

A Plan for the Use and Management of the  
**Deep Creek Preserve**



June 25, 2002



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*Southwest Florida  
Water Management District*

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## Executive Summary

The 1,988-acre Deep Creek Preserve (Preserve) is located in southwest DeSoto County, approximately 6 miles north of the City of Punta Gorda. It borders the Peace River on the east, and adjoins the southern boundary of DeSoto County on the south. This plan is designed to guide future management and public use of the Preserve in a manner that will balance resource protection needs with the public's right to appropriate use of these lands.

Water management benefits associated with the property include flood protection, and water quality protection and enhancement. Nearly half of the total land area lies within the 100-year floodplain as delineated by the Federal Emergency Management Agency. The numerous isolated wetland systems on the property, in combination with the extensive floodplain of the Peace River, assist in maintaining and enhancing water quality in the river.

A number of sites within the Preserve have been designated Special Protection Areas. These include an occurrence of dry prairie; the site of a groundwater monitoring well; and a series of xeric ridgelines located in the eastern half of the Preserve. Protection of these sites will take precedence over all other land management and public use considerations. Although Special Protection Areas are not normally closed to public access, recreational uses will generally be directed to other portions of the property. Such management activities as prescribed burning and control of exotic species will be tailored to meet the site-specific needs of all Special Protection Areas.

Permitted recreational uses of the Preserve will include hiking, horseback riding, primitive camping, group camping, fishing, picnicking and nature study. The property is

not considered suitable for hunting due to its relatively small size and proximity to residential development. An entrance to accommodate public recreational use will be developed and will include restrooms, a picnic pavilion, and a group campground. Backcountry campsites will be provided for hikers and equestrians. An additional parking area will be constructed near the northeast corner of the property to serve an existing public boat ramp situated along the northern boundary. It will also serve as a secondary access point into the Preserve. The District will coordinate with DeSoto County in the management of recreational usage, and will also work with the County, the Charlotte Harbor Environmental Center, and others as necessary, to make the Preserve available for environmental education.

Major management needs and actions for the Preserve include continuing implementation of a prescribed burning program, hydrologic restoration of several altered wetland sites, and management and monitoring of resident wildlife to maintain existing biodiversity. Ongoing efforts to control several invasive, non-native plant species will be maintained.

The following is a list of specific management actions enumerated in the plan. The list is not all-inclusive, as there are additional actions or strategies outlined in the text of the plan.

### Water Management Benefits

#### Flood Protection

##### **Management Actions:**

- ◆ Continue to coordinate with DeSoto County in assessing flood concerns in the area surrounding the Preserve.
- ◆ Continue to partner with residents of the Deep Creek subdivision by contributing

funds toward maintenance costs for the Deep Creek Canal.

- ◆ Backfill the ditches that drain several on-site wetlands to restore normal wetland hydroperiods and eliminate the current anthropogenic increase in stormwater discharge rates to Deep Creek and Deep Creek Gully that are attributable to these hydrologic alterations.
- ◆ Evaluate the possible flood protection benefits of removing existing, on-site spoil piles along Deep Creek Gully to restore natural conveyance paths and patterns of sheetflow.
- ◆ Close or modify existing roads that traverse wetlands or low-lying flatwoods.
- ◆ Design the recreational trail network in the Preserve to minimize alteration or disturbance of natural conveyance paths and drainage patterns.
- ◆ Explore options for the purchase of additional property adjoining the Preserve that would enhance or complement local flood protection initiatives

### **Recharge**

#### ***Management Actions:***

- ◆ Avoid large-scale withdrawals of groundwater at the Preserve in order to prevent environmental impacts to wetlands.
- ◆ Preserve natural land cover over the property to maximize recharge potential to the surficial aquifer while minimizing the potential for contamination of surface water and groundwater through drainage from impermeable surfaces.

### **Water Quality Protection and Enhancement**

- ◆ Avoid disturbance of native floodplain vegetation to preserve the ability of the floodplain to enhance water quality in the Peace River.

## **Special Protection Areas**

### ***Monitoring Well***

#### ***Management Actions:***

- ◆ Site all entrance facilities and other structural improvements such that they, and the recreational activities they are designed to accommodate, will be physically isolated from the monitoring well location in order to minimize the likelihood of damage or disturbance to the existing well and to reserve adequate space for the future installation of additional wells.
- ◆ Allow the installation of additional monitoring wells, consistent with the requirements of Water Use Permit Number 2010420.02.
- ◆ Evaluate the potential for localized degradation of water quality at the monitoring well location before commencing construction of on-site restroom facilities and other site improvements, and consider the use of composting restroom facilities in order to minimize the potential for such impacts.

### ***Xeric Ridges***

#### ***Management Actions:***

- ◆ Use prescribed fire, conducted at appropriate return frequencies, to maintain an open canopy and shrubby condition in the Preserve's oak scrub and scrubby flatwoods. Such fires should be conducted during the growing season to the greatest extent possible.
- ◆ Survey the oak scrub and scrubby flatwood sites for the presence of scrub-jays on at least an annual basis, and immediately prior to conducting any prescribed fires within or adjacent to these sites. In the event of colonization by scrub-jays, amend the prescribed burning plan for these sites in a manner consistent with perpetuating such colonization.

- ◆ Refrain from allowing extensive recreational improvements or site alterations within, or adjacent to, the xeric ridges in order to promote wildlife usage, maintain aesthetic appeal, and preserve archaeological and anthropological context. This shall not preclude installation of a small covered picnic shelter/rest stop near the Deep Creek shoreline adjacent to the oak scrub segment of the recreational trail network (Figure 6) to accommodate recreational users of the Preserve.

### ***Dry Prairie***

#### ***Management Actions:***

- ◆ Use prescribed fire, conducted at appropriate return frequencies, to maintain the appearance, integrity, and habitat value of the Preserve’s dry prairie. Such fires should be conducted during the growing season to the greatest extent possible.

### ***Artificial Cavity Clusters***

#### ***Management Actions:***

- ◆ Use prescribed fire, conducted at appropriate return frequencies, to maintain an open canopy and prevent excessive accumulation of fuels in the Preserve’s pine flatwoods. Such fires should be conducted during the growing season to the greatest extent possible.
- ◆ Protect any pine trees with artificial red-cockaded woodpecker cavities from possible destruction by prescribed fire. Such protection should be limited to small-scale, manual removal or trimming of vegetation immediately surrounding the base of such trees that could transmit fire to the canopy of the tree or ignite flammable resins secreted around the artificial cavity.
- ◆ The recreational development and usage proposed in this plan will be considered during analyses used to identify

appropriate locations for the establishment of artificial cavity clusters so that future conflicts between recreational users and red-cockaded woodpeckers can be avoided. Recreational development taking place after the establishment of such clusters, if such establishment occurs, will be prohibited within close proximity of artificial cavity clusters to limit human intrusion into such areas.

### **Land Use**

#### ***Recreation***

- ◆ Make the Deep Creek Preserve available for the compatible, resource-based recreational uses enumerated in this plan. Exclude user-based recreational uses as incompatible with the natural character of the Preserve.

#### ***Hiking***

##### ***Management Actions:***

- ◆ Following construction of the parking area that will serve as the secondary public access point, develop a spur trail and footbridge that will connect the secondary public access point with the Preserve’s recreational trail network.

#### ***Horseback Riding***

##### ***Management Actions:***

- ◆ Manage the designated recreational trail network as a “shared use” system open to both foot and equestrian use.
- ◆ Provide site improvements in the entrance pasture that will make the group camp site attractive for use by equestrians.
- ◆ Provide site improvements that will make the old cow pen site usable for “ride in” primitive camping by small groups of equestrians.
- ◆ Require that equestrian users of the Preserve possess evidence of a negative “Coggins” test for each horse in their

company while horseback riding on the property.

### *Camping*

#### **Management Actions:**

- ◆ Establish two primitive camp sites, one of which will be available for equestrian “ride in” use, and another that will be reserved for “hike in” use. The sites will be closed to vehicular access and site improvements will be limited to fire rings, tent pads, and stalls or a coral at the equestrian site.
- ◆ Establish a group campground in the improved pasture located at the entrance to the Preserve. Design the campground to meet the needs of equestrians and function in conjunction with the picnic pavilion and restrooms that will also be constructed at the entrance.
- ◆ Make the camping areas available to the public through a reservation system.
- ◆ Coordinate with DeSoto County in the possible development of an RV-compatible campground on lands adjacent to the Preserve.

### *Boating, Canoeing and Kayaking*

#### **Management Actions:**

- ◆ By the end of the 2003 fiscal year, coordinate with the FFWCC and DeSoto County to develop supplemental parking for the Southwest Peace River Street public boat ramp.
- ◆ By the end of the 2004 fiscal year, construct a stabilized landing or other structure at the site of the Deep Creek picnic shelter to accommodate landings by canoeists and kayakers.

### *Fishing*

#### **Management Actions:**

- ◆ Permit fishing from the riverine shoreline of the Deep Creek Preserve, and prohibit fishing in the property’s freshwater marsh and Deep Creek Gully systems.

### *Picnicking*

#### **Management Actions:**

- ◆ By the end of the 2002 fiscal year, construct a pavilion or other improved structure in the entrance pasture to serve as a facility for group picnicking.
- ◆ Install picnic shelters at several locations along the Preserve’s recreational trail network, including one near the Deep Creek shoreline and one at the secondary public access point.

### *Birding*

#### **Management Actions:**

- ◆ Coordinate with local birding groups to develop an interpretive guide to birding on the Preserve.
- ◆ Nominate the Preserve for inclusion in the Great Florida Birding Trail being established by the FFWCC.

### *Radio-Controlled Aircraft*

#### **Management Actions:**

- ◆ Terminate the ongoing use of the Preserve by radio-controlled model hobbyists and establish a site at the RV Griffin Reserve to accommodate such use, provided appropriate controls over the use are implemented.

## **Opportunities for Environmental Education**

#### **Management Actions:**

- ◆ Coordinate with the Charlotte Harbor Environmental Center to develop and implement an environmental education curriculum that highlights the water management benefits of protecting both the Deep Creek Preserve and the nearby RV Griffin Reserve.
- ◆ Coordinate as appropriate with DeSoto County and outside groups or organizations to permit or conduct interpretive educational tours of the Preserve.
- ◆ Incorporate environmental education themes into the informational kiosk

constructed at the entrance to the Preserve.

### ***Utilities and Other Public Facilities***

#### ***Management Actions:***

- ◆ Ensure that any utilities or other public facilities permitted to locate on the Preserve property are consistent with statutory guidelines established for permitting such uses of publicly owned conservation land.

### ***Security***

#### ***Management Actions:***

- ◆ Maintain perimeter fencing to control access and prevent unauthorized activities on the Preserve.
- ◆ Restrict public use to daylight hours and limit vehicular access, except as authorized through special use permits.
- ◆ Construct an informational kiosk at the Preserve entrance to inform the public of permitted uses and disseminate maps and other informational literature to ensure the public's safe use of the property.
- ◆ Provide additional security through contractual agreements with private or public sector parties or through cooperative agreements with DeSoto County, as necessary, to ensure adequate protection of the Preserve's natural resources and recreational users.

### ***Land Management***

#### ***Prescribed Fire***

#### ***Management Actions:***

- ◆ Develop a detailed burn plan for the Preserve's fire-dependent natural communities that includes prescription parameters designed to prevent the escape of fire to adjoining properties and minimize the potential for placement of

fire-generated smoke over sensitive areas.

### ***Habitat Restoration***

#### ***Management Actions:***

- ◆ Backfill the ditches that were excavated to drain several on-site freshwater marshes following an evaluation to establish appropriate water levels and hydroperiods.
- ◆ Evaluate the need for supplemental plantings of native vegetation in the semi-improved pasture adjoining the primitive equestrian campsite.
- ◆ Evaluate the benefits of recontouring spoil piles that parallel the channel of Deep Creek Gully.

### ***Wildlife Management***

#### ***Scrub-Jay***

#### ***Management Actions:***

- ◆ Use prescribed fire and/or mechanical methods to maintain: 50-75 percent cover of scrubby oaks at a height of 2-10 feet (1-3 meters); an open canopy of trees with no more than 20 percent total canopy cover; and 10-30 percent cover consisting of bare sand. Other optimal habitat characteristics include: few or no patches unburned for >20 years; and few or no dense forests or dense stands of trees within or adjacent to the managed scrub (Fitzpatrick et al., 1991).
- ◆ Coordinate with the owners and/or managers of nearby tracts that support scrub-jays to ensure that the local scrub-jay metapopulation is managed in an holistic manner, rather than as individual occurrences, paying special attention to the need for maintenance of potential movement corridors among tracts.

### **Red-Cockaded Woodpecker**

#### **Management Actions:**

- ◆ By the end of the 2002 fiscal year, conduct an assessment of the Preserve's flatwoods to evaluate habitat suitability for RCWs and to identify appropriate locations for the installation of artificial RCW cavities.
- ◆ If the assessment of habitat suitability for RCWs indicates that conditions are suitable, then establish 3-4 clusters of artificial RCW cavities to promote or induce natural colonization by dispersing RCWs. Such installation shall be complete by the end of the 2003 fiscal year.
- ◆ Retain and protect clusters of snags in the Preserve's flatwoods, install cavity restrictors and snake excluders at artificial cavity sites, and employ other methods as necessary to control predators and kleptoparasites.
- ◆ Request an assessment of suitability of the Preserve for translocation or reintroduction from the USFWS and the RCW Recovery Coordinator.

### **Control of Exotic Species**

#### **Animals**

#### **Management Actions:**

- ◆ Eradicate or control the growth of invasive, non-native species consistent with the direction provided in Board Procedure 61-9.

### **Preparation of Mosquito Control Plan**

#### **Management Actions:**

- ◆ Officially designate the lands of the Deep Creek Preserve property as "environmentally sensitive and biologically highly productive."
- ◆ Coordinate with DeSoto County in the development of an arthropod control plan for the Preserve.

### **Preserve Design Considerations**

#### **Management Actions:**

- ◆ Coordinate with DeSoto County, the FFWCC, the Peace River/Manasota Regional Water Supply Authority, and others, as necessary, to maintain a greenway connection between the Deep Creek Preserve and the nearby RV Griffin Reserve.
- ◆ To the extent possible, expand the size of the Preserve through the fee-simple or less-than-fee-simple acquisition of adjoining lands.

### **Creation of a Recreational Greenway Connection**

#### **Management Actions:**

- ◆ Coordinate with DeSoto County to promote creation of a recreational greenway connecting the Deep Creek Preserve and RV Griffin Reserve.

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## Introduction

### Location

The Deep Creek Preserve (Preserve) is located in the southwestern corner of DeSoto County approximately 15 miles southwest of the City of Arcadia and 8 miles northeast of the City of Punta Gorda (Figure 1). It accounts for a total land area of approximately 1,988 acres and is bounded generally by County Road 769 (Kings Highway) on the west, Southwest Peace River Street on the north, and the Peace River on the east. The southern boundary of the Preserve coincides with the southern boundary of DeSoto County.

### Planning Process

In accordance with District Procedure 61-3, a standard methodology is employed in the development of land use plans for District-owned properties (Christianson, 1988). The first step of this systematic process is the identification of special protection areas that occur within the property. These areas may include wetlands, floodplains, flood control facilities, potable water sources, or significant ecological features. Restrictions on the use of the property are imposed to ensure the protection of these areas. Land use constraints resulting from the size and configuration of an area are also considered during this phase of the process. Public uses that are compatible with the basic resource protection needs of the property are then identified. These consist generally of resource-based recreational activities, but can potentially include such uses as cattle grazing and timber production as a means of generating revenue to support the District's land management program while supporting local economies and rural traditions. The ultimate objective is to balance resource protection needs with the public's use of these lands. This is

accomplished by concentrating land uses in appropriate areas and preventing incompatible or conflicting uses from occurring within a property. To the extent possible, public use is also designed to satisfy local recreational demands, complement recreational use of the surrounding area, and give due consideration to the concerns of surrounding landowners.

Each property is also evaluated to determine its placement within a classification system. The two factors upon which the property classifications are based are the population density of the area surrounding the property and the extent to which the property has been developed or altered on the basis of proximity to roads. The classifications have been devised to provide guidance in the formulation of an overall management philosophy for each property. The management philosophy is an expression of the level of development that should be allowed on the property and the types of uses that are appropriate. On the basis of this evaluation, the Deep Creek Preserve property has been designated an Urban Fringe Parkland.

The planning process is initiated by an interdisciplinary team of District staff. Affected local governments and others with a vested interest in the property are also invited to make recommendations directly to the plan development team. Representatives of DeSoto County, Charlotte County, and the Charlotte Harbor Environmental Center were provided with an opportunity for direct participation in development of this plan. Through this process, DeSoto County expressed an interest in assuming some management responsibility for future public use of both the Preserve and RV Griffin Reserve. The District partners regularly with local governments in the management of recreational use and will be open to establishing such a partnership with DeSoto

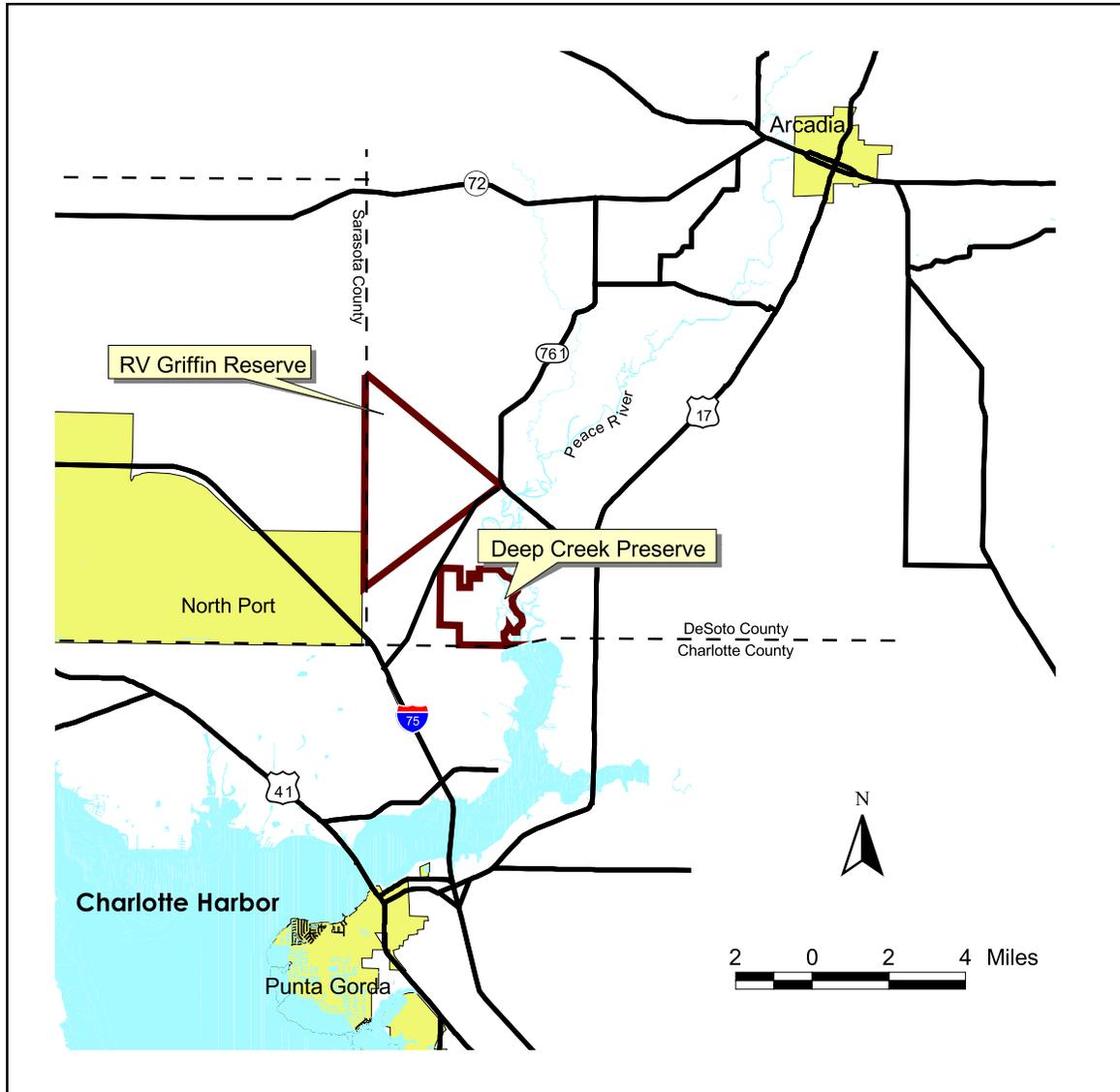


Figure 1. Location Map for the Deep Creek Preserve.

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County. To the extent possible, the management and recreational use of Deep Creek Preserve will also be tailored to complement the approach that will be adopted for county parks in the DeSoto County Peace River Parks Management Plan currently under development. The District embraces an adaptive approach to management that will allow a degree of flexibility for pursuing compatibility with DeSoto County's park program.

Prior to presenting a plan for approval by the District's Governing Board and the appropriate Basin Board, management plans must be reviewed and approved by the Land Acquisition and Management Task Force. This committee is composed of senior District staff assigned various roles in directing the management and use of District-held lands. Plans are also presented at public workshops conducted near the site of the subject property so that affected members of the public have an opportunity to participate in development of the final plan. Workshops for the Preserve plan were conducted in DeSoto County and consisted of two workshops conducted prior to plan development, and a follow-up workshop to present the draft plan for public information and comment. Final review and approval of all plans by the Governing Board is conducted in a public hearing during which members of the public may provide comments or recommendations about the future use and management of the property. Comments received at public workshops and at related Basin Board meetings are also summarized for the Governing Board's consideration.

### **Natural Significance**

As noted in a following discussion of the Preserve's naturally occurring vegetation, or "land cover", the property is dominated by pine flatwoods. Approximately 1,200 acres, or 60 percent of the total land area of the

Preserve, supports mesic pine flatwoods in which the canopy is dominated by longleaf pine (*Pinus palustris*). Historically, pine flatwoods was the predominant land cover type on the Florida peninsula. It is estimated that flatwoods accounted for between 200,000 and 250,000 acres of DeSoto County's "pre-alteration" landscape, or 50 to 60 percent of the county's 410,000-acre total land area. This estimate is derived from a map of historic vegetation that was constructed using soils as a predictor of pre-alteration vegetation in areas that have been subjected to alteration. The current coverage of pine flatwoods in DeSoto County, based on 1995 land cover data, is approximately 20,500 acres. As such, approximately 90 percent of DeSoto County's original coverage of pine flatwoods has been lost, due primarily to agricultural conversion. The Preserve accounts for only 0.5 percent of the total DeSoto County land area, yet protects 6 percent of the County's remaining pine flatwoods. Current land cover data from the Florida Fish and Wildlife Conservation Commission (FFWCC) indicate that as few as 10,000 acres of flatwoods remain in DeSoto County (Cox et al., 1994), suggesting that the District's estimate of 20,500 acres may be overly generous and placing even greater importance on protection of the Preserve's flatwoods.

In addition to protecting a significant percentage of the remaining DeSoto County flatwoods, it should be noted that the Preserve's flatwoods occur very near the southern limit of the natural range for longleaf pine. Although longleaf pine is known to occur in the Babcock/Cecil Webb Wildlife Management Area about 5 miles south of the Preserve, it is limited to the northernmost portion of the site (Jim Beever, FFWCC, pers.comm.). South Florida slash pine (*Pinus elliottii* var. *densa*) replaces longleaf pine in the flatwoods of south Florida, with Babcock/Cecil Webb

occupying the transitional zone of this transformation in dominant canopy species. In efforts to preserve biodiversity, it is important to protect occurrences of species and communities at the extreme limits of their natural range since such occurrences are more likely to support genetically distinct, uniquely adapted individuals. The Preserve ensures that a sizable stand of longleaf pine occurring at the limits of its environmental tolerance and/or competitive adaptiveness will be protected in perpetuity.

Figure 2 depicts the occurrence of “biodiversity hot spots” in the Preserve and its surrounding area. Biodiversity hot spots, as delineated by the FFWCC (Cox et al., 1994), are sites that have been predicted to provide suitable habitat for an overlapping array of “focal species.” Virtually the entire Deep Creek Preserve falls within the two highest categories of biodiversity hot spots, reflecting the high wildlife habitat value and species richness of this site. Less than 25 percent of DeSoto County’s land area can claim such highly ranked habitat value through this analysis, suggesting that the importance of the Deep Creek Preserve to protection of local and regional biodiversity will remain high in the future.

### **Management Philosophy and Emphasis**

The Preserve has been designated an urban fringe parkland on the basis of the moderate population density of the area surrounding the Preserve (Bureau of Economic and Business Research, 1999; Woods and Poole Economics, 1999), and the high level of intrusion or disturbance attributable to nearby roads and waterways that are open to unrestricted motorized traffic. This designation recognizes the influence that a moderate, but expanding, human population will have on the character and use of the property. Human population within a 10-mile radius of the Preserve,

which is used as a barometer for measuring human influence in this type of analysis, easily exceeded the 100,000-person threshold that distinguishes remote sites from urban fringe sites. The human population of the Punta Gorda Metropolitan Statistical Area alone, which includes the unincorporated community of Port Charlotte, is estimated to exceed 137,000 (Woods and Poole Economics, 1999). Other communities located within a 10-mile radius of the Preserve include Nocatee, Fort Ogden, and the City of North Port. Kings Highway, Southwest Peace River Street, and the riverine channels of the Peace River and Deep Creek either border the Preserve, traverse it directly, or are proximate enough to strongly influence its character and level of isolation. The high level of accessibility afforded by this transportation network has promoted residential development on adjoining and nearby lands that includes several large, medium density subdivisions. Such close physical proximity to population centers necessitates special consideration when identifying compatible public uses and implementing certain land management actions.

The public will enjoy access to virtually the entire land area of the Preserve given the relatively small size of the property and the presence of an extensive network of trails to accommodate recreational use. The District recognizes the profound influence that vehicular access through natural areas can exert on wildlife, and on the wilderness character and sense of solitude that attracts recreational users to District-managed lands. This recognition serves as the basis for a policy that generally limits vehicular access to the minimum level necessary to accommodate permitted public uses. Limitations on public vehicular access through the property, as outlined by the conceptual recreational plan formulated herein, will allow the Preserve to provide

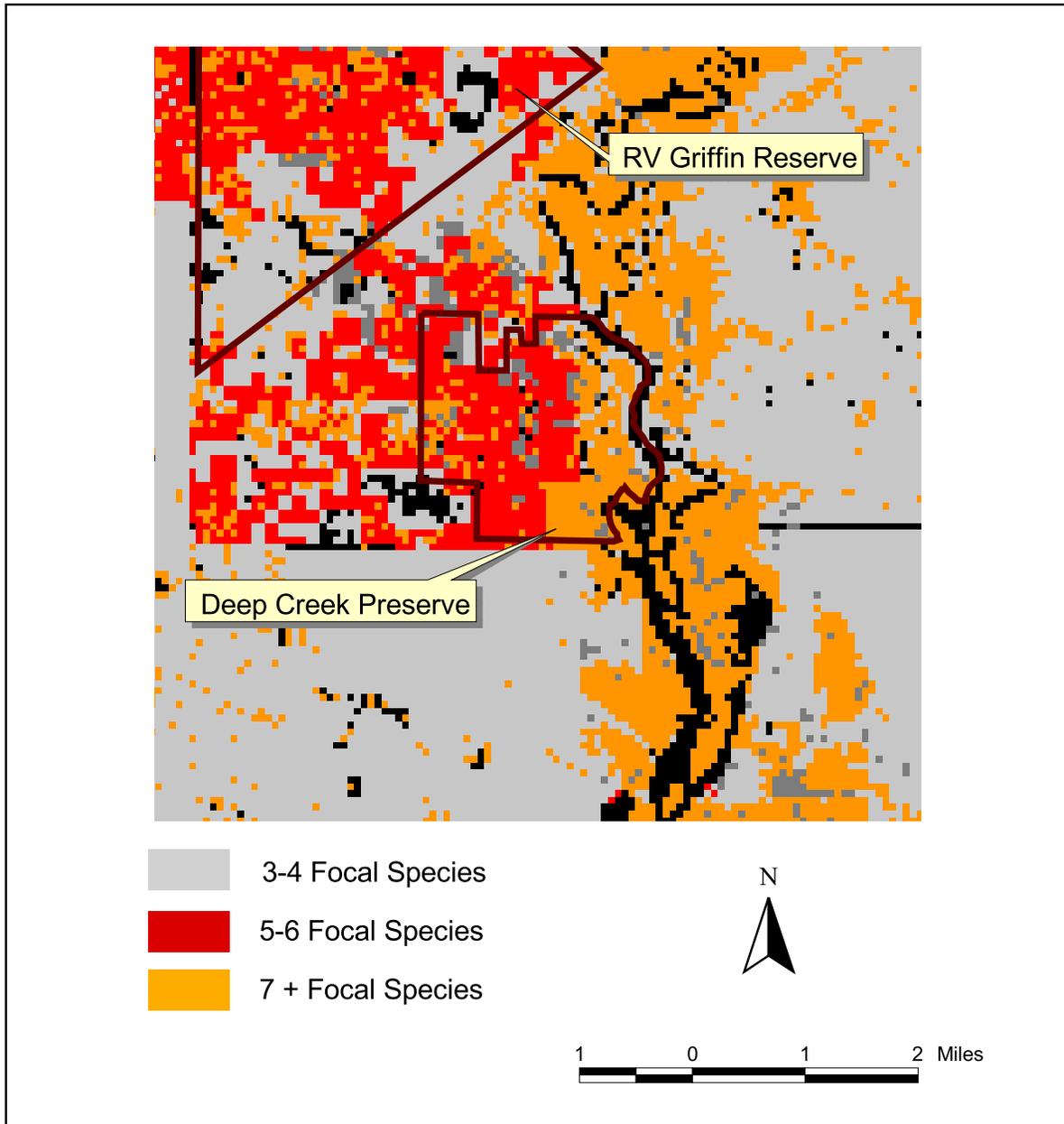


Figure 2. Biodiversity Hot Spots for the Deep Creek Preserve and Vicinity. Data provided by the Florida Fish and Wildlife Conservation Commission.

“wildland” conditions to recreational users within “urban fringe” surroundings. The District will remain amenable to allowing vehicular access to interior portions of the Preserve to accommodate special circumstances or needs. Requests for such access will be reviewed on a case-by-case basis.

The entrance to the District-owned RV Griffin Reserve lies two miles northward of the Preserve on Kings Highway (Figure 1). RV Griffin Reserve has been subjected to a higher degree of alteration than the Preserve as a result of more intensive historic land uses, including its ongoing role in meeting the public’s water supply needs in this region of the District. Its designation as a reserve, rather than a preserve, reflects the site’s level of alteration and the high intensity of use to satisfy water supply needs. The close proximity of the Preserve to the RV Griffin Reserve provides an opportunity for the District to satisfy a wider range of public uses without compromising conservation mandates. The extremely high natural values of the Preserve can be better protected by emphasizing low-intensity public usage at the site and directing higher-intensity uses to the RV Griffin Reserve.

The District is also pursuing the acquisition of 630 acres immediately east of the Preserve along the eastern shoreline of the Peace River (Office of Environmental Services, 2000). This site, referred to as the Liverpool Park Project, is proposed to provide park facilities and an historical museum that will also complement the mixture of public use opportunities proposed for the Preserve. Its future protection would also mesh with the District’s goal of creating a linked network of publicly owned conservation lands, or a “greenway”, that would incorporate all three sites. This holistic approach to planning for public use allows the District to more

effectively balance public access with the resource protection objectives of the Preservation 2000 and Florida Forever programs. It also avoids a “one size fits all” approach in which each separate tract of conservation land is expected to fulfill a full range of public uses. The uses identified for each individual tract can thereby reflect a thoughtful consideration of site-specific natural values and constraints. DeSoto County, in addition to its expressed interest in assuming a role in management of recreational use at the Preserve, has encouraged this exploration of Greenway formation and may serve as a valuable partner in bringing it to fruition.

### **Land Cover**

The following discussion provides a brief description of the natural vegetation and other land cover types occurring at the Deep Creek Preserve. Figure 3 delineates the extent and configuration of each natural community type.

#### ***Uplands***

Mesic pine flatwoods constitute the most extensive land cover type on the property, covering approximately 1,200 acres, or 60 percent of the total land area. Mesic flatwoods are forested systems characterized by an open canopy of widely spaced pine trees with little or no understory vegetation and a dense groundcover of saw palmetto (*Serenoa repens*), native grasses (especially wiregrass, *Aristida stricta*), and various herbs and shrubs (Florida Natural Areas Inventory, 1990). The Preserve’s flatwoods support a canopy that consists almost exclusively of longleaf pine (*Pinus palustris*). The presence of this community in the Preserve is notable as it occurs near the southernmost range of longleaf pine (Abrahamson and Hartnett, 1991).

The groundcover in pine flatwoods, in contrast to the pine-dominated canopy, can be extremely diverse and reflects the fire history and relative availability of moisture in such areas. In addition to those species named above, the Preserve's flatwoods support: gallberry (*Ilex glabra*); tarflower (*Befaria racemosa*); lopsided Indiangrass (*Sorghastrum secundum*); broomsedge (*Andropogon sp.*); shiny blueberry (*Vaccinium myrsinites*); fetterbush (*Lyonia lucida*); paw paw (*Asimina spp.*); deer-tongue (*Carphephorus odoratissimus*); and paint brush (*Carphephorus corymbosus*). Listed species found in the property's flatwoods include the threatened pine lily (*Lilium catesbaei*) and the Florida coontie (*Zamia floridana*), which is listed as commercially exploited. A newly described endemic species of the genus *Carphephorus* (*Carphephorus subtropicanus*) has been identified on the property and it has been suggested this species should be designated as threatened due to the limited extent of its geographic range and to significant loss of habitat within that range (DeLaney et al., 1999).

A single stand of dry prairie, totaling approximately 100 acres in size, occurs in the southwestern corner of the property (Figure 3). Dry prairie is nearly identical to pine flatwoods, and is distinguished from flatwoods by the absence of a pine canopy. The physical site characteristics that lead to natural establishment of a dry prairie association, rather than to pine flatwoods, are poorly understood. It has been debated in some cases whether the occurrence of dry prairie reflects natural variation across the landscape, or just a legacy of historic logging which eliminated the pine canopy from sites that previously supported pine flatwoods. In either case, the occurrence of dry prairie lends additional heterogeneity to the Preserve landscape.

Xeric communities occurring at the Preserve include oak scrub and scrubby flatwoods. The distribution of these communities is restricted to areas of well-drained soils occurring along slight rises adjacent to streams that drain into Deep Creek (Figure 3). These systems are very limited in extent, accounting for a total combined land area of approximately 30 acres. Both communities are distinguished by the occurrence of several species of shrubby oaks: sand live oak (*Quercus geminata*), myrtle oak (*Quercus myrtifolia*), and Chapman's oak (*Quercus chapmanii*). Scrubby flatwoods also support a canopy of pines, while oak scrub generally lacks a canopy. Otherwise, the two communities are very similar in appearance and species composition. Scrubby flatwoods often occur as a transitional area between mesic flatwoods and oak scrub (Myers, 1991). The two community types are closely associated with one another at the Preserve, are largely intermingled, and have been lumped together as "scrubby flatwoods" in the vegetation map (Figure 3).

Among the high-profile wildlife species dependent on scrub and scrubby flatwoods for habitat are the Florida scrub-jay (*Aphelocoma coerulescens*) and gopher tortoise (*Gopherus polyphemus*). Although the gopher tortoise is present in the Preserve, it appears to occur in numbers below the expected carrying capacity of the property. This may be the result of historic harvest of the species. It is currently protected as a species of special concern. The scrub-jay, which is listed as a threatened species by both the State of Florida and the United States Fish and Wildlife Service, has been sighted once on the property. There is occupied scrub-jay habitat to the south of the Preserve and it is possible that jays may eventually colonize the Preserve's oak scrub and scrubby flatwoods. Please refer to the Land

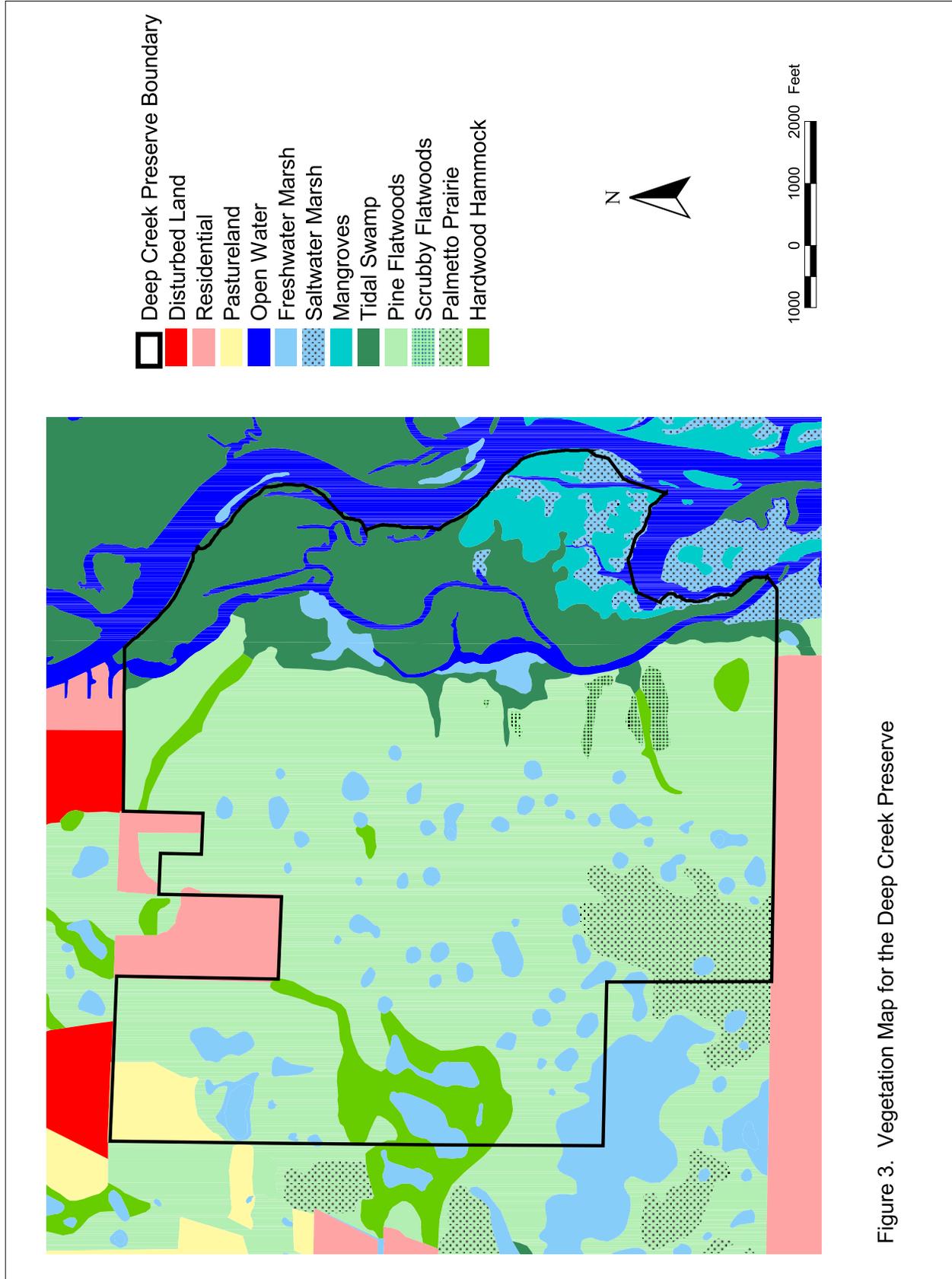


Figure 3. Vegetation Map for the Deep Creek Preserve

Management section of this plan for additional discussion of scrub-jays.

Approximately 108 acres (5 percent of total land area) of hardwood hammock occur on the property. These hammocks are hardwood-dominated forests with canopies of live oak (*Quercus virginiana*), laurel oak (*Q. laurifolia*), cabbage palm (*Sabal palmetto*), sweetgum (*Liquidambar styraciflua*), and pignut hickory (*Carya glabra*). Listed species occurring in the property's hammocks include the commercially exploited butterfly orchid (*Encyclia tampensis*). Understory and groundcover vegetation in the hammocks is generally sparse but includes a variety of native ferns, including cinnamon fern (*Osmunda cinnamomea*), Florida shield fern (*Dryopteris ludoviciana*), and long strap fern (*Campyloneuron phyllitidis*). The long strap fern has been designated an endangered species (FFWCC, 1997) by the Florida Department of Agriculture and Consumer Services (FDACS). Other noteworthy species occupying some of the hammocks include the epiphytic shoestring fern (*Vittaria lineata*) and golden polypody (*Polypodium aureum*).

Pastureland is present on the Preserve, but it is very limited in total extent. This "improved" pasture occurs in one block that accounts for a total area of 40 acres, or approximately 2 percent of the property. Based on an inspection of historic aerial photography, this area supported pine flatwoods before its conversion to pasture. The pasture area is dominated by a carpet of bahiagrass (*Paspalum sp.*), with an open canopy of scattered live oak.

### **Wetlands**

Wetland communities in the Preserve cover a total land area of approximately 620 acres, or slightly more than 30 percent of the total land area. The predominant

wetland community is freshwater tidal swamp, which covers 330 acres, or 16 percent of the total land area (Figure 3). Freshwater tidal swamp occurs on floodplains near the mouths of rivers just inland from mangrove forests or salt marshes (Florida Natural Areas Inventory, 1990). Characteristic plant species include: cabbage palm (*Sabal palmetto*), bald cypress (*Taxodium distichum*); water tupelo (*Nyssa aquatica*); swamp bay (*Persea palustris*); wax myrtle (*Myrica cerifera*); cocoplum (*Chrysobalanus icaco*); dahoon holly (*Ilex cassine*); saltbush; asters; and leather fern (*Achrostichum danaeifolium*) (Florida Natural Areas Inventory, 1990). In addition to these, red maple (*Acer rubrum*), laurel oak (*Quercus laurifolia*), and pond apple (*Annona glabra*) have been observed in the property's tidal swamp. Listed species occurring on these areas include the endangered Florida royal palm (*Roystonea elata*). As the description suggests, small areas of mangrove forest and salt marsh occur along the Peace River and Deep Creek and together account for 120 acres, or about 6 percent, of the total Preserve land area.

The Preserve's uplands are dotted with numerous freshwater marshes, some of which discharge through intermittent streams into Deep Creek during periods of high water. This community covers 170 acres, or 8 percent of the total land area, and includes areas of wet prairie commonly associated with the higher, outer fringes of the marshes. The herbaceous vegetation that dominates these communities includes a diversity of grasses, sedges, and other plants that are adapted to saturated soils and regular submersion.

### **Soils**

The wetlands along Deep Creek and the Peace River are dominated by the Durbin-Wulfert soil association. These soils are

mucks that are nearly level, very poorly drained and frequently flooded. Within DeSoto County, they are found exclusively along the tidally influenced part of the Peace River and are thus subject to daily flooding by high tides which saturate the soil with water to a depth of a few inches. Such areas are dominated by salt-tolerant vegetation characteristic of tidal marsh environments. On the Preserve, these sites support the presence of tidal swamp, saltwater marsh, and mangrove forest.

Farmton fine sand comprises the majority of upland soils on the property. This soil is deep, nearly level and poorly drained. Pine flatwoods characterized by an open canopy of widely scattered pines, little or no understory, and a dense groundcover of herbs, shrubs and grasses predominate on these soils. Other soils on the property that support pine flatwoods are Wabasso, EauGallie, Myakka, and Immokalee fine sands. These soils, like Farmton fine sand, are deep, nearly level and poorly drained. They are often underlain by an organic hardpan or clayey subsoil which greatly reduces the downward percolation of water. Water frequently collects on these subsurface layers during the rainy season, resulting in brief inundation of large areas of flatwoods.

An area of Felda fine sand is located in the west-central portion of the property. This soil is deep, nearly level, poorly drained and is associated with sloughs and hydric hammocks. The most significant stand of hydric hammock occurring on the Preserve coincides with this site. These soils contain considerable organic material that, although generally saturated, are rarely inundated for periods exceeding 60 days annually. Pomello fine sand is found on low ridges occurring in the flatwoods bordering Deep Creek. Although this soil is deep and nearly level, it is moderately well drained and produces droughty soil conditions

conducive to more xeric vegetation. These areas of the property support oak scrub and scrubby flatwoods.

Depressional areas scattered throughout the uplands are characterized by a variety of soil types. These soils are generally deep, nearly level, very poorly drained, and support freshwater marshes and ponds. These sites can be identified by open expanses of grasses, sedges, rushes and other herbaceous plants in areas where the soil is generally saturated or covered with water for periods of six months or more annually. Characteristic soils include Pineda fine sand, Floridana mucky fine sand, Delray mucky fine sand and Basinger fine sand. These soils share characteristics similar to those of Felda fine sand. However, Pineda soils occupy slightly higher positions in the landscape than Floridana, Delray, Felda and Basinger soils, resulting in inundation for an average of two months annually.

The above discussion is based on soil surveys conducted by the Natural Resources Conservation Service (formerly known as the Soil Conservation Service). Field verification was not conducted during preparation of this plan, and other soil series may also be present on the property.

## Water Management Benefits

The acquisition of lands important to the management of water resources is a key District function. Benefits of this practice are wide-ranging and include: the protection and development of public water supply sources; maintenance of the natural flood protection afforded by floodplains and wetlands; preservation or enhancement of water quality; protection of water conveyances; and the preservation of functional natural systems. The following discussion describes the hydrology of Deep Creek Preserve, its role in regional water management, and the water management benefits resulting from its protection.

Generally, little or no groundwater recharge takes place in the Peace River watershed. Therefore, public water supply must be obtained from surface water sources (Aucott, 1988). The majority of the region's potable water supply is obtained from the Peace River, one of the most productive sources of fresh water in the State of Florida. Water supply facilities on the river, which include an off-stream reservoir, treatment plant and Aquifer Storage and Recovery (ASR) system, are managed by the Peace River/Manasota Regional Water Supply Authority (Authority). Projected increases in the population of the Charlotte Harbor area necessitate the identification and development of additional water supply sources to satisfy future demands. After considering the full range of environmental and economic constraints, expansion of the existing Peace River water supply system was selected as the best option to meet future needs. Known as the "Peace River Option," this water supply development program utilizes District lands within the nearby RV Griffin Reserve for expansion of the existing system's treatment, distribution and storage capacity. The District's

acquisition of the Reserve has provided the land base necessary to achieve the desired expansion of the water supply system, allowing management of the Deep Creek Preserve to focus on other vital water management functions.

The significant proportion of the Preserve that lies within the 100-year floodplain allows these natural lands to serve as a buffer against flooding. The Preserve's unaltered riverine floodplain and depressional wetlands attenuate the discharge of water to and from the river during periods of flood. The natural character of the property also makes it possible to maintain good water quality in the water that discharges to the Peace River from the Preserve, and to enhance water quality in the Peace River as it traverses the property. The importance of this function may increase as the level of development and intensity of land use increase in the watershed. Current and future agricultural development, phosphate mining, and urbanization will likely contribute pollution to the river as stormwater runoff, ultimately affecting all downstream areas, including the Charlotte Harbor estuary. These critical water management benefits associated with the property are discussed in greater detail below.

### Flood Protection

Flood protection has historically depended upon a structural approach to protect lives and property in flood-prone areas. Unfortunately, such protection has often been achieved at the expense of natural lands. It has also proven to be very expensive. The need to provide flood protection through alternative means that reduce impacts to natural areas is now recognized. A natural, non-structural approach to flood protection has come to be appreciated as a more environmentally

benign, cost effective method in areas where such an approach is feasible. The District has long been active in identifying and preserving natural floodplains and other lands that can serve as storage areas for storm-generated flood waters. The benefits of this approach include: reduced cost borne by the public in the construction and maintenance of flood control structures; increased public safety achieved by eliminating breach or failure concerns inherent in those structures; and the preservation of natural lands that would otherwise be lost or altered through the implementation of structural flood control measures.

With nearly half of the property's 1,988 acres lying in the 100-year floodplain, or otherwise recognized as flood prone (Figure 4), the Preserve provides considerable natural flood protection benefits. Floodplain areas are generally distinguished by gently sloping topography and support a variety of natural communities and surface water depressions that store floodwaters and attenuate their release. Wetlands physically store floodwaters, reduce the peak elevation of floodwaters in nearby upland areas, and moderate or attenuate the release of floodwater (SWFWMD, 1987). Of the natural communities present at the Preserve, the extensive floodplain wetlands may make the most significant contribution to flood protection. The Peace River system, with its extensive network of tributaries, floodplain wetlands, and headwater lakes, has historically stored and conveyed large volumes of floodwater. This capacity was recently illustrated during the heavy "El Niño" rains which fell during the winter of 1997-98 when, at Arcadia, the Peace River crested at an elevation of 18.1 feet National Geodetic Vertical Datum (NGVD) and reached a peak discharge of 18,500 cubic feet per second.

The Preserve's multitude of isolated marshes are also able to store significant amounts of water. A number of these are connected to Deep Creek, and thus the Peace River, via intermittent streams which discharge overflow during the rainy season and times of flood. Several of the larger marshes in the west-central and southeastern portions of the property were ditched by a previous landowner to enhance the drainage of surrounding native rangeland, i.e., pine flatwoods, to accommodate cattle grazing. Drainage from these marshes enters both Deep Creek Gully (west-central marshes) and Deep Creek itself (southeastern marshes). Deep Creek Gully enters the property from the west and flows generally northeast to Deep Creek, where it discharges as sheet flow to the riverine floodplain. These alterations to the natural drainage patterns of the Preserve (Figure 5) have increased the quantity and rate of discharge of floodwaters leaving the property. Restoration of the Preserve's historic drainage patterns through the backfilling of these old drainage ditches will increase the property's contribution to local flood protection.

Pine flatwoods, which account for the majority of the Preserve's total land area, also contribute to the property's flood protection value. Although not identified as flood prone in Figure 5, the hydrology of these upland areas is strongly influenced by flat topography, sandy soils, and seasonal precipitation. These characteristics combine to produce a landform which produces little stormwater runoff. Downward percolation is retarded by poorly drained soils and, where present, an underlying clay hardpan. These factors contribute to the presence of standing water over much of the site's flatwoods for various amounts of time during the rainy season (Myers and Ewel, 1990). During times of flood, the amount of water that can be stored in these flatwoods

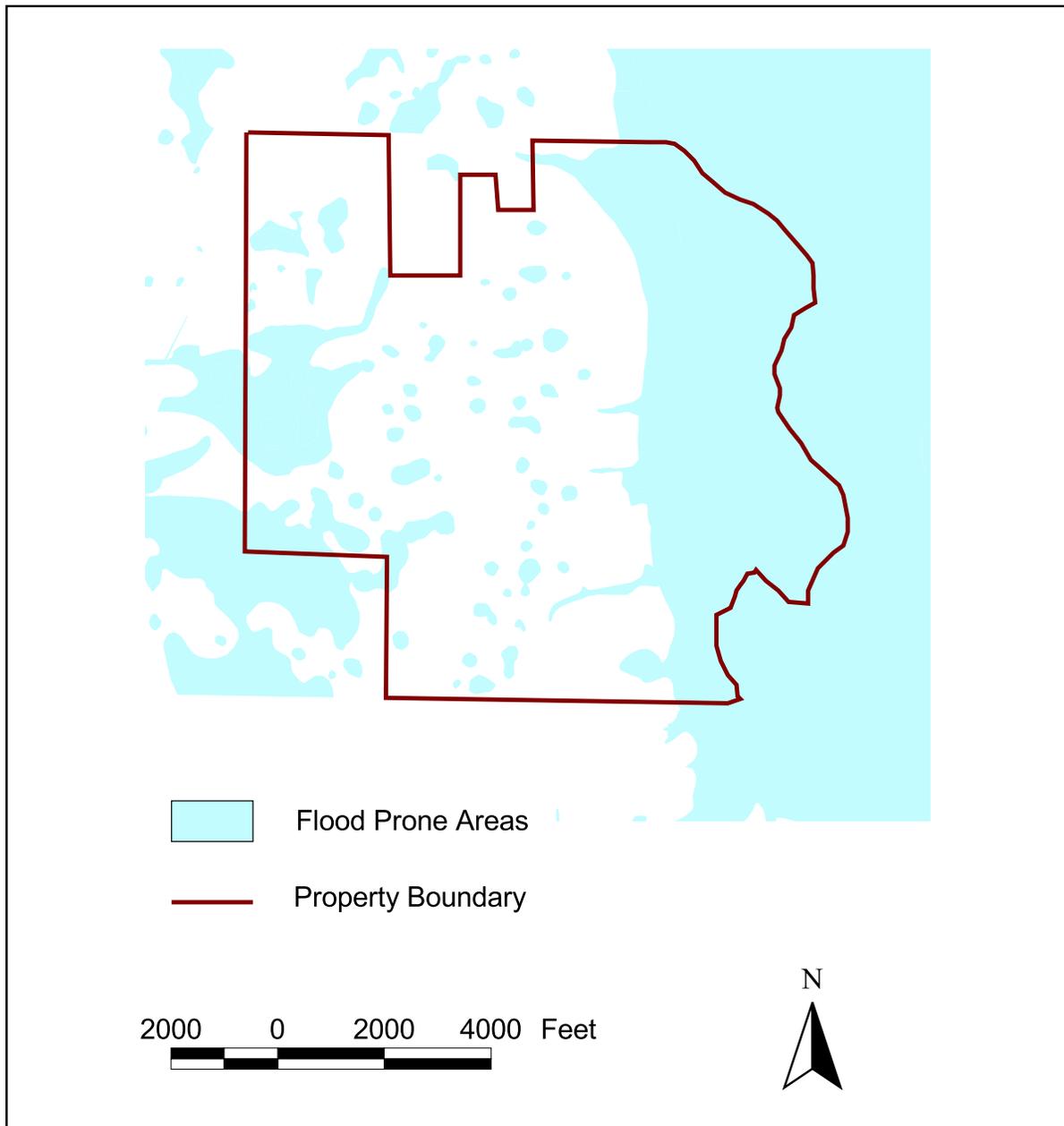


Figure 4. Flood prone areas at the Deep Creek Preserve. Areas distinguished as flood prone include wetlands and the 100-year floodplain as delineated by the Federal Emergency Management Agency.

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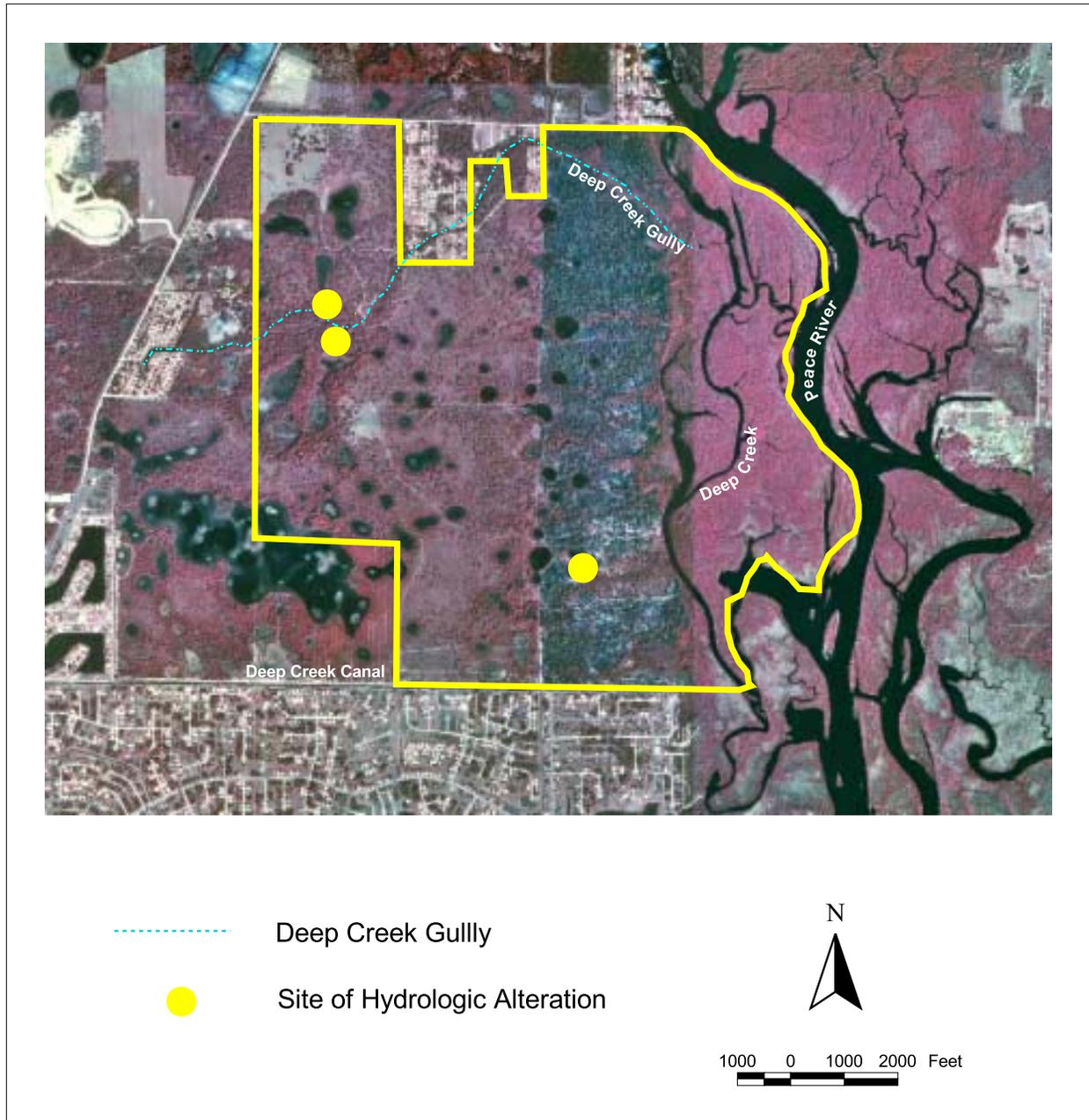


Figure 5. Hydrologic Features and Alterations at the Deep Creek Preserve.

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is considerable and reduces the volumes that would otherwise drain as runoff to adjacent waterbodies or stormwater systems. Backfilling of the drainage ditches discussed previously will restore the natural ability of pine flatwoods surrounding the Preserve's few altered wetlands to retain additional amounts of water during the rainy season.

Natural flood protection in the Peace River watershed has been compromised in recent years as a result of increased development in the river floodplain. Foreseeing the problems that will arise from this development, counties are working to retard or control floodplain development (SWFWMD, 1994). Effective flood protection measures along the Peace River and its major tributaries include the conservation of floodplain areas (i.e., prevention of development or other encroachment into the floodplain) and implementation of regulatory criteria that address storm-generated runoff from developed areas. To a large degree, these measures are implemented through the District's land acquisition program and surface water rules that require mitigation for floodplain encroachment (lost storage) and attenuation of peak discharges from proposed areas of development (SWFWMD, 1994).

The District has entered into a cooperative agreement with DeSoto County (County) to develop a stormwater management master plan for the Deep Creek Gully watershed. The ongoing study, conducted by an independent contractor in coordination with the District and the County, includes the Spring Lake mobile home park located immediately west of the property and an additional residential community located along the northern property boundary. Lake Suzy Estates, a residential development located south of the Spring Lake mobile home park, is also included. Preliminary

reports have identified several problem areas within these developments and the study is employing computer modeling to assess the danger of flooding in these and other areas. When complete, the master plan will provide recommendations and an associated implementation schedule to help DeSoto County provide improved flood protection to local residents. Results of the study may also clarify or enhance the Preserve's role in providing local flood protection.

Another residential subdivision with a history of drainage problems borders the Preserve on the south. The Deep Creek subdivision is located in Charlotte County and is not, as such, included in the ongoing development of a stormwater master plan for the area around the Preserve. The Deep Creek Canal (Figure 5), which is a primary drainage feature for the Deep Creek subdivision, straddles the county line and is therefore sandwiched between the subdivision and the Preserve. The District holds title to the northern half of the canal channel and approximately 8 percent, or 150 acres, of the 1,948-acre sub-basin served by the canal lie within the Deep Creek Preserve. Maintenance of the canal is a major concern to Deep Creek residents and the District recently contributed a proportionate share to the cost of refurbishing the canal. There will be an ongoing need for such maintenance and the District will continue to contribute its share to the cost of canal maintenance. The District will also be amenable to allowing direct access to the northern, on-site canal bank in order to accommodate future canal maintenance activities.

It is noteworthy that there is relatively little stormwater discharge draining from the Preserve to the Deep Creek Canal. This is related primarily to the absence of impermeable surfaces on the Preserve; the abundance of natural, on-site stormwater

storage capacity provided by the property's wetland systems; and topographic gradients that allow stormwater generated on the portion of the sub-basin located within the property to be retained almost entirely on-site.

**Management Actions:**

- ◆ **Continue to coordinate with DeSoto County in assessing flood concerns in the area surrounding the Preserve.**
- ◆ **Continue to partner with residents of the Deep Creek subdivision by contributing funds toward maintenance costs for the Deep Creek Canal.**
- ◆ **Backfill the ditches that drain several on-site wetlands to restore normal wetland hydroperiods and eliminate the current anthropogenic increase in stormwater discharge rates to Deep Creek and Deep Creek Gully that are attributable to these hydrologic alterations.**
- ◆ **Evaluate the possible flood protection benefits of removing existing, on-site spoil piles along Deep Creek Gully to restore natural conveyance paths and patterns of sheetflow.**
- ◆ **Close or modify existing roads that traverse wetlands or low-lying flatwoods.**
- ◆ **Design the recreational trail network in the Preserve to minimize alteration or disturbance of natural conveyance paths and drainage patterns.**

◆ **Explore options for the purchase of additional property adjoining the Preserve that would enhance or complement local flood protection initiatives.**

**Recharge**

Groundwater recharge is defined as the passive, downward transport or percolation of surface water to underlying water-bearing aquifers. Recharge rates to the Floridan aquifer are highly variable and site-specific and are categorized into areas of generally no recharge; very low recharge (less than two inches per year); very low to moderate recharge (two to ten inches per year); and high recharge (greater than ten inches per year) (SWFWMD, 1987). These rates are determined by a combination of factors that include: soil type; the thickness and hydraulic conductivity of the material overlying the aquifer; confining bed thickness and continuity; the elevation of the potentiometric surface in the region; and transmissivity values (a measure of the ability of the aquifer to transmit water away from an area) (Aucott, 1988). Highly permeable soils are capable of conducting the greatest volumes of recharge; however, a high potentiometric surface will create hydraulic pressure that impedes infiltration through the soil layer. In contrast, hydraulic pressure will not impede recharge in areas where the potentiometric surface is below the water table. Recharge rates are also affected by runoff, evaporation, and evapotranspiration which reduce the net amount of water available for recharge. While evaporation and runoff occur to some degree in all areas, evapotranspiration accounts for the greatest losses of precipitation in Florida (Aucott, 1988). The term evapotranspiration is derived from the words 'evaporation' and 'transpiration' and describes the amount of precipitation that is lost as evaporation from land and water

surfaces as well as that metabolized by vegetation.

The Preserve is located in southwest DeSoto County which lies completely within the Southern West-Central-Florida Ground-Water Basin (Basin). The Basin encompasses approximately 7,300 square miles and is bounded on the east by the Green Swamp/Central Florida Ridge potentiometric high of the Floridan aquifer system, on the north by the axis of the Pasco and Green Swamp potentiometric highs, on the south by a groundwater divide aligned in a northeast-southwest direction bisecting Glades and Lee Counties, and on the west by the Gulf of Mexico (SWFWMD, 1988).

Within the region of the Preserve, and throughout the majority of DeSoto County, the groundwater system is comprised of a discontinuous surficial or "water-table" aquifer, an intermediate aquifer, and the Floridan aquifer system. The Floridan, which is divided into Upper and Lower layers, is approximately 1,800 feet in total thickness. The intermediate system overlying the Floridan varies from less than 300 feet in thickness in northwestern portions of the County to greater than 600 feet in the southeast. The surficial aquifer varies in depth from less than 25 feet to greater than 100 feet, and is thickest in northeastern areas of the county (SWFWMD, 1988).

These aquifers are generally separated by impermeable clay "confining" layers which act to impede movement of water between them. In the area of the Preserve, both the intermediate and Floridan aquifers are considered to be tightly confined in this manner. The surficial aquifer in the region is unconfined, extends from the land surface to the top of the upper confining bed of the intermediate aquifer, and averages 25 feet in thickness in DeSoto County (SWFWMD,

1988). Depth to the water table averages 5-10 feet below land surface throughout much of the area (USGS, 1979). However, along the Peace River, the water table is often exposed along the riverbank or is at or just below land surface within the swampy floodplain and adjacent lowlands and often results in discharge of water from the surficial aquifer to these areas (USGS, 1998).

Due to the confined nature of the intermediate and Upper Floridan aquifers, little or no recharge is thought to occur in the region of the property (SWFWMD, 1988). Recharge to the surficial aquifer occurs primarily via rainfall with recharge rates varying from zero when the water table is at or above land surface to greater than twenty inches in upland areas (SWFWMD, 1988). Additional recharge to the surficial aquifer can emanate from underlying aquifers. The confined nature of the underlying aquifers results in a build-up of significant artesian pressure, or "hydraulic head", resulting in limited upward conveyance of water to the overlying surficial layer, adding to that received by rainfall (SWFWMD, 1988).

Due to the limited recharge and poor quality of deep aquifers in the region, surface water is the primary source for municipal public supplies. In particular, withdrawals from the Peace River occur just north of the Preserve and supply water to domestic users in Port Charlotte, the City of North Port, and unincorporated areas of DeSoto, Charlotte, and Sarasota Counties (SWFWMD, 1994). While not important for public water supply purposes, recharge of the surficial aquifer is important to the maintenance of surface water levels in on-site wetland systems, and to preserving on-site contributions to the flow of the Peace River.

**Management Actions:**

- ◆ **Avoid large-scale withdrawals of groundwater at the Preserve in order to prevent environmental impacts to wetlands.**
- ◆ **Preserve natural land cover over the property to maximize recharge potential to the surficial aquifer while minimizing the potential for contamination of surface water and groundwater through drainage from impermeable surfaces.**

**Water Quality Protection and Enhancement**

The protection or enhancement of water quality is a critical aspect of the land management planning process. Although contamination of surface water and groundwater is sometimes caused by natural agents, it is usually associated with human activities. As the demands placed upon water supply sources have intensified, issues of contamination and the treatment necessitated by it have likewise intensified. The ability of natural systems, particularly wetlands, to improve water quality have become important considerations in water quality related issues. Wetlands are defined as transitional habitats located between terrestrial and aquatic systems where the water table is at or near land surface for at least a portion of the year (Cowardin and others, 1979). As water passes through a wetland, its velocity is reduced causing the sedimentation of suspended particles which may include an array of toxic compounds, nutrients or other pollutants. These can then be consolidated into bottom sediments or taken up through the metabolic processes of plants, animals and microbes which bind these compounds into living tissue. This natural process effectively

removes many contaminants from the water column, preventing them from entering adjacent water bodies or the aquifer (SWFWMD, 1987). The loss of surrounding uplands can significantly alter the water quality enhancement function of wetlands. Uplands filter, catch and retain dissolved and suspended matter carried by surface runoff from surrounding landscapes. When uplands are developed, sedimentation can become a significant water quality concern in nearby wetland systems. Without the benefit of this first stage of filtration and catchment, sediments carried by overland flow can eventually fill wetlands, causing a transition to upland habitat (Taylor, et al, 2000). Where on-site alterations to these systems exist, the District undertakes active habitat restoration to re-establish natural mechanisms of water quality protection.

Cattle grazing was the predominant land use on the Preserve prior to acquisition. Though only limited (approximately 40 acres) improved pasture exists, nearly the entire land area was utilized as "native range." No current evidence cites this history of cattle grazing as a factor that contributed pollutants to runoff entering Deep Creek or the Peace River; however, those present in such runoff can include high nutrient and coliform bacteria levels associated with animal wastes. Ditched wetlands in the western portion of the property drain to Deep Creek Gully and possibly functioned as "point sources" for such pollutants to reach Deep Creek and the Peace River. Nearly half of the entire length of Deep Creek Gully is located on the property, underscoring the need to restore those on-site wetlands and portions of the creek that have been affected by ditching. The ditches draining these wetlands will be backfilled by the District to restore natural hydroperiods and to close conveyance paths to the creek. Additional restoration may entail the removal or recontouring of spoil piles along

channelized sections of Deep Creek Gully and would include the removal of exotic species and subsequent re-planting with native vegetation.

Runoff from the property has little or no effect on water quality in the Deep Creek Canal, which is located along the southern property boundary (Figure 5). The canal overlaps a portion of the DeSoto and Charlotte County lines and physically separates the natural lands of the property from the residential community of Deep Creek to the south. The canal accepts runoff from the area and conveys it east to the floodplain wetlands of Deep Creek and the Peace River. Prior to development of the Deep Creek community, runoff from numerous isolated wetlands rarely reached the river and had little effect on water quality. Today, water once retained by these wetlands enters the community's stormwater system and eventually drains to either the river or the canal as runoff. The ill-defined terminus of the canal transmits stormwater runoff in a diffuse pattern across the river floodplain, where natural vegetation and other associated organisms uptake a portion of pollutants. Pollutants not processed or bound in bottom sediment eventually reach the river and potentially degrade water quality. The protection of the Preserve lands precludes any future increase in contaminated runoff entering the river that would accrue from development of the site.

The most significant contribution of the property to water quality enhancement lies in its large area of unaltered floodplain vegetation. The Peace River drains a watershed that is approximately 2,350 square miles in size and that has been largely converted to agricultural, extractive (e.g., phosphate mining), and other potentially polluting land uses. Effluent from numerous wastewater treatment, phosphate, and citrus packing plants is

discharged to the Peace River or its headwaters (SWFWMD, 1994). In addition, the river has been subjected to pollution by spills from existing mining areas in Polk County and from runoff containing agricultural pesticides and fertilizers. As a result, water quality in the Peace River ranges from fair to poor. This combination of point and non-point pollution sources has contributed to the Peace River only partially meeting its State Class III designation for recreation and propagation and maintenance of healthy, well-balanced fish and wildlife populations (Fla. Dept. of Natural Resources, 1989). The natural plant communities associated with the Peace River floodplain assimilate some of the pollutants generated by the land uses described above, thereby enhancing water quality in the channel of the Peace River and in the downstream Charlotte Harbor estuary.

#### **Management Actions:**

- ◆ **Avoid disturbance of native floodplain vegetation to preserve the ability of the floodplain to enhance water quality in the Peace River.**

## Conceptual Land Use Plan

### Special Protection Areas

Certain areas within the Preserve will warrant special protection efforts in order to more effectively preserve water management functions and/or other outstanding natural values. Any areas that are extremely sensitive to disturbance; that harbor unique or regionally significant natural features; or that play a critical role in maintenance of the water management values attributed to the property, will merit designation as a Special Protection Area. Typically, Special Protection Areas must be discrete features that can be readily defined. Although public access to such sites is not normally prohibited, protective measures will take precedence over most other land use and management considerations.

Special Protection Areas designated for the Preserve include: a groundwater monitoring well that was constructed in the northwest corner of the property by the Peace River/Manasota Regional Water Supply Authority (PR/MRWSA); the xeric ridge lines that support oak scrub and scrubby flatwoods vegetation; the stand of dry prairie vegetation that occurs in the southwest corner of the Preserve; and the future clusters of artificial cavities that are proposed for installation in living longleaf pines to promote colonization by red-cockaded woodpeckers. Additional information on these sites or features is provided below. Additional Special Protection Areas may be designated in the future on the basis of colonization or regular use by an imperiled species, or in recognition of other significant resource values or concerns.

### Monitoring Well

The District-owned RV Griffin Reserve (Figure 1) has been developed with facilities to store and distribute water that has been withdrawn from the Peace River for public supply purposes. These facilities are owned and operated by the Peace River/Manasota Regional Water Supply Authority (Authority). The District has issued a water use permit (Water Use Permit Number 2010420.02) that authorizes expansion of the site's water storage facilities, including the development of additional Aquifer Storage and Recovery (ASR) wells. A condition of the permit requires the Authority to implement a groundwater monitoring program that will eventually consist of 23 monitoring wells distributed among 10 different monitoring stations (Peace River/Manasota Regional Water Supply Authority, 1998).

The close proximity of the Deep Creek Preserve to one of the sites recommended for a monitoring station allowed the property to be used for that purpose. One of three monitoring wells proposed for the site has been developed in the northwest corner of the Preserve immediately adjacent to the property line and the Southwest Peace River Street right-of-way (Figure 6). The well was drilled to a depth of 640 feet below land surface and will be used to monitor water levels in the Suwannee formation of the Floridan aquifer. (Peace River/Manasota Regional Water Supply Authority, 2000). Additional wells to monitor water levels in both the Intermediate aquifer and the Tampa formation of the Floridan will eventually be constructed at the site. Solar panels allow water levels to be recorded continuously in the existing well, and water samples are withdrawn at monthly intervals for use in water quality analyses.

Linkage of the existing and future monitoring wells with the public water

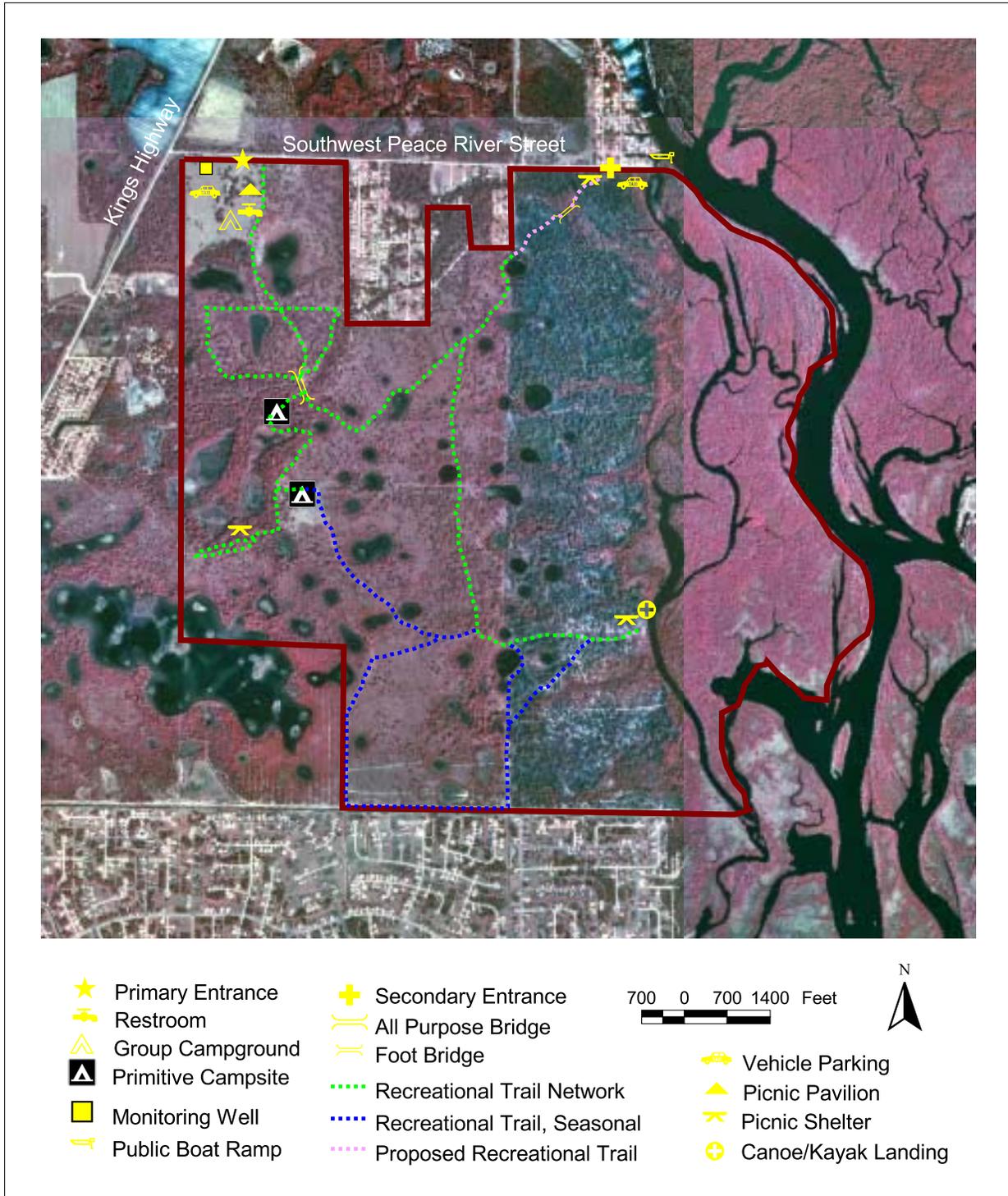


Figure 6. Conceptual Land Use Plan for the Deep Creek Preserve.

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supply responsibilities of the District and PR/MRWSA serves as a compelling basis for the installation of such facilities on District-held lands. The water management value of the existing monitoring well has resulted in its designation as a Special Protection Area. As additional monitoring wells are installed, they will also be afforded Special Protection Area status.

**Management Actions:**

- ◆ **Site all entrance facilities and other structural improvements such that they, and the recreational activities they are designed to accommodate, will be physically isolated from the monitoring well location in order to minimize the likelihood of damage or disturbance to the existing well and to reserve adequate space for the future installation of additional wells.**
- ◆ **Allow the installation of additional monitoring wells, consistent with the requirements of Water Use Permit Number 2010420.02.**
- ◆ **Evaluate the potential for localized degradation of water quality at the monitoring well location before commencing construction of on-site restroom facilities and other site improvements, and consider the use of composting restroom facilities in order to minimize the potential for such impacts.**

***Xeric Ridges***

The xeric ridges that parallel the natural drains to Deep Creek in the eastern half of the property are among the most distinctive natural features in the Preserve. Although accounting for a total land area of only

about 30 acres, which is divided among several individual stands, the oak scrub and scrubby flatwoods vegetation that has colonized these sites is the only xeric vegetation occurring on the property. The two community types are closely associated with one another at the Preserve, are largely intermingled, and have been lumped together as “scrubby flatwoods” in the vegetation map (Figure 4). Both communities are distinguished by the occurrence of several species of shrubby oaks: sand live oak (*Quercus geminata*), myrtle oak (*Quercus myrtifolia*), and Chapman’s oak (*Quercus chapmanii*). Scrubby flatwoods also support a canopy of pines, while oak scrub generally lacks a canopy. Otherwise, the two communities are very similar in appearance and species composition.

Among the high-profile wildlife species that are dependent on scrub and scrubby flatwoods for habitat are the Florida scrub-jay (*Aphelocoma coerulescens*) and gopher tortoise (*Gopherus polyphemus*). The gopher tortoise is currently protected as a species of special concern. Although the species is present at the Preserve, it appears to occur in numbers below the expected carrying capacity of the property. This may be the result of historic harvest of the species. Another important factor may be the wet character of the property. Pine flatwoods, which comprise the most extensive upland community present in the Preserve, frequently provide high quality habitat for gopher tortoises. However, the Preserve’s flatwoods are subject to seasonal inundation that may render much of that land area unsuitable for year round habitation by tortoises. The tortoises are dependent on underground burrows that are not habitable when inundated by standing water or an elevated water table. The Preserve’s well-drained xeric ridges may periodically serve as an important seasonal refuge for tortoises and other

fossorial species that reside in close proximity to them.

Beyond the obvious natural significance of the xeric sites, they contribute additional visual or aesthetic variety to the landscape. Proximity to the shoreline of Deep Creek suggests this part of the Preserve may serve as a major destination for recreational users intent on exploring the far reaches of the property, and for those who approach by boat or canoe. The well-drained character of the xeric sites, the presence of natural freshwater drainage features, adjacency to the navigable waters of the Peace River, and proximity to the Charlotte Harbor estuary also suggests these may have been coveted camping sites for aboriginal residents. Although no artifacts of any kind have been found at these locations, a high likelihood of aboriginal habitation confers potential archaeological or anthropological significance to them (Barry Wharton, pers. comm.).

#### **Management Actions:**

- ◆ **Use prescribed fire, conducted at appropriate return frequencies, to maintain an open canopy and shrubby condition in the Preserve's oak scrub and scrubby flatwoods. Such fires should be conducted during the growing season to the greatest extent possible.**
- ◆ **Survey the oak scrub and scrubby flatwood sites for the presence of scrub-jays on at least an annual basis, and immediately prior to conducting any prescribed fires within or adjacent to these sites. In the event of colonization by scrub-jays, amend the prescribed burning plan for these**

**sites in a manner consistent with perpetuating such colonization.**

- ◆ **Refrain from allowing extensive recreational improvements or site alterations within, or adjacent to, the xeric ridges in order to promote wildlife usage, maintain aesthetic appeal, and preserve archaeological and anthropological context. This shall not preclude installation of a small covered picnic shelter/rest stop near the Deep Creek shoreline adjacent to the oak scrub segment of the recreational trail network (Figure 6) to accommodate recreational users of the Preserve.**

#### **Dry Prairie**

A single stand of dry prairie, totaling approximately 100 acres in size, occurs in the southwestern corner of the property (Figure 3). Dry prairie is nearly identical to pine flatwoods and is distinguished from flatwoods by the absence of a pine canopy. The physical site characteristics that lead to natural establishment of a dry prairie association, rather than to pine flatwoods, are poorly understood. It has been debated in some cases whether the occurrence of dry prairie reflects natural variation across the landscape, or is just a legacy of historic logging that eliminated the pine canopy from sites which had previously supported pine flatwoods.

It is generally accepted among ecologists that dry prairie is an ecologically distinct plant association and that clearcut pine flatwoods which have not yet regenerated a pine overstory are sometimes categorized mistakenly as dry prairie or "palmetto prairie." The Deep Creek Preserve lies near the edge of the south-central Florida region to which true dry prairie is considered to be

confined. In addition, an evaluation of historic aerial photography dating from 1943 to present illustrates a continuous absence of pines from this portion of the site. Although the 1943 photography reflects an absence of pines over virtually the entire land area of the Preserve, subsequent photography illustrates a progressive regeneration of pines across the remainder of the property. This suggests that pines were harvested from the property some time prior to 1943, and that the land area distinguished as dry prairie in the vegetation map is true dry prairie.

Florida's dry prairie is considered to be one of the most imperiled natural community types in North America, with nearly all the historic coverage of dry prairie now converted to improved pasture or other agricultural land uses (Noss, et al., 1995; Noss and Peters, 1995). Given the small size of the dry prairie patch present on the Preserve, it is unlikely that it will ever serve as critical habitat for any of the rare wildlife species that are dependent on dry prairie, e.g., Audubon's crested caracara (*Polyborus plancus audubonii*) and the Florida grasshopper sparrow (*Ammodramus savannarum floridanus*). However, like the xeric ridges discussed previously, the occurrence of dry prairie lends additional visual and habitat heterogeneity to the Preserve landscape. The presence of this rare natural community on the property also provides a representative example that can be incorporated into curricula developed for future environmental education programs that use the property as an outdoor classroom.

#### Management Actions:

- ◆ **Use prescribed fire, conducted at appropriate return frequencies, to maintain the appearance, integrity, and habitat value of the Preserve's dry prairie. Such fires should be conducted during the growing season to the greatest extent possible.**

#### Artificial Cavity Clusters

The Preserve's pine flatwoods appear to provide habitat that would support red-cockaded woodpeckers. The species has been designated as endangered by the USFWS, and as threatened by the FFWCC, on the basis of its elimination from much of its historic range. Research has demonstrated that red-cockaded woodpeckers are slow to recolonize sites from which they have previously been eliminated, even when habitat conditions are consistent with those typically ascribed to viable, actively inhabited sites. This reluctance to recolonize has been attributed to a unique life history characteristic: the red-cockaded woodpecker uses cavities excavated in living longleaf pines or slash pines for nesting and roosting. The excavation of such a cavity requires a pine of sufficient girth to accommodate the cavity. Hence, the species is normally associated with old-growth stands of pine. Old-growth longleaf pine forests support large trees that may also be infected with red heart disease. This disease makes it easier for the birds to excavate a cavity; however, cavity excavation is still a process that can take several years. If cavities are absent from a site that may otherwise provide suitable habitat for red-cockaded woodpeckers, then it is unlikely that dispersing birds traveling through the area would remain long enough to establish breeding colonies.

An evaluation of the Preserve's pine flatwoods will be conducted to characterize canopy coverage, age structure of the pine overstory, composition of the mid-story, and other physical and biotic factors considered indicative of red-cockaded woodpecker habitat. If this evaluation confirms that habitat conditions are consistent with those normally associated with viable red-cockaded woodpecker habitat, then an appropriate number of clustered artificial cavities will be installed in the Preserve's pine flatwoods to induce recolonization by dispersing birds. In addition, the site will be evaluated to determine its suitability as a reintroduction site. Any clusters of artificial cavities established after the site evaluation will be afforded Special Protection Area status. For a more detailed discussion of this issue, please refer to page 50 in the Land Management section of this plan.

#### **Management Actions:**

- ◆ **Use prescribed fire, conducted at appropriate return frequencies, to maintain an open canopy and prevent excessive accumulation of fuels in the Preserve's pine flatwoods. Such fires should be conducted during the growing season to the greatest extent possible.**
- ◆ **Protect any pine trees with artificial red-cockaded woodpecker cavities from possible destruction by prescribed fire. Such protection should be limited to small-scale, manual removal or trimming of vegetation immediately surrounding the base of such trees that could transmit fire to the canopy of the tree or ignite flammable resins secreted around the artificial cavity.**

- ◆ **The recreational development and usage proposed in this plan will be considered during analyses used to identify appropriate locations for the establishment of artificial cavity clusters so that future conflicts between recreational users and red-cockaded woodpeckers can be avoided. Recreational development taking place after the establishment of such clusters, if such establishment occurs, will be prohibited within close proximity of artificial cavity clusters to limit human intrusion into such areas.**

#### **Land Use**

##### ***Recreation***

It is the policy of the District (Board Policy 610-3) that appropriate public recreational usage of District lands be permitted, provided that the usage is compatible with natural resource management and protection needs. Recreational activities that are not "resource-based" will not normally be allowed. Resource-based activities generally consist of those outdoor recreational or educational pursuits in which natural surroundings are a fundamental requirement for engaging in the activity. This approach to recreational use is consistent with that mandated in Chapter 373, Florida Statutes, which states that "... *Lands titled to the governing boards of the districts shall be managed and maintained, to the extent practicable, in such a way as to ensure a balance between public access, general public recreational purposes, and restoration and protection of their natural state and condition.*" Additional context is provided through direction that the District evaluate these lands "... *for their resource value for the purpose of establishing which parcels, in whole or in part, annually or*

*seasonally, would be conducive to general public recreational purposes.”*

Recreational activities that will be permitted at the Preserve include hiking, horseback riding, picnicking, boating, canoeing, kayaking, fishing, primitive camping, group camping, birdwatching, and various forms of nature study. Hunting will not be permitted on the Preserve due to the property’s relatively small size, close proximity to residential development, and lack of sufficient buffer; however, this will not preclude the implementation of special hunts whenever necessary to minimize destruction caused by the resident feral hog population. Refer to page 52 for additional discussion related to the control of exotic animal species.

**Management Actions:**

- ◆ **Make the Deep Creek Preserve available for the compatible, resource-based recreational uses enumerated in this plan. Exclude user-based recreational uses as incompatible with the natural character of the Preserve.**

**Public Access** – Public access to the Preserve will be via a primary entrance located in the northwest corner of the property near the western end of Southwest Peace River Street, and a secondary entrance to be developed near the eastern end of the street (Figure 6). These are the only existing points of entrance to the Preserve that can be approached from a public right-of-way. A parking area and other amenities designed to support recreational use of the property will be constructed at these sites. Vehicular access beyond these entrance facilities will not be permitted, although special permits may be granted on a case-by-case basis to allow vehicular access to the interior of the

Preserve for certain activities or to accommodate special circumstances.

Access to all other existing entrances to the Preserve requires traversing privately owned lands or roadways. Although the District holds easements that allow ingress and egress via those access points, such use is “exclusive” and cannot be extended to the general public.

Facilities to be developed at the primary entrance will include a parking area, informational kiosk, picnic pavilion, restroom and group campground. A corral or other enclosure to serve equestrian users of the Preserve will also be provided. This entrance will serve as the main gateway to the property. As discussed in a subsequent section of this plan, an additional parking area will be developed to support recreational use of an off-site public boat ramp located at the eastern end of Southwest Peace River Street. As an ancillary benefit to development of this parking area, the site will also be designed to serve as a secondary entrance to the property. A picnicking structure will be installed proximate to the parking area, and a foot bridge and spur trail that provide access to the Preserve’s recreational trail network will be constructed across Deep Creek Gully. This secondary entrance will be designed to accommodate foot access only. A narrow buffer of natural vegetation will be preserved between the parking area and Southwest Peace River Street in order to maintain the natural appearance of the site and limit intrusiveness upon neighboring residential areas.

**Hiking** – Hiking is a low-impact recreational activity that appeals to a broad segment of the public. Part of its broad appeal may be related to the limited need for specialized equipment or other accouterments. A comfortable pair of shoes and a daypack loaded with some drinking water and

snacks (and ideally a map and compass) are all that's needed. The unobtrusive qualities of hiking also make it an ideal vehicle for observing wildlife. The Deep Creek Preserve provides an outstanding opportunity for those seeking an outdoor experience in an area that showcases an exceptional example of the south Florida pine flatwoods community. The relatively small size of the Preserve lends itself well to short day hikes, although the full 6-mile network of trails may also be sufficient to entertain those who are interested in a longer hike.

When planning trails for hikers and other recreational users of the Preserve, the preferences and enjoyment of the recreationist must be balanced with considerations related to the sensitivity of the property's wildlife and natural communities. The conceptual trail network delineated in Figure 6 provides a series of loop trails that will allow hikers to tailor their hike to personal preferences of both hike duration (distance) and the variety of landscapes to be traversed. All of the trails follow existing trail roads, thereby minimizing disturbance to the property and allowing recreational users to enjoy virtually immediate access. The sole exception to this is a short length of hiking trail that must be developed to link the secondary access point discussed previously with the recreational trail network. Development of this trail, and of the foot bridge over Deep Creek Gully that will be necessary to provide connectivity to the existing trail network (see Figure 6), will be deferred until the parking area for this secondary entrance to the Preserve has been developed.

Although the future development of new recreational trails is not precluded entirely, the development of such trails typically must be conducted in partnership with a local government and/or organized user group,

e.g., the Florida Trail Association, that will assist with trail delineation, construction, and long-term maintenance needs. The extensive network of existing roads is a legacy of past agricultural use and the creation of new trails through undisturbed sections of the property will be discouraged. The development of any new trails through undisturbed portions of the property will not be contemplated until appropriate wildlife surveys and research have been completed. Information provided by such surveys and research will be essential to guiding future decisions regarding any expansion of public use. In summary, prerequisites to creation of new trails will include: formation of a partnership with a local government and/or established user group; confirmation that a clear need or demand exists for additional trails; and wildlife surveys and other research that suggest the additional trails will result in a minimum of adverse environmental impacts.

Existing trail roads that are not projected to be needed for future land management purposes, or that traverse wetlands or other sensitive natural features, will be retired from vehicular use to promote the recovery of native vegetation and to enhance their attractiveness and potential for future recreational and wildlife usage. Measures to enhance the designated network of trails will also be undertaken, including the construction of rest shelters, installation of interpretive signs at appropriate points of interest, and construction of a kiosk at the primary entrance to provide a central location for the dissemination of informational literature.

The District will consider offering guided interpretive walks that highlight the natural landscape and diverse wildlife habitat traversed by the trail system. These walks may be sponsored by District personnel or other experienced naturalists, or through development of a volunteer naturalist

program or environmental education program. The walks should be scheduled to take advantage of seasonal variations in vegetation and wildlife. The subject matter of the walks should describe the ecology of the Preserve, explain land management goals, and emphasize the natural values which served as the motive for preservation of the property.

**Management Actions:**

- ◆ **Following construction of the parking area that will serve as the secondary public access point, develop a spur trail and footbridge that will connect the secondary public access point with the Preserve’s recreational trail network.**

**Horseback Riding** – DeSoto County remains very rural in character and firmly rooted in its long history and tradition of cattle ranching. It currently ranks seventh in cattle production among Florida’s 67 counties (Bureau of Economic and Business Research, 1999). The local popularity of recreational horseback riding is consistent with this ranching tradition and DeSoto County’s rural character. It is also reflected in the current pattern of recreational use at the nearby, District-owned RV Griffin Reserve, where equestrians form the dominant user group. Several equestrian organizations have expressed a strong interest in use of the Deep Creek Preserve, and have also requested that a campground for equestrians be designated there.

An assessment of outdoor recreation needs in Florida determined that the region encompassing DeSoto County would experience a 40-mile deficit in equestrian trails by the year 2000 (Florida Department of Environmental Protection, 1994). The

current availability of 15 miles of trail at RV Griffin Reserve for equestrian use, in combination with the opening of additional trails in the region, has apparently negated this deficit, which is not reflected in the draft update of Florida’s Statewide Comprehensive Outdoor Recreation Plan (Florida Department of Environmental Protection, 2000) Approximately 7 miles of the Preserve’s 7.5-mile designated recreational trail network will also be managed as “shared use” trails and will be open for equestrian use, helping to ensure an adequate supply of trails for this large segment of recreational users. A group camping area will be established in the former pasture area located at the primary entrance, and will be available for use by equestrians. An existing structure at this site, if it is determined to be suitable for such use, will be modified to provide stalls and enhance the area’s attractiveness to equestrians. In addition, a primitive camp site will be made available for small groups of equestrians interested in “ride in” camping.

Most equestrians maintain a close affinity and personal attachment with their horses. In order to provide equestrian users of the Preserve with a reasonable assurance that they can safely explore the Preserve’s trail system with their horses, the District will require that all equestrian users possess current evidence of a negative Coggins test while riding on the property.

**Management Actions:**

- ◆ **Manage the designated recreational trail network as a “shared use” system open to both foot and equestrian use.**

- ◆ **Provide site improvements in the entrance pasture that will make the group camp site attractive for use by equestrians.**
- ◆ **Provide site improvements that will make the old cow pen site usable for “ride in” primitive camping by small groups of equestrians.**
- ◆ **Require that equestrian users of the Preserve possess evidence of a negative “Coggins” test for each horse in their company while horseback riding on the property.**

**Camping** – An assessment of outdoor recreation needs in Florida, and a draft update of that assessment, did not project any unmet demand for either tent camping or recreational vehicle/trailer (RV) camping in the DeSoto County region (Florida Department of Environmental Protection, 1994). However, the Preserve lies at the extreme edge of the five-county region that encompasses DeSoto County. A draft update to the survey predicts that the neighboring region, which includes Charlotte County, will experience a deficit of 300 tent camping sites by the year 2005 (Florida Department of Environmental Protection, 2000). It is also noteworthy that the vast majority of tent camping sites inventoried for the DeSoto County region were affiliated with privately owned “improved” campgrounds (75 percent). Many of the remaining sites are located in state parks or in the federally owned Avon Park Air Force Range, all of which are located in portions of the region that are relatively distant from DeSoto County and the Deep Creek Preserve. Very few of the sites are “primitive” in character, meaning that they cannot be approached by vehicle and do not provide any improved facilities, e.g., restrooms or fresh water.

If there is a category of camping for which there is a deficit in supply for this region, then it is for primitive camping. This form of camping appeals to a segment of the public that is seeking a high degree of solitude in a very natural setting. These campers typically practice a “leave no trace” philosophy that is consistent with protecting sensitive natural areas like the Preserve. As noted in the preceding discussions of trail use by hikers and equestrians, a primitive camp site will be designated for each trail user group. A site in the large hammock on the south side of Deep Creek Gully was used by the previous landowner as a hunt camp. Existing improvements include a small, open pavilion and an established fire pit. The pavilion is dilapidated and unsafe for public use, and it will be removed. This site will be reserved for “hike in” campers (Figure 6) and amenities will be limited to a fire ring or other enclosure designed to safely contain campfires. An additional camp site will be established by a set of old cow pens located near the center of the property. The existing pens will be renovated to provide stalls or a small coral so this area can serve as a “ride in” equestrian camp site (Figure 6). The only other improvement planned for this site is a fire ring.

Primitive camping is normally considered to be a category of tent camping. Given the close proximity of the Preserve to the Charlotte County region for which a tent camping deficit has been projected, the establishment of two primitive camp sites on the property will help to address a local shortage of tent camping opportunities. Each site will be designed to provide pads for several tents. If the demand for camping exceeds any carrying capacity established for the sites, or if use levels begin to degrade them, then an additional primitive camp site may be designated so that use can be rotated among sites or otherwise managed to minimize physical disturbance

and ensure a quality camping experience for visitors to the Preserve.

Additional progress toward meeting the local tent camping deficit will be achieved by establishing a group campground in the improved pasture located at the entrance to the Preserve (Figure 6). An existing structure at this site may be modified to provide stalls and enhance the area's attractiveness to equestrian groups. The restroom and picnic pavilion planned for the Preserve entrance will provide additional amenities for users of the group campground and a source of fresh water may also be provided.

The group campground and primitive camp sites will be made available for public use by prior arrangement only. Although the group campground and one of the primitive camp sites will be designed to meet the needs of equestrians, both sites will also be open for use by non-equestrians.

DeSoto County has expressed an interest in establishing a "full service" campground that would serve recreational users of the Preserve. The campground would provide facilities, including electrical and water hook-ups, for RV and trailer campers. Although the development of such campgrounds on District lands is prohibited, the District will be amenable to coordinating with DeSoto County to accommodate direct access from such a site if it is constructed on adjoining lands. It would be required that access from the campground, and recreational use of the Preserve originating from such a location, must be consistent with the resource protection and land use guidelines outlined in this plan.

**Management Actions:**

- ◆ **Establish two primitive camp sites, one of which will be available for equestrian "ride in" use, and another that will be reserved for "hike in" use. The sites will be closed to vehicular access and site improvements will be limited to fire rings, tent pads, and stalls or a coral at the equestrian site.**
- ◆ **Establish a group campground in the improved pasture located at the entrance to the Preserve. Design the campground to meet the needs of equestrians and function in conjunction with the picnic pavilion and restrooms that will also be constructed at the entrance.**
- ◆ **Make the camping areas available to the public through a reservation system.**
- ◆ **Coordinate with DeSoto County in the possible development of an RV-compatible campground on lands adjacent to the Preserve.**

**Boating, Canoeing, and Kayaking** – The Preserve's riverfront, which includes both Deep Creek and the main channel of the Peace River, offers an ideal location for boaters, canoeists, and kayakers to explore a natural tidal shoreline. The shallow, tidally influenced nature of the riverfront limits boating activity to shallow-draft vessels. This is especially true for Deep Creek, where there is no well-defined channel and water depths at low tide decline to less than two feet in many places. The sheltered character of Deep Creek, coupled with the relative absence of motorized boats, enhances the appeal of this area for canoeists and kayakers.

Although the lack of direct vehicular access to the riverfront precludes the launching of boats and other watercraft from within the Preserve, there is a public boat ramp located at the eastern end of Southwest Peace River Street (Figure 6) immediately adjacent to the northern boundary of the property. There are additional public boat ramps in the area, including a small facility immediately east of the Preserve near the proposed Liverpool Park site, and a much larger facility located approximately 8 miles upriver on County Road 760 at its point of intersection with the Peace River. These public facilities ensure adequate waterfront access for the launching of boats and other watercraft; however, the Southwest Peace River Street boat ramp has inadequate parking to meet the needs of users of that facility. As noted previously in this plan, the District will coordinate with the FFWCC and DeSoto County to develop supplemental parking for the boat ramp on the adjacent lands of the Preserve. Amenities to support picnicking, consisting of a small picnic shelter, will also be constructed at the site.

It is anticipated that the Preserve's natural riverfront will serve as a focal point for use by canoeists and kayakers. In order to expand the public's access to the picnic shelter that will be constructed along the shore of Deep Creek (see Figure 6), a stabilized landing platform or other structure will be erected at the site so that canoeists and kayakers can safely land at this location and enjoy use of the shelter. Such a structure will also be important to prevent excessive damage and erosion along the shoreline.

#### **Management Actions:**

- ◆ **By the end of the 2003 fiscal year, coordinate with the FFWCC and DeSoto County to develop supplemental parking for the Southwest Peace River Street public boat ramp.**
- ◆ **By the end of the 2004 fiscal year, construct a stabilized landing or other structure at the site of the Deep Creek picnic shelter to accommodate landings by canoeists and kayakers.**

**Fishing** – As noted previously, the Preserve's natural riverfront provides an outstanding setting for boating, canoeing and kayaking. These forms of recreation are often conducted in association with fishing. The waters of Deep Creek and the Peace River support a healthy estuarine fishery, including such species as snook (*Centropomus undecimalis*) and spotted seatrout (*Cynoscion nebulosus*), and sport fishing is a regular activity there. Fishing from the property's shoreline will also be permitted, although inundated soils and a nearly impenetrable barrier of dense vegetation lines most of the riverfront. The only other areas of open water within the Preserve are the deep-water central pools of several freshwater marshes, and the channel of Deep Creek Gully. These waters are incapable of sustaining sport fisheries and will be closed to such use. Anyone fishing on the Preserve must be properly licensed and must comply with established laws governing fishing in the State of Florida.

**Management Actions:**

- ◆ **Permit fishing from the riverine shoreline of the Deep Creek Preserve, and prohibit fishing in the property's freshwater marsh and Deep Creek Gully systems.**

**Picnicking** – The open, grassy pasture and scattered live oaks located at the primary entrance to the Preserve provide a site that is attractive and sufficiently spacious for improved picnicking facilities. The parking area and restrooms planned for this area will provide the basic infrastructure necessary to accommodate group picnicking and will be designed to do so. Small “rest stations”, or picnic shelters, will also be constructed at several locations on the property to provide a sheltered area where hikers and other recreational users can rest, seek shelter from the sun or rain, or eat lunch. These stations will be consistent with a backcountry setting, consisting of little more than a covered picnic table. One of the stations will be constructed along the Deep Creek shoreline where it adjoins the xeric ridges. This distinctive portion of the property is relatively distant from the Preserve entrance and is likely to be a target destination for many recreational users.

As noted previously, there is insufficient parking to meet the needs of users of the Southwest Peace River Street boat ramp. The District will provide a picnic shelter to support picnicking in conjunction with development of the secondary public access point proposed in this plan, which will also provide supplemental parking for the public boat ramp that neighbors the Preserve.

**Management Actions:**

- ◆ **By the end of the 2002 fiscal year, construct a pavilion or other improved structure in the entrance pasture to serve as a facility for group picnicking.**
- ◆ **Install picnic shelters at several different locations along the Preserve's recreational trail network, including one near the Deep Creek shoreline and one at the secondary public access point.**

**Birding** – The sub-tropical climate of the Preserve, the mixture of natural communities present at the site, and its occurrence along the migratory path of many neotropical migrants results in the presence of a great diversity of bird species. The network of recreational trails on the Preserve will provide convenient access for birders and other wildlife viewing enthusiasts.

Bird watching is the most popular form of “non-consumptive” wildlife viewing in the United States, and Florida has become a major destination for out-of-state birders. It has been estimated that 796,000 visitors to Florida engaged in wildlife viewing recreation during 1996, and that they spent approximately \$1.7 billion in trip-related expenditures (United States Department of the Interior, 1997). These figures rank Florida first in the United States as a destination for out-of-state wildlife viewers, and third in terms of total economic impact from wildlife viewing. In contrast, sport hunting generated \$341 million, or only 20 percent of the spending attributed to wildlife viewing (United States Department of the Interior, 1997). Bird watching at the Corkscrew Swamp Sanctuary alone, which is located approximately 30 miles south of the Preserve, accounted for approximately

\$9.5 million in local sales and services during 1993-1994 (Jay Yingling, pers. comm.). The FFWCC is currently in the process of designating a statewide birding trail in response to the tremendous popularity of birding. In recognition of this popularity and of the low-intensity, highly compatible nature of the activity, the District will coordinate with local birding groups to develop an interpretive guide to birding on the Preserve and will consider implementing other measures designed to enhance the site for birding. In addition, the District will nominate the Preserve for inclusion in the Great Florida Birding Trail that is being established by the FFWCC.

#### **Management Actions:**

- ◆ **Coordinate with local birding groups to develop an interpretive guide to birding on the Preserve.**
- ◆ **Nominate the Preserve for inclusion in the Great Florida Birding Trail being established by the FFWCC.**

**Radio-Controlled Aircraft** – The Florida legislature recently enacted legislation that added radio-controlled aircraft to the general list of permitted recreational uses on lands purchased through the Florida Forever land acquisition program (Chapter 259.105(5)(a), Florida Statutes). Although the Preserve was not purchased with Florida Forever funds, the District has endeavored to remain consistent with this direction from the legislature and has made the Deep Creek Preserve available for such use by the Charlotte Sport Modelers Society (CSMS). The current agreement with CSMS restricts their use to a portion of the 40-acre pasture site located at the main entrance to the property. An area of turf has been improved to support the take-off and landing of their aircraft and they are permitted to maintain the site as necessary.

This use has been allowed at the site on a trial or interim basis to allow for a determination of compatibility with other uses. When the interim use was initially permitted, there was no established recreational usage of the Preserve. The range of uses now planned for the entrance area, and the structural improvements necessary to accommodate those uses, will displace the CSMS from the Deep Creek Preserve location. Concern over the noise generated by the CSMS aircraft, and the perceived incompatibility of this use with the other recreational uses projected to occur at the Preserve, also suggests that the use by CSMS should be terminated. There are additional concerns associated with the flammability of fuels used by the modelers and with the potential for crashing models to serve as a possible source of ignition for wildfires.

The RV Griffin Reserve, which is located a short distance north of the Preserve, is more highly altered than the Preserve and has been subjected to more intensive use associated with the development of public water supply facilities. As such, it is more conducive to accommodating such intensive, non-resource based recreational activities. Transferring use by the CSMS to the RV Griffin Reserve would minimize the potential for conflict with other recreational users and would reduce concerns associated with adverse environmental impacts, e.g., the disturbance of sensitive wildlife species. The District will negotiate with CSMS to establish a mutually agreeable set of conditions that will allow the use to be transferred to a site at the RV Griffin Reserve.

**Management Actions:**

- ◆ **Terminate the ongoing use of the Preserve by radio-controlled model hobbyists and establish a site at the RV Griffin Reserve to accommodate such use, provided appropriate controls over the use are implemented.**

**Bicycling** – The popularity of bicycling as a recreational activity has increased greatly in recent years, due in large part to the emergence of off-road bicycling or “mountain biking.” However, the District will not open the Preserve’s trail network to bicycling on the basis of a rationale that aims to optimize the experience of recreational users by precluding a use that can be better accommodated elsewhere, and that may conflict with other uses within the relatively confined trail network of the Preserve.

The emergence of off-road bicycling has posed a challenge to the managers of publicly owned conservation lands. One aspect of this challenge is related to occasional conflicts between the “historic” trail user groups, i.e. hikers and equestrians, and the “new” bicycling constituency. Another element of the challenge concerns divergent preferences in trail configuration and design. Equestrians require more vertical clearance in order for a trail to be passable, and often enjoy wide trails that allow them to travel side-by-side. The trail roads that comprise the designated trail network are ideal for such use. In contrast, many off-road bicyclists favor the use of “single track” trails over “double track” trail roads, and prefer various obstacles and impediments to easy passage, because such trails can present a more physically demanding and challenging experience. The trail network designated for the Preserve, as stated

previously, follows existing double track trail roads and was delineated to follow those road segments that are least subject to flooding following major rain events. The flat topography that is characteristics of the Preserve, and the resulting frequency of very wet conditions, combined with the relatively small size of the property, combine to limit the length of recreational trail that can be provided. This, in turn, increases the potential for conflicts among competing user groups.

User demand and the current mix of recreational alternatives available in the local area were other factors considered in identifying the recreational uses that will be permitted at the Preserve. The District has received frequent requests for equestrian access to Deep Creek Preserve from both individuals and organized equestrian groups, while there has been no pressing demand in the local area for off-road bicycling opportunities. This level of equestrian demand is consistent with the character of DeSoto County, and is also reflected by current public use patterns at the nearby RV Griffin Reserve, where equestrian use greatly exceeds bicycling use. The current availability of 7 miles of shared-use trail that is open for bicycling at RV Griffin appears adequate to satisfy the limited demand for such use.

A subsequent section of this plan discusses opportunities for creating a physical connection between the shared-use trail networks of the Preserve and RV Griffin. This would complement ongoing efforts by Charlotte and Sarasota Counties to delineate a continuous regional trail network by incorporating DeSoto County. The District is prepared to coordinate with DeSoto County in creation of such a greenway link. The connectivity, and overall expansion of trail length that would result from such a greenway, could both reduce the potential for conflicts among different

user groups, and cultivate greater interest among bicyclists. The District will remain open to amending the approach to recreational use of the Deep Creek Preserve, as currently outlined in this plan, in response to these possible changes in circumstances.

### ***Opportunities for Environmental Education***

Most people who are attracted to visiting a natural area like the Preserve enjoy an outdoor experience in unspoiled surroundings and are committed to protecting the area and the natural communities it sustains. However, many visitors may be relatively unfamiliar with the dynamics of the natural environment and the effects their recreational use or other activities may have on ecological processes at work within the property. Educational displays related to the ecology of the Preserve, its resident wildlife, and water management values will be incorporated into displays exhibited at the entrance kiosk whenever possible. The assessment of outdoor recreation needs that was cited previously predicted a 34-mile deficit of trails for nature study in the region encompassing Charlotte County by the year 2000 (Florida Department of Environmental Protection, 1994). Although a shortage of such trails was not predicted for the region including DeSoto County, the proximity of the Preserve to Charlotte County suggests the Preserve's recreational trail network can help address the existing shortage of trails for nature study.

Organized, professional instruction that is consistent with a curriculum tailored specifically to the natural attributes of the Preserve is the ideal way to capitalize on the outdoor classroom the property represents. The Charlotte Harbor Environmental Center (CHEC) was established on lands situated beside the

Charlotte Harbor estuary in Charlotte County. CHEC has expressed an interest in developing just such a curriculum. Instruction would emphasize the various water management benefits associated with the Preserve and explain how these benefits are retained through preservation of the property. The District-managed RV Griffin Reserve, which is located a short distance north of the Preserve, is the site of public water supply facilities that meet the needs of many residents of DeSoto, Charlotte, and Sarasota Counties. CHEC wishes to incorporate the water supply facilities of RV Griffin Reserve, and the neighboring PR/MRWSA water treatment plant, into the water-related curriculum they would develop for the Deep Creek Preserve. In this way, a full range of water-related environmental issues can be addressed. An existing structure at RV Griffin Reserve will be retrofitted to serve as a classroom and working laboratory and will be made available for such use.

The District is committed to promoting and partnering in environmental education programs and has provided funds to CHEC to support the initial implementation of field trips to the two properties. Close coordination will be required to ensure that the field trips and associated curriculum and classroom instruction are designed to maximize educational benefits while avoiding negative impacts to the resources of both properties.

The District will also be amenable to accommodating requests for field trips from local schools or private groups interested in capitalizing on the availability of this natural classroom. Typically, the District's role in such trips will be limited to organizational matters, including arrangements for necessary vehicular access and guidance on educational content or curriculum. Interpretive tours conducted by knowledgeable staff may be also be

arranged depending on the availability of appropriate staff, compatibility with resource protection goals, and liability concerns. The District's approach to environmental education will emphasize cooperation and coordination with CHEC, the DeSoto County School Board, and any nearby private schools. Ultimately, the District's relationship with CHEC may evolve to a stage at which CHEC will direct all organized educational activities conducted on the Preserve in cooperation with the District and the DeSoto County School Board.

**Management Actions:**

- ◆ **Coordinate with the Charlotte Harbor Environmental Center to develop and implement an environmental education curriculum that highlights the water management benefits of protecting both the Deep Creek Preserve and the nearby RV Griffin Reserve.**
- ◆ **Coordinate as appropriate with DeSoto County and outside groups or organizations to permit or conduct interpretive educational tours of the Preserve.**
- ◆ **Incorporate environmental education themes into the informational kiosk constructed at the entrance to the Preserve.**

***Multiple Use Potential***

The State of Florida's landmark land acquisition programs have successfully protected a large portion of natural Florida from development, and are conserving an amazing diversity of natural resources for future Floridians. A direct result of this

aggressive approach to land protection has been a concomitant increase in the amount of lands for which the District, and other public agencies, must accept management responsibility. While the public acquisition of land for conservation purposes will eventually reach a conclusion, the management of lands so protected will remain a continuing responsibility.

In 1996, the District began to evaluate various alternatives for generating revenue on District-held lands in order to assure a continuous source of funding to support land management. Legislative constraints on the use of lands held in trust by the District limited the range of options to those that would be compatible with resource protection needs. As a result, the District considered only those alternatives that would capitalize on existing resources and not result in the alteration of natural, undisturbed lands. Fallow improved pastures were analyzed to determine viability for revenue-generating cattle leases, harvesting of hay, or timber production (Fox and Tully, 1996a; SWFWMD, 1997). Likewise, existing stands of planted pine on District lands were evaluated to project their long-term capability to support continuous, sustainable timber harvests (Fox and Tully, 1996). As a result of this comprehensive analysis of District-held lands, more than 8,000 acres have been designated as Timber Management Zones where sustainable silviculture will be practiced to provide a continuous revenue stream to support land management. Additional pastures have been, or will be, leased to private citizens to serve as grazing sites for cattle or as sites for the harvest of hay.

No planted pine occurs on the property and the high quality of its pine flatwoods precludes thinning harvests to restore natural pine densities. Areas presently supporting natural land cover will not be

considered for conversion to planted pine stands.

With less than 40 acres occurring on the property, pasture area falls well below the minimum 100 acres the District has determined to be required for cost-effective silviculture or cattle leases (SWFWMD, 1997; Kerry Tully, pers. comm.). These practices are also precluded by the anticipated public use of the pasture area. As such, the District does not attribute any multiple-use potential to the Preserve and these revenue-generating uses will not be implemented on the property.

### ***Utilities and Other Public Facilities***

Consistent with legislation that was adopted by the State of Florida in 1999, lands acquired through state-funded acquisition programs can be used for a variety of public facilities. These include utility lines and other linear facilities; stormwater management projects; water supply development projects; and sustainable agriculture or forestry. Approval of such uses is contingent upon a number of criteria, including: the use must be compatible with the natural resource values of the property; reasonable compensation must be provided to the titleholder of said lands; the proposed use must be in the public interest; the use must be located appropriately on the lands, with due consideration given to use of other lands; and the proposed use must not be inconsistent with the management plan for the property.

The monitoring well located in the northwest corner of the Preserve meets the criteria established for making public conservation lands available for such uses. It is currently the only such use accommodated on the property, although the installation of additional monitoring wells may be

considered in the future. No other public facilities are projected for the property.

### **Management Actions:**

- ◆ **Ensure that any utilities or other public facilities permitted to locate on the Preserve property are consistent with statutory guidelines established for permitting such uses of publicly owned conservation land.**

### ***Security***

Security will be maintained on the Preserve through several means. The District's Land Resources staff, and to a limited extent the staff of other departments, will provide security by maintaining a regular daytime presence on the property through the course of conducting normal land management activities. Supplemental security will be provided by limiting access points and restricting vehicular traffic. In accordance with District policy 610-3, perimeter fencing will be placed and/or maintained around the perimeter of the property. Maintaining appropriate perimeter fencing and other barriers to unauthorized access will remain a priority of the District's Land Resources Department.

Informational signage can aid in providing security by apprising the public of permitted and prohibited activities. Limiting public use to daylight hours will also help to reduce both security concerns and concerns related to public safety. Vehicular access and nighttime use of the property will remain limited to those users holding special permits for camping and other activities, as issued by the District on a case-by-case basis.

If serious breaches of security occur, then the District will consider entering into a

contractual agreement with a certified law enforcement officer or other party that will provide for patrolling of the property during “off hours.” Such patrols would confer a measure of security that cannot be attained solely by District staff patrolling the site during work hours. In the event that DeSoto County, or another outside governmental entity, agrees to sponsor and/or supervise public access and related recreational use, strategies for maintaining security will be amended as appropriate.

**Management Actions:**

- ◆ **Maintain perimeter fencing to control access and prevent unauthorized activities on the Preserve.**
- ◆ **Restrict public use to daylight hours and limit vehicular access, except as authorized through special use permits.**
- ◆ **Construct an informational kiosk at the Preserve entrance to inform the public of permitted uses and disseminate maps and other informational literature to ensure the public’s safe use of the property.**
- ◆ **Provide additional security through contractual agreements with private or public sector parties or through cooperative agreements with DeSoto County, as necessary, to ensure adequate protection of the Preserve’s natural resources and recreational users.**

**Land Management**

The District engages in a variety of land management activities designed to protect

or enhance the natural resource values of its properties and to ensure public safety. The following is a discussion of some of the management practices and resource protection measures to be employed at the Deep Creek Preserve.

**Prescribed Fire**

Prescribed fire is the most important management tool available to public land managers in Florida. Approximately 1,400 acres of the Preserve’s 1,988 acres, or fully 70 percent of the total land area, supports vegetation that will benefit from regular, controlled applications of fire. The mesic and scrubby pine flatwoods, oak scrub, dry prairie, and freshwater marsh communities at the Preserve are fire-maintained systems that are dependent upon recurring fire for their long-term maintenance and viability. In the prolonged absence of fire, the vegetative structure and species composition of these communities would gradually change and be of reduced value to wildlife. Given the degree to which the natural Florida landscape has been altered, and the need to prevent fires from escaping to adjoining private lands, the natural mechanism of lightening-induced fires cannot be expected to fulfill the fire needs of these communities. The use of prescribed fire will be necessary to achieve many of the land management objectives established for this property. Long-term fire management will be critical to preserving the fire-dependent communities in a natural, biologically productive state and to maintaining low fuel loads that will pose less risk of spawning catastrophic wildfires.

The inclusion of a detailed prescribed burning strategy is beyond the scope of this plan. Burn plans are developed for each District-held property individually, and independently of site-specific land management plans such as this. The District’s land management staff has

extensive experience in the use of prescribed fire and a burning program has already been implemented on the property. Generally, prescribed fires on the Preserve will be designed to mimic natural, lightning-induced fires. Appropriate burn seasons and fire return frequencies will be established for each fire-maintained community and will be adhered to whenever possible. Burns will attempt to create a natural mosaic of burned and unburned patches to maximize diversity. Additional details on the use of prescribed fire at the Preserve are included in some of the discussions related to wildlife management issues, including a rationale for maintaining scrubby conditions suitable for scrub-jays in the property's oak scrub and scrubby flatwoods systems.

Smoke management will be one of the most problematic issues associated with implementation of the prescribed burning program due to proximity of residential development and a heavily traveled transportation corridor. There is a considerable amount of residential development surrounding the Preserve, and the Kings Highway (CR769) right-of-way approaches the property's western boundary. The prescription parameters used to plan and guide individual prescribed fires at the Preserve will rely on appropriate combinations of wind speed and wind direction to avoid placing smoke over these sensitive areas. Fire breaks have already been established along those portions of the Preserve perimeter that adjoin privately owned lands, and these fire breaks will be maintained through regular discing or other mechanical methods to prevent the escape of fire onto surrounding properties. The Peace River floodplain, which is situated along the Preserve's eastern boundary, provides a broad and relatively secure natural fire break, and can also serve as a buffer zone for the dissipation of fire-generated smoke.

#### **Management Actions:**

- ◆ **Develop a detailed burn plan for the Preserve's fire-dependent natural communities that includes prescription parameters designed to prevent the escape of fire to adjoining properties and minimize the potential for placement of fire-generated smoke over sensitive areas.**

#### ***Habitat Restoration***

District policy directs that sites on District-managed land that have been altered from a natural state and condition must be restored to a natural condition whenever practical. It has also been a standard District practice to locate site improvements on altered portions of a property whenever possible in order to avoid altering undisturbed sites. The Deep Creek Preserve is noteworthy for its nearly pristine, unaltered condition. The only substantial alteration occurred in the northwest corner of the Preserve, where approximately 40 acres of pine flatwoods were converted to improved pasture. This pasture now coincides with the entrance to the Preserve and is slated to serve as the site of improvements and amenities that will support the public's recreational use of the property. As such, the District will not target the pasture for habitat restoration.

There are several minor alterations to the property that will be the target of habitat restoration projects. Three isolated freshwater marsh systems have been affected by ditches that were excavated to drain water during wet periods (Figure 3), presumably to prevent flooding of surrounding pine flatwoods and thereby maintain conditions suitable for cattle grazing. The affected wetlands have suffered from prolonged reductions in

hydroperiod that have allowed various degrees of invasion by upland vegetation and shrub growth. Drainage from two of the wetlands is discharged into Deep Creek Gully, potentially exacerbating flooding problems in off-site, upstream locations by consuming a portion of the conveyance capacity of the Gully. The District will plug or backfill the ditches that drain these affected wetlands following a hydrologic evaluation which establishes the proper elevation for backfilling and demonstrates that there will be no adverse off-site impacts.

A small block of the flatwoods that adjoin the primitive equestrian campsite supports "semi-improved" pasture. This site will be evaluated to determine suitability for supplemental plantings of native plant species. It appears likely that a low-density installation of longleaf pine seedlings, combined with use of prescribed fire, will be sufficient to restore this mildly altered site. A portion of the channel of Deep Creek Gully was affected by historic channelization, which left piles of dredged spoil material paralleling sections of the Gully. The District will evaluate the merits of recontouring these spoil piles, many of which have been colonized by native trees and other vegetation, including the invasive, non-native Brazilian pepper (*Schinus terebinthifolius*).

**Management Actions:**

- ◆ **Backfill the ditches that were excavated to drain several on-site freshwater marshes following an evaluation to establish appropriate water levels and hydroperiods.**
- ◆ **Evaluate the need for supplemental plantings of native vegetation in the semi-improved pasture adjoining the primitive equestrian campsite.**

- ◆ **Evaluate the benefits of recontouring spoil piles that parallel the channel of Deep Creek Gully.**

**Wildlife Management**

There are many notable species of wildlife and plant life inhabiting the Preserve (Tables 1 and 2). Some of these species are protected by the State of Florida and/or the USFWS on the basis of imperilment. The continued presence of these species on the Preserve can be assured most effectively through implementation of the general land management actions addressed elsewhere throughout this plan. The appropriate application of prescribed fire and the control of invasive, non-native species will be especially important measures in maintaining the outstanding habitat values of the Preserve. Any special, species-specific management needs are summarized briefly in Tables 1 and 2.

It is important to note that exhaustive surveys to document the occurrence of threatened and endangered species on the Preserve have not been conducted. There is a high likelihood that additional species meriting special attention and consideration in land management planning will be documented on the property. The District employs an adaptive approach to land management that will be responsive to the presence of any additional species documented to occur on the Preserve, and that is consistent with an overall management approach that seeks to maintain healthy ecosystems as the fundamental basis for meeting the needs of the greatest number of native species.

Although the Florida scrub-jay is not known to inhabit the Preserve, the species has been sighted on the property on one occasion (Barnwell et al., 2000) and is

known to be present on a nearby site. As noted in Table 1, the scrub-jay has been designated a threatened species by both the FFWCC and the USFWS. Likewise, the red-cockaded woodpecker is present on nearby lands but is not known to be present on the Preserve, nor has it been sighted on the property. The red-cockaded woodpecker has been designated as threatened by the FFWCC and as endangered by the USFWS (FFWCC, 1997). In recognition of the highly imperiled status of these species, and of the apparent availability of suitable habitat for it on the Preserve, the following discussion addresses special management actions for the scrub-jay and red-cockaded woodpecker.

**Florida Scrub-Jay** – The Florida scrub-jay is an extremely habitat-specific species, occurring only in immature stands of scrub or scrubby flatwoods. Sites that have become overgrown or over-mature due to long-term absence or suppression of fire will not support jays. The well-drained sands that are characteristic of scrub and scrubby flatwoods sites also makes them highly coveted for development and citrus cultivation. The scrub-jay's specificity for a habitat type that has always been relatively rare, and that has become increasingly rare due to fire suppression and human development, has led to their elimination across much of their historic range and to the species' threatened status (Cox, 1987). The USFWS estimates that the statewide population has declined 25-50 percent since 1986 (Dawn Zattau, pers. comm.).

As noted previously in the description of the Preserve's land cover, and in a discussion about designation of the Preserve's xeric ridges as a Special Protection Area, there is potential scrub-jay habitat in the oak scrub and scrubby flatwoods of the property. There is occupied scrub-jay habitat to the south of the Preserve (Stith, 1999) and it is

possible that jays from this site may eventually colonize the Preserve's xeric ridges. Although the total areal extent of these scrubby habitats on the property is insufficient to support more than a couple of scrub-jay families, they may work in concert with the nearby occupied habitat to help support the local metapopulation. A recent assessment of the viability of Florida's remaining populations of the scrub-jay emphasized the importance of protecting additional habitat within the range of this metapopulation, which was ranked the sixth most vulnerable to extirpation in the state.

Although the Peace River serves as a boundary between this metapopulation and one that resides on the east side of the river, there is a possibility of movement between these neighboring populations. The presence of scrub-jays around the mouth of Shell Creek, which is a distance of approximately 6 km from those residing near the Preserve, may allow exchange between these populations and increase the long-term viability of both populations. Estimates of the maximum dispersal distance for scrub-jays vary, depending upon the nature of the intervening landscape, but do not typically exceed 8 km. Heavily forested areas pose a barrier that can greatly reduce this figure (USFWS, 1998). The forested floodplain along the Peace River represents a substantial barrier to movement between the neighboring populations. However, the occupied habitat south of the Preserve is only 2 km distant, and the intervening landscape does not contain large blocks of dense forest, suggesting a reasonable possibility of natural dispersal to the property's oak scrub and scrubby flatwoods. Continuation of the ongoing prescribed burning program at the Preserve will prevent an increase in canopy density in the pine flatwoods of the intervening landscape, thereby maintaining the possibility of scrub-jay dispersal to the site. It will also maintain the habitat

**Table 1.** Noteworthy wildlife species documented at Deep Creek Preserve. Listing status of those species designated as endangered (E), threatened (T), or species of special concern (SSC) by the Florida Fish and Wildlife Conservation Commission (FFWCC) or the United States Fish and Wildlife Service (USFWS) is noted. An “NL” designation indicates that a species is not listed by that agency. “S/A” denotes listing based on similarity of appearance to the threatened American crocodile.

Species	FFWCC	USFWS	Management Recommendations
American alligator ( <i>Alligator mississippiensis</i> )	SSC	T(S/A)	Protect from illegal take; maintain wetland hydroperiods.
Florida scrub-jay ( <i>Aphelocoma coerulescens</i> )	T	T	Maintain scrub and scrubby flatwoods with prescribed fire and mechanical means, as necessary.
Great Blue Heron ( <i>Ardea herodias</i> )	NL	NL	Protect rookeries and foraging sites.
Common Snook ( <i>Centropomus undecimalis</i> )	SSC	NL	Maintain natural, undisturbed shoreline along riverfront.
Little Blue Heron ( <i>Egretta caerulea</i> )	SSC	NL	Protect rookeries and foraging sites.
Snowy Egret ( <i>Egretta thula</i> )	SSC	NL	Protect rookeries and foraging sites.
White Ibis ( <i>Eudocimus albus</i> )	SSC	NL	Protect rookeries and foraging sites.
Gopher Tortoise ( <i>Gopherus polyphemus</i> )	SSC	NL	Maintain flatwoods, scrub, and dry prairie with prescribed fire.
Florida Sandhill Crane ( <i>Grus canadensis pratensis</i> )	T	NL	Protect nesting habitat and restore hydroperiods in altered marshes.
Bobcat ( <i>Lynx rufus</i> )	NL	NL	Prevent high intensity of public use; maintain habitat suitability through appropriate means
Tarpon ( <i>Megalops atlanticus</i> )	NL	NL	Maintain natural, undisturbed shoreline along riverfront.
Red-Headed Woodpecker ( <i>Melanerpes erythrocephalus erythrocephalus</i> )	NL	NL	Maintain flatwoods with prescribed fire; preserve snags.
Wood Stork ( <i>Mycteria americana</i> )	E	E	Protect rookeries and foraging sites.

Species	FFWCC	USFWS	Management Recommendations
Gopher Frog (Expected) ( <i>Rana capito</i> )	SSC	NL	Maintain suitable upland habitat for gopher tortoises; maintain hydroperiods in isolated wetlands.
West Indian Manatee ( <i>Trichechus manatus</i> )	E	E	Coordinate with USFWS to post warning signs and designate idle speed zones, as necessary.

**Table 2.** Plants present at Deep Creek Preserve that have been designated as endangered (E), threatened (T), or commercially exploited (C) by the Florida Department of Agriculture (FDA) or United States Fish and Wildlife Service (USFWS). An “NL” designation indicates that a species is not listed by that agency.

Species	FDA	USFWS	Management Recommendations
Long Strap Fern ( <i>Campyloneuron phyllitidis</i> )	E	NL	Eradicate exotic sword fern; protect from collection.
Butterfly Orchid ( <i>Encyclia tampensis</i> )	C	NL	Maintain intact canopy in hammocks; protect from collection.
Pine Lily; Catesby’s Lily ( <i>Lilium catesbaei</i> )	T	NL	Conduct growing season burns in flatwoods; protect from collection.
Cinnamon Fern ( <i>Osmunda cinnamomea</i> )	C	NL	Maintain wetland hydroperiods; protect from collection.
Royal Fern ( <i>Osmunda regalis</i> )	C	NL	Maintain wetland hydroperiods; protect from collection.
Florida Royal Palm ( <i>Roystonea elata</i> )	E	NL	Prevent physical disturbance in tidal swamp.
Florida coontie ( <i>Zamia floridana</i> )	C	NL	Apply prescribed fire to flatwoods and protect from collection.

suitability of the Preserve’s oak scrub and scrubby flatwoods.

Scrub-jays are an extremely sedentary and territorial species. Most individuals spend their entire lives without straying more than several hundred meters from their birth site. The territorial nature of scrub-jays makes it simple to define the limits of occupied habitat, and it also simplifies the monitoring of both occupied and potential habitat. This

District will survey the Preserve’s oak scrub and scrubby flatwoods for the presence of scrub-jays on at least an annual basis. The territoriality of scrub-jays is most aggressive during the nesting season, which extends generally from mid-March through June (Woolfenden, 1996), making this the period during which scrub-jay presence is most evident. As such, a survey will be conducted among these sites, at a minimum, during each nesting season.

Fitzpatrick *et al.* (1991) recommend the preservation of large tracts over that of numerous small tracts in efforts to preserve the scrub-jay. Population modeling studies have suggested that subpopulations of fewer than 30 families cannot be expected to survive long-term. Although it is unlikely that the subpopulation residing in the vicinity of the Preserve will ever achieve such numbers given the limited availability of habitat, management within the property's xeric ridges will be consistent with the guidelines outlined for this species. These guidelines include quantitative targets for the density and height of scrub oaks and canopy trees that are consistent with targets established through research. They also provide guidance related to the timing of prescribed fires and the maximum percentage of a familial territory that should be burned in any one year period in order to maintain sufficient habitat for survival of the family. The presence of scrub-jays is widely considered to be a good indicator of high quality scrub. As such, species-specific management actions directed toward maintaining good conditions for scrub-jays ensure good quality habitat for amphibians, reptiles, and mammalian species that are also characteristic of, or dependent upon, scrub habitats.

**Management Actions:**

- ◆ **Use prescribed fire and/or mechanical methods to maintain : 50-75 percent cover of scrubby oaks at a height of 2-10 feet (1-3 meters); an open canopy of trees with no more than 20 percent total canopy cover; and 10-30 percent cover consisting of bare sand. Other optimal habitat characteristics include: few or no patches unburned for >20 years; and few or no dense forests or**

**dense stands of trees within or adjacent to the managed scrub (Fitzpatrick et al., 1991).**

- ◆ **Coordinate with the owners and/or managers of nearby tracts that support scrub-jays to ensure that the local scrub-jay metapopulation is managed in an holistic manner, rather than as individual occurrences, paying special attention to the need for maintenance of potential movement corridors among tracts.**

**Red-Cockaded Woodpecker –** The Preserve's pine flatwoods are not currently inhabited by red-cockaded woodpeckers (RCWs), nor have any abandoned cavity trees, or other evidence of prior occupation, been sighted on the property. An analysis of historic aerial photography indicates that a longleaf pine overstory, which is characteristic of pine flatwoods in this region, was virtually absent from the site in 1943. The absence of a mature pine overstory in 1943, and the progressive regrowth observed in subsequent aerial photography, reflects the large-scale harvest of pines that took place throughout southwest Florida during the early part of the 20<sup>th</sup> century. As a species that is restricted to old-growth stands of pine, any RCWs that may have resided historically on the lands of the Preserve would have been eliminated by the pine harvest.

The size and age distribution of the pines that have regenerated on the property are consistent with that seen in active, viable RCW habitat. Other physiognomic characteristics typically associated with viable RCW habitat are also exhibited in the Preserve's flatwoods. These include an open mid-story and a relative absence of hardwoods in the canopy. Bunchgrasses and other fire-dependent herbs are patchy in distribution and may not meet the 40

percent coverage that is usually correlated with good quality RCW foraging habitat (USFWS, 2000); however, the District's regular application of growing season fire in the Preserve's flatwoods is expected to progressively reduce coverage by palmetto and promote expansion of such species.

It is unlikely that the Preserve's flatwoods could ever provide habitat for more than 4-6 family groups, and their "clusters" of cavity trees. An important aspect of RCW recovery depends upon strategic translocations designed to enhance the spatial distribution of the species by linking isolated groups or subpopulations. The largest concentration of RCWs near the Preserve occurs in the Babcock/Cecil Webb Wildlife Management Area located approximately 7-8 miles south-southeast of the property. An isolated occurrence of RCWs on a site 2 miles south-southeast of the property and reports of RCWs on lands approximately 5 miles west of the property (J. Beaver, pers. comm.) suggest that the Preserve may serve as a link between disjunct subpopulations. Although the latter two sites are privately owned, both are targeted for acquisition by the District, presenting the possibility that future management of the Preserve could effectively restore connectivity across a wide swath of suitable RCW habitat.

#### **Management Actions:**

- ◆ **By the end of the 2002 fiscal year, conduct an assessment of the Preserve's flatwoods to evaluate habitat suitability for RCWs and to identify appropriate locations for the installation of artificial RCW cavities.**

- ◆ **If the assessment of habitat suitability for RCWs indicates that conditions are suitable, then establish 3-4 clusters of artificial RCW cavities to promote or induce natural colonization by dispersing RCWs. Such installation shall be complete by the end of the 2003 fiscal year.**
- ◆ **Retain and protect clusters of snags in the Preserve's flatwoods, install cavity restrictors and snake excluders at artificial cavity sites, and employ other methods as necessary to control predators and kleptoparasites.**
- ◆ **Request an assessment of suitability for translocation or reintroduction from the USFWS and the RCW Recovery Coordinator.**

#### **Control of Exotic Species**

The invasion of native communities and ecosystems by non-native or "exotic" species of plant life and wildlife is widely recognized as one of the primary threats to the integrity of Florida's remaining natural areas. Non-native species, growing in an environment that is free of the population controls typically imposed by their natural predators and pathogens, can often displace native species and greatly diminish the habitat value of affected natural areas. The District has adopted a formal procedure (Board Procedure 61-9) to address the control of exotic species in response to the severity of this threat. The ultimate goal of the land management program is eradication of the most invasive species. At a minimum, those invasive exotic species occurring at the Preserve will be maintained below current densities and areal coverage. No encroachment into natural systems will

be tolerated, and spot treatment of exotic species that have invaded the property will occur immediately upon observation.

**Plants** – Exotic plant species known to be present in the Preserve include: Old-World climbing fern (*Lygodium scandens*); Japanese climbing fern (*Lygodium japonicum*); Brazilian pepper (*Schinus terebinthifolius*); sword fern (*Nephrolepis cordifolia*); water-spinach (*Ipomoea aquatica*); air potato (*Dioscorea bulbifera*); wild taro (*Colocasia esculenta*); and Natal grass (*Rhynchelytrum repens*). With the exception of Natal grass, all of these plant species have been designated as Category I exotic pest plant species by the Florida Exotic Pest Plant Council (Florida Exotic Pest Plant Council, 1999). This designation is reserved for those plants that have clearly demonstrated a propensity to invade and disrupt Florida's native plant communities. Natal grass is designated a Category II species, indicating that it may potentially invade and disrupt native plant communities. Control of exotic plants at the Preserve will focus on the eradication or control of these 8 species. The District will remain alert for the appearance of any other Category I or Category II species and will implement suitable eradication or control measures.

The control of Old-World climbing fern can be especially problematic because the species spreads prolifically via the windblown dispersal of spores. This method of propagation has allowed the fern to spread into remote portions of the property, making its location and treatment difficult. Additionally, the fern's ability to climb into the canopy of trees can provide a "ladder" of fuel capable of carrying fire into the crown of affected trees. This introduces the possibility of killing "crown" fires that can result in the loss of trees and the concurrent loss of other plants, such as native bromeliads and orchids, that may reside on

their trunks and branches (Langeland and Burks, 1998). On the Preserve, Old World climbing fern is found in the floodplain wetlands of both the Peace River and Deep Creek. Though complete eradication of this species from the property is unlikely, the District will aggressively treat it where it is accessible to reduce its coverage in affected areas and prevent its encroachment into upland areas.

Japanese climbing fern is a species that is closely related to Old World climbing fern. It can form tangled masses that blanket, and eventually eliminate, natural groundcover and shrub vegetation (Langeland and Burks, 1998). This species has been reported from only a couple areas of the property and these have already been treated. It is believed that the species has been eliminated from the property; however, the District will remain watchful for any new infestations.

It is currently estimated that Brazilian pepper occupies nearly 700,000 acres in central and south Florida (Langeland and Burks, 1998). At the Preserve, Brazilian pepper is found primarily within the Peace River floodplain and on spoil piles that are a remnant of the historic channelization of Deep Creek Gully. Brazilian pepper forms dense thickets of tangled woody stems that completely shade out and displace native vegetation. Along Deep Creek Gully, the proliferation of this species has precluded the recruitment of native plant species on the remnant spoil piles. Elimination of Brazilian pepper will be an essential aspect of plans to restore disturbed areas along the channel of Deep Creek Gully.

The occurrence of sword fern is presently thought to be confined to central portions of a hydric hardwood hammock located near the southeast corner of the property. This species can spread aggressively across the landscape through both vegetative means

and the dissemination of fertile spores. It forms dense stands that displace native ground cover (Langeland and Burks, 1998). In the Preserve it is supplanting native fern species occurring in the aforementioned hammock, including at least one species (*Campyloneuron phyllitidis*) that has been designated as endangered by the FDACS. In order to prevent or minimize incidental damage to “non-target” native species that grow intermingled with the sword fern, treatment with herbicide must be conducted judiciously and will be a labor-intensive process.

Though wild taro can invade a wide range of wet and dry sites, its occurrence on the property is limited primarily to the edges of the riverine floodplain. This species can form dense growths along river and lake shores, displacing native shoreline vegetation. Currently, taro does not pose a significant threat to the Preserve. However, it will be treated in areas where it is present to limit its proliferation. Spot treatment will be the primary method of control for this species in order to minimize impacts to surrounding native vegetation,

Air potato is limited in extent, occurring along portions of the northern property boundary and encroaching into adjacent flatwoods. Potato vine can quickly engulf native vegetation and climb into mature tree canopies in pine flatwoods and other fire-maintained natural communities, forming ladder fuels in a manner similar to Old World climbing fern. For this reason, it will be imperative that these small-scale infestations be treated as they occur to prevent further invasion of this species.

Water spinach has been identified in at least one of the interior wetlands in the western portion of the Preserve. This species readily invades wetlands and waterbodies by forming dense, floating mats of intertwined stems over water

surfaces. These mats can shade out native submerged vegetation and out-compete aquatic emergent species (Langeland and Burks, 1998).

Natal grass is currently found on the road that parallels the Deep Creek Canal along the southern property boundary. It has begun to encroach into the adjacent pine flatwoods and dry prairie. Though designated as a Category II exotic, its extent and presence within surrounding natural areas suggests that control of this species should be considered a land management priority.

**Animals** – Non-native animal species also pose a threat to Florida’s natural communities. The only such animal that has been noted on the property is the feral hog (*Sus scrofa*). Spanish explorers are credited with introducing the hog into Florida during the 16<sup>th</sup> Century. Since then, this exotic species has flourished in an environment that effectively lacks any natural predators. Feral hogs now represent a significant land management problem in many natural areas. The disturbance caused by hog rooting activities can severely damage natural vegetation in floodplain swamps, hammock, pinelands, and herbaceous wetlands. Hog rooting also creates conditions that promote invasion by exotic plant species, can significantly affect surface drainage or sheetflow through wetlands or low-lying uplands, and can damage archaeological sites. Hogs are also prone to feed on acorn mast. Competition for the mast produced in the scrubby flatwoods on the property may reduce the value of these sites for native species, including the Florida scrub-jay which relies heavily on acorns as a food source during the winter and early spring months.

Trapping methods are often inadequate as a sole means of controlling hog populations due to the high reproductive rate of the

species, the tendency of individual animals to become trap-shy, and the ability with which they can move between neighboring properties. Previous trapping efforts on the property were considered to be ineffective in sufficiently reducing hog numbers. As a result, the District will implement special hog hunts on an “as needed” basis, in conjunction with a trapping program, to bring the population to a manageable level. Such hunts have been used on other District lands and have provided an effective means of controlling hogs while also providing a recreational benefit to the public. Revenue generated by the hunts can be sufficient to offset the administrative costs associated with the hunts, allowing this aspect of land management to be self-supporting. In the absence of a recreational hunting program on the property, hog hunts may provide a necessary supplement to trapping in order to achieve the most effective and efficient method of long-term control.

**Management Actions:**

- ◆ **Eradicate or control the growth of invasive, non-native species consistent with the direction provided in Board Procedure 61-9.**

**Preparation of a Mosquito Control Plan**

Chapter 388 of the Florida Statutes provides sweeping authority for local governments to form mosquito control districts and to implement mosquito control programs. This authority was granted in recognition of the potential health threat associated with major swarms of mosquitoes, in addition to the annoyance they can pose in developed areas. The statute also acknowledges the possibility for adverse environmental impacts resulting from mosquito control activities.

A process has been established whereby the preparation of site-specific “arthropod control plans” can be required for publicly owned conservation lands (Section 388.4111, F.S.). A tract must be officially declared “environmentally sensitive and biologically highly productive” by the managing agency to initiate the process. This designation requires that an arthropod control plan be developed that offers adequate levels of protection to the natural systems and flora and fauna that occupy the site. The mosquito (i.e. “arthropod”) control district having jurisdiction over the area is responsible for preparation of the required site-specific arthropod control plan. The entire process is administered by the Florida Department of Agriculture and Consumer Services.

There has been no formation of a mosquito control district in DeSoto County. As directed by Florida Statutes, responsibility reverts to the Board of County Commissioners in counties that lack such districts because the County Commission can contract with the private sector for mosquito control or may authorize the county health department to administer and direct mosquito control in cases where the public health is at risk. The District will work with DeSoto County and the Board of County Commissioners to develop an arthropod control plan that will ensure protection of the Deep Creek Preserve’s natural resources while also ensuring protection of the public’s health.

**Management Actions:**

- ◆ **Officially designate the lands of the Deep Creek Preserve property as “environmentally sensitive and biologically highly productive.”**
- ◆ **Coordinate with DeSoto County in the development of an arthropod control plan for the Preserve.**

## Preserve Design Considerations

The science of conservation biology has defined several guiding principles for designing preserve areas. One of the most important of these principles is the recognition that only large natural areas are likely, or able, to encompass a diverse range of natural communities and support genetically viable populations of many native wildlife species. Large areas are also more “manageable” in many respects, particularly in terms of safely applying prescribed fire and minimizing “edge” effects associated with the interface between natural areas and developed areas. The current extent of habitat fragmentation and alteration in Florida dictates that many of our existing preserves are too small to support healthy populations of large mammals, and many other species, unless these areas are connected to one another by natural corridors that permit movement of wildlife between a linked network of preserves. Such linkages effectively increase the “size” of a preserve and allow for gene exchange between populations that would otherwise be isolated from one another, thereby reducing the likelihood or incidence of inbreeding.

The small size of the Deep Creek Preserve suggests that a high priority should be placed on expansion of the property through acquisition of neighboring natural lands. Although there is very limited potential for a significant increase in the total contiguous land area of the Preserve, any additional lands would enhance the long-term viability and manageability of the property. The addition of natural lands along the western boundary of the Preserve would result in a meaningful expansion of the Preserve, especially in terms of total flatwoods acreage, and would reduce the potential for those lands to be dedicated to incompatible land uses in the future. Future development of those lands would be

especially problematic to fire management on the Preserve.

Maintaining connectivity with the RV Griffin Reserve would be an especially significant enhancement to the Preserve’s future habitat value. There is a concerted effort underway in Florida to preserve “greenway” linkages between natural areas in order to enhance habitat value and maintain connectivity among sites for recreational users. DeSoto County has expressed an interest in working with the District to create or maintain a greenway connection between the Preserve and the RV Griffin Reserve for the recreational benefits such a connection would confer to both tracts. An ongoing effort by Sarasota and Charlotte Counties to create a network of trails that could serve as both a recreational amenity, and as a strategy for allowing or encouraging alternatives to the automobile as a mode of transportation, poses a valuable opportunity for forging a regional, or “inter-county”, system of multi-purpose trails.

A patchwork of other publicly owned lands north of the Preserve, and of privately owned land that will eventually be deeded to the state as compensation for environmental infractions, may form the framework for preserving such a connection (Figure 7) for wildlife movement. Ultimately, the Preserve and the RV Griffin Reserve may eventually serve as links in a larger regional network of greenways. The District will coordinate with DeSoto County, the FFWCC, the Peace River/Manasota Regional Water Supply Authority and other parties, as necessary, to maintain a natural connection between these District-managed natural areas. However, this proposed connection would be comprised almost entirely of forested wetlands lying within the floodplain of the Peace River. It does not appear that this greenway could function effectively as a recreational connection between these two tracts.

**Management Actions:**

- ◆ **Coordinate with DeSoto County, the FFWCC, the Peace River/Manasota Regional Water Supply Authority, and others, as necessary, to maintain a greenway connection for wildlife movement between the Deep Creek Preserve and the nearby RV Griffin Reserve.**
- ◆ **To the extent possible, expand the size of the Preserve through the fee-simple or less-than-fee-simple acquisition of adjoining lands.**

**Creation of a Recreational Greenway Connection**

DeSoto County recently amended its Comprehensive Growth Management Plan in a manner that may pave the way for creation of a viable, practical trail corridor between the Preserve and RV Griffin. The lands bordering the northern half of the Preserve's western boundary, and extending across Kings Highway (CR769) to within approximately a quarter-mile of RV Griffin, have now been designated a Town Center. This land use category provides for the widest possible mixture of uses (DeSoto County, 2002). Such mixed-use areas are intended to provide a maximum of flexibility when making future land use decisions and have become a favored tool for combating urban sprawl, allowing efficient provision of public services and infrastructure, and creating transportation networks that safely accommodate alternatives to the automobile. Protection of a narrow trail corridor traversing the north-south axis of the Town Center could simultaneously provide a recreational connection between the Preserve and RV Griffin, and serve as a major spine of the transportation system within the Town Center.

The cooperative effort between Sarasota and Charlotte Counties has identified the water transmission pipeline corridor that traverses the southern boundary of RV Griffin as perhaps the best possible future trail link into DeSoto County. The future Town Center could conceivably serve as a major hub in a regional trail system, provided that long-range planning for the Town Center provides for protection of a continuous corridor. Such a corridor could be as narrow as 50 feet, and through co-location of infrastructure could serve double-duty as a utility corridor. The recreational benefits could also translate into economic benefits for DeSoto County. Such trails in other areas of Florida have spawned ancillary businesses to support trail users, and are widely accepted as valuable assets and centers of activity for the surrounding community. The District will work with DeSoto County to explore the feasibility of creating such a recreational greenway connection between Deep Creek Preserve and the RV Griffin Reserve.

**Management Actions:**

- ◆ **Coordinate with DeSoto County to promote creation of a recreational greenway connecting the Deep Creek Preserve and RV Griffin Reserve.**

**Sale of Surplus Lands**

The legislation governing Florida's conservation land acquisition programs provides for the sale, or "surplussing," of those lands that are no longer considered necessary for conservation purposes. Consistent with Section 373.089 of the Florida Statutes, a decision to surplus lands must be approved by a two thirds majority of the District's Governing Board. The District's Board Policy 610-4 and Procedure 61-4 provide criteria that can serve as the

basis for a decision to surplus lands, including: 1) the lands are no longer required for present or foreseeable future operation and/or maintenance of District facilities or Works of the District; and 2) they have no present or foreseeable future utility in the District land management program; and 3) they are no longer needed for water management, water supply, the conservation and protection of fish and wildlife, or water and land-related resources including but not limited to archaeological and historical resources; or 4) they have been declared surplus by the Governing Board in the overall best interest of the District.

DeSoto County has requested that the District consider surplus a portion of the Deep Creek Preserve property so that it can be returned to private ownership and generate ad valorem taxes. Approximately 480 acres in the westernmost portion of the property have been identified as a "Potential Surplus Area" (PSA) and have been evaluated for surplus (Figure 7). This is the portion of the property most distant from the floodplain of the Peace River and Deep Creek, and its sale would minimize the fragmentation that would result from surplus such a significant portion of the Preserve, relative to any other portion of equivalent size.

The PSA accounts for approximately 25 percent of the entire land area of the Preserve. The proportion of the PSA that is wetland (12 percent) is lower than the proportion of wetland on the Preserve as a whole (30 percent); however, the PSA accounts for fully 45 percent of all on-site freshwater marsh (Figure 3). Approximately 155 acres of the PSA (32 percent) has been identified as flood prone (Figure 4), and over 100 acres of the on-site hardwood hammock (65 percent of total) lie within the PSA. The remainder of the PSA consists of 295 acres of pine flatwoods (22 percent

of total) and 40 acres of pastureland (100 percent of total). Approximately half of the on-site length of Deep Creek Gully traverses the PSA (Figure 5). In terms of wildlife habitat value, virtually the entire PSA has been distinguished as a "biodiversity hot spot" (Figure 2) by the FFWCC (Cox, et al., 1994)

The 40-acre improved pasture located at the northern end of the PSA currently serves as the primary entrance to the Preserve and is the location where the property is most accessible to vehicular traffic approaching from the publicly maintained road network. Deletion of the PSA from the Preserve land area would necessitate creation of a new entrance along the 2,300-foot segment of Southwest Peace River Street over which the District would retain ownership. This segment is located at the eastern end of the street, which terminates in a public boat ramp (Figure 6) and privately owned fish camp. Any new entrance at this location would be developed along the western half of the road frontage to avoid congestion at the boat ramp and to minimize interference with vehicular traffic entering or leaving the fish camp and residential community located in this area.

Creation of an entrance at this site would also require the construction of a bridge to traverse the channel of Deep Creek Gully (Figure 5). In order to minimize the destruction of natural land and reduce expenditures associated with bridge construction, the bridge would be designed to accommodate use by recreational users on foot or horseback only. Parking would be provided on the north side of Deep Creek Gully and vehicular traffic would not be permitted to proceed beyond this point.

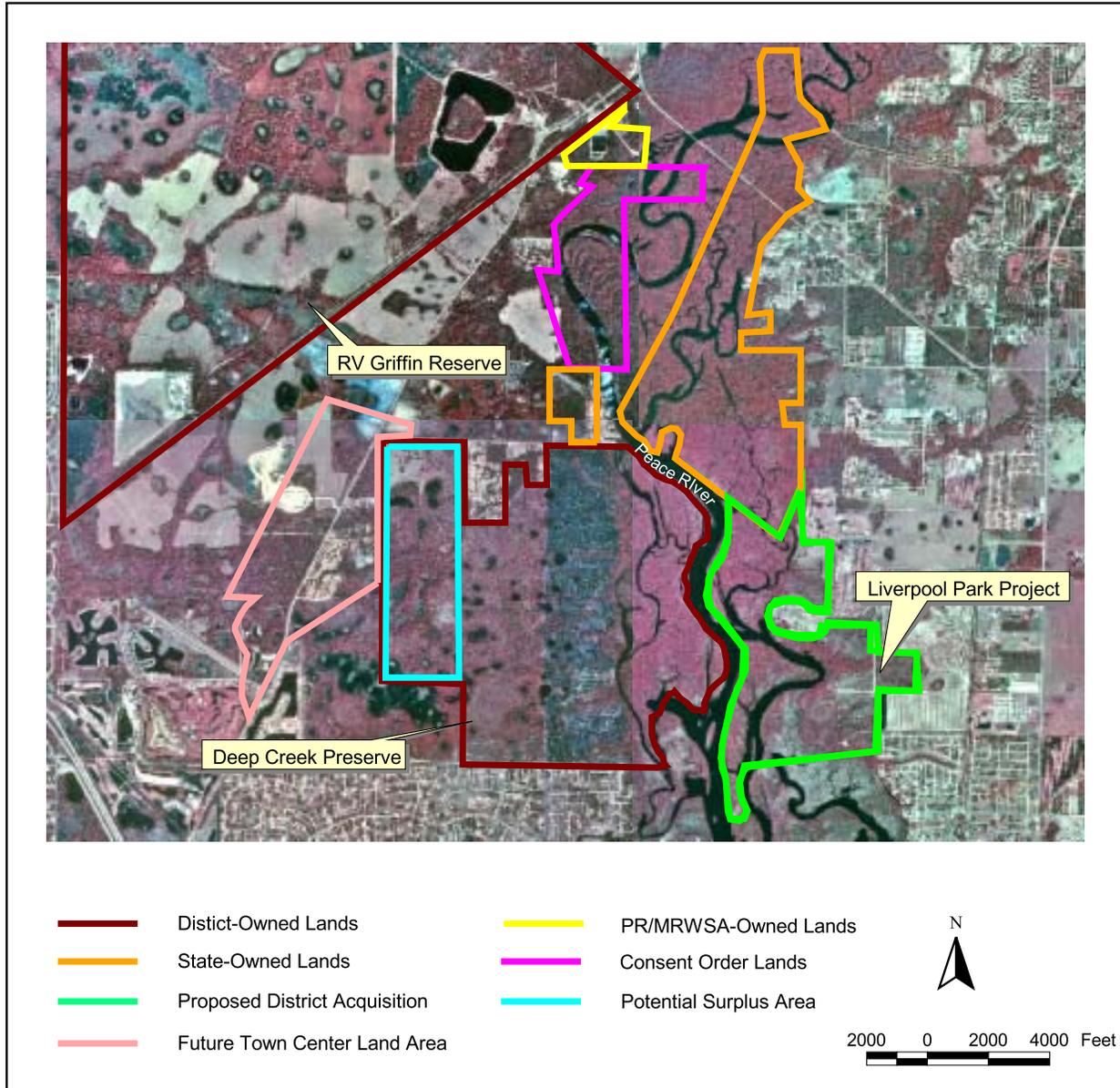


Figure 7. Conceptual Greenway Network and Potential Surplus Area. Boundaries of the various tracts are generalized and should be interpreted as approximations.

Other factors and considerations were weighed in evaluating the merits of surplussing the PSA. These are summarized as follows:

1) Two of the ditched wetlands that have been proposed for restoration are located in the PSA. The stormwater storage capacity that would be gained through the restoration of these wetlands, as well as that provided by 22 percent of the on-site pine flatwoods (295 acres), would be lost.

2) The site of the existing monitoring well is located within the PSA. If the District sold the PSA, then the sale would have to be contingent upon retaining ownership of the well site or include provisions that will ensure protection of the site. These would include retention of an easement over the well site, and inclusion of covenants or deed restrictions that would preclude future land uses in the PSA that would compromise the validity of monitoring data generated by the well. Such a sale would compromise the ability of the District and the Authority to construct additional monitoring wells on the property.

3) The on-site camping areas identified in this plan are all located within the PSA. If the PSA were sold by the District, then the proposed camping areas would be lost. The oak canopies present in both the group campground and the "hike in" primitive camp site are highly coveted features for camping areas because they provide shaded cover, and these are relatively unique sites within the Preserve. There are some sites located outside the PSA that support limited areas of closed hardwood canopy; however, they are not conducive to providing a positive camping experience. Most such sites are small patches of poorly drained hydric hammock. Others are located along the perimeter of the Preserve immediately adjacent to existing residential development. The property's pine flatwoods

are less aesthetically attractive for camping and they are subject to seasonal flooding. It is anticipated that any future sale of the PSA would render the Preserve unsuitable for camping.

4) If the PSA were sold by the District, then the proposed site of the picnic pavilion, restrooms, and other infrastructure to support the entrance and its associated uses would be lost.

5) If the PSA were sold by the District, then the potential for any future expansion of the Preserve to include natural upland communities would be compromised. Future expansions would be limited almost exclusively to tidal floodplain swamp and other wetland communities.

The final factor considered in the District's evaluation of the proposal to surplus the PSA revolves around a requirement that the District must compensate DeSoto County for the ad valorem tax revenue that was generated by the lands prior to acquisition by the District. This requirement is a statutory directive that requires "payments in lieu of taxes" for a period of ten years. DeSoto County's request that the District consider surplussing a portion of the Preserve was based on projected repercussions to the local tax base. In recognition of the considerable water management, natural resource, and recreational values of the PSA land area, and of the compensation that will be provided to DeSoto County to offset the ad valorem revenues lost as a result of the District's purchase of the site, the District will not surplus the PSA.

## **Administration**

### **External Coordination**

The District coordinates with many outside public agencies and public interest groups to effectively manage its properties. This section identifies those management and land use activities which cross, or potentially cross, the limits of jurisdictional authority and interest and will require outside coordination.

#### **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.

Management and protection guidelines contained in the USFWS Red-Cockaded Woodpecker Recovery Plan have been noted previously in this plan and will be implemented as necessary to encourage colonization of the Preserve by this species. If active translocation or reintroduction of red-cockaded woodpeckers to the Preserve is determined to be feasible, then such a project will require permits from the USFWS and depend on close coordination with that agency.

#### **Florida Fish and Wildlife Conservation Commission (FWCC)**

The FWCC, formerly the Florida Game and Freshwater Fish Commission, is the agency with primary responsibility for protecting and managing Florida's wildlife resources. As such, the District will

coordinate closely with the FWCC in the management and monitoring of state-listed wildlife and critical habitat areas occurring on the Preserve. If a red-cockaded woodpecker translocation program is implemented at the Preserve, permits for the capture and handling of this species will be required from FWCC. In addition, the public boat ramp located at the eastern end of Southwest Peace River Street is a FWCC facility. The District will coordinate with the FWCC to provide a supplemental parking area to serve users of the boat ramp.

#### **Florida Department of Environmental Protection (DEP)**

DEP is responsible for the management of state-owned lands adjacent to the Preserve. In addition, DEP administers the Conservation and Recreational Lands (CARL) Program, which is seeking to acquire lands immediately adjacent to the Preserve on the east side of the Peace River. These lands, known as the Liverpool Park Project, total 630 acres and may offer recreational opportunities that will complement those available at the Preserve. Other nearby lands are already held under state ownership (Figure 7) and are administered under the supervision of DEP's Division of State Lands. The District will coordinate with DEP, as necessary, in the management and public use of adjoining state-owned lands to maximize efficiency, link recreational usage, and potentially preserve a regional greenway network. DEP may also be responsible for issuing permits that would be required in conjunction with habitat restoration activities, development of recreational facilities, or other projects that may affect wetlands on the Preserve.

### **Peace River/Manasota Regional Water Supply Authority (Authority)**

As part of the expansion of the Peace River Option (PRO) Project, the Authority maintains twenty-three wells as part of a monitoring program developed in response to SWFWMD water use permit #2010420.02. The purpose of the program is to monitor changes in water levels and water quality associated with changes in rainfall, off-site public supply withdrawal activities, and ASR wellfield operational activities. One of these monitoring wells is located in the northwest corner of the Preserve. The District will continue to coordinate with the Authority to allow necessary access to this well and will receive reports from the Authority on a monthly basis. The lands that support the Authority's water treatment plant and other water supply facilities may also form an important link in efforts to create a regional greenway network. The District will coordinate with the Authority, as necessary, in efforts to preserve such a network.

### **Florida Department of State (DOS)**

The Division of Historical Resources of the DOS maintains the Florida Master Site File and oversees the management and protection of listed archaeological sites. Although no archaeological sites have been documented at the Preserve, its location along the Peace River near the river's confluence with Charlotte Harbor, coupled with the on-site presence of upland sites immediately adjacent to navigable water, suggests a high likelihood of aboriginal habitation. Proposals to conduct archaeological surveys or related archaeological research at the Preserve will be welcomed by the District. Such proposals will be reviewed by the District on a case-by-case basis and will be required to satisfy requirements and protocols dictated

by the Division of Historical Resources for the investigation of sites on state-owned lands. District approval of such proposals will require that any sites discovered at the Preserve be registered in the Florida Master Site File.

### **DeSoto County**

As the local government having jurisdiction over the area in which the Preserve is located, DeSoto County has a compelling interest in the future management and use of the Preserve. In addition, the DeSoto County School Board may serve as a potential partner in the development of an environmental education program that would use the Preserve 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; preserve a regional greenway network; create a recreational greenway connection between the Deep Creek Preserve and RV Griffin Reserve; and develop an environmental education program that will complement the scholastic needs of the local community. The County is interested in exploring opportunities for construction of a boardwalk and/or fishing pier on the Preserve that would showcase the natural waterfront. The District will work with the County to review the feasibility of providing such an amenity on the property.

The County has also expressed an interest in partnering with the District in management of recreational use at the Preserve. Such cooperative efforts are favored by the District, which will remain amenable to executing a formal agreement that would extend recreational management responsibilities to DeSoto County.

### **Charlotte County**

Although the Preserve is located wholly within DeSoto County, its close proximity to Charlotte County suggests that many recreational users of the property will be residents of Charlotte County. Any future environmental education program that capitalizes on the natural attributes of the Preserve may also benefit students from the Charlotte County school system. As such, the District will be amenable to coordinating with Charlotte County in the development of recreational and educational uses.

### **Charlotte Harbor Environmental Center (CHEC)**

The Charlotte Harbor Environmental Center is a private, non-profit facility dedicated to meeting the environmental education needs of students and citizens in the Charlotte Harbor area. The existing environmental center is located in Charlotte County near the shores of Charlotte Harbor. CHEC has expressed an interest in developing a curriculum and program that would capitalize on the educational opportunities represented at both the Preserve and the nearby RV Griffin Reserve. The important role played by the RV Griffin Reserve in meeting public water supply needs in this portion of the District would serve as an ideal complement to the water management and habitat values of the Preserve. Used in tandem, the two sites offer an ideal setting for comprehensive instruction on water-related issues and concerns.

### **Other Private Interests**

There are various private interests that may eventually play a role in the future management and use of the Preserve. The District has worked with the Florida Trail Association, Inc., and other organizations that represent recreational user-groups to enhance recreational opportunities on District-managed lands. The District will be prepared to work with these and other stakeholder groups in the development and enhancement of recreational uses of the Preserve.

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