

**FLORIDA CAVERNS STATE PARK**

**UNIT MANAGEMENT PLAN**

**APPROVED**

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

**JUNE 9, 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

September 13, 2006

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

Re: Florida Caverns State Park

Lease #3619

Dear Ms. White:

On June 9, 2006, the Acquisition and Restoration Council recommended approval of the Florida Caverns 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 Florida Caverns 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 June 9, 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,

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

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## **INTRODUCTION**

Florida Caverns State Park is located in Jackson County (see Vicinity Map). Access to the park is via Interstate Highway 10 or U.S. Highway 90 to Highway 166 (see Reference Map). The vicinity map also reflects significant land and water resources existing near the park.

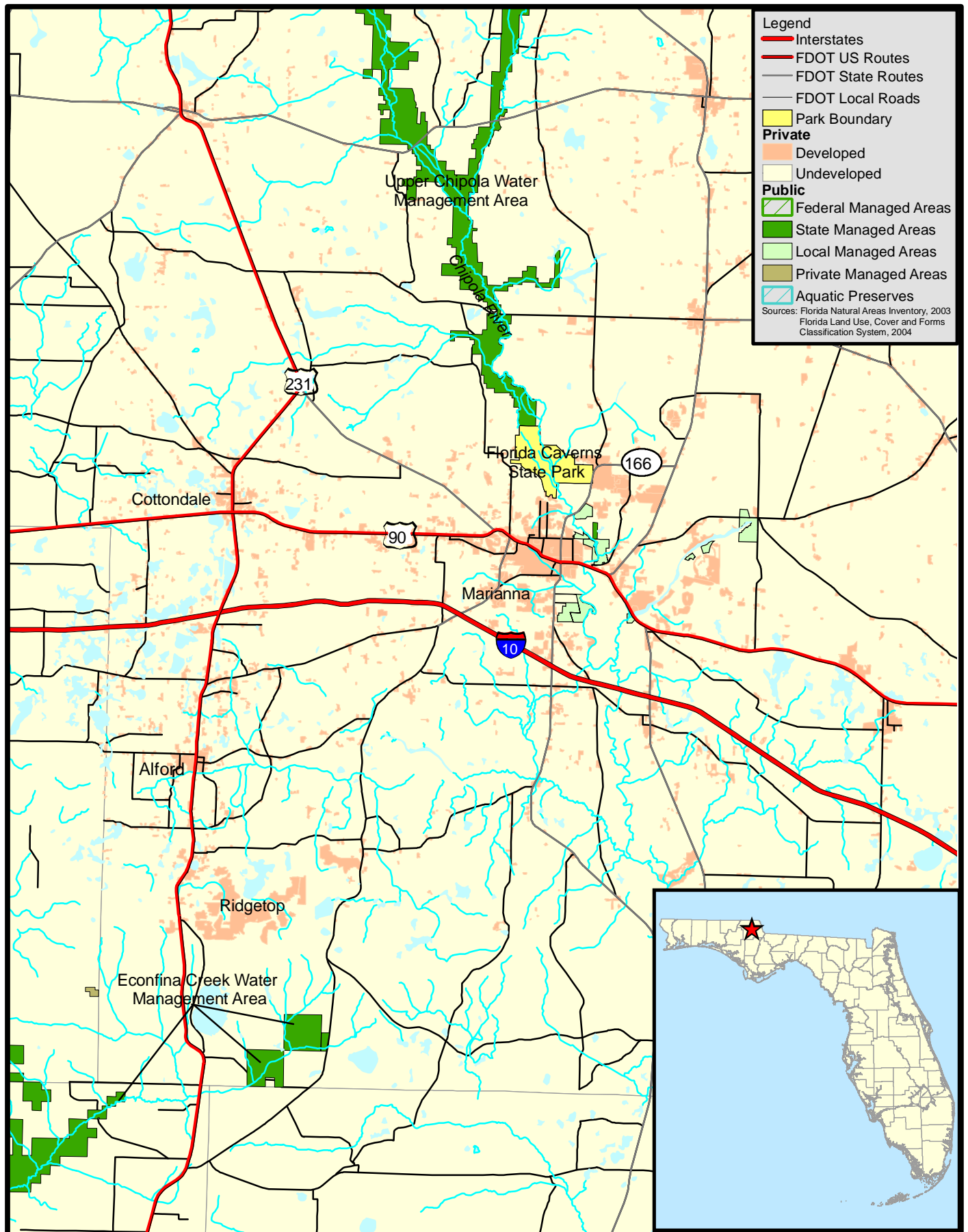
Currently the park contains 1,279.25 acres. At Florida Caverns State Park, public outdoor recreation and conservation is the designated single use of the property. There are no legislative or executive directives that constrain the use of this property. The park was acquired on October 11, 1935 using “Old Money” funds (see Addendum 1).

Since its establishment in 1942, Florida Caverns State Park remains one of the “crown jewels” of the Florida State Park System. The park is significant in the history of Florida as one of nine elements of the New Deal-inspired Florida State Park System and as one of the physical expressions of early 20<sup>th</sup> century recreation planning. Park development was initiated by the Civilian Conservation Corps (CCC) and Works Progress Administration (WPA) including the preparation of the tour cave which has provided millions of visitors with a memorable and intimate look at a spectacular cave environment. Today, Florida Caverns is the only state park in Florida to offer cave tours. The geology and biology of the park is also significant. The caves contain dazzling formations of stalactites, stalagmites, soda straws, columns, rimstones, flowstones, and draperies which often take tens of thousands of years to create. The caves are also home to unique species such as blind salamanders, cave crayfish, and the federally endangered gray bat. The park's unusual geology supports an exceptional diversity in above-ground natural resources too, with extremely rare habitat types and many species occurring at their extreme southern range limits. In fact, the park supports over 40 plant and animals species listed as Florida Threatened and Endangered and/or tracked by the Florida Natural Areas Inventory. Some rare species in the park occur nowhere else in Florida.

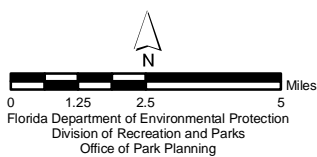
## **PURPOSE AND SCOPE OF THE PLAN**

This plan serves as the basic statement of policy and direction for the management of Florida Caverns State Park as a unit of Florida's state park system. It identifies the objectives, criteria and standards that guide each aspect of park administration, and sets forth the specific measures that will be implemented to meet management objectives. The plan is intended to meet the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and intended to be consistent with the State Lands Management Plan. With approval, this management plan will replace the 2000 approved plan. All development and resource alteration encompassed in this plan is subject to the granting of appropriate permits; easements, licenses, and other required legal instruments. Approval of the management plan does not constitute an exemption from complying with the appropriate local, state or federal agencies. This plan is also intended to meet the requirements for beach and shore preservation, as defined in Chapter 161, Florida Statutes and Chapters 62B-33, 62B-36 and 62R-49, Florida Administrative Code.

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

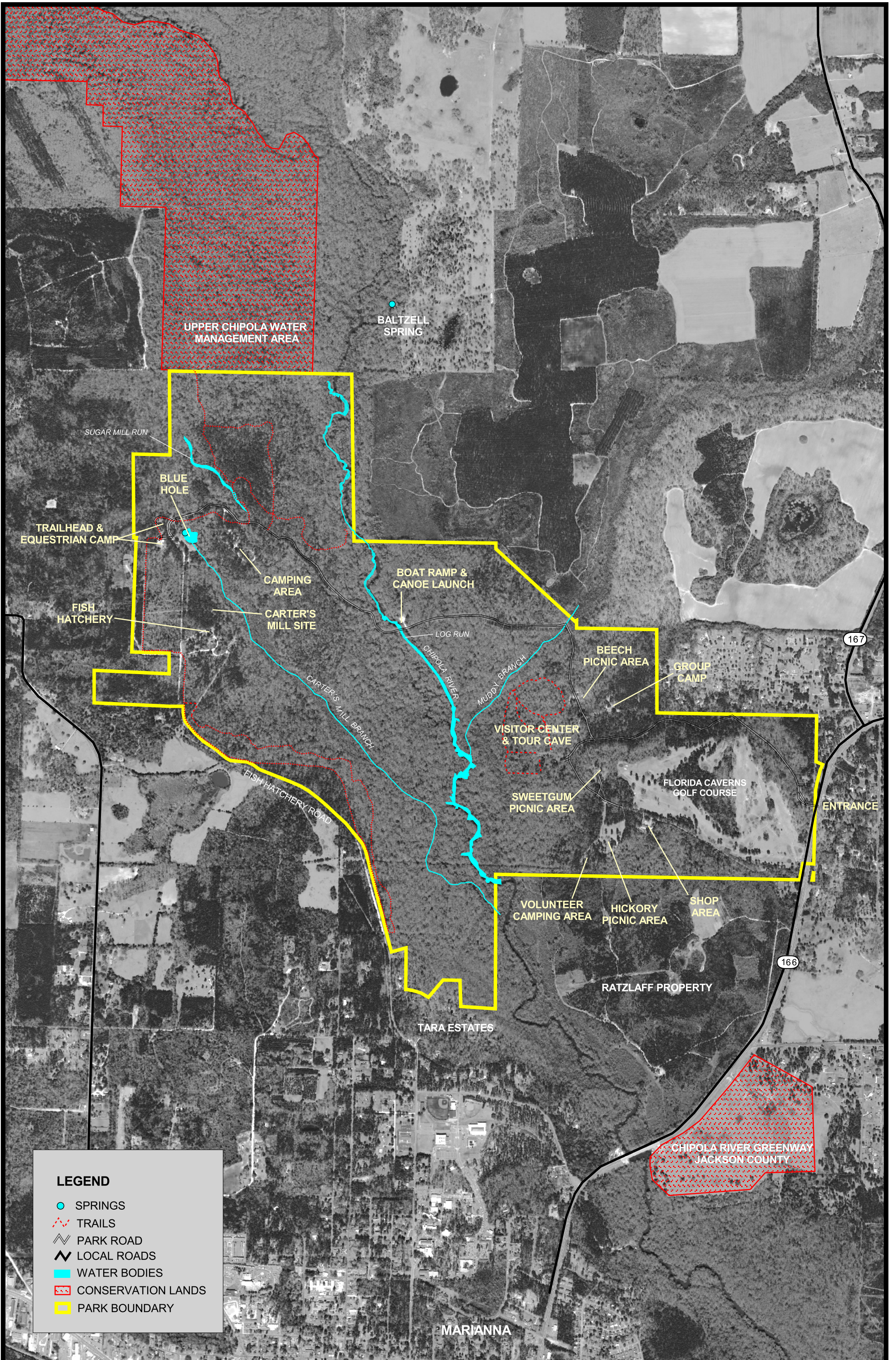


FLORIDA CAVERN  
STATE PARK



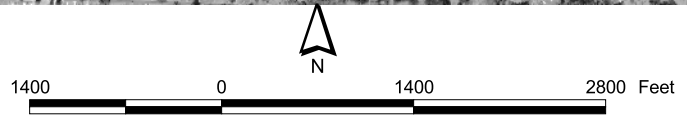
VICINITY  
MAP





**LEGEND**

-  SPRINGS
-  TRAILS
-  PARK ROAD
-  LOCAL ROADS
-  WATER BODIES
-  CONSERVATION LANDS
-  PARK BOUNDARY



measures as prescribed burning, exotic species removal, and restoration of natural conditions.

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

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

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

## **MANAGEMENT PROGRAM OVERVIEW**

### **Management Authority and Responsibility**

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

It shall be the policy of the Division of Recreation and Parks to promote the state park system for the use, enjoyment, and benefit of the people of Florida and visitors; to acquire typical portions of the original domain of the state which will be accessible to all of the people, and of such character as to emblemize the state's natural values; conserve these natural values for all time; administer the development, use and maintenance of these lands and render such public service in so doing, in such a manner as to enable the people of Florida and visitors to enjoy these values without depleting them; to contribute materially to the development of a strong mental, moral, and physical fiber in the people; to provide for perpetual preservation of historic sites and memorials of statewide significance and interpretation of their history to the people; to contribute to the tourist appeal of Florida.

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

### **Park Goals and Objectives**

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

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

### **Natural and Cultural Resources**

1. Protect and preserve the unique cave resources of Florida Caverns State Park.
  - A. Provide quality interpretive tours of the Florida Cavern while protecting fragile cave resources.
  - B. Manage and protect wild (undeveloped) caves on the park in accordance with procedures specified in the approved Cave Management Plan.
  - C. Interpret cave and other geological resources on the park, using exhibits, brochures, videos and live presentations.
  - D. Promote scientific research projects on caves, cave biota and other natural and cultural resources of the park.
2. Preserve and manage the terrestrial natural resources of the park.
  - A. Actively control invasive exotic plant and animal species in order to minimize their disruption of natural communities.
  - B. Develop a prescribed burn program by identifying all areas needing fire, demarcating burn zones, developing restoration plans and re-introducing fire. Primary areas of focus should include Upland Glade and areas of degraded Upland Pine forest along the park drive and adjacent to the golf course.
  - C. Work with specialists to monitor rare plant and animal species on the park to ensure they are not impacted by public visitation or management actions.
  - D. Conduct complete surveys of the park to determine if any areas of intact fire-type

- groundcover still occur, including areas within and adjacent to the golf course.
- E. Update the Plant and Animal List of the park and use the results to guide park management and restoration. Initial focus should be on surveys of vascular plants and vertebrates which should (or did) occur/reside/breed in the park. Species no longer occurring on the park should not be deleted; their status should be indicated on the species lists.
  - F. Monitor outbreaks of southern pine beetles and take appropriate action to eradicate areas of infestation.
  - G. Monitor activities of Caverns golf course lessee to prevent adverse effects of pesticides, herbicides, fertilizers and waste materials on rare plant species and other natural and cultural resources.
  - H. Locate and map occurrences of creamflower tick-trefoil and fragrant sumac along margins of golf course, ensuring these rare species are not impacted by management of the course. Monitor adjacent land use activities to minimize impacts to the park from logging, development, pollution, runoff, exotics and free ranging pets.
  - I. Pursue acquisition of lands within the optimum boundary of the park, would benefit resource protection or offer increased recreational opportunities.
3. Preserve, maintain and restore where possible, natural hydrological conditions in the park.
    - A. Research possibility of restoring historic flood-event flow patterns across park drive within the floodplain of the Chipola River.
    - B. Restore, where possible, hydrological alterations created by other roads, ditches such as the non-functional Sugar Mill Run diversion ditch.
    - C. Cooperate with other state and federal agencies to obtain and archive hydrological data relevant to the park.
    - D. Maintain records on the in-park staff gauge to obtain baseline data of flow levels of the Chipola River at the Natural Bridge.
    - E. Maintain a navigable channel in the Chipola River from the park boat ramp to the park's northern boundary to facilitate canoeing and kayaking.
  4. Preserve the park's New Deal Era and other cultural resources.
    - A. Create and implement cyclical maintenance programs for all New Deal Era resources through collaboration between park management, Bureau of Design and Construction, Bureau of Natural and Cultural Resources and DHR Bureau of Historic Preservation.
    - B. Consider treatment of the park as a cultural landscape.
    - C. Seek funding for stabilization or restoration and rehabilitation design studies of all New Deal Era resources in the park.
    - D. Conduct architectural and/or engineering evaluations of the historic structures.
    - E. Produce design drawings and budget estimates to accomplish stabilization, restoration or adaptive rehabilitation projects, including necessary modifications to provide universal accessibility, where feasible. Assure that all work on the historic buildings complies with the Secretary of the Interior's Standards for the Treatment of Historic Properties.
    - F. Seek funding for restoration and rehabilitation and undertake the necessary work.
    - G. Seek grant funding to research and interpret the historic Carter's Mill site on the park.
  5. Recognize and publicize the unique nature of the New Deal Era parks.
    - A. Develop a nomination for Florida's New Deal Era parks to the National Register of Historic Places as a historic district.
    - B. Promote public visitation to New Deal Era parks as visits to a family-oriented past.
    - C. Develop interpretive programs that explain the origin of the New Deal Era parks,

relating these earliest public conservation and stewardship efforts in Florida to current environmental concerns and land use or land management issues

### **Recreational Goals**

1. Continue to provide quality resource base outdoor recreational and interpretive programs and facilities at the state park.
  - A. Develop signage to interpret natural resource features along the Upper Chipola Recreational Trail system.
  - B. Develop guided educational tours of the park with new natural and cultural resource content to supplement the traditional Florida Cavern cave tour activity.
  - C. Develop additional special events to enhance programming at the park.
2. Seek funding to expand recreational and interpretive opportunities through the improvement of programs and use areas and facilities, as outlined in this management plan.
  - A. Improve the visitor center area by upgrading interpretive exhibits and enhancing the parking area.
  - B. Stabilize and improve the boat/canoe launch area.
  - C. Relocate campsites in equestrian camp.
  - D. Adapt historic Fish Hatchery residences into interpretive facilities.
  - E. Conduct engineering study for Blue Hole and improve its function as a swimming area.

### **Park Administration/Operations**

1. Continue to maintain and improve operational strategies on the park.
  - A. Ensure guided tours of the lighted tour cave are conducted in a professional manner, which educate the park visitor and protect cave resources. Monitor the impacts of cave tours and modify carrying capacities as necessary. The cave tour limit is 25 visitors.
  - B. Maintain the radon database for the Florida Cavern and ensure staff exposure to radon remains in compliance with established standards.
  - C. Pursue funding to meet growing staff needs associated with routine maintenance, visitor services, and park operations.
  - D. Re-survey, fence and/or post park perimeter boundaries, particularly adjacent to developed areas, logging areas and hunting areas to protect park resources from trespass.
  - E. Redesign gift shop to be more compatible with New Deal-era theme of the park. Improve quality of merchandise available for sale in gift shop.
  - F. Continue to improve the quality and number of displays and exhibits in the interpretive section of the Visitor Center.
  - G. Continue to maintain and improve park structures, roads, trails and facilities in compliance with applicable standards and procedures.
  - H. Develop cooperative agreements for neighboring state and county agencies to promote resource protection and public recreational opportunities.
  - I. Perpetuate the park's program of enhancing ADA (disabled) access to park facilities, structures and programs.
  - J. Continue to interact and cooperate with public and private sector groups and agencies to promote mutually beneficial projects pertaining to Florida Caverns State Park.
2. Provide appropriate support facilities.
  - A. Relocate ranger station and construct an administration office.
  - B. Conduct engineering study for park road to alleviate effects of flooding.

- C. Relocate dump station closer to camping area.
- D. Relocate equipment shelters outside of flood prone area.
- E. Provide necessary staff residence.

### **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 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 January 10, 2006. The purpose of this meeting was to present the draft management plan to the public. An Advisory Group meeting was held on January 11, 2006. The purpose of this meeting was to provide the Advisory Group members the opportunity to discuss this draft management plan.

### **Other Designations**

Florida Caverns State Park has not been designated as 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. Florida Caverns State Park is not designated as, nor is it adjacent to, an aquatic preserve under provision of the Florida Aquatic Preserve Act of 1975 (section 258.35, Florida Statutes).

The Chipola River, which traverses the park from north to south, has been designated as a canoe trail in the Florida Recreational Trails System by the Division of Recreation and Parks (pursuant to Chapter 62D-7, Florida Administrative Code). However, the trail is not continuous through the park; boater use of the "Log Run" from the Caverns ramp downstream to the park's southern boundary is discouraged due to the narrow canal, strong current and other hazards. The Florida Caverns Natural Area has been designated as a National Natural Landmark pursuant to 16 U.S. Code 461. The National Park Service maintains a Registry of Natural Landmarks, which identifies and recognizes natural areas of ecological and geological significance. In 2000, Florida Caverns State Park was designated at a State Geological Site by the Florida Geological Survey.

## **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**

The panhandle region of Florida can be subdivided into four provinces: the Western Highlands, the Marianna Lowlands, the Coastal Lowlands and the Tallahassee Hills (Randazzo and Jones 1997). Florida Caverns State Park is situated in the Marianna Lowlands province. It is an area characterized by gently rolling hills, interspersed with sinks, springs, limestone bluffs and rocky streams. The Marianna Lowlands are considered to be an erosional feature of first the Chattahoochee River, and later the Flint and Apalachicola Rivers. These systems have since migrated out of the area, leaving behind the Chipola River, a western tributary of the much larger Apalachicola. Natural erosion and dissolution of the soft limestone in the Marianna Lowlands has created an irregular, pot-holed landscape, termed karst. Some of the most striking examples of karst topography in Florida are found in Jackson County and particularly at Florida Caverns State Park.

The park is situated in roughly the center of the Marianna Lowlands and is bisected from north to south by the Chipola River. The majority of the park occurs in the river floodplain, at elevations of 65 to 75 feet above sea level. Most of the higher elevations are located on the eastern edge of

the park, and range from 120 feet at the Visitor Center to 180 feet on the eastern edge of the golf course. A prominent feature, quite conspicuous in winter, is the bluff at Old Indian Cave, which rises abruptly from the river swamp. Other limestone outcroppings and cliffs are confined primarily to the eastern side of the Chipola basin along the Floodplain Nature Trail, which offers dramatic views of an undisturbed bottomland hardwood forest.

Topographic alterations which have been made at the park include filling for the park drive, enlarging the Blue Hole and construction of the retaining wall, construction of a ditch from the Sugar Mill Run to the Blue Hole, excavation of the log run prior to state acquisition, and various grading and contouring made for the golf course.

### **Geology**

The Marianna Lowlands of Florida Caverns can be subdivided into Remnant Highlands, Calcareous Slopes and Bluffs, and Chipola River Floodplain components. These units are closely correlated with the distribution of the underlying limestone formations. The remnant hills occur where un-eroded Miocene clays and Plio-Pleistocene sands remain over the limestone. In the western portions of the park, these hills slope gently down to the floodplain, but on the east side of the Chipola and on the park's southern boundary, erosion has left outcrops exposed, creating slopes and bluffs. These limestone bluffs are among the oldest surface formations found in Florida. As the Chipola meanders across the river valley, it actively deposits mud and silt, constantly changing the characteristics of the floodplain.

Throughout most of its geologic history, the region now known as Florida Caverns State Park has been under the sea. During the Late Eocene's Jackson Stage, about 38 million years before present, when Ocala Limestone was being deposited as coral and shell, the sea was probably less than 600 feet deep. The Ocala Limestone contains abundant large foraminifera, mollusks, bryozoans and corals and other marine fossils. It was probably deposited on a warm continental shelf or in a carbonate bank-lagoonal setting. Fluctuating sea levels periodically flooded the park throughout much of the Miocene, depositing deltaic and marine clays and carbonates of the Chattahoochee Formation and Alum Bluff Group of the Marianna and Suwannee Limestones. Subsequent erosion of these clays began in the late Miocene and continued through the Pliocene and Pleistocene epochs, erasing much of their geologic record.

Concurrent with the erosion of the Marianna Lowlands was the continuous lowering of sea levels during the Plio- Pleistocene. As in the preceding epochs, the lowering occurred in stages and left erosion slopes and sandy terraces, still visible in present topography. In the park, the Okefenokee (Sunderland) terrace occurs above 100 feet, the Wicomico terrace occurs between 70 and 100 feet, and the Penholoway terrace extends up to about 70 feet.

Associated with fluctuating seas levels were fluctuating water tables. When high, the ground water followed fissures and cracks along the bedding planes and joints of the Ocala Limestone, where they were capped by the harder Marianna Limestone. The fissures and cracks were slowly enlarged by the acidic groundwater, forming caverns through which underground rivers flowed. When the seas and water tables dropped, these underground passages drained and the development of typical cave drip formations began. Thus, the dry caves at the park, although occurring in Eocene limestones, have developed much more recently. Caves below the present water table continue to develop today, as ground water acidified by percolating rainfall, dissolves the limestone. This kind of solution activity is greater throughout the Marianna Lowlands



because the erosion has exposed the bedrock limestones to the elements.

The present-day Chipola River is now actively eroding the Ocala Limestone along its course. Typical karst features such as springs, depressions and sinks are evident within the floodplain. A prominent feature in the park is the River Sink and Natural Bridge, a one-half mile section of the Chipola south of the park drive that originally flowed underground. The various dry caves on the park, including the tour cave, occur adjacent to the Chipola floodplain in Ocala Limestone, where their elevation is (usually) above the water level.

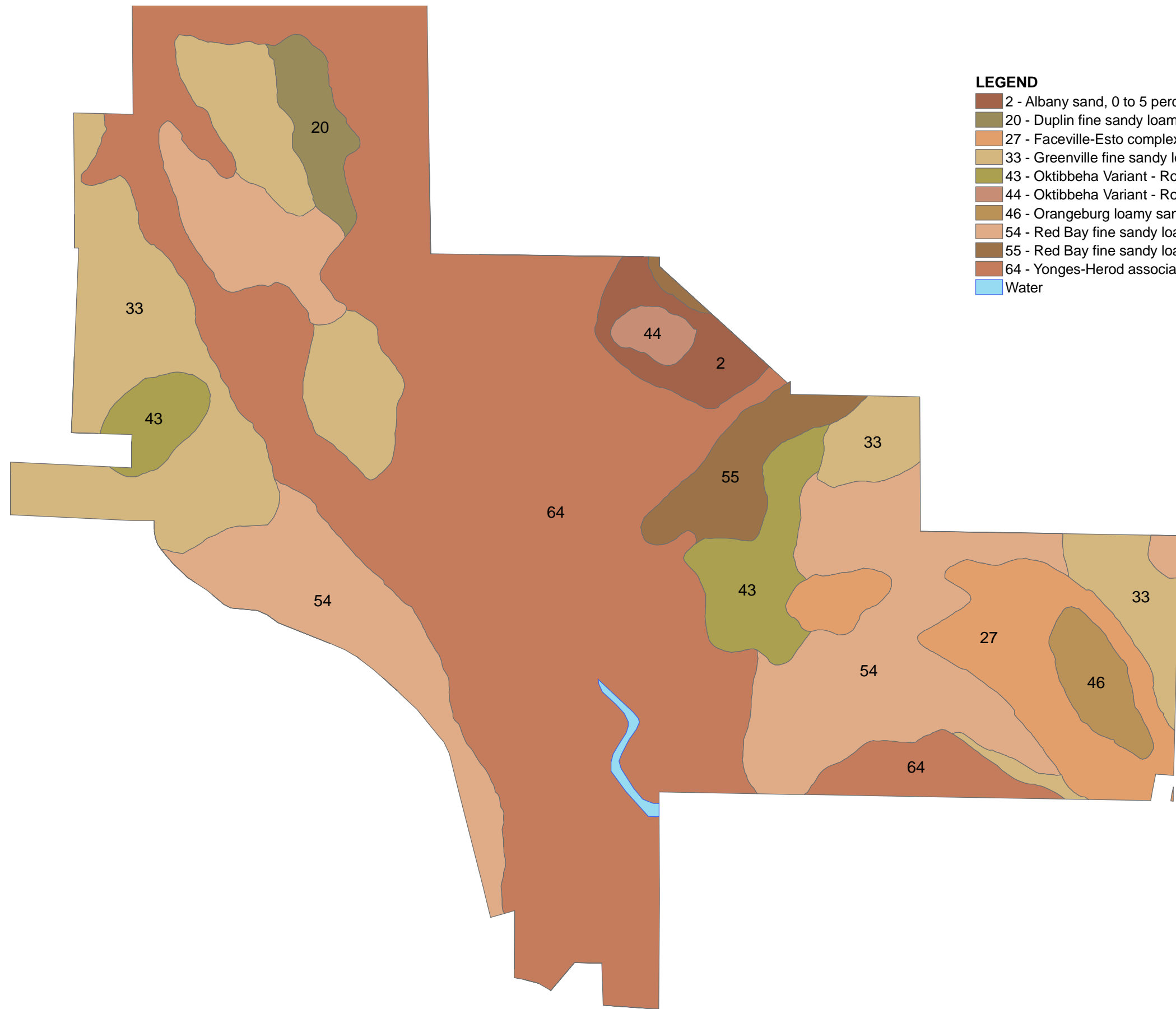
### **Soils**

A total of ten soil types have been identified on the park (see Soils Map) by the U.S. Natural Resources Conservation Service, (formerly Soil Conservation Service). The most prevalent soil type is the Yonges-Herod group associated with the Chipola River floodplain. The Red Bay Fine Sandy Loam is another common soil type that occurs on adjacent higher elevation (Duffee et al. 1979). Addendum 3 provides a detailed description of the soil types that occur in this unit.

Florida Caverns State Park has two problems associated with soil erosion. The first is natural dissolution of poorly consolidated substrates under roads and parking lots as a result of high water tables and karst topography. Major voids that develop under the road are filled with a fast-drying concrete that is pumped into the crevice. This problem occurs primarily in the river basin and repairs do not impact the park's dry caves. The second erosion problem occurs during the annual spring flooding in the Chipola basin. During these periods, the river may flow across 2000 feet or more of the park drive, and erode the downstream road shoulder. The problem is exacerbated by past soil disturbance for a sewer line, and shading of ground cover vegetation by hardwood saplings that are encroaching onto the road shoulder. This problem is being addressed by reducing the shading effect, replacing the fill, and stabilizing it with appropriate ground cover species.

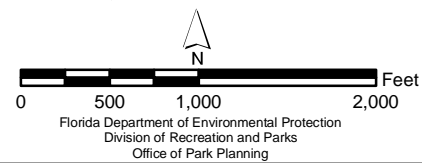
### **Minerals**

Naturally occurring surface rocks found in Florida are all sedimentary, having been formed by the deposition of material derived from the fragmentation of pre-existing rocks or from biological or chemical precipitation. In the park, the exposed and subsurface limestones are composed principally of the mineral calcite and varying amounts of impurities depending on their geologic history. Calcite is more striking in the profusion of stalactites and stalagmites which decorate many of the park's dry caves. In this form, the calcite has been purified through the solution and precipitation process. Dolomite typically is found associated with limestone in Jackson County, but has not been reported in surface formations in the park. Clay and quartz sand are other minerals found in the park. Clays were originally deposited as mud in shallow marine seas and estuaries, or as the result of erosion of older geologic units. Those in the park are Miocene-Pleistocene undifferentiated sand and clay. The sands in the park today were derived from the erosion of the ancient Appalachian Mountains, with transport southward by streams of the durable quartz component, and subsequent seashore deposition. Chert (low-grade flint) occurs in pockets in limestone where groundwater replaced calcium carbonate with silica. Although no prehistoric quarry sites are known within the park, Native Americans probably obtained some chert for tool making from the park's exposed limestone. Several historic-period limestone quarries occur on the park, including at Ellis Cave and on the western end of the park (SE Sect. 20 T5N, R10 W). Minerals in the form of marine fossils (see below) are conspicuous both on the surface and in cave interior limestones. At least two fossil mammals from the



**LEGEND**

- 2 - Albany sand, 0 to 5 percent slopes
- 20 - Duplin fine sandy loam, 0 to 2 percent slopes
- 27 - Faceville-Esto complex, 5 to 15 percent slopes, severely eroded
- 33 - Greenville fine sandy loam, 2 to 5 percent slopes
- 43 - Oktibbeha Variant - Rock outcrop complex, 2 to 5 percent slopes
- 44 - Oktibbeha Variant - Rock outcrop complex, 5 to 12 percent slopes
- 46 - Orangeburg loamy sand, 2 to 5 percent slopes
- 54 - Red Bay fine sandy loam, 2 to 5 percent slopes
- 55 - Red Bay fine sandy loam, 5 to 8 percent slopes
- 64 - Yonges-Herod association
- Water



Pleistocene has also been found in the park's Boyer's Discovery Cave, where they had wandered or were dragged by an ancient predator. The mammals were *Paleolama* (a llama-like relative of the camel) and *Equus* (a primitive horse). These remains were uncovered accidentally, suggesting that perhaps more paleontological or archeological materials may remain in park caves, buried by mud washed in by rainfall and flooding. In 1976, a partly mineralized human femur was discovered in Ranger Cave, and now resides in the collections of the Florida Department of State. Its age and cultural affinity are not known. These various minerals are either not of commercial value or, in the case of cave formations, is protected by law (62D, 810.13). Limestone from the park has been used in building construction by the Civilian Conservation Corps, and in construction of the Equestrian Area restroom. Such consumptive use of park resources is now avoided.

### Fossils from Florida Caverns Caves

Common Name	Scientific Name
Fossil scallop.....	<i>Amusium ocalanum</i>
Star foraminifera.....	<i>Asterocyclus sp.</i>
Fossil nautilus.....	<i>Aturia alabamensis</i>
Fossil sea urchin.....	<i>Phyllacanthus mortoni</i>
Fossil sea urchin.....	<i>Rhyncholampas gouldii</i>
Fossil sea biscuit.....	<i>Oligopygus sp.</i>
Fossil sea biscuit.....	<i>Schizaster sp.</i>
Solitary coral.....	<i>Placocyathus sp.</i>
Fossil coral.....	<i>Siderastrea ocalanum</i>
Fossil horse.....	<i>Equus sp.</i>
Fossil llama.....	<i>Paleolama sp.</i>
Fossil human.....	<i>Homo sapiens</i>

### Hydrology

The most important hydrological feature of this unit is the Chipola River and its associated springs and tributaries. Although of tremendous significance to the natural processes of the region, the typical park visitor sees only its densely wooded floodplain and the pool where its waters partly disappear at the River Sink. The Chipola is itself a small tributary of the much larger Apalachicola River. The Chipola River originates at the union of Marshall and Cowarts Creeks in Houston County Alabama, and flows almost due south to join the Apalachicola via the Dead Lakes system in Gulf County. During spring flooding, the Chipola may rise 10 feet or more above its banks and inundate over half of the park. During these periods the Florida Cavern is often partly flooded, and elevations below 80 feet (above sea level) may be submerged. In a severe flood during March of 1998, two feet of water covered the park's shop area, which is at about 85 feet elevation. During these flood periods, one can launch a small boat just north of the Visitor Center and motor over the park drive to the Blue Hole swimming area.

The U.S. Geological Survey maintains a gauging station on the Chipola, 20 miles south of the park at the highway 274 bridge near the town of Altha. According to USGS data, the river drains a basin of 781 square miles and has an average daily flow of 980 million gallons (1913-1996 figures). During a summer drought, the river may drop to as low as 238 million gallons daily. In 1997 the National Weather Service installed a flow meter at the Highway 90 bridge in Marianna.

It is used in conjunction with the Southeastern River Forecast system to track flooding events. The park also maintains a staff gauge at the River Sink. The gauge was installed in March of 1997. The River Sink is located just upstream of the park drive bridge. In July of 1999, the depth of the sink measured 96.5 feet with a river reading of 3.65 at the park bridge.

Within Florida Caverns State Park, the Chipola is about 80 feet wide along its 1.9-mile course, except for the section that is subterranean. Prior to the early 1900s, a half-mile long natural bridge existed where the Chipola disappeared into a sinkhole. Evidently, at that time a "log run" was created across the natural land bridge for the purpose of floating felled timber downstream to a nearby sawmill. For practical purposes the swift, narrow log run is not considered navigable.

A second significant hydrologic feature of the park is Blue Hole Spring and the resultant Carter's Mill Branch, which courses about 1.6 miles southeasterly before joining the Chipola just outside the south boundary. The Blue Hole Spring is a second magnitude artesian spring which was discharging 56.8 cubic feet/second in a measure made in August 1973. The spring is oval with a small pool connected to the northwest. The main pool is about 100 feet in diameter with a maximum depth of 39 feet. Immediately adjacent to the north, the "Little Blue Hole" spring was measured at 97.6 feet of depth in July 1999. The west side of the swimming area is improved with a retaining wall and beach, while the east side offers a wooden platform. The spring water is clear in periods of low rainfall but usually is colored to some degree. Carter's Mill Branch averages about 40 feet wide and one to four feet deep. A third water course on the park is Sugar Mill Run, which is part of a subterranean branch of the Chipola River that is represented on the surface by a 3,000-foot series of sinkholes and short lengths of stream. This run originates from a vent just north of the park boundary. It crosses under the park drive and eventually reconnects with the Chipola River. A fourth stream, known as Spring Branch or Muddy Branch, originates at Pearl Spring outside the park to the west of the Marianna Municipal Airport, and flows southwesterly into the park. The run is also crossed by the park drive in the northeastern section. The run continues on the park for about 3,000 feet before joining with the Chipola River within the park. A fifth stream originates in a small spring 40 feet in diameter, just north of the confluence of Carter's Mill Branch and the river. The spring run courses southeasterly for about 300 feet before joining the Chipola. This and Blue Hole Spring are the only artesian springs in the park.

The clays and sands at the park contain the surficial aquifer, while the lower and upper sections of the Floridan Aquifer system are carried in the Ocala, Marianna, and Suwannee Limestone beds respectively. The upper Floridan Aquifer system's potentiometric surface is at about 110 feet above sea level. There are currently six wells on the park. Well 1320271 at the Visitor Center have required the use of an ethyl dibromide (EDB) filter for several years. This building is now connected to Marianna city water. Well 103 at the Park Manager's residence (Bldg. BLO25003) serves the old Fish Hatchery residence area on the west end of the park. Well 1320122 is located on the hilltop south of the Ranger Station and is used for golf course irrigation. A shallow well (no. 1324077) on the east side of the Blue Hole serves the park's campground. The 1995 acquisition of the Ellis Cave tract also included a well that serves most of Tara Estates residents. The well located is on an easement on the western side of the parcel. Because of local recharge through the karst features in the floodplain, sources of pollution and groundwater withdrawal outside the park are of concern. At this time use of well water is being phased out. Most of the eastern half of the park is being connecting to Marianna city water.

In 1996 the Caverns golf course installed new 8-inch irrigation well (no. 1362). In addition, at that time, baseline water level data were collected in Salamander Pond and China Caves. Between 5/96 and 6/98 water levels were found to fluctuate up to 77 inches in Salamander Pond Cave and least 72 inches (cave sometimes entirely flooded) in China Cave. No gross effect from the well has been noted, nor was predicted by NFWMD hydrologists. Periodic monitoring of water levels should continue in order to ensure adequate habitat for cave biota. Cave water temperatures were also recorded. Mean annual temperature in Salamander Pond Cave was 67.5 degrees F (range 64-70, n=38 records), whereas China Cave water averaged 58.4 degrees F (range 46-63, n=38 records). Temperatures in these two cave pools differed greatly from each other, and were also not coincident with the river temperature, which suggests no direct conduit exist between the cave pools and the Chipola River.

In 1980, members of a caving club discovered a new cavern partly underneath the park's Visitor Center. The cave is now known as Boyer's Discovery Cave. Some time prior to 1991 cavers noticed sewage stains on the cave ceiling. Dye tracing revealed the contamination was coming from the building's septic system. This pollution problem was ultimately resolved by connecting to Marianna city sewage in 1995.

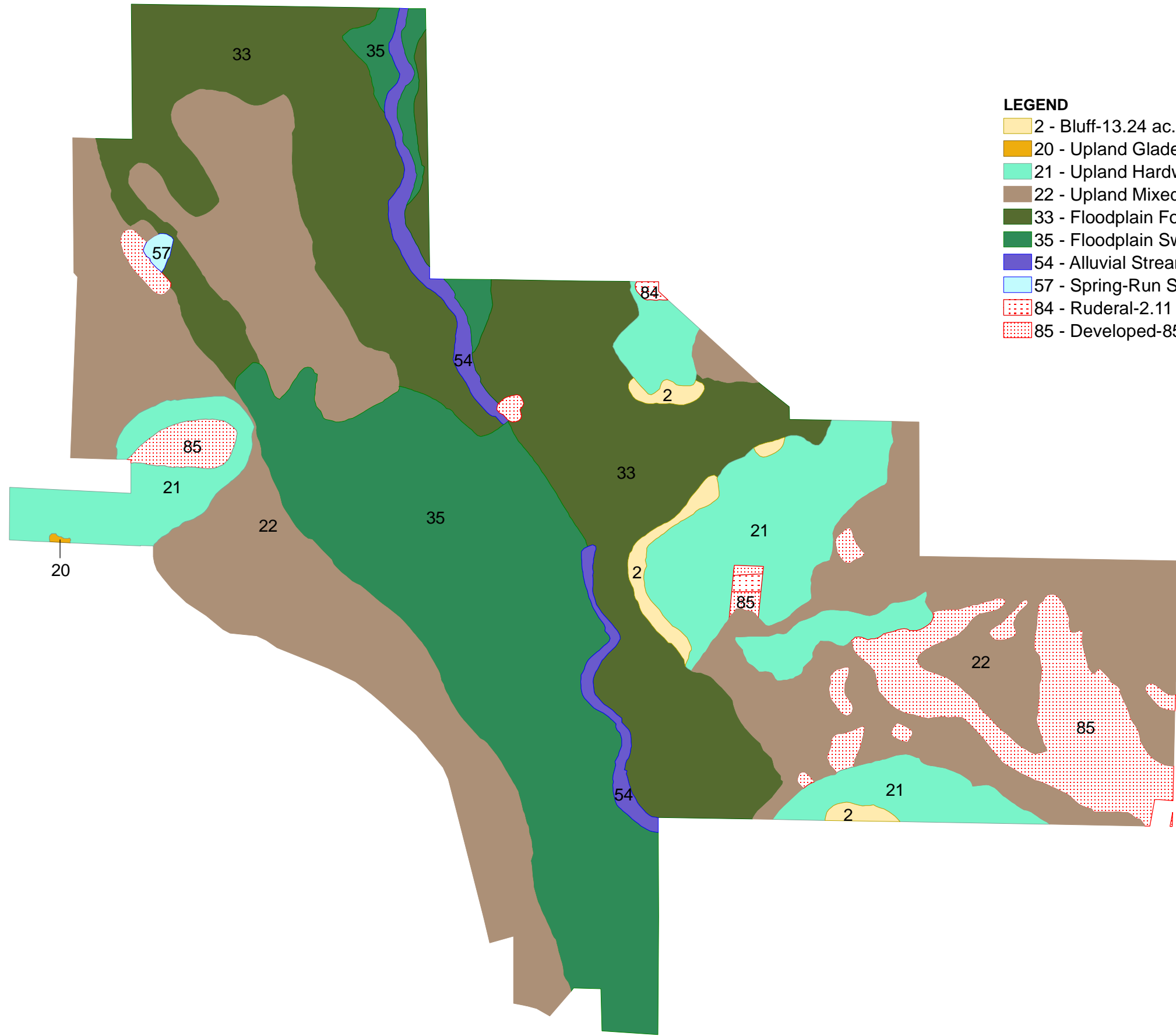
### **Natural Communities**

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 ten distinct natural communities (only eight are mapped) in addition to ruderal and developed areas (see Natural Communities Map). The acreage for each mapped natural community is reflected on the Natural Communities Map. Park-specific assessments of the existing natural communities are provided below. A list of plants and animals occurring in the park is contained in Addendum 4.

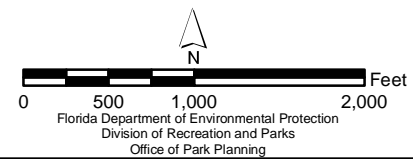
**Bluff.** The bluff community consists of an abrupt transitional zone between floodplain lowlands and the higher forested elevations of the park. At the Caverns it is extraordinary (in Florida) in being characterized by steep, rocky limestone cliffs and outcroppings. A large section of bluff is accessible via the Floodplain Nature Trail. Another important bluff area exists at Old Indian Cave. Vegetation typical of the park's bluffs includes oakleaf hydrangea (*Hydrangea quercifolia*), columbine (*Aquilegia canadensis* var. *australis*), and false rue-anemone (*Isopyrum biternatum*) as well as many species of mosses, liverworts and spleenworts.

**Upland glade.** A recently discovered remnant Upland Glade at the park is one of only two examples of this community type on Florida public conservation lands. It is a narrow band of open habitat with chalky, calcareous soil perched on a limestone outcrop. Plant species present include black rush (*Schoenus nigricans*), little bluestem (*Schizachyrium scoparium*), *Muhlenbergia* sp., pinnate prairie coneflower (*Ratibida pinnata*), black-eyed susan (*Rudbeckia*



**LEGEND**

- 2 - Bluff-13.24 ac.
- 20 - Upland Glade-0.30 ac.
- 21 - Upland Hardwood Forest-157.61 ac.
- 22 - Upland Mixed Forest-419.44 ac.
- 33 - Floodplain Forest-317.31 ac.
- 35 - Floodplain Swamp-259.41 ac.
- 54 - Alluvial Stream-22.25 ac.
- 57 - Spring-Run Stream-1.69 ac.
- 84 - Ruderal-2.11 ac.
- 85 - Developed-85.89 ac.



*sp.*), lanceleaf blanketflower (*Gaillardia aestivalis*), rattlesnake master (*Polianthes virginicus*), azure blue sage (*Salvia azurea*), eastern redbud (*Cercis canadensis*), and scattered individuals of stunted eastern red cedars (*Juniperus silicicola*).

Upland Glades are unique species-rich meadows occurring on small islands of chalky limestone outcrops, usually less than 5 acres in size. The few remaining examples in Florida support a unique mix of species, a significant portion being rare and found nowhere else in the state. The needed interfire interval for this community is unknown, but without periodic fire most (probably all) Florida Upland Glades are eventually degraded or eliminated by encroaching tree species - e.g., eastern red cedar and eastern redbud (pers. obs., Erik Johnson, DRP Environmental Administrator).

Upland Glade is one of only three Critically Globally Imperiled (G1) terrestrial natural communities in Florida (out of 40+ terrestrial community types), and is arguably Florida's most endangered upland habitat. Presently only ~40 acres of the community are known to remain in Florida. Due to fire exclusion, limerock mining and impacts associated with logging, it is highly threatened with near-elimination from the state (pers. obs., Erik Johnson, DRP Environmental Administrator). It is also probably Florida public land's most under-represented natural community (less than two acres protected in entire state).

**Upland hardwood forest.** Upland hardwood forests occur on the park up-slope of the bluff community beginning at elevations of approximately 80 feet. On the park, the original boundary between this and the upland mixed forest communities has been blurred by past human activities. A 1948 SCS aerial photo shows nearly all of the northeastern section as cleared, evidently for a formerly larger golf course. Typical plants of the park's Upland Hardwood Forest include American beech (*Fagus grandifolia*), southern magnolia (*Magnolia grandiflora*), red buckeye (*Aesculus pavia*) basswood (*Tilia heterophylla*), white ash (*Fraxinus americana*), black walnut (*Juglans nigra*), Florida elm (*Ulmus americana* var. *floridana*), swamp chestnut oak (*Quercus michauxii*), spruce pine (*Pinus glabra*) and needle palm (*Rhapidophyllum hystrix*). At Florida Caverns, the upland hardwood community also boasts a very unusual collection of Appalachian relic plants that have managed to persist on the limestone outcrop areas of the park. Among these are trilliums (*Trillium maculatum* and *T. underwoodii*), may apple (*Podophyllum peltatum*), bloodroot (*Sanguinaria canadensis*), Allegheny spurge (*Pachysandra procumbens*), and fennel (*Thalictrum polygamum*) (see Mitchell 1963). The high elevations and rich soils of the upland hardwood community made these areas highly valued for agriculture and residential development. For this reason only 16 percent has survived to the present in Florida, and only three percent of the original community is in conservation land ownership, making it the least-protected vegetation type in the state (Cox et al. 1997). For this reason as well as the presence of numerous rare plant species, the Caverns upland hardwood community is designated a protected zone.

**Upland mixed forest.** The highland areas on the eastern and western edges of the park support an upland mixed community. This habitat has many species in common with and grades into the upland hardwood forest community. On the park, much of the upland mixed areas were formerly cleared and probably tilled as well. They are now characterized by loblolly pine (*Pinus taeda*), spruce pine (*Pinus glabra*) southern red cedar (*Juniperus silicicola*), laurel oak (*Quercus hemisphaerica*), water oak (*Quercus nigra*), live oak (*Quercus virginiana*), sweetgum (*Liquidambar styraciflua*) southern magnolia (*Magnolia grandiflora*), dogwood (*Cornus*

*florida*), hop-hornbeam (*Ostrya virginiana*), and laurel cherry (*Prunus caroliniana*). Upland Hardwood and Upland Mixed communities are densely shaded, have relatively sparse groundcover and have a heavy accumulation of moist leaf litter. The boundary between this community and Upland pine forest (see below) has been blurred by pre-park land use practices and early FPS fire suppression. Restoration of pyrogenic natural communities at Florida Caverns is currently being pursued.

**Upland pine forest (not mapped).** This community type (FNAI-ranked S2, State Imperiled) is not currently included on the Natural Communities Map, but consensus has been reached that restoration should be undertaken. It once dominated the uplands within the park boundaries, but the potential total acreage in the park that can be restored to Upland Pine is relatively small. Prior to state acquisition, much of the Upland Pine was converted to intensive row-crop agriculture (or improved pasture) and later allowed to reforest to secondary woods. A significant portion of such lands - and probably some intact Upland Pine - was then converted to the fairways of the golf course during early park development.

In the 1960s, areas of relatively intact pyrogenic groundcover were still present. Several relevant comments from Mitchell (1963) follow:

- Wire grass (*Aristida beyrichianna*) was found in “Upland fields and woods, [and was] locally abundant”.
- “This upland region [is] ...the most disturbed area of the park ... [but] four species [found here are]: *Baptisia alba*, *Thaspium barbinode* ..., *Cirsium altissimum* and *Marshallia obovata* ..., each of which is at the southern extremity of its range.”
- “The red hills of the eastern portion of the park are covered by a second growth oak-hickory forest and plum thickets except for a golf course and a few old fields. Fire protection has resulted in the development of a practically impenetrable understory of mixed hardwood species and a notable infrequency of pines.”

Several vertebrates often associated with fire-maintained habitats that still occur in the park could benefit from reintroduction of fire. These include fox squirrel, northern bobwhite, brown-headed nuthatch, fence lizard and six-lined race-runner. At least 70 species on the Plant List are normally associated with Upland Pine Forest, Sandhill, Mesic Flatwoods, or other fire-maintained communities (pers. obs., Erik Johnson, DRP Environmental Administrator) – and require habitat that is relatively open and sunlit, without a closed canopy and without a dense woody understory.

Areas that can be restored to Upland Pine Forest are mapped as Upland Mixed Forest on the current Natural Communities map. Due to prolonged fire exclusion, these areas are heavily invaded by offsite hardwoods species (e.g. laurel oak) and groundcover is in poor condition. (Successful efforts to restore pyrogenic groundcover are underway in several Florida State Parks.) The canopy of these areas is still largely dominated by “onsite” Upland Pine species including large southern red oak, mockernut hickory, post oak, and scattered longleaf pine and shortleaf pine. Restoration will require protection of the onsite tree species, removal of offsite hardwoods, reintroduction of fire, and broadcasting of native groundcover seed. Three Rivers State Park and possibly Falling Waters State Park would be logical local seed sources.



**Floodplain forest.** The lowland regions in the north end of the park, between 70 to 80 feet in elevation consist of a relatively intact Floodplain Forest. This area is subjected to periods of annual inundation, which may last for a week or more. Although the lowland forests of the park have been logged during historic times, several large bald cypresses have survived along the Chipola and the lower reach of the Blue Hole run. In the southeastern U.S., lowland hardwood forests now comprise only about one-fifth of their original acreage (Harris et al. 1984). In the Florida Panhandle, this community is being subjected to aggressive clearcutting for its valuable timber resources. Florida Caverns provides a valuable opportunity to observe and study an intact and functional river swamp environment. On-park disturbances are few, and include fill for the park drive, the log run across the Natural Bridge, and a ditch from the Sugar Mill Run to the Blue Hole. Plants typical of this area of the park are: American bald cypress (*Taxodium distichum*), ogeechee tupelo (*Nyssa ogechee*), water tupelo (*Nyssa aquatica*), black gum (*Nyssa biflora*), loblolly bay (*Gordonia lasianthus*), ironwood (*Carpinus caroliniana*), red maple (*Acer rubrum*), water hickory (*Carya aquatica*), green ash (*Fraxinus pennsylvanica*), water locust (*Gleditsia aquatica*), bluestem palmetto (*Sabal minor*) and spider lilly (*Hymenocallis caroliniana*).

**Floodplain swamp.** At Florida Caverns, the floodplain swamp community occurs primarily south of the park drive in the Blue Hole-Muddy Branch-Chipola watersheds. This low, flat, one-half mile wide area has many pools, sloughs, and typically remains wet throughout the year. Ground cover plants are few; areas of slightly higher vegetation supporting bluestem (*Sabal minor*), wax myrtle (*Myrica cerifera*), and greenbrier (*Smilax sp.*). Overstory species of the Floodplain Swamp share many trees in common with the Floodplain Forest Community, and include: water oak (*Quercus niger*), overcup oak (*Quercus lyrata*), sweetbay (*Magnolia virginiana*), ironwood (*Carpinus caroliniana*), black gum (*Nyssa biflora*), loblolly bay (*Gordonia lasianthus*), water hickory (*Carya aquatica*), green ash (*Fraxinus pennsylvanica*), and yellow poplar (*Lirodendron tulipifera*).

**Alluvial stream.** The Chipola River represents an example of an alluvial stream, a Florida community type largely confined to the panhandle region. The stream itself contains very few plant species due to the strong current and annual scouring effect of spring flooding. The most common plant species, particularly adjacent to spring boils is spatterdock (*Nuphar luteum ulvaceum*). Above the park, the Chipola flows through sparsely settled farmlands and bottomland hardwoods subject to periodic logging. A large percentage of the land in the riparian corridor from the north park boundary to the Alabama line has been purchased by the Northwest Florida Water Management District (NFWFMD), which will help to maintain a relatively high-quality natural system.

**Spring-run stream.** Three significant spring-run streams occur on Florida Caverns State Park. In the 1960s, Carter's Mill Branch was transformed into a relatively natural swimming area, the Blue Hole, with a sandy beach and retaining wall. Impacts of this action to the natural environment are fairly minor, and consist of increased turbidity during heavy use and run-off from the adjacent mowed area. At times the swimming area is impacted by a proliferation of two native plant species; variable-leaf milfoil (*Myriophyllum heterophyllum*) and water primrose (*Ludwigia repens*). They may be controlled under permit from DEP Bureau of Invasive Plant Management, by hand removal. Of greater potential concern is contaminated run-off from the horse corral area, located immediately up-slope from the swimming area. Heavy use of this facility by visitors corralling horses could result in diminished water quality in the swimming

area and run. A second run known as Spring Branch or Muddy Branch enters the park on its northwest corner. It passes by both residential and industrial areas of Marianna and reportedly has at times shown sub-standard water quality. However, it exhibits no overtly objectionable qualities and is a productive area to observe wading birds and other wildlife. A third spring run, the Sugar Mill Run, emerges at the surface just north of the park boundary and flows southeast on to the park and into the Chipola River.

**Aquatic cave (not mapped).** The most important example of an aquatic cave on the park is Salamander Pond Cave, located on the extreme southern edge of the park. Several other park caves, notably China, Ellis, and Boyer's have relatively permanent pools or "blue holes" in them. However, only Salamander Pond could be accurately called an Aquatic Cave. It provides important habitat for two cave-endemic organisms, the Dougherty plain cave crayfish (*Cambarus cryptodytes*) and the Georgia blind salamander (*Haideotriton wallacei*) (see Franz et al. 1994). Aquatic caves at Florida Caverns State Park, together with Florida Fish and Wildlife Conservation Commission's (FFWCC's) Judge's Cave (also Jackson County) represent the only protected localities in Florida for the blind cave salamander.

The underground lake inside Salamander Pond Cave is approximately 183 feet in length and averages about 13 feet wide. Its mean depth in July of 1996 was 8.5 feet (see Hydrology). The cave has three dry entrances; the lowest and southernmost is located just 37 feet from the park's south boundary. This makes Salamander Pond Cave highly vulnerable to adjacent off-site contamination and development.

**Terrestrial cave (not mapped).** Florida Caverns State Park contains over 30 named caves (Ludlow 1997). Of those, 24 are significant enough to have been mapped by caving groups. They vary greatly in condition; some being severely damaged and others remaining in a near-pristine state. Regrettably, Miller's Cave serves as an example of a severely vandalized cave. It contains over 2000 broken formations, which resulted from 30 years of unrestricted public access. A number of the most significant caves have been gated or fenced to protect geological formations or rare cave biota. Overall the terrestrial cave resource of the park is diverse, well protected by existing statutes and management practices, and represents a unique asset to the Florida State Park system. The Florida Cavern remains an outstanding example of a lighted tour cave, comparable to other major cave attractions throughout the country.

**Ruderal and developed.** Ruderal and developed lands on the park include the golf course, roads, picnic and camping areas, the Blue Hole Swimming Area and staff residence areas. These areas are necessary to support recreational uses and management operations of the park. In addition, they provide an unusual habitat type that is attractive for certain wildlife species such as northern bobwhite (*Colinus virginianus*), white-tailed deer (*Odocoileus virginianus*) and fox squirrel (*Sciurus niger*). Several species of invasive exotic plants occur in ruderal areas of the park, including chinaberry (*Melia azedarach*), privet (*Ligustrum sinense* and *L. lucidum*), nandina (*Nandina domestica*), Japanese climbing fern (*Lygodium japonicum*), and elephant ear (*Alocasia sp.*).

### **Designated Species**

Designated species are those that are listed by the Florida Natural Areas Inventory (FNAI), U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FFWCC), and the Florida Department of Agriculture and Consumer Services (FDACS) as

endangered, threatened or of special concern. Addendum 5 contains a list of the designated species and their designated status for this park. Management measures will be addressed later in this plan.

Thirty-three species of designated plant species are known to occur at Florida Caverns State Park. Some of these species are known from several localities in Florida. However, there are several rare plants that are virtually unique to Florida Caverns. The Florida Natural Areas Inventory has identified 11 S1 plant species from the park, which are critically imperiled in the state, and are known from five or fewer locations. Examples include false rue-anemone (*Isopyrum biternatum*), may apple (*Podophyllum peltatum*), bear's foot (*Polymnia laevigata*), and the pinnate-lobed coneflower (*Rudbeckia triloba pinnatiloba*). Several of these plants are fairly common in the Upland Hardwood Forest community of the park and will benefit simply by the perpetuation of this natural community.

Fourteen species of designated animals are known from the unit. Both the Dougherty plain cave crayfish (*Cambarus cryptodytes*) and the Georgia blind cave salamander (*Haideotriton wallacei*) are highly dependent on maintaining the Aquatic Cave natural community in good condition. These organisms are vulnerable to off-site disturbance and contaminants that could reach Salamander Pond Cave from adjacent private property. The USFWS has recently completed a survey and listing of several now-endangered freshwater mussel species. At least two and perhaps four of these rare bivalves occur in the section of the Chipola within the park. The Barbour's map turtle (*Graptemys barbouri*) and Suwannee cooter (*Pseudemys cocinna suwanniensis*) are known occur in the park. They will benefit from prohibiting removal of submerged logs (dead heading) from the river, and control of feral hogs that may raid their nests. The beautifully marked fox squirrel (*Sciurus niger*) is a common sight on the Florida Caverns golf course. Jackson County is located within the transition zone between the ranges of the Sherman's fox squirrel (*S. n. shermani*) and its western relatives (*S.n. niger*) (Humphrey, Ed 1992). The Sherman's fox squirrel is a Species of Special Concern under FFWCC endangered species designation (Anon. 1997). It is unclear to which race of the fox squirrel the Caverns population belongs (J. Gore pers comm).

Four species of colonial, cave-roosting bats have been recorded from the park. The long-eared bat (*Myotis keeni septentrionalis*) and Indiana bat (*Myotis sodalis*) were both collected from Old Indian Cave in the 1950s (Rice 1955b, Jennings and Layne 1957). These bats were at the extreme southern limit of their ranges, and have not been observed in recent years. The southeastern bat or Mississippi myotis (*Myotis austroriparius*) is the most common colonial cave roosting-species in Florida. Typical winter counts of *austroriparius* in Old Indian Cave are 3000 individuals, whereas as many as 13,000 have been recorded emerging from this cave in the fall. Conversely, one of the most imperiled mammals in the state is the gray bat (*Myotis grisescens*). It is known to hibernate in only two caves in the Florida: Old Indian Cave and Dugong Cave (Ludlow and Gore 2000). The latter is located about 180 feet to the south of the park boundary on private property. The current population of resident gray bats is estimated to be 150-200 individuals (Gore, unpublished data). During the summer, a number of additional gray bats migrate into the Jackson County region and bear young at FFWCC's Judge's Cave, located two miles southeast of Old Indian Cave. Protection and monitoring of bat populations is an important resource management issue at Florida Caverns.

## **Special Natural Features**

Clearly, the special natural features of this park are related to the karst topography characteristic of the Marianna Lowlands. These features include sink holes, deep, beautiful blue springs, cliffs, bluffs, outcroppings and a large assemblage of spectacularly decorated limestone caves; of which the Florida Cavern is an outstanding example.

## **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. The Florida Master Site File (FMSF) currently lists 33 archaeological, structural and historic features within the park (see Addendum 6).

Human beings are known to have used portions of what is now Florida Caverns State Park for at least 5,000 years. Many upland areas of the panhandle once supported Native American village life, and two village sites have been recorded within the park. Thirteen cultural resources or sites are identified on the Cultural Resources Map; however the park has not yet been systematically surveyed. Such a survey would likely result in an expansion of the current total, and aid in better characterizing the extent of aboriginal occupation on the park. Cultural resource information in the Florida Master Site File (FMSF), maintained by the Division of Historical Resources, ranges from pre-Contact (prior to 1500 AD) Native American habitation sites through extensive Works Progress Administration (WPA) and Civilian Conservation Corps (CCC) projects of the 1930s and early 1940s.

Most of the aboriginal sites at Florida Caverns are located in upland areas near cave entrances. This is probably due to an understandable tendency to locate campsites near a natural shelter. As recently as the 1940s, archaeologists working during the initial park development period discovered barefoot tracks in “New Cave”, which they believed may have been those of Native Americans (Fairbanks 1941).

Several site locations are difficult to pinpoint with any accuracy. These include 8JA110, Sugar Mill Hole Spring, and 8JA112, Blue Hole. Four other sites, 8JA54, Parking Area; 8JA55, Cave #10; 8JA56, Rock Shelter; and 8JA57, New Cave, were combined into 8JA3 as the result of insights into their common Fort Walton cultural affiliation. This information was collected during Visitor Center parking lot construction in the 1940s (Bullen 1949). Similar resources were found at 8JA58 and -59, located nearby. A second apparent village site is located near the Blue Hole Swimming Area and is recorded as 8JA82. A habitation site of unidentified cultural affiliation, 8JA92, was identified in 1961 as: “located 3/8 mile north, north east of the Negro Picnic Area” (see below). Two cave sites, 8JA1545, Ranger Cave, and -1555, the latter an apparent shelter site, have also been recorded.

One reportedly nineteenth century resource, Carter's Mill, is identified as site 8JA1073. Remnants of the mill foundation and dam are still visible along the Blue Hole run adjacent to the Federal Fish Hatchery site. Additional sites relating to the nineteenth century would probably become known during a cultural resource survey.

The largest cultural resource, both in term of acreage and number of components, is the park itself, which has been open for public recreation and enjoyment since 1942. Florida Caverns State Park is significant in the twentieth century history of Florida as one of nine elements of the New Deal-inspired Florida state park system and as one of the physical expressions of early twentieth century recreation planning. Until the 1930s the State of Florida sponsored, owned, or operated parks as monuments or memorial facilities. The components of this early, first system of state parks were the physical expression of the idea that Floridians, increasingly members of an urban population, needed and indeed possessed a right to communion with nature. That idea, one of the intellectual underpinnings of the conservation movement of the Progressive Era (1890-1920) realized its most widespread expression during the peacetime administrations of Franklin Delano Roosevelt (1933-1941).

The ideas of conservationists were made real as the Great Depression (1929-1941), brought widespread unemployment and near economic collapse. Floridians had already suffered nearly five years of unrelieved economic disasters, with Mediterranean fruit fly infestations, hurricanes, and the collapse of the land boom bubble. The Wall Street Crash of 1929 only confirmed that the whole nation faced hard times. The resulting Depression seemed to overwhelm Americans. Ending it seemed beyond the abilities of ordinary people, and programs to aid persons in serious want took the place of economic development in many areas of the country, Florida among them. Problem-solving programs in which people could play a part while contributing to the end of hard times gained popularity. Among those problems were two of particular importance; lack of employment opportunities for young men who were of an age to enter the job market, and the degradation of the land. Although the problem of unemployed young men was often described in terms of their inability to contribute to the support of their families, another aspect of the problem was what to do with an army of unskilled young men who had left school due to economic hardship and whose existence as unemployed persons would surely slow or even halt economic recovery. The land, too, had fallen upon hard times. Although a Dust Bowl like that of the Great Plains never afflicted most of the rest of the country, almost all sections had experienced massive land and topsoil degradation. The South was particularly beset with the consequences of strip mining, timber exploitation, single crop agriculture, and poor farming practices; sterilized landscapes, river floods, enormous erosion gullies, and farm families forced to abandon a treasured way of life.

Among the New Deal programs organized to address aspects of the problems of youth unemployment, the Civilian Conservation Corps, or CCC, may have had the most emotionally profound effect. This agency hired the unskilled and unemployable young, put them to work under military administration, and employed skilled local men--also hitherto unemployed--to transmit the rudimentary skills required to do a job. The CCC took on two jobs, usually at the same time. The first was improving or restoring the degraded landscape (some of those actions are now frequently viewed as inappropriate land management actions), and the second, developing public recreation facilities according to professionally drawn plans. An impressive collection of facilities was constructed throughout Florida, and a considerable portion of them survives in daily use. Their builders, the young men of the 1930s, visit and revisit their creations

regularly. They and many other park visitors consider the rustic appearance of CCC buildings as “real” park architecture.

Among the earliest recognized twentieth century cultural elements on the park was the Federal Fish Hatchery located on the west end of the property. The site features earthworks, floodgates, stone walls, and stone posts, which are incompletely documented in the FMSF. The *Survey of New Deal Era Resources* described several individual structures, but the hatchery complex itself remains an unrecorded multiple resource area. It was developed at approximately the same time as the Visitor Center and Florida Cavern tour cave, though it opened slightly earlier, in the late 1930s. It was apparently constructed by local contractors for the U.S. Department of Commerce under WPA funding. Extant hatchery structures include:

- |    |                     |   |
|----|---------------------|---|
| 1. | 8JA73               | Carter's Mill dam site (CCC era and 1800s period) |
| 2. | 8JA77               | an office   |
| 3. | 8JA74, -76, and -78 | three residential structures                      |
| 4. | 8JA75 and -79       | two outbuildings                                  |
| 5. | 8JA80               | the pump / control house                          |

All structures are seated on masonry foundations; exterior wall fabric is generally limestone veneer trimmed in stucco and painted wood. Hatchery area roads are bordered by an extensive system of low, limestone masonry walls that terminate in large, impressive gateposts. The hatchery was designed to have up to 17 ponds, and many of these are still visible, although they are dry. The ponds were served by a substantial water control and pumping system, clear evidences of which remain quite apparent. The pump house or control house is recorded in the FMSF as 8JA80. The hatchery complex presents a virtually complete time capsule within a time capsule, both contemporary with and stylistically separate from the rustic park structures of CCC origin.

The two CCC structures that remain in use in the park are a small pump house (8JA67), and the large Visitor Center (8JA68). Both structures are of stone masonry on concrete foundations. The Visitor Center, constructed as “the Combination Building”, is a split-level structure whose southern elevation has two full floors or levels. The lower level contains rest rooms and a gift shop; the upper story is a single large room and a southern terrace, which forms the roof of much of the lower level. The single large room was originally constructed as an open-sided rustic pavilion with masonry gable ends, each with a large interior fireplace. This former picnic shelter resembles the interpretive center at another CCC site, Fort Clinch State Park, particularly as it has been enclosed and has been utilized for visitor interpretation. In contrast, the Fort Clinch structure contains only one level.

Many of the park day use facilities date from after 1950. The Hickory Picnic Shelter (building 12), appears to be a post World War II execution of the classic state park rustic picnic pavilion. It is similar to massive shelters in the other CCC parks, and the design might be considered a mark distinguishing the CCC parks from those developed by other New Deal era agencies. In addition, undocumented is the original SP-12 CCC camp location. It was located northwest of the Yancy Bridge, just off River Forest road in-Marianna. The camp location is now apparently buried by a private residence.

Florida public facilities were racially segregated until the late 1960s, and state parks like Florida

Caverns had separate facilities for African Americans. When segregation ended, the historic Negro Picnic Area at Florida Caverns was re-designated as “Beech” Picnic Shelter. The Negro Picnic Area can be identified on 1950s park base maps and should be thoroughly documented.

Additional park infrastructure, i.e. the east-west park drive, boat ramp, camping area, Blue Hole Swimming Area, and equestrian camping area were built by the Florida Park Service from the 1960s through the 1980s.

A collection of archaeological artifacts; chert knives, scrapers, pottery fragments is displayed at the Visitor Center, on loan from the Division of Historical Resources.

The recorded Native American resources at Florida Caverns State Park, including 8JA3 and -1555 generally are in fair condition; they are little affected by natural forces. However, instances of illegal soil screening (“pot hunting”) in front of cave entrances have occurred in the park. A few sites, 8JA58, -59, -110, 112, -1073, and -1545 have not been visited recently. Their recorded locations in FMSF documents are vague and should be revisited for confirmation. They are considered in fair condition, and 8JA92 is also in fair condition, based on lack of surface disturbance.

Resources of the Federal Fish Hatchery are in fair condition, with the exception of the pump house/water control structure, which is in need of stabilization, and the stone masonry walls and gateposts, which are in poor condition. Foundations for these elements appear to be minimal, and ordinary stresses have caused some areas of the wall to separate from their foundations. The appearance and condition of the gateposts have declined markedly in recent years. Ponds and water control structures have remained in fair condition; the dams that fed the pump system have been little affected by seasonal flooding.

Both CCC structures remain in day to day use and are in fair condition. The pump house, a service structure, is also used for short-term storage of various materials and has suffered for it. The Visitor Center is perhaps the most visited public structure in the park. Consistent maintenance, as well as major repairs during the past decade to address leaks through the terrace and to resurface the roof has enabled the structure to retain its fair condition despite its numbers of visitors. The Hickory Picnic Shelter is in fair condition. Collection objects in the Visitor Center are in fair condition.

## **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.

During the development of this management plan, it was determined that timber harvest was not compatible with resource management objectives at Florida Caverns State Park. Ninety-four percent of the park is in climax bottomland hardwood forest or upland hardwood forest community types. These communities will be managed to promote and perpetuate natural old-growth forest. In 1997, a small-scale commercial harvest of loblolly pines was performed on the park. The purpose of this action was disease control and facilitating re-establishment of a natural Upland Hardwood Forest community on the site. The park currently contains no significant disturbed or planted pine areas suitable for timber harvest.

### **Additional Considerations**

Special management considerations apply to the special measures necessary to protect fragile cave formations and cave wildlife from unintentional disturbance as well as deliberate vandalism.

Since 1996, the park has sponsored a Christmas-season special event, which involves numerous colored lights and decorations in the Visitor Center. Specifications for the layout of lights and decorations, including extensive resource protection measures are maintained in current operational park files and District office. In 1999, the event was extensively modified to provide for increased visitor supervision and resource protection measures.

### **Management Needs and Problems**

At Florida Caverns State Park, a balance must be struck between promoting public visitation, while at the same time protecting extremely fragile and sometimes irreplaceable natural resources. At a cave park, perhaps more than any other, visitor access and types of permissible recreational activities must be carefully evaluated and supervised in order that the least possible impact to cave resources occurs. This is the reason tours of the Florida Cavern are staff-guided, and adheres to a strict maximum number of participants. This limit is 25 visitors and a guide on a cave tour. Of equal concern are the stalactites, stalagmites, flowstones and other cave formations, as well as highly specialized animals found in the wild, undeveloped caves of the park. Regrettably, it has become necessary (throughout the world) to secure many caves entrances with gates, fences and other security measures to prevent damage by human visitors. Cave gating structures designed to control access must be built with a thorough understanding of the specific resource protection needs and problems for that particular cave (see Tuttle and Taylor 1994).

The National Park Service and other federal agencies now operate under the guidelines of the 1993 Federal Cave Resources Protection Act. This statute directs the managing agency to inventory and close (if necessary) significant caves for resource protection reasons, as well as withholds location information for caves with particularly vulnerable or important characteristics (Anon. 1993). Caves and cave formations found in Florida are also protected by state law under section 810.13 FS.

During the late 1970s and 1980s, park-sanctioned recreational wild caving was conducted at Florida Caverns. Due to a number of difficulties associated with resource protection, staff radon exposure, visitor safety and administrative issues, this activity was discontinued in 1992 (see Ludlow 1997). Currently, access to wild caves is regulated under District 1 Administration Scientific Research and Collecting Permit procedures. This mechanism has proven satisfactory in protecting the resource and allowing access for valid cave research and exploration projects.



History has repeatedly demonstrated that without proactive, well-informed supervision and access control measures, permanent, irreversible damage to cave formations and cave wildlife will result. Florida Caverns State Park also contains a particularly attractive and unusual resource in the form of limestone cliffs, bluffs and rare northern plant species, all of which are shaded by the dense canopy of mature hardwood forest. Here again, it is necessary to direct visitor access to established areas and routes in order to minimize impacts from heavy foot traffic, unauthorized collecting by hobbyists, and other inappropriate activities.

Management needs pertaining to cultural resources consist of compiling existing information, increasing public awareness through interpretation and adhering to current DHR protective measures when conducting ground disturbing activities. Also needed is a comprehensive archaeological survey of the park, which would benefit both resource protection and probably provide new interpretive material.

Florida Caverns State Park must also function as an integral component of various other land uses that exist in Jackson County. It is one of a very few protected, public recreation lands in the agriculture and pine-plantation dominated region. Management must be aware of activities and changes in adjacent land use, particularly upstream, which may impact the park and strive to avoid or minimize negative consequences. Examples of such impacts are septic and contaminant runoff, wind throw after adjacent clear-cuts, erosion and stream siltation, pine beetle infestation, escape of exotic landscape plants, and problems with free-ranging pets.

### **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.

Management of all New Deal era resources should be conducted in accordance with the Secretary of the Interior's Standards. Structures and other publicly visited cultural resources should be adapted to ensure universal access wherever possible. Cyclical maintenance schedules for each cultural resource should be developed and adopted.

Masonry walls and gateposts in the Fish Hatchery should be documented and stabilized.

Archaeological resources should be revisited and assessed for condition. Resource management photographic points should be extended to include cultural resources.

The recognized boundaries of each cultural resource should be plotted utilizing GIS technology. Resources with a linear nature, such as the Fish Hatchery roads and dams, should be plotted though their entire lengths. Cultural resources should be monitored on a regular basis and reports of monitoring activities should be retained in resource management files at the park and district.

## **Management Measures for Natural Resources**

### **Hydrology**

Florida Caverns has two primary issues pertaining to hydrology. They are the damming effect of the park drive across the Chipola River floodplain, and the deep (and non-functional) man-made ditch between the Sugar Mill Run and Blue Hole. The first issue will be addressed by consulting with engineers and hydrologists to evaluate the need for culverts under the road. The Sugar Mill ditch may present a larger and more costly project. It appears on a list of DEP wetland mitigation projects and will be considered, as funding becomes available.

Soil erosion on the park is controlled by re-establishing groundcover and sod when surface disturbance is necessary and avoiding use of the park multi-use trails during very wet periods.

### **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.

Historically, much of the upland portions of the park supported fire-dependent habitat – primarily Upland Pine Forest. Prior to acquisition for the park, much of these habitats were converted to intensive row-crop agriculture (or improved pasture) and later allowed to re-forest. A significant portion of such lands - and probably some intact Upland Pine Forest - were then converted to the fairways of the golf course during early park development. At least 70 native plant species on the Plant List are normally associated with Upland Pine Forest, Sandhill, Mesic Flatwoods, or other fire-maintained communities (pers. obs., Erik Johnson, DRP Environmental Administrator) – and require habitat that is relatively open and sunlit, without a closed canopy and without a dense woody understory. Due to past disturbances and prolonged periods of fire exclusion, a significant portion of these species may no longer be present in the park. Others are probably “hanging on” at the edges of roads, the golf course, and other developed or ruderal areas where they can receive adequate light.

A small area of degraded Upland Pine Forest south of the current entrance station was periodically burned up to the late 1970s. Prescribed burning of an old field habitat (dominated by loblolly pine) on “Pine Island” was conducted from 1976-1982. No prescribed burning has been conducted in the park since then.

While the potential total acreage where fire is needed to maintain or restore habitats is relatively small, recent reassessment of habitat management and general management needs in the park resulted in a consensus that an active prescribed burn in program is needed. The exact boundaries of such areas and the total acreage that should be included in burn zones are not yet known. The most significant fire-dependent habitat remaining in the park is a small area of Upland Glade on the western edge of the park. Small pockets of a few acres of Upland Pine Forest can also be restored over time.

## **Designated Species Protection**

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

Designated plant species on the park will benefit from maintenance of existing natural communities, interpretation, controlling competing exotics, and protection from unauthorized collecting. Several designated plant species that occur (or once occurred) in the park depend on periodic fire to maintain their open, sunny habitats. A few of these are extremely rare in Florida and should be a top priority for habitat and population restoration. Selected rare plant species needing special management action are discussed below.

This park has the only known Florida occurrence of State Endangered creamflower tick-trefoil (*Desmodium ochroleucum*). Mitchell (1963) reports that this legume occurred in an open field on the "northeast side of the park," FNAI data indicates that it was seen in the "upland oak-hickory forest" near the park entrance in 1982, and biologist Wilson Baker has recently observed it along margins of the golf course fairway. Mr. Baker thinks the park occurrences would benefit from re-introduction of fire (pers. comm. to Erik Johnson). Data in NatureServe (2005) reports that reasons for a range-wide decline of the species are unknown, but indicates that in some areas, lack of fire may be a cause. Chafin 2000 indicates management of the species should also entail control of Chinese privet (*Ligustrum sinense*) and Japanese honeysuckle (*Lonicera japonica*).

In Florida, State Endangered spoon-leaved Barbara's buttons (*Marshallia obovata*) occurs in the groundcover of Upland Pine Forest, and depends on periodic fire for its continued existence. Only three Florida occurrences of this species - including this park - are recorded in the FNAI database. Only two occurrences are on conservation lands. It is not known whether the species persists at this park. Mitchell (1963) reports that the species occurred within the park in 1960 along "grassy roadsides at north end of golf course." It has not been seen in the park by current Division staff. The "last observation" recorded in the FNAI database is from Mitchell (1963). The original habitat in the park was very likely remnant Upland Pine Forest. Plans for Upland Pine Forest restoration at Florida Caverns should include restoration of a viable population (e.g., >50 individuals) of this species. Three Rivers State Park has an existing population and would be a logical local seed source for re-introduction.

State Endangered Flyr's brickell-bush (*Brickellia cordifolia*) occurs within the park. Only 10 Florida occurrences of this species - including this park - are recorded in the FNAI database. Only six occurrences are on conservation lands. 1998 FNAI data records two locations at Florida Caverns State Park - one in roadside woods "south of the beech picnic shelter" (15-20 plants) and a second at the edge of the golf course in the edge of west-facing woods (10 plants). Mitchell (1963) reports that Flyr's brickell-bush [was] found in "clearings in rich woods;

infrequent". The FNAI Element Occurrence Record also makes the following management comments: "this species requires filtered sunlight and a partially open canopy to persist in its native habitat. Periodic burning of the red oak woods and partial understory clearing will improve the habitat for *Brickellia*."

FNAI data indicates that nettle-leaved sage (*Salvia urticifolia*) was in "sunny places in ditch at entrance of park" in 1946 (entrance then was into the golf course). Only 10 Florida occurrences of this species are recorded in the FNAI database. Only 3 occurrences are protected on conservation lands; 2 of those are from this park. One of these is a very recent discovery (by Ann Johnson, FNAI Ecologist) in the vicinity of the Upland Glade. The other is an old record that has not been verified in many years (associated with north side of golf course). Although the role that fire plays in maintaining the habitats of this species is unknown, it seems likely that some populations would benefit from occasional fire. Several of the habitat descriptions in the FNAI database refer to relatively open forest with sunny patches, or occurrences at the margins of Upland Glade.

Royal catchfly (*Silene regia*) was recently discovered in the park by Wilson Baker in a small grassy area in that has been managed by mowing. In Florida, this plant species apparently only occurs in Jackson County. It is extremely rare in the state and should be a top priority for conservation at this park. Although not yet tracked by FNAI, it is on their "watch list." And although not yet listed by the Florida Department of Agriculture Endangered Plant Advisory Council, it will likely be considered for listing soon. It is State Imperiled (S2) in Alabama and state designated as "Rare" in Georgia, where it is known from only 4 counties. Based on Patrick et al. (1995), royal catchfly is a fire-dependent species that occurs in "prairies and rocky openings in well drained calcareous ... soils" and management recommendations include controlling encroachment of woody vegetation through prescribed burning and/ or hand removal of hardwoods to reduce shading.

The earliest plant lists for the park (in files of the Bureau of Natural and Cultural Resources) record two State Threatened orchid species: white-fringed orchid (*Platanthera blephariglottis*) and yellow-fringed orchid (*P. ciliaris*). A list "Plants of Florida Caverns State Park" (probably late 1940s-1950s and by Carol Beck, first Naturalist of Florida Park Service) indicates that both species occurred in "Pinewoods" in "moist places." Both are usually associated with open fire-type habitats. Neither species has been seen by present park staff and may no longer be present in the park.

Various species of cave of invertebrates would benefit from additional inventory and taxonomic review. Again, the Division must solicit input from entomologists specializing in cave organisms to provide the necessary information.

In 1998, the USFWS proceeded with listing of seven species of freshwater mussels that occur in the Apalachicola-Chattahoochee-Flint River basin. In 2000 the park was surveyed for mussels and examples of the Chipola slabshell and Shinyrayed pocketbook and other more common mussel species were located in the park. The Gulf moccasinshell and Oval pigtoe may also occur in the Chipola within the park, but were not found in this survey.

The previous version of the Unit Management Plan discussed concerns about a rare or endemic snail (*Elimia* sp.) which apparently occurs in the Blue Hole run (Anon. 1990). A present, the

taxonomy and distribution of these small mollusks is being studied by malacologists at the University of Florida. It appears likely there are several unusual snail species in the upper Chipola region (F. Thompson pers comm.).

Three species of listed turtles are known from the park. They will benefit from prevention of dead heading (commercial removal of submerged logs) in the waters of the park, and adherence to the FFWCC regulations on capture of these species. In addition, they will benefit from controlling feral hogs that may prey on turtle eggs.

The park's 1944 "A Checklist of Birds" indicates that Bachman's sparrow (*Aimophila aestivalis*) had been a "common permanent resident" in the park. The species is listed as "Threatened and Declining" on the Watch List of Partners in Flight. In Florida, the preferred habitats of this ground nesting species are mature and open fire-maintained pinelands with intact grassy groundcover lands and Dry Prairie. It is all-but-certain that this species no longer breeds in the park. It is unknown if enough open grassland habitat can be restored in the park to re-establish this species, but the sizes of breeding territories are quite small (from less than an acre to several acres).

The 1944 Checklist indicates that brown-headed nuthatch (*Sitta pusilla*) had been a "common permanent resident." It is also listed as "Threatened and Declining" by Partners in Flight. It is almost exclusively associated with mature pine stands or mature, open pine-oak woodlands. Stevenson and Anderson (1994, The Birdlife of Florida) indicates that the species is now uncommon in the Marianna region. The abundance and breeding status of this species in the park is unknown, but reinvigorating areas of mature pines would surely benefit this species.

In the period, 1994-1998, numerous advances in bat research and conservation were made at Florida Caverns. A total of three grants for approximately \$18,000 were received from the USFWS for; new cave fencing at a second entrance of Old Indian Cave and at Miller's Cave, a Bat Ecology exhibit at the Visitor Center, and bat-friendly steel gates at both entrances to Ellis Cave. Also, a new gray bat and southeastern bat site was discovered at Dugong Cave on a 300-acre parcel just south of the park (Ludlow, unpublished data). Continuation of periodic monitoring by the park biologist and FFWCC, interpretive programs, and enforcement of the permanently "CLOSED" status of Old Indian, Miller's and Ellis Caves will help to ensure the survival of cave-roosting bats at the park. The most important natural resource improvement that could be made to the park would be acquisition of all or part of the 300-acre tract south of the park, between the Yancy Bridge and the golf course. Such a contiguous addition to Florida Caverns would be of great value to the critically endangered Florida population of gray bats, as well as preserving even more Chipola River floodplain and Upland Hardwood Forest natural communities.

### **Exotic Species Control**

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

**Plants.** An aggressive program of invasive exotic plant removal was begun at the park in 1994.

Since that time, several thousand of individual plants belonging to about 10 species have been removed using herbicide. Five common woody species have now been reduced to maintenance control levels. Unfortunately exotic plants are continually being re-introduced into the park by birds, mammals, floodwaters and wind-borne seeds. The standard removal technique is to search through both natural and ruderal areas of the park and employ a backpack sprayer to treat individual plants. Upland Hardwood areas which support rare native species are a priority. Assistance has been provided by the DEP Bureau of Invasive Plant Management. The most persistent exotics on the park are nandina, Chinese and glossy privet, Chinaberry and silverthorn (*Eleagnus pungens*). Nandina particularly, has shown the ability to form dense stands on limestone outcroppings, where it competes for space and sunlight with rare natives such as oakleaf hydrangea and false rue anemone. *Ligustrum* remains a dominant canopy species in the old Federal Fish Hatchery area, due to 1930s disturbance for a system of ponds. A small number of Chinese tallow (*Sapium sebiferum*) were located in the park in 1998 and removed. Also called popcorn tree, this Asian species has the ability to aggressively colonize and disrupt natural communities on a large scale. Given the abundance of these well-established exotics throughout the region, the park's only recourse to protect the integrity natural communities is constant vigilance and continuous spot treatment of exotic plants when they are located.

**Animals.** Fire ants are ubiquitous on the park, and are controlled in public use areas with approved pesticides. Stray dogs and cats appear periodically in the park. They are typically handled in cooperation with Jackson County Animal Control. Coyotes (*Canis latrans*) have been seen in the park but are uncommon. Feral hogs (*Sus scrofa*) have become an increasing problem in the area. Evidently, they were introduced by a hunt club on leases northwest of the park in the early 1980s. In recent years they have become common on the Upper Chipola Water Management Area north of the park and now can be found within and south of the park as well. In 1997-1998, 22 hogs were removed from the park by a contract trapper. In addition, in 1998 the NFWFMD cooperated by liberalizing the hunting season and bag limit for hogs north of the park. Hopefully, this will increase hog harvest by hunters adjacent to the park. As with exotic plants, continual vigilance and removal will be necessary to control feral and stray animals.

### **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.

At Florida Caverns, it is not uncommon to have an alligator appear in the Blue Hole Swimming Area. In such cases, standard Division procedures are followed. The same applies to venomous snakes, which are re-located when found in high-use areas.

### **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 (see DHR Cultural Management Statement).

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.

Park and district management should seek the assistance and cooperation of the Bureaus of Natural and Cultural Resources and Design and Recreation Services in developing priority plans to adapt structures and other publicly visited cultural resources to ensure efficient and effective universal access wherever possible.

The park should seek the assistance and cooperation of the Bureau of Natural and Cultural Resources, the Bureau of Design and Construction and the Office of Park Planning in identifying funding and in planning and conducting intensive, professional cultural resource survey to at least Level I to re-locate previously recorded archaeological resources, to recover and copy earlier archaeologists' field notes, and to record additional archaeological and historic sites. (Level I includes literature survey, a walking survey on transects, with shovel testing, and rough delineation of resource boundaries, and preparation of formal reports.) In planning such a survey, consideration may be warranted for documenting the original CCC campsite, which was located between the park and Marianna.

The park should seek the assistance and cooperation of the Bureau of Natural and Cultural Resources in developing cyclical maintenance schedules for each cultural resource and then implement the maintenance schedules.

The park should seek the assistance and cooperation of the Bureau of Natural and Cultural Resources in planning and implementing a project to stabilize the masonry walls and gateposts in the Fish Hatchery area.

The park and district should seek the assistance and cooperation of the Bureau of Natural and Cultural Resources in extending resource management photography programs to include cultural resources.

The park should arrange for district personnel to plot recognized boundaries of each cultural resource utilizing GIS technology. Resources with a linear nature, such as the Fish Hatchery road and dams, should be plotted though their entire lengths.

The park should seek the assistance and cooperation of the Bureau of Natural and Cultural Resources in developing monitoring and reporting systems for cultural resources. The park and district should maintain reports of activities in resource management files.

## **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.

The following are research priorities for Florida Caverns State Park:

1. Locate, document and map listed plant and animal species in the park, with emphasis on least-known species. Priorities include spoon-leaved Barbara's buttons, nettle-leaved sage, Fly's brickell-bush, royal catchfly, yellow-fringed orchid, and white-fringed orchid. Management actions should maintain/establish viable extant populations and restore species that have been lost, where possible.
2. Create a detailed mapping system for the park showing physical features, improvements, natural communities, cultural resources and topography. This would greatly facilitate monitoring caves rare plant species, and cultural sites.
3. Promote research, exploration and mapping of the park's cave system. Several park caves, e.g. Boyer's Discovery and Bobby Hall's, remain incompletely surveyed.
4. Investigate methods of controlling algae and moss in the Florida Cavern, which grows near the electric lights and may stain cave formations.
5. Facilitate research and inventory of cave invertebrate fauna in the wild caves of the park.

### **Cultural Resources**

1. Information on the CCC enrollees who built the initial park facilities is needed.
2. Research on New Deal era resources on the park, including the Federal Fish hatchery will be pursued.
3. Historical research, site analysis and the evaluation the Florida Caverns State Park CCC Era site's integrity and significance needs to be undertaken to determine if the Park (including the landscape changes undertaken by the Florida Park Service) should be considered a cultural landscape. If appropriate, further research and action plans will be developed.
4. Basic historical research on the Carter's Mill site and preparation of appropriate interpretive material on this resource is needed.

### **Resource Management Schedule**

A priority schedule for conducting all management activities that is based on the purposes for which these lands were acquired, and to enhance the resource values, is contained in Addendum 7. Cost estimates for conducting priority management activities are based on the most cost effective methods and recommendations currently available.

### **Land Management Review**

Section 259.036, Florida Statutes, established land management review teams to determine whether conservation, preservation, and recreation lands titled in the name of the Board of Trustees of the Internal Improvement Trust Fund (board) are being managed for the purposes for which they were acquired and in accordance with a land management plan adopted pursuant to s. 259.032, the board of trustees, acting through the Department of Environmental Protection (department). The managing agency shall consider the findings and recommendations of the land management review team in finalizing the required update of its management plan. Florida Caverns State Park was subject to a land management review on June 8, 2004. 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 park interaction with other facilities.

Florida Caverns State Park is located in Jackson County, about three miles north of Marianna in the north-central part of the panhandle. The populations of Jackson County and the adjacent Gadsden, Calhoun, Washington and Holmes Counties have grown 10.6 percent since 1990, and are projected to grow an additional 8 percent by 2020 (BEBR, University of Florida, 2004). The median age of Jackson County is 37.8, which is slightly younger than the state average of 39.4 (BEBR, University of Florida, 2004). Nearly 242,198 Floridians reside within 50 miles of the park, which includes the cities of Marianna, Chipley, Ponce de Leon, Chattahoochee, Havana, Quincy, Blountstown and Panama City (Census, 2000). In addition, the park is easily accessible to tourists traveling on Interstate 10.

Florida Caverns State Park recorded 91,427 visitors in fiscal year 2004/2005. This figure represents the lowest park attendance in ten years. This could be attributed to extreme flooding events, the 2004 hurricanes and economic factors. Day-use visitation tends to be most popular during the spring and early summer while overnight visitation stays stable throughout the year. By Division estimates, park visitors contributed \$3.79 million in direct economic impact and the equivalent of 75.9 jobs to the local economy (Florida Department of Environmental Protection, 2005).

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

The areas adjacent to the east and south of Florida Caverns State Park are currently zoned for single-family residential land use. Low-density residential development and agricultural-silvicultural uses exist to the north of the park, while lands to the park's southwest are used for agriculture. However, new subdivisions have already been platted adjacent to the park boundary. Problems associated with exotic plants and ground water impacts will continue to be a management concern.

There are numerous resource-based recreation areas in and around Jackson County. The recently renovated Jackson Blue Springs is a popular swimming area that is accessible by both car and boat. This park also offers picnicking, sunbathing, volleyball and a playground. Spring Creek Park provides a well-used launch for canoe/kayaking and tubing. Other activities available here include picnicking, snorkeling and fishing.

The Northwest Florida Water Management District manages a corridor of land along the Chipola River, from the park's northern boundary to the Alabama state line. This floodplain property allows hunting during the season and provides multi-use trails that connect to the state park. The Chipola River Canoe Trail, a designated part of Florida's Statewide System of Greenways and Trails, begins at Florida Caverns State Park and runs 52 miles south to its confluence with the Apalachicola River.

Also in close proximity to Florida Caverns are four other state parks: Three Rivers State Park, Torreya State Park, Falling Waters State Park, and Ponce de Leon Springs State Park. Three Rivers State Park offers excellent fishing on Lake Seminole, camping, boating, canoe/kayaking, picnicking, hiking, and a group camp. Torreya State Park, like Florida Caverns, is a New Deal era park that was originally developed by the CCC. This state park provides opportunities for exceptional hiking, camping, primitive camping, picnicking and wildlife observation. Falling Waters State Park contains the highest waterfall in Florida and has camping, hiking, picnicking, fishing, primitive camping and swimming. Ponce de Leon Springs State Park is home to a popular recreational spring, which allows swimming, snorkeling, fishing, picnicking and nature trails.

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

The Future Land Use Map for Jackson County (2001) designates the state park for both Recreation and Conservation land uses. Lands to the south and along the northeast boundary of the park are identified as Residential, allowing up to four dwelling units per acre. The Northwest Florida Water Management District land to the north and the Chipola River corridor to the south are designated for Conservation. The remaining adjacent lands are labeled for Agriculture-2 that allows a maximum of one dwelling unit per acre, encourages clustering of development, and limits the impervious surface ratio to 60 percent.

Eventual conversion of agricultural lands to residential uses is anticipated due to the proximity of Florida Caverns State Park to the city of Marianna. This trend could affect the park through impacts on groundwater quality and supply, exotic plant and animal management, and increased vehicular traffic and noise on adjacent roads. One of the greatest concerns regarding external influences is the potential that exists for nutrient or toxic materials to enter the park from upstream sources via either the Chipola River or Muddy

Branch.

Jackson County is currently in the process of acquiring conservation lands along the Chipola River corridor. One of the potential purposes of this acquisition is a shared-use trail system. This proposed trail could link-up with the existing Upper Chipola Recreational Trail System, which traverses the park and continues onto Northwest Florida Water Management District land for a short distance. All of the park's shared-use trails are located on the western side of the Chipola River. Therefore, a connecting link from the Jackson County property is best designed to cross over the river south of the park, and connect to park trails in the Fish Hatchery Road area. An off-site trail entering Florida Caverns State Park on the Chipola River's eastern side would be undesirable due to a variety of logistical and environmental concerns.

## **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**

The land comprising Florida Caverns State Park represents a cross-section of the Marianna Lowlands region and contains 1,279 acres of natural landscapes. The forested uplands of the park show evidence of continual human occupation. The upland natural communities of this park include bluffs, upland hardwood forest, upland mixed forest, and terrestrial caves. The wetland communities include floodplain swamp, floodplain forest, alluvial stream, spring-run stream and aquatic cave. The rolling topography provides scenic views of the wooded areas and of the numerous rock outcroppings and recreational development has occurred in these upland areas. The park also contains highly decorated terrestrial caves that are the primary public attraction.

#### **Water Area**

A second magnitude spring, Blue Hole, has been developed as a swimming area by the shaping of a pool just below the springhead. The spring and pool provide almost two acres of water area, although the spring itself is closed to swimmers. Other water areas within the park include the Chipola River, Carter's Mill Branch, Sugar Mill Run, Spring Branch and the log canal. Only the Chipola River is accessible for recreational boating. Maintaining a navigable channel in the river from the boat ramp to the park's northern boundary is required to facilitate boating and canoeing/kayaking.

### **Shoreline**

Within the park boundary, the shoreline of the Chipola River, totaling some 8,200 linear feet, is only accessible at the boat ramp/canoe launch because of the extensive floodplain. Carter's Mill Branch extends 8,400 linear feet, Sugar Mill Run is approximately 1,600 linear feet and the log canal contributes another 1,400 linear feet of shoreline. These three features may be approached along high banks, which could provide interesting hiking areas for nature study and scenery appreciation. Erosion control and protection of the bluff edges will be important factors in the layout of any new trails along these shorelines.

### **Significant Wildlife Habitat**

The false rue-anemoneae, May apple, bear's foot, pinnate-lobed coneflower, Gray bat, Dougherty plain cave crayfish, and the Georgia blind cave salamander are among the most significant listed species that can be found at Florida Caverns State Park. All listed species will be protected under established Division management policies, and visitor impacts to listed species carefully monitored to identify potential impacts in advance.

### **Natural Features**

Florida Caverns State Park's best-known features are the numerous limestone caverns that honeycomb the center of the park. These caves are unique natural landmarks registered by both federal and state authority. The guided cave tour is the park's primary visitor attraction. The tour provides access to a seemingly endless variety of fantastic limestone formations.

### **Archaeological and Historical Features**

Florida Caverns State Park has the potential to contain many important historical and archeological sites within its boundaries. As noted previously, relatively little is known about the archaeological resources of the park, and the park has not been the subject of a comprehensive cultural resources survey. Despite this, 33 distinct cultural sites are known at the park, ranging from pre-historic habitation sites to the extensive WPA and CCC projects of the 1930s and early 1940s. More information about these cultural sites is discussed in the Resource Management Component.

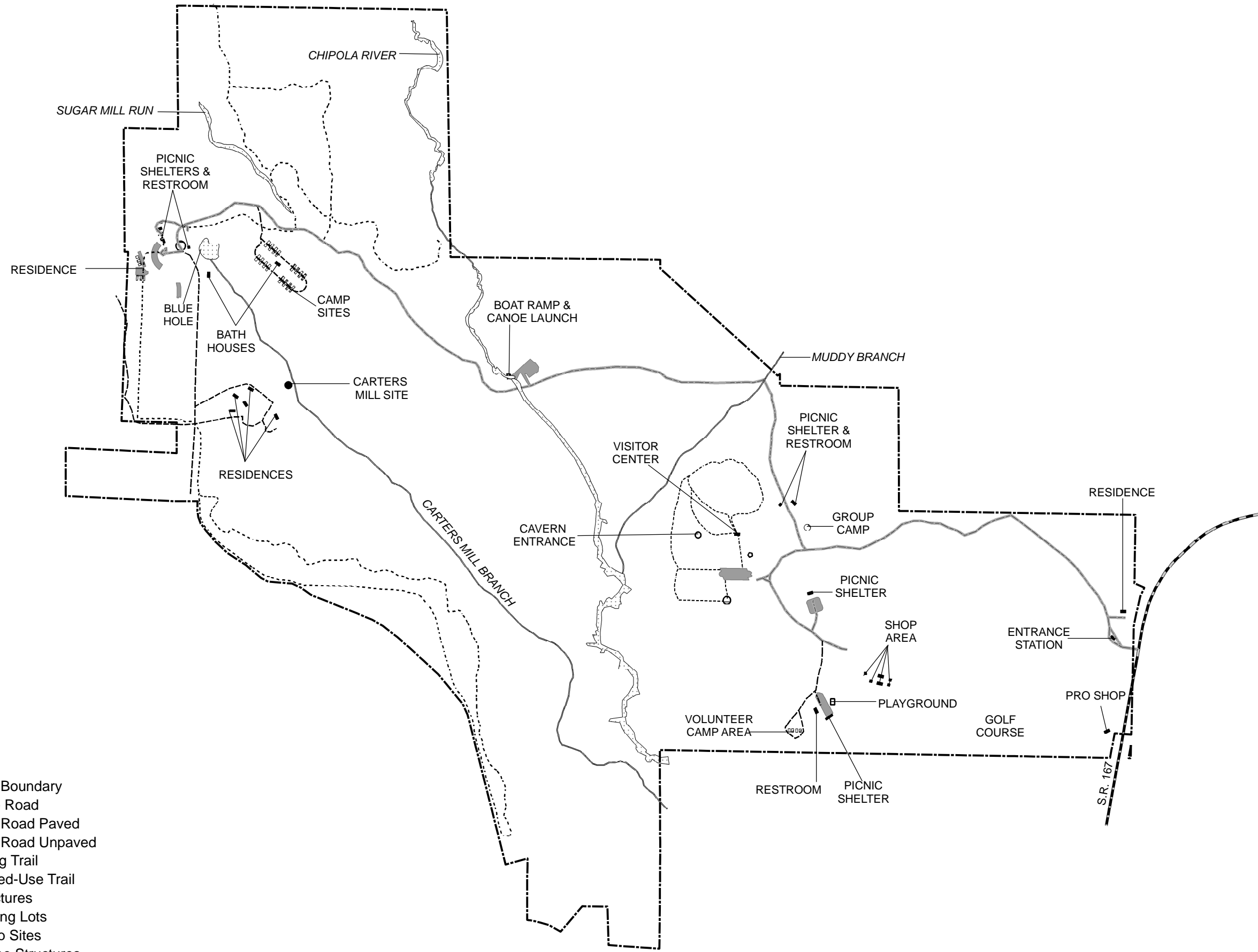
Currently, the Visitor Center is the only historic structure used by park visitors. The interpretive exhibits in the visitor center focus on the cave ecosystem and CCC history. However, the fish hatchery buildings also have potential to serve interpretive functions as little information is currently shared about the role of the WPA at the park.

### **Assessment of Use**

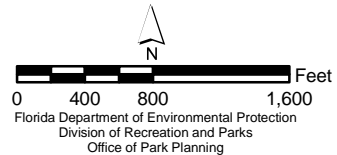
All legal boundaries, significant natural features, structures, facilities, roads and trails existing in the unit are delineated on the base map (see Base Map). Specific uses made of the unit are briefly described in the following sections.

### **Past Uses**

Past commercial logging activities are evident through features such as the log canal that connects the river sink to the river rise. Prior to public acquisition of this property, Blue Hole Spring was a local swimming hole for many years. Remnants of a dam on Carter's Mill Branch indicate previous attempts to get more water into the Blue Hole. As mentioned above, the CCC and WPA were instrumental in the initial development of the tour cave, golf course, and other recreational facilities of the park.



- LEGEND**
- Park Boundary
  - State Road
  - Park Road Paved
  - - - Park Road Unpaved
  - ..... Hiking Trail
  - · - · Shared-Use Trail
  - Structures
  - Parking Lots
  - ▨ Camp Sites
  - ▣ Marine Structures



## **Recreational Uses**

Swimming, picnicking, camping, fishing, nature study and cave tours are the recreational activities provided by in this park. Hiking, bicycling and horseback riding are also popular on the park's trail system. A 9-hole golf course, constructed by the WPA in the park's southeastern corner, is managed through an agreement with a private operator. Park staff monitors management of the golf course to minimize adverse effects of pesticides, herbicides, fertilizers and waste materials.

## **Protected Zones**

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

At Florida Caverns State Park, the terrestrial caves, upland hardwood forest, bluff, floodplain forest, floodplain swamp, alluvial stream, spring-run stream, upland glade, and aquatic cave natural communities have been designated as protected zones as delineated on the Conceptual Land Use Plan.

## **Existing Facilities**

### **Recreation Facilities**

#### **Blue Hole Picnic and Swimming Area**

Picnic shelter	Stabilized parking (25 vehicles)
Bathhouse	

#### **Blue Hole Camping Area**

32 campsites with utilities	Bathhouse
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#### **Caverns Group Camp**

Tables and grills	Outdoor shower
Restroom	

#### **Sweetgum Picnic Area**

Picnic shelter	Paved parking (30 vehicles)
Restroom	

#### **Hickory Picnic Area**

Picnic shelter	Restroom
Playground	Paved parking (50 vehicles)

#### **Beech Picnic Area**

Picnic shelter	Stabilized parking (7 vehicles)
Restroom	

**Caverns Visitor Center**

Visitor Center  
 Tour Cave  
 Concession

Information kiosk  
 Historic pump house  
 Paved parking (60 vehicles)

**Trailhead and Equestrian Camp**

Horse stalls  
 Shelter w/ grill  
 Primitive campsites (3)

RV campsites (3)  
 Bathhouse

**Trails**

Nature Trails (1.4 mi.)  
 Bluff Nature Trail (0.8 mi.)  
 Beech Magnolia Trail (0.6 mi.)

Shared-Use Trails (7 mi.)  
 Pine Island Loop Trail (3.9 mi.)  
 Fish Hatchery Loop Trail (3.1 mi.)

**Caverns Golf Course**

9-hole golf course  
 Rain shelters

Concession/Restroom

**Boat Ramp Area**

Concrete boat ramp  
 Unimproved canoe launch

Stabilized parking (10 vehicles)

**Support Facilities****Ranger station**

Ranger station

Canoe equipment shed  
 Wood shed

**Roads**

Hickory Drive (1.52 mi.)

Blue Hole Drive (1.92 mi.)

**Shop Area**

Shop building  
 Equipment shelters (2)

Boat shed  
 Gas shed

**Residence Areas**

Residences (4)  
 Garages (3)  
 Storage buildings (2)

Cottage  
 Volunteer camping area

**Caverns Golf Course**

Eight inch irrigation well

Pumphouse w/well  
 Equipment building

**CONCEPTUAL LAND USE PLAN**

The following narrative represents the current conceptual land use proposal for this park. As new information is provided regarding the environment of the park, cultural resources, recreational use, and as new land is acquired, the conceptual land use plan may be amended to

address the new conditions (see Conceptual Land Use Plan). 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 that 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**

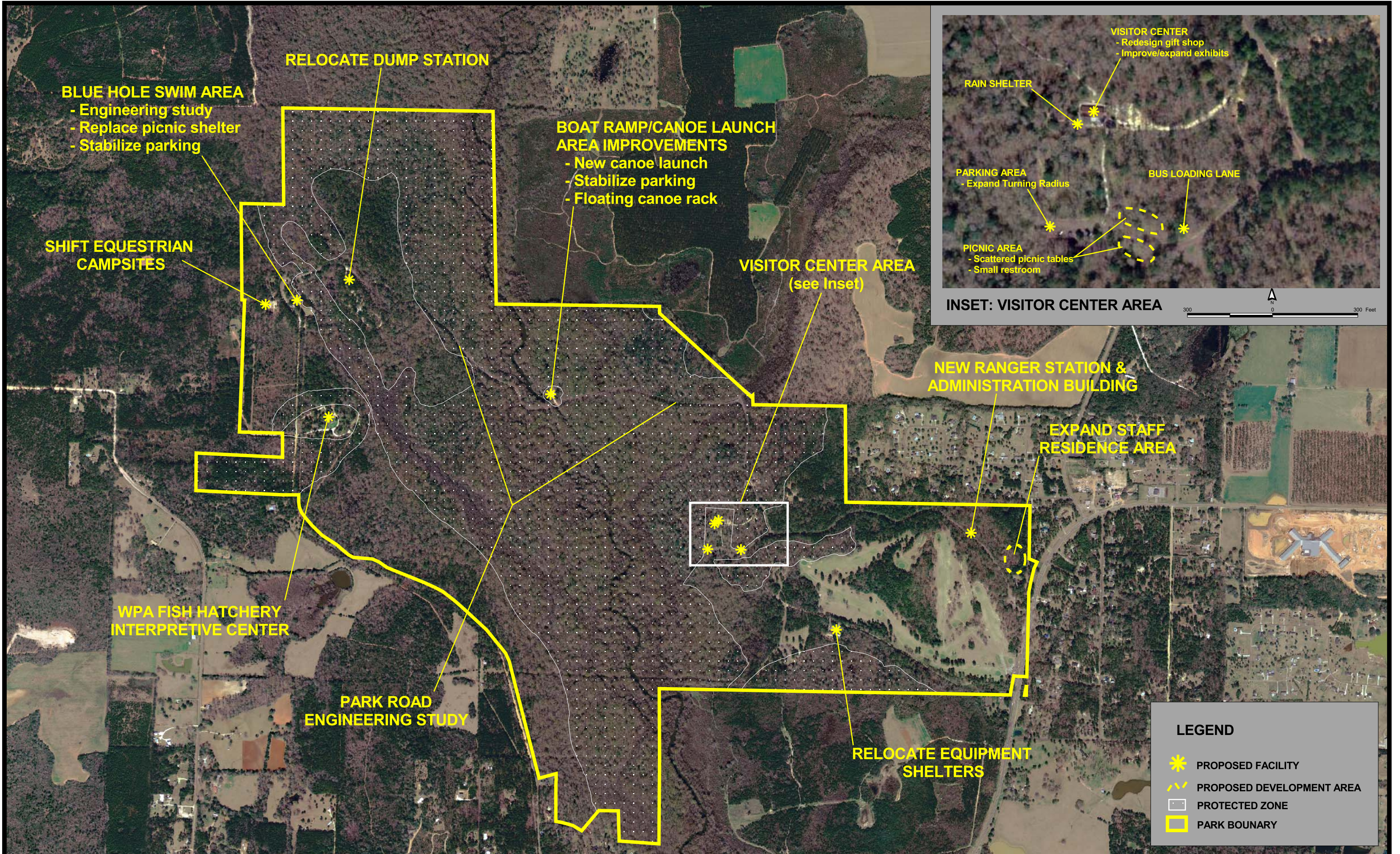
Florida Caverns State Park is one of many recreational and natural areas in Florida that attracts large numbers of visitors. Resource-based outdoor recreation in Florida continually increases in popularity. The growth of Florida's resident and tourist populations brings increasing pressure for access that is more widespread and for denser levels of public use in the natural areas available to the public. As a result, one of the greatest challenges for public land management today is the task of balancing reasonable levels of public access to public lands with the need to preserve and enhance the natural and cultural resources of the protected landscapes.

The existing recreational activities provided at the park are appropriate and should be continued and, the park is considered optimally developed. As with all of the older units of the state park system, improvements to park facilities and infrastructure are needed for the Division to fulfill its responsibilities to provide outdoor recreation, and protect and enhance the natural and cultural resources of the park. Renovations, replacements and other improvements are recommended by this plan.

### **Recreation Facilities**

**Visitor Center Area.** Improvements are recommended for the Visitor Center parking lot to satisfy current visitation patterns and future park needs. This parking area was originally constructed by the CCC when vehicles were smaller and few groups arrived in large buses. Today, buses and recreational vehicles are frequent guests and have difficulty maneuvering around the tight turns of this parking lot. The turning radius at the far end of the parking lot should be expanded to help drivers negotiate the turn. In addition, a bus loading/unloading lane is recommended adjacent to the parking lot that will allow school and tour groups to be delivered to the Visitor Center without requiring these oversized vehicles from actually entering the



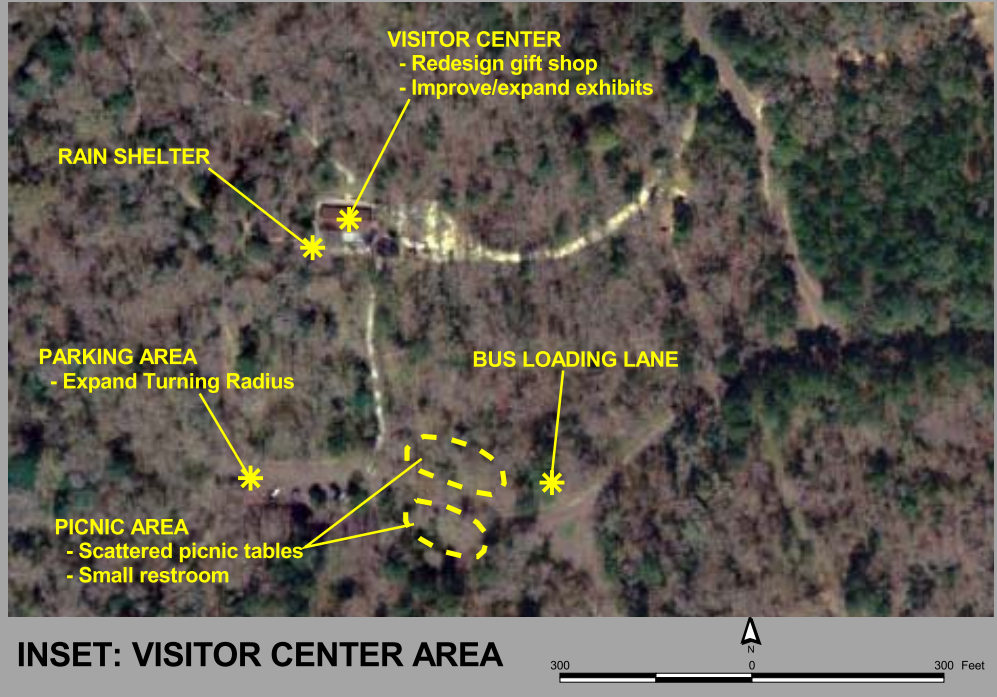


**BLUE HOLE SWIM AREA**  
 - Engineering study  
 - Replace picnic shelter  
 - Stabilize parking

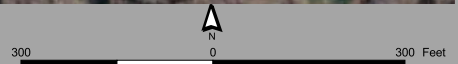
**RELOCATE DUMP STATION**

**BOAT RAMP/CANOE LAUNCH AREA IMPROVEMENTS**  
 - New canoe launch  
 - Stabilize parking  
 - Floating canoe rack

**VISITOR CENTER AREA**  
 (see Inset)



**INSET: VISITOR CENTER AREA**



**NEW RANGER STATION & ADMINISTRATION BUILDING**

**EXPAND STAFF RESIDENCE AREA**

**WPA FISH HATCHERY INTERPRETIVE CENTER**

**PARK ROAD ENGINEERING STUDY**

**RELOCATE EQUIPMENT SHELTERS**

**LEGEND**

- PROPOSED FACILITY
- PROPOSED DEVELOPMENT AREA
- PROTECTED ZONE
- PARK BOUNDARY



parking lot. The lane should be large enough to accommodate at least three buses. A new picnic area is recommended for the area between the proposed bus drop-off and the walkway to the Visitor Center. Scattered picnic tables within this shaded area will provide groups with another area to spend time when waiting for their cave tour. A small restroom should also be provided in this area.

The Visitor Center could also benefit from a few improvements. The gift shop should be redesigned to be more compatible with the New Deal era theme of the park and the quality of merchandise available for sale should be improved. The gift shop should concentrate on selling books and other educational material pertaining to cave ecosystems and CCC history. In addition, the quality and number of displays and exhibits in the second floor interpretive area should continue to be improved.

The staging area where visitors gather before entering the tour cave is located outside the Visitor Center, which works well except in times of rain. A permanent roof is recommended for this cave tour staging area to provide cover during rainy weather. The proposed roof and support beams should be built with similar materials as the visitor center so it will not detract from the cultural landscape of this use area.

**Boat/Canoe Launch Area.** The boat ramp and canoe launch area is located in the most flood prone area of the park. This area is in need of further stabilization and the existing facilities should be improved in order to better tolerate the annual flooding events. The boat ramp needs some repair work. The parking lot should be stabilized with gravel (or other heavy fill) and its boundaries need to be delineated. A new, formalized canoe launch is needed to reduce the random launching that currently takes place. In addition, the canoe rack should be replaced with a structure that floats thereby eliminating the need for staff to retrieve all canoes every time the area floods.

**Trailhead and Equestrian Camp.** The shared-use trailhead at Blue Hole is adjacent to the equestrian camp. It is recommended that the 6 equestrian campsites (3 RV and 3 tent sites) be shifted from the north side of the horse stable and corral to the wooded area about 150 feet south of these facilities. Moving these campsites should help buffer the equestrian facilities from the trailhead facilities. The trailhead area consists of a large picnic shelter with covered grill and large bathhouse that are currently underutilized. Thinning the narrow wooded area between the road and these facilities should make them more visible and, thus, more attractive to swimmers at Blue Hole. It is also recommended that measures be taken to divert and retain stormwater runoff from the equestrian area to protect the water quality at Blue Hole. This should include the construction of a structure for storage and removal of collected manure as well as requiring users to clean up after their animals.

**Fish Hatchery Area.** Two New Deal Era agencies, the Civilian Conservation Corps and the Works Progress Administration, helped initiate the development of the park. The WPA is under-represented in the interpretive opportunities currently available. There is a great opportunity at Florida Caverns State Park to interpret their history and provide an example of their contribution to the Florida Park Service. In this vein, the park staff has begun clearing a few of the basins in the fish hatchery area with plans to provide public access and interpret this feature of the park as well as the adjacent Carter's Mill site, a nineteenth century remnants of a mill foundation and dam.

The associated historic residences represent an opportunity to expand the interpretive potential of the WPA and the fish hatchery complex even further. The Division proposes converting the New Deal era houses, buildings and fish hatchery facilities into a historical period interpretive center and museum.

**Blue Hole Swimming Area.** The swimming area at Blue Hole has been a management problem for the Division for many years. An engineering study is recommended to determine what can be done to improve its use as an attractive swimming area while protecting the spring and associated natural resources. In addition, the existing picnic shelter is in need of replacement and the parking area should be improved with pervious pavement and wheel stops and expanded to provide stabilized parking for up to 50 vehicles.

**Camping Area.** Improvements are also recommended for the camping area. The road through the camping area needs paving, the campsites require stabilizing, the water and electric hook-ups should be upgraded, and the vegetative buffer between sites should be improved.

### **Support Facilities**

**Ranger Station.** A new location for the ranger station is recommended. The proposed location will allow for greater vehicular stacking distance and more efficient camper registration. An additional entry booth should be considered in the future to accommodate peak hours of visitation.

**Administration Office.** A new administration office is recommended near the proposed ranger station. This facility is recommended to enhance visitor service operations and facilitate administrative functions. The building should include a visitor contact area, secretarial area, four offices and a small meeting room.

**Park Road.** The paved park road is impassable during heavy spring rains when the Chipola River may rise more than 10 feet above its bank and flow across 2000 feet or more of the park drive. Major floods can result in the closure of the camping area, Blue Hole swimming area and trailhead for an entire month. The road may also be causing a damming effect, thus affecting sheet flow through the floodplain forest. An engineering study is highly recommended to determine what can be done to minimize the flooding impact on the road thus keeping all the visitor use areas open. Possible solutions may include constructing a new bridge with a longer span across the Chipola River and inserting a series of culverts under the road at strategic locations. In addition, the paved park roads and parking areas are in need of repaving. Consideration should be given to the use of a concrete road base along the stretch of park road that seasonally floods. This should increase the stability of the road base and prolong the life of the asphalt.

**Dump Station.** The camper's dump station is currently located near the Caverns Group Camp, about two miles from the visitors at the family camping area who use the facility. The dump station should be relocated closer the camping area, as a pull-off along the campground access road. There are already sewer lines in the camping area that the new dump station could be connected.

**Shop Area.** During major flooding events, the two equipment shelters in the shop area can become inundated with water. These two shelters should be relocated to higher ground within the

existing shop area.

**Residences.** Three of the existing staff residences are located on the west side of the park in the historic fish hatchery buildings. In times of heavy rain, the roads leading to this area often flood. Moreover, this management plan recommends adapting these fish hatchery buildings into a museum and interpretive center for public enjoyment and learning. Consequently, one new residence is proposed near the main park entrance adjacent to the other existing residence. This location provides the staff and their families with a reliable entrance and exit all year long.

### **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**

##### **Visitor Center Area**

Redesign gift shop	Picnic tables and restroom
Improve/expand exhibits	Bus loading/unloading lane
Rain shelter	Expand turning radius

##### **Boat/Canoe Launch Area**

Improved canoe launch	Floating canoe rack
Stabilized parking lot	

##### **Trailhead/Equestrian Camp**

Relocate campsites (6)	Waste collection facility
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##### **Fish Hatchery Area**

Adapt residences into museum/interpretive center

##### **Blue Hole Swimming Area**

Engineering study	Improve parking lot
Replace picnic shelter	

##### **Camping Area**

Water/Electric Upgrades	Enhance buffers between campsites
Pave camp road	Stabilize campsites

#### **Support Facilities**

Relocate (or replace) ranger station	Relocate dump station
Administration office	Relocate equipment shelters (2)
Park road engineering study	Staff residence (1)
Repave park roads and parking areas	

### Existing Use and 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 establishment and enforcement of a visitor carrying capacity is the primary tool available to conservation land managers for keeping levels of public use within sustainable levels. Visitor capacities are established for each unit in the state park system through the application of recreation planning guidelines and professional judgment, on a case-by-case basis. Over time, resource monitoring provides feedback to the process, and levels of use can be decreased if unacceptable impacts are noted (see Table 1).

The 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 Carrying Capacity**

Activity/Facility	Existing Capacity		Proposed Additional Capacity		Estimated Optimum Capacity	
	One Time	Daily	One Time	Daily	One Time	Daily
<b>Florida Caverns</b>						
Tour Cave	75	750			75	750
Visitor Center	50	400			50	400
<b>Camping</b>						
Standard	256	256			256	256
Group	60	60			60	60
Equestrian	36	36			36	36
<b>Boating</b>						
Canoeing	40	80			40	80
Power	20	40			20	40
<b>Trails</b>						
Nature	30	120			30	120
Shared-Use	56	112			56	112
<b>Picnicking</b>	315	630			315	630
<b>Swimming</b>	200	400			200	400
<b>TOTAL</b>	<b>1,138</b>	<b>2,884</b>	<b>0</b>	<b>0</b>	<b>1,138</b>	<b>2,884</b>

**Note:** The capacity of each cave tour is 25 people; however, three tours may be in progress simultaneously during peak visitation. Also, the capacity for "swimming" also refers to the associated sun bathing and picnicking within the Blue Hole swimming area.

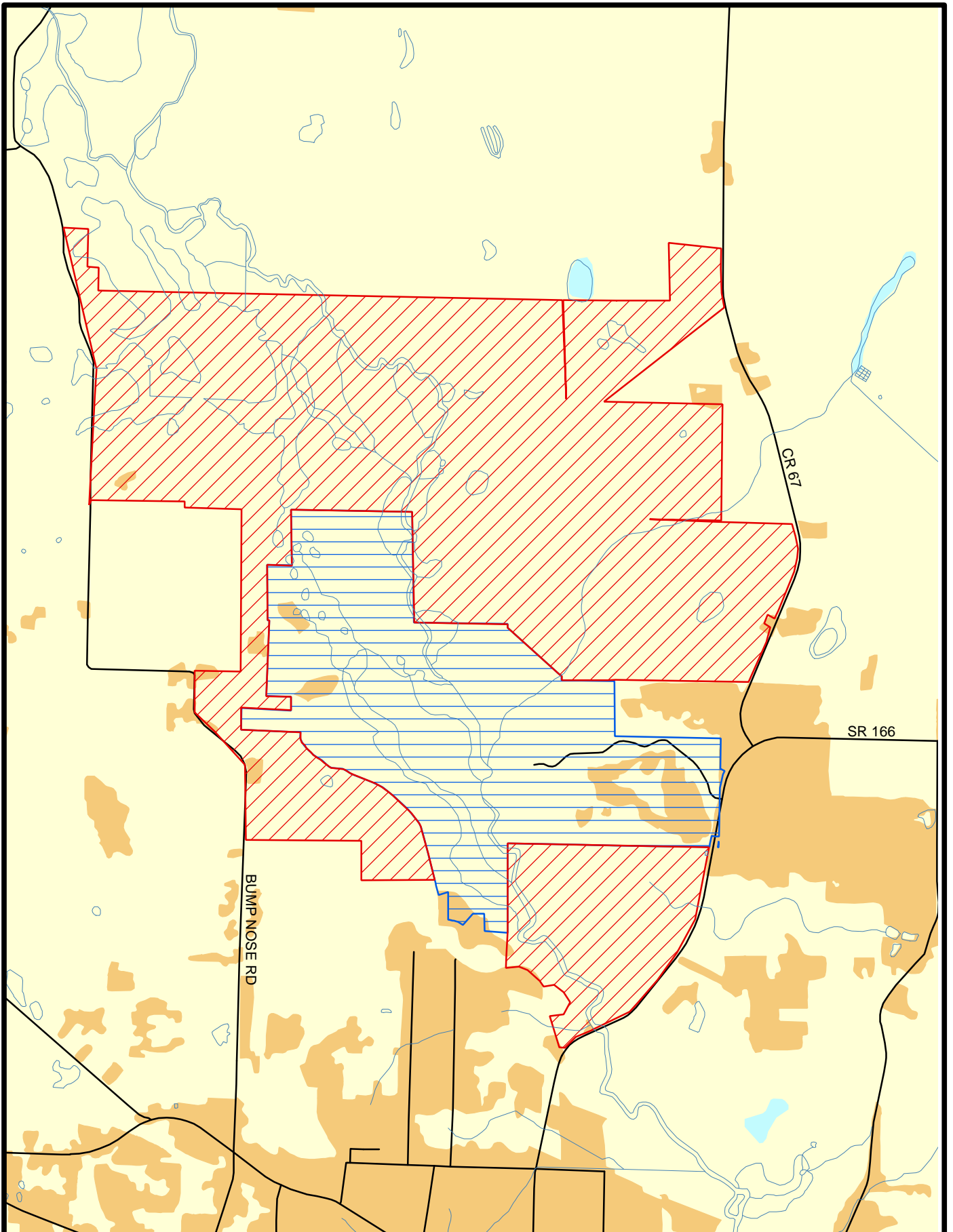
### Optimum Boundary

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

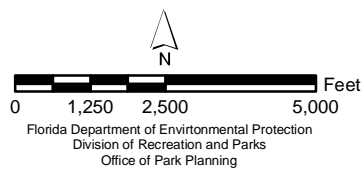
efficiency. Identification of lands on the optimum boundary map is solely for planning purposes and not for regulatory purposes. A property's identification on the optimum boundary map is not for use by any party or other government body to reduce or restrict the lawful right of private landowners. Identification 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 map reflects lands identified as optimum boundary for Florida Caverns State Park. Land to the north and west of the existing boundary contains important calcareous slope communities, sinkholes, and springs. Land south of the existing boundary is in the floodplain of the Chipola River and includes Ellis Cave. These parcels would protect bat maternity caves, protect ground and surface water quality, enhance the park's resource base, allow for future expansion of recreational activities, and "square" the park boundary. At this time, no lands are considered surplus to the needs of the park.



FLORIDA CAVERN  
STATE PARKS



**LEGEND**

-  Park Boundary
-  Optimum Boundary

OPTIMUM BOUNDARY MAP





**Addendum 1—Acquisition History and Advisory Group Documentation**



## **Florida Caverns State Park—Acquisition History**

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### **Purpose of Acquisition**

The Florida Board of Forestry acquired Florida Caverns State Park to develop, operate and maintain the property for the outdoor recreational, park, conservation, historic, and related purposes.

### **Sequence of Acquisition**

On October 11, 1935, the Florida Board of Forestry, predecessor in interest to the Division of Recreation and Parks (Division), obtained title to a 485-acre property constituting the initial area of Florida Caverns State Park. The Board acquired the property from the Florida Caverns, Inc. Since this initial acquisition, the Board and its successor state agencies have acquired several parcels through abandonment of a right-of-way and different purchases using Old Money and LATF and P2000/A&I funds and added them to the Florida Caverns State Park.

### **Lease Agreement**

On January 23, 1967, FBPHM conveyed title to Florida Caverns State Park to the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees). On January 23, 1968, the Trustees conveyed management authority of Florida Caverns State Park to the Division under Lease No. 2324. This lease is for a period of ninety-nine (99) years and will expire on January 23, 2067. In 1988, the Division of State Lands, Bureau of Uplands Management, assigned a new lease number, Lease No. 3619, to Florida Caverns State Park without changing any of the terms and conditions of Lease No. 2324.

According to Lease No. 3619, the Division manages the property only for the conservation and protection of natural, historical and cultural resources and for resource-based public outdoor recreation compatible with the conservation and protection of the property.

### **Title Interest**

The Trustees hold fee simple title to Florida Caverns Sate Park.

### **Special Conditions on Use**

In accordance with lease agreement with the Trustees, the property must be used for public outdoor recreation and related purposes. Uses such as water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than 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 Florida Caverns State Park.

## Florida Caverns State Park—Acquisition History

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**Instrument:** ..... Amendment to Private Lease Agreement  
**Instrument Holder:** ..... Division  
**Beginning Date:** ..... November 21, 1991  
**Ending Date:** ..... May 17, 2011  
**Outstanding Rights, Uses, Etc.:** ..... This amendment to a private lease agreement dated May 18, 1971, that extends the term of the lease agreement for a period of twenty years or until May 17, 2011.

**Instrument:** ..... Right-of-Way Easement  
**Instrument Holder:** ..... Florida Board of Forestry and Parks  
**Beginning Date:** ..... December 11, 1945  
**Ending Date:** ..... No specific date is given.  
**Outstanding Rights, Uses, Etc.:** ..... The easement allows the West Florida Telephone and Telegraph Company to construct, install and maintain a telephone system on a portion of Florida Caverns State Park.

**Instrument:** ..... Permit  
**Instrument Holder:** ..... Florida Board of Forestry  
**Beginning Date:** ..... August 30, 1940  
**Ending Date:** ..... No specific date is given.  
**Outstanding Rights, Uses, Etc.:** ..... The permit allows the State Road Department to use a portion of Florida Caverns State Park for a road right of way.

**Instrument:** ..... Easement  
**Instrument Holder:** ..... Florida Board of Forestry  
**Beginning Date:** ..... June 24, 1940  
**Ending Date:** ..... No specific date is given.  
**Outstanding Rights, Uses, Etc.:** ..... The easement allows the Florida Public Utilities Co. to construct, operate and maintain lines, pipes, and other such needed equipment for electric transmission.

## Florida Caverns State Park—Advisory Group List

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The Honorable Paul Dudley, Chairman  
Jackson County  
Board of County Commissioners  
6950 Chips Drive  
Grand Ridge, Florida 32442

Mr. Brian Fugate, Manager  
Florida Caverns State Park  
3345 Caverns Road  
Marianna, Florida 32446

Mr. Joe Anderson, Manager  
Chipola River District  
Florida Division of Forestry  
715 West 15th Street  
Panama City, Florida 32401

Dr. John Himes, Non-Game Biologist  
Northwest Region  
Florida Fish and Wildlife Conservation  
Commission  
3911 Highway 2321  
Panama City, Florida 32409

Represented by:  
Mr. Bradley Smith  
Same contact info as Dr. Himes

Mr. B.E. “Sonny” Davis, Chair  
Jackson County Soil and Water  
Conservation District  
2741 Pennsylvania Avenue, Suite 6  
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Mr. John Valenta  
Marianna Field Office  
Northwest Florida Water Management  
District  
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Mr. Allen Mosler  
Flint River Grotto  
71 South Spruce Lane  
Havana, Florida 32333

Mr. Mike Wisenbaker, Florida  
Division of Historical Resources  
500 South Bronough Street,  
Mail Station 8  
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Mr. Doyle Reeves, President  
Marianna Golf Association  
3188 Main Street, Box 154  
Cottondale, Florida 32431

Mr. Mark Hebb, President  
Friends of Florida Caverns State Park  
3393 Fish Hatchery Road  
Marianna, FL 32446

Ms. Juanita Morgan Demarest, Chapter  
Chair  
Panhandle Chapter  
Florida Trail Association  
11842 Country Club Drive  
Panama City, Florida 32404-2704

Mr. Joe Spooner, President  
Southern Trail Riders Association  
1104 Jokel Lane  
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Dr. Edwin Keppner  
Bay County Audubon Society  
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Panama City, Florida 32404

Mr. Jon Blanchard  
The Nature Conservancy  
Northwest Florida Program  
P.O. Box 393  
Bristol, Florida 32321

Mr. William Kleinhans  
4343 Angela Drive  
Marianna, Florida 32446

**Florida Caverns State Park—Advisory Group List**

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## Florida Caverns State Park—Advisory Group Staff Report

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The Advisory Group meeting to review the proposed land management plan for Florida Caverns State Park was held at the Jackson County Agriculture Complex on January 11, 2006 at 9am. Dr. John Himes (Florida Fish and Wildlife Conservation Commission) was represented by Bradley Smith. Joe Anderson (Florida Division of Forestry), Sonny Davis (Jackson County Soil and Water Conservation District), John Valenta (Northwest Florida Water Management District), and Juanita Demarest (Florida Trail Association) did not attend. All other appointed Advisory Group members were present. Attending staff were Brian Fugate, Danny Jones, Mark Ludlow, Harold Mitchell, Azell Nail, 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 plan.

### Summary of Advisory Group Comments

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Doyle Reeves (Marianna Golf Association) commented that the management plan looks good. He pointed out that Florida Caverns is the only state park in Florida with a golf course. And, he stated that the course is in excellent shape thanks to hard work of the manager and staff.

Bill Kleinhans (adjacent landowner) commented that the current arrangement of sharing the biologist position with 10% of the time appropriated to Florida Caverns State Park is not adequate.

Mark Hebb (Friends of Florida Caverns State Park) stated the management plan is thorough and a responsible response to the resource needs. He emphasized the biological richness of the park and requested more interpretation focus on the natural communities and the biodiversity of the park. He also identified the need for a successful land acquisition program to help protect the park from future adjacent land uses. He suggested that cooperative efforts be explored to meet this goal. He recommended that a full-time biologist be designated for the park. He also suggested cooperative efforts to establish trails along the Chipola River.

Dr. Ed Keppner (Bay County Audubon Society) stated his support for the plan. He commented that the unique resources of the park validate a full-time biologist position. He expressed concern over expanding use areas and increasing the carrying capacity due to the park's unique resources. Danny Jones replied that the plan only identifies improving existing use areas and does not propose an increase in carrying capacity.

Allen Mosler (Flint River Grotto) expressed support for the plan. He questioned whether the park would consider clearing a navigable channel through the log canal for canoe and kayak use. Brian Fugate responded that a route is maintained north of the bridge and that rental canoes are prohibited from the log canal. Mark Ludlow added that clearing the log run would disturb much wildlife. Mr. Mosler then voiced support for adapting the Fish Hatchery complex for interpretation, adding culverts to the park road to alleviate flooding impacts, and reintroducing fire to the fire-dependent communities of the park. He encouraged the acquisition of property adjacent to the park's southern boundary which contains caves and would protect the habitat of listed species. He offered to help the park with the development of any future caving programs. Mr. Fugate explained that the park is currently drafting a proposal to consider the feasibility of

## Florida Caverns State Park—Advisory Group Staff Report

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establishing additional caving opportunities. Mr. Mosler also offered to assist with cave monitoring, repair work, and designing creative cave gates. He also recommended the park be surveyed by a professional archaeologist.

Mike Wisenbaker (Division of Historical Resources) said he thought the plan was excellent. He requested that the cultural site information be provided in tabular form. In addition to surveying the property for unknown sites, he recommended that the known cultural sites be relocated and recorded by GPS and their condition periodically evaluated. He suggested that the park provide more interpretation on the New Deal aspect of the park as well as the human use and occupation of this area over time. He suggested that grant funding may be available to assist with these efforts. Mr. Fugate described recent efforts to improve interpretation such as the development of a CCC living history cave tour and the clearing of a few of the historic Fish Hatchery basins in an effort to interpret this feature of the park.

Joe Spooner (Southern Trail Riders Association) expressed no concern over relocating the equestrian campsites, but reminded the staff to consider the large size of the horse rigs when designing this relocation. He requested that an additional campsite or two be established in the horse camp, if possible. He also commented that the existing length of trail is not long enough to attract most equestrians. He requested that more trail be established to lengthen rides to 3 or 4 hours, and he offered his assistance. Harold Mitchell suggested coordinating with the managers of the adjacent Water Management Area to expand trails on their property. Mr. Ludlow suggested that another option to expand the trail system is to pursue easements through private property.

Bradley Smith (Florida Fish and Wildlife Conservation Commission) thought the plan was well written and interesting. He voiced his support for the reintroduction of fire, restoration of habitat, control of feral hogs, updating species lists using the most up-to-date naming conventions, road study, and land acquisition efforts. He suggested a partnership between the park, FWC, USFWS, FNAI, and universities to help monitor listed species. He also suggested a partnership with NFWFMD regarding hydrologic data and hydrological restoration. He encouraged the park to follow their Cave Management Plan, especially to how it refers to wild cave access, and suggested that this plan be provided as an appendix to the land management plan currently under review. He recommended that any future expansion of use areas be limited to ruderal and developed areas.

Chairman Paul Dudley (Jackson County Board of County Commissioners) received his copy of the plan on the day of the meeting and stated he would send written comments (see below).

Jon Blanchard (Nature Conservancy) asked why the natural community map listed the area surrounding the upland glade as upland hardwood forest rather than the more likely fire-dependent upland pine forest or sandhill. Mr. Mitchell replied that the map represents how it appears in its current fire-suppressed condition rather than what the community would be under proper management. Mr. Blanchard then asked for clarification regarding additional caving opportunities. Mr. Ludlow responded that the Cave Management Plan provides a thorough analysis of each cave and classifies them according to management class, resource class and hazard class. Using this analysis, a few caves were identified as having potential for hosting recreational caving. Upon hearing this, Mr. Blanchard stated that he is confident the Division is looking at this carefully. Then, Mr. Blanchard encouraged the park to aggressively pursue the



## Florida Caverns State Park—Advisory Group Staff Report

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removal of feral hogs. Next, he questioned whether the park could handle much more recreation pressure, especially along the lines of several more miles of horse trails given its small size and little chance of expansion. When asked about the progress of acquisition efforts of lands surrounding the park, he responded that there are no willing sellers. He then asked if maintaining a navigable channel on the Chipola River north of the bridge results in hydrological impacts. Mr. Ludlow replied that only low lying limbs are removed, not debris in the water, so hydrology is not impacted.

Brian Fugate (Park Manager, Florida Caverns State Park) thanked the advisory group for their comments and support.

### Summary of Written Comments

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Mark Hebb: Mr. Hebb provided written comments on the proposed prescribed fire program, based on 30 years of personal experience with prescribed burning and fire suppression. His comments addressed researching historic fire activity for the property, establishing short-term and long-term goals, recruiting the Division of Forestry and local fire department, keeping the local community well informed, timing of prescribed burns, establishing photo plots, developing a monitoring protocol, maintaining a burn map, and reducing heavy accumulations of duff and leaf litter.

Chairman Paul Dudley: Chairman Dudley wrote that his comments would only echo comments voiced at the meeting. Then, in response to the suggestion to expand riding trails at the park, he shared a comment raised at a recent Imagine Jackson workshop, “We welcome nature-based tourism in our county, yet we don’t want to lose forever our natural blessings in order to promote tourism.” He also mentioned the complaints his office receives about inappropriate behavior along the tube run from Spring Creek on US-90 to Bear Paw on the Chipola River. He concluded, “All in all, I applaud the efforts of all concerned in keeping Florida Caverns State Park near its natural state, while promoting outdoor recreation and tourism at the same time.”

### Staff Recommendations

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The staff recommends approval of the proposed management plan for Florida Caverns State Park as presented with the following changes:

**Trail connections.** There is insufficient space to expand the multi-use trail system within the Florida Caverns State Park. However, there is an opportunity to expand trail length by creating connections to adjacent conservation lands. The Division supports trail linkages and will work cooperatively to encourage the expansion of trail on neighboring property.

**Fire-dependent communities.** Language will be added to the plan describing why upland mixed forest is considered a fire-dependent community.

Coordination with DOT (in response to a comment made at 1-10-06 public workshop)  
The main entrance to Florida Caverns State Park is located off County Road 167 where the current speed limit is posted at 55mph and often exceeded. With new residential and commercial areas being developed north of the park, traffic in front of the entrance will only increase over time. The Division will approach the Department of Transportation to ensure safe access to the

park.

**Fish Hatchery Entrance.** As long as the Fish Hatchery complex remains as a staff residence area, the back gate of the park will not be available for public entrance. If and when the Fish Hatchery complex is readapted to serve as an interpretive center, then the Division will give consideration to providing public access to the park off Fish Hatchery Road.

## **Addendum 2—References Cited**



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### **Addendum 3—Soils Descriptions**





## Florida Caverns State Park—Soils Descriptions

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**Albany Sand (2)** consists of somewhat poorly drained, moderately permeable, nearly level soils in lower positions on uplands. They formed in unconsolidated deposits of marine sandy and loamy sediments. Slopes range from 0 to 5 percent. A water table is 12 to 30 inches below the surface for one to two months in most years. Soil reaction ranges from extremely acid to slightly acid. Texture ranges from loamy sand to sandy clay loam and is frequently stratified.

**Duplin Fine Sandy Loam (20)** consists of deep, moderately well drained, moderately slowly permeable soils that formed in thick, clayey sediments on marine terraces. These nearly level to gently sloping soils are in broad areas adjacent to large stream floodplains. Slopes range from 0 to 5 percent. The water table is within a depth of 24 to 40 inches for 1 to 4 months during most years. Slightly depressed areas have a water table within 10 to 30 inches for 2 to 4 months during extended wet seasons. The soil is very strongly acid or strongly acid in all horizons. Texture is fine sandy loam, sandy clay loam, sandy clay or clay.

**Faceville-Esto Complex (27)** consists of deep, well drained, moderately permeable soils that formed in fine or clayey marine sediments. These gently sloping to strongly sloping soils are on upland ridges and hillsides. The water table is below a depth of 10 feet. Slopes range from 2 to 15 percent. The soil is very strongly acid or strongly acid throughout. Textures include loamy fine sand, sandy clay, kaolin clay, and fine sandy loam. Esto soils consist of well drained, deep, slowly permeable, gently sloping to sloping soils on the uplands. These soils formed in clayey marine sediments. They occur as small slightly eroded to eroded areas, generally on small knolls and short choppy side slopes. The water table is below a depth of 72 inches throughout the year. Slopes range from 2 to 8 percent. The soil is very strongly acid or strongly acid throughout. Textures include loamy sand, sandy clay loam, clay, and sandy clay.

**Greenville Fine Sandy Loam (33)** consists of well drained, clayey soils on uplands. These soils formed in clayey marine sediments high in sand. The landscape is dissected by moderately defined drainage patterns. The water table is below a depth of 6 feet. Slope is 2 to 8 percent. The soil is strongly acid or very strongly acid in all horizons. Textures include fine sandy loam, sandy clay, and sandy clay loam.

**Oktibbeha Variant-Rock Outcrop Complex (43,44)** consists of moderately deep, moderately well drained, very slowly permeable soils that formed in beds of acid clayey sediments overlying soft rippable limestone. The complex occurs in areas of limestone outcroppings. These gently sloping to strongly sloping soils occur on uplands. The landscape is dissected by poorly defined drainageways, many of which end in low depressions or limestone sinks that have underground drainage. The water table is below a depth of 72 inches. During periods of low rainfall the soil dries out, and cracks up to 1 inch wide extend through the upper part of the subsoil. The soils are very strongly acid to moderately alkaline. Textures include fine sandy loam, sandy clay, and clay.

**Orangeburg Loamy Sand (46)** consist of well drained, nearly level to sloping, deep moderately permeable upland soils that formed in loamy deposits. Slopes are smooth to convex and 0 to 12 percent. There is no water table within a depth of 72 inches. The soil reaction is strongly acid or very strongly acid. Textures include loamy sand, sandy clay loam, sandy loam, and light sandy clay loam.

## Florida Caverns State Park—Soils Descriptions

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**Red Bay Fine Sandy Loam (54,55)** consists of nearly level to sloping, well drained, moderately permeable upland soils that formed in coarse and medium textured marine sediments. Slopes range from 1 to 8 percent. The water table is below depths of 72 inches. The soil is very strongly acid in all horizons. Textures include fine sandy loam and sandy clay loam.

**Yonges-Herod Association (64)** consists of nearly level, poorly drained, moderately slowly permeable soils that formed in loamy sediments. These soils occur on low ridges along the Chipola River floodplain and along large creeks and streams that flow into the Chipola River. The water table is within a depth of 10 inches for about 2 months and between 10 and 20 inches for 4 to 6 months in most years. These soils are subject to occasional flooding. Slopes are 0 to 2 percent. The soil is strongly acid to mildly alkaline. Textures include fine sandy loam, sandy clay loam and clay loam. Herod soils consist of poorly drained, moderately permeable, nearly level soils that occur on the floodplains of the Chipola River and its tributaries. These soils formed in sandy and loamy alluvium. The water table is within a depth of 10 inches for 2 to 5 months in most years. The soils are frequently flooded for brief periods. Slopes are less than 2 percent. Soil reaction is strongly acid to neutral. Textures include sandy loam and sandy clay loam.

**Addendum 4—Plant And Animal List**



Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Cave algae.....	<i>Geitleria calcarea</i>	
Cave algae.....	<i>Geitleria floridana</i>	
Algae.....	<i>Scytonema guyanense</i>	
Algae.....	<i>Trentepohlia aurea</i>	
Algae.....	<i>Vaucheria sessilis</i>	
Mosses.....	<i>Amblystegiella confervoides</i>	
.....	<i>Amblystegium serpensjuratzkanum</i>	
.....	<i>Amblystegium varium</i>	
.....	<i>Anomodon attenuatus</i>	
.....	<i>Anomodon rostratus</i>	
.....	<i>Anomodon tristis</i>	
.....	<i>Astomum ludovicianum</i>	
.....	<i>Atrichum angustatum</i>	
.....	<i>Barbula agraria</i>	
.....	<i>Brachylema robustum</i>	
.....	<i>Brachythecium plumosum</i>	
.....	<i>Brachythecium roteanum</i>	
.....	<i>Bryum capillare</i>	
.....	<i>Campylium polygamum</i>	
.....	<i>Cirriphyllum boscii</i>	
.....	<i>Clasmatodon parvulus</i>	
.....	<i>Climacium americanum</i>	
.....	<i>Cryphaea glomerata</i>	
.....	<i>Cryphaea nervosa</i>	
.....	<i>Desmatodon plinthobius</i>	
.....	<i>Dicranella hilariana</i>	
.....	<i>Dicranella varia</i>	
.....	<i>Ditrichum pallidum</i>	
.....	<i>Entodon drummondii</i>	
.....	<i>Entodon seductrix</i>	
.....	<i>Eucladium verticellatum</i>	
.....	<i>Eurhynchium hians</i>	
.....	<i>Eurhynchium serrulatum</i>	
.....	<i>Fissidens bryoides</i>	
.....	<i>Fissidens cristatus</i>	
.....	<i>Fissidens debilis</i>	
.....	<i>Fissidens exiguus</i>	
.....	<i>Fissidens minutulus</i>	
.....	<i>Fissidens ravenellii</i>	
.....	<i>Fissidens repandus</i>	
.....	<i>Fissidens taxifolius</i>	
.....	<i>Fissidens viridulus</i>	
.....	<i>Forestroemia trichomitria</i>	
.....	<i>Funaria hygrometrica</i>	
.....	<i>Groutiella mucronifolia</i>	

\* Non-native Species

## Florida Caverns State Park—Plants

Common Name	<i>Scientific Name</i>	Primary Habitat (For Designated Species)	
Mosses .....	<i>Gymnostomiella orcuttii</i>		
	<i>Gymnostomum calcarium</i>		
	<i>Leptodictyum riparium</i>		
	<i>Leskea australis</i>		
	<i>Leucobryum albidum</i>		
	<i>Leucondontopsis floridana</i>		
	<i>Leudodon julaceus</i>		
	<i>Luisierella barbula</i>		
	<i>Mnium cuspidatum</i>		
	<i>Mnium orthorhynchum</i>		
	<i>Mnium rostratum</i>		
	<i>Molendoa sendtneriana</i>		
	<i>Physcomitrium pyriforme</i>		
	<i>Plagiomnium cuspidatum</i>		
	<i>Plagiothecium geophilum</i>		
	<i>Plagiothecium mariannae</i>		
	<i>Plagiothecium micans</i>		
	<i>Pogonatum pensilvanicum</i>		
	<i>Polytrichum commune</i>		
	<i>Schwetschkeopsis denticulata</i>		
	<i>Sematophyllum adnatum</i>		
	<i>Syrrhopodon incompletus</i>		
	<i>Syrrhopodon parasiticus</i>		
	<i>Tetraplodon pennsylvanicus</i>		
	<i>Thelia hirtella</i>		
	<i>Thuidium delicatulum</i>		
	<i>Thuidium microphyllum</i>		
	<i>Thuidium minutulum</i>		
	<i>Thuidium pygmaeum</i>		
	<i>Tortella humilis</i>		
	<i>Weissia viridula</i>		
	Liverworts .....	<i>Cephalozia sp.</i>	
		<i>Conocephalum conicum</i>	
<i>Dumortiera hirsuta</i>			
<i>Euosmolejeunea duriuscula</i>			
<i>Frullania inflata</i>			
<i>Lejeunea calcicola</i>			
<i>Lepidozia sylvatica</i>			
<i>Leucolejeunea unciloba</i>			
<i>Mastigolejeunea auriculata</i>			
<i>Plagiochila floridana</i>			
<i>Porella pinnata</i>			
<i>Porella platyphylla</i>			
<i>Radula langloisii</i>			
<i>Stylolejeunea spiniloba</i>			

\* Non-native Species

Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
.....	<i>Taxilejeunea obtusangula</i>	
<b>Ferns and Fern Allies</b>		
Southern Venus-hair fern.....	<i>Adiantum capillus-veneris</i>	
Wagner's spleenwort.....	<i>Asplenium x heteroresiliens</i>	2
Spleenwort.....	<i>Asplenium heterochorum</i>	
Single-sorus spleenwort.....	<i>Asplenium monanthes</i>	2
Ebony spleenwort.....	<i>Asplenium platyneuron</i>	
Blackstem spleenwort.....	<i>Asplenium resiliens</i>	
Southern lady fern.....	<i>Athyrium filix-femina</i>	2
Mosquito fern.....	<i>Azolla caroliniana</i>	
Southern grape fern.....	<i>Botrychium biternatum</i>	
Grape fern.....	<i>Botrychium dissectum</i>	
Rattlesnake fern.....	<i>Botrychium virginianum</i>	
Southern shield fern.....	<i>Dryopteris ludoviciana</i>	
Chain fern.....	<i>Lorinseria areolata</i>	
Japanese climbing fern*.....	<i>Lygodium japonicum</i>	
Sensitive fern.....	<i>Onoclea sensibilis</i>	
Cinnamon fern.....	<i>Osmunda cinnamomea</i>	
Royal fern.....	<i>Osmunda regalis</i>	2,20
Resurrection fern.....	<i>Polypodium polypodioides</i>	
Christmas fern.....	<i>Polystichum acrostichoides</i>	
Bracken.....	<i>Pteridium aquilinum var. pseudocaudatum</i>	
Cretan brake fern*.....	<i>Pteris cretica</i>	
Wood fern.....	<i>Thelypteris augescens</i>	2,20
Wood fern.....	<i>Thelypteris kunthii</i>	
Broad-beech fern.....	<i>Thelypteris hexagonoptera</i>	
Netted chain-fern.....	<i>Woodwardia areolata</i>	
Virginia chain-fern.....	<i>Woodwardia virginica</i>	
Coontie*.....	<i>Zamia floridana</i>	

**Gymnosperms**

Red cedar.....	<i>Juniperus silicicola</i>	
Shortleaf pine.....	<i>Pinus echinata</i>	
Slash pine.....	<i>Pinus elliottii</i>	
Spruce pine.....	<i>Pinus glabra</i>	
Longleaf pine.....	<i>Pinus palustris</i>	
Loblolly pine.....	<i>Pinus taeda</i>	
American baldcypress.....	<i>Taxodium distichum</i>	
Torreya*.....	<i>Torreya taxifolia</i>	

\* Non-native Species

**Florida Caverns State Park—Plants**

Common Name	<i>Scientific Name</i>	Primary Habitat (For Designated Species)
<b>Angiosperms - Monocots</b>		
Spring bentgrass.....	<i>Agrostis hiemalis</i>	
False garlic.....	<i>Allium bivalve</i>	
Big blue-stem.....	<i>Andropogon gerardii</i>	
Bushy beardgrass.....	<i>Andropogon glomeratus var. pumilus</i>	
Silver bluestem.....	<i>Andropogon ternarius</i>	
Broomsedge.....	<i>Andropogon virginicus</i>	
Green dragon.....	<i>Arisaema dracontium</i>	
Jack-in-the-pulpit.....	<i>Arisaema triphyllum</i>	
Arrowfeather.....	<i>Aristida purpurascens</i>	
Wire grass.....	<i>Aristida stricta</i>	
Cane.....	<i>Arundinaria gigantea</i>	
Rescue grass.....	<i>Bromus unioloides</i>	
Watergrass.....	<i>Bulbostylis barbata</i>	
Sedge.....	<i>Bulbostylis ciliatifolia</i>	
Sedge.....	<i>Carex abscondita</i>	
Sedge.....	<i>Carex amphibola rigida</i>	
Sedge.....	<i>Carex blanda</i>	
Sedge.....	<i>Carex cephalophora</i>	
Sedge.....	<i>Carex cherokeensis</i>	
Sedge.....	<i>Carex crus-corvi</i>	
Sedge.....	<i>Carex digitalis</i>	
Sedge.....	<i>Carex intumescens</i>	
Sedge.....	<i>Carex laxiculmis</i>	
Sedge.....	<i>Carex retroflexa</i>	
Sedge.....	<i>Carex serrulata</i>	
Sedge.....	<i>Carex striatula</i>	
Sedge.....	<i>Carex willdenowii</i>	
Sandspur.....	<i>Cenchrus echinatus</i>	
Spikegrass.....	<i>Chasmanthium latifolium</i>	
Spikegrass.....	<i>Chasmanthium nitidum</i>	
Spikegrass.....	<i>Chasmanthium sessiliflorum</i>	
Dayflower.....	<i>Commelina erecta</i>	
Dayflower.....	<i>Commelina virginica</i>	
Bermuda grass*.....	<i>Cynodon dactylon</i>	
Yellow nut grass.....	<i>Cyperus esculentus</i>	
Sedge.....	<i>Cyperus globulosus</i>	
Sedge.....	<i>Cyperus plukenetii</i>	
Sedge.....	<i>Cyperus retrorsus</i>	
Nut grass.....	<i>Cyperus rotundus</i>	
Sweet rush.....	<i>Cyperus sp.</i>	
Flat sedge.....	<i>Cyperus sp.</i>	
Sedge.....	<i>Cyperus strigosus</i>	
Sedge.....	<i>Cyperus tenuifolius</i>	

\* Non-native Species



## Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Sedge.....	<i>Cyperus virens</i>	
Panic grass .....	<i>Dichanthelium boscii</i>	
Panic grass .....	<i>Dichanthelium commutatum</i>	
Panic grass .....	<i>Dichanthelium dichotomum</i>	
Panic grass .....	<i>Dichanthelium laxiflorum</i>	
Panic grass .....	<i>Dichanthelium ovale</i>	
Panic grass .....	<i>Dichanthelium sphaerocarpon</i>	
Crab grass* .....	<i>Digitaria ciliaris</i>	
Crab grass* .....	<i>Digitaria violescens</i>	
Florida yam .....	<i>Dioscorea floridana</i>	
Yam.....	<i>Dioscorea villosa</i>	
Spike rush.....	<i>Eleocharis obtusa</i>	
Yard grass* .....	<i>Eleusine indica</i>	
Greenfly orchid .....	<i>Epidendrum conopseum</i>	20,31,33
Lace grass .....	<i>Eragrostis capillaris</i>	
Giant plum grass .....	<i>Erianthus giganteus</i>	
Orchid .....	<i>Erythrodes querceticola</i>	
Fescue .....	<i>Festuca obtusa</i>	
Crested coralroot.....	<i>Hexalectris spicata</i>	20
Little barley .....	<i>Hordeum pusillum</i>	
Spider lily.....	<i>Hymenocallis caroliniana</i>	
Swamp stargrass .....	<i>Hypoxis leptocarpa</i>	
Southern blue flag.....	<i>Iris virginica</i>	
Rush .....	<i>Juncus coriaceus</i>	
Rush .....	<i>Juncus dichotomus</i>	
Soft rush .....	<i>Juncus effusus</i>	
Rush .....	<i>Juncus tenuis</i>	
Border grass* .....	<i>Liriope spicata</i>	
English rye grass.....	<i>Lolium perenne</i>	
Melic grass .....	<i>Melica mutica</i>	
White sweet-clover* .....	<i>Melilotus alba</i>	
Wood grass .....	<i>Oplismenus setarius</i>	
Beaked panicum.....	<i>Panicum anceps</i>	
Panicum.....	<i>Panicum clutei</i>	
Maidencane .....	<i>Panicum hemitomon</i>	
Bahiagrass* .....	<i>Paspalum notatum</i>	
Vasey grass* .....	<i>Paspalum urvillei</i>	
White-fringed orchid.....	<i>Platanthera blephariglottis</i>	20
Yellow-fringed orchid.....	<i>Platanthera ciliaris</i>	20
Rattlesnake master .....	<i>Polianthes virginica</i>	
Solomon's seal.....	<i>Polygonatum biflorum</i>	
Shadow witch orchid.....	<i>Pontheiva racemosa</i>	
Needle palm .....	<i>Rhapidophyllum hystrix</i>	20,31
Hornedrush.....	<i>Rhynchospora corniculata</i>	
Beak rush .....	<i>Rhynchospora mixta</i>	

\* Non-native Species

Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Dwarf palmetto .....	<i>Sabal minor</i>	
Cabbage palm .....	<i>Sabal palmetto</i>	
Arrowhead.....	<i>Sagittaria graminea</i>	
Little bluestem .....	<i>Schizachyrium scoparium</i>	
Bull rush.....	<i>Scirpus lineatus</i>	
Nutrush.....	<i>Scleria oligantha</i>	
Foxtail .....	<i>Setaria geniculata</i>	
Pearl millet.....	<i>Setaria glauca</i>	
Blue-eyed grass.....	<i>Sisyrinchium angustifolium</i>	
Blue-eyed grass.....	<i>Sisyrinchium miamense</i>	
Blue-eyed grass.....	<i>Sisyrinchium rosulatum</i>	
Greenbrier .....	<i>Smilax auriculata</i>	
Catbrier .....	<i>Smilax bona-nox</i>	
Greenbrier .....	<i>Smilax lasioneuron</i>	
Greenbrier .....	<i>Smilax laurifolia</i>	
Wild sarsparilla.....	<i>Smilax pumila</i>	
Jackson-brier .....	<i>Smilax smallii</i>	
Coral greenbrier .....	<i>Smilax walteri</i>	
Johnson grass* .....	<i>Sorghum halepense</i>	
Bur-reed .....	<i>Sparganium americanum</i>	
Prairie wedgescale .....	<i>Sphenopholis obtusata</i>	
Ladies'-tresses orchid.....	<i>Spiranthes cernua</i>	
Smutgrass.....	<i>Sporobolus indicus</i>	
Black cat grass .....	<i>Stipa avenacea</i>	
Spanish moss.....	<i>Tillandsia usneoides</i>	
Crane-fly orchid .....	<i>Tipularia discolor</i>	
Spiderwort.....	<i>Tradescantia ohiensis</i>	
Tall reedtop.....	<i>Tridens flavus</i>	
Chapman's sandgrass .....	<i>Tridens chapmanii</i>	
Wakerobin.....	<i>Trillium decipiens</i>	
Wakerobin.....	<i>Trillium maculatum</i>	
Little sweet Betsy.....	<i>Trillium underwoodii</i>	
Florida merrybells.....	<i>Uvularia floridana</i>	2,31,33
Strawbells.....	<i>Uvularia perfoliata</i>	
Weak-leaf yucca .....	<i>Yucca flaccida</i>	
Atamasco lily .....	<i>Zephyranthes atamasco</i>	2,20

**Angiosperms - Dicots**

Three-seeded mercury.....	<i>Acalypha gracilens</i>	
Three-seeded mercury.....	<i>Acalypha ostryifolia</i>	
Box elder.....	<i>Acer negundo</i>	
Red maple .....	<i>Acer rubrum</i>	
Sugar maple .....	<i>Acer saccharum floridanum</i>	
Chalk maple .....	<i>Acer caccharum leucoderme</i>	

\* Non-native Species

## Florida Caverns State Park—Plants

Common Name	<i>Scientific Name</i>	Primary Habitat (For Designated Species)
Red buckeye.....	<i>Aesculus pavia</i>	
Agalinis.....	<i>Agalinis fasciculata</i>	
White snake root.....	<i>Ageratina altissima</i>	
Wild hoarhound.....	<i>Ageratina aromatica</i>	
Harvest lice.....	<i>Agrimonia microcarpa</i>	
Alligator-weed.....	<i>Alternanthera philoxeroides</i>	
Common ragweed.....	<i>Ambrosia artemisiifolia</i>	
Indigo bush.....	<i>Amorpha fruticosa</i>	
Pepper-vine.....	<i>Ampelopsis arborea</i>	
Hog-peanut.....	<i>Amphicarpaea bracteata</i>	
Texas star.....	<i>Amsonia tabernaemontana</i>	
Hairy angelica.....	<i>Angelica venenosa</i>	
Columbine.....	<i>Aquilegia canadensis var. australis</i>	2
Devil's walkingstick.....	<i>Aralia spinosa</i>	
Woolly sandwort.....	<i>Arenaria lanuginosa</i>	
Thyme-leaved sandwort.....	<i>Arenaria serpyllifolia</i>	
Snakeroot.....	<i>Aristolochia serpentaria</i>	
Lake cress.....	<i>Armoracia aquatica</i>	
Indian plantain.....	<i>Arnoglossum diversifolium</i>	31,33
Red chokeberry.....	<i>Aronia arbutifolia</i>	
Milkweed.....	<i>Asclepias perennis</i>	
Butterfly weed.....	<i>Asclepias tuberosa</i>	
Milkweed.....	<i>Asclepias variegata</i>	
Milkweed.....	<i>Asclepias verticillata</i>	
Small-flowered pawpaw.....	<i>Asimina parviflora</i>	
Pawpaw.....	<i>Asimina triloba</i>	
Bushy aster.....	<i>Aster dumosus</i>	
Aster.....	<i>Aster pilosus</i>	
Aster.....	<i>Aster sagittifolius</i>	
White-topped aster.....	<i>Aster tortifolius</i>	
Aster.....	<i>Aster undulatus</i>	
Yellow foxglove.....	<i>Aureolaria flava</i>	
Saltbush, silverling.....	<i>Baccharis halimifolia</i>	
White false indigo.....	<i>Baptisia alba</i>	
Rattan vine.....	<i>Berchemia scandens</i>	
River birch.....	<i>Betula nigra</i>	
Spanish needles.....	<i>Bidens bipinnata</i>	
Beggar-ticks.....	<i>Bidens frondosa</i>	
Cross-vine.....	<i>Bignonia capreolata</i>	
False nettle; bog hemp.....	<i>Boehmeria cylindrica</i>	
Turnip*.....	<i>Brassica napus</i>	
Flyr's nemis.....	<i>Brickellia cordifolia</i>	20,81
Black-haw; gum bumelia.....	<i>Bumelia lanuginosa</i>	
Beautyberry; French mulberry.....	<i>Callicarpa americana</i>	
Sweet shrub.....	<i>Calycanthus floridus</i>	2,20,31,33

\* Non-native Species

Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Lyonia vine .....	<i>Calycocarpum lyonii</i>	
Hedge bindweed .....	<i>Calystegia sepium</i>	21
Bellflower .....	<i>Campanula americana</i>	
Trumpet-vine.....	<i>Campsis radicans</i>	
Shepherd's purse .....	<i>Capsella rubella</i>	
Spring cress.....	<i>Cardamine bulbosa</i>	
Pepper root.....	<i>Cardamine laciniata</i>	
Bitter cress .....	<i>Cardamine pensylvanica</i>	
Ironwood; American hornbeam .....	<i>Carpinus caroliniana</i>	
Water hickory.....	<i>Carya aquatica</i>	
Bitternut hickory .....	<i>Carya cordiformis</i>	
Pignut hickory.....	<i>Carya glabra</i>	
Sand hickory .....	<i>Carya pallida</i>	
Mockernut hickory.....	<i>Carya tomentosa</i>	
Partridge pea .....	<i>Cassia fasciculata</i>	
Wild senna .....	<i>Cassia marilandica</i>	
Wild sensitive plant .....	<i>Cassia nictitans</i>	
Coffee weed .....	<i>Cassia obtusifolia</i>	
Chinquapin.....	<i>Castanea pumila</i>	
New Jersey tea .....	<i>Ceanothus americanus</i>	
Sugarberry; hackberry.....	<i>Celtis laevigata</i>	
Georgia hackberry.....	<i>Celtis tenuifolia</i>	
Butterfly-pea .....	<i>Centrosema virginianum</i>	
Buttonbush .....	<i>Cephalanthus occidentalis</i>	
Mouse-ear chickweed .....	<i>Cerastium glomeratum</i>	
Redbud .....	<i>Cercis canadensis</i>	
Wild chervil .....	<i>Chaerophyllum tainturieri</i>	
Eye bane.....	<i>Chamaesyce hyssopifolia</i>	
Milk pursane .....	<i>Chamaesyce maculata</i>	
Lamb's quarters; Pigweed .....	<i>Chenopodium album</i>	
Mexican tea.....	<i>Chenopodium ambrosioides</i>	
Fringe tree; old-man's beard .....	<i>Chionanthus virginicus</i>	
Daisy .....	<i>Chrysogonum australe</i>	
Golden aster .....	<i>Chrysopsis mariana</i>	
Roadside thistle.....	<i>Cirsium altissimum</i>	
Yellow thistle.....	<i>Cirsium horridulum</i>	
Bitter-sweet orange.....	<i>Citrus aurantium</i>	
Virgin's bower.....	<i>Clematis catesbyana</i>	
Leather flower.....	<i>Clematis crispa</i>	
Vasevine.....	<i>Clematis glaucophylla</i>	
Vasevine.....	<i>Clematis reticulata</i>	
Buckwheat tree .....	<i>Cliftonia monophylla</i>	
Tread-softly.....	<i>Cnidioscolus stimulosus</i>	
Coralbeads .....	<i>Cocculus carolinus</i>	
Stone root.....	<i>Collinsonia canadensis</i>	

\* Non-native Species

## Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Mist flower.....	<i>Conoclinium coelestinum</i>	
Squaw root.....	<i>Conopholis americana</i>	
Horseweed.....	<i>Conyza canadensis</i>	
Flowering dogwood.....	<i>Cornus florida</i>	
Stiff cornel dogwood.....	<i>Cornus foemina var. microcarpa</i>	
Stiff cornel dogwood.....	<i>Cornus foemina foemina</i>	
Cockspur thorn.....	<i>Crataegus crus-galli</i>	
Summer haw.....	<i>Crataegus flava</i>	
Parsley haw.....	<i>Crataegus marshallii</i>	
Hawthorn.....	<i>Crataegus pulcherrima</i>	
Dwarf-thorn.....	<i>Crataegus uniflora</i>	
Green haw.....	<i>Crataegus viridis</i>	
Rabbit-bells.....	<i>Crotalaria rotundifolia</i>	
Rattlebox*.....	<i>Crotalaria spectabil</i>	
Croton.....	<i>Croton glandulosus</i>	
Dodder.....	<i>Cuscuta gronovii</i>	
Titi.....	<i>Cyrilla racemiflora</i>	
Carrot.....	<i>Daucus pusillus</i>	
Wood vamp.....	<i>Decumaria barbara</i>	
Beggar's lice.....	<i>Desmodium canescens</i>	
Beggar's lice.....	<i>Desmodium incanum</i>	
Beggar's lice.....	<i>Desmodium lineatum</i>	
Beggar's lice.....	<i>Desmodium ochroleucum</i>	81
Beggar's lice.....	<i>Desmodium paniculatum</i>	
Beggar's lice.....	<i>Desmodium pauciflorum</i>	
Pony-foot.....	<i>Dichondra carolinensis</i>	
Poor Joe.....	<i>Diodia teres</i>	
Buttonweed.....	<i>Diodia virginiana</i>	
Persimmon.....	<i>Diospyros virginiana</i>	
Indian strawberry.....	<i>Duchesnia indica</i>	
Silverthorn*.....	<i>Eleagnus pungens</i>	
Elephant's-foot.....	<i>Elephantopus carolinianus</i>	
Elephant's-foot.....	<i>Elephantopus elatus</i>	
Elephant's-foot.....	<i>Elephantopus tomentosus</i>	
Carolina scalystem.....	<i>Elytraria caroliniensis</i>	
Beech drops.....	<i>Epifagus virginiana</i>	
Fireweed.....	<i>Erechtites hieracifolia</i>	
Daisy fleabane.....	<i>Erigeron annuus</i>	
Daisy fleabane.....	<i>Erigeron philadelphicus</i>	
Southern fleabane.....	<i>Erigeron quercifolius</i>	
White-tops.....	<i>Erigeron strigosus</i>	
Button-snakeroot.....	<i>Eryngium aquaticum</i>	
Button-snakeroot.....	<i>Eryngium baldwini</i>	
Rattlesnake master.....	<i>Eryngium yuccifolium var. synchaetum</i>	
Cardinal spear.....	<i>Erythrina herbacea</i>	

\* Non-native Species

## Florida Caverns State Park—Plants

Common Name	<i>Scientific Name</i>	Primary Habitat (For Designated Species)
Strawberry-bush.....	<i>Euonymus americanus</i>	
Dogfennel.....	<i>Eupatorium capillifolium</i>	
Dogfennel.....	<i>Eupatorium compositifolium</i>	
Thoroughwort.....	<i>Eupatorium hyssopifolium</i>	
Flowering spurge.....	<i>Euphorbia apocynifol</i>	
Wood spurge.....	<i>Euphorbia commutata</i>	2,20
Flowering spurge.....	<i>Euphorbia pubentissima</i>	
Euthamia.....	<i>Euthamia minor</i>	
Composite.....	<i>Facelis retusa</i>	
American beech.....	<i>Fagus grandifolia</i>	
Swamp privet.....	<i>Forestiera acuminata</i>	
Bluff privet.....	<i>Forestiera godfreyi</i>	2,20
Privet.....	<i>Forestiera ligustrina</i>	
White ash.....	<i>Fraxinus americana</i>	
Popash; Carolina ash.....	<i>Fraxinus caroliniana</i>	
Green ash.....	<i>Fraxinus pennsylvanica</i>	
Pumpkin ash.....	<i>Fraxinus profunda</i>	
Blanket flower.....	<i>Gaillardia aestivalis</i>	
Milk-pea.....	<i>Galactia mollis</i>	
Milk-pea.....	<i>Galactia volubilis</i>	
Goosegrass; bedstraw.....	<i>Galium aparine</i>	
Wild licorice.....	<i>Galium circaezans</i>	
Goosegrass.....	<i>Galium pilosum</i>	
Sweet-scented bedstraw.....	<i>Galium triflorum</i>	
Yellow jessamine.....	<i>Gelsemium sempervirens</i>	
Cranesbill.....	<i>Geranium carolinianum</i>	
Moss verbena.....	<i>Glandularia pulchella</i>	
Water locust.....	<i>Gleditsia aquatica</i>	
Honey locust.....	<i>Gleditsia triacanthos</i>	
Everlasting.....	<i>Gnaphalium falcatum</i>	
Sweet everlasting.....	<i>Gnaphalium obtusifolium</i>	
Everlasting.....	<i>Gnaphalium pensilvanicum</i>	
Cudweed; rabbit-tobacco.....	<i>Gnaphalium purpureum</i>	
Cudweed; rabbit-tobacco.....	<i>Gnaphalium spicatum</i>	
Southern guara.....	<i>Guara angustifolia</i>	
Silverbells.....	<i>Halesia carolina</i>	
Silverbells.....	<i>Halesia diptera</i>	
Witch hazel.....	<i>Hamamelis virginiana</i>	
Scratch daisy.....	<i>Haplopappus divaricatus</i>	
Star violet.....	<i>Hedyotis crassifolia</i>	
Innocence.....	<i>Hedyotis procumbens</i>	
Bitterweed.....	<i>Helenium amarum</i>	
Sneezeweed.....	<i>Helenium autumnale</i>	
Sun rose.....	<i>Helianthemum carolinianum</i>	
Sunflower.....	<i>Helianthus divaricatus</i>	

\* Non-native Species

## Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Sunflower .....	<i>Helianthus resinosus</i>	
Camphor weed .....	<i>Heterotheca subaxillaris</i>	
Hawkweed .....	<i>Hieracium gronovii</i>	
Oakleaf hydrangea .....	<i>Hydrangea quercifolia</i>	
Swamp pennywort .....	<i>Hydrocotyle verticillata</i>	
Hypericum.....	<i>Hypericum galioides</i>	
Pinweed.....	<i>Hypericum gentianoides</i>	
St. Andrew's-cross .....	<i>Hypericum hypericoides</i>	
Dwarf St. John's wort.....	<i>Hypericum mutilum</i>	
Musky mint* .....	<i>Hyptis mutabilis</i>	
Carolina holly.....	<i>Ilex ambigua</i>	
Deciduous holly .....	<i>Ilex decidua</i>	
Gallberry .....	<i>Ilex glabra</i>	
American holly.....	<i>Ilex opaca</i>	
Yaupon.....	<i>Ilex vomitoria</i>	
Wild indigo .....	<i>Indigofera caroliniana</i>	
Wild-potato vine .....	<i>Ipomoea pandurata</i>	
Cypress vine.....	<i>Ipomoea quamoclit</i>	
Blue morning-glory.....	<i>Ipomoea trichocarpa</i>	
False rue-anemone .....	<i>Isopyrum biternatum</i>	2,20
Virginia willow .....	<i>Itea virginica</i>	
Jacquemontia .....	<i>Jacquemontia tamnifolia</i>	
Black walnut .....	<i>Juglans nigra</i>	
Water willow.....	<i>Justicia ovata</i>	
Dwarf dandelion.....	<i>Krigia virginica</i>	
Wild lettuce.....	<i>Lactuca canadensis</i>	
Blue lettuce .....	<i>Lactuca floridana</i>	
Wood lettuce .....	<i>Lactuca graminifolia</i>	
Shrub verbena .....	<i>Lantana camara</i>	
Wood nettle.....	<i>Laportea canadensis</i>	
Pinweed.....	<i>Lechea mucronata</i>	
Poor man's pepper.....	<i>Lepidium virginicum</i>	
Bush clover .....	<i>Lespedeza procumbens</i>	
Bush clover .....	<i>Lespedeza repens</i>	
Bush clover .....	<i>Lespedeza violacea</i>	
Bush clover .....	<i>Lespedeza virginica</i>	
Button snakeroot.....	<i>Liatris elegans</i>	
Blazing star .....	<i>Liatris gracilis</i>	
Button snakeroot.....	<i>Liatris graminifolia</i>	
Gopher apple.....	<i>Licania michauxii</i>	
Glossy privet* .....	<i>Ligustrum lucidum</i>	
Chinese privet* .....	<i>Ligustrum sinense</i>	
Blue toad-flax.....	<i>Linaria canadensis</i>	
Spice bush .....	<i>Lindera benzoin</i>	
Sweetgum.....	<i>Liquidambar styraciflua</i>	

\* Non-native Species

Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Yellow poplar.....	<i>Liriodendron tulipifera</i>	
Puccoon.....	<i>Lithospermum tuberosum</i>	
Blue lobelia.....	<i>Lobelia amoena</i>	
Cardinal flower.....	<i>Lobelia cardinalis</i>	31,33
Japanese honeysuckle*.....	<i>Lonicera japonica</i>	
Coral honeysuckle.....	<i>Lonicera sempervirens</i>	
Primrose willow.....	<i>Ludwigia decurrens</i>	
Water primrose.....	<i>Ludwigia repens</i>	
Bugleweed.....	<i>Lycopus rubellus</i>	
Southern magnolia; bullbay.....	<i>Magnolia grandiflora</i>	
Pyramid magnolia.....	<i>Magnolia pyramidata</i>	2,20
Sweetbay.....	<i>Magnolia virginiana</i>	
Barbara's buttons.....	<i>Marshallia obovata</i>	2,20
Angle-pod.....	<i>Matelea gonocarpa</i>	
Mecardonia.....	<i>Mecardonia acuminata</i>	
Black medic.....	<i>Medicago lupulina</i>	
Melanthera.....	<i>Melanthera nivea</i>	
Chinaberry*.....	<i>Melia azedarach</i>	
Melonette.....	<i>Melothria pendula</i>	
Mint.....	<i>Micromeria brownei</i>	
Climbing hempweed.....	<i>Mikania scandens</i>	
Partridge berry; twin berry.....	<i>Mitchella repens</i>	
Miterwort.....	<i>Mitreola petiolata</i>	
Mallow.....	<i>Modiola caroliniana</i>	
Carpetweed.....	<i>Mollugo verticillata</i>	
Horse mint.....	<i>Monarda punctata</i>	
Indian pipe.....	<i>Monotropa uniflora</i>	
White mulberry*.....	<i>Morus alba</i>	
Red mulberry.....	<i>Morus rubra</i>	
Wax myrtle.....	<i>Myrica cerifera</i>	
Water milfoil.....	<i>Myriophyllum heterophyllum</i>	
Nandina*.....	<i>Nandina domestica</i>	
Spatterdock.....	<i>Nuphar luteum ulvaceum</i>	
Water tupelo.....	<i>Nyssa aquatica</i>	
Black gum.....	<i>Nyssa biflora</i>	
Ogeechee-lime.....	<i>Nyssa ogeche</i>	
Sour gum.....	<i>Nyssa sylvatica</i>	
Weedy evening-primrose.....	<i>Oenothera biennis</i>	
Cut-leaved evening-primrose.....	<i>Oenothera laciniata</i>	
Pink evening-primrose*.....	<i>Oenothera speciosa</i>	
Wild olive.....	<i>Osmanthus americanus</i>	
Hop-hornbeam.....	<i>Ostrya virginiana</i>	
Lady's sorrel.....	<i>Oxalis corniculata</i>	
Lady's sorrel.....	<i>Oxalis priceae</i>	
Allegheny spurge.....	<i>Pachysandra procumbens</i>	2,20

\* Non-native Species



Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Ragweed.....	<i>Parthenium hysterophorus</i>	
Virginia creeper .....	<i>Parthenocissus quinquefolia</i>	
Yellow passion-flower .....	<i>Passiflora lutea</i>	
Wood betony .....	<i>Pedicularis canadensis</i>	
Beardtongue .....	<i>Penstemon australis</i>	
Ditch stonecrop .....	<i>Penthorum sedoides</i>	
Redbay .....	<i>Persea borbonia</i>	
Swamp redbay.....	<i>Persea palustris</i>	
Blue phlox.....	<i>Phlox divaricata</i>	
Florida phlox.....	<i>Phlox floridana</i>	
Phlox .....	<i>Phlox pilosa</i>	
Mistletoe .....	<i>Phoradendron serotinum</i>	
Lop-seed.....	<i>Phryma leptostachya</i>	
Ground cherry .....	<i>Physalis carpenteri</i>	
Pokeweed; pokeberry.....	<i>Phytolacca americana</i>	
Coolwort .....	<i>Pilea pumila</i>	
Phlox .....	<i>Pityopsis aspera</i>	
Planer tree .....	<i>Planera aquatica</i>	
Hoary plantain.....	<i>Plantago virginica</i>	
Sycamore.....	<i>Platanus occidentalis</i>	
Marsh fleabane; camphor weed .....	<i>Pluchea camphorata</i>	
Marsh fleabane; camphor weed .....	<i>Pluchea foetida</i>	
May apple .....	<i>Podophyllum peltatum</i>	2,20
Candy weed.....	<i>Polygala boykinii</i>	
Polygala.....	<i>Polygala grandiflora</i>	
Smartweed.....	<i>Polygonum hydropiperoides</i>	
Dotted smartweed .....	<i>Polygonum punctatum</i>	
Smartweed.....	<i>Polygonum setaceum</i>	
Jumpseed.....	<i>Polygonum virginianum</i>	
Polymnia .....	<i>Polymnia laevigata</i>	2,20
Bear's-foot.....	<i>Polymnia uvedalia</i>	
Polypremum.....	<i>Polypremum procumbens</i>	
Cottonwood.....	<i>Populus deltoides</i>	
Gall-of-the-earth .....	<i>Prenanthes serpentaria</i>	
Wild plum .....	<i>Prunus americana</i>	
Chickasaw plum.....	<i>Prunus angustifolia</i>	
Carolina laurelcherry .....	<i>Prunus caroliniana</i>	
Peach* .....	<i>Prunus persica</i>	
Black cherry .....	<i>Prunus serotina</i>	
Hop tree.....	<i>Ptelea trifoliata</i>	
Mock bishop's-weed .....	<i>Ptilimnium capillaceum</i>	
Mountain-mint .....	<i>Pycnanthemum albescens</i>	
False dandelion .....	<i>Pyrrhopappus carolinianus</i>	
White oak.....	<i>Quercus alba</i>	
Southern red oak .....	<i>Quercus falcata</i>	

\* Non-native Species

## Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Laurel oak .....	<i>Quercus hemisphaerica</i>	
Turkey oak .....	<i>Quercus laevis</i>	
Diamond-leaf oak.....	<i>Quercus laurifolia</i>	
Overcup oak.....	<i>Quercus lyrata</i>	
Sand post oak.....	<i>Quercus margaretta</i>	
Blackjack oak.....	<i>Quercus marilandica</i>	
Basket oak.....	<i>Quercus michauxii</i>	
Chinquapin oak.....	<i>Quercus muhlenbergii</i>	
Water oak.....	<i>Quercus nigra</i>	
Running oak.....	<i>Quercus pumila</i>	
Shumard oak.....	<i>Quercus shumardii</i>	
Black oak.....	<i>Quercus velutina</i>	
Live oak.....	<i>Quercus virginiana</i>	
Buttercup.....	<i>Ranunculus carolinianus</i>	
Hooked buttercup.....	<i>Ranunculus recurvatus</i>	
Carolina buckthorn.....	<i>Rhamnus caroliniana</i>	
Southern flame azalea.....	<i>Rhododendron austrinum</i>	2,20
Wild azalea.....	<i>Rhododendron canescens</i>	2,20
Fragrant sumac.....	<i>Rhus aromatica</i>	
Winged sumac.....	<i>Rhus copallina</i>	
Dollarweed.....	<i>Rhynchosia difformis</i>	
Dollarleaf.....	<i>Rhynchosia reniformis</i>	
Mexican clover*.....	<i>Richardia scabra</i>	
Wild rose.....	<i>Rosa carolina</i>	
Swamp rose.....	<i>Rosa palustris</i>	
Highbush blackberry.....	<i>Rubus argutus</i>	
Sand blackberry.....	<i>Rubus cuneifolius</i>	
Dewberry.....	<i>Rubus trivialis</i>	
Coneflower.....	<i>Rudbeckia fulgida</i>	
Black-eyed susan.....	<i>Rudbeckia hirta</i>	
Pinnate-lobed coneflower.....	<i>Rudbeckia triloba pinnatiloba</i>	81
Wild petunia.....	<i>Ruellia caroliniensis</i>	
Sourdock.....	<i>Rumex hastatulus</i>	
Swamp dock.....	<i>Rumex verticillatus</i>	
Swamp pink.....	<i>Sabatia calycina</i>	
Rose-gentian.....	<i>Sabatia campanulata</i>	
Marsh pink.....	<i>Sabatia dodecandra</i>	
Buckthorn vine.....	<i>Sageretia minutiflora</i>	
Coastal plain willow.....	<i>Salix caroliniana</i>	
Black willow.....	<i>Salix nigra</i>	
Sage.....	<i>Salvia azurea</i>	
Wild red sage.....	<i>Salvia coccinea</i>	
Lyre-leaved sage*.....	<i>Salvia lyrata</i>	
Sage.....	<i>Salvia urticifolia</i>	20
Elderberry.....	<i>Sambucus canadensis</i>	

\* Non-native Species

Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Pineland pimperel .....	<i>Samolus parviflorus</i>	
Bloodroot .....	<i>Sanguinaria canadensis</i>	
Black snakeroot.....	<i>Sanicula canadensis</i>	
Snakeroot .....	<i>Sanicula gregaria</i>	
Black snakeroot.....	<i>Sanicula marilandica</i>	
Black snakeroot.....	<i>Sanicula smallii</i>	
Soapberry .....	<i>Sapindus marginatus</i>	
Chinese tallow* .....	<i>Sapium sebiferum</i>	
Sassafras.....	<i>Sassafras albidum</i>	
Lizard's-tail .....	<i>Saururus cernuus</i>	
Sensitive brier .....	<i>Schrankia microphylla</i>	
Skullcap.....	<i>Scutellaria incana</i>	
Skullcap.....	<i>Scutellaria integrifolia</i>	
Sebastian bush.....	<i>Sebastiania fruticosa</i>	
Butter weed .....	<i>Senecio glabellus</i>	
Groundsell.....	<i>Senecio obovatus</i>	
Bladder pod.....	<i>Sesbania vesicaria</i>	
Broomweed.....	<i>Sida acuta</i>	
Indian hemp .....	<i>Sida rhombifolia</i>	
Sleepy catch-fly .....	<i>Silene antirrhina</i>	
Rosinweed.....	<i>Silphium simpsonii</i>	
Giant rosinweed .....	<i>Silphium compositum</i>	
Florida water-parsnip.....	<i>Sium floridanum</i>	31,33
Water parsnip.....	<i>Sium suave</i>	
Horse nettle.....	<i>Solanum carolinense</i>	
Nightshade .....	<i>Solanum nigrescens</i>	
Goldenrod .....	<i>Solidago boottii</i>	
Goldenrod .....	<i>Solidago brachyphylla</i>	
Goldenrod .....	<i>Solidago canadensis var. scabra</i>	
Goldenrod .....	<i>Solidago fistulosa</i>	
Goldenrod .....	<i>Solidago petiolaris</i>	
Lawn bur .....	<i>Soliva pterosperma</i>	
Sow thistle.....	<i>Sonchus asper</i>	
Scale-seed .....	<i>Spermolepis divaricata</i>	
Indian pink .....	<i>Spigelia marilandica</i>	
Spotflower.....	<i>Spilanthes americana</i>	
Chickweed .....	<i>Stellaria media</i>	
Queen's delight.....	<i>Stillingia sylvatica</i>	
Wild beans .....	<i>Strophostyles helvola</i>	
Stylodon .....	<i>Stylodon carneus</i>	
Pencil flower.....	<i>Stylosanthes biflora</i>	
Storax .....	<i>Styrax americana</i>	
Big-leaf snowbell.....	<i>Styrax grandifolia</i>	
Coralberry .....	<i>Symphoricarpos orbiculatus</i>	
Horse sugar; sweetleaf.....	<i>Symplocos tinctoria</i>	

\* Non-native Species

## Florida Caverns State Park—Plants

Common Name	Scientific Name	Primary Habitat (For Designated Species)
Hoary pea .....	<i>Tephrosia spicata</i>	
Pineland ginseng; squarehead .....	<i>Tetragonotheca helianthoides</i>	
Fenn rue .....	<i>Thalictrum revolutum</i>	
Meadow parsnips .....	<i>Thaspium barbinode</i>	
Liden; basswood .....	<i>Tilia caroliniana</i>	
Basswood .....	<i>Tilia heterophylla</i>	
Poison ivy.....	<i>Toxicodendron radicans</i>	
Tragia .....	<i>Tragia cordata</i>	
Pink St. John's wort.....	<i>Triadenum virginicum</i>	
Marsh St. John's-wort .....	<i>Triadenum walteri</i>	
Blue curls .....	<i>Trichostema dichotomum</i>	
Low hop clover .....	<i>Trifolium campestre</i>	
Carolina clover.....	<i>Trifolium carolinianum</i>	
White clover.....	<i>Trifolium repens</i>	
Venus' looking-glass .....	<i>Triodanis biflora</i>	
Venus' looking-glass .....	<i>Triodanis perfoliata</i>	
Winged elm.....	<i>Ulmus alata</i>	
American elm.....	<i>Ulmus americana var. floridana</i>	
Slippery elm .....	<i>Ulmus rubra</i>	
Nettle.....	<i>Urtica chamaedryoides</i>	
Small nettle* .....	<i>Urtica urens</i>	
Sparkleberry .....	<i>Vaccinium arboreum</i>	
Highbush blueberry.....	<i>Vaccinium corymbosum</i>	
Deerberry .....	<i>Vaccinium stamineum</i>	
Vervain.....	<i>Verbena halei</i>	
Vervain.....	<i>Verbena rigida</i>	
Scrub verbena.....	<i>Verbena scabra</i>	
Frostweed.....	<i>Verbesina virginica</i>	
Ironweed .....	<i>Vernonia angustifolia var. mohrii</i>	
Giant ironweed.....	<i>Vernonia gigantea</i>	
Ironweed .....	<i>Vernonia novaboracensis</i>	
Southern arrow-wood.....	<i>Viburnum dentatum</i>	
Possum haw .....	<i>Viburnum nudum</i>	
Walter viburnum .....	<i>Viburnum obovatum</i>	
Rusty-haw; southern black haw .....	<i>Viburnum rufidulum</i>	
Louisiana vetch .....	<i>Vicia ludoviciana</i>	
Violet.....	<i>Viola affinis</i>	
Longleaf violet.....	<i>Viola lanceolata</i>	
Violet.....	<i>Viola sororia</i>	
Violet.....	<i>Viola triloba var. dilatata</i>	
Violet.....	<i>Viola walteri</i>	
Summer grape .....	<i>Vitis aestivalis</i>	
Downy grape.....	<i>Vitis cinerea var. floridana</i>	
Muscadine.....	<i>Vitis rotundifolia</i>	
Frost grape .....	<i>Vitis vulpina</i>	

\* Non-native Species

Florida Caverns State Park—Plants

<b>Common Name</b>	<b><i>Scientific Name</i></b>	<b>Primary Habitat (For Designated Species)</b>
Wahlenbergia .....	<i>Wahlenbergia marginata</i>	
American wisteria .....	<i>Wisteria frutescens</i>	
Chinese wisteria* .....	<i>Wisteria sinensis</i>	
Cocklebur .....	<i>Xanthium strumarium</i>	
Hercules-club .....	<i>Zanthoxylum clava-herculis</i>	

\* Non-native Species

Florida Caverns State Park—Plants

Common Name	<i>Scientific Name</i>	Primary Habitat (For Designated Species)
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Florida Caverns State Park—Animals

Common Name	Scientific Name	Primary Habitat (For All Species)
<b>INVERTEBRATES</b>		
Mosquito .....	<i>Aedes alt-tormentor</i>	2,20,21,31,33,81
Mosquito .....	<i>Aedes dupreei</i>	2,20,21,31,33,81
Mosquito .....	<i>Aedes fulvus pallens</i>	2,20,21,31,33,81
Mosquito .....	<i>Aedes infirmatus</i>	2,20,21,31,33,81
Mosquito .....	<i>Aedes strictans</i>	2,20,21,31,33,81
Mosquito .....	<i>Aedes vexans</i>	2,20,21,31,33,81
Funnel-web spider .....	<i>Aglenopsis sp.</i>	79
Gulf fritillary .....	<i>Agraulis vanillae</i>	81
Lace-winged roadside skipper .....	<i>Amplyscrites aesculapius</i>	31,33
Least skipper .....	<i>Ancyloxypha numitor</i>	2,81
Mosquito .....	<i>Anopheles crucians</i>	2,20,21,31,33,81
Mosquito .....	<i>Anopheles perplexans</i>	2,20,21,31,33,81
Scarab beetle .....	<i>Aphotaenius carolinus</i>	2,20,21,31,33,81
Hackberry emperor .....	<i>Asterocampa celtis</i>	31,33
Tawny emperor .....	<i>Asterocampa clyton</i>	31,33
Beetle .....	<i>Atheta annexa</i>	80
Golden-banded skipper .....	<i>Autochton cellus</i>	20
Spider .....	<i>Azilla affinis</i>	80
Pipevine swallowtail .....	<i>Battus philenor</i>	20
Cave isopod .....	<i>Caecidotea sp.</i>	80
Hessel's hairstreak .....	<i>Callophrys hesseli</i>	21,31,33
Red-banded hairstreak .....	<i>Calycopis cecrops</i>	20
Millipede .....	<i>Cambala annulata</i>	80
Doughtery Plain cave crayfish .....	<i>Cambarus cryptodytes</i>	79
Spring azure .....	<i>Celastrina ladon</i>	20,31,3
Cave cricket .....	<i>Centhophilus gracilipes</i>	20,80
Spider .....	<i>Centromerus latidens</i>	20,80
Silvery checkerspot .....	<i>Chlosyne nycteis</i>	2,20
Orange sulphur .....	<i>Colias eurytheme</i>	81
Asian clam* .....	<i>Corbicula fluminea</i>	52
Cave amphipod .....	<i>Crangonyx floridanus</i>	79
Mosquito .....	<i>Culex erraticus</i>	2,20,21,31,33,81
Mosquito .....	<i>Culex nigripalpus</i>	2,20,21,31,33,81
Mosquito .....	<i>Culiseta melanura</i>	2,20,21,31,33,81
Gemmed satyr .....	<i>Cyllopsis gemma</i>	31,33
Monarch .....	<i>Danaus plexippus</i>	81
Spider .....	<i>Eidmannella pallida</i>	80
Silver-spotted skipper .....	<i>Epargyreus clarus</i>	81
Aquatic snail .....	<i>Elimia thearni</i>	52,55
Clench's elimia .....	<i>Elimia clenchi</i>	52,55
Aquatic snail .....	<i>Elimia curvicostata</i>	52,55
Aquatic snail .....	<i>Elimia floridensis</i>	52,55
Chipola slabshell .....	<i>Elliptio chipolaensis</i>	52,55

\* Non-native Species

Florida Caverns State Park—Animals

Common Name	Scientific Name	Primary Habitat (For All Species)
Southern pearly-eye .....	<i>Enodia portlandia</i>	31,33
Silver-spotted skipper .....	<i>Epargyreus clarus</i>	2,81
Wild indigo duskywing .....	<i>Erynnis baptisiae</i>	81
Horace's duskywing .....	<i>Erynnis horatius</i>	31,33
Mottled duskywing .....	<i>Erynnis martialis</i>	2,81
Zarucco duskywing .....	<i>Erynnis zarucco</i>	81
Dun skipper .....	<i>Euphyes vestris</i>	20,81
Variiegated fritillary .....	<i>Euptoieta claudia</i>	2,81
Barred yellow .....	<i>Eurema daira</i>	81
Little yellow .....	<i>Eurema lisa</i>	81
Sleepy orange .....	<i>Eurema nicippe</i>	81
Zebra swallowtail .....	<i>Eurytides marcellus</i>	81
Little yellow .....	<i>Eurema lisa</i>	81
Sleepy orange .....	<i>Eurema nicippe</i>	81
Harvester .....	<i>Fenisera tarquinius</i>	31,33
Spider .....	<i>Gaucelmus augustinus</i>	80
Beetle .....	<i>Glyphrocanthon viridis</i>	21
Carolina satyr .....	<i>Hermeuptychia sosybius</i>	20,31,33
Fiery skipper .....	<i>Hylephila phyleus</i>	2,81
Marianna cave sheetweb spider .....	<i>Islandiana sp.</i>	80
Common buckeye .....	<i>Junonia coenia</i>	2,81
Shinyrayed pocketbook .....	<i>Lampsilis subangulata</i>	52,55
Clouded skipper .....	<i>Lerema accius</i>	81
American snout .....	<i>Libytheana carinenta</i>	31,33
Viceroy .....	<i>Limenitis archippus</i>	81
Red-spotted purple .....	<i>Limenitis arthemis</i>	20
Gulf moccasinshell .....	<i>Medionidus penicillatus</i>	52,55
Little wood-satyr .....	<i>Megisto cymela</i>	20
Cave isopod .....	<i>Miktoniscus alabamensis</i>	80
Spider .....	<i>Nesticus pallidus</i>	80
Mourning cloak .....	<i>Nymphalis antiopa</i>	31,33
Giant swallowtail .....	<i>Papilio cresphontes</i>	20
Eastern tiger swallowtail .....	<i>Papilio glaucus</i>	20,31,33
Palmedes swallowtail .....	<i>Papilio palamedes</i>	20,31,33
Spicebush swallowtail .....	<i>Papilio troilus</i>	20,31,33
Daddy longlegs .....	<i>Phalangodes laciniosa</i>	2,20,21,80
Daddy longlegs .....	<i>Phalangodes spinturnix</i>	2,20,21,80
Cloudless sulfur .....	<i>Phoebis sennae</i>	81
Texan crecent .....	<i>Phyciodes texana</i>	2
Pearl crecent .....	<i>Phyciodes tharos</i>	81
Cabbage white .....	<i>Pieris rapae</i>	81
Oval pigtoe .....	<i>Pleurobema pyriforme</i>	52,55
Zabulon skipper .....	<i>Poanes zabulon</i>	20,21,81
Crossline skipper .....	<i>Polites origenes</i>	81
Whirlabout .....	<i>Polites vibex</i>	81

\* Non-native Species



**Florida Caverns State Park—Animals**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Primary Habitat (For All Species)</b>
Eastern comma.....	<i>Polygonia comma</i>	81
Question mark.....	<i>Polygonia interrogationis</i>	20,81
Little glassywing.....	<i>Pompeius verna</i>	81
Beetle.....	<i>Prionchaeta opaca</i>	80
Mosquito.....	<i>Psorophora ferox</i>	2,20,21,31,33,81
Mosquito.....	<i>Psorophora mathesoni</i>	2,20,21,31,33,81
Marianna cave springtail.....	<i>Pseudosinella pecki</i>	80
Beetle.....	<i>Ptomophagus cavernicola</i>	20,21,80
Common checkered-skipper.....	<i>Pyrgus communis</i>	81
Tropical checkered-skipper.....	<i>Pyrgus oileus</i>	81
Fire ant*.....	<i>Solenopsis invicta</i>	2,20,21,81
Northern cloudywing.....	<i>Thorybes pylades</i>	81
Springtail.....	<i>Tomocerus dubius</i>	80
Long-tailed skipper.....	<i>Urbanus proteus</i>	2,81
Red admiral.....	<i>Vanessa atalanta</i>	20
American lady.....	<i>Vanessa virginiensis</i>	81
Southern broken-dash.....	<i>Wallengrenia otho</i>	81

**FISH**

Spotted gar.....	<i>Lepisosteus oculatus</i>	52,55
Longnose gar.....	<i>Lepisosteus osseus</i>	52,55
Bowfin.....	<i>Amia calva</i>	52,55
American eel.....	<i>Anguilla rostrata</i>	52,55
Alabama shad.....	<i>Alosa alabamae</i>	52,55
Gizzard shad.....	<i>Dorosoma cepedianum</i>	52,55
Redfin pickeral.....	<i>Esox americanus</i>	52,55
Chain pickeral.....	<i>Esox niger</i>	52,55
Golden shiner.....	<i>Notemigonus crysoleucas</i>	52,55
Quillback.....	<i>Carpionodes cyprinus</i>	52,55
Spotted sucker.....	<i>Minytrema melanops</i>	52,55
Yellow bullhead.....	<i>Ictalurus natalis</i>	52,55,79
Brown bullhead.....	<i>Ictalurus nebulosus</i>	52,55
Snail bullhead.....	<i>Ictalurus brunneus</i>	52,55
Channel cat.....	<i>Ictalurus punctatus</i>	52,55
Pirate perch.....	<i>Aphredoderus sayanus</i>	52,55,79
Mosquitofish.....	<i>Gambusia affinis</i>	52,55,79
Striped bass.....	<i>Morone saxatilis</i>	52,55
Rock bass.....	<i>Ambloplites rupestris</i>	52,55
Pigmy sunfish.....	<i>Elassoma sp.</i>	52,55
Flier.....	<i>Centrarchus macropterus</i>	52,55
Redbreast sunfish.....	<i>Lepomis auritus</i>	52,55
Bluegill (bream).....	<i>Lepomis macrochirus</i>	52,55,79
Stumpknocker (spotted sunfish).....	<i>Lepomis punctatus</i>	52,55
Shoal bass.....	<i>Micropterus n. sp. cf coosae</i>	52,55

\* Non-native Species

## Florida Caverns State Park—Animals

Common Name	Scientific Name	Primary Habitat (For All Species)
Spotted bass .....	<i>Micropterus punctulatus</i>	52,55
Largemouth bass .....	<i>Micropterus salmoides</i>	52,55
Speckled perch (black crappie).....	<i>Pomoxis nigromaculatus</i>	52,55
Swamp darter .....	<i>Etheostoma fusiforme</i>	52,55
Striped mullet.....	<i>Mugil cephalus</i>	52,55
Redeye chub.....	<i>Hybopsis harperi</i>	52,55

### AMPHIBIANS

#### Salamanders

Two-toed amphiuma .....	<i>Amphiuma means</i>	52,55
Alabama waterdog .....	<i>Necturus alabamensis</i>	52,55
Mole salamander .....	<i>Ambystoma talpoideum</i>	2,20,21,31,33,81
Marbled salamander.....	<i>Ambystoma opacum</i>	2,20,21,31,33,81
Eastern tiger salamander .....	<i>Ambystoma tigrinum</i>	2,20,21,31,33,81
Southern dusky salamander .....	<i>Desmognathus auriculatus</i>	2,20,21,31,33,81
Slimy salamander.....	<i>Plethodon grobmani</i>	2,20,21,31,33,80
Long-tailed salamander.....	<i>Eurycea longicauda guttolineata</i>	2,20,21,33,80
Dwarf salamander .....	<i>Eurycea quadridigitata</i>	2,20,21,31,33,81
Georgia blind salamander .....	<i>Haideotriton wallacei</i>	79

#### Frogs and Toads

Eastern spadefoot.....	<i>Scaphiopus h. holbrooki</i>	21,31
Southern toad .....	<i>Bufo terrestris</i>	20,21,31,33,80
Southern cricket frog.....	<i>Acris gryllus</i>	21,31,2,33
Southern spring peeper .....	<i>Hyla crucifer</i>	21,31,33
Green treefrog .....	<i>Hyla cinerea</i>	21,31,33
Barking treefrog.....	<i>Hyla gratiosa</i>	2,20,21,31,33,81
Pine woods treefrog .....	<i>Hyla femoralis</i>	2,20,21,31,33,81
Squirrel treefrog.....	<i>Hyla squirella</i>	2,20,21,31,33,81
Gray treefrog.....	<i>Hyla chrysoscelis</i>	2,20,21,31,33,81
Striped chorus frog.....	<i>Pseudacris triseriata</i>	21,33
Eastern narrowmouth toad .....	<i>Gastrophryne c. carolinensis</i>	31,33
River frog.....	<i>Rana heckscheri</i>	31,33
Bullfrog.....	<i>Rana catesbeiana</i>	31,33
Bronze frog .....	<i>Rana clamitans</i>	31,33
Southern leopard frog .....	<i>Rana sphenoccephala</i>	31,33

### REPTILES

#### Crocodylians

American alligator .....	<i>Alligator mississippiensis</i>	52,55
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#### Turtles

Common snapping turtle.....	<i>Chelydra serpentina</i>	52,55
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\* Non-native Species

## Florida Caverns State Park—Animals

Common Name	Scientific Name	Primary Habitat (For All Species)
Alligator snapping turtle .....	<i>Macrolemys temmincki</i>	52,55
Loggerhead musk turtle .....	<i>Sternotherus m. minor</i>	52,55
Eastern mud turtle .....	<i>Kinosternon s. subrubrum</i>	52,55
Gulf coast box turtle.....	<i>Terrapene carolina</i>	2,20,21,31,33,81
Barbour's map turtle.....	<i>Graptemys barbouri</i>	52,55
River cooter.....	<i>Pseudemys concinna</i>	52,55
Cooter.....	<i>Pseudemys floridana</i>	52,55
Suwannee cooter .....	<i>Pseudemys concinna suwanniensis</i>	
Yellow-bellied slider.....	<i>Pseudemys scripta</i>	52,55
<b>Lizards</b>		
Green anole .....	<i>Anolis carolinensis</i>	2,20,21,31,33,81
Eastern fence lizard.....	<i>Sceloporus u. undulatus</i>	20,21
Six-lined racerunner.....	<i>Cnemidophorus sexlineatus</i>	20,21
Ground skink.....	<i>Scincella lateralis</i>	20,21
Five-lined skink .....	<i>Eumeces fasciatus</i>	20,21
Southeastern five-lined skink.....	<i>Eumeces inexpectatus</i>	20,21
Broadhead skink .....	<i>Eumeces laticeps</i>	2,20,21
Eastern glass lizard .....	<i>Ophisaurus ventralis</i>	20,21
<b>Snakes</b>		
Brown water snake.....	<i>Nerodia taxispilota</i>	52,55
Redbelly water snake .....	<i>Nerodia erythrogaster</i>	31,33,52,55
Florida redbelly snake.....	<i>Storeria occipitomaculata</i>	20,21
Eastern hognose snake .....	<i>Heterodon platyrhinos</i>	20,21,81
Southern ringneck snake .....	<i>Diadophis punctatus</i>	20,21
Rainbow snake .....	<i>Farancia erythrogramma</i>	31,33,52,55
Rough green snake.....	<i>Opheodrys aestivus</i>	20,21,81
Southern black racer .....	<i>Coluber constrictor priapus</i>	2,20,21,31,33,81
Gray rat snake .....	<i>Elaphe obsoleta spilodes</i>	2,20,21,31,33,81
Eastern kingsnake .....	<i>Lampropeltis getula</i>	20,21,31,33,81
Scarlet king snake .....	<i>Lampropeltis triangulum elapsoides</i>	20,21
Scarlet snake .....	<i>Cemophora coccinea</i>	20,21
Eastern coral snake .....	<i>Micrurus f. fulvius</i>	2,20,21,31,33,81
Florida cottonmouth.....	<i>Agkistrodon piscivorus conanti</i>	2,20,21,31,33,81
Dusky pigmy rattlesnake .....	<i>Sistrurus miliarius barbouri</i>	20,21,80
Eastern diamondback rattlesnake.....	<i>Crotalus adamanteus</i>	21,81

### BIRDS

<b>Bitterns/Herons</b>		
American bittern .....	<i>Botaurus lentiginosus</i>	31,33
Great blue heron.....	<i>Ardea herodias</i>	31,33
Great egret.....	<i>Casmerodius albus</i>	31,33
Snowy egret .....	<i>Egretta thula</i>	31,33
Little blue heron.....	<i>Egretta caerulea</i>	31,33

\* Non-native Species

## Florida Caverns State Park—Animals

Common Name	<i>Scientific Name</i>	Primary Habitat (For All Species)
Green-backed heron .....	<i>Butorides striatus</i>	31,33
Black-crowned night-heron .....	<i>Nycticorax nycticorax</i>	31,33
Yellow-crowned night-heron .....	<i>Nycticorax violaceus</i>	31,33
<b>Ibises</b>		
White ibis .....	<i>Eudocimus albus</i>	31,33
<b>Ducks/Geese</b>		
Wood duck .....	<i>Aix sponsa</i>	31,33
Green-winged teal .....	<i>Anas crecca</i>	31,33
Snow goose .....	<i>Chen caerulescens</i>	Fly Over
<b>American vultures</b>		
Black vulture .....	<i>Coragyps atratus</i>	2,20,21,31,33,81
Turkey vulture .....	<i>Cathartes aura</i>	2,20,21,31,33,81
<b>Accipiters</b>		
American swallow-tailed kite .....	<i>Elanoides forficatus</i>	Fly Over
Mississippi kite .....	<i>Ictinia mississippiensis</i>	Fly Over
Sharp-shinned hawk .....	<i>Accipiter striatus</i>	2,20,21,31,33,81
Cooper's hawk .....	<i>Accipiter cooperii</i>	2,20,21,31,33,81
Red-shouldered hawk .....	<i>Buteo lineatus</i>	2,20,21,31,33,81
Broad-winged hawk .....	<i>Buteo platypterus</i>	2,20,21,31,33,81
Red-tailed hawk .....	<i>Buteo jamaicensis</i>	2,20,21,31,33,81
<b>Falcons</b>		
American kestrel .....	<i>Falco sparverius</i>	20,21,81
Merlin .....	<i>Falco columbarius</i>	20,21,81
<b>Pheasants/Allies</b>		
Wild turkey .....	<i>Meleagris gallopavo</i>	20,21,31,81
Northern bobwhite .....	<i>Colinus virginianus</i>	21,81
<b>Plovers</b>		
Killdeer .....	<i>Charadrius vociferus</i>	81
Spotted sandpiper .....	<i>Actitis macularia</i>	81
Common snipe .....	<i>Gallinago gallinago</i>	31,33
American woodcock .....	<i>Scolopax minor</i>	31,33
<b>Doves</b>		
Mourning dove .....	<i>Zenaida macroura</i>	20,21,81
<b>Cuckoos</b>		
Black-billed cuckoo .....	<i>Coccyzus erythrophthalmus</i>	20,21
Yellow-billed cuckoo .....	<i>Coccyzus americanus</i>	20,21

\* Non-native Species

**Florida Caverns State Park—Animals**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Primary Habitat (For All Species)</b>
<b>Owls</b>		
Common barn-owl .....	<i>Tyto alba</i>	2,20,21,31,33,81
Eastern screech-owl .....	<i>Otus asio</i>	2,20,21,31,33,81
Great horned owl.....	<i>Bubo virginianus</i>	2,20,21,31,33,81
Barred owl.....	<i>Strix varia</i>	2,20,21,31,33,81
<b>Goatsuckers</b>		
Common nighthawk.....	<i>Chordeiles minor</i>	20,21,81
Chuck-will's-widow .....	<i>Caprimulgus carolinensis</i>	20,21,81
Whip-poor-will .....	<i>Caprimulgus vociferus</i>	20,21,81
<b>Swifts</b>		
Chimney swift.....	<i>Chaetura pelagica</i>	20,21,81
<b>Hummingbirds</b>		
Ruby-throated hummingbird.....	<i>Archilochus colubris</i>	20,81
<b>Kingfishers</b>		
Belted kingfisher.....	<i>Ceryle alcyon</i>	31,33
<b>Woodpeckers</b>		
Red-headed woodpecker.....	<i>Melanerpes erythrocephalus</i>	20,21,31,33
Red-bellied woodpecker .....	<i>Melanerpes carolinus</i>	20,21,31,33
Yellow-bellied sapsucker.....	<i>Sphyrapicus varius</i>	20,21,31,33
Downy woodpecker .....	<i>Picoides pubescens</i>	20,21,31,33
Hairy woodpecker.....	<i>Picoides villosus</i>	20,21,31,33
Northern flicker.....	<i>Colaptes auratus</i>	20,21,31,33
Pileated woodpecker .....	<i>Dryocopus pileatus</i>	20,21,31,33
<b>Tyrant flycatchers</b>		
Eastern wood-pewee .....	<i>Contopus virens</i>	20,21,31,33
Acadian flycatcher .....	<i>Empidonax virescens</i>	20,21,31,33
Eastern phoebe .....	<i>Sayornis phoebe</i>	20,21,31,33
Great crested flycatcher .....	<i>Myiarchus crinitus</i>	20,21,31,33
Eastern kingbird.....	<i>Tyrannus tyrannus</i>	21,81
<b>Swallows</b>		
Purple martin.....	<i>Progne subis</i>	20,21,81
Tree swallow .....	<i>Tachycineta bicolor</i>	20,21,81
Northern rough-winged swallow .....	<i>Stelgidopteryx serripennis</i>	20,21,81
<b>Jays/Crows</b>		
Blue jay .....	<i>Cyanocitta cristata</i>	2,20,21,31,33,81
American crow.....	<i>Corvus brachyrhynchos</i>	2,20,21,31,33,81
Fish crow.....	<i>Corvus ossifragus</i>	2,20,21,31,33,81

\* Non-native Species

**Florida Caverns State Park—Animals**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Primary Habitat (For All Species)</b>
<b>Titmice</b>		
Carolina chickadee.....	<i>Parus carolinensis</i>	20,21,31,33
Tufted titmouse.....	<i>Parus bicolor</i>	20,21,31,33
<b>Nuthatches</b>		
Red-breasted nuthatch.....	<i>Sitta canadensis</i>	20,21,31,33
Brown-headed nuthatch.....	<i>Sitta pusilla</i>	20,21,31,33
<b>Creepers</b>		
Brown creeper.....	<i>Certhia americana</i>	20,21,31,33
<b>Wrens</b>		
Carolina wren.....	<i>Thryothorus ludovicianus</i>	20,21
Bewick's wren.....	<i>Thryomanes bewickii</i>	20,21
House wren.....	<i>Troglodytes aedon</i>	20,21
Winter wren.....	<i>Troglodytes troglodytes</i>	20,21
Sedge wren.....	<i>Cistothorus platensis</i>	20,21
<b>Old world flycatchers</b>		
Golden-crowned kinglet.....	<i>Regulus satrapa</i>	20,21
Ruby-crowned kinglet.....	<i>Regulus calendula</i>	20,21,31,33
Blue-gray gnatcatcher.....	<i>Polioptila caerulea</i>	20,21,31,33
Eastern bluebird.....	<i>Sialia sialis</i>	81
Veery.....	<i>Catharus fuscescens</i>	21
Gray-cheeked thrush.....	<i>Catharus minimus</i>	20,21,31,33
Swainson's thrush.....	<i>Catharus ustulatus</i>	21,31,33
Hermit thrush.....	<i>Catharus guttatus</i>	21,31,33
Wood thrush.....	<i>Hylocichla mustelina</i>	21,31,33
American robin.....	<i>Turdus migratorius</i>	2,20,21,31,33,81
<b>Mimic thrushes</b>		
Gray catbird.....	<i>Dumetella carolinensis</i>	20,21,31,33,81
Northern mockingbird.....	<i>Mimus polyglottos</i>	2,20,21,31,33,81
Brown thrasher.....	<i>Toxostoma rufum</i>	20,21,31,33
<b>Pipits</b>		
Water pipit.....	<i>Anthus spinoletta</i>	81
<b>Waxwings</b>		
Cedar waxwing.....	<i>Bombycilla cedrorum</i>	2,20,21,31,33,81
<b>Shrikes</b>		
Loggerhead shrike.....	<i>Lanius ludovicianus</i>	2,20,21,31,33,81

\* Non-native Species

Florida Caverns State Park—Animals

Common Name	Scientific Name	Primary Habitat (For All Species)
<b>Vireos</b>		
White-eyed vireo.....	<i>Vireo griseus</i>	20,21,31,33
Solitary vireo.....	<i>Vireo solitarius</i>	20,21,31,33,81
Yellow-throated vireo .....	<i>Vireo flavifrons</i>	20,21
Red-eyed vireo .....	<i>Vireo olivaceus</i>	20,21
<b>Emberizids</b>		
Blue-winged warbler.....	<i>Vermivora pinus</i>	2,20,21,31,33,81
Golden-winged warbler .....	<i>Vermivora chrysoptera</i>	21,81
Tennessee warbler.....	<i>Vermivora peregrina</i>	81
Orange-crowned warbler .....	<i>Vermivora celata</i>	21,81
Northern parula .....	<i>Parula americana</i>	21
Yellow warbler.....	<i>Dendroica petechia</i>	20,21,81
Chestnut-sided warbler .....	<i>Dendroica pensylvanica</i>	20,21,81
Magnolia warbler .....	<i>Dendroica magnolia</i>	21
Black-throated blue warbler.....	<i>Dendroica caerulescens</i>	20,21,81
Yellow-rumped warbler .....	<i>Dendroica coronata</i>	20,21,81
Black-throated green warbler.....	<i>Dendroica virens</i>	20,21,81
Blackburnian warbler.....	<i>Dendroica fusca</i>	20
Yellow-throated warbler .....	<i>Dendroica dominica</i>	21
Pine warbler .....	<i>Dendroica pinus</i>	21
Prairie warbler.....	<i>Dendroica discolor</i>	20,21
Palm warbler .....	<i>Dendroica palmarum</i>	21,81
Blackpoll warbler.....	<i>Dendroica striata</i>	20,21,81
Cerulean warbler.....	<i>Dendroica cerulea</i>	21,31,33
Black-and-white warbler.....	<i>Mniotilta varia</i>	20,21
American redstart.....	<i>Setophaga ruticilla</i>	20,21
Prothonotary warbler .....	<i>Protonotaria citrea</i>	20,31,33
Worm-eating warbler .....	<i>Helmitheros vermivorus</i>	21,31
Swainson's warbler .....	<i>Limnothlypis swainsonii</i>	31,33
Ovenbird .....	<i>Seiurus aurocapillus</i>	21,31
Northern waterthrush .....	<i>Seiurus noveboracensis</i>	31,33
Louisiana waterthrush.....	<i>Seiurus motacilla</i>	31,33
Kentucky warbler.....	<i>Oporornis formosus</i>	20,21
Common yellowthroat .....	<i>Geothlypis trichas</i>	20,21
Hooded warbler.....	<i>Wilsonia citrina</i>	20,21,31,33
Yellow-breasted chat .....	<i>Icteria virens</i>	20,21
Summer tanager .....	<i>Piranga rubra</i>	20,21
Scarlet tanager.....	<i>Piranga olivacea</i>	20,21
Northern cardinal .....	<i>Cardinalis cardinalis</i>	20,21,31,81
Rose-breasted grosbeak .....	<i>Pheucticus ludovicianus</i>	20,21,31,81
Indigo bunting.....	<i>Passerina cyanea</i>	20,21,81
Painted bunting .....	<i>Passerina ciris</i>	21,81
Dickcissel.....	<i>Spiza americana</i>	21,81
Rufous-sided towhee.....	<i>Pipilo erythrophthalmus</i>	2,20,21,31,33,81

\* Non-native Species

**Florida Caverns State Park—Animals**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Primary Habitat (For All Species)</b>
Bachman's sparrow .....	<i>Aimophila aestivalis</i>	21
Chipping sparrow .....	<i>Spizella passerina</i>	81
Field sparrow .....	<i>Spizella pusilla</i>	81
Vesper sparrow .....	<i>Pooecetes gramineus</i>	21,81
Savannah sparrow .....	<i>Passerculus sandwichensis</i>	21,81
Grasshopper sparrow .....	<i>Ammodramus savannarum</i>	21,81
Fox sparrow .....	<i>Passerella iliaca</i>	81
Song sparrow .....	<i>Melospiza melodia</i>	81
White-throated sparrow .....	<i>Zonotrichia albicollis</i>	81
Dark-eyed junco .....	<i>Junco hyemalis</i>	20,21,81
Bobolink .....	<i>Dolichonyx oryzivorus</i>	21,81
Red-winged blackbird .....	<i>Agelaius phoeniceus</i>	31,33,81
Eastern meadowlark .....	<i>Sturnella magna</i>	81
Common grackle .....	<i>Quiscalus quiscula</i>	20,21,31,33,81
Orchard oriole .....	<i>Icterus spurius</i>	21,81
Northern oriole .....	<i>Icterus galbula</i>	81
<b>Fringillids</b>		
Purple finch .....	<i>Carpodacus purpureus</i>	20,21
American goldfinch .....	<i>Carduelis tristis</i>	21,81
Cattle egret* .....	<i>Bubulcus ibis</i>	81
House sparrow* .....	<i>Passer domesticus</i>	81
European starling* .....	<i>Sturnus vulgaris</i>	81
<b>MAMMALS</b>		
Opossum .....	<i>Didelphis virginianus</i>	2,20,21,31,33,81
Armadillo* .....	<i>Dasypus novemcinctus</i>	20,21,81
Least shrew .....	<i>Cryptotis parva</i>	2,20,21,31,33
Eastern mole .....	<i>Scalopus aquaticus</i>	20,21
Seminole bat .....	<i>Lasiurus seminolus</i>	2,20,21,31,33
Southeastern bat .....	<i>Myotis austroriparius</i>	31,33,80
Gray bat .....	<i>Myotis grisescens</i>	31,33,80
Eastern pipistrelle bat .....	<i>Pipistrellus subflavus</i>	20,21,31,33,80
Eastern cottontail .....	<i>Sylvilagus floridanus</i>	21,81
Beaver .....	<i>Castor canadensis</i>	52,55
Gray squirrel .....	<i>Sciurus carolinensis</i>	2,20,21,31,33
Fox squirrel .....	<i>Sciurus niger</i>	82
Southern flying squirrel .....	<i>Glaucomys volans</i>	2,20,21,31,33
Cotton mouse .....	<i>Peromyscus gossypinus</i>	2,20,21,31,33
Golden mouse .....	<i>Peromyscus nuttalli</i>	20,21,31
Eastern woodrat .....	<i>Neotoma floridana</i>	2,20,80
Raccoon .....	<i>Procyon lotor</i>	2,20,21,31,33,80,81
White-tailed deer .....	<i>Odocoileus virginianus</i>	2,20,21,31,33,81
Feral hog* .....	<i>Sus scrofa</i>	20,21,31,33

\* Non-native Species



**Florida Caverns State Park—Animals**

<b>Common Name</b>	<b><i>Scientific Name</i></b>	<b>Primary Habitat (For All Species)</b>
Bobcat .....	<i>Lynx rufus</i>	2,20,21,31,33
Gray fox .....	<i>Urocyon cinereoargenteus</i>	2,20,21,81
Coyote* .....	<i>Canis latrans</i>	2,20,21,31,33,80,81
River otter .....	<i>Lutra canadensis</i>	52,55

\* Non-native Species

Florida Caverns State Park—Animals

Common Name	<i>Scientific Name</i>	Primary Habitat (For All Species)
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## 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
48. River Floodplain Lake
49. Sandhill Upland Lake

### Lacustrine—Continued

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

## Habitat Codes

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**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**

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### **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.



**Florida Caverns State Park—Designated Species (Plants)**

<b>Common Name/ Scientific Name</b>	<b>Designated Species Status</b>		
	<b>FDACS</b>	<b>USFWS</b>	<b>FNAI</b>
Columbine <i>Aquilegia canadensis australis</i>	E		
Variable-leaved Indian-plantain <i>Arnoglossum diversifolium</i>			G2,S2
Single-sorus spleenwort <i>Asplenium monanthes</i>	E		G4,S1
Wagner's spleenwort <i>Asplenium x heteroresiliens</i>			G4,S1
Southern lady fern <i>Athyrium filix-femina</i>	T		
Flyr's brickell-bush <i>Brickellia cordifolia</i>	E		
Sweetshrub <i>Calycanthus floridus</i>	E		
Trailing bindweed <i>Calystegia catesbiana</i>			G3,S1
Creamflower tick-trefoil <i>Desmodium ochroleucum</i>			G2G3,S1
Greenfly orchid <i>Epidendrum conopseum</i>	CE		
Wood spurge <i>Euphorbia commutata</i>			G5?,S2
Godfrey's privet <i>Forestiera godfreyi</i>			G3,S2S3
Crested coralroot <i>Hexalectris spicata</i>	E		
False rue-anemone <i>Isopyrum biternatum</i>			G5,S1
Cardinal flower <i>Lobelia cardinalis</i>	T		
Pyramid magnolia <i>Magnolia pyramidata</i>	E		
Barbara's buttons <i>Marshallia obovata</i>	E		
Florida spiny-pod <i>Matelea floridana</i>			G2,S2
Royal fern <i>Osmunda regalis</i>	CE		
Allegheny spurge <i>Pachysandra procumbens</i>	E		
Large white-fringed orchid <i>Platanthera blephariglottis</i>	T		
Yellow-fringed orchid <i>Platanthera ciliaris</i>	T		
May apple <i>Podophyllum peltatum</i>			G5, S1
Polymnia <i>Polymnia laevigata</i>			G3,S1
Florida flame azalea <i>Rhododendron austrinum</i>	E		

**Florida Caverns State Park—Designated Species (Plants)**

<b>Common Name/ Scientific Name</b>	<b>FDACS</b>	<b><u>Designated Species Status</u></b>	
		<b>USFWS</b>	<b>FNAI</b>
Pink azalea <i>Rhododendron canescens</i>	CE		
Needle palm <i>Rhapidophyllum hystrix</i>	CE		
Pinnate-lobed coneflower <i>Rudbeckia triloba pinnatiloba</i>			G4T?,S1
Nettle-leaved sage <i>Salvia urticifolia</i>	E		G5,S1
Florida water-parsnip <i>Sium floridanum</i>			G1Q,S1
Florida merrybells <i>Uvularia floridana</i>			G3,S1
Abrupt-tipped maiden fern <i>Thelypteris augescens</i>	T		
Atamasco lilly <i>Zephyranthes atamasco</i>	T		

**Florida Caverns State Park—Designated Species (Animals)**

Common Name/ Scientific Name	Designated Species Status		
	FFWCC	USFWS	FNAI
<b>INVERTEBRATES</b>			
Dougherty plain cave crayfish <i>Cambarus cryptodytes</i>			G2,S2
Chipola slabshell <i>Elliptio chipolaensis</i>		T	
Shinyrayed pocketbook <i>Lampsilis subangulata</i>		E	
Gulf moccasinshell <i>Medionidus penicillatus</i>		E	
Oval pigtoe <i>Pleurobema pyriforme</i>		E	
<b>FISHES</b>			
Shoal bass <i>Micropterus n sp. cf coosae</i>	SSC		
<b>AMPHIBIANS</b>			
Georgia blind salamander <i>Haideotriton wallacei</i>	SSC		S2
<b>REPTILES</b>			
American alligator <i>Alligator mississippiensis</i>	SSC	T(S/A)	S4
Alligator snapping turtle <i>Macrolemys temmincki</i>	SSC		S3
Barbour's map turtle <i>Graptemys barbouri</i>	SSC		S2
Suwannee cooter <i>Pseudemys concinna suwanniensis</i>	SSC		
<b>BIRDS</b>			
Snowy egret <i>Egretta thula</i>	SSC		
Little blue heron <i>Egretta caerulea</i>	SSC		
Southeastern American kestrel <i>Falco sparverius paulus</i>	T		
<b>MAMMALS</b>			
Southeastern bat <i>Myotis austroriparius</i>			S3
Gray bat <i>Myotis grisescens</i>	E	E	

Florida Caverns State Park—Designated Species (Animals)

<b>Common Name/ <i>Scientific Name</i></b>	<b>FFWCC</b>	<b><u>Designated Species Status</u></b> <b>USFWS</b>	<b>FNAI</b>
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**Addendum 6—Florida Master Site File List Of Cultural Sites**



**Florida Caverns State Park—Cultural Sites Listed In The Florida Master Site File**

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<b>FMSF#</b>	<b>Site Name</b>	<b>Culture</b>	<b>Description</b>
JA00054	Parking Area	Pre-Columbian	Midden
JA00055	Cave No. 10	Pre-Columbian	Midden
JA00056	Rock Shelter	Pre-Columbian	Midden
JA00057	New Cave	Pre-Columbian	Habitation
JA00058	Cave Near Park	Fort Walton	Cave
JA00059	2 <sup>nd</sup> Cave Near Park	Archaic, Norwood, Swift Creek	Cave, Habitation
JA00082	Blue Hole West	Weeden Island	Camp site
JA00092	NN	Norwood, Swift Creek	Ceramic scatter, Lithic scatter / Non-quarry
JA00109	Caverns Park	Pre-Columbian	Unknown
JA00110	Sugar Mill Hole Spring	Pre-Columbian	Unknown
JA00112	Blue Hole	Pre-Columbian	Unknown
JA01067	Pump House	Civilian Conservation Corps	Limestone block bldg.
JA01068	Visitor's Center	Civilian Conservation Corps	Limestone block bldg.
JA01069	Main Cavern Entrance	Civilian Conservation Corps	Poured concrete stairway, cave door
JA01070	Main Cavern	Civilian Conservation Corps	Cave pathway, lighting system
JA01071	Side Entrance to Cavern	Civilian Conservation Corps	Poured concrete stairway, cave door
JA01072	Cavern Exit	Civilian Conservation Corps	Poured concrete stairway, cave door
JA01073	Carter's Mill Site	Civilian Conservation Corps	Mill ruins, concrete dam, raceway
JA01074	Park Manager's Residence	Depression/New Deal (Fish Hatchery)	Two story limestone residence
JA01075	Garage	Depression/New Deal (Fish Hatchery)	Limestone garage
JA01076	Ranger's Residence 1	Depression/New Deal (Fish Hatchery)	Limestone structure
JA01077	Ranger's Residence 2	Depression/New Deal (Fish Hatchery)	Limestone structure
JA01078	Ranger's Residence 3	Depression/New Deal (Fish Hatchery)	Limestone structure
JA01079	Storage Building	Depression/New Deal (Fish Hatchery)	Limestone structure

**Florida Caverns State Park—Cultural Sites Listed In The Florida Master Site File**

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<b>FMSF#</b>	<b>Site Name</b>	<b>Culture</b>	<b>Description</b>
JA01080	Pumphouse at Hatchery	Depression/New Deal (Fish Hatchery)	Poured Concrete
JA01545	Ranger Cave	Pre-Columbian	Human femur
JA01555	Indian Cave	Deptford, Fort Walton, Paleo – Indian, Swift Creek, Weeden Island 2	Campsite, Midden
JA01752	Lime Rock Quarry – South	American	Building, Land
JA01753	Lime Rock Quarry – East	19 <sup>th</sup> /20 <sup>th</sup> Century American	Building
JA01760	Abandoned Railroad		Unknown
JA01762	Ellis Rock Shelter	19 <sup>th</sup> /20 <sup>th</sup> Century American	Artifact Scatter
JA01776	Lime Rock Quarry – West	19 <sup>th</sup> Century American	Land
JA01777	Florida Caverns Golf Course	Depression/New Deal	Land



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



**Florida Caverns 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. Control of exotic plants, over 10 years. Continue to search for and spray various exotic plant species on the park, striving to maintain populations at a maintenance control level. Estimated Cost: \$5000 per year over 10 years.
2. Clear fire lanes and create fire breaks to re-initiate prescribed burning program. Estimated cost: \$15,000, initial year, plus \$1000 each year for equipment replacement/upgrade.
3. Inventory, document and map rare plant species on park. Estimated cost: \$10,000.
4. Restore 50 acres of Upland Pine Forest habitat formerly present on park. Estimated cost for clearing, hardwood removal, herbicide, wiregrass re-planting: \$250,000.
5. Contract assistance from USDA Wildlife Services for control of feral hogs on the park. Estimated cost \$5000/year, recurring.
6. Survey, fence and or post park perimeter boundaries. Estimated Cost: \$50,000 over 10 years.
7. Restore drainage ditches, culverts and berms to repair hydrological alterations on the park. Estimated Cost: \$30,000 over 10 years.
8. Conduct a Level I archaeological survey of the Federal Fish Hatchery and park. Estimated Cost: \$20,000.
9. Trim and reclaim park drive road shoulders and roadside ditches. Estimated cost \$30,000 over 10 years.

**Total Estimated Cost .....\$464,000.**

**Capital Improvements**

<b>Development Area</b>	<b>Facilities Cost</b>
Blue Hole Swimming Area	118,500.00
Boat/Canoe Launch Area	40,000.00
Fish Hatchery Area	150,000.00
Trailhead/Equestrian Camp	50,000.00
Visitor Center Area	184,500.00
Support Facilities	800,000.00
<b>Total w/contingency .....</b>	<b>\$1,611,600.00</b>

**Florida Caverns State Park—Priority Schedule And Cost Estimates**

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**Additional Information**

**FNAI Descriptions**

**DHR Cultural Management Statement**

**2004 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.

**Coastal Grassland** - coastal flatland with sand substrate; xeric-mesic; subtropical or temperate;

## Descriptions Of Natural Communities Developed By FNAI

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occasional fire; grasses, herbs, and shrubs with or without slash pine and/or cabbage palm.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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**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 freshwater in response to tidal cycles; rare or no fire; cypress, bays, cabbage palm, gums and/or cedars.

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**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.

**Marsh lake** - generally shallow, open water area within wide expanses of freshwater marsh; still water

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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 troglonecic, troglonecophilic, and troglonecotic organisms.

**Aquatic Cave** - cavernicolous area permanently or periodically submerged; often characterized by troglonecotic 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 subtle, and the natural communities types found under these two community categories have the same

## Descriptions Of Natural Communities Developed By FNAI

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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 Zoantharia (e.g., stony corals and black corals); includes deepwater bank reefs, fringing barrier reefs, outer bank reefs and patch reefs, some of which may contain distinct zones of assorted macrophytes, octocorals, & sponges.

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

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

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

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

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

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

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

## DEFINITIONS OF TERMS Terrestrial and Palustrine Natural Communities

## Descriptions Of Natural Communities Developed By FNAI

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### **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

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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*

**Management Procedures For  
Archaeological And Historical Sites And Properties  
On State -- Owned Or Controlled Lands  
(Revised August, 1995)**

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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 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]

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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 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



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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 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,

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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 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

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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 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

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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.
- (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.).

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- (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 Florida Caverns State Park  
(Lease No.3619), June 8, 2004**

Prepared by Division of State Lands Staff

D.W. Borland, OES Staff  
Sarah Hall, Administrative Assistant

For

Florida Caverns State Park Review Team

**Final Report August 6, 2004**

Land Manager:	FDR&P
Area:	1,306 acres
County:	Jackson
Mgt. Plan Revised:	02/03/2000
Mgt. Plan Update Due:	02/03/2010





## 2004 Final Land Management Review Report

### Management Review Participants

Agency Represented	Team member Appointed	Team member In Attendance
DOF	Mr. John Barrow	Mr. John Barrow
DEP District	Mr. Russel Frydenborg	
DRP District	Mr. Mark Ludlow	Mr. Mark Ludlow
FWCC	Jerry Pitts	Jerry Pitts
Jackson County	Ms. Kim Cole Sweazy	Ms. Kim Cole Sweazy
Florida Wildlife Federation	Mr. Graval Farr	Mr. Graval Farr
Jackson County Soil and Water	Mr. Tom Stadskev	Mr. Tom Stadskev
Private Land Manager	Mr. C. Chadwick Taylor	Mr. C. Chadwick Taylor
Observers and Representatives	Observers Invited	Observer In Attendance
FNAI	Ms. Carolyn Kindell	Ms. Carolyn Kindell
Consulting Biologist	Wilson Baker	Wilson Baker
DSL - OES	Paula Allen	Paula Allen
Agency	Managers	In Attendance
DRP – Florida Caverns SP	Mr. William Maphis	Mr. William Maphis
DSL – OES Moderator	Mr. William Howell	Mr. William Howell
DSL - OES	Mr. D.W. Borland	Mr. D.W. Borland

### 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, comply 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 comply 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 is given to the managing agency under review, the Acquisition and Restoration Council, and to the Division of State Lands. In addition, 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 Florida Caverns State Park considered approximately 1,306 acres in Jackson County that are managed by the Division of Recreations and Parks (DR&P). 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,

## 2004 Final Land Management Review Report

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comply with the management plan. The DR&P management plan was approved on February 2, 2000 and the management plan update is due on February 2, 2010.

### Review Team Determination

1. Is the land being managed for the purpose for which it was acquired? After completing the checklist, team members were asked to answer "yes" or "no" to this question.

**All team members agreed that Florida Caverns State Park 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? After completing the checklist, team members were asked to answer "yes" or "no" to this question.

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

### Commendations to the Managing Agency

The team commends the Manager and Staff for the overall management of the site and the DRP for the excellent quality of the current management plan

The team commends the DRP and Florida Caverns State Park for the thorough incorporation of the previous land management review team recommendations into the current plan.

### Exceptional Management Actions

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

#### Exceptional management actions:

1. 2000 Management Plan is excellent and appropriately comprehensive.
2. Management, Maintenance and Protection of the all nine Natural Communities listed in the 2000 Plan.
3. Management and Protection of the all listed species.
4. Protection, preservation and restoration of cultural sites and resources.
5. Excellent management and concern for impacts caused by invasive and problematic animals and plants.
6. Exceptional physical resource protection, boundary surveys, gates/fencing and law enforcement presence.
7. Exceptional effort to acquire adjacent properties and additions.
8. Exceptional parking, trails and recreational opportunities.
9. Exceptional interpretative facilities and environmental education/outreach.
10. Exceptional sanitary facilities, equipment and waste disposal program.

### Recommendations and Checklist Findings

#### Recommendations

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

1. The team recommends that the DRP assure the staffing of the park with a full-time Biologist to provide continued protection of the endemic ecological attributes, unique park geology and

significant interpretive needs, and to meet increasing public demands and conservation resource oversight needs.

**Manager's Response:**

**Disagree.** DRP cannot presently commit to this. No new staff can be assigned to this or any other park unit unless they are appropriated by the Legislature or reassigned from other units. Additional staff is needed by a majority of parks statewide that is why we regularly seek positions, volunteers and partners. The Florida Legislature determines funding annually.

**Ninety percent of the time of a Biologist position was recently reassigned by necessity to Torreya State Park, with 10% of the position's time remaining allocated to Florida Caverns. Torreya has recently been expanded from ~3,000 acres to over 12,000 acres – that park has much more land with much more active restoration/management needs than Florida Caverns now.**

2. The team recommends that DRP put the highest priority on the acquisition of the Ratzleff Properties located south of the park due to the critical location of bat maternity caves known to occur there (currently without protection) AND the essential landscape connections it immediately provides with existing Greenways and Trails lands.

**Manager's Response:**

**Agree.** We concur that high priority should be given to acquiring this property. The property is covered under both the DRP Additions and In-holdings Program and the Florida Forever Middle Chipola River Project. The project has been negotiated more than once, but without success due to high expectations of the owners. DRP will keep this property listed for acquisition, subject to availability of funding.

3. The team recommends that the DRP consider moving the Equestrian facility from the area above and adjacent to the Blue Hole public area and to a site more remote, less integrated with conflicting park uses and less environmentally sensitive.

**Manager's Response:**

**Agree.** DRP agrees to consider this from the environmental perspective. However, it is beyond the scope of the review team's responsibilities to plan facilities or visitor uses on state lands. State Park land use plans are developed by professional planning staff through a public process and are approved by the Acquisition and Restoration Council.

4. The team recommends that the DRP create a data layer within their GIS for cultural resources, including all currently known sites and structures within the Park boundaries; include the updates on the Park Base Map and eventually into ArcView coverage AND assure information transfer to DHR for file record and tracking.

**Manager's Response:**

**Disagree.** Although DRP already has such a GIS data layer (and all these data are available to park staff), the location of archaeological sites in DHR's site files are exempt from public records law. DRP and DHR have determined that such information should not be put in public copies of land management plans to protect the sites from harm or theft. DRP requests that DSL inform LMR teams of this official decision that covers all DRP managed lands. Park staff has been trained to report newly found sites to DHR via the Florida Site File form.

5. The team recommends that DRP establish considerations to construct new Staff residence on the park and to convert the New Deal era houses, buildings and fish hatchery facilities into a historical period interpretative center and museum instead of operative Staff housing.

**Manager's Response:**

**Disagree. State park land use plans are developed by professional planning staff through a public process and are approved by the Acquisition and Restoration Council. It is beyond the scope of the review team's responsibilities to plan facilities or development on state lands.**

6. The team recommends that the DRP oppose initiatives to allow ANY expansion or significant alteration of the golf course because of its impact to environmental and cultural resources.

**Manager's Response:**

**Agree. DRP would never consider an expansion of the historic CCC golf course and has heard of no initiatives or proposals to do so.**

### Checklist Findings

The following items received low scores on the review team checklist and indicates that management actions, in the field review (f), were insufficient 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.

1. Discussion in the management plan of the additions needed to professional staffing (f).

**Manager's Response:**

**Agree. If it is determined additional staff are needed at the time of the next unit management plan revision, it will be included in the plan. However, no new staff can be assigned to this or any other park unit unless they are appropriated by the Legislature or reassigned from other units. Additional staff is needed by a majority of parks statewide that is why we regularly seek positions, volunteers and partners. The Florida Legislature determines funding annually.**