in which planting was excluded. For a detailed description of this stand, including management recommendations (see Addendum 6).



### **Additional Considerations**

Management authority at the park extends, waterward, 400 feet of the mean high water mark. This allows park management to regulate boating and other recreational or research related activities within this near shore zone.

### **Management Needs and Problems**

1. A detailed prescribed fire plan outlining burn zone prescriptions, smoke screening, recommended firing plans, mop-up and contingency planning, and fire line construction/maintenance, needs to be developed and implemented at this park.
2. The construction and maintenance of various wetland crossings, suitable for service vehicles and fire suppression vehicles/equipment, is needed in order to carry out land management activities such as prescribed burning and routine monitoring and patrolling.
3. Severe rutting and consequent channeling of surface and near surface hydrology has occurred along several key service roads that are vital for resource management activities. A detailed plan that identifies appropriate restoration measures needs to be developed.
4. Encroachment onto the preserve has damaged wet prairie habitat. Effective boundary fencing is needed in order to halt damaging trespassing, illegal dumping and regulate safe and appropriate visitor access.
5. Park, District and Division staff needs to develop access agreements with adjacent landowners to ensure that park staff will have necessary access points into remote and isolated tracts of the preserve for land management purposes. Access agreements along the northern park boundary (east of Bauer Road) should be a priority.
6. Access onto the Tarkiln Peninsula, from Bauer Road is a problem due to extensive wetlands. Negotiations with the U.S. Navy to acquire an upland easement corridor on the southern portion of Bronson Field need to continue.
7. A general restoration plan for the Bronson Field ditch needs to be developed in coordination with USDA Soil and Water Conservation Service and the DEP.
8. The park currently has no permanent/on-site land management equipment, support infrastructure or overnight security presence. A shop facility, ranger residence and necessary land management equipment such as tractor, disk, roller chopper, 4X4 dump truck, ATVs, additional fire suppression equipment and hand tools are needed if any significant land management activities are to be achieved. Full time staff positions trained and assigned to perform resource management on the property are needed.
9. A detailed designated species monitoring plan that outlines the timing and methodology for specific surveys needs to be developed and implemented by park staff. Pitcherplant surveys should be integral to the development of burn prescriptions in zones where these fire dependent plants occur.
10. Exotic plant species such as Chinese tallow, Mimosa, Cogon grass and Chinese privet are a problem at this unit. These infestations are currently localized and require attention in order to keep these species contained.
11. The current condition of cultural resources in the Tarkiln Bayou Preserve State Park is not known. A detailed written and photographic condition assessment is desirable, particularly of those sites that are suffering from severe erosion or other major threats.
12. The locations of known archaeological sites need to be determined and accurately recorded via GPS/GIS.
13. Site specific phase 1 archaeological surveys should precede major recreational development projects at this park.
14. Once site locations and assessments are determined, a regular monitoring program to track conditions and identify threats needs to be established.

## 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.

1. Develop a detailed prescribed fire plan outlining burn zone prescriptions, smoke screening, recommended firing plans, fire return intervals, mop-up and contingency planning, and fire line construction/maintenance.
2. An effective prescribed fire program at this 4,000+ acre preserve, (with no permanent assigned staff, equipment or management infrastructure of any kind), will require inter-agency support from the Division of Forestry, particularly with fire line preparation, and holding support during large acreage burns. Park staff should communicate these needs to the local DOF Forest Area Supervisor, and continue efforts to maintain an active partnership.
3. Maintain accurate and complete rain gage data necessary for effective burn planning. Rainfall monitoring equipment can be maintained at Big Lagoon; however a rain gage on-site at Tarkiln Bayou is preferable.
4. Request FCO project funding for a shop facility and accompanying permanent ranger residence necessary to begin developing vital land management infrastructure. Funding is also needed for additional land management equipment to be used and stored specifically at Tarkiln Bayou Preserve State Park. It is also recommended that a volunteer site be added to any future shop facilities to attract supplemental staffing.
5. Request funding for purchase or rental of low ground loading, all terrain/all condition, specialized land management heavy equipment suitable for conducting fire line prep, mechanical fuel reduction via mowing or roller chopping, holding and suppression operations in wet prairie/wet flatwoods/baygall type natural communities. Park should research various types of existing equipment in use by other land management entities in similar habitats.
6. Develop and/or refine resource restoration projects based on the needs identified in this plan, and request funding necessary for implementation.
7. Formally request two ranger positions for the preserve.
8. Coordinate with the USDA Soil and Water Conservation Service and the DEP northwest regulatory office to develop a detailed plan for the restoration of major rutted road sections necessary for hydrologic restoration and the infrequent passage of resource management vehicles/equipment.
9. Coordinate with the USDA Soil and Water Conservation Service, DEP northwest regulatory office, and the U.S. Navy, Bronson Field in order to develop a conceptual plan for the restoration of the Bronson Field ditch. This plan should determine a feasible level of hydrologic restoration that is compatible with storm water concerns.
10. Coordinate with the DEP northwest regulatory office to establish a Regional Off-Site Mitigation Area (ROMA) in order to fund large-scale hydrological restoration projects at the park.
11. Coordinate with the DEP northwest regulatory office to permit the construction of low water stream crossings and other appropriate wetland crossings and/or roadbed stabilization projects necessary for effective resource management on the preserve. Plans for any hydrological improvement projects should be developed in anticipation of mitigation associated with the future 4-laning of SR292 and other local highways.

12. Coordinate with the Office of Park Planning to continue negotiations with the U.S. Navy to obtain an upland management easement onto the Tarkiln Peninsula from Bauer Road.
13. Request funding for additional boundary fencing, where necessary to protect the preserve's resources. Priority should be given to fencing the boundary lines along the Leeward residential area and portions of the northern park boundary (east of Bauer Road), where major encroachments have occurred.
14. Conduct surveys to identify and GPS map the locations of large-leaved jointweed.
15. GPS map any large-scale colonies of white-top pitcherplant, and red pitcherplant. Map any large colonies of parrot pitcherplants and purple pitcherplants as well. Monitor all mapped populations at least yearly. Monitoring should include a running archive of digital photos to help track habitat conditions over time.
16. Advise the staff of the Bureau of Entomology, Nematology, and Plant Pathology (DACs) of the need to compile a list of macroinvertebrates for the park. Note that a collecting permit is required.
17. Conduct gopher tortoise burrow surveys and mapping in coordination with prescribed burning. Consult with FWCC regarding the possibility of a reintroduction.
18. Coordinate with the Office of Park Planning to designate wetland and/or rare natural communities of the preserve as protected areas.
19. Conduct yearly surveys to locate and GPS map invasive exotic plants.
20. Coordinate with district biological staff to remove exotic plants via in-house or contractual services.
21. Coordinate with the Bureau of Natural and Cultural Resources to request funding for phase 1 archaeological surveys of areas slated for recreational development.
22. Encourage local research projects that investigate the historical land uses associated with the preserve.
23. Contact the appropriate department of the various State Universities in Florida to convey the need for an inventory of the park's flora.
24. Continue to request and encourage study of the effects of prescribed fire on pitcherplants. Establish permanent study plots to also record the response of pitcherplants to the various removal methods for competing woody species, in addition to the effects of any other changes that result from resource management.
25. Contact the DEP northwest district office to request installation of a series of wells to monitor ground water levels.
26. Investigate the potential net positive benefit of backfilling the drainage ditch at the north end of burn zone J with any remaining side-cast material that was used to create it.
27. Pursue designation of Outstanding Florida Waters for the waters of the park.
28. Seek DEP assistance in acquiring any existing water quality data, or if needed, conducting base-line water quality analysis of Tarkiln Bayou and the un-named creek that flows beneath Bauer Road. This data is a valuable reference for determining any impacts that future development may have on the park's water quality.
29. Pursue acquisition of parcel needed to protect the mouth of Tarkiln Bayou.
30. Develop a Statement of Interpretation with assistance from BNCR and BOS staff.
31. Preserve and protect recorded cultural sites through routine monitoring to track site conditions and identify threats.
32. The DRP/DHR Compliance Review Matrix shall be applied to all ground-disturbing activities. Major and moderate disturbances requiring DHR Review shall be coordinated through the Division of Historical Resources, Compliance Review Section.
33. Submit records to the Florida Master Site File for the Black Jack Hammond site.

## **Management Measures for Natural Resources**

### **Hydrology**

Surface and near surface water flow on the property west of Bauer Road is directed to the southwest, ultimately draining into Tarkiln Bayou. This natural flow of water has been significantly impacted by the drainage ditch located on the Naval Property, just north of the preserve. This ditch was installed in conjunction with Air Field construction in the 1940s in order to help drain the area immediately south of the flightline. The ditch begins in a titi baygall located in the southeastern corner of Bronson Field, 640 feet from Bauer Road. The ditch runs to the southwest for approximately 500 feet, and then turns due west into the large wetland referred to as the “Beaver Pond.” From the western end of the Beaver Pond, the ditch runs west for 4,750 feet where it empties into the Perdido Bay.

Key to removing the ditch and re-establishing prior hydrological regimes is acquiring a management easement from the Navy, with land management authority within that easement. Sustained efforts to negotiate such an easement are needed. Regardless, a well defined restoration plan for the ditch needs to be developed in the event that mitigation funds come available for the project. Park and District staff should seek the technical expertise of the USDA Soil and Water Conservation Service and the DEP northwest district in order to develop an initial plan that specifies methods and materials and determines permitting requirements for the project. A general cost estimate should also be developed. The cost of such a large scale project may require restoration to be conducted in phases. This initial plan should identify which linear segments of the ditch should be given highest priority for restoration.

Equally important, is the development of a restoration plan for the rutted portions of the park’s service roads. Particularly, the first 1.2 miles of DuPont Point Road leading from the Starter Kit to the maritime hammock should receive major focus. Major rutted areas occur along this stretch of unimproved road, and intercept surface and near surface water flow. Ideally, a management easement on the Naval property to the immediate north would allow this poorly placed stretch of road to be largely abandoned except for foot traffic and emergency and resource management vehicle use. Regardless of whether or not an easement corridor is obtained, a general plan that specifies appropriate methods and materials, and identifies permitting requirements for restoring the rutted areas needs to be developed. Again, Park and District staff should work with the Soil and Water Conservation Service and the DEP in developing the plan.

Various wetland crossings designed to allow the low impact passage of light utility vehicles are needed in order to access and manage the property. Measures such as the establishment of “hardened” low water stream crossings or corduroy road segments should be considered in order to provide necessary access.

### **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.

Burn zone objectives, descriptions, GIS generated maps, burn prescriptions, management

recommendations, contingencies, smoke screening, wildfire abatement measures, and burn zone histories shall be updated in the park's burn plan. This park specific prescribed fire planning, developed by park and district staff in conjunction with contractual services, will be maintained at Big Lagoon State Park for use by park staff. Accurate and complete rain gage data must be maintained at the park, by park staff in order to effectively plan prescribed fire activities. The park specific burn plan will be available for review upon request.

A general burn zone map has been created for this plan (see Burn Zones Map).

### **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. The Division will consult and coordinate with appropriate federal, state and local agencies for management of designated species.

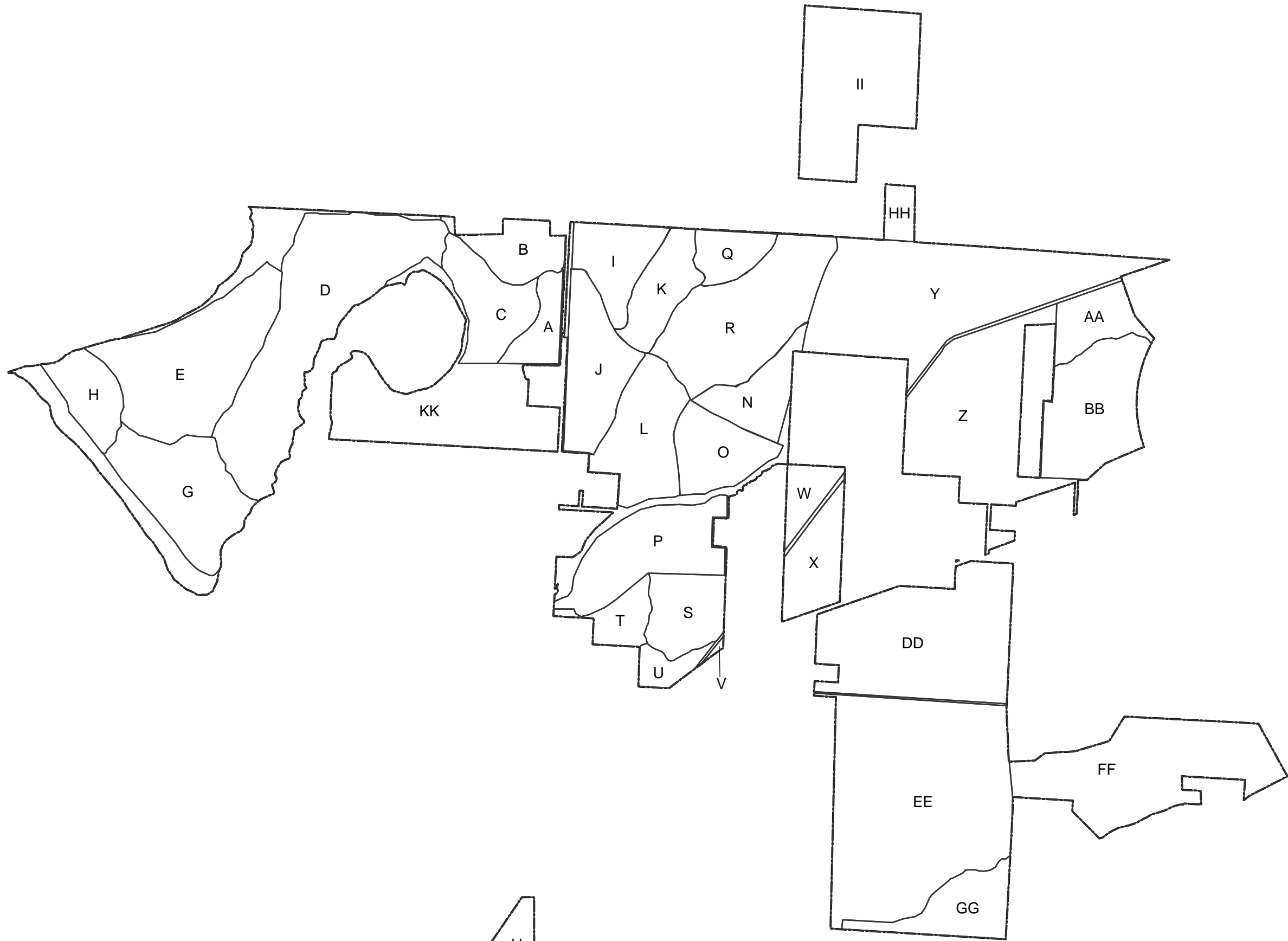
Several designated species are known to occur on the preserve. Large-leaved jointweed (*Polygonella macrophylla*), Parrot pitcher plant (*Sarracenia psitticina*), white-topped pitcher plant (*Sarracenia leucophylla*) and red pitcher plant (*Sarracenia rubra*) occur on this unit. Natural community restoration will improve the habitat quality for pitcherplants. Prescribed burning is essential to maintaining suitable habitat for these carnivorous plants. Without frequent fires (every 2-3 years) wet flatwoods and wet prairie habitats quickly become overgrown by wetland, hardwood shrubs such as titi and gallberry. These plants require an open herbaceous understory with ample sunlight in order to survive and flourish.

After initial fuel reduction burns are completed, hardwood control/removal from pitcherplant habitats will have to become a high resource management priority. It is recommended that a primary burn objective for the pitcherplant habitats discussed in this report become the reestablishment of herbaceous groundcover dominance. Many of these overgrown pitcherplant habitats will require yearly burning for a period of 2-3 years in order to adequately reduce live and fine dead fuels to a maintenance level. If it becomes apparent that fire alone is insufficient to significantly reverse hardwood dominance in some areas, it is also recommended that concerted efforts begin to remove woody species by mechanical means and, if necessary, selective application of herbicide.

Measures to reduce visitor impacts along the subtle bayshore dunes will help protect large-leaved jointweed that occurs just south of the Naval recreation area. The large-leaved joint weed should be mapped using GPS technology. This will aid in monitoring the health of the population limited to the narrow ecotone between maritime hammock and bay shore dunes.

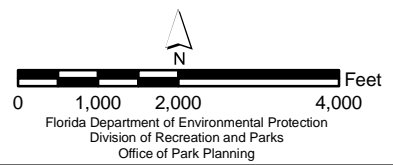
A number of in-active gopher tortoise burrows have been observed in the central portion of Tarkiln Peninsula, in the area delineated as sand hill. Gopher tortoise burrow surveying and mapping shall be scheduled and conducted following prescribed burns. If burrows are identified, they shall be GPS mapped and incorporated into the appropriate burn zone description/narrative so that both spatial and written records of occurrences are preserved. Consultation with FWCC will be conducted to determine the desirability of initiating reintroduction into the park.

An initial survey for flatwoods salamander was conducted in 2001 in cooperation with the Florida Fish and Wildlife Conservation Commission. Although no evidence of flatwoods salamander was discovered, follow up surveys during ideal wet conditions should be considered.



LEGEND  
 --- Park Boundary  
 □ Burn Zones

TARKILN BAYOU  
 PRESERVE STATE PARK



BURN ZONE MAP

## **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 effect non-resistant native species. Consequently, it is the strategy of the Division to remove exotic species from native natural communities.

The most significant exotic threat to the preserve is Chinese tallow. Tallow is an extremely aggressive invader that can quickly spread throughout natural areas, forming dense stands. Once female trees reach maturity, they produce thousands of popcorn-like seeds in the fall. Major Chinese tallow infestations are common on private lands near the preserve. Isolated occurrences of tallow have been identified on the preserve. Tallow poses a serious threat, and will require a sustained effort by Park and District staff in order to GPS document and remove all isolated occurrences. These areas will require periodic monitoring following initial removal efforts in order to stay ahead of re-sprouts and regrowth from seed bank. Survey and removal efforts should be tracked locally at the park via GPS/GIS. District biological staff will help by providing technical assistance, appropriate herbicides, recommendations and assistance with herbicide handling and application, and documentation.

Other exotic species found on the preserve include mimosa, Chinese privet, Japanese honeysuckle, Cogon grass and torpedo grass. Park and District staff shall prepare a scope of work and project proposal to the DEP Bureau of Invasive Plant Management in order to augment in-house efforts.

Tallow and Cogon grass are recent invaders to the preserve. These are highly invasive and aggressive species that will become major problems if left unchecked. Efforts to GPS survey and treat these areas must be made a high priority.

## **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.

Fire ants are a widely spread exotic species that have become naturalized throughout the southeast. They can pose problems around park facilities and day use areas, and should be removed using approved pesticides identified in the Division's Resource Management Policies and Procedures manual.

## **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. Approval from Department of State, Division of Historical Resources (DHR) must be obtained before taking any actions, such as development or site improvements that could affect or disturb the cultural resources on state lands.

Actions that require permits or approval from DHR include development, site excavations or surveys, disturbances of sites or structures, disturbances of the substrate, and any other actions that may affect the integrity of the cultural resources. These actions could damage evidence that would someday be useful to researchers attempting to interpret the past.

It is recommended that the following measures be taken to manage cultural resources.

1. Seek funding for contractual services or elicit graduate level research in order to obtain a comprehensive cultural resources survey by professional archaeologists and historians in cooperation with the University of West Florida.
2. In cooperation with the Florida Bureau of Archaeological Research, develop and adopt a procedure for accepting artifacts and other probable cultural materials recovered and turned over by visitors and for forwarding them to the Bureau.
3. Monitor the condition of all seven recorded sites and file reports of changes with the Florida Bureau of Archaeological Research.
4. Coordinate with the Bureau of Natural and Cultural Resources to review the Florida Master Site File in order to identify additional recorded sites on recently acquired lands.
5. Review all potential ground disturbance activities according to the DHR matrix of disturbance. Coordinate major ground disturbance events through the DHR.
6. Research and document the park's history including its history as a local recreation resource.

### **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.

An aggressive prescribed fire program will provide opportunities to document and qualitatively document the restoration of open prairie-like wetlands. Additionally, any research that further identifies and documents the preserve's biota should be encouraged.

#### **Cultural Resources**

In June of 1997, archaeologists from Pensacola Archaeology Lab spent one day in the field conducting a Phase I survey of the privately owned, 1100-acres Tarkiln Bayou Tract for The Marcus Creek Partnership and Gulfwater Plantation Community Development District. The purpose of the survey was to identify, record and evaluate the significance of any archaeological sites present in the tract. The survey consisted of research, controlled surface collection, and systematic shovel tests (609 total) of high probability areas, including areas of high ground, along freshwater drainages and Perdido Bay. This survey identified and tested three previously unrecorded sites (Black Jack Hammock, Catfish Point, DuPont Cove), and tested and better defined one previously recorded site (DuPont Point).

In 2000, CARL archaeologists conducted a windshield and pedestrian survey of the 900-acre tract purchased with CARL (Conservation and Recreational Lands) funds as part of a Perdido Bay DOS/BHP Historic Preservation Grant. The survey consisted of driving and walking roadways and trails, metal detection, informant interviews, and six shovel tests of high potential areas. This survey recorded two sites located during the 1997 survey, identified three additional sites (Elizabeth, Franklin, and Tarkiln Wharf), and expanded the boundaries of one previously recorded site. Additionally, the proposed location of an enviro-potty near the entry gate was tested and cleared. The CARL survey concluded that the park had a high probability of containing additional sites.



Phase 1 archaeological surveys of areas slated for recreational development are needed. Additional surveys should attempt to better document known/recorded sites, locate new sites in unsurveyed areas and locate additional sites in surveyed areas. Management recommendations for any sites that may be impacted by future development should be included. Additionally, a historical investigation of the property is needed in order to record past uses such as the dip vat located east of Bauer Road.

To date, a comprehensive archaeological survey of the park has not been conducted. Some independent research, affiliated with the University of West Florida, has been conducted regarding the initial investigation of site ES1048. This site investigation roughly delineated the location and area of a Mississippian-Fort Walton era midden.

### **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 (see Addendum 7).

### **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. The land management review team report, including the Division response to that report, is contained in Addendum 8.

Tarkiln Bayou Preserve State Park was subject to a land management review on June 11, 2003. 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 natural and cultural resources of the unit, and then proceeds through the creation of a conceptual land use plan that culminates in the actual design and construction of park facilities. Input to the plan is provided by experts in environmental sciences, cultural resources, park operation and management, through public workshops, and environmental groups. With this approach, the Division objective is to provide quality development for resource-based recreation throughout the state with a high level of sensitivity to the natural and cultural resources at each park.

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

### **EXTERNAL CONDITIONS**

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

Tarkiln Bayou Preserve State Park is located within Escambia County, about 12 miles west of downtown Pensacola in the westernmost part of the state. The populations of Escambia County and the adjacent Santa Rosa County have grown 25 percent since 1990, and are projected to grow an additional 26 percent by 2020 (BEER, University of Florida, 2004). The median age of Escambia County is 36.0, which is slightly younger than the state average of 39.4 (BEER, University of Florida, 2004). Nearly 450,000 Floridians reside within 50 miles of the park, which includes the cities of Pensacola, Gulf Breeze, Milton and Ft. Walton Beach (Census, 2000). The park is also in close proximity to residents of Gulf Shores and Mobile, Alabama. This area of Florida has a large military and retired military population due to the presence of the Pensacola Naval Air Station and other regional military bases.

Tarkiln Bayou Preserve State Park recorded 7,874 visitors in FY 2005/2006, which dropped from 32,124 visitors in FY 2003/2004 due to the impacts of Hurricane Ivan. Visitation is expected to increase significantly with the addition of new park development. By DRP estimates, the visitors in FY 20045/2006 contributed \$355,742 in direct economic impact and the equivalent of 7.1 jobs to the local economy compared to \$1,036,439 and 20.7 jobs in FY 2003/2004 (Florida Department of Environmental Protection, 2006).

### **Existing Use of Adjacent Lands**

To the north of Tarkiln Bayou is Bronson Field, the U.S. Naval Reservation, which includes the Blue Angel Recreation Area. To the south and east of Tarkiln Bayou is low-density residential development. Perdido Bay bounds the property on the west. The undeveloped land lying directly east and south of the currently owned parcels comprise the rest of the larger Pitcher Plant Prairie acquisition project.

Within five miles of Tarkiln Bayou Preserve State Park are two additional state parks. Big Lagoon State Park offers beaches, boating, camping, canoeing/kayaking, fishing, nature trails, picnicking, and swimming. Perdido Key State Park is a beach park on the Gulf of Mexico that offers nature programs, swimming, sunning, and other beach activities. Neighboring Blue Angel Recreation Area is available only to military personnel and retirees. It offers boating, swimming, picnicking, camping, biking, hiking, fishing, volleyball, miniature golf, and disc golf. Other nearby, public lands include Blackwater River State Park, Blackwater River State Forest, Gulf Islands National Seashore, and the Lower Escambia River Water Management Area. In addition, Escambia County manages numerous county parks providing a variety of recreation facilities including boat ramps, a campground, and an equestrian park. Escambia County has also designated a canoe/kayak trail from the Perdido River through Perdido Bay with a stop at Tarkiln Bayou and on to Big Lagoon State Park and Gulf Islands National Seashore. Due to the length of the canoe trail, overnight accommodations at Tarkiln Bayou Preserve State Park have been requested by the county to support multiple day excursions.

### **Planned Use of Adjacent Lands**

The Future Land Use Map for Escambia County identifies the areas surrounding the park as MU-3, Public and Low Density Residential (Escambia County, 2005). MU-3 is a mixed-use category that provides for a less intense mixture of residential, commercial, and recreation uses. The Public land designation applies to Bronson Field U.S. Naval Reservation. Low Density Residential provides a complimentary mix of residential uses near the urban area so as to facilitate the preservation of existing neighborhoods and the development of new residential opportunities in a compact and orderly manner. This category is also intended to provide for the protection of important natural resources.

Given the continued growth rate of this area of Florida, lands surrounding Tarkiln Bayou Preserve State Park that are not acquired by state or local governments will eventually be developed for residential and commercial uses. A few parcels that were within the Optimum Boundary have already been lost to development. Fortunately, however, these are on the perimeter and their loss does not degrade the integrity of the property that has been acquired. Escambia County is expected to exceed 352,000 residents by the year 2020 (BEBR, University of Florida, 2004). The coastal area is also increasing its tourist population, with new facilities and services for visitors being developed at a rapid rate. A high demand for resource-based recreation opportunities is expected due to the growth of resident and tourist population in the Pensacola region.

The Perdido Pitcher Plant Prairie Florida Forever Project includes some of the last remnants of the wet prairie natural community, a landscape unique to the northern coast of the Gulf of Mexico. The property supports one of the larger stands of white-topped pitcher plants in Florida, and nearly 100 other plant species. The protection of this property from residential

and commercial development will help to protect water quality in Perdido Bay and Big Lagoon. Finally, the large scale of the proposed acquisition will provide a suitable area for an extensive system of nature, hiking, bicycling and equestrian trails to satisfy the needs of the resident and tourist populations expected in this area of the state in the future. For these reasons, Division strongly supports the acquisition of the remaining land within the Florida Forever project boundary.

In an effort to protect the environmental integrity of Tarkiln Bayou amid the expected growth of the area's population and recreational demands, Escambia County has declared the bayou a "combustion motor powered vessel exclusion zone" (Escambia County, 2005). Therefore, Tarkiln Bayou is exclusively reserved for small sailing vessels and vessels under oars all year round.

Impacts from development adjacent to the Tarkiln Bayou Preserve State Park are inevitable. These impacts may include declines in local surface and ground water quantity and quality, changes in historic water flow patterns, an increase in local traffic, the increased invasion of exotic species, and boundary encroachment issues. As new property is acquired, park staff should continue to approach new neighbors to inform them of the park's management goals and the necessity to fence the park boundary. Likewise, it is important that the Division obtain and/or establish access points from urban interface areas for resource management purposes and for emergency responses to suppress wildfires.

As the surrounding area continues to develop, road improvement projects can be expected. The Florida-Alabama Transportation Planning Organization has identified the need to widen Bauer Road and State Road 292 (Sorento Road) to four lanes. Wetlands on both sides of the road will be impacted by this planned widening and property will likely be lost to an expanded right-of-way. Mitigation should address restoration needs such as low water crossing within other areas of the park.

Moreover, it is important that the Division and Department of Environmental Protection continue active involvement in local land use planning for this area in the future. It is also critical that the Division maintains coordination with the U.S. Navy land management staff and staff of Bronson Field, to ensure that all land-use policies and actions for Bronson Field and Tarkiln Bayou Preserve State Park remain consistent.

## **PROPERTY ANALYSIS**

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

### **Recreation Resource Elements**

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

existing spatial factors that either favor or limit the provision of each activity.

### **Land Area**

Tarkiln Bayou Preserve State Park is nearly 4,000 acres of wet flatwoods, wet prairie, mesic flatwoods, sandhill, xeric hammock, baygall, seepage stream, estuarine tidal marsh, estuarine unconsolidated substrate, and maritime hammock communities. The majority of the property is classified as wetlands, making public access difficult. Several state-listed species are found on the property including large-leaved jointweed, white-topped pitcher plant, and Parrot pitcher plant.

### **Water Area**

The water resources of the property west of Bauer Road include Perdido Bay and Tarkiln Bayou. This parcel is a peninsula, with Perdido Bay along its western and southern shoreline and the bayou within the center of the property. The bayou is one of the last remaining undeveloped bayous in Florida and can serve as an excellent resource for canoeing and nature observation. The bay can provide swimming and boating opportunities, as well as scenic locations for picnicking and tent camping activities.

The property east of Bauer Road is poorly drained wet flatwoods, mesic flatwoods, wet prairies, or baygall communities where standing water is present much of the year. Much of this property is drained by three seepage streams which empty into Perdido Bay.

### **Shoreline**

There are approximately five miles of shoreline within the boundary of the state park. About two miles of shoreline along Perdido Bay are accessible to the boating public for beach recreation activities. Approximately 2.6 miles of shoreline along Tarkiln Bayou are within the state property's boundary. An additional 0.6 miles of bayou shoreline is outside the state boundary, but is within the Florida Forever project boundary. The acquisition of the remaining undeveloped land around the bayou is important to the protection of water quality in the bayou and in the surrounding critical habitat.

### **Natural Scenery**

The aesthetic qualities of the diverse natural communities on the property are outstanding. With the implementation of the Division's prescribed fire management program, the visual resources of the property will increase as the wet prairie and wet flatwood communities expand. Perdido Bay, Tarkiln Bayou, and the mosaic of sandhills, flatwoods and interspersed wetland communities provide dramatic vistas from several points in the park. In the spring, the beautiful wildflower displays in the wet prairie community will be an extraordinary visitor attraction. Scenery appreciation and opportunities for nature photography will be popular at this park in the future.

### **Significant Wildlife Habitat**

All of Tarkiln Bayou Preserve State Park should be considered significant wildlife habitat. The wet prairie communities support pitcher plants and other carnivorous plants, while the sandhill communities support gopher tortoise, rattlesnakes, and numerous other species. Dolphins, bald eagles, and ospreys can be seen hunting for food on the nearshore waters of Perdido Bay.

## **Natural Features**

The most notable natural feature of the property is the wet prairie community, a vanishing example of one of the most diverse plant communities in the southeast. With its population of unique carnivorous plants, this community will serve as an excellent environmental education resource.

## **Archaeological and Historical Features**

A CARL archaeological survey was executed in 2000 to inventory and assess the cultural resources within Tarkiln Bayou Preserve State Park. Prior to this investigation, only one cultural resource was listed on the Florida Master Site File, a Pensacola-Fort Walton era shell midden and lithic scatter, with a late 19<sup>th</sup> to early 20<sup>th</sup> century artifact scatter. Since its discovery in 1983, the shell midden has since eroded into Perdido Bay. Now nine cultural sites have been recorded on the property. These sites include remains from old home sites and sites related to the naval stores industry. The probability of encountering additional unrecorded sites on the property is considered high (Vojnovski, Lammers, and Newman, 2000). For instance, a narrow dip vat was recently discovered by park staff on property east of Bauer Road. Park shall seek funding from a variety of sources such as private foundations, state grants, citizen support organization, and through partnerships with State Universities, etc to obtain funds needed for conducting a comprehensive cultural resources survey.

The locations of these known cultural resources have been taken into account during the park planning process and proper procedures should be followed prior to any construction activities in the general vicinity of the cultural resources.

## **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**

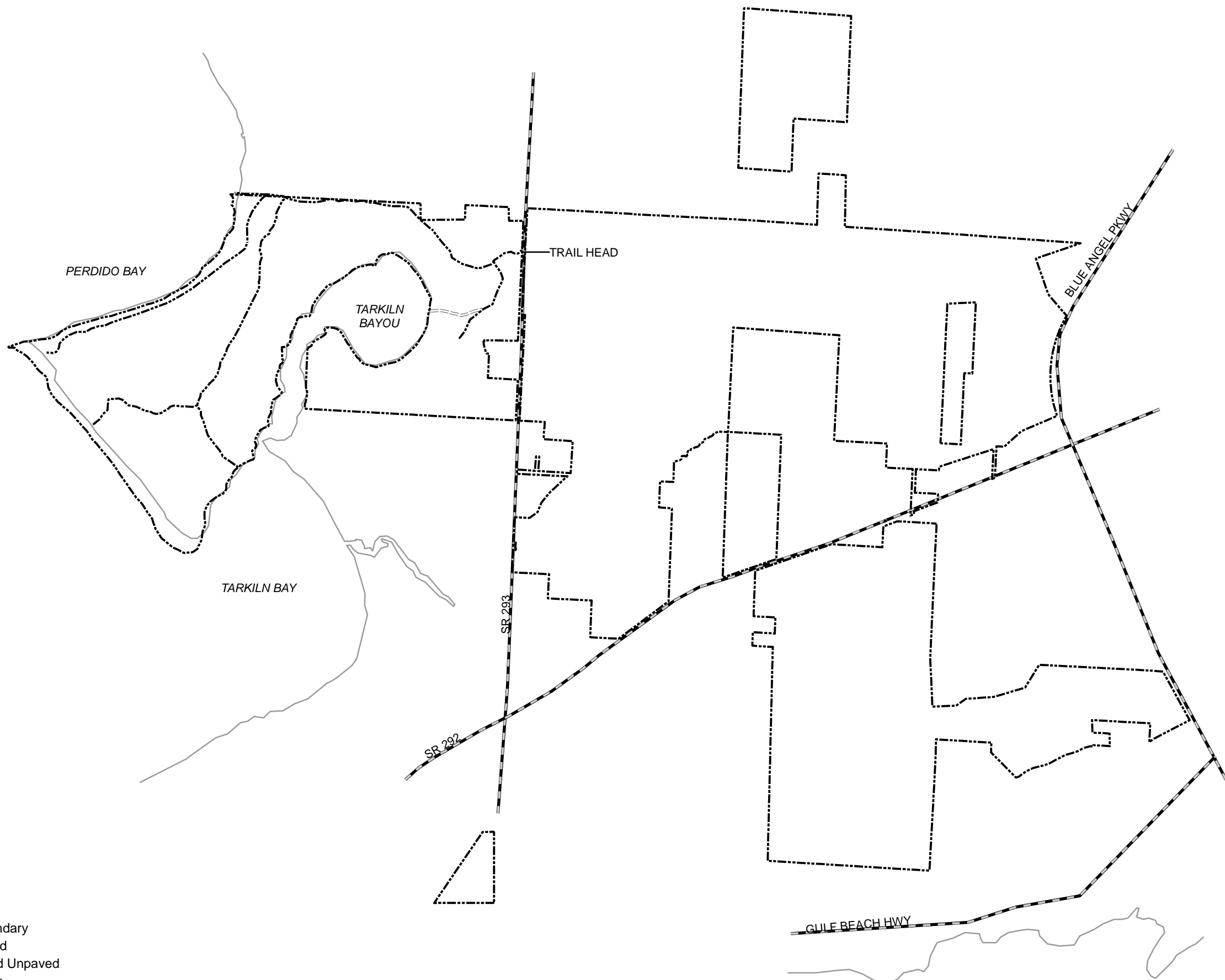
The property west of Bauer Road was previously planned as a residential subdivision. No development activities were completed prior to the purchase of the property by the State of Florida in April 1998.

### **Recreational Uses**

Tarkiln Bayou Preserve State Park had been used for recreational activities including camping, picnicking, swimming, horseback riding, off-highway vehicle and other trail activities for many years prior to state acquisition. Since acquisition, the Division of Recreation and Parks has eliminated off-highway vehicle use on the property and has opened some of the old jeep trails to hiking.

### **Protected Zones**

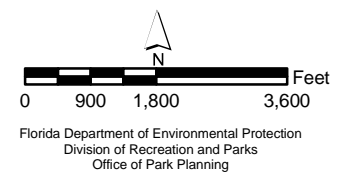
A protected zone is an area of high sensitivity or outstanding character from which most types of development are excluded as a protective measure. Generally, facilities requiring extensive land alteration or resulting in intensive resource use, such as parking lots, camping areas, shops or maintenance 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



**LEGEND**

- Park Boundary
- State Road
- Park Road Unpaved
- - - Boardwalk
- Shorelines

**TARKILN BAYOU  
PRESERVE STATE PARK**



**BASE MAP**



site planning and analysis.

At Tarkiln Bayou Preserve State Park, the wet prairie, all other wetland communities and the sandhill community have been designated as protected zones as delineated on the Conceptual Land Use Plan.

### **Existing Facilities**

**Recreation facilities.** Currently, the only recreation facilities at the preserve are the hiking trails and a boardwalk overlooking Tarkiln Bayou. There are approximately 6.3 miles of former jeep trail west of Bauer Road and 7.2 miles east of Bauer Road that are now available for hiking. The 1,200 foot-long boardwalk meanders through a community of cypress, titi, and pine trees to an observation deck on the bayou. In addition, an accessible concrete and wooden walkway extends along the route from the existing parking area to the boardwalk.

**Support facilities.** A basic park amenity package called a “starter kit” consisting of a short stabilized entry drive; stabilized parking for 6-8 vehicles, a small picnic shelter, an interpretive kiosk, and a composting toilet have been placed on the property. The location of these interim support facilities is off the west side of Bauer Road, just south of the Bronson Field property.

### **CONCEPTUAL LAND USE PLAN**

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

During the development of the 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. Federal, state and local permit and regulatory requirements are met by the final design of the projects. This includes the design of all new park facilities consistent with the universal access requirements of the Americans with Disabilities Act (ADA). After new facilities are constructed, the park staff monitors conditions to ensure that impacts remain within acceptable levels.

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

Tarkiln Bayou Preserve State Park conserves a significant example of the natural communities that were originally found in the panhandle coastal region of Florida. The property contains unique natural resources that provide outstanding opportunities for nature-based outdoor recreation, environmental education, field research, and guided or self-guided



PERDIDO BAY

BRONSON FIELD

ENTRANCE & RANGER STATION

SEE PAGE TWO

DAY-USE BEACH AREA

TENT CAMPING AREA

TARKILN BAYOU

TRAILHEAD

TARKILN BAY

BAUER ROAD

GROUP CAMP

**LEGEND**

-  PROPOSED FACILITIES
-  DEVELOPMENT AREA
-  TRAIL SYSTEM
-  NEW ROAD
-  BOARDWALK
-  PROTECTED ZONE
-  BRONSON FIELD BOUNDARY
-  PARK BOUNDARY



Florida Department of Environmental Protection  
Division of Recreation and Parks  
Office of Park Planning  
Approved 2006



**LEGEND**

-  PROPOSED FACILITIES
-  DEVELOPMENT AREA
-  TRAIL SYSTEM
-  NEW ROAD
-  BOARDWALK
-  BRONSON FIELD BOUNDARY
-  PARK BOUNDARY

- DAY-USE BEACH AREA**
- Medium Picnic Shelters (3)
  - Large Picnic Shelter
  - Open-air Interpretive Facility
  - Bathhouse
  - Bicycle Racks
  - Parking Nodes (90 spaces)
  - Mooring Buoys (10)
- TENT CAMPING AREA**
- Primitive Campsites (15)
  - Composting Restrooms (2)
  - Boater Access Dock

**PARK RESIDENCE**

**ENTRANCE & RANGER STATION**

**PARK RESIDENCE & MAINTENANCE FACILITIES**

**TRAILHEAD IMPROVEMENTS**

**TARKILN BAYOU**

**OBSERVATION PLATFORM**

**TARKILN BAYOU PRESERVE STATE PARK**





interpretive tours featuring northwest Florida's ecological diversity. As proposed by this plan, automobile access to the property will be limited. The proposed entrance road will traverse through the Bronson Field property and lead visitors to the western shoreline where most of the visitor facilities are proposed (see Conceptual Land Use Plan). The property west of Bauer Road will provide opportunities for swimming, picnicking, tent camping, canoeing, boating, fishing, hiking, bicycling, nature observation, and environmental education. The properties east of Bauer Road will provide a suitable area for an extensive system of hiking, bicycling and equestrian trails as well as an equestrian/group camp.

### **Recreation Facilities**

**Beach Use Area.** A string of picnic areas is recommended along the northern shoreline of the peninsula, where access paths to the beach have been developed off the existing jeep trail. This location is very scenic and provides sufficient beach area for sunning, swimming, and other beach-related recreation. A few picnic shelters and a bathhouse should be scattered among the shaded areas of the hammock to support the beach use. This beach area is also ideal for launching canoes and kayaks to explore Perdido Bay and Tarkiln Bayou or follow the canoe/kayak trail that has been designated by Escambia County. The park staff or a private concessionaire business should consider renting canoes, kayaks, and bicycles to park visitors. If feasible, approximately ten mooring buoys should also be provided in a designated area to accommodate visitors arriving by water.

Another attractive beach area at Tarkiln Bayou is the westernmost tip of the peninsula, also known as DuPont Point. This area has the largest expanse of sandy beach and has traditionally been used for picnicking, boat access, camping, and other beach-related recreation. Because of the sensitivity of the surrounding natural and cultural resources, access to this area will be carefully managed when shorebirds are present and no facilities are recommended.

At Tarkiln Bayou Preserve State Park, the zone between the beach and the xeric hammock community along the western shoreline contains large-leaved jointweed (*Polygonella macrophylla*), a state listed species that is very sensitive to foot traffic and other human impacts. It is important that access to the beach in this area be limited to designated boardwalk crossover entry points from the trail. These points will be clearly marked and will exclude foot traffic from the protected areas, reduce impacts to other sensitive shoreline vegetation and to minimize erosion of the dune line. Low fencing to control visitors' traffic patterns will be provided as necessary.

At peak use, the shoreline of the Tarkiln peninsula will be able to accommodate 300 people at one time or 540 people daily. This maximum capacity includes both the proposed day-use beach activities and a recommended primitive camping area.

**Primitive Camping.** The primitive camping area should be located south of the day-use beach area, in the maritime hammock community along the shoreline of Perdido Bay. This natural community supports a canopy of live oak, southern magnolia and red cedar trees, providing a shaded and scenic location for overnight accommodations. The camping area should include up to 15 primitive sites, with picnic tables, fire rings, and a composting toilet at each end. No parking will be provided at the individual sites. Instead, campers arriving by car will walk to their campsite from the parking lot located at the terminus of the paved park road, a short distance north of the camping area. Garden carts will be provided to carry their

supplies, if needed. Campers arriving by water will secure their boats at the proposed boater access dock located at the southern end of the camping area. In addition, paddlers can either carry their canoes/kayaks to their campsite or leave their vessels on the beach. The camping area should be separated from the shared-use trail, and an effective vegetative buffer between the trail and the campsites must be maintained to provide privacy. Again, low fencing and one or two boardwalk crossovers to the beach to control visitors' traffic patterns will be provided as necessary.

An equestrian/group camp is recommended for the property east of Bauer Road, south of the proposed trailhead, in a dry area near the large borrow pit marked as ruderal on the Natural Communities Map. The camp should accommodate organized groups of up to 60 visitors with picnic tables, composting restrooms, water spigots, paddocks with roof, picketing poles and/or hitching posts, fire rings, and waste collection facility for horse manure. Vehicular access to this campsite should be provided from Sorrento Road through a gated entrance. Either equestrian groups or other organized groups will be eligible to rent the group camp facility, on a reservation basis.

**Recreational Trails.** It is recommended that the existing jeep trails be enhanced to serve as the stabilized trail system for hiking and biking while also serving as service roads for park staff. The trail corridor shown on the Conceptual Land Use Plan is a preliminary location based on the location of existing jeep trails. Additional site analysis and planning will be conducted in order to establish the proposed trails with appropriate sensitivity to the property's natural and cultural resources. Where necessary, a boardwalk will bridge areas that are frequently inundated with water.

An observation platform on the western edge of the bayou is recommended to provide visitors with a view of Perdido Bay, Tarkiln Bayou, the tidal marsh, wet prairie, flatwoods and sandhill natural communities.

In addition to hiking and biking, the trails east of Bauer Road will also be open to equestrian use. A new trailhead is recommended across the road from the existing starter kit. This trailhead should consist of a stabilized parking lot for horse trailers and standard vehicles, hitching posts, water spigots, composting toilet, and waste collection facility for horse manure.

**Interpretive Facilities.** Interpretive improvements should begin with the writing of a Statement for Interpretation. This document will help the park staff identify interpretive themes and guide the development of interpretive and educational programming. A variety of interpretive facilities will be used to share this information with the public. An open-air interpretive facility is recommended for the proposed beach use area. This facility will introduce visitors to the natural and cultural resources of the park, provide information about the available recreation opportunities, and list the educational programs. Interpretive stations are recommended for placement along the trail system and at both the existing and proposed observation platform to inform visitors about the rare and unique resources found at Tarkiln Bayou Preserve State Park as well as educate them about natural resource management activities. These facilities should become the focal point for environmental education activities that interpret Tarkiln Bayou Preserve State Park. The interpretive facilities at Tarkiln Bayou Preserve State Park should also introduce visitors to other notable sites in the

vicinity and discuss the park in a regional context.

**Ecotourism Opportunities.** Ecotourism is an experience that encourages awareness of our natural and cultural resource assets and balances access to conservation lands with non-consumptive uses of those resources. Ideally, ecotourism experiences will promote an understanding of environmental stewardship that benefits both local communities and the society as a whole. Tarkiln Bayou Preserve State Park should serve as a prime destination for ecotourism activities because of the unique natural resources found there.

The proposed primitive camping area, the group camp, the potential environmental education opportunities on this site, and the proposed trail network should be targeted as facilities to support ecotourism. The rarity and unique nature of the pitcher plant prairies should serve as excellent attractions for both plant enthusiasts and the general public. In addition, the close proximity of this property to other public lands will make it attractive for nature-based tourism businesses. Visitors could use the proposed primitive camping facilities at Tarkiln Bayou Preserve State Park and either drive, boat, or paddle to Big Lagoon State Park, Gulf Islands National Seashore and other nearby protected areas. Those visitors seeking overnight accommodations with more amenities could utilize the camping facilities at Big Lagoon State Park and take day excursions to Tarkiln Bayou. Visitors could also enjoy a day at the beach at Perdido Key State Park.

**Greenway Linkage.** Escambia County has identified the need to develop and implement a non-motorized, shared-use greenway trail network through the southwest sector of the county. Their greenway plan identifies Big Lagoon State Park and Tarkiln Bayou Preserve State Park as excellent trailheads due to the existing amenities that can support the trail system. The Division of Recreation and Parks supports trail connections to local greenways, however, it is the responsibility of the local governments to determine the routes of these proposed trails leading to the state parks. When Escambia County identifies a possible connection to Big Lagoon State Park and Tarkiln Bayou Preserve State Park, the Division will support their ideas upon considering the sensitivity of the natural and cultural resources of the property and concerns related to park operations. The Division will decide the most appropriate route for the trail within the state park and what additional facilities to provide. Successful implementation of this trail linkage will require Division coordination with the Escambia County Neighborhood and Environmental Services Department.

### **Support Facilities**

Two residences are needed to properly manage Tarkiln Bayou Preserve State Park. One residence should be located within the proposed maintenance area just north of the current entry road. A 4-bay shop, 3-bay equipment shelter, flammable storage facility, and volunteer campsite should also be located in this area. The other residence is recommended for the northwest corner of the park, near the shoreline of Perdido Bay. Utility services for electricity will also need to be routed through the federal property to implement the development plans presented here.

A park entrance road and a ranger station are proposed for the area off Bauer Road north of the current park entrance. The road will take visitors to the proposed day-use beach area along the northern shoreline of the peninsula. Parking should be provided for up to 90 cars within a series of parking nodes placed along the road and adjacent to each of the proposed picnic

areas including the terminus of the road. The parking area at the end of the road will also serve the campers who will walk to their site from this location. As discussed under Optimum Boundary section, an easement, transfer of land title, or other land administration measure is needed to allow development of this park entrance road. A security fence will also be required between the proposed road and Bronson Field.

The existing parking area at the current entry point to the park should be redesigned and expanded to accommodate 10-12 vehicles.

In addition to vehicular access, boater access is recommended by placing a dock and ten mooring buoys in the shallow water along Perdido Bay. The boater access dock is recommended for the southern end of the proposed primitive camping area, approximately 1,500 feet northeast of DuPont Point. In addition, the mooring buoys are recommended for a designated area along the proposed day-use beach area. Water depth along this shoreline will be an important factor when designing how best to accommodate boater access to the Tarkiln peninsula.

On peak visitation days, this area will be monitored to insure that additional boat landings are not occurring on sensitive portions of the shoreline. As mentioned in the Resource Management Component, no wake zones should be established in the waters near the peninsula to reduce shoreline erosion occurring from boating activity near the property.

The protection of listed plant and animal species has been a primary consideration in the creation of this conceptual land use plan for Tarkiln Bayou Preserve State Park. For example, composting sewage disposal methods that have minimal impacts to water quality are recommended for all public facilities. The application of greywater disposal systems for the proposed campers' shower facilities is recommended. As development of the park moves into the next phase, site planning and facilities design will incorporate site-specific surveys and mapping of listed species within each of the proposed development areas. Careful site design decisions will be made in order to insure that impacts to listed plant species will not occur as a result of the proposed development.

The coordination of facilities development with prescribed fire management of the property's fire dependent communities is a priority consideration in the design of facilities for Tarkiln Bayou Preserve State Park. Site design, building orientation, and selections of building materials will respond to the fact that many of the natural communities will be burned periodically. Wherever possible, facilities will not be developed in fire dependent communities. However, where development must occur in such areas, appropriate fire breaks will be incorporated in the design of those sites. In those locations, the area to be excluded from prescribed fire management will be the minimum necessary to provide safe, enjoyable, and high-quality outdoor recreation and education experiences for the visitors.

### **Facilities Development**

Preliminary cost estimates for the following list of proposed facilities are provided in Addendum 7. These cost estimates are based on the most cost-effective construction standards available at this time. The preliminary estimates are provided to assist the Division in budgeting future park improvements, and may be revised as more information is collected through the planning and design processes.

## **Recreation Facilities**

### **Beach Use Area**

|                            |                  |
|----------------------------|------------------|
| Medium Picnic Shelters (3) | Low Rail Fencing |
| Large Picnic Shelter (1)   | Bathhouse        |
| Bicycle Racks (3)          |                  |

### **Camping Areas**

|                                   |                               |
|-----------------------------------|-------------------------------|
| Primitive Camping Area (15 sites) | Composting Restrooms (2)      |
| Low Rail Fencing                  | Group/Equestrian Camping Area |

### **Recreational Trails**

|                             |                         |
|-----------------------------|-------------------------|
| Shared-Use Trail (13 miles) | Observation Platform    |
| Boardwalk (as needed)       | Trailhead (20 vehicles) |

### **Interpretive Facilities**

|                                |                           |
|--------------------------------|---------------------------|
| Open-Air Interpretive Facility | Interpretive Displays (5) |
|--------------------------------|---------------------------|

## **Support Facilities**

### **Entrance Gate**

|                        |                          |
|------------------------|--------------------------|
| Ranger Station (small) | Security Fence (7000ft.) |
| Park Road (2 miles)    |                          |

### **Shop Area**

|                                     |                            |
|-------------------------------------|----------------------------|
| Parking Lot Redesign (10-12 spaces) | 3-Bay Equipment Shelter    |
| Ranger Residence                    | Flammable Storage Building |
| 4-Bay Shop                          | Volunteer Campsite         |

### **Beach-Use Area**

|                         |                    |
|-------------------------|--------------------|
| Ranger Residence        | Mooring Buoys (10) |
| Parking Lot (90 spaces) |                    |

### **Camping Area**

|                               |  |
|-------------------------------|--|
| Boater Access Dock (10 slips) |  |
|-------------------------------|--|

## **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 as shown in Table 1.

**Table 1--Existing Use And Optimum Carrying Capacity**

| <b>Activity/Facility</b>   | <b>Existing Capacity</b> |              | <b>Proposed Additional Capacity</b> |              | <b>Estimated Optimum Capacity</b> |              |
|----------------------------|--------------------------|--------------|-------------------------------------|--------------|-----------------------------------|--------------|
|                            | <b>One Time</b>          | <b>Daily</b> | <b>One Time</b>                     | <b>Daily</b> | <b>One Time</b>                   | <b>Daily</b> |
| <b>Camping</b>             |                          |              |                                     |              |                                   |              |
| Primitive                  |                          |              | 60                                  | 60           | 60                                | 60           |
| Group                      |                          |              | 60                                  | 60           | 60                                | 60           |
| <b>Picnicking/Swimming</b> |                          |              | 240                                 | 480          | 240                               | 480          |
| <b>Trails</b>              |                          |              |                                     |              |                                   |              |
| East of Bauer Road         |                          |              | 70                                  | 140          | 70                                | 140          |
| West of Bauer Road         | 60                       | 120          |                                     |              | 60                                | 120          |
| <b>TOTAL</b>               | <b>60</b>                | <b>120</b>   | <b>430</b>                          | <b>740</b>   | <b>490</b>                        | <b>860</b>   |

**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.

Identification of lands on the optimum boundary map is solely for planning purposes and not for regulatory purposes. A property's identification on the optimum boundary map is not for use by any party or other government body to reduce or restrict the lawful right of private landowners. Identification on the map does not empower or require any government entity to impose additional or more restrictive environmental land use or zoning regulations. Identification is not to be used as the basis for permit denial or the imposition of permit conditions.

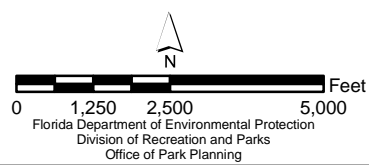
The optimum boundary map reflects lands identified for direct management by the Division as part of the park. These parcels may include public as well as privately owned lands that improve the continuity of existing park lands, provide additional natural and cultural resource protection, and/or allow for future expansion of recreational activities.

The optimum boundary for Tarkiln Bayou Preserve State Park includes all of the undeveloped lands within the boundary of the Perdido Pitcher Plant Prairie Florida Forever Project (see Optimum Boundary Map). The remaining Project consists of approximately 3500 acres to the south and east of the current park boundaries. Priorities for acquisition include the remaining land around Tarkiln Bayou, Garcon Swamp, and other significant wet prairie land. The acquisition of the remaining project area will help conserve the natural communities that support the pitcher plants, protect the water quality of Perdido Bay,





**TARKILN BAYOU  
PRESERVE STATE PARK**



**LEGEND**

- Park Boundary
- Optimum Boundary

**OPTIMUM BOUNDARY MAP**



Tarkiln Bayou and Big Lagoon and provide additional public recreation opportunities.

The federal government holds title to wetlands and uplands north of the state park boundary as a part of the U.S. Navy's Bronson Field facility. Those wetlands are directly connected to the wet flatwoods and wet prairie communities of the state park, and a drainage ditch just north of the property boundary diverts a considerable volume of surface water away from those communities. The Division will need either direct management authority over the wetland portions of the federal land, or collaboration between the state and federal agencies in order to pursue the wetland restoration goals established in this plan. Upland portions of Bronson Field are needed for a park road to be constructed from Bauer Road to the western peninsula area of the state park.

Division staff is working with staff of the Pensacola Naval Air Station to explore alternative land administration methods to allow the Florida Park Service to utilize all or part of the area shown on the Optimum Boundary Map for park access and resource management activities.



**Addendum 1—Acquisition History and Advisory Group List and Report**



## **Tarkiln Bayou Preserve State Park—Acquisition History**

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### **Purpose and Sequence of Acquisition**

The Board of Trustees of the Internal Improvement Trust Fund (Trustees) acquired Tarkiln Bayou Preserve State Park to develop, operate and maintain the property for outdoor recreational, park, conservation, historic, and related purposes.

On April 13, 1998, the Trustees obtained title to approximately 900 acres constituting the initial area of Tarkiln Bayou Preserve State Park. The purchase was funded under the P2000/CARL program. Since 1998, the Trustees have acquired several individual parcels through P2000/CARL, Florida Forever/CARL and donation and added them to Tarkiln Bayou Preserve State Park.

### **Title Interest**

The Trustees hold fee simple title to Tarkiln Bayou Preserve State Park.

### **Lease Agreement**

On April 30, 1998, the Trustees leased Tarkiln Bayou Preserve State Park to the Division of Recreation and Parks (Division) under Lease No. 4192. The lease is for a period of fifty (50) years, which will expire on April 29, 2048.

According to the Trustees lease, the Division manages Tarkiln Bayou Preserve State Park for the development, conservation and protection of natural and cultural resources and for resource-based public outdoor recreation that is compatible with the conservation and protection of the property.

### **Special Conditions on Use**

The Tarkiln Bayou Preserve State Park is designated single-use to provide resource-based public outdoor recreation and other park related uses. 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.

### **Outstanding Reservations**

Following is a listing of outstanding rights, reservations and encumbrances that apply to Tarkiln Bayou Preserve State Park.

## Tarkiln Bayou Preserve State Park—Acquisition History

---

**Instrument:** .....Easement  
**Instrument Holder:** .....Escambia County  
**Beginning Date:** .....June 23, 1989  
**Ending Date:** .....No specific date is given.  
**Outstanding Rights, Uses, Etc.:** .....The easement allows Winthrop Land Company to construct, maintain and repair a drainage ditch with pipes ditches, canals and similar structures over, under and across property.

**Instrument:** .....Deed  
**Instrument Holder:** .....George F. Bauer, Susie Bauer  
**Beginning Date:** .....August 9, 1965  
**Ending Date:** .....No specific date is given.  
**Outstanding Rights, Uses, Etc.:** .....The deed is subject to certain mineral and royalty transfer to Schoefeld-Hunter-Kitch Drilling Company as recorded in Deed Book 369, page 252, Escambia County, Florida.

**Instrument:** .....Drainage Easement  
**Instrument Holder:** .....Gulf Diversified Investment  
**Beginning Date:** .....April 12, 1963  
**Ending Date:** .....Perpetual  
**Outstanding Rights, Uses, Etc.:** .....The easement allows the State of Florida to clear, excavate, construct outfall and drainage ditches and drains on property.

**Instrument:** .....Drainage Easement  
**Instrument Holder:** .....TEW Land and construction  
.....Company  
**Beginning Date:** .....November 9, 1979  
**Ending Date:** .....Perpetual  
**Outstanding Rights, Uses, Etc.:** .....The deed allows Escambia County to permit surface and storm waters to flow over and across property.



**Big Lagoon State Park, Perdido Key State Park and Tarkiln Bayou Preserve State Park  
Advisory Group Members**

---

The Honorable Mike Whitehead, Chairman  
Escambia County Commission  
P.O. Box 1591  
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**Represented by:**

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**Big Lagoon State Park, Perdido Key State Park and Tarkiln Bayou Preserve State Park  
Advisory Group Members**

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## **Big Lagoon State Park, Perdido Key State Park, Tarkiln Bayou Preserve State Park**

### **Advisory Group Staff Report**

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The Advisory Group meeting to review the proposed land management plans for Big Lagoon State Park, Perdido Key State Park and Tarkiln Bayou Preserve State Park was held at Big Lagoon State Park on May 23, 2006 at 9am.

Chairman Mike Whitehead (Escambia County Commission) was represented by Robert Turpin. Tom LeDew (Florida Division of Forestry) was represented by Adam Parden. Shelley Alexander (Fort Pickens State Park Aquatic Preserve) was represented by Deborah Holland. Jerry Eubanks (Gulf Islands National Seashore) was represented by Nina Kelson. Chris Davis (Friends of Perdido Pitcher Plant Prairie) was represented by Jim Veal. Dr. John Himes (Florida Fish and Wildlife Conservation Commission), Sandra Sneckenberger (US Fish and Wildlife Service), David Wilks (Florida Department of Transportation), Mark Vance (West Florida Canoe and Kayak Club), and Sharon Maxwell (Northwest Florida Sierra Club) were not in attendance. All other appointed Advisory Group members were present as well as Chuck Brevik (US Navy). Attending staff were Danny Jones, Eric Kiefer, Lance Logan, Anne Harvey, Lew Scruggs and Brian Burket.

Mr. Burket 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 plans.

#### **Summary of Advisory Group Comments**

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**Nina Kelson (Gulf Islands National Seashore)** had no comments.

**Robert Turpin (Escambia County)** expressed support for boating and paddling improvements proposed in plans. He stated there is a lack of public boating access to Perdido Bay and asked that consideration be given to constructing a boat ramp along the shoreline of Tarkiln Bayou Preserve. He also recommended canoe/kayak access to the Old River at Perdido Key State Park. He recommended a mechanism to collect horse manure along trails in Tarkiln Bayou Preserve on a regular basis. He identified a county need for a wide variety of recreation uses. He asked if the parks have noise control rules. Lance Logan replied no, other than quiet hours in the camping area at night. Mr. Turpin expressed support for road access to the shoreline at Tarkiln Bayou since it allows access to all citizens but suggested the plan include measures to ensure that it be done sensitively. He requested that the park staff talk to him about future beach renourishment efforts. He suggested the possibility of providing fishing piers or platforms where appropriate. He commended the staff for their good management of these parks.

**Deborah Holland (Fort Pickens Aquatic Preserve)** had no comments.

**Al Hoffman (Friends of Big Lagoon/Perdido Key)** complimented the plans and voiced his appreciation for the reconstruction of facilities lost during recent hurricanes.

**Louise Miller (adjacent landowner)** stated that the existing boat ramp at Big Lagoon needs improvements. Lance Logan replied that the staff is working on this issue. Ms. Miller asked about the expiration of the park leases and wondered if there was any threat of losing these state parks. Lew Scruggs responded that the leases will be renewed as their expiration dates near and there is absolutely no threat of losing these parks. Ms. Miller then asked about the missing cost

## **Big Lagoon State Park, Perdido Key State Park, Tarkiln Bayou Preserve State Park**

### **Advisory Group Staff Report**

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estimate for the new amphitheater building. Brian Burket said the project is estimated at \$1.75 million and will be added to the plan. Ms. Miller asked about the number of seats in the proposed amphitheater. Mr. Logan stated the current design identifies seating for 295 individuals, which is a slight reduction from the previous capacity. Al Hoffman stated that the CSO provided input on the design of the building and requested that consideration be given to maximizing the number of seats. Ms. Miller then asked who decides what functions and events can be held at the parks. Mr. Logan replied that the decision is made at the park level and that once the restrooms are reopened, more functions and events will be approved.

**Lauren Baggett (adjacent landowner)** corrected a labeling error on the Reference Map. She recommended providing paddling access and a boat ramp on the Old River at Perdido Key. She requested that a safe pedestrian crossing be provided across SR 292 to access the dune crossovers. In addition, she voiced concern over the removal of certain predator species from Perdido Key State Park.

**Maggie Gray (fishing representative)** requested that the park improve their maintenance of the existing boat ramp. Lance Logan responded that this is being addressed. Ms. Gray asked where new boat ramp lanes would be located at Big Lagoon State Park. Lew Scruggs replied that if new lanes are necessary to improve boating access, they would be located near the existing boat ramp area and the exact site determined during the engineering and design phase.

**Jack Croke (adjacent landowner)** commented on the “preserve” classification for Tarkiln Bayou and expressed concern over the proposed road and parking near the Perdido Bay shoreline. He, instead, recommended that access be limited to those arriving by trail. He stated that wildlife appears to be disappearing from the Tarkiln Bayou area. He requested that this state park be preserved as natural as possible.

**Richard Freisinger (Escambia Soil and Water Conservation District)** cautioned that horse use could lead to erosion problems at Tarkiln Bayou Preserve. Anne Harvey replied that the staff is looking into providing low water crossings, routing trails around certain areas, and conducting a hydrological survey of the preserve to minimize impact from trail use.

**Medora Mullins (equestrian representative)** stated that she regularly rides her horses within Tarkiln Bayou Preserve and mentioned that there is a large, supportive and potentially active group of equestrians in the area. She then shared the following suggestions for enhancing the proposed equestrian use areas: omit installing a water trough but instead water faucets and plastic tubs; recommend 12'x12' paddocks with a roof instead of a corral; picketing poles and/or hitching posts in the shade; shaded trailer parking on a firm surface but not asphalt; campers should have access to dump station at Big Lagoon; allow fishing and horse swimming at borrow pits on Bauer and Sorrento Roads; keep all existing service roads east of Bauer Road open to horse use; and adding a waste collection facility in the equestrian use areas. She requested neighborhood gates off Havburg and Nighthawk Lanes. She then offered the help of local equestrian groups to assist in the development of trails and use areas as well as their monitoring and clean-up on a regular basis. She suggested that timber gained from thinning of the planted pine area could be used to construct paddocks. She confirmed that the width of the trails could support horse drawn carts. She requested that horse use be added to page 37 of the Tarkiln Bayou plan and made suggestions for the species list in Addendum 4.

## **Big Lagoon State Park, Perdido Key State Park, Tarkiln Bayou Preserve State Park**

### **Advisory Group Staff Report**

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**Vernon Compton (hiking representative)** commended the staff on the development of plans with an appropriate balance of access and protection. Mr. Compton stated his support of the “preserve” designation for Tarkiln Bayou. He expressed appreciation for the focus on trails, both land and water, in the plans and supported separation of user groups where appropriate. He appreciated the discussion of external impacts in the plans and encouraged the Division to coordinate with FDOT to include bike/pedestrian improvements, stormwater enhancements and wildlife crossings in the design of their proposed road projects. He voiced support for the staff’s efforts to control beach access at Perdido Key. He discussed his concern for the survival of the beach mouse and support for the removal of exotic species. He suggested that the proposed nature trail at Perdido Key could be made into a loop trail if worked into the design of road improvements along Perdido Key Drive. He stated his support for the Division’s policy on ATV use in state parks. He acknowledged the high quality resources at Tarkiln Bayou Preserve and supported passive use along the bayou and the separation of the primitive camping area from the beach use area. As for timber management, he recommends keeping some of the slash pines to promote diversity in future restoration areas.

**J.J. Bachant-Brown (Gulf Coastal Plain Ecosystem Partnership)** commends all three plans for being ecologically attentive. She pointed out that prescribed burning is a big need and encouraged the staff to work with neighbors to promote fire wise communities. Anne Harvey responded that this effort is already underway. Ms. Bachant-Brown stated her support for conducting hydrological studies at Big Lagoon State Park and connecting park facilities to municipal sewer. She requested that the cost estimates addendum include research needs. She asked about erosion along the Old River shoreline at Perdido Key State Park. Anne Harvey replied that erosion is minimal. Ms. Bachant-Brown expressed her support for the Division’s efforts to control beach access at Perdido Key. For the Tarkiln Bayou management plan, she agreed with the “preserve” designation and the low level of development proposed. She also agreed that a boat ramp at Tarkiln Bayou Preserve is not feasible and suggested a partnership with the Navy to make their adjacent boat ramp available to the public. Chuck Brevik responded that the Navy is generally opposed to public use of Blue Angel Recreation Area and is opposed to a new ramp at the state park. Mark Gibson replied that a dialogue would need to be initiated between the Navy and the County to discuss this possibility.

**Jim Veal (Friends of the Perdido Pitcher Plant Prairie)** commended the partners for their efforts to help protect these lands. He requested that the plans contain specificity on the timing of prescribed fires. He proposed limiting access and development at Tarkiln Bayou Preserve. He recommended improving the existing trailhead and having visitors hike to the shoreline instead of developing a road. In response, Lew Scruggs discussed the Division’s role of providing recreation opportunities, the conceptual plans for the Tarkiln peninsula, and explained the reality of the carrying capacity listed in the plan. Mr. Veal supported primitive camping as long as there is sufficient buffer from the shoreline. He stated that boating to DuPont Point is a wonderful experience and does not recommend a boater access dock. He suggested that, if acquired, Bronson Field could support active recreation areas for the park. He suggested coordinating with FDOT to elevate Bauer Road to provide safe crossing for wildlife and recreation users. He criticized the construction of the new sidewalk at Tarkiln Bayou Preserve as not being done sensitively. He asked that consideration be given to changing the name of Tarkiln Bayou Preserve State Park to the Perdido Pitcher Plant Preserve State Park.

**Annelise Reunert (Audubon Society)** stated she was thrilled to hear support coming from so

## **Big Lagoon State Park, Perdido Key State Park, Tarkiln Bayou Preserve State Park**

### **Advisory Group Staff Report**

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many different groups at this meeting and suggested that it could lead to ecotourism opportunities. She agreed with comments shared by GCPEP and the Friends of the Pitcher Plant Prairie. She observed that the number of pitcher plants have greatly increased in recent years thanks to proper management of the preserve. She asked about Escambia County's effort to develop new boat ramps. She identified the need for a safe crossing of SR 292 from the Chamber of Commerce to the beach dune crossover. She recommended pump-out stations for boats to help protect water quality at the swimming areas and encouraged boater education programs. She commended the state for their quick response to provide beach access following the recent hurricanes and criticized the county for the condition of their beach access areas.

**Lance Logan (Park Manager)** expressed his appreciation for the input and support from each advisory group member. He discussed the importance of prescribed fires and welcomed phone calls if anyone has questions.

**Adam Parden (Florida Division of Forestry)** stated that the plans were thorough and encouraged the promotion of fire wise developments. He said DOF would be providing input on the fire plan for these parks.

**Chuck Brevik (U.S. Navy)** commented that dialogue is ongoing between the Navy and DEP regarding the possibility of transferring a portion of Bronson Field through which an entrance road could be routed. He then stated the Navy would prefer that Tarkiln Bayou Preserve be kept as natural as possible.

**Mark Gibson (U.S. Navy)** expressed his support for changing the name of the preserve to Perdido Pitcher Plant Preserve State Park. He mentioned his Commanding Officer's support for the Tarkiln Bayou Preserve. He stated support for the prescribed fire program and exotic species removal efforts. He expressed support for live cage trapping of nuisance wildlife and stated that he does not support the use of leg traps and the trapping of red foxes. He commented that the proposed road would bring too many people to the Tarkiln peninsula and the Navy would require security fencing along the northern boundary. In response to earlier comments, he stated that the Navy does not want to open Blue Angel Recreation Area to the public. He requested that the proposed boundary line through Bronson Field, shown on the Conceptual Land Use Plan, be pushed slightly south. He commented that only the eastern ditch along the northern boundary of the Tarkiln peninsula is causing problems in the state park and, therefore, only recommended restoring this ditch and not the western ditch. He recommended that park development at Tarkiln Bayou Preserve be kept minimal and stated that the other two plans look good.

**Dave Marnell (Perdido Key Beach Area Chamber of Commerce)** asked why the number of seats at the amphitheater was reduced. Lance Logan replied that permitting required the footprint of the building to be reduced, thus the number of seats. Mr. Marnell suggested that the Chamber might be able to help speed up the permitting process. If Bronson Field is acquired, he suggested that the best use of this land would be to address civic needs, such as ball fields. He requested better maintenance of the existing boat ramp at Big Lagoon. Lance Logan responded that the park staff is working to improve the situation by removing sand more frequently. Mr. Marnell suggested that he could help notify the community about plans for prescribed fires. In response to an earlier comment, he stated that the county is working to improve three beach access areas on Perdido Key by July 1, 2006. He expressed his support for considering fishing piers at the parks, where possible. He then asked how exotic animals are trapped. Anne Harvey explained

# Big Lagoon State Park, Perdido Key State Park, Tarkiln Bayou Preserve State Park

## Advisory Group Staff Report

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the agency guidelines.

### Summary of Written Comments

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**Dr. Kathleen Cantwell (Defenders of Wildlife)** provided a list of park-specific comments for each management plan. The following is a summarized version of her comments.

**Big Lagoon State Park:** Dr. Cantwell stated that the biggest threats to the park appear to be a lack of connectivity to other conservation lands and the alteration of its hydrology. She agreed that prescribed fire, the restoration program and plant/animal inventory are of paramount importance. She supported the reconstruction of the amphitheater/nature center after funding is secured for the plant/animal inventories and the burn program and staffing is obtained to adequately maintain and protect the park. She commented that the normal, historic hydrology should be restored as much as possible but should not include the removal of beavers from the basin swamp. She provided multiple reasons for not removing the beavers. She expressed concern that after expensive building and renovations are done, they will pose a problem for a vigorous burn program. She agreed that bat boxes should be installed before the new amphitheater is built. She encouraged the placement of signage along the sea grass beds as soon as possible as a means of protection. She recommended that the park contact FDOT early in their road improvement planning to coordinate park hydrology solutions. She requested that consideration be given to the niche coyotes fill in the ecosystem before a decision is made about their removal. She encouraged the park to take an active role in local land use planning and discuss potential impacts with their neighbors. She recommended the plan discuss how waste is managed at the park. She suggested that FEMA funds could be used to help with debris removal. She questioned the location of the new amphitheater building near the shoreline. She expressed strong support for paddling improvements and linkage of the park's wastewater to the municipal system. She recommended that the expansion of the boat ramp wait until the wastewater system be connected to municipal sewer.

**Perdido Key State Park:** Dr. Cantwell agreed with the main objectives of protecting listed species and educating the public, both visitors and neighbors, about their potential impacts. She strongly supported increased staffing to help monitor, educate and enforce these goals.

**Tarkiln Bayou Preserve State Park:** Dr. Cantwell disagreed with selective timber removal and referenced the foresters' Timber Management Analysis recommendation to use prescribed fire to manage this area. She expressed support for the other restoration plans, prescribed burn program, exotic removal, plant/animal inventories, monitoring of water quality, fencing boundaries and pursuing new acquisitions. She requested that park development wait until adequate staffing is provided. She agreed with using old jeep trails for hiking trails. She asked what happened to the gopher tortoises and suggested that this could be a good reintroduction site for healthy tortoises. She stated that the natural communities described are in good condition and just need a vigorous burn program. She strongly agreed that the park needs at least two full-time staff. She recommended finding

## Big Lagoon State Park, Perdido Key State Park, Tarkiln Bayou Preserve State Park

### Advisory Group Staff Report

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alternative funding sources to help pursue acquisition of the optimum boundary. She agreed with the conceptual plans to restrict vehicular access to the northwest part of the park and agreed that this area should be the area of developed facilities and to keep facilities away from DuPont Point. However, she does not believe the carrying capacity is realistic without full-time staff support to protect the natural resources. She recommended that the park provide the best available composting toilets or state-of-the-art septic systems that can reduce up to  $\frac{3}{4}$  of nitrogen.

**Jimmie Jarratt (West Florida Canoe and Kayak Club)** requested that “canoeing” be added to page 6, Recreation Goal 1-B of the Big Lagoon plan. He requested information about the proposed primitive campsite at Big Lagoon: facilities, number of people, and reservation process. He also asked if there are plans to provide a canoe launch directly into Tarkiln Bayou. He expressed thanks for all the “efforts in providing canoeing and kayaking access to these wonderful waterways.” In response to his questions, primitive campsites usually accommodate 6 to 8 visitors and typically include a stabilized tent area and a fire ring. In addition, there are no plans for providing a canoe launch into the bayou.

#### Staff Recommendations

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The staff recommends approval of the proposed management plans for Big Lagoon State Park, Perdido Key State Park and Tarkiln Bayou Preserve State Park as presented with the following significant changes:

**Prescribed Burns.** It is harder every year to burn in these ever sprawling, urbanizing areas. The best we can do is to target a general time of year for planned burns. Park staff will continue to interpret prescribed burning to the adjacent public, and provide notification of our intentions to burn specific areas via the standard “Good Neighbor Letter.”

**Timber Removal at Tarkiln Bayou Preserve State Park.** Currently, the timber assessment is fairly non-committal as to whether or not we will cut trees in planted areas or not. This is a good thing, since the longer-term results of burning will largely determine whether timber harvest will be necessary. We agree that slash pines, along with longleaf, naturally occur on the property. Therefore, there is not a dire need to remove an off-site species of pine to pave the way for natural community restoration. The main rationale for pine thinning at Tarkiln Bayou Preserve State Park is to restore a more natural (low) pine overstory density in select areas of the preserve that used to be open wet prairies. No single species of pine would be targeted for total eradication from a given restoration zone, only unnaturally high density.

**Removal of Beavers at Big Lagoon State Park.** As recently as the late 1980s, the park contained two small wet prairies that were characterized by open (treeless) grassy areas with abundant white top and red pitcherplants. Both areas were inundated with standing water from beaver dams, and today are best described as overgrown, titi and bay swamps. The statewide pitcherplant resource management evaluation recommends that at least some small representative example of the former pitcherplant habitat be restored for white-top reintroduction. If beaver activity is still posing a flooding problem in the selected restoration site, then the park will coordinate with Florida Fish and Wildlife Conservation Commission to remove the animals from that immediate area and breach their dams. This should not be interpreted that the park will henceforth remove all beavers from all portions of the park.



## **Big Lagoon State Park, Perdido Key State Park, Tarkiln Bayou Preserve State Park**

### **Advisory Group Staff Report**

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**Protection of Seagrass Beds at Big Lagoon State Park.** At one time, park staff coordinated with the Office of Coastal and Aquatic Managed Areas (CAMA) to place “no wake” buoys off the park’s eastern shoreline. Park staff will readdress this issue with CAMA and Escambia County’s Division of Marine Resources staff to determine if it is still feasible to place “no wake/seagrass” signs or buoys in the near shore waters off the east beach use area.

**Cost Estimates Addendum.** The Division is beginning to develop project scopes for hydrological restoration/enhancement work at Tarkiln Bayou Preserve State Park. Cost estimates for restoration and well as the staff hours involved in project research and coordination will be added to the cost addendum.

Regarding the Big Lagoon State Park hydrological research study, the plan describes a very general GIS survey intended to gain a more accurate picture of current surface hydrological regimes and a better understanding of the park’s roll in storm water handling for the immediate area. Such a survey would help guide future restoration. An estimate for this research is already provided in the cost addendum.

The cost estimate for the new amphitheater building was missing from the advisory group draft of the management plan. The cost is estimated at \$1.75 million and will be added to the addenda for Big Lagoon State Park.

**Fishing Platform at Big Lagoon State Park.** A fishing platform is proposed for the shoreline of Big Lagoon to enhance this recreational opportunity. The recommended location is just to the east of the current boat ramp, an area known to be popular with local fishermen.

**Canoe/Kayak Access at Perdido Key State Park.** A canoe and kayak launch will be included in the design of the proposed observation and fishing platform on the Old River. A few additional parking spaces will be provided on park property to support this use. Formal consultation with US Fish and Wildlife Service, Florida Fish and Wildlife Conservation Commission, and Escambia County will be required before the parking or ADA trail project could proceed.

**Equestrian Use Areas at Tarkiln Bayou Preserve State Park.** Many of the facility recommendations shared about the proposed equestrian use areas will be incorporated into the management plan for Tarkiln Bayou Preserve State Park. In addition, park staff will seek additional input from equestrian groups in the future when funding becomes available to develop these use areas.

**Big Lagoon State Park, Perdido Key State Park, Tarkiln Bayou Preserve State Park  
Advisory Group Staff Report**

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## **Addendum 2—References Cited**



## Tarkiln Bayou Preserve State Park—References Cited

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## Tarkiln Bayou Preserve State Park—References Cited

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### **Addendum 3—Soils Descriptions**





## Tarkiln Bayou Preserve State Park—Soils Descriptions

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**Lakeland sand, level phase - (Lj)** This soil is on flat or nearly level sand ridges, mostly in the southeastern part of the county. In most places the native vegetation is turkey oak, a few scattered longleaf pines, and various native grasses. The surface soil ranges from dark grayish brown to yellowish brown in color and from 2-4 inches thickness. It is extremely porous and loses much organic matter and other essential plant nutrients through oxidation and leaching.

**Leon sand - (Lv)** This is a nearly level, somewhat poorly drained soil. The native vegetation consists principally of pine, saw-palmetto, and wiregrass. The organic matter stained pan varies in thickness. Because of the high water table this soil is nearly saturated during rainy seasons. It loses considerable amounts of plant nutrients through leaching.

**Plummer sand - (Pf)** This is similar to Plummer fine sand and Plummer loamy sand. It generally differs by having more coarse grain particles. Vegetation such as Cypress, Titi, and water tolerant herbs and grasses are typically found here. The soil is strongly acid and contains small amounts of organic matter. This soil is poorly drained.

**Plummer fine sand - (Pc)** This is similar to the Plummer sand in that it is characterized by being poorly drained and highly acidic. Water tolerant herbs and grasses are found on this soil. It has a high water table and will have standing water a significant portion of the year.

**Portsmouth, Grady, and Bayboro soils - (Ph)** These soils occur in wet, pondy areas. They are characterized by being poorly drained, fairly high acid and have some organic matter. This undifferentiated group of soils occupies naturally wooded areas, all or most of which are covered with water or are saturated most of the year.

**Tidal marsh - (Ta)** Consists of areas along the coast that are often covered by salt water or brackish water at high tide.

**Rutlege sand – (Rs)** The dominantly large, irregular bodies of this soil are mostly in poorly drained and very poorly drained, nearly level areas in the southwestern part of the county. The soil commonly occurs adjacent to Fresh water swamp, and generally between this miscellaneous land type and better drained soils. It frequently occurs in depressions and has a very gradual slope toward the center of the depression.

In places the native vegetation consists only of a ground cover of herbs and grasses that grow in water or water-saturated soil, but in other areas a few scattered cypress, slash pine, and gallberry also grow. Many small areas that have a dense growth of titi are scattered over this soil.

**Klej sand – (Ke)** This soil is distinguished from the level phase of Klej loamy sand primarily because it contains a slightly greater proportion of medium and coarse sand grains and less materials of fine texture throughout the southwestern part of the county sand is closely associated with the Leon and Rutlege soils.

This soil is the most extensive of the Klej soils. The native vegetation consists principally of pine, saw palmetto, runner oak, and wiregrass.

**Lakeland loamy fine sand – (La)** This soil has a grayish-brown surface soil that merges with the brownish-yellow loamy fine sand of the subsoil. It occurs on flat or nearly level ridges and is

## Tarkiln Bayou Preserve State Park—Soils Descriptions

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most extensive in the northern part of the county. The native vegetation consists of turkey oak and blackjack oak, a scattering of pine and dogwood, and various native grasses.

**Mixed alluvial land, poorly drained – (Ma)** Represents a mixture of dissimilar materials that border the streams throughout the county and make up a very large total acreage. This land is a result of soil material accumulation rather than soil development. The materials vary so greatly in color, texture, and consistence that any attempt to map the soils separately would be impracticable. This land is subject to frequent overflow. In many places it lies only a few inches above the water level of adjacent streams. The characteristics of this miscellaneous land type change from time to time as new material is deposited or removed with each overflow.

Texture of this land varies greatly, depending on the source of the material and the condition of the stream when the material was deposited. Locally, texture varies from silt loam to sand. The color ranges from gray to black according to the amount of organic matter in it. The land is mostly level to nearly level. Internal drainage is variable; surface runoff, very slow. Most of this land type is forested with swamp hardwoods and, in some places, has an undergrowth of various kinds of water-tolerant plants.

**Fresh water swamp – (Fc)** Consists of naturally wooded areas, all or most of which are covered with water or are saturated throughout the year. The areas contain a mixture of soils and soil materials that vary in color, texture, composition, and thickness of layers. The soil material consists of stratified deposits recently washed from adjacent uplands and so intricately mixed that separation is not feasible. In some places the surface materials resemble those of Rutlege and Plummer sand. In many places organic matter of a varying thickness accumulates in the surface soil. A few areas of organic soils that resemble Pamlico muck have been included with this land type. The largest and most typical areas of Fresh water swamp are in the southwestern part of the county.

All swampland is covered by a dense growth of bay, cypress, slash pine, gum, and various plants that grow in water or water-saturated soil.

**Addendum 4—Plant And Animal List**



Tarkiln Bayou Preserve State Park—Plants

| Common Name | Scientific Name | Primary Habitat Codes<br>(for designated species) |
|-------------|-----------------|---|
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|               |   |  |
|---------------|---|--|
| Reindeer moss | <i>Cladonia sp.</i><br><i>Usnea sp.</i> |  |
|---------------|---|--|

PTERIDOPHYTES

|                        |   |  |
|------------------------|---|--|
| Carolina mosquito fern | <i>Azolla caroliniana</i>                             |  |
| Southern grape-fern    | <i>Botrychium biternatum</i>                          |  |
| Horsetail              | <i>Equisetum hyemale</i>                              |  |
| Club moss              | <i>Lycopodium alopecuroides</i>                       |  |
| Cinnamon fern          | <i>Osmunda cinnamomea</i>                             |  |
| Royal fern             | <i>Osmunda regalis</i>                                |  |
| Resurrection fern      | <i>Pleopeltis polypodioides</i>                       |  |
| Tailed bracken         | <i>Pteridium aquilinum</i> var. <i>pseudocaudatum</i> |  |
| Water spangles         | <i>Salvinia minima</i>                                |  |
| Marsh fern             | <i>Thelypteris palustris</i> var. <i>pubescens</i>    |  |
| Netted chain fern      | <i>Woodwardia areolata</i>                            |  |
| Virginia chain fern    | <i>Woodwardia virginica</i>                           |  |

GYMNOSPERMS

|                      |                               |  |
|----------------------|-------------------------------|--|
| Atlantic white cedar | <i>Chamaecyparis thyoides</i> |  |
| Red cedar            | <i>Juniperus virginiana</i>   |  |
| Sand pine            | <i>Pinus clausa</i>           |  |
| Slash pine           | <i>Pinus elliottii</i>        |  |
| Longleaf pine        | <i>Pinus palustris</i>        |  |
| Loblolly pine        | <i>Pinus taeda</i>            |  |
| Pond-cypress         | <i>Taxodium ascendens</i>     |  |
| Bald-cypress         | <i>Taxodium distichum</i>     |  |

ANGIOSPERMS

|                       |                                    |  |
|-----------------------|------------------------------------|--|
| Red maple             | <i>Acer rubrum</i>                 |  |
| Mimosa*               | <i>Albizia julibrissin</i>         |  |
| Colic root            | <i>Aletris aurea</i>               |  |
| Yellow colic root     | <i>Aletris lutea</i>               |  |
| Common ragweed        | <i>Ambrosia arternisifolia</i>     |  |
| Blue maidencane       | <i>Amphicarpum muhlenbergianum</i> |  |
| Bushy beardgrass      | <i>Andropogon glomeratus</i>       |  |
| Wiregrass             | <i>Aristida stricta</i>            |  |
| Giant cane            | <i>Arundinaria gigantean</i>       |  |
| Fen-flowered milkweed | <i>Asclepias lanceolata</i>        |  |
| Long leaf milkweed    | <i>Asclepias longifolia</i>        |  |
| Milkweed              | <i>Asclepias pedicellata</i>       |  |
| Small fruited pawpaw  | <i>Asimina parviflora</i>          |  |
| Aster                 | <i>Aster adnatus</i>               |  |

\* Non-native Species

Tarkiln Bayou Preserve State Park—Plants

| Common Name              | Scientific Name                 | Primary Habitat Codes<br>(for designated species) |
|--------------------------|---------------------------------|---|
| Savannah aster           | <i>Aster chapmanii</i>          |   |
| Stiff-leaved aster       | <i>Aster linariifolius</i>      |   |
| White topped aster       | <i>Aster tortifolius</i>        |   |
| Yellow foxglove          | <i>Aureolaria flava</i>         |   |
| Common carpetgrass       | <i>Axonopus affinis</i>         |   |
| Saltbush                 | <i>Baccharis halimifolia</i>    |   |
| Honeycomb-head           | <i>Balduina uniflora</i>        |   |
| Baptisia                 | <i>Baptisia lanceolata</i>      |   |
| Saltwort                 | <i>Batis maritima</i>           |   |
| Beggar-tick              | <i>Bidens alba</i>              |   |
| Beggar-tick              | <i>Bidens frondosa</i>          |   |
| Rayless goldenrod        | <i>Bigelovia nudata</i>         |   |
| Cross-vine               | <i>Bignonia capreolata</i>      |   |
| False nettle             | <i>Boehmeria cylindrica</i>     |   |
| Calamintha               | <i>Calarmintha coccinea</i>     |   |
| Beautyberry              | <i>Callicarpa Americana</i>     |   |
| Grass-pink orchid        | <i>Calopogon tuberosus</i>      |   |
| Trumpet vine             | <i>Campsis radicans</i>         |   |
| Sedge                    | <i>Carex alata</i>              |   |
| Sedge                    | <i>Carex glaucescens</i>        |   |
| Chaffhead                | <i>Carphephorus paniculatus</i> |   |
| Sand hickory             | <i>Carya pallida</i>            |   |
| Coast sandspur           | <i>Cenchrus incertus</i>        |   |
| Dune sandspur            | <i>Cenchrus tribuloides</i>     |   |
| Coinwort                 | <i>Centella erecta</i>          |   |
| Rosemary                 | <i>Ceratiola ericoides</i>      |   |
| Partridge pea            | <i>Chamaecrista fasciculata</i> |   |
| Wild sensitive plant     | <i>Chamaecrista nictitans</i>   |   |
| Pineland Daisy           | <i>Chaptalia tomentosa</i>      |   |
| Spikegrass               | <i>Chasmanthium laxu</i>        |   |
| Bush goldenrod           | <i>Chrysoma pauciflosculosa</i> |   |
| Sawgrass                 | <i>Cladiurn jamaicense</i>      |   |
| Sweet pepperbush         | <i>Clethra alnifolia</i>        |   |
| Black titi               | <i>Cliftonia monophylla</i>     |   |
| Tread softly             | <i>Cnidoscolus stimulosus</i>   |   |
| Dayflower                | <i>Commelina diffusa</i>        |   |
| Conradina                | <i>Conradina canescens</i>      |   |
| String-lily              | <i>Crinum americanum</i>        |   |
| Rattlebox                | <i>Crotalaria purshii</i>       |   |
| Toothache grass          | <i>Ctenium aromaticum</i>       |   |
| Sedge                    | <i>Cyperus lecontei</i>         |   |
| Sedge                    | <i>Cyperus compressus</i>       |   |
| Sedge                    | <i>Cyperus haspens</i>          |   |
| White titi               | <i>Cyrilla racemiflora</i>      |   |
| Desmodium                | <i>Desmodium paniculatum</i>    |   |
| White-top sedge          | <i>Dichromena colorata</i>      |   |
| Giant white-topped sedge | <i>Dichromena latifolia</i>     |   |

\* Non-native Species

Tarkiln Bayou Preserve State Park—Plants

| Common Name                  | Scientific Name                 | Primary Habitat Codes<br>(for designated species) |
|------------------------------|---------------------------------|---|
| Poor Joe                     | <i>Diodia teres</i>             |   |
| Buttonweed                   | <i>Diodia virginiana</i>        |   |
| Persimmon                    | <i>Diospyros virginiana</i>     |   |
| Pink sundew                  | <i>Drosera capillaris</i>       |   |
| Dew-threads                  | <i>Drosera tracyi</i>           |   |
| Burheads                     | <i>Echinodorus cordifolius</i>  |   |
| Coastal spikerush            | <i>Eleocharis cellulosa</i>     |   |
| Elephant's foot              | <i>Elephantopus sp.</i>         |   |
| Virginia wild rye            | <i>Elymus virginicus</i>        |   |
| Fleabane                     | <i>Erigeron quercifolius</i>    |   |
| Hat pins                     | <i>Eriocaulon compressum</i>    |   |
| Common pipewort              | <i>Eriocaulon decangulare</i>   |   |
| Dog-tongue                   | <i>Eriogonum tomentosum</i>     |   |
| Blue-flowered coyote thistle | <i>Eryngium integrifolium</i>   |   |
| Rattlesnake master           | <i>Eryngium yuccifolium</i>     |   |
| Dog fennel                   | <i>Eupatorium capillifolium</i> |   |
| Marsh thoroughwort           | <i>Eupatorium leptophyllum</i>  |   |
| Spurge                       | <i>Euphorbia floridana</i>      |   |
| Flat-topped goldenrod        | <i>Euthamia minor</i>           |   |
| Umbrellagrass                | <i>Fuirena scirpoidea</i>       |   |
| Rush-fuirena                 | <i>Fuirena sp.</i>              |   |
| Milkpea                      | <i>Galactia volubilis</i>       |   |
| Bedstraw                     | <i>Galium hispidulum</i>        |   |
| Dwarf huckleberry            | <i>Gaylussacia dumosa</i>       |   |
|                              | <i>Gaylussacia mosieri</i>      |   |
|                              | <i>Gaylussacia nana</i>         |   |
| Hedge-hyssop                 | <i>Gratiola pilosa</i>          |   |
| Hedeoma                      | <i>Hedeoma hispidum</i>         |   |
| Sunflower                    | <i>Helianthus heterophyllus</i> |   |
| Camphor weed                 | <i>Heterotheca subaxillaris</i> |   |
| Hibiscus                     | <i>Hibiscus aculeatus</i>       |   |
| Water pennywort              | <i>Hydrocotyle bonariensis</i>  |   |
| St. John's wort              | <i>Hypericum brachyphyllum</i>  |   |
| St. John's wort              | <i>Hypericum cistifolium</i>    |   |
| St. Peter's wort             | <i>Hypericum crux-andreae</i>   |   |
| St. Andrew's cross           | <i>Hypericum hypericoides</i>   |   |
| St. John's wort              | <i>Hypericum myrtifolium</i>    |   |
| Dahoon holly                 | <i>Ilex cassine</i>             |   |
| Large sweet gallberry        | <i>Ilex coriacea</i>            |   |
| Gallberry                    | <i>Ilex glabra</i>              |   |
| Myrtle-leaf holly            | <i>Ilex myrtifolia</i>          |   |
| Yaupon holly                 | <i>Ilex vomitoria</i>           |   |
| Cogongrass*                  | <i>Imperata cylindrica</i>      |   |
| Manroot                      | <i>Ipomoea pandurata</i>        |   |
| Rush                         | <i>Juncus repens</i>            |   |
| Black needlerush             | <i>Juncus roemerianus</i>       |   |
| Rush                         | <i>Juncus validus</i>           |   |

\* Non-native Species



Tarkiln Bayou Preserve State Park—Plants

| Common Name               | Scientific Name                                     | Primary Habitat Codes<br>(for designated species) |
|---------------------------|---|---|
| Yellow stargrass          | <i>Hypoxis juncea</i>                               |   |
| Wicky                     | <i>Kalmia hirsute</i>                               |   |
| Mallow                    | <i>Kosteletzkya virginica</i>                       |   |
| Redroot                   | <i>Lachnanthes caroliniana</i>                      |   |
| Bog button                | <i>Lachnocaulon digynum</i>                         |   |
| Bog button                | <i>Lachnocaulon minus</i>                           |   |
| Bog button                | <i>Lachnocaulon anceps</i>                          |   |
| Wild lettuce              | <i>Lactuca floridana</i>                            |   |
| Peppergrass               | <i>Lepidium virginicum</i>                          |   |
| Spiked gayfeather         | <i>Liatris spicata</i>                              |   |
| Gopher apple              | <i>Licania rnichauxii</i>                           |   |
| Chinese privet*           | <i>Ligustrum sinsense</i>                           |   |
| Flax                      | <i>Linum floridanum</i>                             |   |
| Sweetgum                  | <i>Liquidambar styraciflua</i>                      |   |
| Lobelia                   | <i>Lobelia nuttallii</i>                            |   |
| Goldcrest                 | <i>Lophiola americana</i>                           |   |
| Primrose willow           | <i>Ludwigia pilosa</i>                              |   |
| Savanna seedbox           | <i>Ludwigia virgata</i>                             |   |
| Foxtail clubmoss          | <i>Lycopodiella alopecuroides</i>                   |   |
| Southern clubmoss         | <i>Lycopodiella appressa (Lycopodium appressum)</i> |   |
| Fetterbush                | <i>Lyonia lucida</i>                                |   |
| Southern magnolia         | <i>Magnolia grandiflora</i>                         |   |
| Sweetbay                  | <i>Magnolia virginiana</i>                          |   |
| Partridgeberry            | <i>Mitchella repens</i>                             |   |
| Wax myrtle                | <i>Myrica cerifera</i>                              |   |
| Bayberry                  | <i>Myrica heterophylla</i>                          |   |
| White water-lily          | <i>Nymphaea odorata</i>                             |   |
| Blackgum                  | <i>Nyssa biflora</i>                                |   |
| Prickly pear              | <i>Opuntia humistrata</i>                           |   |
| Wild olive                | <i>Osmanthus americanus</i>                         |   |
| Water dropwort            | <i>Oxypolis filiformis</i>                          |   |
| Panic grass               | <i>Panicum aciculare</i>                            |   |
| Beachgrass                | <i>Panicum amarum</i>                               |   |
| Torpedo grass*            | <i>Panicum repens</i>                               |   |
| Panicum                   | <i>Panicum scabriusculum</i>                        |   |
| Whitlow-wort              | <i>Paronychia erecta</i>                            |   |
| Brownseed paspalum        | <i>Paspalum plicatulum</i>                          |   |
| Vasey grass               | <i>Paspalum urvillei</i>                            |   |
| Redbay                    | <i>Persea borbonia</i>                              |   |
| Swamp bay                 | <i>Persea palustris</i>                             |   |
| Red chokeberry            | <i>Photinia pyrifolia (Aronia arbutifolia)</i>      |   |
| Common reed               | <i>Phragmites australis</i>                         |   |
| Frog-fruit                | <i>Phyla nodiflora</i>                              |   |
| Leaf-flower               | <i>Phyllanthus urinaria</i>                         |   |
| Leaf-flower               | <i>Phyllanthus tenellus</i>                         |   |
| Pokeweed                  | <i>Phytolacca americana</i>                         |   |
| Grass-leaved golden aster | <i>Pityopsis graminifolia</i>                       |   |

\* Non-native Species

Tarkiln Bayou Preserve State Park—Plants

| Common Name                | Scientific Name                       | Primary Habitat Codes<br>(for designated species) |
|----------------------------|---------------------------------------|---|
| Golden aster               | <i>Pityopsis oligantha</i>            |   |
| Fringed orchid             | <i>Platanthera sp.</i>                |   |
| Rush-featherling           | <i>Pleea tenuifolia</i>               |   |
| Salt marsh fleabane        | <i>Pluchea odorata</i>                |   |
| White bachelor's button    | <i>Polygala baldunii</i>              |   |
| Drumheads                  | <i>Polygala cruciata</i>              |   |
| Bog bachelor's button      | <i>Polygala lutea</i>                 |   |
| Milkwort                   | <i>Polygala nana</i>                  |   |
| Milkwort                   | <i>Polygala ramosa</i>                |   |
| Large leaved jointweed     | <i>Polygonella macrophylla</i>        | 1,14,23   |
| Wild water-pepper          | <i>Polygonum hydropiperoides</i>      |   |
| Black cherry               | <i>Prunus serotina</i>                |   |
| slender clubmoss           | <i>Pseudolycopodiella caroliniana</i> |   |
| Blackroot                  | <i>Pterocaulon pycnostachyum</i>      |   |
| Mock bishop's weed         | <i>Ptilimnium capillaceum</i>         |   |
| Chapman's oak              | <i>Quercus champanii</i>              |   |
| Sand live oak              | <i>Quercus geminata</i>               |   |
| Laurel oak                 | <i>Quercus hemisphaerica</i>          |   |
| Blue-jack oak              | <i>Quercus incana</i>                 |   |
| Turkey oak                 | <i>Quercus laevis</i>                 |   |
| Myrtle oak                 | <i>Quercus myrtifolia</i>             |   |
| Water oak                  | <i>Quercus nigra</i>                  |   |
| Live oak                   | <i>Quercus virginiana</i>             |   |
| Tall meadow beauty         | <i>Rhexia alifanus</i>                |   |
| Yellow meadow beauty       | <i>Rhexia lutea</i>                   |   |
| Pale meadow beauty         | <i>Rhexia mariana</i>                 |   |
| Meadow beauty              | <i>Rhexia petiolata</i>               |   |
| Meadow beauty              | <i>Rhexia virginica</i>               |   |
| Swamp honeysuckle          | <i>Rhododendron viscosum</i>          |   |
| Winged sumac               | <i>Rhus copallina</i>                 |   |
| Pine barren pea            | <i>Rhynchosia cytisoides</i>          |   |
| Beakrush                   | <i>Rhynchospora chapmanii</i>         |   |
| Hornedrush                 | <i>Rhynchospora corniculata</i>       |   |
| Beakrush                   | <i>Rhynchospora megalocarpa</i>       |   |
| Richardia                  | <i>Richardia brasiliensis</i>         |   |
| Highbush blackberry        | <i>Rubus betulifolius</i>             |   |
| Sour dock                  | <i>Rumex hastatulus</i>               |   |
| Short-bristle beakrush     | <i>Rynchospora corniculata</i>        |   |
| Clustered beakrush         | <i>Rynchospora cephalantha</i>        |   |
| Bluestem palmetto          | <i>Sabal minor</i>                    |   |
| Marsh pink                 | <i>Sabatia bartramii</i>              |   |
| Marsh pink                 | <i>Sabatia macrophylla</i>            |   |
| Arrowhead                  | <i>Sagittaria graminea</i>            |   |
| Glassworts                 | <i>Salicornia virginica</i>           |   |
| Elderberry                 | <i>Sambucus canadensis</i>            |   |
| Chinese tallow*            | <i>Sapium sebiferum</i>               |   |
| White-topped pitcher plant | <i>Sarracenia leucophylla</i>         | 8,26,41,42  |

\* Non-native Species

Tarkiln Bayou Preserve State Park—Plants

| Common Name             | Scientific Name                  | Primary Habitat Codes<br>(for designated species) |
|-------------------------|----------------------------------|---|
| Parrot pitcher plant    | <i>Sarracenia psittacina</i>     |   |
| Purple pitcherplant     | <i>Sarracenia purpurea</i>       |   |
| Red pitcherplant        | <i>Sarracenia rubra</i>          | 41,42   |
| Wool grass              | <i>Scirpus cyperiflus</i>        |   |
| Nutrush                 | <i>Scleria triglomerata</i>      |   |
| Saw palmetto            | <i>Serenoa repens</i>            |   |
| Bladderpod              | <i>Sesbania vesicaria</i>        |   |
| Sea-purslane            | <i>Sesuvium portulacastrum</i>   |   |
| Bristly foxtail         | <i>Setaria geniculata</i>        |   |
| Black senna             | <i>Seymeria cassinoides</i>      |   |
| Gum bumelia             | <i>Sideroxylon lanuginosum</i>   |   |
| Greenbrier              | <i>Smilax auriculata</i>         |   |
| Sarsaparilla vine       | <i>Smilax glauca</i>             |   |
| Bamboo-vine             | <i>Smilax laurifolia</i>         |   |
| Wild sarsaparilla       | <i>Smilax pumila</i>             |   |
| Goldenrod               | <i>Solidago fistulosa</i>        |   |
| Marshay                 | <i>Spartina patens</i>           |   |
| Spiral orchid           | <i>Spiranthes sp.</i>            |   |
| Seashore dropseed grass | <i>Sporobolus virginicus</i>     |   |
| Sand beans              | <i>Strophostyles helvola</i>     |   |
|                         |                                  | <i>Stylisma humistrata</i>                        |
|                         | <i>Stylisma patens</i>           |   |
| Storax                  | <i>Styrax americana</i>          |   |
| Horse sugar             | <i>Symplocos tinctoria</i>       |   |
| Shoebuttos              | <i>Syngonanthus flavidulus</i>   |   |
| Spanish moss            | <i>Tillandsia usneoides</i>      |   |
| Coastal false-asphodel  | <i>Tofieldia racemosa</i>        |   |
| Poison sumac            | <i>Toxicodendron vernix</i>      |   |
| Spiderwort              | <i>Tradescantia hirsutiflora</i> |   |
| Sea oats                | <i>Uniola paniculata</i>         |   |
| Sparkleberry            | <i>Vaccinium arboreum</i>        |   |
| Highbush blueberry      | <i>Vaccinium corymbosum</i>      |   |
| Blueberry               | <i>Vaccinium darrowil</i>        |   |
| Blueberry               | <i>Vaccinium elliotii</i>        |   |
| Deerberry               | <i>Vaccinium stamineum</i>       |   |
| Ironweed                | <i>Vernonia angustifolia</i>     |   |
| Possum haw              | <i>Viburnum nudum</i>            |   |
| Violet                  | <i>Viola esculenta</i>           |   |
| Primrose-leaved violet  | <i>Viola primulifolia</i>        |   |
| Summer grape            | <i>Vitis aestivalis</i>          |   |
| Muscadine               | <i>Vitis rotundifolia</i>        |   |
| Chinese wisteria*       | <i>Wisteria sinensis</i>         |   |
| Yellow-eyed grass       | <i>Xyris ambigua</i>             |   |
| Yellow-eyed grass       | <i>Xyris caroliniana</i>         |   |
| Yellow-eyed grass       | <i>Xyris flabelliformis</i>      |   |
| Spanish bayonet         | <i>Yucca aloifolia</i>           |   |
| Weak-leaf yucca         | <i>Yucca flaccida</i>            |   |

\* Non-native Species

Tarkiln Bayou Preserve State Park—Animals

| Common Name               | Scientific Name                         | Primary Habitat Codes<br>(for all species) |
|---------------------------|---|--|
| <b>ANNELIDS</b>           |   |  |
| Segmented worm            | <i>Nereis succinea</i>                  | 63   |
| Lugworm                   | <i>Arenicola cristata</i>               | 63   |
| <b>MOLLUSKS</b>           |   |  |
| Olive snail               | <i>Olivella sp.</i>                     | 63   |
| Top snail                 | <i>Calliostoma sp.</i>                  | 63   |
| Marsh snail               | <i>Melampus sp.</i>                     | 63   |
| <b>ARTHROPODS</b>         |   |  |
| Horseshoe crab            | <i>Limulus polyphemus</i>               | 63   |
| Acorn barnacle            | <i>Balanus sp.</i>                      | 63,bayou                                   |
| Hermit crab               | <i>Pagurus pollicaris</i>               | 63,65                                      |
| Saltmarsh mud crab        | <i>Panopeus obesus</i>                  | 63   |
| Fiddler crab              | <i>Uca pugilator</i>                    | 63   |
| Saltmarsh beachhopper     | <i>Orchestia grillus</i>                | 63,65                                      |
| <b>FISH</b>               |   |  |
| Bayou killifish           | <i>Fundulus pulverous</i>               | 63,bayou                                   |
| Sheepshead minnow         | <i>Cyprinodon variegates</i>            | 63,bayou                                   |
| Mosquitofish              | <i>Gambusia affinis</i>                 | 53,54,81                                   |
| Spotfin mojarra           | <i>Eucinostomus argenteus</i>           | 63,bayou                                   |
| Pinfish                   | <i>Lagodon rhomboids</i>                | 63,bayou                                   |
| Redfish                   | <i>Sciaenops ocellata</i>               | 63,bayou                                   |
| Speckled sea trout        | <i>Cynoscion nebulosus</i>              | bayou                                      |
| Redbreast sunfish         | <i>Lepomis auritus</i>                  | 53,81                                      |
| Warmouth                  | <i>Lepomis gulosus</i>                  | 53,81                                      |
| Bluegill                  | <i>Lepomis macrochirus</i>              | 53,81                                      |
| Redear sunfish            | <i>Lepomis microlophus</i>              | 53,81                                      |
| Florida largemouth bass   | <i>Micropterus salmoides floridanus</i> | 53,81                                      |
| Striped mullet            | <i>Mugil cephalus</i>                   | 53   |
| Atlantic needlefish       | <i>Strongylura marina</i>               | 53   |
| <b>AMPHIBIANS</b>         |   |  |
| <b>Salamanders</b>        |   |  |
| Southern dusky salamander | <i>Desmognathus auriculatus</i>         | 53,54                                      |
| <b>Frogs and Toads</b>    |   |  |
| Florida cricket frog      | <i>Acris gryllus dorsalis</i>           | 26,42,53,54,81                             |
| Southern toad             | <i>Bufo terrestris</i>                  | mtc  |

\* Non-native Species

Tarkiln Bayou Preserve State Park—Animals

| Common Name                 | Scientific Name                       | Primary Habitat Codes<br>(for all species) |
|-----------------------------|---------------------------------------|--|
| Green treefrog              | <i>Hyla cinerea</i>                   | 26,53,54,81                                |
| Southern chorus frog        | <i>Pseudacris nigrita</i>             | 26,53,54,81                                |
| Little grass frog           | <i>Pseudocris ocularis</i>            | 42,53,54                                   |
| Bullfrog                    | <i>Rana catesbeiana</i>               | 53,54,81                                   |
| Southern leopard frog       | <i>Rana sphenoccephala</i>            | 53,54,81                                   |
| Eastern spadefoot toad      | <i>Scaphiopus holbrooki holbrooki</i> | 42,81                                      |
| Eastern narrow-mouthed toad | <i>Gastrophryne carolinensis</i>      | 42,53,54                                   |
| Spring peeper               | <i>Hyla cinerea</i>                   | 53,54                                      |
| Barking treefrog            | <i>Hyla gratiosa</i>                  | mtc  |
| Bronze frog                 | <i>Rana clamitans clamitans</i>       | 54,81                                      |
| Pig frog                    | <i>Rana grylio</i>                    | 54,81                                      |
| Oak toad                    | <i>Bufo quercicus</i>                 | 8,13                                       |
| Squirrel treefrog           | <i>Hyla squirella</i>                 | 7,8,13,23                                  |

REPTILES

Crocodylians

|                    |                                   |       |
|--------------------|-----------------------------------|-------|
| American alligator | <i>Alligator mississippiensis</i> | 54,81 |
|--------------------|-----------------------------------|-------|

Turtles

|                          |                            |          |
|--------------------------|----------------------------|----------|
| Florida softshell turtle | <i>Apalone ferox</i>       | 81       |
| Gopher tortoise          | <i>Gopherus polyphemus</i> | 8,13     |
| Florida box turtle       | <i>Terrapene carolina</i>  | 26,53,54 |

Lizards

|                               |  |         |
|-------------------------------|--|---------|
| Green anole                   | <i>Anolis carolinensis</i>                   | mtc     |
| Six-lined racerunner          | <i>Cnemidophorus sexlineatus sexlineatus</i> | 7,13,23 |
| Mole skink                    | <i>Eumeces egregius</i>                      | 8,26    |
| Southeastern five-lined skink | <i>Eumeces inexpectatus</i>                  | 8,26    |
| Five-lined skink              | <i>Eumeces fasciatus</i>                     | 8,26    |
| Broadhead skink               | <i>Eumeces laticeps</i>                      | 8,26    |
| Eastern glass lizard          | <i>Ophisaurus ventralis</i>                  | 8,13    |
| Southern fence lizard         | <i>Sceloporus undulatus undulates</i>        | 7,13,23 |

Snakes

|                                 |                                       |             |
|---------------------------------|---------------------------------------|-------------|
| Florida cottonmouth             | <i>Agkistrodon piscivorus conanti</i> | 26,53,54,81 |
| Southern black racer            | <i>Coluber constrictor priapus</i>    | mtc         |
| Eastern diamondback rattlesnake | <i>Crotalus adamanteus</i>            | 7,8,13,23   |
| Southern water snake            | <i>Nerodia fasciata</i>               | 53,54,81    |
| Brown water snake               | <i>Nerodia taxispilota</i>            | 53,54,81    |
| Rough green snake               | <i>Opheodrys aestivus</i>             | 8,26        |
| Dusky pigmy rattlesnake         | <i>Sistrurus miliarius barbouri</i>   | 8,13        |
| Eastern garter snake            | <i>Thamnophis sirtalis sirtalis</i>   | mtc         |

\* Non-native Species

Tarkiln Bayou Preserve State Park—Animals

| Common Name               | Scientific Name                  | Primary Habitat Codes<br>(for all species) |
|---------------------------|----------------------------------|--|
| Gray rat snake            | <i>Elaphe obsoleta spiloides</i> | mtc  |
| Corn snake                | <i>Elaphe guttata</i>            | 8,13                                       |
| Eastern hognose snake     | <i>Heterodon platyrhinus</i>     | 8,13                                       |
| Eastern coachwhip         | <i>Masticophis flagellum</i>     | 7,8,13,23                                  |
| Gulf salt marsh snake     | <i>Nerodia fasciata clarki</i>   | 63   |
| Eastern coral snake       | <i>Micrurus fulvius</i>          | 8  |
| <b>BIRDS</b>              |                                  |  |
| Cooper's hawk             | <i>Accipiter cooperii</i>        | 8,13                                       |
| Sharp-shinned hawk        | <i>Accipiter striatus</i>        | 8,13                                       |
| Spotted sandpiper         | <i>Actitis macularia</i>         | 1,65                                       |
| Red-winged blackbird      | <i>Agelaius phoeniceus</i>       | 8,63                                       |
| Wood duck                 | <i>Aix sponsa</i>                | 63,fly over                                |
| Green-winged teal         | <i>Anas crecca</i>               | 63,fly over                                |
| Blue-winged teal          | <i>Anas discors</i>              | 63,fly over                                |
| Mallard                   | <i>Anas platyrhynchos</i>        | 63,fly over                                |
| Anhinga                   | <i>Anhinga anhinga</i>           | 63,fly over                                |
| Ruby-throated hummingbird | <i>Archilochus colubris</i>      | 8,13                                       |
| Great egret               | <i>Ardea alba</i>                | 63,81                                      |
| Great blue heron          | <i>Ardea herodias</i>            | 63,fly over                                |
| Short-eared owl           | <i>Asio flammeus</i>             | 8,63,fly over                              |
| Redhead                   | <i>Aythya americana</i>          | 63,fly over                                |
| Ring-necked duck          | <i>Aythya collaris</i>           | 63,fly over                                |
| Greater scaup             | <i>Aythya marila</i>             | 63,fly over                                |
| Cedar waxwing             | <i>Bombycilla cedrorum</i>       | 8,13                                       |
| American bittern          | <i>Botaurus lentiginosus</i>     | 63,fly over                                |
| Cattle egret*             | <i>Bubulcus ibis</i>             | ALL  |
| Bufflehead                | <i>Bucephala albeola</i>         | 63,fly over                                |
| Common goldeneye          | <i>Bucephala clangula</i>        | 63,fly over                                |
| Red-tailed hawk           | <i>Buteo jamaicensis</i>         | 8,13                                       |
| Red-shouldered hawk       | <i>Buteo lineatus</i>            | 8,13                                       |
| Broad-winged hawk         | <i>Buteo platypterus</i>         | 8,13                                       |
| Green-backed heron        | <i>Butorides striatus</i>        | 63,fly over                                |
| Sanderling                | <i>Calidris alba</i>             | 65   |
| Dunlin                    | <i>Calidris alpina</i>           | 65   |
| Semipalmated sandpiper    | <i>Calidris pusilla</i>          | 65   |
| Chuck-will's widow        | <i>Caprimulgus carolinensis</i>  | 8,81                                       |
| Whip-poor-will            | <i>Caprimulgus vociferus</i>     | 8,81                                       |
| Northern cardinal         | <i>Cardinalis cardinalis</i>     | 8,13,81                                    |
| Pine siskin               | <i>Carduelis pinus</i>           | 8,13                                       |
| American goldfinch        | <i>Carduelis tristis</i>         | 8,13                                       |
| House finch               | <i>Carpodacus mexicanus</i>      | 8,81                                       |
| Purple finch              | <i>Carpodacus purpureus</i>      | 8,13                                       |
| Great egret               | <i>Casmerodius albus</i>         | 63,fly over                                |
| Turkey vulture            | <i>Cathartes aura</i>            | ALL  |
| Hermit thrush             | <i>Catharus guttatus</i>         | 8  |

\* Non-native Species

Tarkiln Bayou Preserve State Park—Animals

| Common Name                   | Scientific Name                             | Primary Habitat Codes<br>(for all species) |
|-------------------------------|---|--|
| Gray-cheeked thrush           | <i>Catahrus minimus</i>                     | 8  |
| Willet                        | <i>Catoptrophorus semipalmatus</i>          | 65   |
| Belted kingfisher             | <i>Ceryle alcyon</i>                        | 63,fly over                                |
| Chimney swift                 | <i>Chaetura pelagica</i>                    | 81   |
| Southeastern snowy plover     | <i>Charadrius alexandrinus tenuirostris</i> | 63,65                                      |
| Semipalmated plover           | <i>Charadrius semipalmatus</i>              | 65   |
| Killdeer                      | <i>Charadrius vociferus</i>                 | 65   |
| Wilson's plover               | <i>Charadrius wilsonia</i>                  | 65   |
| Black tern                    | <i>Chlidonias niger</i>                     | 65   |
| Common nighthawk              | <i>Chordeiles minor</i>                     | 8,13                                       |
| Northern harrier              | <i>Circus cyaneus</i>                       | 63   |
| Sedge wren                    | <i>Cistothorus platensis</i>                | 8,13                                       |
| Yellow-billed cuckoo          | <i>Coccyzus americanus</i>                  | 8,81                                       |
| Black-billed cuckoo           | <i>Coccyzus erythrophthalmus</i>            | 8,13                                       |
| Northern flicker              | <i>Colaptes auratus</i>                     | 8,13                                       |
| Northern bobwhite             | <i>Colinus virginianus</i>                  | 8  |
| Rock dove*                    | <i>Columba liva</i>                         | 81   |
| Common ground dove            | <i>Columbina passerina</i>                  | 81   |
| Eastern wood pewee            | <i>Contopus virens</i>                      | 8  |
| Black vulture                 | <i>Coragyps atratus</i>                     | ALL  |
| Fish crow                     | <i>Corvus ossifragus</i>                    | 63,fly over                                |
| Blue jay                      | <i>Cyanocitta cristata</i>                  | 8,81                                       |
| Yellow-rumped warbler         | <i>Dendroica coronata</i>                   | 8,13                                       |
| Yellow-throated warbler       | <i>Dendroica dominica</i>                   | 8  |
| Palm warbler                  | <i>Dendroica palmarum</i>                   | 8  |
| Yellow warbler                | <i>Dendroica petechia</i>                   | 8  |
| Pine warbler                  | <i>Dendroica pinus</i>                      | 8  |
| Bobolink                      | <i>Dolichonyx orizyvorus</i>                | 8  |
| Pileated woodpecker           | <i>Dryocopus pileatus</i>                   | 8  |
| Gray catbird                  | <i>Dumetella carolinensis</i>               | 81,82                                      |
| Little blue heron             | <i>Egretta caerulea</i>                     | 63,fly over                                |
| Reddish egret                 | <i>Egretta rufescens</i>                    | 63,fly over                                |
| Snowy egret                   | <i>Egretta thula</i>                        | 63,fly over                                |
| Tricolored heron              | <i>Egretta tricolor</i>                     | 63,fly over                                |
| Acadian flycatcher            | <i>Empidonax vireescens</i>                 | 8  |
| White ibis                    | <i>Eudocimus albus</i>                      | 63,fly over                                |
| Southeastern American kestrel | <i>Falco sparverius paulus</i>              | 8  |
| American coot                 | <i>Fulica americana</i>                     | 63,fly over                                |
| Common snipe                  | <i>Gallinago gallinago</i>                  | 8  |
| Common loon                   | <i>Gavia immer</i>                          | 63,fly over                                |
| Common yellowthroat           | <i>Geothlypis trichas</i>                   | 8  |
| Bald eagle                    | <i>Haliaeetus leucocephalus</i>             | fly over                                   |
| Barn swallow                  | <i>Hirundo rustica</i>                      | 8,81                                       |
| Wood thrush                   | <i>Hylocichla mustelina</i>                 | 8  |
| Mississippi kite              | <i>Ictinia mississippiensis</i>             | fly over                                   |
| Orchard oriole                | <i>Icterus spurius</i>                      | 8,81                                       |
| Least bittern                 | <i>Ixobrychus exilis</i>                    | 63,fly over                                |

\* Non-native Species



Tarkiln Bayou Preserve State Park—Animals

| Common Name                | Scientific Name                   | Primary Habitat Codes<br>(for all species) |
|----------------------------|-----------------------------------|--|
| Loggerhead shrike          | <i>Lanius ludovicianus</i>        | 8  |
| Herring gull               | <i>Larus argentatus</i>           | 65   |
| Laughing gull              | <i>Larus atricilla</i>            | 65   |
| Ring-billed gull           | <i>Larus delawarensis</i>         | 65   |
| Hooded merganser           | <i>Lophodytes cucullatus</i>      | 63,fly over                                |
| Red-bellied woodpecker     | <i>Melanerpes carolinus</i>       | 8,81                                       |
| Red-headed woodpecker      | <i>Melanerpes erythrocephalus</i> | 8  |
| Red-breasted merganser     | <i>Mergus serrator</i>            | fly over                                   |
| Wild turkey                | <i>Meleagris gallopavo</i>        | 8  |
| Northern mockingbird       | <i>Mimus polyglottos</i>          | 81,82                                      |
| Black and white warbler    | <i>Mniotilta varia</i>            | 8,13                                       |
| Brown-headed cowbird       | <i>Molothrus ater</i>             | 81,82                                      |
| Great crested flycatcher   | <i>Myiarchus crinitus</i>         | 8,13                                       |
| Wood stork                 | <i>Mycteria americana</i>         | fly over                                   |
| Yellow-crowned night heron | <i>Nycticorax violaceus</i>       | 63,fly over                                |
| Eastern screech owl        | <i>Otus asio</i>                  | 8  |
| Osprey                     | <i>Pandion haliaetus</i>          | 63,fly over                                |
| Northern parula            | <i>Parula americana</i>           | 8  |
| Tufted titmouse            | <i>Parus bicolor</i>              | 8  |
| Carolina chickadee         | <i>Parus carolinensis</i>         | 8  |
| House sparrow*             | <i>Passer domesticus</i>          | 8,81                                       |
| Indigo bunting             | <i>Passerina cyanea</i>           | 8,13                                       |
| American white pelican     | <i>Pelecanus erythrorhynchos</i>  | 63,fly over                                |
| Brown pelican              | <i>Pelecanus occidentalis</i>     | 1,63                                       |
| Double-crested cormorant   | <i>Phalacrocorax auritus</i>      | 63,fly over                                |
| Rose-breasted grosbeak     | <i>Pheucticus ludovicianus</i>    | 63,fly over                                |
| Hairy woodpecker           | <i>Picoides villosus</i>          | 8  |
| Rufous-sided towhee        | <i>Pipilo erythrophthalmus</i>    | 8  |
| Scarlet tanager            | <i>Piranga olivacea</i>           | 8,13                                       |
| Summer tanager             | <i>Piranga rubra</i>              | 8,13                                       |
| Black-bellied plover       | <i>Pluvialis squatarola</i>       | 1,63                                       |
| Horned grebe               | <i>Podiceps auritus</i>           | 63,fly over                                |
| Pied-billed grebe          | <i>Podilymbus podiceps</i>        | 63,fly over                                |
| Blue-gray gnatcatcher      | <i>Polioptila caerulea</i>        | 8  |
| Purple gallinule           | <i>Porphyryla martinica</i>       | 63,fly over                                |
| Sora                       | <i>Porzana carolina</i>           | 42,63,fly over                             |
| Purple martin              | <i>Progne subis</i>               | 81   |
| Prothonotary warbler       | <i>Protonotaria citrea</i>        | 8,13                                       |
| Boat-tailed grackle        | <i>Quiscalus major</i>            | 63,fly over                                |
| Common grackle             | <i>Quiscalus quisqualis</i>       | 81,82                                      |
| Ruby-crowned kinglet       | <i>Regulus calendula</i>          | 8  |
| Black skimmer              | <i>Rynchops niger</i>             | 65   |
| Eastern phoebe             | <i>Sayornis phoebe</i>            | 8  |
| American woodcock          | <i>Scolopax minor</i>             | 63,fly over                                |
| American redstart          | <i>Setophaga ruticilla</i>        | 8,13                                       |
| Eastern bluebird           | <i>Sialia sialis</i>              | 8  |
| Red-breasted nuthatch      | <i>Sitta canadensis</i>           | 8  |

\* Non-native Species

Tarkiln Bayou Preserve State Park—Animals

| Common Name              | Scientific Name                   | Primary Habitat Codes<br>(for all species) |
|--------------------------|-----------------------------------|--|
| Brown-headed nuthatch    | <i>Sitta pusilla</i>              | 8  |
| Yellow-bellied sapsucker | <i>Sphyrapicus varius</i>         | 8,81                                       |
| Chipping sparrow         | <i>Spizella passerina</i>         | 81   |
| Field sparrow            | <i>Spizella pusilla</i>           | 81   |
| Least tern               | <i>Sterna antillarum</i>          | 65   |
| Forster's tern           | <i>Sterna forsteri</i>            | 65   |
| Common tern              | <i>Sterna hirundo</i>             | 65   |
| Royal tern               | <i>Sterna maxima</i>              | 65   |
| Sandwich tern            | <i>Sterna sandvicensis</i>        | 65   |
| Rough-winged swallow     | <i>Stelgidopteryx serripennis</i> | 42,63,fly over                             |
| Barred owl               | <i>Strix varia</i>                | 8  |
| Eastern meadowlark       | <i>Sturnella magna</i>            | 81   |
| European starling*       | <i>Sturnus vulgaris</i>           | 81   |
| Northern gannet          | <i>Sula bassanus</i>              | 65   |
| Tree swallow             | <i>Tachycineta bicolor</i>        | 65   |
| Carolina wren            | <i>Thryothorus ludovicianus</i>   | 8,81                                       |
| Brown thrasher           | <i>Toxostoma rufum</i>            | 81   |
| Greater yellowlegs       | <i>Tringa melanoleuca</i>         | 63   |
| House wren               | <i>Troglodytes aedon</i>          | 8,81                                       |
| Winter wren              | <i>Troglodytes troglodytes</i>    | fly over                                   |
| American robin           | <i>Turdus migratorius</i>         | 8,13,81                                    |
| Eastern kingbird         | <i>Tyrannus tyrannus</i>          | 8,81                                       |
| Orange-crowned warbler   | <i>Vermivora celata</i>           | 8  |
| Yellow-throated vireo    | <i>Vireo flavifrons</i>           | 42,81                                      |
| White-eyed vireo         | <i>Vireo griseus</i>              | 8,13                                       |
| Solitary vireo           | <i>Vireo solitarius</i>           | 8,13                                       |
| Red-eyed vireo           | <i>Vireo olivaceus</i>            | 8,13                                       |
| Hooded warbler           | <i>Wilsonia citrina</i>           | 8  |
| Mourning dove            | <i>Zenaida macroura</i>           | 8,13,81                                    |
| White-throated sparrow   | <i>Zonotricha albicollis</i>      | 8  |

**MAMMALS**

|                        |                               |         |
|------------------------|-------------------------------|---------|
| Coyote*                | <i>Canis latrans</i>          | ALL     |
| Beaver                 | <i>Castor canadensis</i>      | 54      |
| Nine-banded armadillo* | <i>Dasypus novemcinctus</i>   | 8,13,81 |
| Opposum                | <i>Didelphis marsupialis</i>  | 8,13,81 |
| River otter            | <i>Lutra canadensis</i>       | 53,54   |
| Striped skunk          | <i>Mephitis mephitis</i>      | 8       |
| Eastern woodrat        | <i>Neotoma floridana</i>      | 8       |
| White-tailed deer      | <i>Odocoileus virginianus</i> | 8,13,41 |
| Cotton mouse           | <i>Peromyscus gossypinus</i>  | 8,81    |
| Raccoon                | <i>Procyon lotor</i>          | ALL     |
| Eastern mole           | <i>Scalopus aquaticus</i>     | 8       |
| Eastern gray squirrel  | <i>Sciurus carolinensis</i>   | 7,8,81  |
| Hispid cotton rat      | <i>Sigmodon hispidus</i>      | 8,81    |
| Eastern cottontail     | <i>Sylvilagus floridanus</i>  | 8,81    |

\* Non-native Species

Tarkiln Bayou Preserve State Park—Animals

| <b>Common Name</b> | <b><i>Scientific Name</i></b>   | <b>Primary Habitat Codes<br/>(for all species)</b> |
|--------------------|---------------------------------|--|
| Marsh rabbit       | <i>Sylvilagus palustris</i>     | 8,41,42  |
| Gray fox           | <i>Urocyon cinereoargenteus</i> | 8,13   |
| Red fox*           | <i>Vulpes fulva</i>             | any  |

\* Non-native Species

## Habitat Codes

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### **TERRESTRIAL**

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. Coastal Grasslands
10. Pine Rockland
11. Prairie Hammock
12. Rockland Hammock
13. Sandhill
14. Scrub
15. Scrubby Flatwoods
16. Shell Mound
17. Sinkhole
18. Slope Forest
19. Upland Glade
20. Upland Hardwood Forest
21. Upland Mixed Forest
22. Upland Pine Forest
23. Xeric Hammock

### **PALUSTRINE**

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

### **LACUSTRINE**

43. Clastic Upland Lake
44. Coastal Dune Lake
45. Coastal Rockland Lake
46. Flatwood/Prairie Lake
47. Marsh Lake

### **LACUSTRINE—Continued**

48. River Floodplain Lake
49. Sandhill Upland Lake
50. Sinkhole Lake
51. Swamp Lake

### **RIVERINE**

52. Alluvial Stream
53. Blackwater Stream
54. Seepage Stream
55. Spring-Run Stream

### **ESTUARINE**

56. Estuarine Composite Substrate
57. Estuarine Consolidated Substrate
58. Estuarine Coral Reef
59. Estuarine Grass Bed
60. Estuarine Mollusk Reef
61. Estuarine Octocoral Bed
62. Estuarine Sponge Bed
63. Estuarine Tidal Marsh
64. Estuarine Tidal Swamp
65. Estuarine Unconsolidated Substrate
66. Estuarine Worm Reef

### **MARINE**

67. Marine Algal Bed
68. Marine Composite Substrate
69. Marine Consolidated Substrate
70. Marine Coral Reef
71. Marine Grass Bed
72. Marine Mollusk Reef
73. Marine Octocoral Bed
74. Marine Sponge Bed
75. Marine Tidal Marsh
76. Marine Tidal Swamp
77. Marine Unconsolidated Substrate
78. Marine Worm Reef

### **SUBTERRANEAN**

79. Aquatic Cave
80. Terrestrial Cave

### **MISCELLANEOUS**

81. Ruderal
  82. Developed
- MTC** Many Types Of Communities  
**OF** Overflying

**Addendum 5—Designated Species List**



## **Rank Explanations For FNAI Global Rank, FNAI State Rank, Federal Status And State Status**

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

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

Federal and State status information is from the U.S. Fish and Wildlife Service; and the Florida 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) 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)
- N = Not currently listed, nor currently being considered for listing, by state or federal agencies.



## **Rank Explanations For FNAI Global Rank, FNAI State Rank, Federal Status And State Status**

### **LEGAL STATUS**

#### **FEDERAL (Listed by the U. S. Fish and Wildlife Service - USFWS)**

- LE = Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species that is in danger of extinction throughout all or a significant portion of its range.
- PE = Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
- LT = Listed as Threatened Species. Defined as any species that is likely to become an endangered species within the near future throughout all or a significant portion of its range.
- PT = Proposed for listing as Threatened Species.
- C = 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) = Endangered due to similarity of appearance.
- T(S/A) = Threatened due to similarity of appearance.

#### **STATE**

##### **Animals (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.

##### **Plants (Listed by the Florida Department of Agriculture and Consumer Services - FDACS)**

- LE = Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.
- LT = Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered.

**Tarkiln Bayou Preserve State Park—Designated Species**

**Plants**

| <b>Common Name/<br/>Scientific Name</b>                     | <b>Designated Species Status</b> |              |             |
|---|----------------------------------|--------------|-------------|
|   | <b>FDA</b>                       | <b>USFWS</b> | <b>FNAI</b> |
| Large-leaved jointweed<br><i>Polygonella macrophylla</i>    | LT                               | MC           | G3, S3      |
| White topped pitcher plant<br><i>Sarracenia leucophylla</i> | LE                               | MC           | G3, S3      |
| Red pitcher plant<br><i>Sarracenia rubra</i>                | LT                               | MC           | G3,S3       |

**Tarkiln Bayou Preserve State Park—Designated Species**

**Animals**

| <b>Common Name/<br/>Scientific Name</b>                       | <b>Designated Species Status</b> |              |             |
|---|----------------------------------|--------------|-------------|
|   | <b>FFWCC</b>                     | <b>USFWS</b> | <b>FNAI</b> |
| <b>REPTILES</b>   |                                  |              |             |
| American alligator<br><i>Alligator mississippiensis</i>       | LS                               | T(S/A)       | G5, S4      |
| Eastern diamondback rattlesnake<br><i>Crotalus adamanteus</i> |                                  |              | G5, S3      |
| Gopher tortoise<br><i>Gopherus polyphemus</i>                 | LS                               |              | G3, S3      |
| Southern hognose snake<br><i>Heterodon simus</i>              |                                  |              | G2, S?      |
| <b>BIRDS</b>  |                                  |              |             |
| Cooper's hawk<br><i>Accipiter cooperii</i>                    |                                  |              | G4, S3?     |
| Great egret<br><i>Ardea alba</i>                              |                                  |              | G5, S4      |
| Snowy plover<br><i>Charadrius alexandrius</i>                 | LT                               |              | G4,S1       |
| Snowy egret<br><i>Egretta thula</i>                           | LS                               |              | G5,S3       |
| Tricolored heron<br><i>Egretta tricolor</i>                   | LS                               |              | G5,S4       |
| Little blue heron<br><i>Egretta caerulea</i>                  | LS                               |              | G5, S4      |
| Osprey<br><i>Pandion haliaetus</i>                            |                                  |              | G5,S3S4     |
| Black skimmer<br><i>Rhynchops niger</i>                       | LS                               |              | G5,S3       |
| Least tern<br><i>Sterna antillarum</i>                        | LT                               |              | G4,S3       |
| Caspian tern<br><i>Sterna caspia</i>                          |                                  |              | G5,S2       |
| Southern bald eagle<br><i>Haliaeetus leucocephalus</i>        | LT                               | LT           | G4, S3      |
| Wood stork<br><i>Mycteria americana</i>                       | LE                               | LE           | G4, S2      |

**Addendum 6—Timber Management Analysis**



## Tarkiln Bayou Preserve State Park—Timber Management Analysis

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The timber assessment required by Chapters 253 and 259, Florida Statutes, was conducted by John McKenzie in coordination with the Florida Division of Forestry.

**Stand 1.** Timber stand 1 is approximately 140 acres (not including wetland areas) of planted slash pine located just east of Bauer Road (County Road 293). The stand encompasses portions of burn zones J and L. The trees were planted in a random fashion, and are not arranged in discernable rows. Numerous longleaf of various size and age have seeded into the stand, particularly along the outside edges. There is longleaf regeneration throughout the stand, particularly in the eastern half of burn zone J where various age longleaf ranging from saplings to 10-inch trees are fairly well mixed in. The planted slash pines are approximately 18 years old, with diameters (dbh) ranging from 4 to 10 inches. The average dbh is approximately 6 inches. About 1/3 of the planted pines are less than 6 inches dbh. The remainder of the stand consists of pulpwood and some chip & saw size trees. The slash pines range from about 25 – 40 feet tall, with an average height of about 30 feet. Stand density is estimated to be 400 - 500 stems per acre. The trees appear to be healthy. No obvious signs of pine bark beetles, or fusiform rust have been observed.

A large portion of the timber stand, particularly within the center, is a low, poorly drained area that tends to stay wet during times of high rainfall. Plummer fine sand and Rutlege sand soil types occur over 50% of the stand, and are characterized as poorly drained, with a depth to seasonally high water table of 0-1 foot. Additionally, the surface layers have an organic layer, which helps retain soil moisture. Grasses and forbs are sparse. Clumps of wiregrass are widely scattered. The bulk of understory vegetation in slightly higher areas includes yaupon holly, scattered palmetto, gallberry and high bush blueberry. These areas are fairly open with fair access for prescribed burning. Lower, poorly drained interior areas of the stand have a denser understory of hardwood shrubs, chiefly wax myrtle. Access through these areas is poor. A small blackwater stream runs through the eastern portion of the stand, and is bordered by a heavy growth of titi along either side.

**Recommendations.** When considering options for this stand of trees, it should be taken into account that slash pines, as well as longleaf pines appear to be a natural component of the preserve's many flatwoods natural communities. This being said, a significant portion of this timber stand appears to be nearly ready for a pulpwood harvest. Conceptually, one option would be to conduct a pulpwood thin, taking every other row of trees, or selecting only the larger more merchantable trees. This would allow room for planting of longleaf tublings, while leaving enough of the planted pine overstory to provide needle cast for burning. However, the random planting and close spacing of the trees would make selective harvest very difficult. A skidder would have to negotiate through the stand, cutting only marked trees and leaving all others untouched, including the longleaf natural regeneration. This approach may not be possible due to the density and distribution of the trees. In addition, the partial cut concept is restricted by the economics of timber sales. The relatively small size of the stand and current low basal area are cost prohibitive to any potential contractor. In order to profit from the harvest, it is likely that the pulpwood market would have to be high and the entire stand (all of the trees) would have to be included in the sale.

The Park Biologist should contact the DOF, Region 1 forester assigned to assist other public lands, and set up a site visit to more thoroughly assess the stand and review potential management options. The Region 1 Forester can be contacted at office (850) 410- 2368, cell

## Tarkiln Bayou Preserve State Park—Timber Management Analysis

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(850) 228-7814.

It is recommended that the timber stand be managed with prescribed fire. The respective portions should be routinely burned in conjunction with burn zones J and L. A prescribed fire regime will open up pockets for longleaf regen, reduce hardwood competition, reduce fuel loads, promote understory herbs, and help the area advance towards a more natural multi-aged overstory. It is recommended that, initially, the stand be placed on a winter growing season burn regime. The stand (located within portions of burn zones J and L) should be initially burned under a relatively low drought index (less than 350 KBDI), and with appreciable deep duff and soil moisture (no more than 7 days since ½ -1 inch rainfall event), (Fine Fuel Moisture estimates based on Appendix B of Fireline Handbook should be no lower than 10%). Ignition plans such as spot firing or tight stripheads should be considered here in order to minimize crown scorch and excessive mortality of overstory pines. Understory fuels reduction should serve to improve access into/through the stand, and better delineate areas of longleaf pine regeneration. Additionally, fire will stimulate wiregrass and allow more sunlight to reach grasses/herbaceous plants.

Any level of harvest should remain a management option based on DOF recommendations and Park Service long-term restoration objectives. If any harvest operations occur, work should be restricted to reasonably dry conditions in order to minimize rutting and other ground disturbance associated with the use of skidders and hauling trucks. The stand would be accessed via resource management roads/fire lines. These resource management roads are accessed from Bauer Road (County Road 293) directly across from the park's day use parking entrance.

Prepared by: John Mckenzie



**Addendum 7—Priority Schedule And Cost Estimates**



## **Tarkiln Bayou State Park—Priority Schedule And Cost Estimates**

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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. Develop a comprehensive prescribed fire plan for the preserve. Estimated Cost (outsourced): \$50,000
2. Prescribed burning mechanical treatment or line prep, interface line maintenance every 24 months. Subtotal: \$22,500.00
3. Yearly implementation of burn program over ten year period. Subtotal: \$40,000.
4. Purchase of additional land management heavy equipment. Estimated Cost: \$200,000
5. Establishment/maintenance of firebreaks. Subtotal: \$100,000
6. Subgrade stabilization of fire lines and construction of low water crossings. Subtotal: \$392,000.00
7. Development of a feasibility study/conceptual plan for the restoration of the Bronson Field ditch. Estimated Cost (multi-agency, in-house, in-kind services): \$10,000
8. Coordination of application process for permitting related to the construction of low water stream crossings and other appropriate wetland crossings and restoration projects necessary for effective resource management on the preserve. Estimated Cost (in-house, in-kind services, Division & DEP staff hours): \$3,000
9. Funding for boundary fencing, where necessary to protect the preserve's resources. Estimated Cost: \$100,000
10. Listed Species Management, Studies Surveys Monitoring. OPS staff, equipment, field supplies. Subtotal: \$6,000
11. Exotic plant and animal management, exotic plant removal. OPS staff, application equipment, PPE and herbicides Estimated Cost: \$64,500.00
12. Natural community management, restoration. Heavy equipment work and pitcherplant reintroduction. Subtotal: \$4,800.00
13. Hydrological management, Dupont Point Rd. restoration plan. Subtotal: \$45,000.00
14. Funding for Phase 1 archaeological surveys in areas targeted for development. Subtotal: \$60,000.00
15. Hydrological management installation of a series of wells to monitor ground water levels. Estimated Cost: \$45,000
16. Hydrological management baseline water quality sampling of Tarkiln Bayou and unnamed creek that flows beneath Bauer Road. Subtotal: \$1,350.00
17. Hydrological management feasibility study for restoration of Bronson Field ditch. Subtotal \$25,000.

**Tarkiln Bayou State Park—Priority Schedule And Cost Estimates**

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| <b>Development Area or Facilities</b> | <b>Cost</b>           |
|---------------------------------------|-----------------------|
| Beach Use Area.....                   | \$434,500.00          |
| Camping Areas.....                    | 287,500.00            |
| Support Facilities .....              | 1,704,000.00          |
| Trails .....                          | 529,780.00            |
| <b>Total with contingency .....</b>   | <b>\$3,546,936.00</b> |

**Addendum 8—Additional Information**

**FNAI Descriptions**

**DHR Cultural Management Statement**

**And**

**Land Management Review Report**



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## Descriptions Of Natural Communities Developed By FNAI

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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.

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### **TERRESTRIAL COMMUNITIES**

**XERIC UPLANDS**  
**COASTAL UPLANDS**  
**MESIC UPLANDS**  
**ROCKLANDS**  
**MESIC FLATLANDS**

### **PALUSTRINE COMMUNITIES**

**WET FLATLANDS**  
**SEEPAGE WETLANDS**  
**FLOODPLAIN WETLANDS**  
**BASIN WETLANDS**

### **LACUSTRINE COMMUNITIES**

**RIVERINE COMMUNITIES**

**SUBTERRANEAN COMMUNITIES**

**MARINE/ESTUARINE COMMUNITIES**

### **Definitions of Terms Used in Natural Community Descriptions**

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**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.



## Descriptions Of Natural Communities Developed By FNAI

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**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;

## Descriptions Of Natural Communities Developed By FNAI

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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.

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**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 wave-formed 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

## Descriptions Of Natural Communities Developed By FNAI

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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.

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**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.

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## Descriptions Of Natural Communities Developed By FNAI

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**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.

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**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.

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

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**MARINE/ESTUARINE** (The distinction between the Marine and Estuarine Natural Communities is often

## Descriptions Of Natural Communities Developed By FNAI

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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., coralgall, 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 sparse, 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 Scleractinia (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

**Fire**

**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

## Descriptions Of Natural Communities Developed By FNAI

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

anise - *Illicium floridanum*  
bays:  
swamp bay - *Persea palustris*  
gordonia - *Gordonia lasianthus*  
sweetbay - *Magnolia virginiana*  
beakrush - *Rhynchospora* spp.  
beech - *Fagus grandifolia*  
blackgum - *Nyssa 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. henryi*  
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 - *Nyssa 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 - *Quercus 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 elliotii*  
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 tulipifera*  
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*  
yucca - *Yucca aloifolia*

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**A. GENERAL DISCUSSION**

Archaeological and historic sites are defined collectively in 267.021(3), F.S., as "historic properties" or "historic resources." They have several essential characteristics that must be recognized in a management program.

First of all, they are a finite and non-renewable resource. Once destroyed, presently existing resources, including buildings, other structures, shipwreck remains, archaeological sites and other objects of antiquity, cannot be renewed or revived. Today, sites in the State of Florida are being destroyed by all kinds of land development, inappropriate land management practices, erosion, looting, and to a minor extent even by well-intentioned professional scientific research (e.g., archaeological excavation). Measures must be taken to ensure that some of these resources will be preserved for future study and appreciation.

Secondly, sites are unique because individually they represent the tangible remains of events that occurred at a specific time and place.

Thirdly, while sites uniquely reflect localized events, these events and the origin of particular sites are related to conditions and events in other times and places. Sites can be understood properly only in relation to their natural surroundings and the activities of inhabitants of other sites. Managers must be aware of this "systemic" character of historic and archaeological sites. Also, it should be recognized that archaeological sites are time capsules for more than cultural history; they preserve traces of past biotic communities, climate, and other elements of the environment that may be of interest to other scientific disciplines.

Finally, the significance of sites, particularly archaeological ones, derives not only from the individual artifacts within them, but equally from the spatial arrangement of those artifacts in both horizontal and vertical planes. When archaeologists excavate, they recover, not merely objects, but also a record of the positions of these objects in relation to one another and their containing matrix (e.g., soil strata). Much information is sacrificed if the so-called "context" of archaeological objects is destroyed or not recovered, and this is what archaeologists are most concerned about when a site is threatened with destruction or damage. The artifacts themselves can be recovered even after a site is heavily disturbed, but the context -- the vertical and horizontal relationships -- cannot. Historic structures also contain a wealth of cultural (socio-economic) data that can be lost if historically sensitive maintenance, restoration or rehabilitation procedures are not implemented, or if they are demolished or extensively altered without appropriate documentation. Lastly, it should not be forgotten that historic structures often have associated potentially significant historic archaeological features that must be considered in land management decisions.

**B. STATUTORY AUTHORITY**

Chapter 253, Florida Statutes ("State Lands") directs the preparation of "single-use" or "multiple-use" land management plans for all state-owned lands and state-owned sovereignty submerged lands. In this document, 253.034(4), F.S., specifically requires that "all management plans, whether for single-use or multiple-use properties, shall specifically describe how the managing agency plans to identify, locate, protect and preserve, or otherwise use fragile non-renewable resources, such as archaeological and historic sites, as well as other fragile resources..."

Chapter 267, Florida Statutes is the primary historic preservation authority of the state. The importance of protecting and interpreting archaeological and historic sites is recognized in 267.061(1)(a), F.S.:The rich and unique heritage of historic properties in this state, representing more than 10,000 years of human presence, is an important legacy to be valued and conserved for present and future generations. The destruction of these nonrenewable historic resources will engender a significant loss to the state's



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quality of life, economy, and cultural environment. It is therefore declared to be state policy to:

1. Provide leadership in the preservation of the state's historic resources; [and]
2. Administer state-owned or state-controlled historic resources in a spirit of stewardship and trusteeship;...

Responsibilities of the Division of Historical Resources in the Department of State pursuant to 267.061(3), F.S., include the following:

1. Cooperate with federal and state agencies, local Governments, and private organizations and individuals to direct and conduct a comprehensive statewide survey of historic resources and to maintain an inventory of such responses.
2. Develop a comprehensive statewide historic preservation plan.
3. Identify and nominate eligible properties to the National Register of Historic Places and otherwise administer applications for listing properties in the National Register of Historic Places.
4. Cooperate with federal and state agencies, local governments, and organizations and individuals to ensure that historic resources are taken into consideration at all levels of planning and development.
5. Advise and assist, as appropriate, federal and state agencies and local governments in carrying out their historic preservation responsibilities and programs.
6. Carry out on behalf of the state the programs of the National Historic Preservation Act of 1966, as amended, and to establish, maintain, and administer a state historic preservation program meeting the requirements of an approved program and fulfilling the responsibilities of state historic preservation programs as provided in subsection 101(b) of that act.
7. Take such other actions necessary or appropriate to locate, acquire, protect, preserve, operate, interpret, and promote the location, acquisition, protection, preservation, operation, and interpretation of historic resources to foster an appreciation of Florida history and culture. Prior to the acquisition, preservation, interpretation, or operation of a historic property by a state agency, the Division shall be provided a reasonable opportunity to review and comment on the proposed undertaking and shall determine that there exists historic authenticity and a feasible means of providing for the preservation, interpretation and operation of such property.
8. Establish professional standards for the preservation, exclusive of acquisition, of historic resources in state ownership or control.
9. Establish guidelines for state agency responsibilities under subsection (2).

Responsibilities of other state agencies of the executive branch, pursuant to 267.061(2), F.S., include:

1. Each state agency of the executive branch having direct or indirect jurisdiction over a proposed state or state-assisted undertaking shall, in accordance with state policy and prior to the approval of expenditure of any state funds on the undertaking, consider the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the National Register of Historic Places. Each such agency shall afford the division a reasonable opportunity to comment with regard to such an undertaking.
2. Each state agency of the executive branch shall initiate measures in consultation with the division to assure that where, as a result of state action or assistance carried out by such agency, a historic property is to be demolished or substantially altered in a way that adversely affects the character, form, integrity, or other qualities that contribute to [the] historical, architectural, or archaeological value of the property, timely steps are taken to determine that no feasible and prudent alternative to the proposed demolition or alteration exists, and, where no such alternative is determined to exist, to assure that timely steps are taken either to avoid or mitigate the adverse effects, or to undertake an appropriate archaeological salvage excavation or other recovery action to document the property as it existed prior to demolition or alteration.
3. In consultation with the division [of Historical Resources], each state agency of the executive branch

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shall establish a program to locate, inventory, and evaluate all historic properties under the agency's ownership or control that appear to qualify for the National Register. Each such agency shall exercise caution to assure that any such historic property is not inadvertently transferred, sold, demolished, substantially altered, or allowed to deteriorate significantly.

4. Each state agency of the executive branch shall assume responsibility for the preservation of historic resources that are owned or controlled by such agency. Prior to acquiring, constructing, or leasing buildings for the purpose of carrying out agency responsibilities, the agency shall use, to the maximum extent feasible, historic properties available to the agency. Each agency shall undertake, consistent with preservation of such properties, the mission of the agency, and the professional standards established pursuant to paragraph (3)(k), any preservation actions necessary to carry out the intent of this paragraph.
5. Each state agency of the executive branch, in seeking to acquire additional space through new construction or lease, shall give preference to the acquisition or use of historic properties when such acquisition or use is determined to be feasible and prudent compared with available alternatives. The acquisition or use of historic properties is considered feasible and prudent if the cost of purchase or lease, the cost of rehabilitation, remodeling, or altering the building to meet compliance standards and the agency's needs, and the projected costs of maintaining the building and providing utilities and other services is less than or equal to the same costs for available alternatives. The agency shall request the division to assist in determining if the acquisition or use of a historic property is feasible and prudent. Within 60 days after making a determination that additional space is needed, the agency shall request the division to assist in identifying buildings within the appropriate geographic area that are historic properties suitable for acquisition or lease by the agency, whether or not such properties are in need of repair, alteration, or addition.
6. Consistent with the agency's mission and authority, all state agencies of the executive branch shall carry out agency programs and projects, including those under which any state assistance is provided, in a manner which is generally sensitive to the preservation of historic properties and shall give consideration to programs and projects which will further the purposes of this section.

Section 267.12 authorizes the Division to establish procedures for the granting of research permits for archaeological and historic site survey or excavation on state-owned or controlled lands, while Section 267.13 establishes penalties for the conduct of such work without first obtaining written permission from the Division of Historical Resources. The Rules of the Department of State, Division of Historical Resources, for research permits for archaeological sites of significance are contained in Chapter 1A-32, F.A.C.

Another Florida Statute affecting land management decisions is Chapter 872, F.S. Section 872.02, F.S., pertains to marked grave sites, regardless of age. Many state-owned properties contain old family and other cemeteries with tombstones, crypts, etc. Section 872.05, F.S., pertains to unmarked human burial sites, including prehistoric and historic Indian burial sites. Unauthorized disturbance of both marked and unmarked human burial site is a felony.

### **C. MANAGEMENT POLICY**

The choice of a management policy for archaeological and historic sites within state-owned or controlled land obviously depends upon a detailed evaluation of the characteristics and conditions of the individual sites and groups of sites within those tracts. This includes an interpretation of the significance (or potential significance) of these sites, in terms of social and political factors, as well as environmental factors. Furthermore, for historic structures architectural significance must be considered, as well as any associated historic landscapes.

Sites on privately owned lands are especially vulnerable to destruction, since often times the economic incentives for preservation are low compared to other uses of the land areas involved. Hence, sites in

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public ownership have a magnified importance, since they are the ones with the best chance of survival over the long run. This is particularly true of sites that are state-owned or controlled, where the basis of management is to provide for land uses that are minimally destructive of resource values.

It should be noted that while many archaeological and historical sites are already recorded within state--owned or controlled--lands, the majority of the uplands areas and nearly all of the inundated areas have not been surveyed to locate and assess the significance of such resources. The known sites are, thus, only an incomplete sample of the actual resources - i.e., the number, density, distribution, age, character and condition of archaeological and historic sites - on these tracts. Unfortunately, the lack of specific knowledge of the actual resources prevents formulation of any sort of detailed management or use plan involving decisions about the relative historic value of individual sites. For this reason, a generalized policy of conservation is recommended until the resources have been better addressed.

The generalized management policy recommended by the Division of Historical Resources includes the following:

1. State land managers shall coordinate all planned activities involving known archaeological or historic sites or potential site areas closely with the Division of Historical Resources in order to prevent any kind of disturbance to significant archaeological or historic sites that may exist on the tract. Under 267.061(1)(b), F.S., the Division of Historical Resources is vested with title to archaeological and historic resources abandoned on state lands and is responsible for administration and protection of such resources. The Division will cooperate with the land manager in the management of these resources. Furthermore, provisions of 267.061(2) and 267.13, F.S., combined with those in 267.061(3) and 253.034(4), F.S., require that other managing (or permitting) agencies coordinate their plans with the Division of Historical Resources at a sufficiently early stage to preclude inadvertent damage or destruction to known or potentially occurring, presently unknown archaeological and historic sites. The provisions pertaining to human burial sites must also be followed by state land managers when such remains are known or suspected to be present (see 872.02 and 872.05, F.S., and 1A-44, F.A.C.)
2. Since the actual resources are so poorly known, the potential impact of the managing agency's activities on historic archaeological sites may not be immediately apparent. Special field survey for such sites may be required to identify the potential endangerment as a result of particular management or permitting activities. The Division may perform surveys, as its resources permit, to aid the planning of other state agencies in their management activities, but outside archaeological consultants may have to be retained by the managing agency. This would be especially necessary in the cases of activities contemplating ground disturbance over large areas and unexpected occurrences. It should be noted, however, that in most instances Division staff's knowledge of known and expected site distribution is such that actual field surveys may not be necessary, and the project may be reviewed by submitting a project location map (preferably a 7.5 minute U.S.G.S. Quadrangle map or portion thereof) and project descriptive data, including detailed construction plans. To avoid delays, Division staff should be contacted to discuss specific project documentation review needs.
3. In the case of known significant sites, which may be affected by proposed project activities, the managing agency will generally be expected to alter proposed management or development plans, as necessary, or else make special provisions to minimize or mitigate damage to such sites.
4. If in the course of management activities, or as a result of development or the permitting of dredge activities (see 403.918(2)(6)a, F.S.), it is determined that valuable historic or archaeological sites will be damaged or destroyed, the Division reserves the right, pursuant to 267.061(1)(b), F.S., to require salvage measures to mitigate the destructive impact of such activities to such sites. Such salvage measures would be accomplished before the Division would grant permission for destruction of the affected site areas. The funding needed to implement salvage measures would be the responsibility of the managing agency planning the site destructive activity. Mitigation of historic structures at a

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minimum involves the preparation of measured drawings and documentary photographs. Mitigation of archaeological resources involves the excavation, analysis and reporting of the project findings and must be planned to occur sufficiently in advance to avoid project construction delays. If these services are to be contracted by the state agency, the selected consultant will need to obtain an Archaeological Research Permit from the Division of Historical Resources, Bureau of Archaeological Research (see 267.12, F.S. and Rules 1A-32 and 1A-46 F.A.C.).

5. For the near future, excavation of non-endangered (i.e., sites not being lost to erosion or development) archaeological site is discouraged. There are many endangered sites in Florida (on both private and public lands) in need of excavation because of the threat of development or other factors. Those within state-owned or controlled lands should be left undisturbed for the present - with particular attention devoted to preventing site looting by "treasure hunters". On the other hand, the archaeological and historic survey of these tracts is encouraged in order to build an inventory of the resources present, and to assess their scientific research potential and historic or architectural significance.
6. The cooperation of land managers in reporting sites to the Division that their field personnel may discover is encouraged. The Division will help inform field personnel from other resource managing agencies about the characteristics and appearance of sites. The Division has initiated a cultural resource management training program to help accomplish this. Upon request the Division will also provide to other agencies archaeological and historical summaries of the known and potentially occurring resources so that information may be incorporated into management plans and public awareness programs (See Management Implementation).
7. Any discovery of instances of looting or unauthorized destruction of sites must be reported to the agent for the Board of Trustees of the Internal Improvement Trust Fund and the Division so that appropriate action may be initiated. When human burial sites are involved, the provisions of 872.02 and 872.05, F. S. and Rule 1A-44, F.A.C., as applicable, must also be followed. Any state agent with law enforcement authority observing individuals or groups clearly and incontrovertibly vandalizing, looting or destroying archaeological or historic sites within state-owned or controlled lands without demonstrable permission from the Division will make arrests and detain those individuals or groups under the provisions of 267.13, 901.15, and 901.21, F.S., and related statutory authority pertaining to such illegal activities on state-owned or controlled lands. County Sheriffs' officers are urged to assist in efforts to stop and/or prevent site looting and destruction.

In addition to the above management policy for archaeological and historic sites on state-owned land, special attention shall be given to those properties listed in the National Register of Historic Places and other significant buildings. The Division recommends that the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (Revised 1990) be followed for such sites.

The following general standards apply to all treatments undertaken on historically significant properties.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alterations of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of

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deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired. (see Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings [Revised 1990]).

Divisions of Historical Resources staff are available for technical assistance for any of the above listed topics. It is encouraged that such assistance be sought as early as possible in the project planning.

**D. MANAGEMENT IMPLEMENTATION**

As noted earlier, 253.034(4), F.S., states that "all management plans, whether for single-use or multiple-use properties, shall specifically describe how the managing agency plans to identify, locate, protect and preserve, or otherwise use fragile non-renewable resources, such as archaeological and historic sites..." The following guidelines should help to fulfill that requirement.

1. All land managing agencies should contact the Division and send U.S.G.S. 7.5 minute quadrangle maps outlining the boundaries of their various properties.
2. The Division will in turn identify site locations on those maps and provide descriptions for known archaeological and historical sites to the managing agency.
3. Further, the Division may also identify on the maps areas of high archaeological and historic site location probability within the subject tract. These are only probability zones, and sites may be found outside of these areas. Therefore, actual ground inspections of project areas may still be necessary.
4. The Division will send archaeological field recording forms and historic structure field recording forms to representatives of the agency to facilitate the recording of information on such resources.
5. Land managers will update information on recorded sites and properties.
6. Land managers will supply the Division with new information as it becomes available on previously unrecorded sites that their staff locate. The following details the kind of information the Division wishes to obtain for any new sites or structures that the land managers may report:

**A. Historic Sites**

- (1) Type of structure (dwelling, church, factory, etc.).
- (2) Known or estimated age or construction date for each structure and addition.
- (3) Location of building (identify location on a map of the property, and building placement, i.e., detached, row, etc.).
- (4) General Characteristics: (include photographs if possible) overall shape of plan (rectangle, "L" "T" "H" "U", etc.); number of stories; number of vertical divisions of bays; construction materials (brick, frame, stone, etc.); wall finish (kind of bond, coursing, shingle, etc.); roof shape.

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- (5) Specific features including location, number and appearance of:
  - (a) Important decorative elements;
  - (b) Interior features contributing to the character of the building;
  - (c) Number, type, and location of outbuildings, as well as date(s) of construction;
  - (d) Notation if property has been moved;
  - (e) Notation of known alterations to building.

**B. Archaeological Sites**

- (1) Site location (written narrative and mapped location).
  - (2) Cultural affiliation and period.
  - (3) Site type (midden, burial mound, artifact scatter, building rubble, etc.).
  - (4) Threats to site (deterioration, vandalism, etc.).
  - (5) Site size (acreage, square meters, etc.).
  - (6) Artifacts observed on ground surface (pottery, bone, glass, etc.).
  - (7) Description of surrounding environment.
- 7. No land disturbing activities should be undertaken in areas of known archaeological or historic sites or areas of high site probability without prior review by the Division early in the project planning.
  - 8. Ground disturbing activities may proceed elsewhere but land managers should stop disturbance in the immediate vicinity of artifact finds and notifies the Division if previously unknown archaeological or historic remains are uncovered. The provisions of Chapter 872, F.S., must be followed when human remains are encountered.
  - 9. Excavation and collection of archaeological and historic sites on state lands without a permit from the Division are a violation of state law and shall be reported to a law enforcement officer. The use of metal detectors to search for historic artifacts shall be prohibited on state lands except when authorized in a 1A-32, F.A.C., research permit from the Division.
  - 10. Interpretation and visitation which will increase public understanding and enjoyment of archaeological and historic sites without site destruction or vandalism is strongly encouraged.
  - 11. Development of interpretive programs including trails, signage, kiosks, and exhibits is encouraged and should be coordinated with the Division.
  - 12. Artifacts found or collected on state lands are by law the property of the Division. Land managers shall contact the Division whenever such material is found so that arrangements may be made for recording and conservation. This material, if taken to Tallahassee, can be returned for public display on a long term loan.

**E. ADMINISTERING AGENCY**

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

Compliance Review Section  
Bureau of Historic Preservation  
Division of Historical Resources  
R.A. Gray Building  
500 South Bronough Street  
Tallahassee, Florida 32399-0250

**Contact Person:**

**Susan M. Harp**  
Historic Preservation Planner  
Telephone (850) 245-6333  
Suncom 205-6333  
FAX (850) 245-6437

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**Land Management Review of Tarkiln Bayou State Park  
(Lease No. 4192): June 11, 2003**

Prepared by Division of State Lands Staff

William Howell, OMC Manager  
Bonnie Malloy, Administrative Assistant

For  
Tarkiln Bayou State Park Review Team

**FINAL August 1, 2003**

|                        |                        |
|------------------------|------------------------|
| Land Manager:          | <u>DRP</u>             |
| Area:                  | <u>900 Acres</u>       |
| County:                | <u>Escambia County</u> |
| Mngt. Plan Revised:    | <u>6/17/1999</u>       |
| Mngt. Plan Update Due: | <u>6/17/2004</u>       |





**Management Review Team Members**

| <b>Agency Represented</b>                 | <b>Team member Appointed</b> | <b>Team member In attendance</b> |
|---|------------------------------|----------------------------------|
| Division of Forestry                      | Tom Serviss                  | Craig Wessen                     |
| DEP Northwest District                    | Glen Butts                   | Glen Butts                       |
| Escambia County Conservation Organization | Kevin Briski                 |                                  |
| Soil and Water Conservation District      | Riley Hoggard                | Riley Hoggard                    |
| DRP District 1                            | Richard Freisinger           | Richard Freisinger               |
| FWCC                                      | John Bente                   | John McKenzie                    |
| Manager                                   | Karen Lamonte                | Karen Lamonte                    |
|   | Joseph Smyth                 | Joseph Smyth                     |

**Process for Implementing Regional Management Review Teams**

**Legislative Intent and Guidance:**

Chapter 259.036, F. S. was enacted in 1997 to determine whether conservation, preservation, and recreation lands owned by the state Board of Trustees of the Internal Improvement Trust Fund (Board) are being managed properly. It directs the Department of Environmental Protection (DEP) to establish land management review teams to evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions, and archaeological features. The teams also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan. If a land management plan has not been adopted, the review shall consider the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices are in compliance with the management policy statement and management prospectus for that property. If the land management review team determines that reviewed lands are not being managed for the purposes for which they were acquired or in compliance with the adopted land management plan, management policy statement, or management prospectus, DEP shall provide the review findings to the Board, and the managing agency must report to the Board its reasons for managing the lands as it has. A report of the review findings are given to the managing agency under review, the Acquisition and Restoration Council, and to the Division of State Lands. Also, DEP shall report the annual review findings of its land management review teams to the Board no later than the second board meeting in October of each year.

**Review Site**

The management review of Tarkiln Bayou Preserve State Park considered approximately 900 acres in Escambia County that are managed by the Division of Recreation and Parks (DRP). The team evaluated the extent to which current management actions are sufficient, whether the land is being managed for the purpose for which it was acquired, and whether actual management practices, including public access, are in compliance with the management plan.

## **Land Management Review of Tarkiln Bayou Preserve State Park—June 11, 2003**

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The DRP revised the management plan on June 17, 1999, and the management plan update is due on June 17, 2004.

### **Review Team Determination**

1. Is the land being managed for the purpose for which it was acquired?

**All team members agreed that Tarkiln SP is being managed for the purpose for which it was acquired.**

2. Are actual management practices, including public access, in compliance with the management plan?

**All team members agreed that actual management practices, including public access, were in compliance with the management plan for this site.**

### **Exceptional Management Actions**

The following items received high scores on the review team checklist which indicates that management actions exceeded expectations

#### **Exceptional management actions:**

- Management and protection the Maritime Hammock, Sandhill, Xeric Hammock, Baygall, Wet Prairie/Depression Marsh, Estuarine Tidal Marsh, and Wet Flatwoods communities.
- Excellent prescribed fire program including large areas and high quality burns.
- Excellent control of non-native plants and animals..
- Exceptional boundary delineation.
- Excellent parking, roads and waste disposal.

### **Recommendations and Checklist Findings**

The management plan must include responses to the recommendations and checklist items that are identified below.

#### **Recommendations**

The following recommendations resulted from a discussion and vote of review team members.

1. The team recommends that DRP make the acquisition of the property along the mouth of the bayou a priority.

**Manager's Response: Agree.** Acquisition of the lands around the bayou mouth were a priority for acquisition prior to the LMR, and continue to be. We will continue to work with the Division of State Lands to acquire the property through the Florida Forever Program.

2. The team recommends that improvements be minimized on the property west of Bower road, and that new projects such as the visitors center be located on ruderal areas or co-located at Big Lagoon SP or with the Navy.

**Manager's Response: Disagree.** The current land use plan was developed through a public process and approved by the Land Acquisition and Management Advisory Council. It is beyond the scope of the review team's responsibilities to plan the use of the property. The ranger residence, shop/ equipment storage facilities, and visitor service facilities are needed in the chosen locations for reasons of site security and efficiency of operation. Without such facilities this unit cannot be properly or effectively managed. Further, the only suitable uplands for these facilities are found west of Bauer road, and we anticipate that most of the future public visitation will occur west of Bauer Road.

3. The team recommends that the size of the proposed docks and parking lots are excessive for this property. The team recommends that the carrying capacity be re-evaluated considering the extreme environmental sensitivity of this property.

**Manager's Response: Disagree.** The proposed carrying capacity is not excessive for the acreage of the property. Docks are proposed for an area of traditional public boat access to the property – a use that is surely to increase substantially in coming years. Facilities will clearly be needed to reduce impacts to the shoreline and other resources. Parking lots are needed to allow the public access that the LMR process is intended to insure.

4. The team finds that this park is not adequately staffed or funded. A biologist and several ranger positions dedicated to this site are needed to properly manage this preserve.

**Manager's Response: Agree.**

### **Checklist findings**

The following items received low scores on the review team checklist which indicates that management actions, in the field, were insufficient (f) or that the issue was not sufficiently addressed in the management plan (p). These items need to be further addressed in the management plan update.

5. The team found that the size of burns and the frequency of burns were inadequate in the field, and the discussion in the management plan, relating to prescribed fire, was also inadequate. A more detailed discussion of a plan on how to get this site into a maintenance condition is needed. Discussion in the management plan of amount of acres that need to be burned and the appropriate fire return interval for each community type requiring fire is needed (p,f).

**Manager's Response: Agree, mostly.** We agree that an inadequate percentage of the property has been burned but disagree that the size of any particular burn was inappropriate. We will improve related language in the future unit plan to addresses typical fire return intervals and prescribed fire strategies needed to restore park communities. The specifics of the dynamic strategy to restore the area to maintenance condition will be contained in the District 1 annual burn plan, which will be referenced in the unit plan.

6. Discussion in the management plan of the need for a surface water quality baseline study (p).

**Manager's Response: Disagree.** While such data would be desirable, DRP/DEP does not have the funding or staffing to conduct in-depth "water quality baseline studies" in every park.

## **Land Management Review of Tarkiln Bayou Preserve State Park—June 11, 2003**

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We conduct water quality analyses when needed for specific reasons, provided funding/staffing are available.

7. Discussion in the management plan of the issues relating to the condition of the roads and soil **erosion (p)**.

**Manager's Response: Agree.** We will add language that addresses these concerns.

8. Discussion in the management plan of the management issues relating to the ditch on the north end of the managed area (p).

**Manager's Response: Agree.** We will add language that addresses these concerns.

9. Discussion in the management plan of the need for boundary surveys, additional gates and fencing, and signage along the boundaries (p,f).

**Manager's Response: Agree.** We will add language that addresses these concerns.

10. The team found that the proposed docks and day-use beach area are not consistent with the purposes for which the property was acquired.

**Manager's Response: Disagree.** The property was acquired for environmental preservation and public outdoor recreation. Traditional use of the area has been by boat and appropriate shoreline use can continue if the access by water is regulated through the use of docks. In fact, without such facilities it is much more likely that natural resources will become increasingly degraded over time.