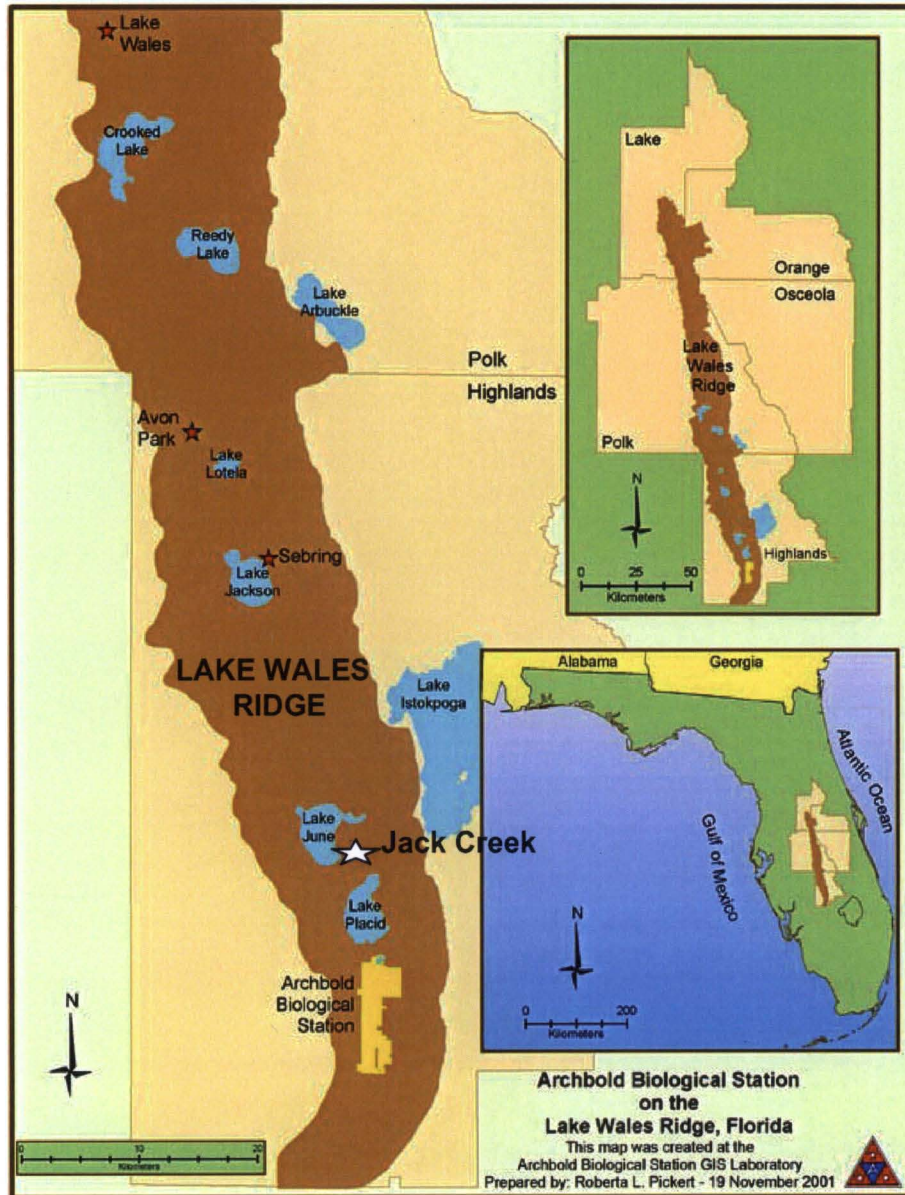


A Plan for the Use and Management of the Jack Creek Project



August 2005

Southwest Florida Water Management District
Brooksville, Florida



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Project**

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July 1, 2005

Southwest Florida Water Management District
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If a disabled individual wishes to obtain the information contained in this document in another form, please contact Cheryl Hill at 1-800-423-1476, extension 4452; TDD ONLY 1-800-231-6103; FAX (352)754-6877.

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EXECUTIVE SUMMARY

The 1,268-acre Jack Creek Project was acquired in 1989. It is located in west central Highlands County approximately 10 miles south of Sebring and is within the Lake Wales Ridge Watershed in the Peace River Basin.

The lands within the project have been designated a remote-parkland for public use planning and management purposes. Public use of the tract includes fishing and hiking as well as hiking related activities such as birdwatching, picnicking, wildlife photography, nature study, etc. The Jack Creek Project provides visitors an opportunity to observe the unique flora and fauna of scrub-type habitats that once dominated the Lake Wales Ridge landscape. Four walk-thru gates provide access to three sides of the property. Parking is available in a small grassy area at the access point on Grand Concourse or on the road shoulders adjacent to the other three walk-thru gates. Seven miles of unmarked roads are open for hiking.

Water management benefits achieved by the acquisition and management of Jack Creek are flood control, water quality protection and natural systems preservation. Approximately 389 acres of the property are within the 100-year floodplains of Jack and Josephine Creeks. Jack Creek is within the Lake Wales Ridge ecosystem that is recognized as one of the most unique and imperiled natural habitats in Florida. The scrub type habitat preserved on the property supports many of the native species that live within this unique ecosystem.

Jack Creek has approximately 560 acres of wetlands and 726 acres of uplands. The wetlands are predominantly basin swamp, located in the floodplain of Jack Creek, and the uplands are scrubby and mesic flatwoods interspersed with patches of scrub. The uplands have been altered to some degree from logging and agricultural activities, but still contain most of the vegetative components associated with the habitat type. The wetland habitat appears to be mostly intact and functioning naturally. The habitat quality of approximately 44 percent of the uplands have been successfully improved through upland restoration projects and land management activities such as mechanical site preparation and prescribed burning.

Water resource restoration projects have been identified for Jack Creek as part of the Lake Wales Ridge Public Lands Hydrologic and Water Quality Restoration Project, but have not yet been started. This is an outcome of the Lake Wales Ridge Lake Management Strategy. The objective of this effort is to identify opportunities to maximize the regional water resource benefits to the Lake Wales Ridge watershed provided by lands now in public ownership. Hydrologic restoration projects identified in this project will support Southern Water Use Caution Area (SWUCA) objectives.

Twenty rare species of native flora and fauna have been documented on Jack Creek. Management of rare species populations has been achieved by improving the quality of the habitats where the rare species live. This is done primarily by using prescribed fire to re-establish the natural fire process in the uplands and by preserving the

floodplain wetlands. No species-specific management actions have been deemed necessary for the protection of any rare species. Minor infestations of invasive exotic species, both flora and fauna, occur on the property. Management actions have brought them under control to the point that they are not posing an immediate threat to native species.

One Special Protection Area has been designated within Jack Creek for the monitoring well sites. Additional areas were not designated because no archaeological sites have been documented and known rare species are not endangered by management or public use activities recommended in this plan.

INTRODUCTION

The 1,286-acre Jack Creek Project is located in west central Highlands County approximately 9 miles south of Sebring, Figure 1. It is within the District's Lake Wales Ridge Watershed in the Peace River Basin. The project originally delineated approximately 2,446 acres for acquisition, but in 2001 the Governing Board determined that no further acquisitions would be made and the project boundaries were redrawn to include only the parcel acquired in 1989 (SWFWMD 2001). The acquisition and management of the Jack Creek Project help the District achieve three water management benefits: flood protection, water quality protection and preservation of natural systems.

The Jack Creek Project protects unique Florida scrub habitats that once dominated the 80,000 to 100,000 acres of uplands along the Lake Wales Ridge. The lands in this region are located along the highest elevations in peninsular Florida, approximately 300 feet above sea level, and contain a variety of desert/scrub-type habitats even though they receive an average of 50 inches of rain per year. The region is home to 26 known species of rare plants and animals according to researchers at the Archibold Biological Station.

The District is part of the Lake Wales Ridge Ecosystem Working Group (LWREWG) which consists of state, federal and private conservation agencies that manage conservation lands in the Lake Wales Ridge Region. These agencies share information,

coordinate research and management efforts, and promote public awareness of the uniqueness of the Lake Wales Ridge Ecosystem. The LWREWG estimates that approximately 83 percent of the native upland habitats along the ridge have been converted to citrus groves, farms or residential developments in the last 120 years (LWREWG 1999).

This management plan was developed to guide the use and management of Jack Creek in accordance with District Policy 610-3 and District Procedure 61-3. It was written to provide a succinct summary of resources and management actions to date, and to develop future management actions that are measurable and verifiable. Brief background statements will be provided within each section, but detailed policy discussions already outlined in other District documents or publications will be minimal.

The plan consists of five sections: Project Attributes, Conceptual Land Use Plan, Administration, References and Work Plan. The Project Overview section describes the water and ecological resources on the property. The Conceptual Land Use Plan describes the management actions that have occurred since the property was acquired and recommended future management actions. The Administration and Reference sections document the management partnerships and sources of information in the plan. The Work Plan is a summary of all the management actions identified in the plan.

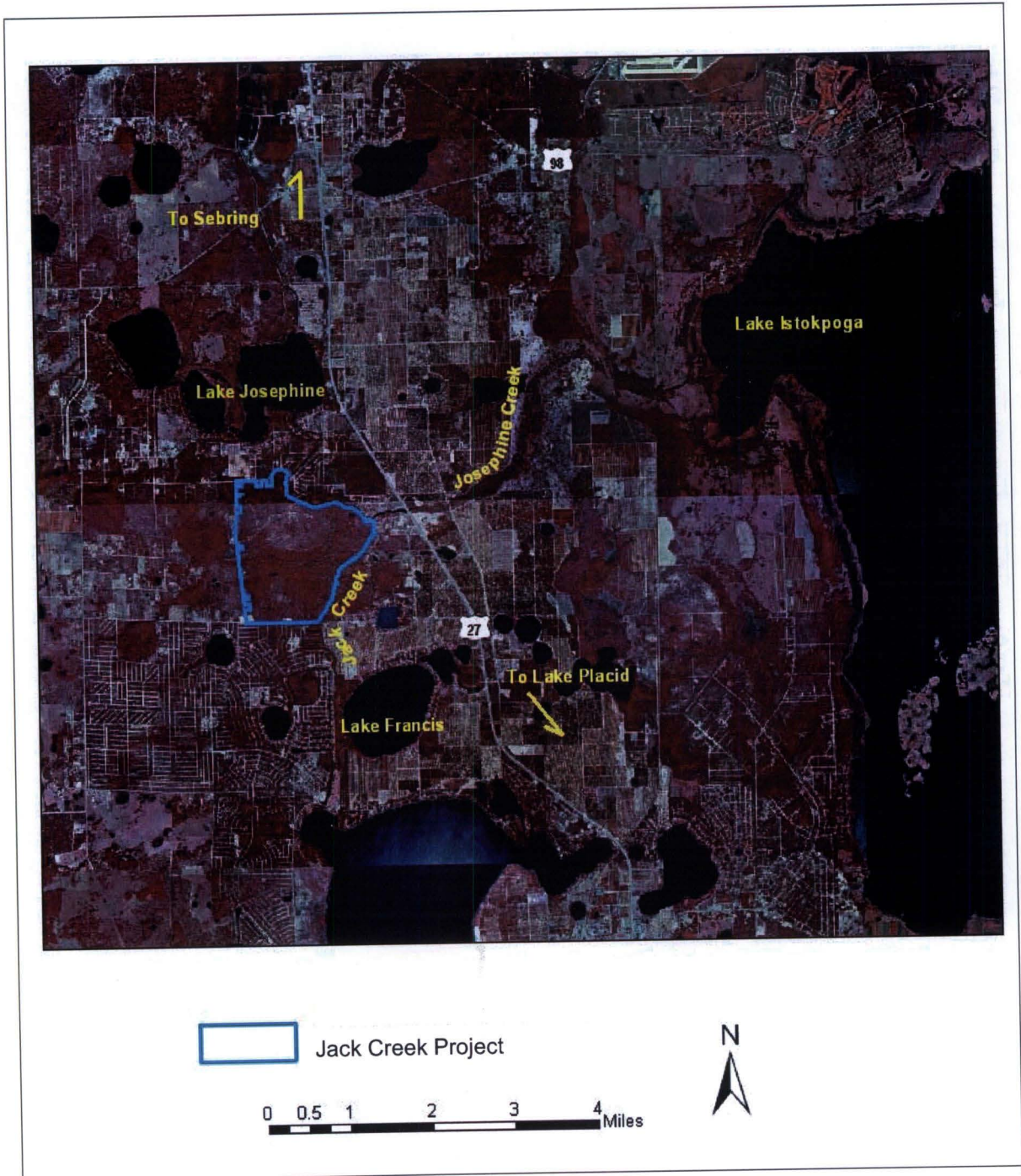


FIGURE 1. Location of Jack Creek Project

PROJECT ATTRIBUTES

The 1,286-acre Jack Creek Project is located within the Lake Wales Ridge ecosystem. This ecosystem contains unique natural communities which are considered to be imperiled in Florida. The LWREWG estimates that this ecosystem has lost more than 83 percent of its upland habitat area in the last 120 years (LWREWG 1999). Jack Creek has approximately 560 acres of wetlands and 726 acres of uplands. The wetlands are predominantly basin swamp located in the floodplain of Jack Creek and appear to be mostly intact and functioning naturally. Approximately 389 acres of wetlands are within the 100-year floodplains of Jack and Josephine Creeks. The uplands are a mixture of scrubby/mesic flatwoods with patches of scrub interspersed throughout. The uplands have been altered to some degree from logging and agricultural activities, but still contain most of the vegetative components associated with the habitat types.

Jack Creek is classified as a remote-parkland for public use activities, in accordance with District's guidelines for development of management plans (Christianson 1988). This classification is based on the small size of the property, a population of less than 100,000 people within a 10-mile radius, minor evidence of human influence throughout the property, and the close proximity of a housing development and U.S. Highway 27 corridor (USCB 2003). Even though no interior roads are open to vehicles and the property is in a natural condition, it is considered a motorized natural area due to the effects from the public roads that border it on three sides. Public use and recreation on a property classified as a remote-

parkland is expected to be low and limited recreational facilities will be provided. Remote parklands are areas for visitors that want a solitary, nature preserve-type experience with little or no evidence of human intrusion and good opportunities for viewing wildlife.

The importance of protecting the natural communities found on Jack Creek has been recognized by both the Florida Fish and Wildlife Conservation Commission (FWC) and the LWREWG. According to the FWC in their "Closing the Gaps in Florida's Wildlife Habitat Conservation System" report the tract has been delineated as a biodiversity hot spot (Cox et. al., 1994). Jack Creek is rated in the highest category for potential to support focal species, more than seven. Focal species require a broad range of ecological needs and their presence is considered to be an indicator of an area's potential to provide habitat for other species that have similar habit requirements.

The inter-agency Lake Wales Ridge Working Group states in their publication on the Lake Wales Ridge, "Florida's Ancient Islands", that the area was periodically separated from North America by rising sea levels during recent ice ages and the species that inhabit the ridge were isolated from continental populations of similar species. Some species developed differences that persisted when the sea receded and the Lake Wales Ridge was reunited with North America. This has resulted in the area having one of the highest concentrations in North America of endemic species (Dobson 1997).

The Jack Creek Project provides habitat for 20 known rare plant and animal species, Table 1. Information on rare species was obtained from staff observations and the following sources: Florida Fish and Wildlife Conservation Commission Breeding Bird Surveys, 1986-91; United States Fish and Wildlife Service Scrub Jay Surveys, 1992-96; Archibold Biological Station Scrub Jay Survey, 1993; Florida Natural Areas Inventory Species Occurrence Database (FNAI 2004); SWFWMD Resource Monitoring Reports (SWFWMD 1996-2001).

Common Name	Scientific Name
Ashe's Savory	<i>Calamintha asheyi</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Black Bear	<i>Ursus americanus floridanus</i>
Blue Tail Mole Skink	<i>Eumeces egregious lividus</i>
Britton's Bear Grass	<i>Nolina brittoniana</i>
Carter's Mustard	<i>Warea cateri</i>
Cutthroat Grass	<i>Panicum abscissum</i>
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>
Florida Gopher Frog	<i>Rana capito aesopus</i>
Florida Mouse	<i>Podomys floridanus</i>
Florida Scrub Lizard	<i>Sceloporus woodi</i>
Gopher Tortoise	<i>Gopherus polyphemus</i>
Hairy Jointweed	<i>Polygonella basiramia</i>
Highlands Scrub St. John's-wort	<i>Hypericum cumulicola</i>
Nodding Pinweed	<i>Lechea cernua</i>
Paper-like Nail-wort	<i>Paronychia chartacea</i>
Scrub Blazing Star	<i>Liatris ohlingerae</i>
Scrub Jay	<i>Aphelocoma coerulescens</i>
Scrub Stylisma	<i>Stylisma abdita</i>
Small's Wireweed	<i>Polygonella myriophylla</i>

Table 1. Jack Creek Project Rare Species List

LANDCOVER

The 1,286-acre tract is comprised of approximately 560 acres of wetlands and 726 acres of uplands. The District's landcover data was utilized to delineate habitat types and develop a habitat map of the property, Figure 2.

WETLANDS

The wetlands are comprised of 483 acres of river and stream swamp and 77 acres of freshwater marsh (SWFWMD 2004). The wetlands do not appear to have been disturbed by human activity and have maintained their natural character (SWFWMD 1989). The elevated canal banks along Josephine Creek have blocked the historic hydrological connection between the creek and wetlands in the northern portion of the property. The channelization of Josephine Creek potentially could be limiting the inundation period of the wetlands during high water levels in the creek. This does not appear to have effected flora composition, but the alteration of the hydroperiod may be altering species distribution and frequency to some degree. The wetland fauna may be impacted because the isolated wetlands may not be connected as often as they were historically and migration between sub-populations may be less frequent.

The river and stream swamp habitat areas consist primarily of redbay, sweetbay, red maple, blackgum, Carolina holly and slash pine (SWFWMD 1989). Small areas of baygall, seepage slopes and floodplain swamps are interspersed throughout the

river and stream swamp to varying degrees based on minor topographical changes and differences in soil moisture. The exclusion of fire by prior landowners has caused the ecotone areas between the uplands and the wetlands to become overgrown. This has resulted in a change in the structure of the flora and could be negatively affecting the fauna species that historically would inhabit transitional zones.

UPLANDS

The uplands are comprised primarily of scrubby flatwoods and mixed scrubby/mesic flatwoods, totaling 706 acres. Patches of scrub are scattered throughout where minor topographic changes have created a drier microclimate. The remaining upland areas, 20 acres, are small areas of hardwoods and highly disturbed lands. Most of the uplands appear to have been impacted somewhat by human activity such as conversion to native range or other agricultural operations (SWFWMD 1989). The uplands retain much of their natural species composition, but probably have had the species distribution and age class structure altered to some degree. Field surveys conducted by the LWREWG confirm a change in species structure when they identified that a disproportionately high number of large, mature sandpines and sand live oaks occur in the uplands (Will Vangelder, pers. com. 2004). Although these species are commonly found in scrub habitat, the exclusion of fire has allowed a higher than expected number of large, mature trees to occur.

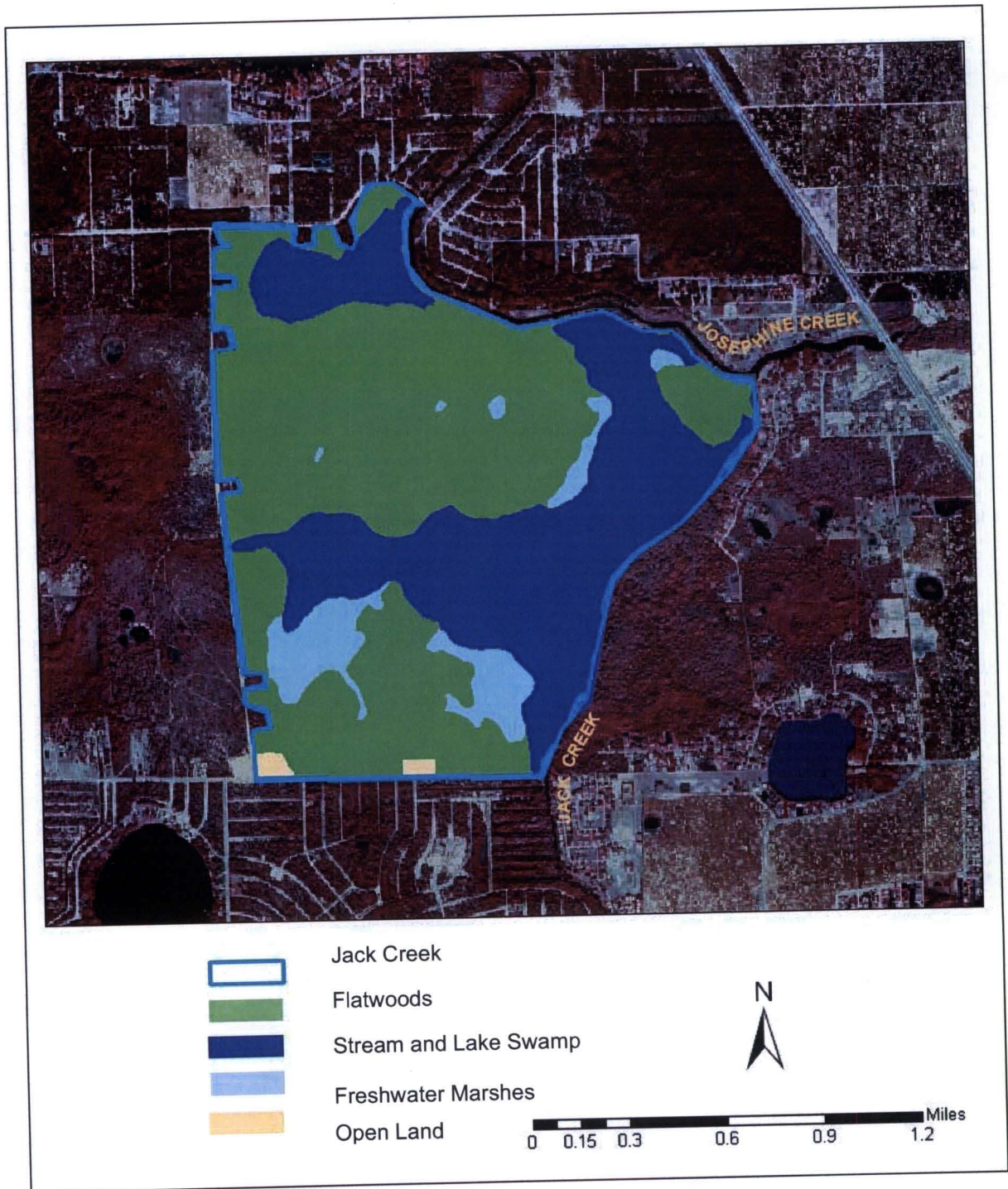


Figure 2. Jack Creek Project Vegetation Map

AREAS OF RESPONSIBILITY

The District has defined four Areas of Responsibility (AORs) as the primary emphasis for all projects and programs at the District. The AORs are flood protection, water supply, water quality and natural systems protection. The acquisition of lands that play an important role in the protection and management of water resources is a key District function.

FLOOD PROTECTION

The flood protection benefits of the Jack Creek Project will be continued by preserving the historic, natural function of the wetlands as water retention areas when the creek floods. The District has developed a non-structural approach to flood control that utilizes natural floodplains as water storage areas rather than man-made facilities. This approach minimizes the cost and potential environmental harm caused by building water retention areas and flood control structures. Long-term maintenance responsibilities are also minimized with this approach.

A large portion of the Jack Creek Project, approximately 389 acres, is within the 100-year floodplain, Figure 3. Jack Creek is a tributary of Josephine Creek that flows into Lake Istokpoga. Josephine Creek is channelized with elevated embankments higher than the original stream bank. The Jack Creek swamp, the majority of which is located on the property, provides direct attenuation of floodwaters for approximately 4,000 acres draining from the west of the swamp. The total drainage area for Jack Creek is

approximately 21,000 acres (SWFWMD 1989).

WATER QUALITY

Jack Creek is designated as a Class III waterbody (SWFWMD1989). Class III waterbodies meet the Florida Department of Environmental Protections standards for clean water for the sustaining of native flora and fauna, and is safe for recreational activities such as swimming and fishing. The ability of natural habitats, especially wetlands, to improve water quality through the removal of nutrients, toxins and other pollutants has been documented as an effective process for protection of water resources. Preservation of the floodplain wetlands on Jack Creek allows this natural cleansing process to continue.

WATER SUPPLY

The 1989 resource evaluation conducted prior to the acquisition of the property states that it does not appear feasible to develop the Jack Creek site for surface water supply due to the environmental damage that would occur from the construction of a reservoir impoundment. Within the boundaries of the property there are no lakes or springs and the unconfined surficial aquifer extends to a depth of approximately 50 feet. Overall, the 1,282-acre property provides minimal groundwater recharge capabilities (SWFWMD 1989).

NATURAL SYSTEMS

The Jack Creek Project is within the Lake Wales Ridge Ecosystem which has habitat types that have been recognized nationally as imperiled by Federal and State Agencies as well as environmental organizations such as the Nature Conservancy and Florida Audubon. The scrub-type habitats found on Jack Creek once dominated the Lake Wales Ridge, but have been replaced by housing developments,

farms, and citrus groves. The Lake Wales Ridge Ecosystem Working Group estimates that 85 percent of the native upland habitat along the ridge has been lost (LWRECG 1996). The natural systems on the property appear to be relatively intact with respect to flora composition, but past human activity may have altered the distribution or dominance of some flora species (SWFWMD 1989).

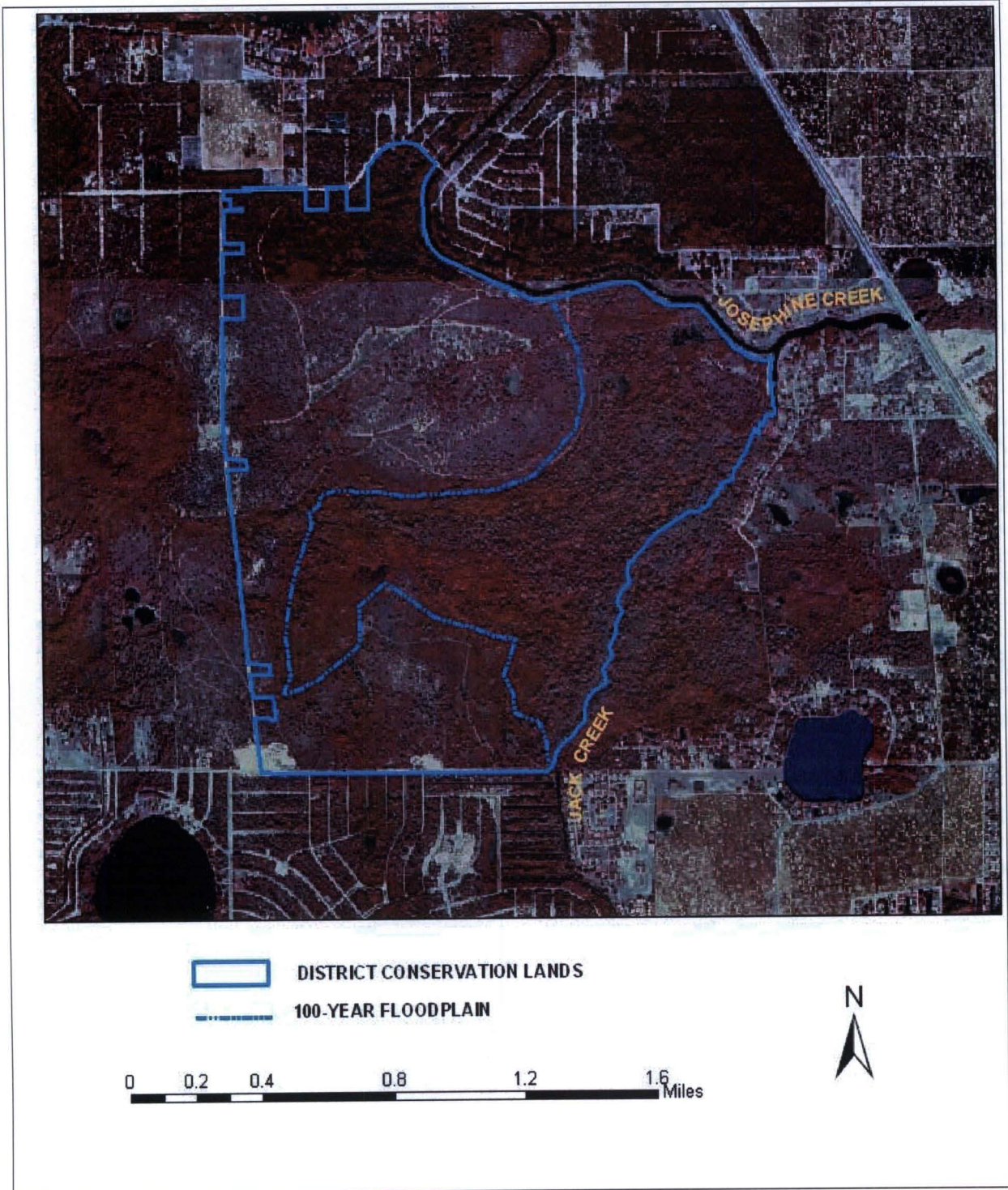


Figure 3. Water Resources on Jack Creek

Figure 3. Jack Creek Project Water Resources

PUBLIC ACCESS

Four access points were established as part of the initial opening of the property for public use, Figure 5. The access point located on Grand Concourse Road has a small parking area and a walk-thru gate. The other access points have walk-thru gates, but no parking areas and are intended primarily for use by local residents.

Due to the limited amount of recreational opportunity available on Jack Creek, only minor facility enhancements are recommended. The Grand Concourse access point will be the focus of the improvements because it has the best access from a public road and most of the interior portions of the property are within a short walking distance, 30 to 45 minutes. The parking area is currently small and should be enlarged to allow room for vehicles to park and turn around easily. A kiosk should also be installed to provide information about the ecology and use of the property.

Jack Creek has approximately seven miles of interior roads open for hiking and related activities, but not designated as marked trails. Although the District typically designates some roads as marked trails, this is not necessary on Jack Creek to provide a quality visitor experience. The roads are short, easy to navigate and provide good access to the interior portions of the property. Maintaining such a limited amount of marked trails in a remote location is also not warranted due to maintenance costs. If the trails were marked, then most visitors would expect them to be free of debris, have a stable trail surface and mowed regularly. This limited facility approach seeks to provide the public with an appropriate level of

access to the lands while minimizing facility costs and staff time required to maintain them.

Management Actions:

- ***Renovate parking area and install a kiosk at the Grand Concourse Road access point.***
- ***Install information signs at other access points.***
- ***Monitor the level of recreational use.***
- ***Monitor the effects of recreational use on flora and fauna.***

ENVIRONMENTAL EDUCATION

The District's approach to environmental education emphasizes cooperation and coordination with educational organizations such as the Highlands County School Board, private schools, youth organizations, environmental or civic clubs, etc. Educational displays related to the ecology of a property and water resource issues may also be incorporated into materials displayed on informational kiosks when appropriate. Currently no partnership opportunities to conduct on-site environmental education are available, but the District will continue to pursue education opportunities as they become available. Informal environmental education projects or uses of the property will also be encouraged.

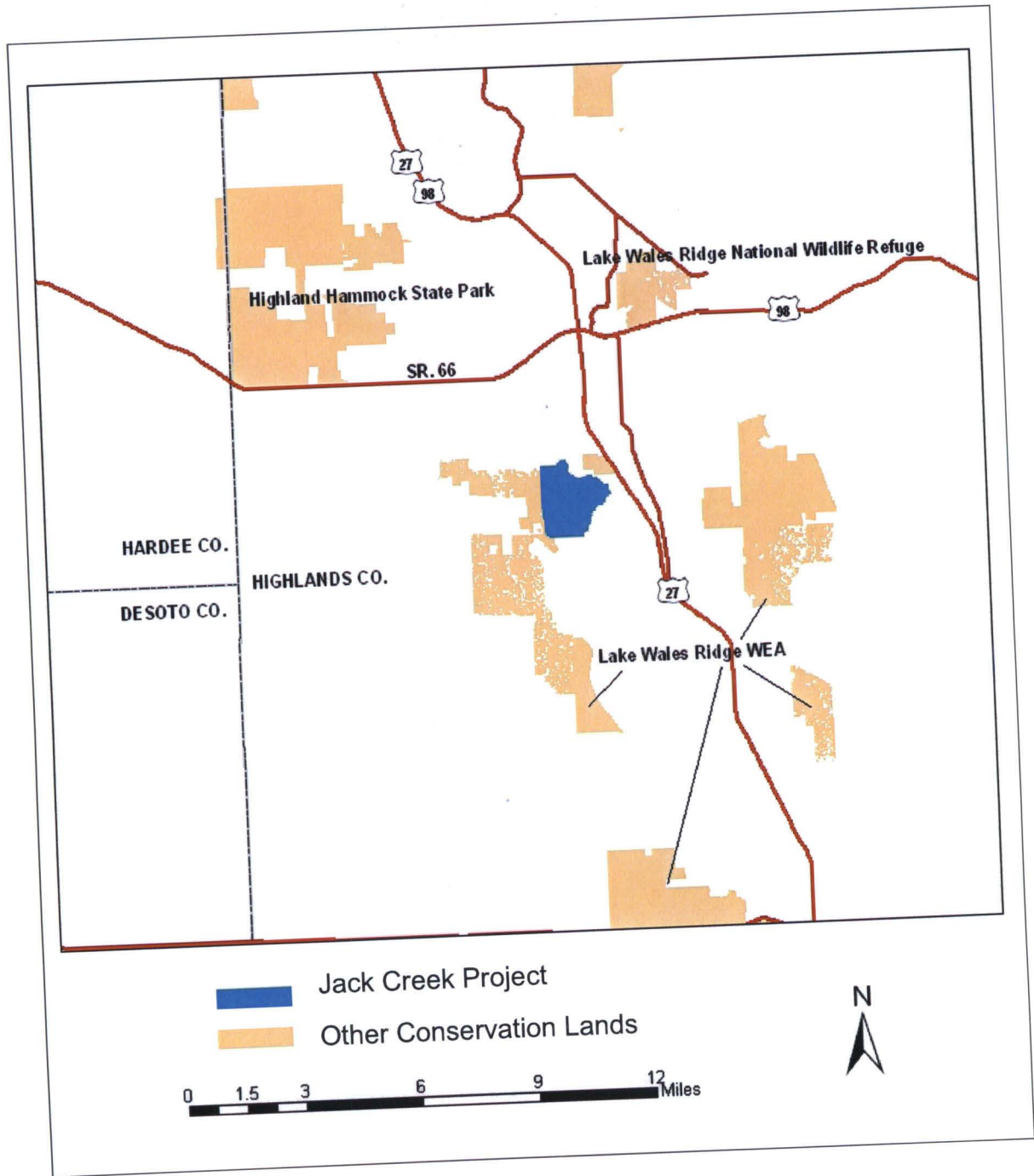


Figure 4. Public Lands Near Jack Creek Project



Figure 5. Jack Creek Project Recreation Facilities

MULTIPLE-USE POTENTIAL

District lands are evaluated for their potential to support revenue-generating activities such as timber harvesting, cattle grazing, haying operations, etc., that are consistent with the management objectives for a property. Timber and cattle assessments have been conducted on Jack Creek and no opportunities were identified for revenue generating projects (Fox and Tully 1996, SWFWMD 1997, SWFWMD 1996). The site was never converted to pine plantations, citrus groves or improved pasture or other uses similar to surrounding lands in the region. The mature natural pines are not considered a viable commercial timber resource because of the low basal area of the trees and minimal timber volume.

EASEMENTS, UTILITIES AND PUBLIC FACILITIES

District lands may be used for a variety of public facilities and utilities when in the public interest. District lands may also be subject to access or other easements held by private interests. Public facilities and utilities may include power lines and other linear facilities, stormwater management projects, water supply development projects, etc. No utilities, public facilities or easements are located on Jack Creek or are currently proposed.

SECURITY

The District protects its lands from activities such as vandalism, trash dumping, poaching, etc., by fencing the perimeter of the properties, posting appropriate signage and routine patrols by various law enforcement officers or security guards. Jack Creek has been fenced and the boundary lines posted.

General law enforcement activities are provided by FWC officers assigned to public lands in the region and the Highlands County Sheriff's Department.

Jack Creek has the typical security issues associated with most rural public lands such as occasional trash dumping, poaching, fence cuts and illegal ATV access. Overall, the perimeter fencing has minimized these activities. No additional security measures have been deemed necessary at this time.

Management Actions:

- ***Maintain the integrity of the perimeter fence.***

Special Protection Areas

Special Protection Areas are clearly defined areas that may require special management actions or limiting of public access to protect resources such as archaeological sites, unique ecological resources, rare species habitat, water resources monitoring stations, etc. The resources and facilities on Jack Creek were evaluated and one Special Protection Area has been designated to protect a monitoring well site.

FACILITIES

Two monitoring wells are located on one site on the western property line located on Black Booger Road. The site is designated as a Special Protection Area to prevent accidental damage to the wells from the public or District management activities. To date, the perimeter fence has provided protection from vandalism, but the site should be monitored periodically to ensure the

fence continues to provide adequate protection of the site.

Management Actions:

- **Monitor the well sites to protect them from vandalism.**

ARCHEAOLOGICAL RESOURCES

The District protects archaeological sites by identifying their locations and restricting inappropriate activities in the vicinity of a known site. The Florida Master Site File database for archaeological resources is the primary source for the identification of archaeological sites on District lands. A review of the database was conducted as part of this management plan and no sites were identified (DHR 2004). Although most land management activities disturb less than six inches of the soil horizon, District staff routinely inspect their work sites for evidence of archaeological sites. No evidence of artifacts have been observed by District staff during management actions conducted on Jack Creek. No Special Protection Areas were deemed necessary for the protection of archaeological resources.

ECOLOGICAL RESOURCES

Rare species habitat may be designated as a Special Protection Area if additional protection is required for the long-term well being of rare species. Although 20 rare species are known to occur on Jack Creek, a Special Protection Area was not designated because implementation of prescribed burning as part of the District's habitat management program is considered the best way to provide quality habitat for these species. No additional actions are required to benefit these rare species and they are not

threatened by the limited public use of the tract.

LAND MANAGEMENT

District-owned lands are managed in accordance with the ecosystem management approach. This approach recognizes that if natural processes and habitats are preserved, then the health of all species, rare and common, within the habitat will be maintained.

PRESCRIBED FIRE

Prescribed fire is the primary management tool to restore and maintain the fire-dependant natural communities on District lands. The management objectives for use of prescribed fire are to reduce dangerous fuel loads, restore natural fire-return intervals, restore and maintain community and landscape-scale diversity and structure, enhance habitat conditions for native flora and fauna, and improve aesthetics and accessibility for recreational use.

Jack Creek is comprised of approximately 706 acres of fire-dependant habitat. The re-introduction of fire as part of the normal management regime and the use of mechanical treatments followed by fire as part of restoration projects have successfully improved the habitat quality of approximately 322 acres, 44 percent of the uplands. Scrubby and scrubby/mesic flatwoods are the dominant habitat types that require fire to maintain the life cycles of native species that are endemic to those habitat types. The use of prescribed burning re-introduced one of the primary natural processes that historically shaped the upland habitats. The use of prescribed fire has also created a more

natural mosaic of successional stages. As habitat blocks are re-burned, fire-return intervals will be utilized that approximate the natural fire cycle for each habitat type.

Management Actions:

- **Improve the habitat quality of the fire-dependent uplands that have not been burned utilizing prescribed fire, mechanical treatments or a combination of both.**
- **Improve the habitat quality of the ecotone areas between uplands and wetlands.**
- **Establish a fire-return interval that mimics the natural fire cycle to the extent possible when previously burned areas are burned again.**
- **Monitor the effects of prescribed fire on rare species.**
- **Reduce the sand pine and sand live oak component in the flatwoods and scrub to a more natural distribution of mature trees.**

RARE SPECIES

Twenty rare species are known to occur on Jack Creek, Table 1. The District manages rare native species utilizing the ecosystem management approach to improve the overall habitat where the species live. Rare species surveys are conducted periodically on District lands to identify new species and to monitor the known rare species populations. Surveys to identify populations of scrub jays, small mammals, bald eagles and other birds have been conducted on Jack Creek.

Scrub jay territories were identified on the property during surveys initiated in

1993 by the Archibold Biological Station and continued by District staff until 2000 (SWFWMD 1996-2001). The number of individuals remained fairly consistent, 23-26 birds through 1998, but the 1999 and 2000 surveys indicated lower numbers of individuals observed, 12 and 0 respectively. The reason for the change in population is unknown. During site visits for the management plan, two scrub jays were observed in the northern portion of the property in the vicinity of previously identified territories

Surveys for small mammals were conducted by District staff from 1996-97 in the scrubby flatwoods. Rare species identified include Florida Mouse and Florida Gopher Frog (SWFWMD1996-2001).

A bald eagle nest was identified as early as 1979 on Jack Creek. The site has been inactive for short periods of time, but overall has been utilized. Observations by District staff from 1997-2001 indicate the nest has been active and juvenile eagles were present during several different years (SWFWMD 1996-2001).

Management Actions:

- **Continue periodic monitoring of rare species.**

HABITAT RESTORATION

Three upland restoration projects have been successfully accomplished (SWFWMD 2003b). A combination of mechanical treatments and prescribed burning have reduced the hardwood component and improved the habitat quality on 150 acres of uplands that had become overgrown due to the exclusion of fire by the previous landowner. The

areas were restored to an early successional state that provides better habitat for scrub-jays and other species that utilize scrub-type habitat.

The Lake Wales Ridge Public Lands Hydrologic and Water Quality Restoration Project has identified water resource restoration projects on Jack Creek as part of the Lake Wales Ridge Lake Management Strategy. The Ridge area has undergone substantial hydrologic alterations since the early 1900's which has resulted in lowered lake levels, deterioration of lake water quality, reduced recharge, and local dewatering of the surficial ground water system.

The objective of this project is to identify opportunities to maximize the regional water resource benefits to the Lake Wales Ridge watershed provided by lands now in public ownership. Hydrologic restoration projects identified in this project will support SWUCA objectives.

Management Actions:

- **Restore the natural hydrology of Jack and Josephine Creeks, to the extent practical.**
- **Restore remaining portions of overgrown upland habitat areas.**

CONTROL OF EXOTIC SPECIES

The primary focus for exotic flora control are the Category I species, designated by the Florida Exotic Pest Plant Council, which are the most invasive and damaging to native plant communities. Category I plants present on Jack Creek include Japanese climbing fern, brazilian pepper, cogon grass and torpedo grass. Management actions

have controlled the spread of exotic plant populations of all species except the recently discovered climbing fern infestation (Will VanGelder, pers. com. 2004). The extent of the climbing fern has not been fully determined due to the difficulty in accessing the infestation site.

Exotic fauna species can also cause damage to populations of native flora and fauna. The feral hog, *Sus scrofa*, is the only known exotic fauna species on Jack Creek. Hogs have caused damage in several cutthroat grass seeps. Trapping of hogs has been done by a contractor and reduced the hog population to some degree. Due to the high virility of hogs the threat to native species will be continuous and require constant monitoring.

Management Actions:

- **Monitor for the presence of new exotic species and populations.**
- **Control all populations of known exotic species, flora and fauna.**

MOSQUITO CONTROL PLAN

Local governments are responsible for public health concerns associated with control of mosquito populations through the establishment of mosquito control districts and the development of a mosquito control plan. No mosquito control district or control plans have been established by Highlands County at this time. Jack Creek, through this management plan, is designated an environmentally sensitive and biologically highly productive area. This designation will allow the project to be incorporated into a control plan if

Highlands County develops one at a future date.

PROJECTED MANAGEMENT COSTS

Management costs on the Jack Creek Project have averaged approximately \$10,000 per year for the past five years. The primary management cost has been for conducting prescribed burns for habitat restoration. Based on the recommendations in this plan to continue habitat restoration efforts the annual management costs are projected to remain fairly constant at approximately \$10,000 to \$15,000 per year.

ADMINISTRATION

The District coordinates with many outside public agencies and public interest groups to effectively manage its properties. This section identifies management partnerships that either manage or have conducted research activities on Jack Creek

United States Fish and Wildlife Service (USFWS)

The USFWS is the agency with primary responsibility for protecting the nation's wildlife resources. This responsibility includes the administration of the Endangered Species Act (ESA). The USFWS will be consulted regarding special management needs of any species protected under the provisions of the ESA that is known to occur on the property, or that colonizes the site in the future.

Florida Fish and Wildlife Conservation Commission (FWC)

The FWC is the agency with primary responsibility for protecting and

managing Florida's wildlife resources. As such, the District will coordinate closely with the FWC in the management and monitoring of state-listed wildlife and critical habitat areas occurring on the property

Highlands County

As the local government having jurisdiction over the area in which the property is located, Highlands County has a compelling interest in the future management and use of the property. In addition, the Highlands County School Board may serve as a potential partner in the development of an environmental education program that would use the property as an outdoor classroom. The District will work closely with the county to: prevent incompatible land uses on adjoining lands; accommodate recreational needs of the county's residents; and develop an environmental education program that will complement the scholastic needs of the local community.

Lake Wales Ridge Ecosystem Working Group (LWREWG)

The LWREWG is comprised federal, state and private conservation agencies that seek to ensure the long-term protection of the native plants, animals and natural communities of this unique region of Florida. The LWREWG promotes information exchange; coordination of research, management and training activities; and the fostering of public awareness and support for resource protection.

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WORK PLAN SUMMARY

The management actions listed below have been identified in the Conceptual Land Use section of this Plan. These management actions have been developed to state specific actions that should be taken, but not how they should be achieved. They are intended to be verifiable and utilized as criteria to assess the success of the District's management of Jack Creek in subsequent management plans.

PUBLIC USE

- Enlarge the parking area and install a kiosk at the Grand Concourse Road access point.
- Install information signs at other access points.
- Monitor the level of recreational use.
- Monitor the effects of recreational use on flora and fauna.
- Maintain the integrity of the perimeter fence.
- Monitor the well sites to protect them from vandalism.

LAND MANAGEMENT

- Improve the habitat quality of the fire-dependent uplands that have not been burned utilizing prescribed fire, mechanical treatments or a combination of both.
- Improve the habitat quality of the ecotone areas between uplands and wetlands.
- Establish a fire-return interval that approximates the natural fire cycle possible when previously burned areas are reburned.
- Monitor the effects of prescribed fire on rare species.
- Reduce the sand pine and sand live oaks component in the flatwoods and scrub to a more natural distribution of mature trees.
- Continue periodic monitoring of rare species.
- Restore the natural hydrology of Jack and Josephine Creeks, to the extent practical.
- Restore remaining portions of overgrown upland habitat areas.
- Monitor for the presence of new exotic species and populations.
- Control all populations of known exotic species, flora and fauna.