Madison Blue Spring State Park

APPROVED
Unit Management Plan

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks
August 2016

Florida Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

August 17, 2016

Mr. Ralph Perkins
Division of Recreation and Parks
Department of Environmental Protection
3900 Commonwealth boulevard, MS 525
Tallahassee, Florida 32399-3000

RE: Madison Blue Springs State Park- Lease No. 4726

Dear Mr. Perkins:

The Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the Madison Blue Springs State Park management plan. The next management plan update is due August 17, 2026.

Acceptance of this 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,

Joseph Wilson
Division of State Lands
Office of Environmental Services

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INTRODUCTION

Madison Blue Spring State Park is located in Madison County (see Vicinity Map). Access to the park is from State Road 6 (see Reference Map). The Vicinity Map also reflects significant land and water resources existing near the park.

Madison Blue Spring State Park was initially acquired on December 12, 2000. Currently, the park comprises 45.13 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) hold fee simple title to the park and on April 14, 2014, the Trustees leased (Lease Number 4726) the property to DRP under a fifty year lease. The current lease will expire on April 13, 2064.

Madison Blue Spring State Park is designated single-use to provide public outdoor recreation and other park-related uses. There are no legislative or executive directives that constrain the use of this property (see Addendum 1).

Purpose and Significance of the Park

The purpose of Madison Blue Spring State Park is to provide opportunities for resource-based outdoor recreation for Florida residents and visitors while ensuring conservation and protection of valuable natural resources, including a representative example of natural karst topography, aquatic cave environments, and water resources with direct linkages to the Withlacoochee River and Floridan aquifer.

Park Significance

- The park protects one of Florida's 33 first magnitude springs, which discharges into a remarkable karst bowl and yields a 150-foot spring-run stream before merging with the Withlacoochee River.

- The park protects nationally significant examples of karst topography, including limestone outcroppings and an array of unique sinkhole types.

- The park provides habitat for three imperiled species of cave-dwelling invertebrates.

- The park is an internationally known cave diving destination in which cave systems provide recreational opportunities and spectacular underwater scenery.

Madison Blue Spring is classified as a state recreation area in the DRP's unit classification system. In the management of a state recreation area, major emphasis is placed on maximizing the recreational potential of the unit. However, preservation of the park's natural and cultural resources remains important. Depletion of a resource by any recreational activity is not permitted. In order to

realize the park's recreational potential, the development of appropriate park facilities is undertaken with the goal to provide facilities that are accessible, convenient and safe, to support public recreational use or appreciation of the park's natural, aesthetic and educational attributes.

Purpose and Scope of the Plan

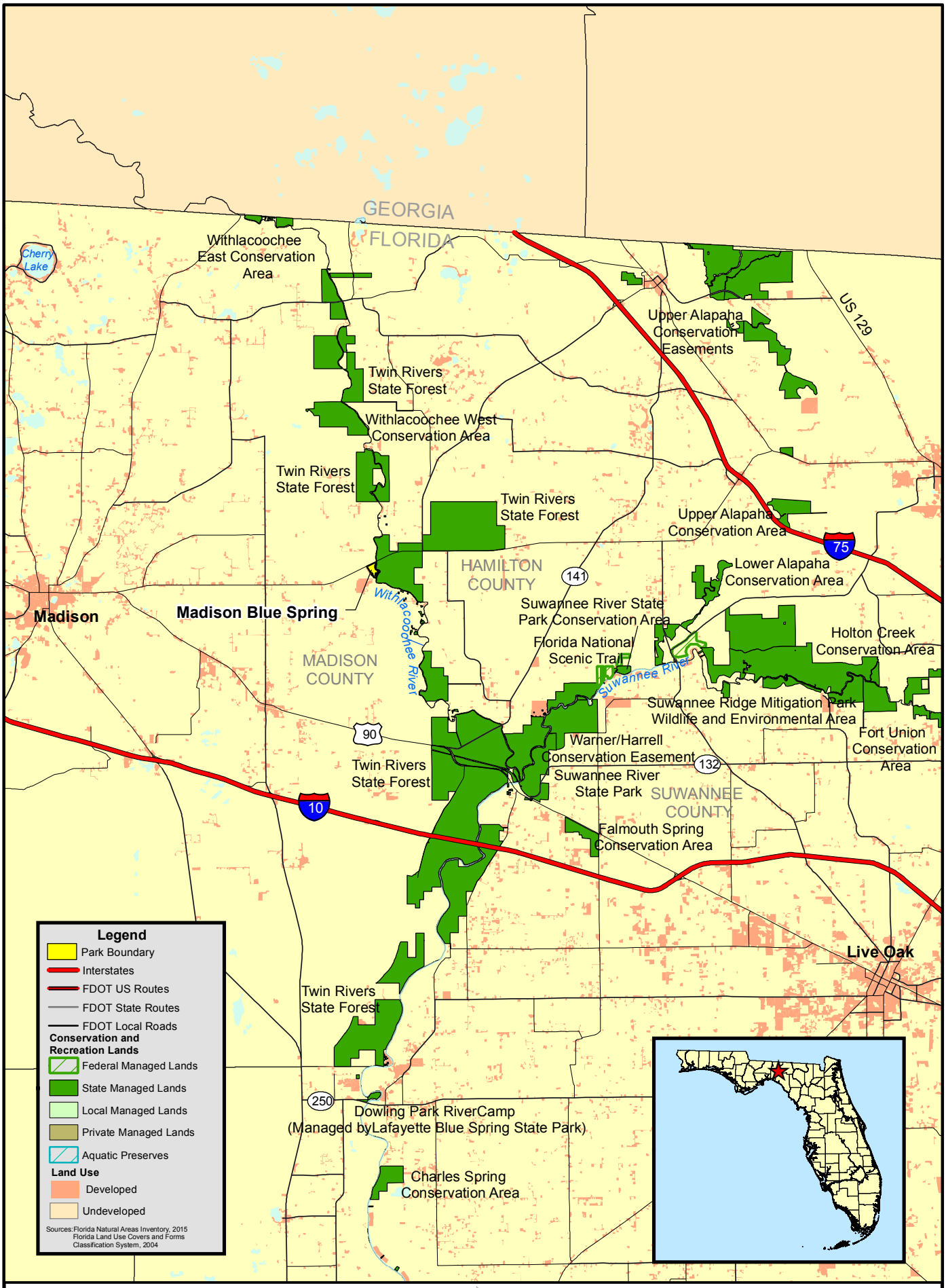
This plan serves as the basic statement of policy and direction for the management of Madison Blue Spring as a unit of Florida's state park system. It identifies the goals, objectives, actions and criteria or standards that guide each aspect of park administration, and sets forth the specific measures that will be implemented to meet management objectives and provide balanced public utilization. The plan is intended to meet the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and is intended to be consistent with the State Lands Management Plan.

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

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

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

All development and resource alteration proposed in this plan is subject to the granting of appropriate permits, easements, licenses, and other required legal instruments. Approval of the management plan does not constitute an exemption from complying with the appropriate local, state or federal agencies.



MADISON BLUE SPRING

VICINITY MAP

MADISON BLUE SPRING

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0 500 1,000 2,000 Feet

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2011

REFERENCE MAP

In the development of this plan, the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of the DRP's statutory responsibilities and 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, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan.

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

DRP may provide the services and facilities outlined in this plan either with its own funds and staff or through an outsourcing contract. Private contractors may provide assistance with natural resource management and restoration activities or a Visitor Service Provider (VSP) may provide services to park visitors in order to enhance the visitor experience. For example, a VSP could be authorized to sell merchandise and food and to rent recreational equipment for use in the park. A VSP may also be authorized to provide specialized services, such as interpretive tours, or overnight accommodations when the required capital investment exceeds that which DRP can elect to incur. Decisions regarding outsourcing, contracting with the private sector, the use of VSPs, etc. are made on a case-by-case basis in accordance with the policies set forth in DRP's Operations Manual (OM).

Management Program Overview

Management Authority and Responsibility

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

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

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

Park Management Goals

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

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

Management Coordination

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

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

Public Participation

DRP provided an opportunity for public input by conducting a public workshop and an advisory group meeting to present the draft management plan to the public. These meetings were held on Thursday, June 9 and Friday, June 10, 2016, respectively. Meeting notices were published in the Florida Administrative Register, on Friday, May 27, 2016, Volume 42, Issue 104, included on the Department Internet Calendar, posted in clear view at the park, and promoted locally. The purpose of the advisory group meeting is to provide the advisory group members an opportunity to discuss the draft management plan (see Addendum 2).

Other Designations

Madison Blue Spring State Park is not within an Area of Critical State Concern as defined in Section 380.05, Florida Statutes, and it is not presently under study for such designation.

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

RESOURCE MANAGEMENT COMPONENT

Introduction

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

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

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

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

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

Table 1. Madison Blue Spring State Park Management Zones			
Management Zone	**Acreage**	**Managed with Prescribed Fire**	**Contains Known Cultural Resources**
MBS-1A	11.32	Y	Y
MBS-1B	2.29	Y	N
MBS-1C	0.64	Y	N
MBS-2	35.48	Y	N

RESOURCE DESCRIPTION AND ASSESSMENT

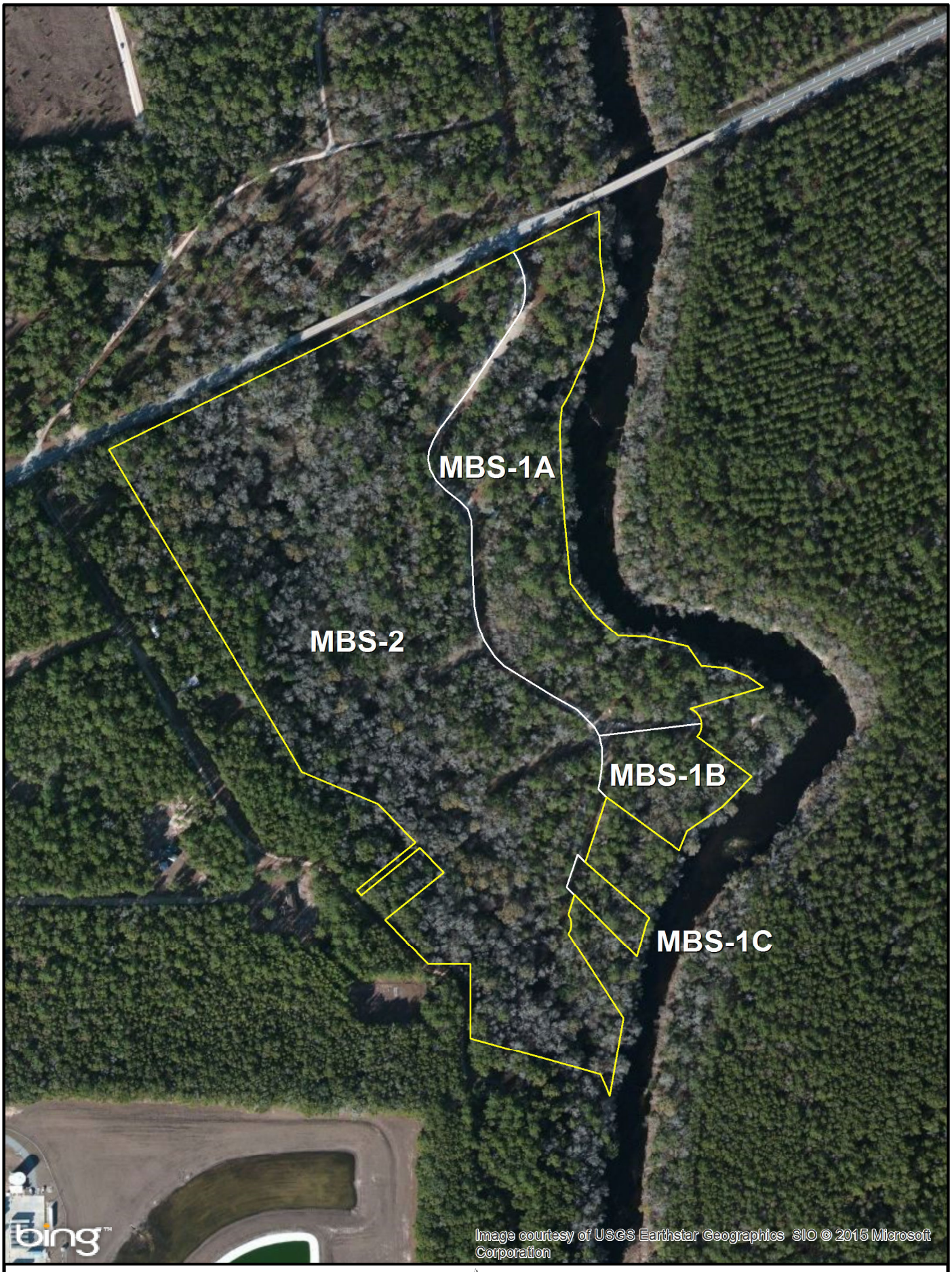
Natural Resources

Topography

The physiographic province in which Madison Blue Spring State Park is located is called the Withlacoochee River Valley Lowlands, a narrow extension of the Gulf Coastal Lowlands that follows the Withlacoochee River corridor northward into Georgia (Ceryak et al. 1983). The lowlands along the Withlacoochee are typically below 80 feet mean sea level (msl) in elevation, with many areas less than 60 feet msl (Hoenstine et al. 1990). The Gulf Coastal Lowlands as a whole are described as a low karst plain with elevations typically less than 100 feet msl (White 1970). Complete and rapid infiltration of surface water runoff is characteristic of the drainage within the lowlands. Exposed limestone features are numerous, and the many well-developed sinkholes in the area provide a high degree of interconnection between surface water and groundwater systems.

West and east of the Withlacoochee River Valley Lowlands is the Northern Highlands region, consisting of uplands capped by relatively impermeable, clay-rich sediments. East of the Withlacoochee River, the Northern Highlands are relatively flat and elevations are typically greater than 150 feet above msl. Karst development is minor. A high degree of surface runoff and a more extensive development of lakes and wetlands characterize the drainage in this region (Champion and Upchurch 2003). West of the Withlacoochee River is a sub-unit of the Northern Highlands that was formerly included within the Tallahassee Hills sub-unit, but later received its own designation as the Madison Hills (Scott 2005). This sub-unit extends from central Jefferson County east to the west side of the Withlacoochee River Valley, and actually encompasses the extreme western edge of Madison Blue Spring State Park. Elevations within the Madison Hills area range from 70 feet above msl to 200 feet above msl. Karst features are evident in the eastern portion where Suwannee Limestone occurs near the surface (Scott 2005).

The transitional zone between the Gulf Coastal Lowlands and the Northern Highlands is a distinctive karst feature known as the Cody Escarpment, familiarly known as the Cody Scarp (Puri and Vernon 1964). Ancient marine shoreline processes have significantly shaped this visible landscape feature, where



MADISON BLUE SPRING

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0 100 200 400 Feet

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2011

MANAGEMENT ZONES MAP

MADISON BLUE SPRING

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0 100 200 400 Feet

Florida Department of Environmental Protection
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Date of aerial; 2011

TOPOGRAPHIC MAP

topographic relief can vary up to 80 feet. The scarp area has an abundance of sinkholes, sinkhole lakes and sinking streams, known as swallets, that profoundly influence the hydrology of the region. A large portion of the surface runoff from the Northern Highlands drains across the Cody Scarp and becomes groundwater as it rapidly infiltrates subsurface limestone conduits of the upper Floridan aquifer.

While the transitional edge of the Cody Scarp is readily distinguishable in the field along much of its route, in the Madison Hills region it is less apparent. In referencing USGS topographic maps, however, geologists have discerned a noticeable break at the 100-foot contour that they now use to define the edge of the Cody Scarp in the Madison Hills area (Hoenstine 1990). The Cody Scarp appears to intersect the Withlacoochee River Valley Lowlands in the vicinity of Madison Blue Spring State Park. The aquifer is unconfined in the immediate area, having become exposed through processes of surface erosion and geologic dissolution (Wetland Solutions 2010).

Considering the small size of the unit (49.73 acres), topographic relief within Madison Blue Spring State Park is quite variable. While many areas are nearly level, others are gently rolling. The western side of the park is defined by a low broad floodway that cuts through the length of the park, roughly in a north-south line, and by a steep slope that rises from the floodway into uplands along the west boundary. Elevations range from approximately 114 feet above msl in the southwest corner of the park to below 40 feet msl in the head spring area. Only about 5% of the park (2.52 acres) is above the 100-year floodplain, while 90% lies within the 10-year floodplain. Among the numerous karst features in the park are aquatic caves, spring vents, sinkholes, and sinkhole lakes. Another notable topographic feature is the steep limestone bank along the west side of the Withlacoochee River. Approximately one acre of earthmoving occurred several decades ago at the very northern edge of the park within the floodway, probably during construction of the western span of the two State Road 6 bridges across the Withlacoochee drainage. The alluvial forest in this area contains trees that are considerably younger than those further south in the floodway.

Geology

Geologic deposits underlying the region of Madison Blue Spring State Park, listed in descending order from youngest to oldest, include undifferentiated Quaternary sediments, the Miccosukee Formation, the Torreya Formation of the Hawthorn Group, Suwannee Limestone, and Ocala Limestone (Green et al. 2007). No geologic formations in the park appear to have been altered.

Undifferentiated Quaternary sediments of Pleistocene age occur in the region in deposits of variable thickness. These deposits are often less than 20 feet thick and may be absent where exposures of Suwannee Limestone occur. The deposits consist of siliciclastics, organics, and freshwater carbonates. The siliciclastics range from silty sands that are clean to clayey, and gray, tan or black, to silty clays that are sandy and blue-green to olive-green (Scott 2001).

The Miccosukee Formation, of Pliocene age, is a relatively impermeable deposit consisting of grayish-orange to grayish-red, mottled, interbedded clay, sand and gravel of varying coarseness (Scott 2001). It is much more common in western Madison County and in Jefferson County, but small pockets occur near the land surface as far east as the Madison Blue Spring region. This formation's thickness ranges from several feet to about 100 feet (Green et al. 2007).

The Torreya Formation of the Hawthorn Group, which is of Lower Miocene origin, typically underlies the Pleistocene sediments in western Madison County and overlies the Floridan Aquifer (Scott 2001). It is exposed or near the surface in the Madison Blue Spring area. The upper part is composed of siliciclastics that vary from white to olive-gray, slightly clayey sands to light or bluish gray, variably silty clays. The lower portion contains carbonate sediments that consist of white to olive-gray, variably sandy and clayey, fossiliferous limestones. The formation's thickness varies widely, from 10 to 80 feet (Green et al. 2007).

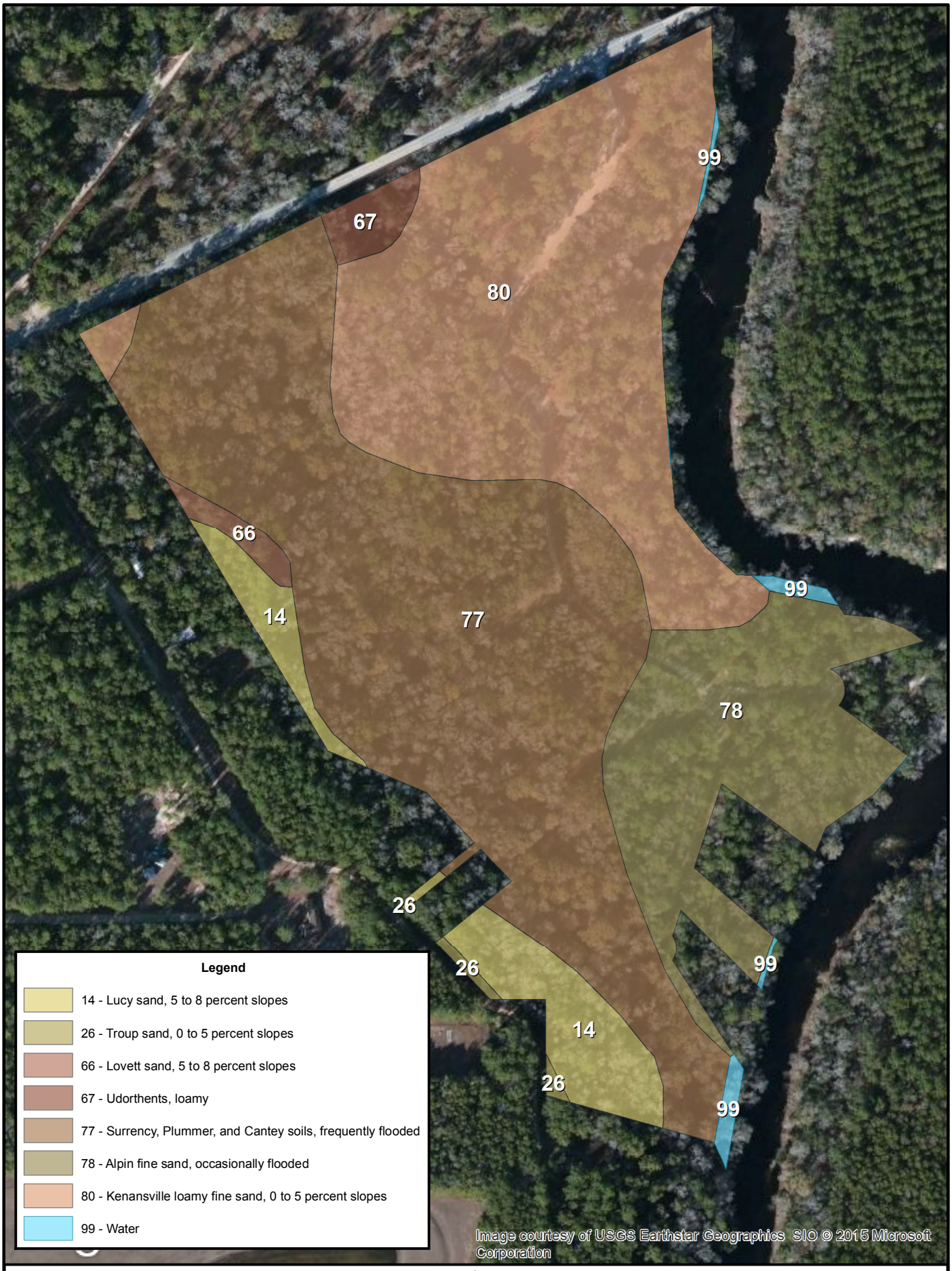
Suwannee Limestone, of Oligocene age, underlies the Torreya Formation of the Hawthorn Group or occurs as outcrops along the Withlacoochee River. It is a white to cream-colored, fossiliferous limestone that constitutes part of the Floridan Aquifer system (Scott 2001). Among the fossils present are echinoids such as *Rhyncholampas gouldii*, which is an index fossil for Suwannee Limestone. Dolomitized portions of the Suwannee Limestone are gray, tan, or light to moderate brown, and finely to coarsely crystalline. The thickness of this deposit ranges from five to 160 feet (Green et al. 2007).

The Ocala Limestone, of Eocene age, is a biogenic, nearly pure, marine limestone composed of foraminifera, mollusks, echinoids, and bryozoans (Green et al. 2007). The upper part of the deposit is white to cream-colored, fine to coarse-grained, very fossiliferous limestone. The lower portion is a white to cream-colored, fine to medium-grained, sometimes partially dolomitized limestone. In the north-central Florida area, karstification of the Ocala Limestone is common and numerous springs are present (Scott 2001). The Ocala Limestone is very permeable and functions as an important part of the Floridan Aquifer. Thickness varies from 177 feet to over 220 feet (Green et al. 2007).

Soils

Soils within Madison Blue Spring State Park range from the frequently flooded soils of floodplains near the Withlacoochee River to the well-drained sandy soils of the uplands (see Soils Map). There are seven mapped soil types in the park. Detailed descriptions of these soils are included in Addendum 4 of this plan (Howell and Williams 1990).

Soil disturbance and erosion from surface water runoff can be highly detrimental to the erosion prone, steep-sided banks of the Withlacoochee River and to sensitive karst features in the park. Areas of the park that are most vulnerable to soil erosion



MADISON BLUE SPRING

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0 100 200 400 Feet

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2011

SOILS MAP

include footpaths along the riverbanks and intensively used slopes around major karst features such as the head spring and Martz Sink. Large karst openings into the Floridan aquifer are particularly vulnerable to possible contamination from runoff, especially during strong storm events. Runoff that lacks ample opportunity to filter through underlying soils may flow directly into these openings, causing increased turbidity and sedimentation and decreased water quality in the aquifer.

The DRP needs to develop an erosion control plan for the park that provides guidelines for mitigating critical areas of erosion. At present, the park staff routinely monitors erosion prone areas to detect changes in the extent and pattern of erosion, particularly along pathways that provide public access to the head spring swimming area. Mitigation of eroding areas along existing pathways, or possibly even relocation of some access routes, are among the actions being considered to resolve the erosion issue. Management activities will continue to follow accepted best management practices to minimize or prevent additional soil erosion and to protect the park's soil and water resources.

Minerals

While phosphate is mined in eastern Hamilton County and limestone is quarried in Suwannee County, it is unknown whether any mineral deposits of commercial value occur in or near Madison Blue Spring State Park.

Hydrology

Madison Blue Spring and the Withlacoochee River are the two most significant hydrologic features of the park. Madison Blue is a first magnitude spring located on the west side of the Withlacoochee River approximately 12 miles upstream from its confluence with the Suwannee River. The spring discharges into an 80-foot diameter circular pool which forms the head of a 150-foot spring-run stream that flows easterly into the Withlacoochee River (Scott et al. 2004). About 30 feet below the pool surface is a large opening to an aquatic cave which serves as the main entrance to a very extensive cave system. Over 26,000 feet of underground passages have been explored to date (Gulden and Coke 2014).

The Withlacoochee River is a major tributary of the Suwannee River and is part of the Upper Suwannee River Basin, which encompasses a surface watershed of 7,056 square miles (Hornsby et al. 2003). Over 50% of that watershed lies in Georgia, including the headwaters of the Withlacoochee River located north of Valdosta (Farrell and Upchurch 2005). The mean annual flow rate for the Withlacoochee, measured at the Pinetta gage about 10 miles upstream from Madison Blue, is 1,718 cubic feet per second (cfs) (Farrell and Upchurch 2004; USGS 2014). In the upper Withlacoochee River, flow is primarily dependent on surface water inputs, while further downstream the river is increasingly fed by groundwater. In fact, Madison Blue Spring is the major source of base flow in the lower Withlacoochee River (Giese and Franklin 1996a). When the river experiences low water levels, a greater proportion of flow is contributed by springs, and this can trigger significant changes in water chemistry and clarity.

During flood stage of the Withlacoochee, however, the opposite occurs. As river levels rise, Madison Blue begins to act as a "siphon" or inflow point into the Upper Floridan aquifer (Giese and Franklin 1996b; Gulley et al. 2011). This inflow, as surface waters and groundwater mix, can cause substantial changes in groundwater quality, including the input of significant loads of nutrients into the aquifer (Katz et al. 1999; Katz and Hornsby 1998; Berndt et al. 1998). The marked changes in water clarity that are observable within the Madison Blue system are dependent on factors such as flow velocity, clarity of the Withlacoochee River (i.e., tannic or clear), and height of the river stage. Partial or complete "brownouts" of the Madison Blue system may occur. A complete brownout is considered to have happened when tannic river water covers the entire spring run and head spring and water clarity is reduced to less than four feet of visibility. Park staff has sporadically documented brownouts and monitored water clarity at Madison Blue Spring since 2009.

When surface water and groundwater mixing occurs, the result can be a rather rapid and potentially large-scale change within the usually stable aquatic cave environment. One consequence of such events may be a notable die-off of cave-dwelling fauna, i.e., troglobites, as has been documented several times at Wes Skiles Peacock Springs State Park (Streever 1991, 1992a, and 1992b). Whether invertebrate populations in aquatic caves at Madison Blue experience similar episodes is currently unknown (Franz et al. 1994), but the monitoring program now underway in the aquatic cave system should eventually provide some answers. This monitoring of troglobites at Madison Blue Spring has been taking place since 2005 as part of an Environmental Monitoring Plan (EMP) required by the SRWMD as a condition for issuing a consumptive use permit for a water bottling plant near the park (SRWMD 2003). High troglobite diversity and abundance are considered strong indicators of a healthy spring ecosystem.

Water Quantity

The period of record for measuring Madison Blue Spring discharge is from 1932 to the present (USGS 2014). Only seven instantaneous measurements of flow rate are available from 1932 to 2001, but a continuous discharge record was initiated in 2002 and continues to this date (Scott et al. 2004; USGS 2014). The minimum flow ever recorded for the spring was negative 893 cfs on March 2, 2013, while the maximum discharge was 752 cfs on July 23, 2005. The average total discharge of Madison Blue Spring from 1932 to 2008 was reported as 85.9 cfs (Wetland Solutions 2010).

The Madison Blue Springshed was partially delineated when it was mapped north to the Georgia line in the early 2000s. It was found to encompass over 100 square miles (Farrell and Upchurch 2004). The Georgia portion of the springshed still needs to be delineated. For the FDEP to accomplish that it will necessary to solicit the assistance and cooperation of comparable agencies in Georgia.

One potential threat to water resources within Madison Blue Spring State Park is the large-scale withdrawal of groundwater from systems that are hydraulically connected to groundwater resources within the park. Under a water use permit

issued by the SRWMD in December 2003, groundwater extraction for the retail sale of bottled spring water was initiated at a new facility near the west boundary of the park (SRWMD 2003). Two 10-inch diameter production wells with a capacity of 400 gallons per minute were permitted, at least one of which was located only a quarter mile from the Madison Blue spring bowl. The total groundwater withdrawal allocation amounted to 588.8 million gallons per year. The maximum permitted withdrawal rate for all wells combined was 2.088 million gallons per day. According to a permit modification issued by the SRWMD in June 2014 (SRWMD Permit 2-98-00025.007), the bottling plant is now allowed to extract an average of 1.6132 million gallons per day.

The long term impact of withdrawals of this magnitude on the water budget of Madison Blue Spring remains to be determined. Among the requirements of the Nestle permit is that the company must develop a dataset illustrating the correlation between bottling plant withdrawals and local groundwater levels and Madison Blue discharge. Toward that end, the permit holder constructed four wells for the purpose of monitoring groundwater levels near Madison Blue Spring. For the duration of the permit, the permit holder must conduct the array of environmental monitoring procedures outlined in the EMP described above. The permit holder is required to stop or reduce its water withdrawals if aquifer levels fall below the minimum established by regulation. A compliance report is to be produced every five years.

An additional impact to water resources at Madison Blue is recent land use changes in the area which have resulted in the conversion of hundreds of acres of timberland to irrigated cropland. The multiple new wells required for these agricultural operations are putting additional strains on groundwater resources. The SRWMD is the agency responsible for issuing water use permits in the region, and in doing so must balance competing demands and ensure that proposed uses are in the public interest, which includes the conservation of fish and wildlife habitat and the protection of recreational values. Additionally, the SRWMD is responsible for prioritizing and establishing Minimum Flows and Levels (MFLs) for water bodies within its boundaries (SRWMD 2004).

The SRWMD established an MFL for Madison Blue Spring in 2004. The MFL limit was set at a point below which additional groundwater withdrawals would cause significant harm to the water resources or ecology of the Madison Blue system (Chapter 40B-8.031 F.A.C. Minimum Surface water Levels and Flows for Madison Blue Spring). Two modeling boundary conditions formed the basis for the MFL - a minimum Withlacoochee River stage of 55.0 feet (NGVD) at the Pinetta gauge (Site # 02319000) and a minimum discharge of 70 cfs at Madison Blue Spring (Site # 02319302)(USGS 2014). Water managers are required to determine the impacts of existing and proposed groundwater withdrawals in the region based on the above two criteria. The MFL rule states that if both conditions are surpassed more than 10% of the time, when summarizing the entire period of record, continued groundwater withdrawals at the current rate will be significantly harmful to the area's water resources. During the period of record from 2002-2014, Withlacoochee River levels and Madison Blue Spring discharges decreased to significantly low

levels just over 22% of the time. As of this writing, he SRWMD has not initiated adoption of a prevention or recovery strategy for Madison Blue.

Many water management experts acknowledge that the past two significant drought periods in Florida (i.e., 1998-2001 and 2010-2012), as well as the increased consumptive use of groundwater, have cumulatively caused a significant lowering of water tables and decreased spring flows throughout north Florida (Copeland et al. 2011; Swihart 2011; Still 2010). In October 2011, the SJRWMD, SRWMD and FDEP signed an interagency agreement that outlined closer coordination in the management of north Florida water supplies. The two water management districts are now required to address the issue of decreased groundwater resources in their district water supply planning efforts (SRWMD 2010; SJRWMD 2011). In October 2011, the SRWMD designated several areas within its regulatory boundary as "Water Resources Caution Areas", including the Upper Suwannee River region. This designation means that groundwater sources in those areas are not adequate to meet future needs over a 20-year planning period.

Water Quality

The factors that most influence water quality in Madison Blue Spring State Park include erosion/sedimentation along the banks of Madison Blue Spring and regional groundwater contamination. As described above in the Soils section, erosion and sedimentation in the park is occurring at various locations around the springhead and its spring run. Surface water runoff originating from upland areas around the springhead can significantly contribute to deteriorating water quality. Since the Floridan aquifer in the area is unconfined, park management should remain vigilant about possible pollution sources that could contribute to contamination of the springhead.

Highly vulnerable karst features within the park also have potential to funnel contaminated surface waters into high quality groundwater resources (Cichon et al. 2004). Martz Sink, for example, located in the floodway in the western part of the park, has a direct connection to the Madison Blue cave system. In addition, dye trace studies reveal that Pot Spring, located one mile southeast of Madison Blue, is likewise connected to the main conduits of Madison Blue.

Outside the park, there are potential sources of groundwater pollution as well. Seasonal flooding has necessitated periodic closures to public use because of high fecal bacterial counts attributable to contaminated runoff from upstream wastewater treatment systems. Agricultural operations within the Madison Blue Springshed may pose a threat to the quality of groundwater and surface water resources within the springshed. Additionally, groundwater extraction is occurring at a bottled water plant within the springshed immediately west of the park, and the influence of this operation on the ecology of the spring is unknown. As a requirement of the Water Use Permit (i.e., Water Use Permit #2-98-0025M4) issued by the SRWMD, extensive ecosystem monitoring is being conducted and Madison Blue Spring biological monitoring reports are produced annually (Geosyntec Consultants 2010).

State water managers have monitored groundwater quality in numerous types of wells over the past 25 years. The FDEP monitors over 276 different wells within the general area of Madison Blue Spring alone (Farrell and Upchurch 2004; FDEP 2014a). Monitoring has revealed that nitrogen enrichment has contaminated most of the Upper Floridan aquifer in the northern region of the state. Nitrates specifically have increased by an order of magnitude or more over the past 50 years (Cohen et al. 2007). Human activity, especially the use of inorganic fertilizers, has long been the leading cause of this enrichment, and it may be particularly detrimental to the Madison Blue springshed.

Groundwater contamination from high nutrient loading has significantly influenced the ecological health of several other spring ecosystems across the state (Cohen et al. 2007; Wetland Solutions 2010). Studies suggest that one of the primary water quality issues within these systems is unhealthy levels of nitrate-nitrogen (Jones et al. 1996). Nitrate concentrations measured at the Madison Blue springhead have ranged from 0.97 mg/L to nearly 2.0 mg/L (Harrington et al. 2010). According to Harrington, these levels are below the concentrations found at other springs in the state. However, naturally occurring background levels for nitrates should be less than 0.01 mg/L (Cohen et al. 2007).

There is a large set of water quality data available for Madison Blue Spring as well as for its receiving water body, the Withlacoochee River (Hornsby and Ceryak 1998; Scott et al. 2004). Much of the hydrological information that has been collected, stored, and managed by state water management agencies can now be accessed through a variety of web-based filters (USGS 2014; SRWMD 2014; FDEP 2014b).

The SRWMD maintains three surface water quality monitoring stations along the Withlacoochee River (Jenkins et al. 2010). The water quality measured at these stations generally falls in the good to fair range, although inputs from episodic rainfall and runoff events may influence them variably (Hand et al. 1996).

As of 2014, FDEP's Total Maximum Daily Load (TMDL) program, which outlines the surface water quality improvements needed in water bodies throughout the state, had not assigned any TMDL requirements for Madison Blue Spring or the Withlacoochee River (FDEP 2001; FDEP 2003; FDEP 2014c; Silvanima 2008).

Natural Communities

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

The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI). The premise of this system is that

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

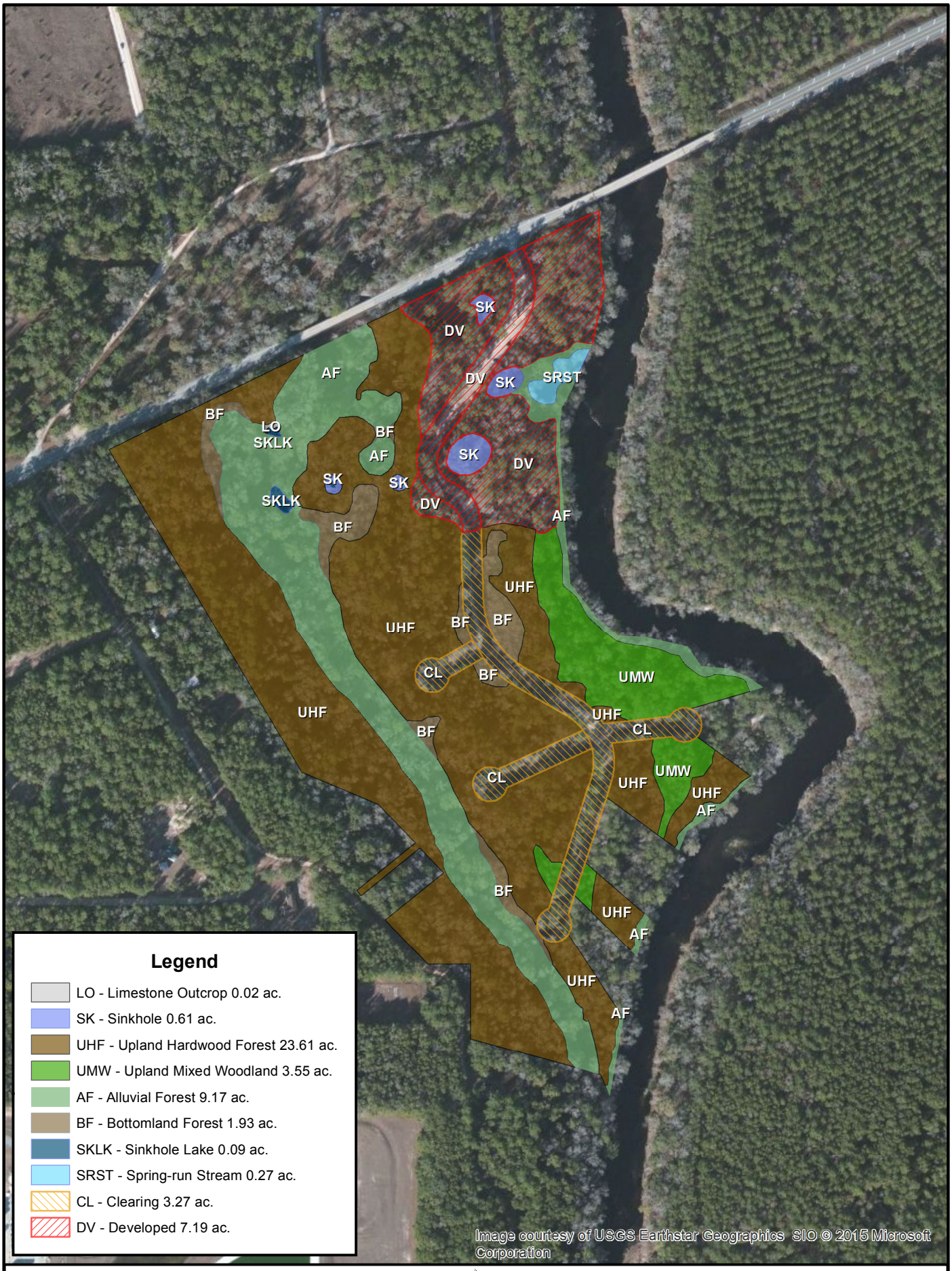
When a natural community within a park reaches the desired future condition, it is considered to be in a "maintenance condition." Required actions for sustaining a community's maintenance condition may include; maintaining optimal fire return intervals for fire dependent communities, ongoing control of non-native plant and animal species, maintaining natural hydrological functions (including historic water flows and water quality), preserving a community's biodiversity and vegetative structure, protecting viable populations of plant and animal species (including those that are imperiled or endemic), and preserving intact ecotones that link natural communities across the landscape.

The park contains 10 distinct natural communities (eight of which are included in the Natural Communities Map) and two altered landcover types (see Natural Communities Map). A list of plants and animals known to occur in the park is contained in Addendum 5.

UPLAND HARDWOOD FOREST

Desired future condition: Upland hardwood forest is a mature, closed-canopy hardwood forest typically occurring on slopes and rolling hills under generally mesic conditions. Overstory tree species in north Florida will generally include southern magnolia (*Magnolia grandiflora*), pignut hickory (*Carya glabra*), sweetgum (*Liquidambar styraciflua*), live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), Florida maple (*Acer saccharum* subsp. *floridanum*), spruce pine (*Pinus glabra*), and swamp chestnut oak (*Quercus michauxii*). Understory species will include trees and shrubs such as American holly (*Ilex opaca*), flowering dogwood (*Cornus florida*), eastern hophornbeam (*Ostrya virginiana*), American hornbeam (*Carpinus caroliniana*), eastern redbud (*Cercis canadensis*), red bay (*Persea borbonia*), horse sugar (*Symplocos tinctoria*), and beautyberry (*Callicarpa americana*). The groundcover will consist of shade-tolerant herbaceous species, sedges and vines.

Description and assessment: More than half the natural area at Madison Blue Spring State Park consists of upland hardwood forest, most of it in good condition. Within the park, the more floristically diverse associations of this community tend to occur in areas of limestone outcropping near sinkholes and just upslope from the band of alluvial forest that occupies the floodway in the western third of the park. Characteristic canopy species in the upland hardwood forest at Madison Blue include pignut hickory, southern magnolia, sweetgum, Florida maple, live oak,



MADISON BLUE SPRING

N

0 100 200 400 Feet

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2011

NATURAL COMMUNITIES EXISTING CONDITIONS MAP

water oak (*Quercus nigra*), and laurel oak. Typical understory vegetation includes American holly, American hornbeam, basswood (*Tilia americana*), red buckeye (*Aesculus pavia*), beautyberry, white fringetree (*Chionanthus virginicus*), and horse sugar. Partridgeberry (*Mitchella repens*) is the most common groundcover species. Private property owners along the west boundary of the park once maintained an old woods road that descended to the west edge of the broad floodway in the park, in effect fragmenting the strip of upland hardwood forest that occurs there. This practice has been discontinued.

General management measures: The main management strategy for this community is to protect it from disturbance and fragmentation. If erosion becomes problematic, park staff will need to implement corrective measures such as stabilization of disturbed areas. The neighbors' maintenance of the old woods road on the western side of the floodway must not be resumed.

UPLAND MIXED WOODLAND

Desired future condition: Dominant tree species in north Florida will include longleaf pine (*Pinus palustris*), southern red oak (*Quercus falcata*), sand post oak (*Quercus margaretta*), and mockernut hickory (*Carya tomentosa*). Hardwood tree species will frequently be dominant or co-dominant with pines. Flowering dogwood (*Cornus florida*) and pignut hickory (*Carya glabra*) may be present, as well as sub-canopy species such as sparkleberry (*Vaccinium arboreum*). Percent herbaceous cover will be comparable to that of sandhill, attaining a height of 3-4 feet during spring and summer. In some areas, grasses and forbs will reach heights of 6-8 feet or more during the fall due to blooming of taller grass species such as yellow indiangrass (*Sorghastrum nutans*), silver plumegrass (*Saccharum alopecuroides*), and big bluestem (*Andropogon gerardii*). In old growth conditions, the oaks and hickories are commonly 150-200 years old. The optimal fire return interval for this community is two to five years, depending on the fire frequency in adjacent natural communities.

Description and assessment: The upland mixed woodland community often serves as a transition zone between upland pine or sandhill and adjacent upland hardwood forest or mesic hammock. It is similar to upland pine in that it is fire-adapted, has longleaf pine as the dominant pine species, and has a strong presence of southern red oak and mockernut hickory in the canopy, along with scattered sand post oaks. Unlike the upland pine community, however, upland mixed woodland typically lacks wiregrass as a dominant groundcover, and the oaks and hickories may be co-dominant with the longleaf pines. Being a transitional community, upland mixed woodland is very susceptible to succession to upland hardwood forest when there is a lack of fire. As a result, very few intact examples of this community remain in north Florida.

Remnant patches of upland mixed woodland at Madison Blue still contain a few typical canopy species such as longleaf pine, southern red oak, and mockernut hickory, plus some characteristic sub-canopy species including sparkleberry and hawthorn (*Crataegus* sp.) and groundcover species such as wiregrass (*Aristida stricta* var. *beyrichiana*) and blackseed needlegrass (*Piptochaetium avenaceum*).

However, a decades-long exclusion of fire from this community has hastened its decline from relatively open woodland to dense forest dominated by invasive offsite hardwoods such as laurel oak, water oak, and sweetgum. Those hardwoods have shaded out most of the herbaceous species. The integrity of the upland mixed woodland is also compromised by the presence of numerous woods roads and trails that provide access to private outparcels within the park.

Because the upland mixed woodland sites at Madison Blue have deteriorated to such an extent, they are considered to be in poor condition. Nevertheless, these sites are restorable. Initiation of the restoration process in those areas will require the application of prescribed fire. Some selective girdling or herbiciding of offsite canopy and mid-story hardwoods will also be needed. These efforts will increase the effectiveness of initial burns by thinning out invasive species and releasing seed banks in overgrown sites. Initial girdling/herbiciding efforts should concentrate on upland mixed woodland sites that are considered to be in marginally better condition because they have a lower density of invasive hardwoods. Fires in the upland mixed woodlands should be allowed to creep into adjacent upland hardwood forests and gradually die out, thereby maintaining natural ecotones between communities.

General management measures: Restoration and improvement of the upland mixed woodland community will entail the reintroduction of frequent fire (2-5 year return interval) and the removal of offsite hardwood species. Before restoration efforts can begin in much of the community, survey lines delineating the boundaries between outparcels and park property will need to be reestablished and firebreaks will have to be constructed along those lines. The park will postpone the planting of longleaf pines and groundcover species until the canopy is sufficiently open to allow seedlings to survive. The DRP should conduct additional field surveys to verify the historic extent of this community. Documentation of the distribution of remnant species will be necessary as well. Details about restoration or improvement activities planned for upland mixed woodland sites at Madison Blue are contained in the Resource Management Program section of this plan in various Goals and Objectives listed under the heading, Natural Communities Management.

SINKHOLE

Desired future condition: Sinkholes are cylindrical or conical depressions with limestone or sand walls. Unlike sinkhole lakes, they do not contain standing water for long periods. The vegetation that is predominant in a sinkhole depends upon the age of the sinkhole. For example, the vegetation in older sand-walled sinkholes in north Florida will form a well-developed forest that includes species such as southern magnolia (*Magnolia grandiflora*), sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), pignut hickory (*Carya glabra*), wax myrtle (*Myrica cerifera*), Virginia creeper (*Parthenocissus quinquefolia*), and grape vines (*Vitis* spp.). Older sinkholes with vertical limestone walls will be covered by a variety of mosses, liverworts, ferns and small herbs. Sinkholes will generally have a very moist microclimate due to seepage along the slopes and to buffering from local environmental influences that a lower elevation and a dense tree canopy provide.

The desired future condition for sinkholes can be attained by limiting unnatural erosion and protecting the microclimate from disturbance.

Description and assessment: The karst topography in the Madison Blue area makes it susceptible to sinkhole formation, particularly in the northern third of the park. The sinkholes range from those that are relatively young and steep-sided, with exposed limestone walls, to those which slope more gradually and form depressions containing vegetation typical of the surrounding natural communities. Some of the sinkholes remain dry year-round, while others may hold water for a period of time after floods or heavy rainfall events. Sinkholes embedded within the upland hardwood forest tend to be in good to excellent condition, but others near or within public use areas are in poor condition due to heavy foot traffic or infestations of invasive exotic plants.

General management measures: Sinkhole management must emphasize protection of resources. For sinkholes outside the developed areas of the park, staff will protect edges and slopes from disturbance, particularly that caused by foot traffic which could accelerate erosion and cause sedimentation issues. There should be no authorized public access to the more sensitive sinkhole sites. Park staff will regularly monitor sinkholes for the presence of invasive plants and animals. Staff will also promptly treat invasive exotics as needed.

LIMESTONE OUTCROP

Desired future condition: Limestone outcrops are associated with karst topography and are often found within other features such as sinkholes, or as isolated features within mesic hammocks and upland hardwood forests. Various ferns, mosses and smaller herbs will typically grow on the limestone surface or in crevices. Characteristic species in north Florida will include partridgeberry (*Mitchella repens*), brittle maidenhair fern (*Adiantum tenerum*), netted chain fern (*Woodwardia areolata*), jack-in-the-pulpit (*Arisaema triphyllum*), southern shield fern (*Thelypteris kunthii*), and various species of panicgrass (*Panicum* spp.). Other rare fern species may also occur on limestone outcrops.

Description and assessment: As might be expected given the karst nature of the area, several limestone outcrops occur in Madison Blue Spring State Park. These outcrops are found along the sides of sinkholes and sinkhole lakes. Only one is large enough to be delineated on the Natural Communities Map. The only outcrop that is relatively accessible to the public is at Martz Sink, which is an access point for cave divers entering the Madison Blue aquatic cave system.

The limestone outcrops in the park are considered to be in good condition. Most are located well away from trails. Some may be susceptible to colonization by highly invasive exotic plants such as Japanese climbing fern (*Lygodium japonicum*) or hedge bamboo (*Bambusa multiplex*). No surveys for rare or imperiled plant species have yet been conducted at the park's limestone outcrops.

General management measures: The limestone outcrops must be protected from disturbance. Most of the outcrops are within sinkholes where public access is

already restricted. Still, the park staff should take measures to prevent unauthorized access to sinkholes that contain limestone outcrops, particularly those that may be situated relatively close to existing trails or roadways. Personnel involved in treating exotic plants in sinkholes should consider it likely that there may be limestone outcrops nearby that harbor rare plants, and should minimize ground disturbance and overspray of herbicide as much as possible. Mapping of significant limestone outcrops, accompanied by surveys for imperiled plant species, will be necessary to ensure their long-term protection.

BOTTOMLAND FOREST

Desired future condition: Bottomland forest is a fairly low-lying, mesic to hydric community prone to periodic flooding. It is found on terraces and levees in river floodplains and in shallow depressions. Bottomland forest will typically have a closed canopy of mature deciduous and evergreen trees. The overstory in north Florida will usually contain species such as sweetgum (*Liquidambar styraciflua)*, sweetbay *(Magnolia virginiana)*, loblolly bay (*Gordonia lasianthus*), water oak (*Quercus nigra*), live oak (*Quercus virginiana*), swamp chestnut oak (*Quercus michauxii*), loblolly pine (*Pinus taeda*), and spruce pine (*Pinus glabra*). Red maple (*Acer rubrum*) and bald cypress (*Taxodium distichum*) may also be present. The understory will be open or dense. Understory species will typically include wax myrtle (*Myrica cerifera*), dwarf palmetto (*Sabal minor*), and swamp dogwood (*Cornus foemina*). Groundcover presence will be variable and may consist of witchgrass (*Dicanthelium* sp.) and various sedges (*Carex* spp.).

Description and assessment: At Madison Blue Spring State Park, this community occurs within lowlands either slightly elevated above the adjacent alluvial forest or slightly lower than adjacent upland hardwood forest. Bottomland forests flood less frequently than alluvial forests (FNAI 2010). In some areas, bottomland forest may act as a transition zone between floodplain and upland community types. These transition zones may be too narrow to map depending on the relative slope of the terrain.

Characteristic canopy species in the bottomland forest at Madison Blue include laurel oak (formerly diamondleaf oak), live oak, red maple, and loblolly pine. The bottomland forest also contains parsley hawthorn (*Crataegus marshallii*), dwarf palmetto, American hornbeam, and highbush blueberry (*Vaccinium corymbosum*). The understory tends to be somewhat open, and may be relatively grassy compared to adjacent alluvial forest. The bottomland forest at Madison Blue is considered to be in fair to good condition.

General management measures: Bottomland forest requires little active management other than protection from excessive erosion and control of invasive exotic species. Park staff will continue its regular monitoring of the bottomland forest for signs of invasive exotic plants and feral hogs.

ALLUVIAL FOREST

Desired future condition: Alluvial forests are hardwood forests found in river floodplains on ridges or slight elevations above floodplain swamp. Generally they are flooded for one to four months of the year during the growing season. In north Florida, typical overstory trees will include overcup oak (*Quercus lyrata*), laurel oak (*Quercus laurifolia*), water hickory (*Carya aquatica*), American elm (*Ulmus americana*), and red maple (*Acer rubrum*). Understory species may include swamp dogwood (*Cornus foemina*), willow (*Salix* spp.), and American hornbeam (*Carpinus caroliniana*). Presence of groundcover will be variable. Netted chain fern (*Woodwardia areolata*) and other shade-tolerant herbaceous species will often be present.

Description and assessment: Alluvial forest at Madison Blue occurs in low areas adjacent to the springhead and along the west bank of the Withlacoochee River, as well as within the long linear floodway that cuts through the western half of the park. Bottomland forest and upland hardwood forest are typically the adjacent natural communities within the park. Distinctions among floodplain communities are often blurred, making accurate categorization difficult. However, the nature of alluvial forest's hydroperiod does distinguish it from similar lowland communities such as bottomland forest. Alluvial forests tend to flood frequently, usually on an annual basis, and they are found at slightly lower elevations than bottomland forests, which typically have at least several years pass between flood events. A huge old-growth water hickory occurs at the ecotone between alluvial forest and a sinkhole lake in the northwestern part of the park. The alluvial forest at Madison Blue is generally in good condition.

General management measures: Alluvial forest requires little active management other than protection from excessive erosion and control of invasive exotic species. Park staff will periodically monitor the alluvial forest, checking for signs of erosion or feral hog rooting, and will address sources of impacts on a case-by-case basis.

SINKHOLE LAKE

Desired future condition: Sinkhole lakes are relatively permanent, typically deep lakes formed in depressions in a limestone substrate. These lakes characteristically will contain clear water with a high mineral content. Vegetation may be completely absent from some sinkhole lakes, while in others the vegetative cover may range from a fringe of emergent species to complete coverage by floating plants. Typical plant species in north Florida will include smartweed (*Polygonum hydropiperoides*), duckweed (*Lemna* spp.), bladderwort (*Utricularia* spp.), and rushes (*Juncus* spp.). Important management goals will include limiting disturbances that may cause unnatural erosion and sedimentation, and minimizing possible sources of pollution that might affect connected aquifer systems.

Description and assessment: Because of the extent of underlying limestone, the northern half of Madison Blue Spring State Park is dotted with sinkholes and depressions characteristic of karst topography. Several very small sinkhole lakes (karst windows) occur in the northwestern part of the park, including Martz Sink. The smallest karst windows only cover a few square feet and are mere microcosms

of a typical sinkhole lake. Most sinkhole lakes maintain a direct connection to underground water sources, the Floridan and surficial aquifers, and remain continuously flooded.

The more inaccessible sinkhole lakes in the park are nearly pristine in appearance. The lakes that are closer to hiking trails, however, are more subject to littering, soil compaction, and disturbance of vegetation. In general, the sinkhole lakes at Madison Blue are in good condition.

General management measures: In managing sinkhole lakes, the emphasis should be on protection. The edges of sinkhole lakes need to be protected from impacts that could accelerate erosion and sedimentation. Increased erosion can cause a decline in water quality, especially if there is a direct connection to the aquifer. Access to sinkhole lakes in the park is restricted, except for Martz Sink, although legitimate research and park management activities may be permitted. An additional management consideration is protection of the quality and quantity of groundwater and surface waters that feed the sinkhole lakes.

ALLUVIAL STREAM

Desired future condition: Alluvial streams are perennial or intermittent streams with a wide range of flow rates and generally with high concentrations of suspended particles as a result of flushing nutrients and detritus from floodwaters of adjacent uplands. The banks of alluvial streams will support some emergent vegetation, including small trees such as coastalplain willow (*Salix caroliniana*).

Description and assessment: The Withlacoochee River, whose course forms the boundary between Madison and Hamilton counties, is one of the relatively few alluvial streams in Florida, most of which occur in the Panhandle. The majority of Florida's alluvial streams originate in the clayey uplands of Georgia and then follow a long, meandering southerly course until they reach the Gulf of Mexico. The Withlacoochee River, however, only flows 84 miles south from its headwaters near Tifton, Georgia before it empties into the Suwannee River near Ellaville, Florida.

None of the Withlacoochee River channel actually falls within the boundaries of Madison Blue Spring State Park, although the park has about half a mile of frontage on the river. Consequently, alluvial stream is not depicted on the Natural Communities Map for the park. However, where the Withlacoochee River borders the park, the DRP has management authority over resources within a 400-foot zone in which sovereign submerged lands extend out from the edge of mean high water along the west bank of the river. In places where there is emergent wetland vegetation, the zone extends waterward 400 feet beyond the vegetation. Within this zone, park regulations will be enforced. All wildlife within this zone, with the exception of fish, is protected from harvest. In addition, pre-cut timber harvesting (deadhead logging) is prohibited within this zone.

Although land use within the Withlacoochee River basin is predominantly agricultural, the stream has several substantial point sources of domestic or industrial wastewater discharge along its course. Of these sources, five are

municipal sewage treatment plants. The Withlacoochee Pollution Control Plant (WPCP) in Valdosta, Georgia has had several sewage spills into the Withlacoochee River in recent years, some of them major. Apparently the WCPC facility has been unable to cope when severe rainfall events in the area have caused storm waters to overwhelm the city's sanitary sewer collection system (WALB.com 2013). The treatment plant is expected to be relocated by some date in 2015. Another significant source of pollution has been a pulp mill that operates in Georgia but discharges its wastewater directly into Jumping Gully Creek, a minor tributary of the Withlacoochee River at the state line. State agencies in both Florida and Georgia have made a concerted effort in recent years to monitor this situation. Despite these potentially significant upstream sources of pollution, water quality in the Withlacoochee River in vicinity of the park remains relatively good.

General management measures: Periodic monitoring of water quality in the Withlacoochee River near Madison Blue Spring State Park will be an important management measure. Monitoring will be accomplished primarily in cooperation with the FDEP, the SRWMD, and the Madison County Health Department. Another priority will be regular monitoring of riverbanks for signs of erosion and prompt mitigation of any significant erosion discovered.

SPRING-RUN STREAM

Desired future condition: Spring-run streams are perennial water courses which derive most, if not all, of their water from limestone artesian openings into the underground aquifer. Spring waters will typically be cool, clear, and circumneutral to slightly alkaline. These factors allow for optimal sunlight penetration and minimal environmental fluctuation, which will promote plant and algae growth. However, the characteristics of the water can change significantly downstream as surface water runoff becomes a greater factor. Areas of high flow will typically have a sandy bottom, while organic materials concentrate around fallen trees and limbs and in slow moving pools. Typical vegetation will include tapegrass (*Valisneria americana*), arrowheads (*Sagittaria* spp.), southern naiad (*Najas guadalupensis*), and pondweeds (*Potamogeton* spp.).

Description and assessment: There is one known spring in the park, Madison Blue Spring. Its spring run is very short, flowing easterly for 150 feet before emptying into the Withlacoochee River. It appears that a previous owner of the Madison Blue property may have dammed at least part of the spring run with limestone rocks sometime in the 1990s. Remnants of the dam persist today. The extent to which the dam has modified flow in the spring run, if at all, is unknown. Other details about Madison Blue Spring are provided in the Hydrology section above.

The volume of flow in a spring-run stream fluctuates dramatically with groundwater levels and is largely dependent on the relationship between river stage and the potentiometric surface of the aquifer. When the Withlacoochee River stage increases, there is a corresponding rise in the waters of the spring-run stream, and when the river stage exceeds the potentiometric surface of the aquifer, backflow of river water into the spring occurs. The spring-run stream in the park is in fair to good condition.

General management measures: The DRP will continue to work with the SRWMD and other appropriate agencies in seeking ways to maintain good water quality and quantity in the Madison Blue Spring system. The park will also monitor and mitigate any erosion occurring adjacent to the spring. Possible effects of the dam remnants will be evaluated and consideration given to removal of the rocks if necessary.

SUBTERRANEAN CAVE – TERRESTRIAL and AQUATIC

Desired future condition: Caves are characterized as cavities below the ground surface in karst areas. A cave system may contain portions classified as terrestrial cave and portions classified as aquatic cave. The latter vary from shallow pools highly susceptible to disturbance to systems that are more stable and totally submerged. Because all caves develop under aquatic conditions, terrestrial caves may be considered as essentially dry aquatic caves. Near a cave entrance, the vegetation may be typical of the surrounding natural community. Within the cave, illumination levels and therefore vegetation densities drop rapidly. Mosses, algae, and liverworts will sometimes be present. However, plant life may be absent or limited to a few inconspicuous species of fungus that grow on guano or other organic debris. Cave systems are extremely fragile. Desired future management will include maintenance of caves as systems protected from alterations that may affect light penetration, air circulation or microclimate, or increase pollution in aquatic situations.

AQUATIC CAVE

Description and assessment: An extensive aquatic cave system underlies Madison Blue Spring State Park. This system extends well outside the park and even passes under the Withlacoochee River into Hamilton County just south of the State Road 6 Bridge.

The aquatic cave system at Madison Blue is considered to be in excellent condition. This assessment is derived from communications with expert cave divers who have conducted research explorations in this system and collected data for many years. By 2014, certified cave divers had already mapped nearly five miles of passageways in the Madison Blue system, making it the sixth longest in the state at the time (Gulden and Coke 2014). Divers access the system through the springhead and Martz Sink. Current research projects include mapping to determine the extent of the underground passages and identification of troglobitic species in the caves. The DRP should continue to promote such research activities and will encourage development of a cave monitoring plan that will allow comparison of Madison Blue data with information gathered at caves in other state parks. Monitoring should include documentation of any degradation of cave surfaces observed, particularly that attributable to increased recreational diving pressure in the cave system.

Researchers who have sampled the Madison Blue cave system (Franz et al. 1994) have positively identified three troglobitic invertebrate species there, the pallid cave crayfish (*Procambarus pallidus*), Florida cave amphipod (*Crangonyx grandimanus*), and Hobbs' cave amphipod (*Crangonyx hobbsi*). During recent biological monitoring

conducted by Nestle as part of the required Environmental Monitoring Plan, no amphipods have been collected due to their status as imperiled species. Relatively little information is available about the population dynamics or ecology of these organisms; however, population densities apparently can vary greatly over time and space. Contamination of subsurface waters via sinkholes is always a threat to aquatic caves, and small changes in water quality can significantly influence cave resources, especially troglobitic organisms.

General management measures: The most important consideration in managing aquatic caves at Madison Blue is to protect the quality and quantity of groundwater and surface water entering the system. This will entail protecting the Madison Blue Springshed from excessive groundwater withdrawals and from contamination by pollutants. Diver explorations have shown that the cave system extends well beyond the park's boundary, and thus outside the jurisdictional authority of the DRP, so protection of aquatic cave resources will continue to be a challenge. Erosion monitoring and mitigation on slopes above the spring and around the sinkhole lakes should also be an integral part of cave management in order to protect the aquatic cave system from excessive siltation. Continuation of the diver check-in system is recommended in order to monitor intensity of cave usage and ensure that only certified cave divers enter the system.

ALTERED LANDCOVER TYPES

DEVELOPED

Developed areas in the park include an entrance station, restroom facilities, maintenance sheds, access roads and recreational facilities such as picnic areas and a swimming area. A complete list of all the developed areas may be found in the Land Use Component.

Priority invasive plant species (FLEPPC Category I and II species) will be removed from all developed areas. In uplands around the swimming area, however, removal of some exotics may need to be done gradually as certain species that are now established there provide effective erosion control on slopes above the spring, and finding and replanting suitable native substitutes may be a lengthy process. Other management measures will include the use of proper storm water management techniques in developed areas and the designing of future development so that it is compatible with prescribed fire management in adjacent natural areas. To provide better erosion control and increase natural buffering around the Madison Blue springhead, some alterations to walkways and the existing picnic area along the north side of the spring may be desirable. Information about possible changes planned for the park's developed areas can be found in the Land Use Component.

CLEARING

Clearings in the park consist of narrow linear corridors associated with an unimproved road system that provides legal access to small private outparcels along the Withlacoochee River. The main road in the system extends about two-thirds the length of the park; it also functions as a firebreak. Several short spur roads that end in cul-de-sacs diverge from the main road. Groundcover in the

clearings consists mainly of exotic grasses such as bahiagrass (Paspalum notatum) and centipedegrass (Eremochloa ophiuroides). Two of the spurs head west through upland hardwood forest and another cuts eastward through upland mixed woodland to a private parcel. Given the need for continued functioning of the main road and the eastward spur, little restoration of the altered landcover there will likely occur other than allowing the roads to become narrower through gradual encroachment by woody species from adjacent natural communities. The two westerly spurs, however, should eventually revert to upland hardwood forest as mowing there is discontinued and canopy species colonize the open space. The transition should be gradual enough to allow the Florida mountainmint (Pycnanthemum floridanum) that is currently growing in the spurs to recolonize nearby upland mixed woodland sites as they undergo restoration to a more open state.

Imperiled Species

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

Imperiled plants at Madison Blue Spring State Park include Florida mountain mint (*Pycnanthemum floridanum*) and angle pod (*Gonolobus suberosus)*). The Florida mountainmint appears to prosper in areas of disturbed uplands along edges of service roads and trails, while angle pod is sporadically distributed within bottomland forest in the floodway in the western third of the park. Additional surveys for imperiled plant species are needed at Madison Blue, particularly in limestone outcrop areas.

Imperiled animals recorded to date at Madison Blue include troglobitic species such as the pallid cave crayfish, Florida cave amphipod, and Hobbs' cave amphipod; stream dwellers such as the Gulf sturgeon (*Acipenser oxyrinchus desotoi*), Suwannee moccasinshell (*Medionidus walkeri*), Suwannee cooter (*Pseudemys concinna suwanniensis*), and American alligator (*Alligator mississippiensis*); and the gopher tortoise (*Gopherus polyphemus*).

The troglobitic species are adapted to relatively stable aquatic cave environments. When insurgence events occur, there may be die-offs of troglobitic fauna due to rapid and potentially large-scale changes within the system (Streever 1991). Previously documented flow reversals at Wes Skiles Peacock Springs State Park have indicated that there is a clear pattern of die-off and recovery episodes radically affecting populations of cave invertebrates (Streever 1991, 1992a, and 1992b). Currently it is unknown if invertebrate populations in aquatic caves at Madison Blue Spring State Park experience similar episodes. Given the lack of information, the DRP should monitor flow reversals at the springhead and coordinate with cave divers to watch for corresponding die-offs of troglobites.

The gopher tortoise and Suwannee cooter were historically harvested for meat in the region. Both are currently protected from harvest, and possession is prohibited without a permit from the FFWCC. Recent regulation changes have also prohibited the sale of all freshwater turtles taken from the wild. The harvest of all wildlife, with the exception of fish, is prohibited along the part of the Withlacoochee River that passes by the boundary of Madison Blue Spring State Park.

Although suitable habitat for the gopher tortoise exists in the park, most of it lies within the 10-year floodplain and is frequently inundated. Nevertheless, tortoises have been sighted in the park. The restricted size of available habitat makes it likely that such individuals wander outside the park on a regular basis. Tortoises are vulnerable to vehicular traffic, not only on State Road 6 but also on interior park roads that provide access to public use areas in the park or to private outparcels.

The Withlacoochee River, from its confluence with the Suwannee River upstream to the State Road 6 Bridge, has been designated by the USFWS as critical habitat for Gulf sturgeon. The critical habitat stretches bank-to-bank between ordinary high water lines but excludes developed sites such as bridges and designated swimming areas (Federal Register 2003). The river adjacent to Madison Blue, however, is included. Gulf sturgeon spend their summer months in freshwater systems such as the Suwannee and Withlacoochee rivers where they spawn, preferably in areas with hard rocky bottoms and steep banks such as that available in the lower Withlacoochee River at Madison Blue. In fact, FWC biologists have documented juvenile and adult sturgeon in the area just below the State Road 6 Bridge (Tucker 2005). Maintenance of good water quality and natural flow regimes at spawning sites will be a critical contributor to the long-term success of the Gulf sturgeon recovery efforts.

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

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
PLANTS						
Angle Pod *Gonolobus suberosus*			LT		10	Tier 1
Florida Mountainmint *Pycnanthemum floridanum*			LT	G3,S3	1, 6, 9	Tier 1
INVERTEBRATES						
Florida Cave Amphipod *Crangonyx grandimanus*				G2G3, S2S3	4, 10, 13	Tier 2
Hobbs' Cave Amphipod *Crangonyx hobbsi*				G2G3, S2S3	4, 10, 13	Tier 2
Suwannee Moccasinshell *Medionidus walkeri*				G1, S1	4, 10	Tier 1
Pallid Cave Crayfish *Procambarus pallidus*				G2G3, S2S3	4, 10, 13	Tier 2
FISH						
Gulf Sturgeon *Acipenser oxyrinchus desotoi*	FT	T		G3T2, S2	4, 9, 13	Tier 1
REPTILES						
American Alligator *Alligator mississippiensis*	FT (S/A)	T(S/A)		G5, S4	4, 10	Tier 1
Gopher Tortoise *Gopherus polyphemus*	ST	C		S3	1, 6, 7, 10, 12	Tier 1
Suwannee Cooter *Pseudemys concinna suwanniensis*	SSC			G5T3, S3	4, 9	Tier 1

Management Actions:

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

8. Predator Control
9. Erosion Control
10. Protection from visitor impacts (establish buffers)/law enforcement
11. Decoys (shorebirds)
12. Vegetation planting
13. Outreach and Education
14. Other

Monitoring Level:

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

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

Exotic and Nuisance Species

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

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

In some cases, native wildlife may also pose management problems or nuisances within state parks. A nuisance animal is an individual native animal whose presence or activities create special management problems. Examples of animal species from which nuisance cases may arise include venomous snakes or raccoons and alligators that are in public areas. Nuisance animals are dealt with on a case-by-case basis in accordance with the DRP's Nuisance and Exotic Animal Removal Standard.

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

Most of the undeveloped areas at Madison Blue Spring State Park are apparently free of invasive exotic plants, but one particularly aggressive species has become well established, the Japanese climbing fern (*Lygodium japonicum*), which the Florida Exotic Pest Plant Council (FLEPPC) rates as a Category I invasive (FLEPPC 2013). At present it is concentrated around the spring, along the riverbank at the south end of the property, within the hardwood forest east of the floodway, along State Road 6, and in the extreme northwest corner of zone 2 along the park's west boundary. However, considering that the park contains a relatively large disturbed area and is almost entirely within the 10-year floodplain, the climbing fern has the potential to spread elsewhere rapidly. Another FLEPPC-listed species, mimosa (*Albizia julibrissin*), while not really pervasive in the park is remarkably persistent. A small population of Japanese honeysuckle (*Lonicera japonica*), also a Category I species, is present in zone 2 in upland hardwood forest at the base of the steep slope along the park's west boundary. Perhaps it was relocated there during disposal of debris from the clearing of adjacent private lots.

Another exotic species that is well established at Madison Blue is hedge bamboo (*Bambusa multiplex*), which has formed dense colonies in several sinkholes in the public use area of the park and has proven difficult to control. Switchcane (*Arundinaria gigantea*), a tall native grass that resembles bamboo, may well be intermixed with the hedge bamboo. The park staff needs to avoid spreading the exotic bamboo and begin reducing its footprint. To do so, staff must be able to distinguish switchcane from exotic bamboos so that only the exotics are treated and the native switchcane is not affected. All exotic bamboo infestations should be mapped.

Three other exotics, the ornamental plants Confederate jasmine (*Trachelospermum jasminoides*), climbing fig (*Ficus pumila*), and lilyturf (*Liriope* sp.), have been used in the past to control erosion on slopes around the spring bowl and swimming area. Of the three, Confederate jasmine is the most widespread. All three plants should be considered invasive. Confederate jasmine, in particular, can be an aggressive runner and climber of trees and may be very tenacious. Staff should avoid mowing the jasmine and the climbing fig as both can be dispersed via cuttings. Lilyturf produces berries that are spread by animals, and it has shown a tendency to become invasive in several state parks in north Florida. The staff at Madison Blue should ensure that no expansion of the footprint of any of these three species occurs. In fact, all three need to be totally removed from the park, but gradually so that their erosion control function can continue while the DRP searches for suitable native groundcover replacements.

The exotic tree, podocarpus (*Podocarpus macrophyllus*), also occurs in the park. While FLEPPC does not list it as a Category I or II invasive, it nevertheless produces fertile fruits and self-seeds, and it has the potential to spread. Therefore its removal from the park is desirable.

In the period from 2009 to 2014, DRP staff treated 85.22 gross acres of exotic plants in the park, which represents a total of about 2.88 infested acres. District

and park staffs regularly survey all areas of the park for occurrences of exotic plant species, particularly those that are the most invasive.

Exotic (non-indigenous) animals and nuisance animals are removed from the park as necessary to protect native wildlife populations and preserve the integrity of natural communities. The nine-banded armadillo (*Dasypus novemcinctus*) is among the species occasionally removed. Armadillos may cause extensive ground disturbance and are a threat to ground nesting birds and small reptiles and amphibians. Feral cats and dogs are removed from the park on an as-needed basis.

Table 3 contains a list of the Florida Exotic Pest Plant Council (FLEPPC) Category I and II invasive, exotic plant species found within the park (FLEPPC 2011). The table also identifies relative distribution for each species and the management zones in which they are known to occur. An explanation of the codes is provided following the table. For an inventory of all exotic species found within the park, see Addendum 5.

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

Common and Scientific Name	FLEPPC Category	Distribution	Management Zone (s)
PLANTS			
Mimosa *Albizia julibrissin*	I	1	MBS-1A
		2	MBS-2
Japanese honeysuckle *Lonicera japonica*	I	1	MBS-2
Japanese climbing fern *Lygodium japonicum*	I	2	MBS-1A, MBS-2

Distribution Categories:

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

Special Natural Features

The Madison Blue cave system is one of the longest in Florida and one of the most extensively explored. As of 2014, certified cave divers had mapped nearly five miles of passageways in the system, ranking it as the sixth longest in the state at that time (Gulden and Coke 2014). The land above the cave system has numerous sinks and depressions, some of which provide divers with direct access to the caves below.

Cultural Resources

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

Condition Assessment

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

Level of Significance

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

There are no criteria for determining the significance of collections or archival material. Usually, significance of a collection is based on what or whom it may represent. For instance, a collection of furniture from a single family and a particular era in connection with a significant historic site would be considered highly significant. In the same way, a high quality collection of artifacts from a significant archaeological site would be of important significance. A large herbarium

collected from a specific park over many decades could be valuable to resource management efforts. Archival records are most significant as a research source. Any records depicting critical events in the park's history, including construction and resource management efforts, would all be significant.

The following is a summary of the FMSF inventory. In addition, an evaluation of level of significance is included.

Prehistoric and Historic Archaeological Sites

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

Description: According to FMSF records from 1981 and 2007, the only recorded site actually within Madison Blue Spring State Park is MD33, an archaeological site containing a low density artifact scatter consisting of lithic debitage and finished tools. The scatter is now inundated by the spring run and Withlacoochee River, but likely was dry during the Pleistocene. The main quarry area seems to have been at the mouth of the spring run and extending out into the river. Based on evidence from the land portion of the site, some archaeologists surmise that MD33 may also contain a habitation site. Erosion within the spring and spring run and on the slopes above them are potential threats to the integrity of MD33. Another possible concern may be the occasional, casual removal of artifacts from the site.

Sites recorded with the FMSF that are near but not actually within Madison Blue Spring State Park include MD207, MD208, and MD209 just west of the park and HA407 and HA408 across the Withlacoochee River in Hamilton County. It is likely that both MD208, a late 19th century cemetery, and MD209, an early 20th century church, are confined within site limits as described in the FMSF. MD207 is a prehistoric site containing sparse lithic artifact scatter. There is a slight possibility that the site could extend onto park property. There is also a chance that fringes of the Hamilton County sites could extend across the Withlacoochee River into the park. Consequently, additional archaeological survey in the park beyond the limits of MD33 is warranted. The full extent of this site is not known and the drawn boundaries of the site may be expanded, pending results of a terrestrial archaeological survey.

A predictive model for Madison Blue Spring State Park was completed in 2010 (Collins et al. 2012). The model delineated about 5% of the park in two disjoint areas as highly sensitive for archaeological resources. One of these areas surrounds the springhead (site MD33), while the other is located in the southwest corner of the park near the historic cemetery. According to the predictive model, much of the remaining property along the west boundary of the park, as well as a broad swath along the west bank of the Withlacoochee River is of medium sensitivity for archaeological resources. The floodway in the western third of the park was found to be of low sensitivity.

Condition Assessment: Although MD33 has been partially altered by spring and river currents and by artifact collecting, Jim Dunbar, the underwater archaeologist who submitted the first record to the FMSF in 1981, considered the site to be in good condition. Use of the site as a swimming area has exacerbated the erosion issues over time. That factor, plus chronic erosion on trails leading down to the spring, may necessitate a reassessment of the site's condition in the future.

General Management Measures: Site MD33 requires additional preservation and stabilization measures. The park should develop and adopt a formal monitoring plan that includes regularly scheduled site visits and a protocol for recording concerns and needed actions at the time of each visit. Site MD33 should be checked regularly to enable early detection of adverse impacts from erosion, vegetation intrusion, and looting so that resources do not suffer significant additional damage. Plantings of exotic groundcover species used to control erosion on steep slopes above the spring and river should gradually be replaced with equivalently effective native species.

Additionally, the DRP should seek funding for supplemental archaeological research at MD33. The site warrants much more thorough investigation to clarify details about the Pleistocene aboriginal presence, determine the actual extent of the site, and verify the age of the various components. Additional cultural resource survey along the western edge of the park and along the west bank of the Withlacoochee River would be helpful in determining whether any of the adjacent archaeological sites extend into the park.

Historic Structures

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

Description: There are no historic structures at Madison Blue Spring State Park.

Collections

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

Description: Madison Blue Spring State Park does not currently have any collections.

General Management Measures: A Scope of Collections Statement for the park has already been written. The park staff should develop a Statement of Interpretation to complement the Scope of Collections Statement. These two documents will serve to guide the park's interpretive and collections management programs. Items should only be accepted for any future park collection if they fit within the goals of the Scope of Collection and the park's interpretive themes.

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

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

Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
MD33 Madison Blue Springs	Archaic/Unspecified, possible Paleoindian	Archaeological Site	NE	G	P

Significance:

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

Condition

G Good
F Fair
P Poor
NA Not accessible
NE Not evaluated

Recommended Treatment:

RS Restoration
RH Rehabilitation
ST Stabilization
P Preservation
R Removal
N/A Not applicable

RESOURCE MANAGEMENT PROGRAM

Management Goals, Objectives and Actions

Measurable objectives and actions have been identified for each of the DRP's management goals for Madison Blue Spring State Park. Please refer to the Implementation Schedule and Cost Estimates in the Implementation Component of this plan for a consolidated spreadsheet of the recommended actions, measures of progress, target year for completion and estimated costs to fulfill the management goals and objectives of this park.

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

The work plans are reviewed and updated annually. Through this process, the DRP's resource management strategies are systematically evaluated to determine their effectiveness. The process and the information collected is used to refine techniques, methodologies and strategies, and ensures that each park's prescribed management actions are monitored and reported as required by Sections 253.034 and 259.037, Florida Statutes.

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

Natural Resource Management

Hydrological Management

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

The natural hydrology of most state parks has been impaired prior to acquisition to one degree or another. Florida's native habitats are precisely adapted to natural drainage patterns and seasonal water level fluctuations, and variations in these factors frequently determine the types of natural communities that occur on a particular site. Even minor changes to natural hydrology can result in the loss of plant and animal species from a landscape. Restoring state park lands to original natural conditions often depends on returning natural hydrological processes and conditions to the park. This is done primarily by filling or plugging ditches, removing obstructions to surface water "sheet flow," installing culverts or low-water crossings on roads, and installing water control structures to manage water levels.

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

Action 1 Continue to cooperate with entities involved in hydrological research and monitoring programs in the Withlacoochee Basin.

Action 2 Continue to monitor water quality at Madison Blue Spring and track changes, particularly during brownout events.

Action 3 Continue to coordinate with the SRWMD in protecting historic flows at Madison Blue Spring during implementation of the MFL.

Action 4 Complete the delineation of the Madison Blue Springshed and perform dye trace studies to identify significant groundwater sources for the spring.

Action 5 Continue to monitor land use or zoning changes in the Blue Spring region and provide comments as appropriate.

Action 6 Determine if remnants of an apparent limestone rock dam are impeding flow in the spring run.

The DRP will continue its tradition of close cooperation with state and federal agencies and independent researchers engaged in hydrological research and monitoring programs in the park and along the adjacent Withlacoochee River. Additional cooperative efforts may include facilitating the review and approval of research permits and providing researchers with assistance in the field, including orientation to park resources. The DRP will continue to work with other state agencies, local governments, and property owners within the park's vicinity to promote best management practices for the park's springshed.

Agencies such as the SRWMD, USGS, and FDEP will be relied upon to keep the DRP apprised of any declines in surface water quality or any suspected contamination of groundwater in the region. DRP staff will closely monitor incidents of contamination of the Withlacoochee River upstream from the park, such as that stemming from repeated malfunctions of the Valdosta wastewater treatment system. The DRP will also continue to monitor the springhead for ecological impacts of recurring brownout events and flow reversals.

District 2 staff will monitor Environmental Resource Permit (ERP) and Water Use Permit (WUP) requests for the region in order to provide timely and constructive comments that promote protection of the park's water resources. Staff will also continue to review annual biological monitoring reports produced by ENTRIX, an environmental consultant for Nestle Waters North America, which operates the water bottling plant just west of the park. In addition, the DRP will continue to work closely with the SRWMD in evaluating the existing Madison Blue MFL for its effectiveness in restoring historic flows to the spring.

Groundwater sources for Madison Blue Spring are still incompletely known. To trace those sources and provide adequate protection to the spring and potentially restore historic flows, water managers will need to have a better understanding of the true extent of the Madison Blue Springshed. Accordingly, the DRP will seek funding for dye trace studies to delineate the springshed more thoroughly and to pinpoint the groundwater sources for the spring. Previous dye trace studies in other managed

springsheds in Florida have provided DRP with invaluable information about spring sources and about the timing of surface to groundwater interactions that potentially affect important water bodies.

DRP staff will continue to monitor land use or zoning changes within lands bordering the park. Major ground disturbances on neighboring properties or inadequate treatment of runoff into local streams could ultimately cause significant degradation of park resources. When appropriate, District 2 staff will provide comments to other agencies regarding proposed changes in land use or zoning that may affect the park.

Objective B: Restore natural hydrological conditions and functions to approximately 0 acres of natural community.

Action 1 Obtain and analyze additional data about hydrological restoration needs in the park as outlined above (Objective A).

While there are no immediately apparent hydrological restoration needs in the park, improved erosion control is definitely needed on slopes above the springhead (see Objective C below).

Objective C: Evaluate and mitigate impacts of soil erosion in the park.

Action 1 Develop and implement protocols for monitoring erosion on slopes above the springhead and along the Withlacoochee River.

Action 2 Develop and implement erosion control measures for public access points to the spring, river, and Martz Sink.

DRP staff will develop an erosion monitoring protocol and regularly monitor areas in the park that are prone to erosion. To maintain surface water and groundwater quality in the park, the DRP will adopt best management practices for mitigating erosion, not only at public access points to the springhead and the Withlacoochee River shoreline, but also at significant karst features such as Martz Sink. It may be necessary to exclude visitors from some areas, at least temporarily, to allow healing of erosion scars. Certain areas along the drainage slope around the springhead may require installation of water bars to reduce the velocity of storm water flow, encourage natural infiltration, and minimize movement of sediments into the spring. Some access paths to the spring or river may require rerouting.

Objective D: Monitor the aquatic cave system for impacts from visitor use.

Action 1 Continue to consult with cave diving experts regarding potential resource disturbance issues attributable to increased visitor use of the cave system.

Action 2 Continue to develop and implement procedures for conducting baseline biological and physical surveys in the aquatic cave system and institute a long-term monitoring program.

DRP staff will continue to coordinate with cave diving experts in assessing the physical condition of the Madison Blue caves, in particular recording instances of possible degradation of cave surfaces attributable to increased diving pressure.

Cave experts, including certified cave divers who have volunteered significant time and resources in studying the cave systems of the park, have already provided numerous recommendations regarding appropriate use and management of the Madison Blue cave system. The ability of the DRP to continue to make sound decisions about cave management in the future will depend on additional recommendations from those experts, as well as adaptive management and detailed knowledge of the resources. If cave resources show signs of unacceptable levels of disturbance from visitor use, appropriate science-based carrying capacities may need to be instituted.

The DRP will continue to develop and implement monitoring programs that assess biological and physical conditions in the Madison Blue cave system. Monitoring of troglobite populations in the cave system will be of particular importance since cave fauna are very sensitive to changes in their environment. Both natural and human influences will need to be assessed, including hydrologic events such as brownouts and visitor use parameters such as intensity of recreational pressure. The potential impacts of these factors on cave fauna within the Madison Blue Spring system are still unknown. Survey data will be used to generate future recommendations for protection of troglobites. Park and district staffs will work with the North Florida Springs Alliance, the National Association of Cave Divers, and the National Speleological Society Cave Diving Section in developing interpretive programs that educate cave divers about cave preservation and proper behavior within caves.

Natural Communities Management

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

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

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

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

Objective A: Within 10 years, have 3.56 acres of the park maintained within the optimum fire return interval.

Action 1 Develop/update annual burn plan.
Action 2 Manage fire dependent communities by burning between 0.7 - 1.8 acres annually.
Action 3 Construct approximately 0.25 miles of new fire breaks.

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

Table 5. Prescribed Fire Management

Natural Community	Acres	Optimal Fire Return Interval (Years)
Upland Mixed Woodland	3.56	2-5
Annual Target Acreage	1 – 2	

Prescribed fire is planned for each burn zone on the appropriate interval. The park's burn plan is updated annually because fire management is a dynamic process. To provide adaptive responses to changing conditions, fire management requires careful planning based on annual and very specific burn objectives. Each annual burn plan is developed to support and implement the broader objectives and actions outlined in this ten-year management plan.

Madison Blue Spring State Park contains less than four acres of fire-dependent habitat and only one fire-type natural community, upland mixed woodland. There is no known fire history for the park property. Long-term fire exclusion has transformed this community from a relatively open woodland with a diverse groundcover to a comparatively dense forest with a sparse, shaded out groundcover. Other than the gopher tortoise, no fire dependent wildlife species have yet been observed in the park. However, at least one imperiled plant species, Florida mountain mint, should benefit from the initiation of a prescribed fire program.

Currently, the use of prescribed fire to manage upland mixed woodlands in the park is significantly hampered by the lack of established firebreaks, which in turn cannot be constructed until the exact boundaries of the outparcels embedded in the park are resurveyed and delineated in the field. Unfortunately, most of the roads that pass through the park to access outparcels are not oriented such that they could also serve as firebreaks.

The effectiveness of initial burns at overgrown sites will be significantly increased if invasive offsite hardwoods are first thinned to some degree through selective girdling or herbiciding. Hardwood removal should enhance the movement of air

currents through the zone, increasing the likelihood that fires will burn all the way through, and should also facilitate the release of dormant seed banks. Fires in the upland mixed woodlands should be allowed to creep into adjacent upland hardwood forest and gradually die out, thereby maintaining natural ecotones between communities.

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

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

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

Following are the natural community/habitat restoration and maintenance actions recommended to create the desired future conditions in the Upland Mixed Woodland community.

Objective B: Conduct habitat/natural community restoration activities on 3.56 acres of upland mixed woodland natural community.

Action 1 Develop/update a site-specific restoration plan.
Action 2 Implement the restoration plan.
Action 3 Conduct offsite hardwood removal on 3.56 acres of upland mixed woodland.

Before restoration can actually begin in much of the community, survey lines delineating the boundaries between outparcels and park property will need to be reestablished. Offsite hardwoods in remnant patches of upland mixed woodland in the park will need to be treated mechanically or chemically, or both. Restoration

efforts should first target sites that are in marginally better condition than others in that they have a lower density of invasive hardwoods. Prescribed burning will be an important tool for encouraging the reestablishment of suppressed remnant groundcover species on the sites and discouraging the reemergence of offsite species.

A post-burn survey for remnant species in the restoration sites will indicate if there is a need to restock longleaf pines and appropriate hardwood species such as southern red oak. Groundcover species will likely need to be planted as well. The park will postpone the planting of longleaf pines and groundcover species until the canopy is sufficiently open to allow seedlings to survive. Maintenance activities for the restoration sites will consist of follow-up treatments of offsite hardwood sprouts and the regular application of prescribed fire. The DRP will need to conduct additional field surveys to verify the historic extent of this community in the park.

Park staff should cease mowing the two western road spurs to encourage reestablishment of upland hardwood forest species in the open corridors. The restoration process should be very gradual in order to allow imperiled Florida mountainmint plants that are currently scattered along road edges to successfully colonize nearby upland mixed woodland sites.

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

Objective C: Conduct natural community/habitat improvement activities on 0 acres of natural community.

Action 1 Improvement activities are not applicable to Madison Blue Spring State Park at this time, but they may become pertinent once the major restoration objectives for upland mixed woodland are achieved.

Imperiled Species Management

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

The DRP strives to maintain and restore viable populations of imperiled plant and animal species primarily by implementing effective management of natural systems. Single species management is appropriate in state parks when the maintenance, recovery or restoration of a species or population is complicated due to constraints associated with long-term restoration efforts, unnaturally high mortality or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes, and should not imperil other native species or seriously compromise park values.

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

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

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

Additional surveys for imperiled plant and animal species are needed for Madison Blue Spring State Park to ensure that all imperiled species are documented. The DRP will enlist the assistance of academic researchers and staff from other agencies during development of species occurrence inventory lists, especially where necessary for certain taxonomic groups.

Objective B: Monitor and document 4 selected imperiled animal species in the park.

Action 1	Develop monitoring protocols for three selected, imperiled, troglobitic animal species – the pallid cave crayfish, Florida cave amphipod, and Hobbs' cave amphipod.
Action 2	Implement monitoring protocols for the three imperiled animal species listed in Action 1 above, and for the gopher tortoise.

The aquatic cave system at Madison Blue Spring State Park provides essential habitat for several imperiled cave-dwelling invertebrates, including the pallid cave crayfish. The troglobitic fauna associated with aquatic cave systems is dependent upon a stable environment that experiences few fluctuations in water temperature or quality. According to some observers, the drastic decreases in troglobite populations that have been recorded periodically in other parks are attributable to the sudden flooding of cave systems by river waters. Very little research has actually been conducted to confirm this hypothesis, however.

Analysis of data from future faunal inventories in the Madison Blue cave system may help identify fluctuation trends in cave arthropod populations. District and park staffs will continue to coordinate with certified cave divers and researchers in the routine Tier 2 monitoring of imperiled troglobitic species.

The gopher tortoises that have been previously observed in the park may not be permanent residents. Staff should conduct an informal survey for tortoise burrows in suitable habitat in the park and GPS in burrow locations if any are found.

Objective C: Monitor and document 2 selected imperiled plant species in the park.

Action 1 Develop monitoring protocols for 2 selected imperiled plant species, Florida mountainmint and angle pod.

Action 2 Implement monitoring protocols for the two imperiled plant species listed in Action 1 above.

DRP staff will conduct additional surveys for Florida mountainmint and angle pod. Timing of the surveys will consider flowering phenology of the two species to ensure proper identification.

Exotic Species Management

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

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

Objective A: Annually treat 0.5 acres of exotic plant species in the park.

Action 1 Annually develop/update an exotic plant management work plan for the park.

Action 2 Implement the annual work plan by treating at least 0.5 acres in the park annually, and by continuing maintenance and follow-up treatments as needed.

Action 3 Gradually replace exotic groundcover species on slopes around the spring with suitable native species.

The park will treat all known populations of Japanese climbing fern at least annually. Climbing fern spores often become waterborne and most of the park lies within the 10-year floodplain, so this pest can easily translocate to other sites in the park during periods of high water. As river levels drop, the ferns tend to colonize newly exposed soil and limestone. It is therefore imperative for the park to keep all known populations of climbing fern under strict control, which will require annual inspection and thorough treatment as needed, possibly several times a year.

DRP staff will develop an exotic plant management work plan to guide removal of invasive exotics from the park. All mimosa in the park should be treated every

three years to break the reproductive cycle. With diligent follow-up, staff may eventually be able to eliminate this species from the park. All the lilyturf and podocarpus should gradually be removed from park landscaping and replaced with appropriate native plants. Lilyturf can be treated by uprooting plants if care is taken to include the entire root structure. Larger specimens of podocarpus will require mechanical and possibly herbicide treatment. Staff will need to completely eradicate Confederate jasmine and climbing fig from the park and immediately replace them with native species so that stabilization of slopes above the spring continues uninterrupted. This process may have to occur in stages to allow patches of native groundcover to become firmly established before additional jasmine or climbing fig is uprooted.

It will be important for staff to know what exotic species occur in the park, where they are located, and how severe the infestations are. It will be equally important to know which areas are free of exotics so that the park staff can continue to keep them that way. This is particularly true for high quality or ecologically important habitats.

To prevent new populations of invasive exotic plants from becoming established and expanding, park staff will need to survey every zone for the occurrence of new invasive exotics at least twice within the next 10 years, and map any infestations discovered. By regularly surveying exotics-free zones, staff can discover new infestations at an early stage and eliminate them before they have a chance to significantly increase in size. Areas that serve as sources of particularly aggressive species, or of species that can dramatically change ecosystem function, may need to be scouted more frequently. The focus should be on FLEPPC Category I and II species, while at the same time watching for new species that exhibit aggressive tendencies.

The further spread of exotics already established in the park may be avoided by making sure that staff and contractors do not move equipment, landscaping debris or soil from a contaminated area to an exotics-free area within the park. Particular care will be needed when mowing. As an added precaution, staff should thoroughly clean equipment before moving it from one location to another.

Objective B: Implement control measures on 1 exotic animal species in the park.

Action 1 Remove nine-banded armadillos from the park when they pose a threat to ground nesting birds or small reptiles and amphibians.

Park staff will occasionally remove armadillos that are judged to be negatively affecting small herpetofauna and ground nesting birds. Feral cats and dogs will also be removed as they are encountered.

Cultural Resource Management

Cultural resources are individually unique, and collectively, very challenging for the public land manager whose goal is to preserve and protect them in perpetuity. The DRP will implement the following goals, objectives and actions, as funding becomes available, to preserve the cultural resources found in Madison Blue Spring State Park.

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

Objective A: Assess and evaluate 1 of 1 recorded cultural resources in the park.

Action 1	Complete 1 assessment/evaluation of archaeological sites.
Action 2	Complete 0 Historic Structures Reports (HSR's) for historic buildings and cultural landscape. Prioritize stabilization, restoration and rehabilitation projects.

The fact that MD33 is located within the springhead swimming area, which visitors reach via steep pathways that descend from uplands above the spring, makes the site vulnerable to erosion and to chronic deterioration from pedestrian traffic. Those factors and occasional looting may make an archaeological reassessment of the site's condition necessary in the future. In the meantime, DRP staff need to check MD33 regularly to enable early detection of possible adverse impacts from erosion, vegetation intrusion, and looting before resources experience significant damage. Site assessors should consider all possible measures for mitigating erosion at the site, including possible relocation of some access routes if necessary.

The species composition and effectiveness of groundcover plantings used to control erosion on slopes above the spring should be evaluated often. Trees on slopes

above the spring whose roots have become exposed need to be frequently monitored for stability. Protective measures will be implemented as necessary. Periodic monitoring of MD33 that utilizes photographs for comparison purposes would be best for the site. There are no historic structures in the park.

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

Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.
Action 2	Conduct a Level 1 archaeological survey of 1 priority area identified by the predictive model for the park.
Action 3	Seek the assistance of BAR archaeologists in conducting an archaeological survey of the park.
Action 4	Delineate the boundaries of MD33 more accurately and determine the age of the site's components.

A predictive model for the park was completed in 2010. This model will be consulted whenever ground disturbing activities or archaeological studies are planned for the park. Madison Blue Spring State Park has never had a thorough archaeological survey. It warrants at least a Level 1 survey of MD33 to supplement the limited information available about the Pleistocene aboriginal presence there. A Level 1 survey might also help determine the age and maximum extent of MD33. Also warranted, would be an archaeological survey of the park that covers more than just the high probability areas indicated by the predictive model. Such a survey might be helpful in determining if any of the adjacent archaeological sites extend into the park.

Objective C: Bring 1 of 1 recorded cultural resources into good condition.

Action 1	Design and implement a regular monitoring program for 1 cultural site.
Action 2	Create and implement a cyclical maintenance program for each cultural resource.

Although MD33 was considered by underwater archaeologists in 1981 to be in good condition, a professional reevaluation of the site would be desirable and might arrive at a different conclusion. Park personnel currently visit site MD33 at the springhead on a regular basis. Establishment of a more formal monitoring process, however, would generate baseline information that could be used as a standard of comparison in future assessments. To that end, park staff will develop a simple, repeatable protocol for tracking changes at the archaeological site, including a procedure for recording concerns and needed actions. Baseline photographs to be used for comparison purposes should be part of the protocol. Photographs would only need to be retaken if it became apparent that site conditions had changed.

Site MD33 needs additional protective measures. Accordingly, the DRP will develop and implement a cyclical maintenance program designed to protect resources at the site. The DRP will also improve erosion control measures at MD33 along the pathways that provide access to the swimming area.

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 DRP'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 those communities specifically managed as early successional.

A timber management analysis was not conducted for this park since its total acreage is below the 1,000-acre threshold established by statute. Timber management will be re-evaluated during the next revision of this management plan.

Arthropod Control Plan

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

Currently, no arthropod control plan has been adopted for Madison Blue Spring State Park.

Additional Considerations

The DRP has management authority over a 400-foot zone from the edge of mean high water along the Withlacoochee River where it flows by the eastern edge of the park. Where emergent wetland vegetation exists, the zone extends waterward 400 feet beyond the vegetation. Within this zone, staff will enforce DRP regulations. All wildlife within this zone, with the exception of fish, is protected from harvest, as stated above in the Natural Communities, Alluvial Stream section. In addition, pre-cut timber harvesting (deadhead logging) is prohibited within this zone.

Resource Management Schedule

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

Land Management Review

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 are being managed for the purposes for which they were acquired and in accordance with their approved land management plans.

Madison Blue Spring State Park has not been subject to a land management review.

LAND USE COMPONENT

Introduction

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

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

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

External Conditions

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.

Madison Blue Spring is located within Madison County, adjacent to the Hamilton County border, about 10 miles east of Madison and 25 miles west of Live Oak in the north central part of the state. Approximately 247,000 people live within 30 miles of the park (U.S. Census 2010).

The population of Madison County is relatively diverse in terms of demographic characteristics. According to 2013 U.S. Census Data, approximately 46% of residents in Madison County and Hamilton County identify as black, Hispanic or Latino, or another minority group. Nearly half of residents can be described as youth or seniors in both counties (U.S. Census 2010). 67% and 71% of the populations in Madison and Hamilton counties, respectively, are of working age

(16 to 65) (U.S. Census Bureau 2010). Madison County and Hamilton County ranked 57th and 65th statewide in per capita personal income at $26,557 at $20,807, respectively (below the statewide average of $41,497) (U.S. Bureau of Economic Analysis 2013).

A significant amount of resource-based recreation opportunities exist within 15 miles of Madison Blue Spring. Managed by the Florida Fish and Wildlife Conservation Commission, the Upper Alapaha Conservation Area and Withlacoochee Conservation Area offer nature trails, viewing platforms, hunting, and wildlife viewing. Twin Rivers State Forest, managed by the Florida Forest Service, provides amenities for canoe launching, fishing, hunting, and picnicking. The forest is also a destination on the Florida National Scenic Trail and Great Florida Birding Trail. The DRP manages Suwannee River State Park and Lafayette Blue Spring State Park nearby. These state parks have boating, paddling, bicycling, and camping opportunities. Lafayette Blue Spring State Park is a popular local swimming and scuba diving spot. Hamilton County operates Gibson Park, which offers rustic camping, fishing, and canoeing. The Withlacoochee River Paddling Trail is a state-designated trail running from the Florida/Georgia line all the way to Ellaville, Florida. Madison Blue Spring State Park is an identified access point.

The park is located in the North Central Vacation Region, which includes Alachua, Bradford, Columbia, Dixie, Gadsden, Gilchrist, Hamilton, Jefferson, Lafayette, Leon, Levy, Madison, Suwanee, Taylor, Union, and Wakulla counties (Visit Florida 2013). According to the 2013 Florida Visitor Survey, approximately 2% of domestic visitors to Florida visited this region. Roughly 95% of visitors to the region traveled to the North Central Region for leisure purposes. The top activities for domestic visitors were visiting friends or relatives and shopping. Summer was the most popular travel season, but visitation was generally spread throughout the year. Approximately 85% of visitors traveled by non-air, reporting an average of 3 nights and spending an average of $79 per person per day (Visit Florida 2013).

Florida's Statewide Comprehensive Outdoor Recreation Plan (SCORP) indicates that participation rates in this region for freshwater beach activities, saltwater boat fishing, saltwater and freshwater boat ramp use, freshwater fishing, canoeing/kayaking, visiting archaeological and historic sites, wildlife viewing, picnicking, hiking, camping, off-highway vehicle riding, horseback riding, and hunting are higher than the state average with demand for additional facilities increasing through 2020 (FDEP 2013).

Existing Use of Adjacent Lands

The park is bound to the north by State Road 6, with Blue Spring Airport located just north of the road. State Road 6 is a minor arterial with minimal traffic impacts to the park. The Withlacoochee River runs along the park's eastern boundary, dividing the park from Twin Rivers State Forest. The river is also the division between Madison County and Hamilton County. Uses around

the park are primarily agricultural and low-density. To the west of the park is Deer Park Bottling Plant, owned by Nestle Water, the dominant industrial use in the near vicinity. The bottling plant draws water from a karst conduit connected to Madison Blue Spring and additional springs along the Withlacoochee River, which could pose future concerns during drought conditions. The local water management district has been monitoring the spring flows to ensure resource protection.

Planned Use of Adjacent Lands

Adjacent properties in Madison County are designated as Agriculture-1 in the county's future land use plan, allowing one dwelling unit per 40 acres. Zoning for these parcels is Agriculture-2, which allows outdoor recreational activities in predominantly agricultural areas. Residential development is permissible at low-densities of one dwelling unit per 10 acres. The zoning categories allow a higher density than the future land use, which creates a conflict, although, both the land development code and comprehensive plan are intended to maintain the rural character and agricultural uses in the area. Madison County, as a whole, is primarily zoned for agriculture. The City of Madison, just a few miles to the west of the park, is within an Urban Development Overlay area to facilitate residential development alongside commercial uses and recreational space. Mixed Use Development areas follow each arterial roadway to Interstate 10, which runs five miles south of the park. The junction of State Road 53 and Interstate 10 are zoned Highway Interchange, allowing for high intensity commercial and institutional uses.

Across the Withlacoochee River, in Hamilton County, land is zoned for Conservation (CSV). Lands under the CSV category include parcels devoted to the conservation of unique natural functions. No use, other than forestry and non-intensive resource-based recreation activities are permitted. Structures incidental to recreation activities, such as research stations, residential facilities for staff, and boat docks or ramps are allowed. Recreation activities, such as campsites, are permitted by special exception. Hamilton County's future land use element also identified these properties for Conservation. The Conservation land use is limited to public access, silviculture activities, and residential uses necessary to manage conservation lands, such as ranger stations, research stations, and park amenities. There are no known planned infrastructure projects or other major developments that would affect the park or adjacent land.

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

Land Area

Upland hardwood forest covers the majority of the park's land area. Ravine slopes in the interior of the park transition to a linear alluvial forest and areas of bottomland forest. Trails though these natural communities provide opportunity for scenic nature walks and study.

Water Area

Madison Blue Spring and the Withlacoochee River are the two most significant water features of the park. About 82 feet wide and 25 feet deep, Madison Blue is a first magnitude spring flowing along the west bank of the Withlacoochee River. The Withlacoochee River forms the east boundary of the park and can be accessed from the spring run or several points along the park's riverbank.

Shoreline

The spring basin is a steeply sloped bowl forming a narrow shoreline around Madison Blue Spring and its spring run stream. Recreational access to the spring for swimming and diving is facilitated by pathways and staircases descending the embankments. The park's east boundary is defined by the Withlacoochee River. Recreational access for fishing and swimming in the Withlacoochee River is possible from several points along the southern half of the park's shoreline. The northern half of the park's Withlacoochee shoreline is characterized by steep slopes elevated considerably above the river. Visitors enjoy scenic views over the river from the elevated segments of the park shoreline.

Natural Scenery

Views through the varied forest types and over the clear waters of Madison Blue Spring merging with the tannic waters of the Withlacoochee River provide a picturesque setting for picnicking and wildlife viewing.

Significant Habitat

The park contains aquatic subterranean cave, which is significant for its dramatic karst features and various troglobitic invertebrates that inhabit the limestone walls and secluded crevices. The extensive network of the cave system and the window it provides into the Floridan aquifer provides interpretive opportunities and access for cave divers.

Natural Features
The most prominent natural feature of the park is the namesake first magnitude spring, which provides remarkable swimming and cave diving opportunities. Situated over a dynamic karst substrate, the interior of the park protects and offers opportunities for interpretation of several sinkhole lakes and limestone outcroppings.

Florida Greenways and Trails System (FGTS)
The Florida Greenways and Trails System (FGTS) is made up of existing, planned and conceptual non-motorized trails and ecological greenways that form a connected, integrated statewide network. The FGTS serves as a green infrastructure plan for Florida, tying together the greenways and trails plans and planning activities of communities, agencies and non-profit organizations throughout Florida. Trails include paddling, hiking, biking, multi-use and equestrian trails. The Office of Greenways and Trails maintains a priority trails map and gap analysis for the FGTS to focus attention and resources on closing key gaps in the system.

In some cases, existing or planned priority trails run through or are adjacent to state parks, or they may be in close proximity and can be connected by a spur trail. State parks can often serve as trailheads, points-of-interest, and offer amenities such as camping, showers and laundry, providing valuable services for trail users while increasing state park visitation. Madison Blue Spring is an access point along the Withlacoochee River Paddling Trail. In addition, the park is mile 16 of a 28-mile trail. Picnic facilities can accommodate paddlers using the state park as a stopover on their journey along the trail.

Assessment of Use

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

Past Uses
The land on which the present-day park is located was privately owned until 2000. Through the 1990s, the acreage around the spring and along the Withlacoochee River south of the spring was used as a private campground. After closure of the campground and prior to state acquisition, the private owners established two permitted wells for water bottling on the property. Swimming and cave diving have long been popular recreational activities at the park.

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

All parcels within the park boundary are zoned as Conservation. According to the Madison County Comprehensive Plan, lands designated for conservation purposes are intended for public lands devoted to the conservation of the unique natural functions. Silvicultural and agricultural activities consistent with conservation purposes may be conducted under best management practices, rules of the Suwannee River Water Management District, and other applicable rules and regulations. Conservation uses include public access and residential uses necessary to manage conservation lands, such as ranger stations, research stations, and park amenities. Adjacent future land use designations are for both Agriculture-1 and Agriculture 2, which are distinguished by the allowable densities of residential development. Agriculture-1 allows for a maximum of one dwelling unit per 40 acres, whereas Agriculture-2 allows for a maximum of one dwelling unit per 10 acres. Under either agricultural designation, crop cultivation, livestock, specialty farms, and silviculture may be permitted. A series of parcels located due west of the park was converted in 2014 from a conservation designation to an Agriculture-1 designation. The agricultural district intent is compatible with park activities. Both Agriculture-1 and Agriculture-2 allow for active and passive recreational activities while preserving the rural, low-density character of the county. There are no expected conflicts between the agriculture classification and typical state park land uses. (Madison County Planning and Zoning Department 2014).

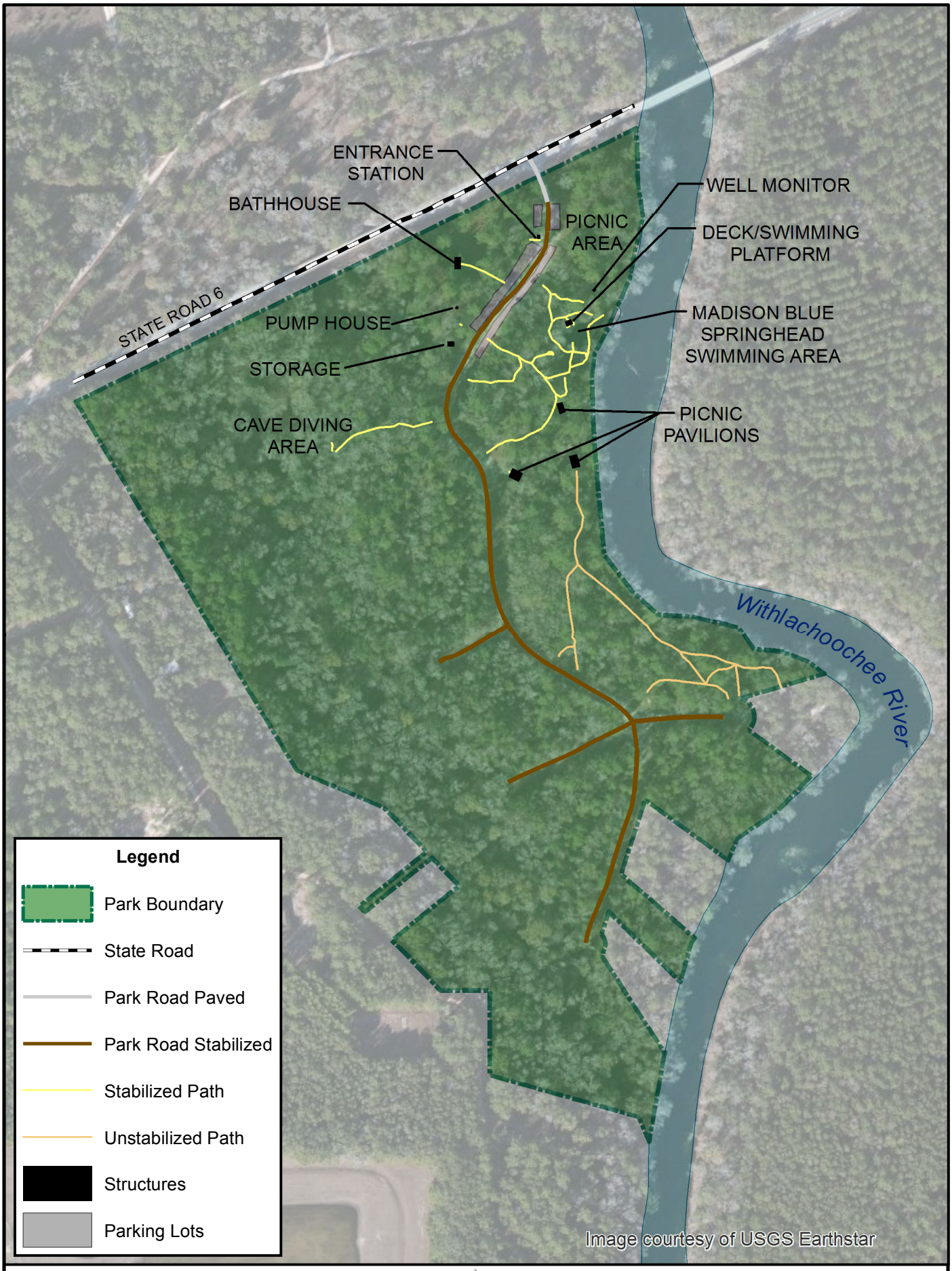
Current Recreational Use and Visitor Programs

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. Consequently, one of the greatest challenges for public land management today is the balancing of reasonable levels of public access with the need to preserve and enhance the natural and cultural resources of the protected landscapes.

The park offers day-use recreational activities that include swimming, cavern and cave diving, nature walking, wildlife viewing, and picnicking. Interpretive elements and programs are also featured at the park. The park offers guided interpretive walks and participates in DEP's Learning in Florida's Environment (LIFE) program. Topics include the geology and ecology of karst and alluvial environments.

The park's two recreationally accessible water features are Madison Blue Spring and Martz Sink. Madison Blue Spring, itself, is highly popular for swimming, especially during summer months and provides scuba diving access for both cavern and cave certified divers. Martz Sink offers access for certified cave divers only.

Picnicking is popular at the park throughout the year, for both large group gatherings as well as individual visitors seeking opportunities for wildlife viewing. Paddlers occasionally use the park as an access point to the Withlacoochee River. Proximity to other resource-based recreational



MADISON BLUE SPRING

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Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2011

BASE MAP

opportunities and natural features along the Withlacoochee and Suwannee rivers, including nearby public lands and the Suwannee River Wilderness Paddling Trail, also makes the park a popular stopover point for paddlers.

Madison Blue Spring State Park recorded 40,130 visitors in FY 2014/2015. By DRP estimates, the FY 2014/2015 visitors contributed $3,480,726 million in direct economic impact, the equivalent of adding 56 jobs to the local economy (FDEP 2015).

Other Uses

No uses, other than outdoor resource-based recreation and interpretation, are designated at this park. The park road serves as a right-of-way for three undeveloped private parcels located at the southeast boundary of the park along the Withlacoochee River.

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 Madison Blue Spring State Park, all wetlands and floodplain as well as alluvial forest, bottomland forest, sinkhole lake, and spring-run stream and known imperiled species habitat have been designated as protected zones.

Existing Facilities

One main public use area and one support area make up the developed zones of Madison Blue Spring State Park. A portable ranger station and visitor parking are located on the north side of the park at the State Road 6 entrance. A half-mile long stabilized park road essentially bisects the park into east and west portions. The park's day use activities are focused in the east portion within the springhead swimming area and an adjacent picnic area. Access to the spring is facilitated by a series of staircases, a swimming platform, and a pathway around the basin. Two large pavilions and one small pavilion are located in the picnic area. A short trail extending south from the picnic area offers nature-walking opportunity with scenic vantage points over the Withlacoochee River. The trail terminates at a moderately sloped sandy embankment of the river, which is a popular access point for swimming.

The west portion of the park contains the park's low-lying floodway and is generally less developed. Existing facilities within the west portion of the park include the bathhouse and one storage unit for support. A short trail from the

park road leads to Martz Sink. A staircase descends the sinkhole to provide access for certified cave divers (see Base Map).

Recreation Facilities

Springhead Swimming Area
Access stairs and pathway
Swimming platform
Scattered picnic tables
Dive staging benches
Bathhouse
Parking (132 spaces)

Picnic Area
Pavilions (3)
Scattered picnic tables
Nature trail

Martz Sink Cave Diving Area
Dive staging benches
Access stairs

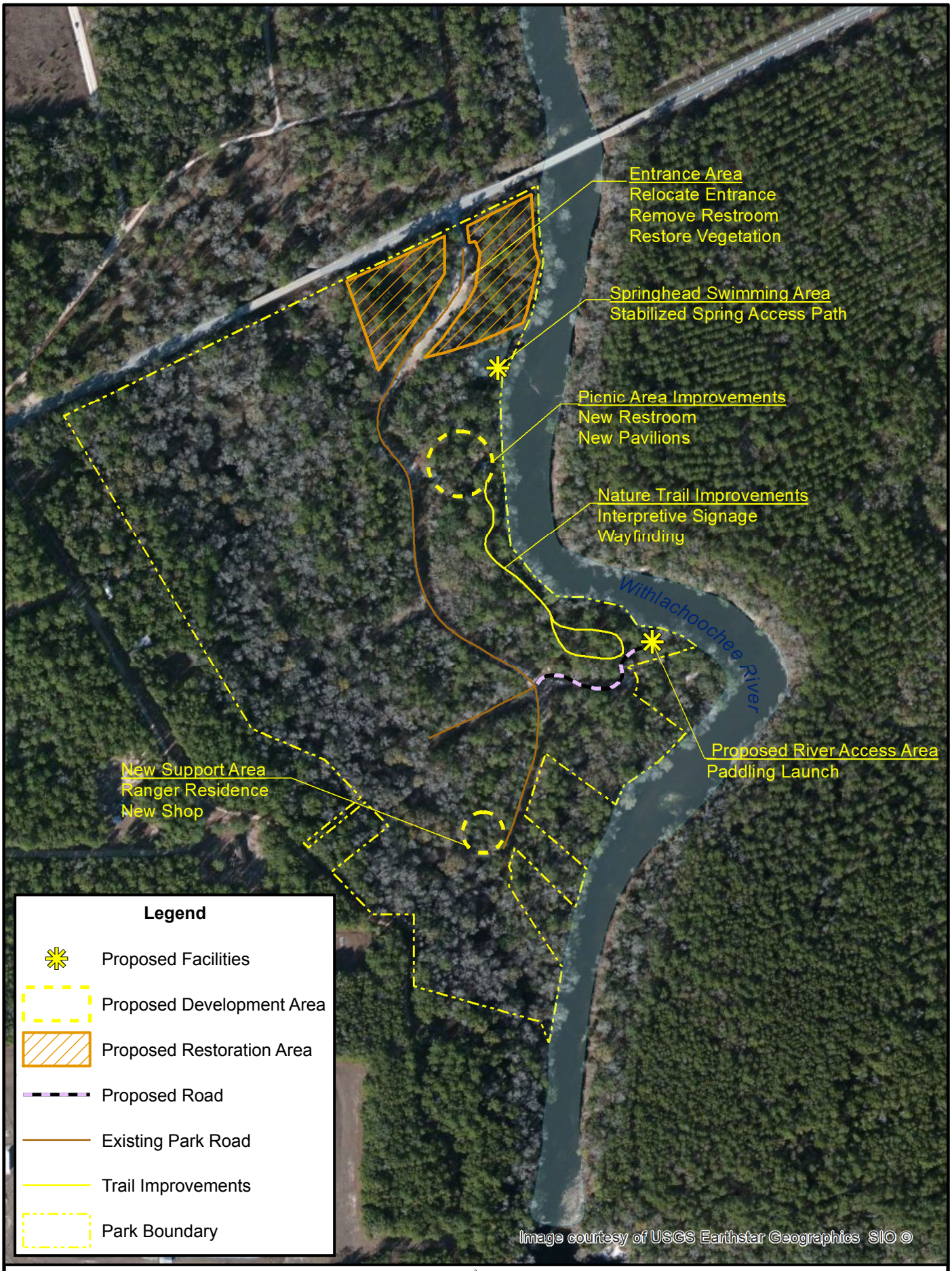
Support Facilities

Support Area
Portable ranger station
Pole barn
Maintenance shed
Fuel storage

Conceptual Land Use Plan

The following narrative represents the current conceptual land use proposal for this park. The conceptual land use plan is the long-term, optimal development plan for the park, based on current conditions and knowledge of the park's resources, landscape and social setting (see Conceptual Land Use Plan). The conceptual land use plan is modified or amended, as new information becomes available regarding the park's natural and cultural resources or trends in recreational uses, in order to adapt to changing conditions. Additionally, the acquisition of new parkland may provide opportunities for alternative or expanded land uses. The DRP develops a detailed development plan for the park and a site plan for specific facilities based on this conceptual land use plan, as funding becomes available.

During the development of the conceptual land use plan, the DRP assessed the potential impact of proposed uses or development on the park resources and applied that analysis to determine the future physical plan of the park as well as the scale and character of proposed development. Potential resource impacts are also identified and assessed as part of the site planning process once funding is available for facility development. At that stage, design elements (such as existing topography and vegetation, sewage disposal and stormwater management) and design constraints (such as imperiled species or cultural site locations) are investigated in greater detail. Municipal sewer connections, advanced wastewater treatment or best available technology systems are applied for on-site sewage disposal. Creation of impervious surfaces is minimized to the greatest extent feasible in order to limit the need for stormwater management systems, and all facilities are designed and constructed using best management practices to limit and avoid resource impacts. Federal, state and local permit and regulatory requirements are addressed during facility development. This includes the design of all new park facilities consistent with the



MADISON BLUE SPRING

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CONCEPTUAL LAND USE PLAN

universal access requirements of the Americans with Disabilities Act (ADA). After new facilities are constructed, park staff monitors conditions to ensure that impacts remain within acceptable levels.

Potential Uses

Public Access and Recreational Opportunities

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

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

***Objective: Maintain the park's current recreational carrying capacity of 410 users per day*.**

The park will continue to offer the current program of resource-based recreational activities, including swimming, scuba diving, picnicking, wildlife observation, and nature study.

Objective: Expand the park's recreational carrying capacity by 192 users per day.

Additional facilities and recreational opportunities are proposed that will increase the carrying capacity of the park, including paddling from a proposed river access area. Improvements of existing facilities and access amenities throughout the park will expand recreational opportunities and enhance the quality of the visitor experience. Expansion of recreational opportunity and access improvements are discussed in detail below.

Objective: Continue to provide the current repertoire of 2 interpretive, educational and recreational programs on a regular basis.

Currently, the park offers two interpretive walking tours. Ranger-guided tours are provided by request to individuals and organized groups. Additionally, the park hosts tours arranged by DEP's LIFE Program.

Objective: Develop 1 new interpretive, educational and recreational programs.

The park offers significant opportunities for interpretation and outreach. In order to coordinate and focus interpretive programming at the state park, development of an interpretive master plan is recommended. One additional visitor program should also be developed. Program topics could include a spring ecosystems program that informs local residents about the health, quality, and biota of springs and sinks. New interpretive signage along the nature trail will

enhance the visitor's educational experience and contribute to opportunities for wildlife viewing and nature study that are currently offered at the park. Interpretation may be developed to provide a self-guided walking tour that traces the path of the park's extensive underwater cave system.

Proposed Facilities

Capital Facilities and Infrastructure

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

The conceptual land use plan for Madison Blue Spring State Park proposes to enhance the quality of the visitor experience and improve access to resource-based recreation within existing use areas. The plan also proposes new development for the purposes of access, expanded recreational opportunity, and park service operations, including a relocated park entrance, access to the Withlacoochee River, and a new support area. Where existing development will be removed, restoration of altered landcover may be restored.

The existing facilities of this state park are appropriate to the natural and cultural resources contained in the park and should be maintained. New construction, as discussed further below, is recommended to improve the quality and safety of the recreational opportunities, to improve the protection of park resources, and to streamline the efficiency of park operations. The following is a summary of improved and new facilities needed to implement the conceptual land use plan for Madison Blue Spring State Park:

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

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

Objective: Improve/repair 4 existing facilities and 0.3 miles of trail and restore 0.01 miles of road.

Major repair projects for park facilities may be accomplished within the ten-year term of this management plan, if funding is made available. These include the modification of existing park facilities to bring them into compliance with the Americans with Disabilities Act (a top priority for all facilities maintained by DRP). The following discussion of other recommended improvements and repairs are organized by use area within the park.

Park Entrance and Restoration Area

Relocation of the existing park entrance is recommended. The existing entrance extends from a bridged segment of State Road 6. Entry and exit to and from the steep park road poses a recurring traffic hazard. Additionally, during peak visitation, vehicles frequently back-up from the ranger station, causing traffic

congestion on the highway. Additional study will be conducted to determine the appropriate location for the new entrance. The existing bathhouse, located near the ranger station and parking area, is an aged building that has been repeatedly submerged in flooding. It is recommended that this structure be removed and replaced with a new bathhouse in the picnic area on the south side of the spring swimming area. The site of the existing bathhouse should be included in the natural community restoration in the northern portion of the park.

Relocation of the entrance road will allow this northeast section of the park (north of the springhead and spring run) to be restored to a natural state to create a vegetative buffer around the spring. This buffer would enhance the park's overall natural character and aesthetics, improve the viewshed from the springhead, and mitigate erosion and sedimentation of the water. Removal of the scattered picnic tables and reduction of foot traffic through this area would allow regrowth of natural groundcover.

Springhead Swimming Area
Improvements are recommended to the walkways and access paths around the springhead. The lower section of the access path to the spring run and river is eroded with exposed tree roots, cypress knees, and has become stripped of shoreline vegetation, resulting in spring sedimentation and posing a safety hazard for visitors. This existing path should be stabilized to improve access, reduce erosion, and allow for protection and restoration of the shoreline.

Picnic Area
Improvements to the picnic area are recommended. One new large pavilion and three small pavilions should be constructed to provide sheltered picnic space for the park's large volume of visitors. Stabilized walkways should be constructed between the new bathhouse and each of the pavilions, compliant with ADA standards. The picnic area will be site of the new bathhouse, which will replace the existing bathhouse in the parking area. The new bathhouse should be located away from the springhead, on the high ground in the southwest portion of the picnic area, to maximize recreation space and reduce the risk of flooding.

Nature Trail
A nature trail with multiple spur paths extends south from the picnic area. These trails should be improved with wayfinding and interpretive signage. A single designated trail should be clearly marked and use of spur paths should be discontinued. The trail should provide access to the sandy river shoreline of the Withlacoochee River.

Objective: Construct 2 new facilities and 0.02 miles of road.

New Park Entrance
The new park entrance will include a park sign, gate, and ranger station. The new ranger station should be located on high ground and constructed as a permanent structure. Design of the new entrance will consider provision of

space for vehicles to stack within the park to reduce traffic congestion on adjoining roads. When the new entrance is developed, the existing entrance and parking will be closed and the site included within the adjacent restoration area. Parking may be provided south of the existing parking area, along the side of the park road within the wide clearing of the park road corridor. Stabilization or surfacing of the park road and parking area should be sensitive to the karst geology and flood-prone topography of the park. Options for the location and route of the new park entrance will be evaluated during the next ten-year planning period.

Proposed River Access Area
The park is a popular launching and landing site for paddlers. Paddlers currently use the narrow path around the springhead for access; however, the site is not suited for this purpose and generates recreational user conflicts. A designated canoe and kayak launch/landing should be constructed on the riverbank, south of the spring and picnic area, near the terminus of the nature trails. Vehicle access to the proposed paddling launch should be facilitated by a stabilized road extending from the new park entrance. Development of this river access area will promote use of the park as a paddling destination within the Withlacoochee and Suwannee River basin.

Facilities Development

Preliminary cost estimates for these recommended facilities and improvements are provided in the Ten-Year Implementation Schedule and Cost Estimates (Table 7) located in the Implementation Component of this plan. These cost estimates are based on the most cost-effective construction standards available at this time. The preliminary estimates are provided to assist DRP in budgeting future park improvements, and may be revised as more information is collected through the planning and design processes. New facilities and improvements to existing facilities recommended by the plan include:

Park Entrance
Relocate entrance
Remove restroom
New Ranger station
New road

Springhead Swimming Area
Stabilized spring access path

River Access Area
Canoe/kayak launch

Picnic Area
Restroom
Pavilions (4)

Nature Trail
Interpretive signage and wayfinding

Support Area
Relocate existing support facilities
Shop
Ranger residence

Recreational Carrying Capacity

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

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

Table 6. Recreational Carrying Capacity

	Existing Capacity*		**Proposed Additional Capacity**		**Estimated Recreational Capacity**	
Activity/Facility	**One Time**	**Daily**	**One Time**	**Daily**	**One Time**	**Daily**
Swimming	75	150	0	0	75	150
SCUBA Diving	10	30	0	0	10	30
Paddling	1	10	2	144	2	144
Nature Walking	20	80	0	0	20	80
Picnicking	70	140	24	48	94	188
TOTAL	**176**	**410**	**26**	**192**	**201**	**592**

*Existing capacity revised from approved plan according to DRP guidelines.

Optimum Boundary

The optimum boundary map reflects lands considered desirable for direct management by the DRP as part of the state park. These parcels may include public or privately owned land that would improve the continuity of existing parklands, provide the most efficient boundary configuration, improve access to the park, provide additional natural and cultural resource protection or allow for future expansion of recreational activities. Parklands that are potentially surplus to the management needs of DRP are also identified. As additional needs are

identified through park use, development, and research, and as land use changes on adjacent property, modification of the park's optimum boundary may be necessary.

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

Three undeveloped private parcels are located at the southeast boundary of the park along the Withlacoochee River. Where owners of these parcels are willing, future management of these parcels would alleviate operational and resource protection challenges for the park, especially concerning hydrological and natural communities restoration. Management of these parcels would additionally provide opportunities for expanded recreational access by lengthening the distance of the park's existing nature trail and providing access to sandy river shoreline of the Withlacoochee River. Potential management of these parcels would facilitate addition of the access road to the park lease. Additionally, acquisition of undeveloped parcels along Blue Spring Church Road could provide alternative options for the location of a park new entrance or support area. At this time, no lands are considered surplus to the needs of the park.

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OPTIMUM BOUNDARY MAP

IMPLEMENTATION COMPONENT

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

MANAGEMENT PROGRESS

Since the acquisition of the Madison Blue Spring property by the Board of Trustees and commencement of management by the Division of Recreation and Parks in 2000, significant work has been accomplished and progress made towards meeting the DRP's management objectives for the park. These accomplishments fall within three of the five general categories that encompass the mission of the park and the DRP.

Acquisition

- In 2000, the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida acquired 37.96 acres comprising the initial portion of Madison Blue Spring State Park. Subsequent acquisitions have expanded the park to 45.13 acres.

Park Administration and Operations

- The park Citizen Support Organization, the North Florida Springs Alliance, expanded membership and park awareness and support through membership drives, special events, and public outreach programs.

- Through the DRP volunteer program, volunteers contributed approximately 7,265 hours in assistance, including facility improvements and public outreach.

Resource Management

Natural Resources

- Since acquisition, the Management Zones have been identified throughout the park and exotic vegetation have been mapped and logged in the exotic plant data base.

- Approximately 2.88 acres of exotic plants were treated from 2009 to 2014.
- Creosote timbers throughout the park have been removed to prevent "leaching" of toxic materials into the spring and ground water.

Cultural Resources

- In 2012 a predictive modeling archaeological and historical survey was completed by the University of South Florida.

Recreation and Visitor Services

- The DRP developed public recreational access amenities for swimming, picnicking, nature-walking, and cave diving.
- DRP staff has coordinated with the Madison County Tourist Development Council to develop a marketing strategy for the park. Promotions of the park contributed to recognition in 2015 as the "Best Swimming Hole in the Country" by USA Today.

Park Facilities

- Safe access to the springhead swimming area was enhanced, including new fencing along access pathways, reconstruction of the swimming platform staircase, construction of additional access staircases, and use of non-slip deck covering.
- Benches for staging dive gear were constructed to support cave diving opportunities found within the park.
- Parking areas along the park road were stabilized and delineated to improve efficiency.
- A pole barn, maintenance shed, and fuel storage were constructed to provide park service support.

MANAGEMENT PLAN IMPLEMENTATION

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

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

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

Table 7
Madison Blue Spring State Park Ten-Year Implementation Schedule and Cost Estimates

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

Goal I: Provide administrative support for all park functions.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Continue day-to-day administrative support at current levels.**	Administrative support ongoing	C	**$814,300**
Objective B	**Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.**	Administrative support expanded	C	**$45,000**
Goal II: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Conduct/obtain an assessment of the park's hydrological needs.**	Assessment conducted	LT	**$41,500**
Action 1	Continue to cooperate with entities involved in hydrological research and monitoring programs in the Withlacoochee Basin.		UFN	$3,500
Action 2	Continue to monitor water quality at Madison Blue Spring and track changes, particularly during brownout events.		C	$4,000
Action 3	Continue to coordinate with the SRWMD in protecting historic flows at Madison Blue Spring during implementation of the MFL.		C	$2,000
Action 4	Complete the delineation of the Madison Blue Springshed and perform dye trace studies to identify significant groundwater sources for the spring.		LT	$30,000
Action 5	Continue to monitor land use or zoning changes in the Madison Blue Spring region and provide comments as appropriate.		C	$400
Action 6	Determine if remnants of an apparent limestone rock dam are impeding flow in the spring run.			$300

* 2015 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.				
Objective B	**Restore natural hydrological conditions and functions to approximately 0 acres of spring-run stream natural community.**	# Acres restored or with restoration underway	UFN	**$0**
Objective C	**Evaluate and mitigate impacts of soil erosion in the park.**		**LT**	**$8,500**
Action 1	Develop and implement protocols for monitoring erosion on slopes above the head spring and along the Withlacoochee River.		ST	$1,000
Action 2	Develop and implement erosion control measures for public access points to the spring, river, and Martz Sink.		LT	$7,500
Objective D	**Monitor the aquatic cave system for impacts from visitor use.**		C	**$4,800**
Action 1	Continue to consult with cave diving experts regarding potential disturbance issues attributable to increased visitor use of the cave system.		C	$800
Action 2	Continue to develop and implement procedures for conducting baseline biological and physical surveys in the aquatic cave system and institute a long-term monitoring program.		C	$4,000
Goal III: Restore and maintain the natural communities/habitats of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Within 10 years have 3.56 acres of the park maintained within optimal fire return interval.**	# Acres within fire return interval target	LT	**$7,700**
Action 1	Develop/update annual burn plan.	Plan updated	C	$200
Action 2	Manage fire dependent communities for ecosystem function, structure and processes by burning between 0.7 - 1.8 acres annually, as identified by the annual burn plan.	Average # acres burned annually	C	$5,000
Action 3	Construct 0.25 miles of new fire breaks	# Miles established	LT	$2,500
Objective B	**Conduct habitat/natural community restoration activities on 3.56 acres of upland mixed woodland community and 0.1 acre of clearing.**	# Acres restored or with restoration underway	LT	**$17,750**
Action 1	Develop/update site specific restoration plans.	Plan developed/updated	ST	$750
Action 2	Implement the restoration plans.	# Acres with restoration underway	LT	$8,000
Action 3	Conduct offsite hardwood removal for restoration purposes on 3.56 acres of upland mixed woodland.	Offsite trees removed	LT	$11,000
Objective C	**Conduct habitat/natural community improvement activities on 0 acres of natural community.**	# Acres improved or with improvements underway		**$0**
Action 1	Improvement activities are not applicable to Madison Blue Spring State Park at this time, but they may become pertinent once the major restoration objectives for upland mixed woodland are achieved.			$0

* 2015 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 7
Madison Blue Spring State Park Ten-Year Implementation Schedule and Cost Estimates

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

Goal IV: Maintain, improve or restore imperiled species populations and habitats in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Update baseline imperiled species occurrence inventory lists for plants and animals, as needed.**	List updated	C	**$500**
Objective B	**Monitor and document 4 selected imperiled animal species in the park.**	# Species monitored	C	**$20,750**
Action 1	Develop monitoring protocols for three selected imperiled animal species including the pallid cave crayfish, Florida cave amphipod, and Hobbs' cave amphipod.	# Protocols developed	ST	$750
Action 2	Implement monitoring protocols for four imperiled animal species including those listed in Action 1 above and also the gopher tortoise.	# Species monitored	C	$20,000
Objective C	**Monitor and document 2 selected imperiled plant species in the park.**	# Species monitored	C	**$1,500**
Action 1	Develop monitoring protocols for two selected imperiled plant species including Florida mountainmint	# Protocols developed	ST	$500
Action 2	Implement monitoring protocols for the two imperiled plant species listed in Action 1 above.	# Species monitored	C	$1,000
Goal V: Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Annually treat 0.5 acres of exotic plant species in the park.**	# Acres treated	C	**$9,800**
Action 1	Annually develop/update exotic plant management work plan.	Plan developed/updated	C	$800
Action 2	Implement annual work plan by treating 0.5 acres in park, annually, and continuing maintenance and follow-up treatments as needed.	Plan implemented	C	$7,000
Action 3	Gradually replace exotic groundcover species on slopes around the spring with suitable native species.		LT	$2,000
Objective B	**Implement control measures on 1 exotic and nuisance animal species in the park.**	# Species for which control	C	**$1,200**
Action 1	Remove nine-banded armadillos from the park when they pose a threat to ground nesting birds or small reptiles and amphibians.			$1,200

* 2015 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

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

Goal VI: Protect, preserve and maintain the cultural resources of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Assess and evaluate 1 of 1 recorded cultural resources in the park.**	Documentation complete	LT	**$2,000**
Action 1	Complete 1 assessments/evaluations of an archaeological site. Prioritize preservation and stabilization projects.	Assessments complete	LT	$2,000
Action 2	Complete 0 Historic Structures Reports (HSR's) for historic buildings and cultural landscape. Prioritize stabilization, restoration and rehabilitation projects.	Reports and priority lists completed	LT	$0
Objective B	**Compile reliable documentation for all recorded historic and archaeological sites.**	Documentation complete	LT	**$11,500**
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or	ST	$500
Action 2	Conduct Level 1 archaeological survey of 1 priority areas identified by the predictive model for the	Survey completed	LT	$5,000
Action 3	Seek the assistance of BAR archaeologists in conducting a pedestrian survey of the park.	Survey completed	ST	$1,000
Action 4	Delineate the boundaries of MD33 more accurately and determine the age of the site's components.	Site boundaries redefined	LT	$5,000
Objective C	**Bring 1 of 1 recorded cultural resources into good condition.**	# Sites in good condition	LT	**$1,700**
Action 1	Design and implement regular monitoring programs for 1 cultural site.	# Sites monitored	C	$700
Action 2	Create and implement a cyclical maintenance program for each cultural resource.	Programs implemented	C	$1,000

Goal VII: Provide public access and recreational opportunities in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Maintain the park's current recreational carrying capacity of 410 users per day.**	# Recreation/visitor	C	**$315,000**
Objective B	**Expand the park's recreational carrying capacity by 192 users per day.**	# Recreation/visitor	LT	**$150,000**
Objective C	**Continue to provide the current repertoire of 2 interpretive, educational and recreational programs on a regular basis.**	# Interpretive/education programs	C	**$10,000**
Objective D	**Develop 1 new interpretive, educational and recreational program.**	# Interpretive/education programs	LT	**$7,000**

* 2015 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

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

Goal VIII: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	**Maintain all public and support facilities in the park.**	Facilities maintained	C	**$350,000**
Objective B	**Continue to implement the park's transition plan to ensure facilities are accessible in accordance with the American with Disabilities Act of 1990.**	Plan implemented	LT	**$85,000**
Objective C	**Improve and/or repair 4 existing facilities, 0.3 miles of trail and restore 0.01 miles of road as identified in the Land Use Component.**	# Facilities/Miles of Trail/Miles of Road	LT	**$115,000**
Objective D	**Construct 2 new facilites and 0.02 miles of road as identified in the Land Use Component.**	# Facilities/Miles of Trail/Miles of Road	LT	**$1,750,000**
Objective E	**Expand maintenance activities as existing facilities are improved and new facilities are developed.**	Facilities maintained	C	**$160,000**

Summary of Estimated Costs

Management Categories		Total Estimated Manpower and Expense Cost* (10-years)
Resource Management		**$129,200**
Administration and Support		**$25,450**
Capital Improvements		**$2,460,000**
Recreation Visitor Services		**$465,000**
Law Enforcement Activities	Note: Law enforcement activities in Florida State Parks are conducted by the FWC Division of Law Enforcement and by local law enforcement agencies.	

* 2015 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Addendum 1—Acquisition History

Madison Blue Spring State Park Acquisition History

LAND ACQUISITION HISTORY REPORT	
Park Name	Madison Blue Spring (State Recreation Area)
Date Updated	11/12/2015
County	Madison County, Florida
Trustees Lease Number	4726
Current Park Size	45.13 acres
Purpose of Acquisition	The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida initially acquired Madison Blue Spring to be used as a county recreational park

Acquisition History

Parcel Name or Parcel DM-ID	Date Acquired	Initial Seller	Initial Purchaser	Size in acres	Instrument Type
MDID 301628	12/12/2000	Blue Springs Resort, Inc.	Board of Trustees of the Internal Improvement Trust Fund of the State of Florida	37.961	Warranty Deed

Management Lease

Parcel Name or Lease Number	Date Leased	Initial Lessor	Initial Lessee	Current Term	Expiration Date
Lease No. 4726	4/14/2014	Trustees of the Internal Improvement Trust Fund of the State of	Department of Environmental Protection, Division of Recreation and Parks	50 years	4/13/2064

Outstanding Issue	Type of Instrument	Brief Description of the Outstanding Issue	Term of the Outstanding Issue
There is no known deed related restriction or encumbrance on use of Madison Blue Spring.			

Addendum 2—Advisory Group Members and Report

Local Government Representatives
The Honorable Rick Davis
Commision Chair
Madison County Board of
County Commissioners

Agency Representatives
Craig Liney, Manager
Madison Blue Spring State Park

Matthew Pollock, Regional Biologist
North Central Florida Region
Florida Fish and Wildlife
Conservation Commission

Doug Longshore, Regional Forester
North Florida Region
Florida Forest Service

James Brown, Chair
Madison Soil and Water
Conservation District

Jason O'Donoughue, Archaeologist
Bureau of Archaeological Research
Division of Historical Resources

Environmental and Conservation Representatives
Valerie Thomas, President
Four Rivers Audubon Society

Gail Fishman, President
Magnolia Chapter
Florida Native Plant Society

Tourism and Economic Development Representatives
Eddie Bell, Chair
Madison County Tourist
Development Council

Recreational User Representatives
Joseph Citelli, Chair
Florida Speleological Society
Cave Diving Section

William Stasiewicz, Director
Suwannee Region
Florida Paddling Trails Association

Adjacent Landowners
Richard McCulley
McCulley Farms

Citizens Support Organization
Michael Stine, Chair
North Florida Springs Alliance

Madison Blue Spring State Park

Advisory Group Meeting Report

The advisory group meeting to review the proposed unit management plan (UMP) for Madison Blue Spring State Park was held in the City of Madison, in the Madison County Senior Citizens Center on Friday, June 10, 2016 at 9:00 AM.

Steve Carpenter represented Doug Longshore for the Florida Forest Service. Ginger Morgan represented Matthew Pollock for the Florida Fish and Wildlife Conservation Commission (FWC). John Middleton represented Valerie Thomas for Four Rivers Audubon Society. Bill Richards represented William Stasiewicz for the Florida Paddling Trails Association. Joseph Citelli was not in attendance. All other appointed advisory group members were present. Lisa Frieman attended with Eddie Bell for the Madison County Tourist Development Council. Buck Carpenter attended with James Brown for the Madison Soil and Water Conservation District.

Attending Division of Recreation and Parks (DRP) staff members were Brian Fugate, Craig Parenteau, Craig Liney, Jason Mahon, Brady Harrison, and Daniel Alsentzer.

Mr. Alsentzer began the meeting by explaining the purpose of the advisory group and reviewing the meeting agenda. He provided a brief overview of the DRP's planning process. Mr. Alsentzer then asked each member of the advisory group to express his or her comments on the draft plan. After all comments were shared, Mr. Alsentzer described next steps for drafting the plan and the meeting was adjourned.

Summary of Advisory Group Comments

Steve Carpenter (Florida Forest Service, North Region) inquired whether the park's fire-type uplands are considered large enough to restore to optimal fire return intervals. He identified specific management zones to which fire should be introduced. He inquired whether the park has addressed mowing of groundcover on private parcels adjacent to the park.

Gail Fishman (Florida Native Plant Society, Magnolia Chapter) noted the high quality and clarity of the park's spring water. She emphasized the need to monitor the spring's output volume and preserve the water quality. She additionally noted that historical photographs in the park demonstrate trending reduction of outflow. Ms. Fishman noted that the exotic-invasive plant species list may not be complete and offered to assist with identifying these plant species. Ms. Fishman inquired whether a park-specific LIDAR study of the park's protected archaeological sites has been conducted. She emphasized the value of all Florida state parks in statewide conservation and education, stating that Madison Blue Spring State Park serves this role invaluably in north central Florida. She noted the significant economic benefits that the park generates through the large number of tourists that the park brings to the area. Ms. Fishman recommended establishing a carrying capacity that captures ecological impacts to the park's natural communities.

Eddie Bell (Madison County Tourist Development Council) agreed with the resource management and land use proposals in the draft plan, particularly those proposals that will protect the delicate karst features of the park and improve drivers' safety for entering and exiting the park. He expressed the need for more wayfinding along roads, as many visitors report having difficulty locating the park. Mr. Bell also encouraged development of more interpretive and other guided programs in the park.

Lisa Frieman (Madison County Tourist Development Council) commented that the popularity of the park is remarkable. She emphasized the beauty and significance of the Suwannee and Withlacoochee rivers and associated springs. She commended the boardwalks and ongoing erosion-mitigation in the park as best management practices that are consistent with an eco-tourism park model. She commented that wastewater effluent spills routinely occur upstream of the park during heavy rainfall events. She noted additionally that this is an environmental safety hazard, which discourages tourism and recommended coordinating solutions across jurisdictional lines.

John Middleton (Four Rivers Audubon Society) noted that the Florida state park system is a model for park planning nationally. He emphasized the need to maintain the clear planning focus that has made Florida state parks what they are today. Mr. Middleton, having recently returned to the park after 40 years, was very impressed with the cleanup. He noted that prior to state acquisition, the spring and surrounding uplands had mass volumes of litter. He recognized that the scope of the plan is limited to the existing park boundary and cannot prescribe best management practices for other lands, but he stated that like other spring parks, water quantity and quality depend on broad springshed protection. He recommended development of an awareness-raising program similar to Ichetucknee, using signage throughout the springshed.

Rick Davis (Madison County Board of County Commissioners) agreed with the proposal to reroute the park entrance to alleviate traffic congestion and hazards. He recommended posting wayfinding signage within the vicinity of the park and using signs to indicate the springshed boundaries. He noted that both agriculture and tourism are critically important aspects of the Madison County economy and that efforts to balance the interests of these industries is important. He inquired about the frequency of water quantity and quality monitoring in the park. He also inquired about DEP programs to address hydraulic fracturing, noting the potential implications for water quality.

Jason O'Donoughue (Division of Historical Resources, Bureau of Archaeological Research) appreciated the DRP's inclusion of DHR in the resource management and land use planning for the park. He suggested that Florida's springs are still used contemporarily in much the same way as prehistorically. He recommended adding cultural interpretation to the park's programming. He noted that historical

knowledge of the spring is relevant to the park's current use patterns. Mr. O'Donoughue advised that a resident ranger is warranted for protection of the park's resources. He noted that the cavern of the main spring itself has a high probability for archaeological sensitivity, especially given that circa 10,000 years ago the cave was dry. Regarding the park's uplands, he estimated that the probability of containing archaeological resources is higher than 5%. Mr. O'Donoughue commended the proactive approach to protecting and monitoring the archaeological site, MD 33 and provided additional recommendations for documentation and stabilization of the site.

Bill Richards (Florida Paddling Trails Association, Suwannee Region) explained the mission of Paddle Florida and remarked on the park's appeal for paddlers along the Withlacoochee and Suwanee rivers. He noted that the 9th annual Paddle Florida Suwanee River Trip takes place in October and hoped that the trip could begin at the park again as it has four years in the past. Mr. Richards recommended introducing interpretive signage and a promotional campaign that identifies the park and its subsequent 62-mile stretch of springs as the best such stretch in the country. He additionally recommended posting "You are Here" type signage at the park and all boat ramps on the Suwannee River Wilderness Trail. Mr. Richards supported construction of a Withlacoochee River paddling launch at the park. He emphasized the need to remediate upstream wastewater discharge in Georgia. He urged that attention be given to the upgrade of wastewater treatment facilities along the waterways that affect the park. He also noted that protection of the park resources and water quality in the watershed is paramount, given the high visitation and role in local tourism.

Craig Liney (Madison Blue Spring State Park) noted that the park experiences management challenges, but that volunteer support makes many of these challenges more manageable. He complimented the local publicity efforts put forth via social media. Mr. Liney recounted a story of an Ohio tourist family that very much enjoyed Madison Blue Spring State Park and has made a point to return.

Richard McCulley (Local Private Property Owner, McCulley Farms) commented that he has maintained a lifelong appreciation of Madison Blue Spring as he was born and raised near the park. Mr. McCulley also noted that he raised his family in the park's vicinity and wishes to see continued and increased protection of the springshed. Mr. McCulley noted the value of agriculture in the region, but also emphasized the detriments that industrial agriculture has on spring flows. For recreational opportunity, he suggested that addition of a diving platform above the spring boil would be popular among many visitors. Mr. McCulley emphasized the need to preserve the park's spring features, as few sites comparable to Madison Blue Spring exist elsewhere in the world.

Ginger Morgan (Florida Fish and Wildlife Conservation Commission, North Central Region) emphasized community outreach and education and offered to assist the park moving forward with planning and interpretation. She inquired about the park's monitoring of water quality and the population of troglobitic invertebrates. Ms. Morgan noted that the water bottling permit and groundwater permit are the same. She also explained the distinction between tannic water and brown water; tannic water being the healthy norm and brown water being associated with flood stage and contamination. Ms. Morgan suggested that the park could develop more interpretive signage and programs to educate the public about the springshed and best management practices.

Buck Carpenter (Madison Soil and Water Conservation District) identified adjacent and nearby agricultural fields that use best management practices with regard to water conservation and use of fertilizers and pesticide applications. Mr. Carpenter commented that water clarity in the spring has most likely not been adversely affected by herbicide and pesticide applications due to the Florida Department of Agriculture and Consumer Service's (FDACS) enforcement of product labeling. He further stated that the FDACS program combined with the implementation of Agricultural Best Management Practices (BMPs) eliminates the possibility of herbicidal and pesticidal ingredients from reaching the spring's water supply. He described current tilling and irrigation practices on nearby crop fields that promote protection of the springshed. He additionally recommended insertion of BMP and Basin Management Plan (BMAP) language under the hydrology section of the Resource Management Component.

Michael Stine (North Florida Springs Alliance, Citizen Support Organization) stated that he moved from Louisiana to this region of Florida largely for access to the acclaimed cave diving sites. He noted the highly international tourism in the park. He commended the park's efforts to control erosion. He stated that the long-term goal of relocating the park entrance and facilities makes sense, emphasizing that the plan must take into account the karst features in the park, including sinkholes distributed throughout the property. He stated that relocating the entrance and driveway needs to avoid all sinkholes in order to protect the cave system. Mr. Stine also noted that although the CSO consists largely of cave divers, most of the CSO's work takes place above ground to improve park facilities and interpretation. He commended the plan for identifying Martz Sink as a cave diving access point. He stated that the CSO is replacing the Martz Sink access steps. Mr. Stine recommended removing a defunct treated-lumber diving platform and cinder blocks from the main spring basin. He cautioned that the pilings of the underwater platform are deep, noting that removal of pilings would require soil disturbance and a prerequisite archaeological survey. Mr. Stine urged the DRP to check with prior owners of the property concerning any sediment removal, which may have occurred in both the basin and cavern. He stated that the CSO could potentially contribute to basin-wide signage, based on completed cave mapping for interpreting and delineating the springshed. He encouraged DEP to work with other agencies and

land owners to designate a spring protection zone encompassing the watershed that supplies the spring, stating that without protecting both the quality and quantity of water supplying Madison Blue Spring, the main feature of the park is at risk. Mr. Stine stated that the park's troglobitic species are limited to a few locations in the cave, most likely due to frequent high flow rates in the majority of the cave system. He advised that several locations could be monitored for presence of troglobitic species, but a survey similar in scale to those conducted in Peacock, Bonnet, Rose, and Blue Hole is not warranted. He encouraged the DRP to coordinate with research permit holders to monitor fauna in Madison Blue Spring.

Summary of Public Comments

Tyler Shadrick commented that he has been a long time visitor of the park and has observed how widely to tourists travel to visit the park, as evidenced by the variety of license plates at the park. He noted that the park generates substantial revenue beyond the admission fee, particularly benefiting local businesses in the area. He observed that old photos show higher water levels and more spring discharge emphasizing that this should be monitored. Mr. Shadrick also inquired about recharge points for this section of the springshed and what plans for protection and interpretation may be developed.

Betty Johnson emphasized the increase in Madison County's tourism and regional value that the park brings to the area. She recommended expansion of the optimum boundary for the park. She recommended designation of the north-central Florida springsheds as an Area of Critical State concern through the Florida Department of Economic Opportunity. Ms. Johnson also noted that Cherry Lake, which is located 15 miles northwest of the park, is a recharge point for Madison Blue Spring.

Staff Recommendations

- The DRP will continue to work with other state agencies, local governments, and property owners within the park's vicinity to promote best management practices for the park's springshed.
- The DRP will continue to coordinate with permit holders to research populations of troglobitic invertebrates within the park's cave system.
- The DRP will continue to work with Madison County to further develop wayfinding signage to the park and coordinate placement of signage within the park's vicinity to indicate the location of the cave system and spring basin.
- The park will coordinate with the Division of Historical Resources to develop interpretive programming on the site's cultural heritage.

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

Notes on Composition of the Advisory Group

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

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

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

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Addendum 4 — Soil Descriptions

(14) Lucy sand, 5 to 8 percent slopes – This gently sloping to sloping, well-drained soil is on side slopes and narrow ridges. Typically, the surface layer is very dark grayish brown sand about 11 inches thick. The subsurface layer, to a depth of about 24 inches, is strong brown loamy sand. The upper part of the subsoil, to a depth of about 34 inches, is yellowish red fine sandy loam. The lower part, to a depth of 80 inches or more, is sandy clay loam. This soil is moderately permeable, with a low available water capacity. The seasonal high water table is below 72 inches from the surface.

(26) Troup sand, 0 to 5 percent slopes – This soil is nearly level to gently sloping, well-drained, and found on the Coastal Plain uplands. Typically, the surface layer is dark grayish brown sand about 8 inches thick. The subsurface layer has two parts. The upper part is a dark yellowish brown sand, to a depth of 18 inches, and below this, to 68 inches, is yellowish brown sand. The subsoil also has two parts: a strong brown loamy sand, to a depth of 74 inches, comprises the upper part, while the lower part is a strong brown sandy clay loam extending to a depth of 80 inches or more. Permeability of this soil is moderate, and available water capacity is very low. The seasonal high water table is below 72 inches from the surface.

(66) Lovett sand, 5 to 8 percent slopes – This gently sloping to sloping, moderately well-drained soil is on short side slopes on the uplands. Typically, the surface layer is dark grayish brown sand about 6 inches thick. The subsurface layer, to a depth of about 36 inches, is brownish yellow sand that has pale brown mottles. The subsoil, which extends to a depth of about 80 inches, is comprised of two parts. The upper part is brownish yellow sandy clay loam and the lower part is reticulately mottled red, gray, and yellowish-brown clay. Soil permeability is slow to moderately slow, and available water capacity is low to medium. The seasonal high water table is perched at a depth of 36 to 54 inches.

(67) Udorthents, loamy – This map unit consists of areas that have been excavated by earth-moving equipment. Excess water ponds in low-lying areas for long periods after heavy rainfall. Slopes are highly variable, ranging from nearly level to steep. Typically, these soils are sandy clay loam to a depth of 60 inches. The upper part is mottled strong brown, weak red, light gray, and pale yellow to a depth of about 13 inches. The next part, to a depth of about 33 inches, is dark reddish brown, strong brown, and white. The lower part is coarsely mottled dark reddish brown, strong brown, and white, with large pockets of sandy loam material. The surface layer of these soils is very sticky when wet and dries slowly. Soil properties, including permeability, depth to the water table, and available water capacity, are too variable to estimate.

(77) Surrency, Plummer, and Cantey soils, frequently flooded – These soils, found on river and creek floodplains, are nearly level and are poorly to very poorly drained. They are frequently flooded for very long periods following prolonged, high intensity rains. Surrency and similar soils make up about 33 percent of the map unit, Plummer and similar soils make up about 32 percent, and Cantey and similar soils make up about 25 percent. Every soil is not in every mapped area; the relative proportion of combinations varies.

The Surrency soil is very poorly drained. Typically, the surface layer is black loamy sand about 10 inches thick. The subsurface layer, to a depth of about 33 inches, is light brownish gray sand. The subsoil, which extends to a depth of about 80 inches, is comprised of two parts. The upper part is dark gray sandy clay loam, while the lower part is gray sandy clay.

Plummer soils are poorly drained. Typically, the surface layer is black fine sand about 4 inches thick. The subsurface layer has two parts: an upper part that is light gray fine sand and lower part that is light brownish gray fine sand and extends to a depth of 58 inches. The subsoil, to a depth of 80 inches or more, is light brownish gray, sandy clay loam.

Cantey soil is poorly drained. Typically, the surface layer is about 10 inches thick. The top 5-inch layer is very dark gray fine sandy loam, while the lower part is dark gray fine sandy loam. The subsurface layer, to a depth of 19 inches, is light brownish gray, fine sandy loam. The subsoil is comprised of two parts: the upper part is light brownish gray sandy clay and the lower part, to a depth of about 80 inches or more, is gray, mottled sandy clay.

The seasonal high water table in this mapping unit is at a depth of 0 to 6 inches. The Surrency and Plummer soils are characterized by a moderate permeability and low available water capacity. Of the Cantey soil, permeability and available water capacity are slow and moderate, respectively.

(78) Alpin fine sand, occasionally flooded – This soil is nearly level to gently sloping and is in excessively drained uplands adjacent to floodplains. Typically, the surface layer is dark brown fine sand about 4 inches thick. The subsurface layer has two parts. The upper part is light yellowish brown fine sand and below this to 55 inches is very pale brown fine sand. The subsoil below this, to 80 inches, is white fine sand that has horizontal bands of yellowish brown sand. Included in this mapping unit are small areas of Eunola and Troup soils that have loamy subsoils from 20 to 40 inches. The seasonal high water table is below 72 inches of the surface. Permeability is rapid, and available water capacity is low.

(80) Kenansville loamy fine sand, occasionally flooded – This well-drained soil is nearly level to gently sloping and found on river terraces. Small sinkholes occur in some areas. This soil is occasionally flooded for long periods following prolonged, high intensity rains. Typically, the surface layer is dark gray loamy fine sand about 4 inches thick. The subsurface layer, to a depth of about 22 inches, is pale brown and pale yellow loamy fine sand. The subsoil is comprised of three parts: the upper part, to a depth of 26 inches, is brownish yellow fine sandy loam; the middle part, to a depth of 49 inches, is yellowish brown sandy clay loam; and the lower part, to a depth of 56 inches, is brownish yellow fine sandy loam. The substratum, comprised of two parts, is pale yellow fine sand on top (to a depth of 69 inches) and white fine sand underneath (to a depth of about 80 inches or more). This soil is moderately permeable and has a low available water capacity. The seasonal high water table is below 72 inches from the surface.

(99) Water

Addendum 5—Plant and Animal List

Madison Blue Spring State Park

Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)

PTERIDOPHYTES

Japanese climbing fern ..... *Lygodium japonicum* *
Resurrection fern ..... *Pleopeltis polypodioides* var. *michauxiana*
Tailed bracken ..... *Pteridium aquilinum* var. *pseudocaudatum*

GYMNOSPERMS

Leyland cypress ..... *Cupressus x leylandii* *
Red cedar ..... *Juniperus virginiana*
Longleaf pine ..... *Pinus palustris*
Loblolly pine ..... *Pinus taeda*
Yew plum pine ..... *Podocarpus macrophyllus* *
Pond-cypress ..... *Taxodium ascendens*
Bald-cypress ..... *Taxodium distichum*

ANGIOSPERMS

MONOCOTS

Greendragon ..... *Arisaema dracontium*
Wiregrass ..... *Aristida stricta* var. *beyrichiana*
Hedge bamboo ..... *Bambusa multiplex* *
Longleaf woodoats ..... *Chasmanthium laxum* var. *sessilflorum*
Yam ..... *Dioscorea* sp.
Centipedegrass ..... *Eremochloa ophiuroides* *
Yellow stargrass ..... *Hypoxis* sp.
Lilyturf ..... *Liriope* sp. *
Woodsgrass; Basketgrass ..... *Oplismenus hirtellus*
Beaked panicum ..... *Panicum anceps*
Bahiagrass ..... *Paspalum notatum* *
Blackseed needlegrass ..... *Piptochaetium avenaceum*
Dwarf palmetto ..... *Sabal minor*
Saw palmetto ..... *Serenoa repens*
Laurel greenbrier ..... *Smilax laurifolia*
Spanish moss ..... *Tillandsia usneoides*

DICOTS

Red maple ..... *Acer rubrum*
Florida maple ..... *Acer saccharum* subsp. *floridanum*
Red buckeye ..... *Aesculus pavia*
Hammock snakeroot ..... *Ageratina jucunda*

*** Non-native species**

Madison Blue Spring State Park

Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Silktree; Mimosa	*Albizia julibrissin* *	
Bastard false indigo	*Amorpha fruticosa*	
Slimleaf pawpaw	*Asimina angustifolia*	
White wild indigo	*Baptisia alba*	
River birch	*Betula nigra*	
Beggarticks; Romerillo	*Bidens alba*	
Spanish needles	*Bidens bipinnata*	
Crossvine	*Bignonia capreolata*	
False nettle; Bog hemp	*Boehmeria cylindrica*	
American beautyberry	*Callicarpa americana*	
Trumpet creeper	*Campsis radicans*	
Coastalplain chaffhead	*Carphephorus corymbosus*	
American hornbeam	*Carpinus caroliniana*	
Water hickory	*Carya aquatica*	
Pignut hickory	*Carya glabra*	
Mockernut hickory	*Carya tomentosa*	
Sugarberry; Hackberry	*Celtis laevigata*	
Spadeleaf	*Centella asiatica*	
Spurred butterfly pea	*Centrosema virginianum*	
Common buttonbush	*Cephalanthus occidentalis*	
Eastern redbud	*Cercis canadensis*	
Partridge pea	*Chamaecrista fasciculata*	
White fringetree	*Chionanthus virginicus*	
Swamp leather-flower	*Clematis crispa*	
Atlantic pigeonwings	*Clitoria mariana*	
Tread-softly	*Cnidoscolus stimulosus*	
Carolina coralbead	*Cocculus carolinus*	
Tickseed	*Coreopsis* sp.	
Swamp dogwood	*Cornus foemina*	
Parsley hawthorn	*Crataegus marshallii*	
Michaux's hawthorn	*Crataegus michauxii*	
Green hawthorn	*Crataegus viridis*	
Rabbitbells	*Crotalaria rotundifolia*	
Titi	*Cyrilla* sp.	
Carolina ponysfoot	*Dichondra carolinensis*	
Common persimmon	*Diospyros virginiana*	
Gulf Sebastian-bush	*Ditrysinia fruticosa*	
Oblongleaf twinflower	*Dyschoriste oblongifolia*	
Elephantsfoot	*Elephantopus* sp.	
Climbing fig	*Ficus pumila* *	
Carolina ash; Pop ash	*Fraxinus caroliniana*	
Yellow jessamine	*Gelsemium sempervirens*	
Angle pod	*Gonolobus suberosus*	UHF
Loblolly bay	*Gordonia lasianthus*	
English ivy	*Hedera helix* *	

*** Non-native species**

Madison Blue Spring State Park

Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Purplehead sneezeweed	*Helenium flexuosum*	
Comfortroot	*Hibiscus aculeatus*	
Crimsoneyed rosemallow	*Hibiscus moscheutos*	
St. John's-wort	*Hypericum* sp.	
American holly	*Ilex opaca*	
Yaupon	*Ilex vomitoria*	
Virginia willow	*Itea virginica*	
Crapemyrtle	*Lagerstroemia indica* *	
Sweetgum	*Liquidambar styraciflua*	
Tuliptree; Yellow poplar	*Liriodendron tulipifera*	
Japanese honeysuckle	*Lonicera japonica* *	
Southern magnolia	*Magnolia grandiflora*	
Sweetbay	*Magnolia virginiana*	
Partridgeberry	*Mitchella repens*	
Spotted beebalm	*Monarda punctata*	
Red mulberry	*Morus rubra*	
Southern bayberry; Wax myrtle	*Myrica cerifera*	
Ogeechee tupelo	*Nyssa ogeche*	
Swamp tupelo	*Nyssa sylvatica* var. *biflora*	
Cutleaf eveningprimrose	*Oenothera* sp.	
Wild olive	*Osmanthus americanus*	
Virginia creeper	*Parthenocissus quinquefolia*	
Purple passionflower	*Passiflora incarnata*	
Annual phlox	*Phlox drummondii* *	
Downy phlox	*Phlox pilosa*	
Leafflower	*Phyllanthus* sp.	
Pitted stripeseed	*Piriqueta cistoides* subsp. *caroliniana*	
Narrowleaf silkgrass	*Pityopsis graminifolia*	
Showy milkwort	*Polygala violacea*	
Knotweed; Smartweed	*Polygonum* sp.	
Carolina laurelcherry	*Prunus caroliniana*	
Black cherry	*Prunus serotina*	
Flatwoods plum; Hog plum	*Prunus umbellata*	
Florida mountainmint	*Pycnanthemum floridanum*	UMW
Southern red oak	*Quercus falcata*	
Sand live oak	*Quercus geminata*	
Laurel oak; Diamond oak	*Quercus laurifolia*	
Swamp chestnut oak	*Quercus michauxii*	
Water oak	*Quercus nigra*	
Live oak	*Quercus virginiana*	
Meadowbeauty	*Rhexia* sp.	
Sweet pinxter azalea	*Rhododendron canescens*	
Formosa azalea	*Rhododendron indicum* *	
Winged sumac	*Rhus copallinum*	
Mexican clover	*Richardia* sp.	

*** Non-native species**

Madison Blue Spring State Park

Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Southern dewberry	*Rubus trivialis*	
Carolina wild petunia	*Ruellia caroliniensis*	
Carolina willow	*Salix caroliniana*	
Lyreleaf sage	*Salvia lyrata*	
Skullcap	*Scutellaria* sp.	
Gulf sebastian-bush	*Sebastiania fruticosa*	
Cuban jute	*Sida rhombifolia*	
Bully	*Sideroxylon* sp.	
Goldenrod	*Solidago* sp.	
Queensdelight	*Stillingia sylvatica*	
Hairy dawnflower	*Stylisma villosa*	
Common sweetleaf	*Symplocos tinctoria*	
Spiked hoarypea	*Tephrosia spicata*	
Climbing dogbane	*Thyrsanthella difformis*	
Carolina basswood	*Tilia americana* var. *caroliniana*	
Poison oak	*Toxicodendron* sp.	
Confederate jasmine	*Trachelospermum jasminoides* *	
American elm	*Ulmus americana*	
Stinging nettle	*Urtica dioica* *	
Sparkleberry	*Vaccinium arboreum*	
Highbush blueberry	*Vaccinium corymbosum*	
Shiny blueberry	*Vaccinium myrsinites*	
Deerberry	*Vaccinium stamineum*	
Ironweed	*Vernonia* sp.	
Walter's viburnum	*Viburnum obovatum*	
Violet	*Viola* sp.	
Early blue violet	*Viola palmata*	
Muscadine	*Vitis rotundifolia*	
American wisteria	*Wisteria frutescens*	

*** Non-native species**

Madison Blue Spring State Park

Animals

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)

INVERTEBRATES

Mollusks

Peninsula Amnicola	*Amnicola dalli*	AST
Asian Clam	*Corbicula fluminea* *	AST
Rasp Elimia	*Elimia floridensis*	SRST
Florida Shiny Spike	*Elliptio buckleyi*	AST
Excentric Ancylid	*Hebetancylus excentricus*	AST
Suwannee Moccasinshell	*Medionidus walkeri*	AST
Bugle Sprite	*Micromenetus dilatatus*	AST
Penny Sprite	*Micromenetus floridensis*	AST
Florida Applesnail	*Pomacea paludosa*	AST
Mimic Lynaea	*Pseudosuccinea columella*	AST
Ridged-beak Peaclam	*Psidium compressum*	AST
Striated Fingernailclam	*Sphaerium striatinum*	AST
Banded Mysterysnail	*Viviparus georgianus*	AST

Amphipods

Florida Crangonyctid	*Crangonyx floridanus*	ACV
Florida Cave Crangonyctid	*Crangonyx grandimanus*	ACV
Hobbs' Cave Crangonyctid	*Crangonyx hobbsi*	ACV
Amphipod	*Gammarus* cf. *tigrinus*	SRST, AST
Amphipod	*Hyalella azteca*	SRST, AST

Crayfish

Pallid Cave Crayfish	*Procambarus pallidus*	ACV

Beetles

Punctuated Tiger Beetle	*Cicindela punctulata*	MTC
Florida Deepdigger Scarab	*Peltotrupes profundus*	UMW

Grasshoppers

Green-striped Grasshopper	*Chortophaga viridifasciata*	MTC

Caddisflies

Caddisfly	*Climacia areolaris*	SRST, AST
Fine-net Caddisfly	*Cyrnellus fraternus*	SRST, AST
Spotted Sedge	*Hydropsyche rossi*	SRST, AST
White Miller Caddisfly	*Nectopsyche candida*	SRST, AST
White Miller Caddisfly	*Nectopsyche exquisite*	SRST, AST
Long-horned Sedge	*Oecetis inconspicua*	SRST, AST
Long-horned Caddisfly	*Oecetis persimilis*	SRST, AST

*** Non-native species**

Madison Blue Spring State Park

Animals

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Mayflies		
Small E. Blue-winged Olive	*Baetis intercalaris*	SRST, AST
Mayfly	*Brachycercus maculatus*	SRST, AST
Small Square-gilled Mayfly	*Caenis diminuta*	SRST, AST
Small Minnow Mayfly	*Callibaetis floridanus*	SRST, AST
Speckled Dun	*Callibaetis pretiosus*	SRST, AST
Tiny Blue-winged Olive	*Labiobaetis ephippiatus*	SRST, AST
Flatheaded Mayfly	*Maccaffertium exiguum*	SRST, AST
Small Minnow Mayfly	*Procloeon rufostrigatum*	SRST, AST
Small Minnow Mayfly	*Procloeon viridoculare*	SRST, AST
Mayfly	*Pseudocloeon ephippiatum*	SRST, AST
Mayfly	*Pseudocloeon propinquum*	SRST, AST
Mayfly	*Sparbarus maculatus*	SRST, AST
Light Cahills Mayfly	*Stenacron interpunctatum*	SRST, AST
Mayfly	*Tricorythodes albilineatus*	SRST, AST
Dragonflies and Damselflies		
Variable Dancer	*Argia fumipennis*	SRST
Powered Dancer	*Argia moestra*	SRST
Blue-ringed Dancer	*Argia sedula*	SRST
Blue-tipped Dancer	*Argia tibialis*	SRST
Ebony Jewelwing	*Calopteryx maculata*	SRST, BF
Black-shouldered Spinyleg	*Dromogomphus spinosus*	SRST, AST
Prince Baskettail	*Epitheca princeps*	SRST, AST
Eastern Pondhawk	*Erythemis simplicicollis*	MTC
Blackwater Clubtail	*Gomphus dilatatus*	SRST, AST
Dragonhunter	*Hagenius brevistylus*	SRST, AST
Needham's Skimmer	*Libellula needhami*	MTC
Great Blue Skimmer	*Libellula vibrans*	SRST
Swift River Cruiser	*Macromia illinoiensis*	SRST, AST
Royal River Cruiser	*Macromia taeniolata*	SRST, AST
Cinnamon Shadowdragon	*Neurocordulia virginiensis*	SRST
Blue Dasher	*Pachydiplax longipennis*	MTC
Russet-tipped Clubtail	*Stylurus plagiatus*	MTC
Carolina Saddlebags	*Tramea carolina*	MTC
Butterflies		
Hackberry Butterfly	*Asterocampa celtis*	BF, UHF
Monarch	*Danaus plexippus*	MTC
Horace's Duskywing	*Erynnis horatius*	MTC
Barred Yellow	*Eurema daira*	MTC
Little Yellow Sulphur	*Eurema lisa*	MTC
Sleepy Orange	*Eurema nicippe*	MTC
Zebra Swallowtail	*Eurytides marcellus*	UMW
Carolina Satyr	*Hermeuptychia sosybius*	BF, UHF

***** **Non-native species**

Madison Blue Spring State Park

Animals

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Buckeye	*Junonia coenia*	MTC
Clouded Skipper	*Lerema accuis*	MTC
Red-spotted Purple	*Limenitis arthemis astyanax*	MTC
Eastern Tiger Swallowtail	*Papilio glaucus*	MTC
Palamedes Swallowtail	*Papilio palamedes*	MTC
Black Swallowtail	*Papilio polyxenes*	MTC
Cloudless Sulphur	*Phoebis sennae*	MTC
Pearl Crescent	*Phyciodes tharos*	MTC
Whirlabout	*Polites vibex*	MTC
Tropical Checkered Skipper	*Pyrgus oileus*	MTC
Moths		
Luna Moth	*Actias luna*	MTC
Regal Moth	*Citheronia regalis*	MTC
FISH		
Gulf Sturgeon	*Acipenser oxyrhynchus desotoi*	AST
White Catfish	*Ameiurus catus*	AST
Yellow Bullhead	*Ameiurus natalis*	AST
Brown Catfish	*Ameiurus nebulosus*	AST
Warmouth	*Lepomis gulosus*	AST, SRST
Bluegill	*Lepomis macrochirus*	AST, SRST
Spotted Sunfish	*Lepomis punctatus*	AST, SRST
Suwannee Bass	*Micropterus notius*	AST
Striped Mullet	*Mugil cephalus*	AST, SRST
Golden Shiner	*Notemigonus crysoleucas*	AST
Coastal Shiner	*Notropis petersoni*	AST
AMPHIBIANS		
Frogs and Toads		
Southern Toad	*Anaxyrus terrestris*	MTC
Cope's Gray Treefrog	*Hyla chrysocelis*	MTC
REPTILES		
Crocodilians		
American Alligator	*Alligator mississippiensis*	AST
Turtles		
Gopher Tortoise	*Gopherus polyphemus*	UMW, DV

***** **Non-native species**

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Suwannee Cooter	*Pseudemys suwanniensis*	AST
Lizards		
Green Anole	*Anolis carolinensis*	MTC
Southeastern Five-lined Skink	*Plestiodon inexpectatus*	MTC
Broad-headed Skink	*Plestiodon laticeps*	UMW, UHF
Snakes		
Southern Black Racer	*Coluber constrictor priapus*	MTC
Easterm Coral Snake	*Micrurus fulvius*	UHF
Red-bellied Water Snake	*Nerodia erythrogaster erythrogaster*	AST
BIRDS		
Herons and Egrets		
Great Egret	*Ardea alba*	AST, SRST, OF
New World Vultures		
Turkey Vulture	*Cathartes aura*	OF
Hawks, Eagles, and Kites		
Mississippi Kite	*Ictinia mississippiensis*	OF
Red-shouldered Hawk	*Buteo lineatus*	AF, UHF, OF
Sandpipers		
Spotted Sandpiper	*Actitis macularius*	AST, SRST
Cuckoos		
Yellow-billed Cuckoo	*Coccyzus americanus*	UHF, UMW
Owls		
Great Horned Owl	*Bubo virginianus*	UMW, UHF
Nightjars		
Eastern Whip-poor-will	*Antrostomus vociferus*	UMW, UHF, DV
Woodpeckers		
Red-bellied Woodpecker	*Melanerpes carolinus*	UHF, AF, DV
Yellow-bellied Sapsucker	*Sphyrapicus varius*	UHF, DV
Pileated Woodpecker	*Dryocopus pileatus*	UHF
Tyrant Flycatchers		
Acadian Flycatcher	*Empidonax virescens*	AF

***** **Non-native species**

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Vireos		
White-eyed Vireo	*Vireo griseus*	UMW, DV
Crows and Jays		
Blue Jay	*Cyanocitta cristata*	MTC
American Crow	*Corvus brachyrhynchos*	MTC
Fish Crow	*Corvus ossifragus*	MTC
Tits and Allies		
Carolina Chickadee	*Poecile carolinensis*	MTC
Tufted Titmouse	*Baeolophus bicolor*	MTC
Wrens		
Carolina Wren	*Thryothorus ludovicianus*	MTC
New World Warblers		
Ovenbird	*Seiurus aurocapilla*	UHF
Northern Parula	*Setophaga americana*	UHF, AF, DV
Yellow-throated Warbler	*Setophaga dominica*	UMW, DV
Tanagers		
Summer Tanager	*Piranga rubra*	UMW, DV
Cardinals, Grosbeaks and Buntings		
Northern Cardinal	*Cardinalis cardinalis*	MTC

MAMMALS

Edentates		
Nine-banded Armadillo	*Dasypus novemcinctus* *	MTC
Lagomorphs		
Eastern Cottontail	*Sylvilagus floridanus*	MTC
Rodents		
Eastern Gray Squirrel	*Sciurus carolinensis*	MTC
Carnivores		
Raccoon	*Procyon lotor*	MTC
Artiodactyls		
White-tailed Deer	*Odocoileus virginianus*	MTC

*** Non-native species**

Addendum 6—Imperiled Species Ranking Definitions

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

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

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

FNAI GLOBAL RANK DEFINITIONS

G1 ..... Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or fabricated factor.

G2 ..... Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

G3 ..... Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.

G4 ..... apparently secure globally (may be rare in parts of range)

G5 ..... demonstrably secure globally

GH ..... of historical occurrence throughout its range may be rediscovered (e.g., ivory-billed woodpecker)

GX ..... believed to be extinct throughout range

GXC ..... extirpated from the wild but still known from captivity or cultivation

G#? ..... Tentative rank (e.g.,G2?)

G#G# ..... range of rank; insufficient data to assign specific global rank (e.g., G2G3)

G#T# ..... rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)

G#Q..... rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
G#T#Q..... same as above, but validity as subspecies or variety is questioned.
GU ..... due to lack of information, no rank or range can be assigned (e.g., GUT2)
G?..... Not yet ranked (temporary)
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 or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
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.

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.
EXPE, XE..... Experimental essential population. A species listed as experimental and essential.
EXPN, XN .... Experimental non-essential population. A species listed as experimental and non-essential. Experimental, nonessential populations of endangered species are treated as threatened species on public land, for consultation purposes.

STATE

ANIMALS .. (Listed by the Florida Fish and Wildlife Conservation Commission - FWC)

FE ..... Federally-designated Endangered

FT ..... Federally-designated Threatened

FXN..... Federally-designated Threatened Nonessential Experimental Population

FT(S/A) ..... Federally-designated Threatened species due to similarity of appearance

ST ..... Listed as Threatened Species by the FWC. Defined as a species, subspecies, or isolated population, which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat, is decreasing in area at a rapid rate and therefore is destined or very likely to become an endangered species within the near future.
SSC..... Listed as Species of Special Concern by the FWC. Defined as a population which warrants special protection, recognition or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance or substantial human exploitation that, in the near future, may result in its becoming a threatened species.

PLANTS .... (Listed by the Florida Department of Agriculture and Consumer Services - FDACS)

LE ..... Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973,as amended.

LT ..... Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered.

Addendum 7— Cultural Information

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, '*Historic property' or 'historic resource' means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state."*

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the project, permit, grant, etc.

State agencies shall preserve the historic resources which are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found at:
http://www.flheritage.com/preservation/compliance/guidelines.cfm

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. Recommendations may include, but are not limited to: approval of the project as submitted, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration, or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination. In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case by case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should make preparations for locating and evaluating historic resources, both archaeological sites and historic structures.

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at: http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf .

* * *

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

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

Phone: (850) 245-6425

Toll Free: (800) 847-7278
Fax: (850) 245-6435

The criteria to be used for evaluating eligibility for listing in the National Register of Historic Places are as follows:

1) Districts, sites, buildings, structures, and objects may be considered to have significance in American history, architecture, archaeology, engineering, and/or culture if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- **a)** are associated with events that have made a significant contribution to the broad patterns of our history; and/or
- **b)** are associated with the lives of persons significant in our past; and/or
- **c)** embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or
- **d)** have yielded, or may be likely to yield, information important in prehistory or history.

2) Ordinarily cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years shall not be considered eligible for the *National Register*. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

- **a)** a religious property deriving its primary significance from architectural or artistic distinction or historical importance; or
- **b)** a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
- **c)** a birthplace or grave of an historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
- **d)** a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, distinctive design features, or association with historic events; or

e) a reconstructed building, when it is accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and no other building or structure with the same association has survived; or a property primarily commemorative in intent, if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

f) a property achieving significance within the past 50 years, if it is of exceptional importance.

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations and additions while preserving those portions or features that convey its historical, cultural or architectural values.

Stabilization is defined as the act or process of applying measures designed to reestablish a weather resistant enclosure and the structural stability of an unsafe or deteriorated property while maintaining the essential form as it exists at present.

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.