

**Lee County Board Of County Commissioners  
Agenda Item Summary**

**Blue Sheet No. 20041125**

**1. REQUESTED MOTION:**

**ACTION REQUESTED:** Approve the Prairie Pines Preserve (PPP) Land Stewardship Plan.

**WHY ACTION IS NECESSARY:** The PPP Land Stewardship Plan should be approved by the Board for land stewardship staff to implement the plan.

**WHAT ACTION ACCOMPLISHES:** Approving of the PPP Land Stewardship Plan establishes guidelines for management and public use facilities at the PPP.

**2. DEPARTMENTAL CATEGORY:**  
COMMISSION DISTRICT # 4

*C11A*

**3. MEETING DATE:**

*09-14-2004*

**4. AGENDA:**

- CONSENT
- ADMINISTRATIVE
- APPEALS
- PUBLIC
- WALK ON

**5 min TIME REQUIRED:**

**5. REQUIREMENT/PURPOSE:**  
(Specify)

- STATUTE
- ORDINANCE
- ADMIN. CODE
- OTHER

**6. REQUESTOR OF INFORMATION:**

- A. COMMISSIONER \_\_\_\_\_
- B. DEPARTMENT Parks and Recreation
- C. DIVISION \_\_\_\_\_

BY: John Yarbrough

*John Yarbrough*

**7. BACKGROUND:**

A Land Stewardship Plan is necessary for appropriate and planned restoration, management and public use facility development of any Conservation 20/20 Preserve. The CLASAC (Conservation Lands Acquisition and Stewardship Advisory Committee) unanimously passed a motion on May 13, 2004, accepting the Prairie Pines Preserve Land Stewardship Plan.

The Department of Parks and Recreation also recommends that the Land Stewardship Plan be approved as is. There were two separate public meetings held on June 15 and July 26, 2004 and overall the public is very enthusiastic about having access to the 2,700-acre preserve in central North Fort Myers. Attached is a summary of all comments received with responses by staff, and also all original comments have been provided.

**8. MANAGEMENT RECOMMENDATIONS:**

**9. RECOMMENDED APPROVAL:**

*CCM*

A Department Director	B Purchasing or Contracts	C Human Resources	D Other	E County Attorney	F Budget Services				G County Manager
<i>Jy</i>	<i>Gail ORIS 8/30/04</i>			<i>KLG</i>	<i>OA</i>	<i>OM</i>	<i>Risk</i>	<i>GC</i>	<i>MS 9/11/04</i>
<i>8-30-04</i>				<i>SL 8/30/04</i>	<i>MS 8/30/04</i>	<i>MS 8/30/04</i>	<i>MS 8/30/04</i>	<i>MS 8/30/04</i>	

**10. COMMISSION ACTION:**

- \_\_\_\_\_ APPROVED
- \_\_\_\_\_ DENIED
- \_\_\_\_\_ DEFERRED
- \_\_\_\_\_ OTHER

**Rec. by CoAtty**  
Date: *8/30/04*  
Time: *1:30*  
Forwarded To:  
*Co. Atty*  
*8/30/04*

RECEIVED BY  
COUNTY ADMIN: *[Signature]*  
*8/30/04*  
COUNTY ADMIN  
FORWARDED TO: *[Signature]*  
*9-1-04*  
*noon*

*Prairie Pines Preserve*  
*Land Stewardship Plan*

**Prepared by the Land Stewardship Section  
Lee County Parks and Recreation**

**Approved by the Lee County Board of County Commissioners:**

**DRAFT**

**8-5-04**

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## *Vision Statement*

*It is the vision of the Lee County Department of Parks and Recreation to conserve, protect and restore all of the natural resources found at Prairie Pines Preserve so that they are productive, functional and viable. The Preserve will continue to serve as a haven for wildlife. The Preserve will provide an exceptional resource-based experience for visitors through opportunities such as horseback riding, hiking, birdwatching from the observation blinds, guided nature walks and convenient access and parking off US41. Within ten years the Preserve will be relatively free of invasive exotic vegetation, with an open view through the pine flatwoods and wetlands. The public use facilities will be environmentally compatible.*

## ***I. Executive Summary***

The Prairie Pines Preserve (PPP) was purchased as two parcels, on April 27, 2001, and April 1, 2003, through Lee County's Conservation 20/20 Program (C20/20). The Conservation 20/20 Program was established in 1996 after Lee County voters approved a referendum that increased property taxes by up to .5 mil for the purpose of purchasing and protecting environmentally sensitive lands. The county has created a partnership with the Florida Communities Trust (FCT) for the reimbursement of 50% of the purchase cost of a portion of the Preserve known as site #194. The purchase and perpetual preservation of this Preserve will provide protection for over 2,700 acres of hydric and mesic pine flatwoods interspersed with depression marshes that provide habitat and food for both fish and a wide variety of birds. In addition to protecting the resources for wildlife and native plant communities, appropriate resource based public use will be provided and resources managed to protect the Preserve's biologic integrity.

The Preserve is bordered by an active railroad and I-75 on its northeast side, Lost Lane and a drainage ditch on its east side, Del Prado Extension/Mellow Drive and drainage ditch on its south side, and an abandoned railroad grade and drainage ditch on its west side. As a result, these external impacts have dramatically altered the historical water flow patterns on the Preserve.

The portion of Florida where Prairie Pines Preserve is located was created during the Pleistocene Epoch between 1.8 million to 10,000 years ago. Much of Lee County, including PPP, is located within the Caloosahatchee and Fort Thompson geologic units, which consist of a quartz sand blanket covering limestone and clay. All of Lee County is located within the Coastal Lowlands of Florida that extend around the coastal periphery of the state where elevations are generally below 100 feet. Natural elevations at PPP range from 24 feet (NGVD) at the north end on the County line and slope in a general southerly direction to 16 feet (NGVD) at the south end of the Preserve along Del Prado Extension.

PPP experiences significant sheetflow of rainwater from the upper reaches of the Daughtrey Creek and Powell Creek watersheds, during the rainy season. Both the soils and native plant communities reflect this hydrologic influence. There are 14 different soil types found at Prairie Pines Preserve. All of the soils are described as nearly level and poorly drained, have severe limitations for urban uses because of the high water table and all but 1 soil type (Hallendale Fine Sand) are categorized with rapid permeability in the surface and subsurface levels. This means that water is able to move downward through the soil layers between 6-20 inches per hour.

On any given day, an abundance of wildlife can be spotted throughout the Preserve especially in the isolated herbaceous wetlands or depressional marshes.

PPP has 47 of these marshes that vary in size from .2 acres to 29.5 acres and are dispersed throughout the site. Birds feed, fish and frogs live and breed, and people rely on these marshes to improve water quality. Prairie Pines Preserve provides habitat for a variety of listed animal and plant species. Management practices at the Preserve including exotic plant control, prescribed burning, trash removal, wildlife and feral animal monitoring, restricting trails in certain areas and enforcement of the no littering, no weapons and no motorized vehicles regulations will all help with the protection of listed species. The public use facilities will include wildlife-proof trashcans and wildlife blinds at certain wetlands that will allow the public to observe wildlife at several wetlands while minimizing any disturbance.

Prairie Pines Preserve, prior to being owned by Lee County, was known as the Little Ranches property, named for the company that owned it. According to aerial photography dating back to 1944, this property has succumbed to various agricultural activities starting with logging of slash pine, stumping for chemical extraction, row crop farming and most recently cattle grazing. In addition, the Preserve has experienced internal impacts that have changed the surface water flow. Row-crop farming required draining part of the Preserve via berms and ditches. Two separate areas, totaling 300 acres, were cleared of native vegetation on the Preserve for farming. Once farming operations ceased these areas were left to natural plant succession, and for the most part have recovered with native upland vegetation that already existed on the Preserve, such as slash pine, laurel and live oak, saw palmetto, and various shrub and groundcover species. More recently, cattle grazing activities began on the Preserve creating localized impacts such as overgrazing of herbaceous wetlands, which has altered the flora, and possibly the aquatic fauna composition of these wetlands.

Prairie Pines Preserve is affected by numerous external influences that make it difficult to manage and protect sensitive areas and the Preserve as a whole. These influences include unauthorized activities such as ORV riding, vandalism to gates and fences, dumping and poaching.

An additional impact took place on the Preserve in the summer of 2001. Flooding in a residential development east of the Preserve prompted the construction of a levy. The levy begins at the Preserve's south boundary, heads north, then turns and runs east, where it turns north and runs all the way to the east boundary fence. Its entire length is approximately 1.5 miles.

This stewardship plan will help guide future development of public use facilities to balance the needs of the public while protecting the resource. PPP's size and rural location make it an ideal location to allow additional recreational activities beyond the hiking, birdwatching, nature photography and nature study that are allowed at all Conservation 20/20 Preserves. Horseback riding is an allowable activity and other recreational activities that the Department of Parks and Recreation is working with different user groups to allow on-leash dog walking, llama trekking and bicycle riding. Although staff is considering all of the recreational uses listed above, continued positive public support will be critical to determine which of these recreational uses will be allowed.

Lee County Bird Patrol is a volunteer group that currently assists with monitoring of wildlife, specifically avian life at the Preserve. This partnership will help to keep track of wildlife utilization at the Preserve and possibly help identify areas needing additional protection. Land stewardship staff will seek the assistance of specific public use interest groups for the development and maintenance of the trails and trail signage respective to their activity.

The goal of this land stewardship plan is to identify Preserve resources, develop ways to protect those resources and implement restoration activities to restore PPP to a viable, functioning, natural system while insuring the Preserve will be developed in accordance with Lee County Parks and Recreation's Land Stewardship Operations Manual. A Management Action Plan that divides the Preserve into 19 units has been established. Each unit has goals depending on its needs, strategies on how to accomplish the goals, a timetable for completion and standards for how accomplishment of the goals will be measured.

## ***II. Introduction***

Prairie Pines Preserve was acquired as two parcels, site #134 on April 27, 2001, and site #194 on April 1, 2003, both through the Conservation 20/20 program at a total cost of over \$11.8 million. The Preserve totals 2,709 acres and is located in north central Lee County, specifically west of I-75, east of US 41, north of Del Prado Extension/Mellow Drive and south of the Charlotte County line (Figure 1).

The Preserve's native plant communities consist of a mosaic of hydric and mesic pine flatwoods intermixed with 47 depressional marshes, or isolated herbaceous wetlands. The herbaceous wetlands greatly vary in size and are dispersed throughout the site.

Prairie Pines Preserve was previously owned by the Little Ranches Company, which utilized the property for various agricultural activities, but primarily the property remained unmanaged. Influences, such as the two railroads, bordering the Preserve on the east and west, construction of I-75 and Del Prado Extension and the lack of stewardship have altered the landscape and hydroperiod of the Preserve, leaving it in a state of much needed restoration.

Land stewardship challenges for this preserve are varied. Invasive exotic plants are growing, especially in disturbed areas, such as the levy, along ditches and berms and in the hydric flatwoods. Numerous listed species utilize the property to varying degrees. Human disturbance, particularly unauthorized off-road vehicle (ORV) activity through sensitive wetlands, must be addressed. At the same time a balance needs to be found between the outstanding recreational opportunities this preserve provides and protection of wildlife that utilize it. The stewardship goals for PPP will address the above concerns.

The overall restoration goal of PPP is to improve the hydrology and wildlife habitat. Hydrologic improvements at the Preserve will include plugging drainage ditches and removing melaleuca to increase wetland hydroperiod (Mazzotti, 1998). Wildlife habitat improvements will result from exotic plant removal, feral hog control, wetland enhancement, prescribed burning and farm field restoration, with the latter also increasing habitat diversity on the Preserve. Staff and volunteers will monitor wildlife utilization of the property. Interpretive signs and educational programs will be provided to encourage visitors to understand the importance of preserving natural areas and the impact of their actions while visiting this and other preserves. Finally, equestrian and hiking trails and observation blinds at wetlands will be developed to increase the recreational opportunities to this Preserve.

### ***III. Location and Site Description***

Prairie Pines Preserve is located in north central Lee County, within Sections 1, 2, 3, 11, 12, 13, 14, 15, and 16 of Township 43 South, Range 24 East. The Preserve is bordered by an active railroad and I-75 on its northeast side, Lost Lane, which is unimproved, and a drainage ditch on its east side, Del Prado Extension/Mellow Drive and a drainage ditch on its south side. On the west side there is an abandoned railroad grade that is owned by the Division of Utilities, with 320 acres of the Preserve extending west beyond this railroad grade towards US 41. The west, east and south boundaries are surrounded mainly by housing developments (figures 1 & 2). The north boundary of the Preserve runs along the Lee/Charlotte County line.

The Preserve consists of a mosaic of several native plant communities, including wet and mesic flatwoods, depression marshes, wet prairies, prairie hammocks and a small baygall. These community designations are based on Florida Natural Areas Inventory's Guide to the Natural Communities of Florida (1990). Past agricultural practices have disturbed about 7% of the Preserve.

# Figure 1: Prairie Pines Preserve Location Map

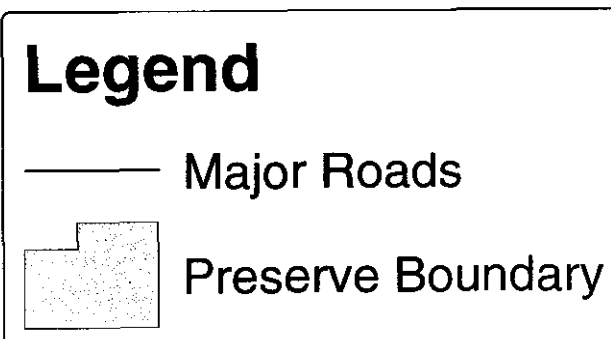
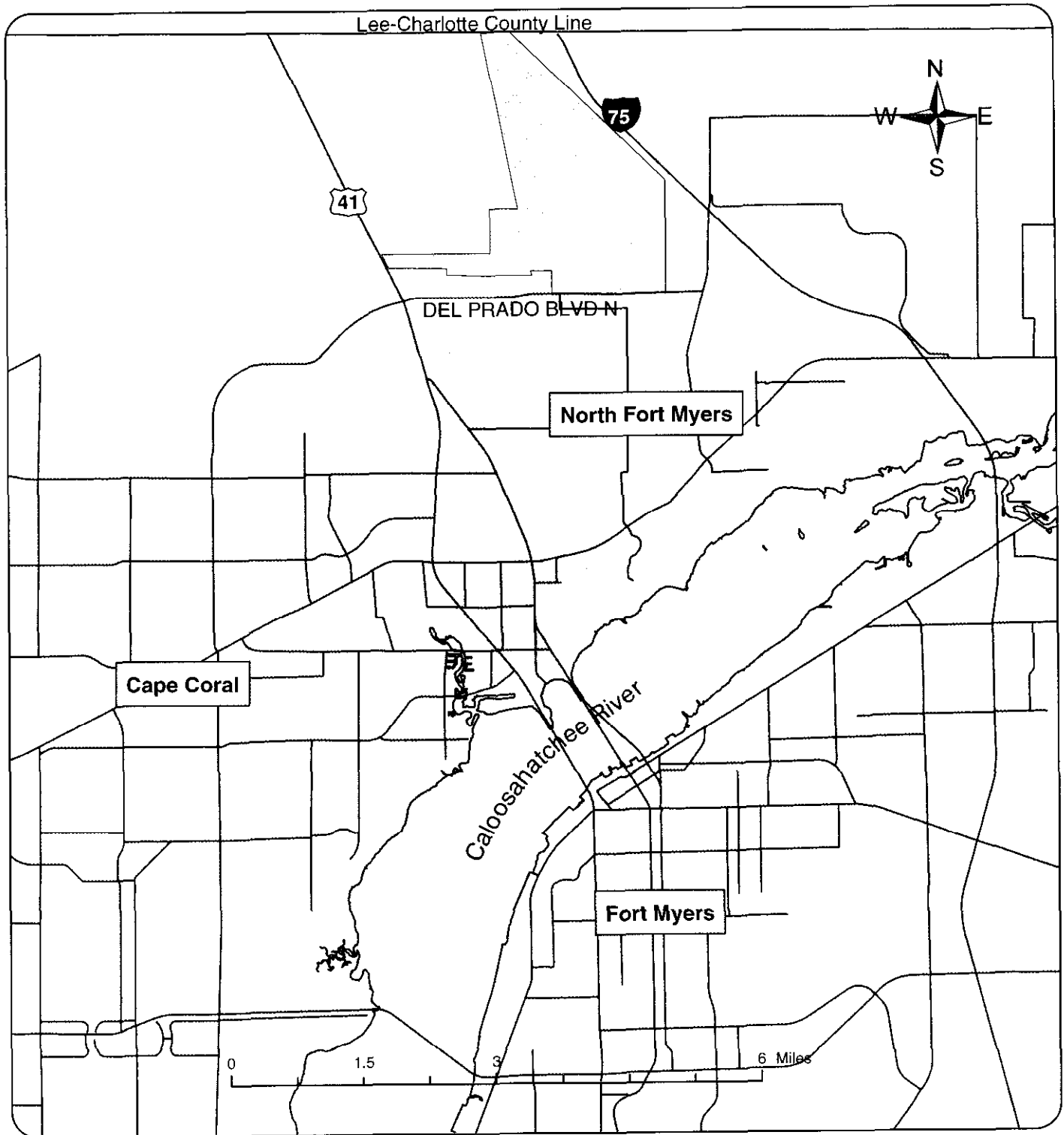
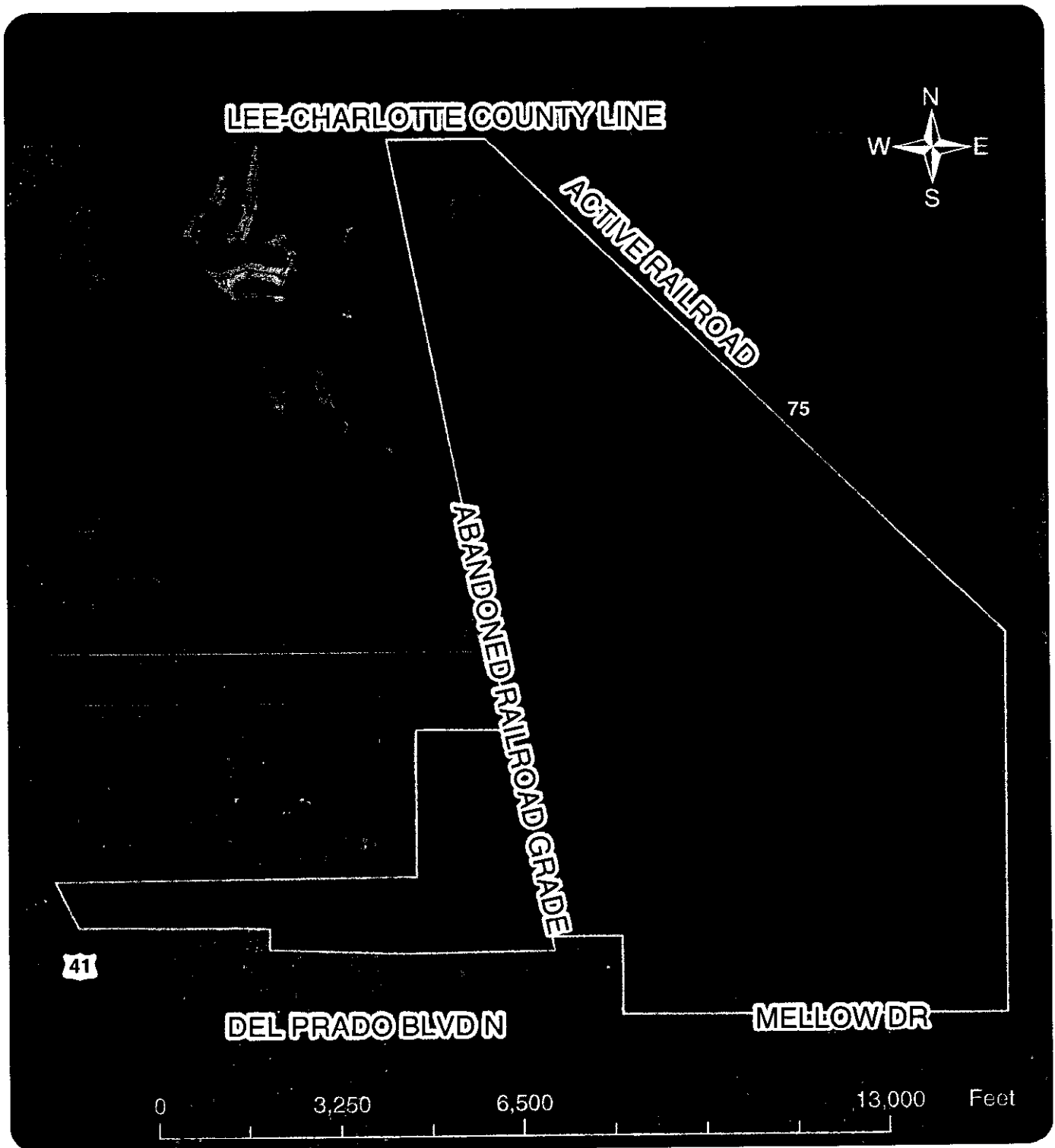




Figure 2: Prairie Pines Preserve Aerial Photograph, 2002



## IV. Natural Resources Description

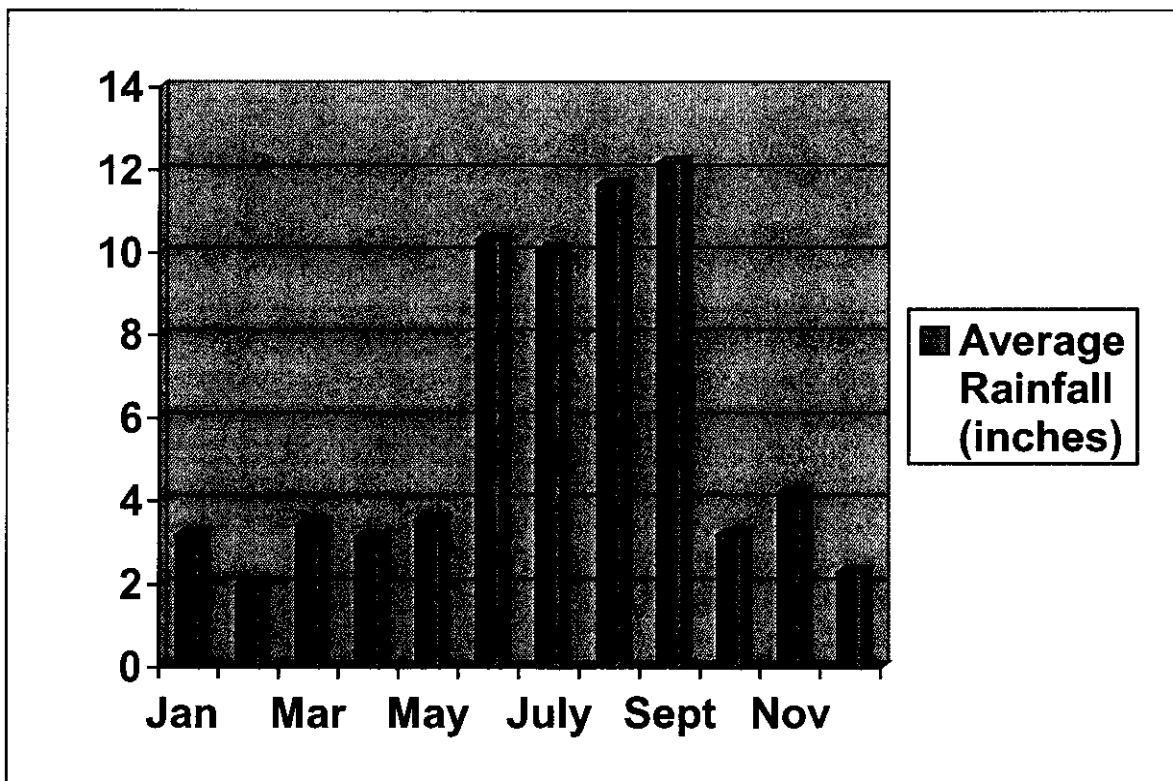
### A. Physical Resources

#### a. Climate

Southwest Florida has a humid, sub-tropical climate due to its maritime influence from the Caribbean Sea and the Gulf of Mexico. The mild temperatures encourage winter residents and tourists to visit the area. Temperate climate influences are exerted as well, with infrequent but significant freezes occurring. These freezes prevent some of the more tropical plants from becoming established and occasionally damage the subtropical vegetation. Cold fronts regularly push cool, sometimes moist weather from the southeastern U.S. to southwest Florida during the winter. These cold fronts also encourage birds to utilize the Preserve as either a stop off point on a longer migration, or as a winter roosting and feeding area.

The graph below depicts the rainfall data collected by Lee County Division of Natural Resources on a daily basis from the North Reservoir rain gauge, located near the Bayshore and Sams road intersection in North Fort Myers. Average annual rainfall over the last ten years was 59.25 inches.

**North Reservoir Average Rain Data  
1993-2002**



## b. Geology

The portion of Florida that Prairie Pines Preserve is located within was created during the Pleistocene Epoch between 1.8 million to 10,000 years ago. This period is also known as the Ice Age, where huge ice sheets formed across Canada and the northern United States. When these ice sheets were formed, they consumed large quantities of seawater, dropping the current sea level 300 or more feet, which greatly increased the land area of Florida. As the glaciers shrank, sea levels rose, and the Florida peninsula was again flooded. During the peak warm periods, sea level reached 150 feet above the current sea level. The waves and currents during these high sea level periods reworked the sediments and formed a series of formations (Caloosahatchee, Ft. Thompson, Anastasia, Miami Limestone and Key Largo Limestone). Each of these geological units is characterized by their unique compositions. The Pleistocene Epoch had four separate freezing and melting periods (Rupert, 1989). Previously, Lee County was divided into several different geologic units. However, throughout much of Lee County, including the area where PPP is located, the Caloosahatchee and Fort Thompson units are somewhat indistinct and have been lumped together as undifferentiated Tertiary/Quaternary shell-bearing units. This unit consists of a quartz sand blanket covering limestone and clay. Fossils, including mollusks and corals, are very common and usually in excellent condition (Missimer, 2001).

## c. Topography

All of Lee County is located within the Coastal Lowlands of Florida that extend around the coastal periphery of the state where elevations are generally below 100 feet (Stubbs, 1940; Cooke, 1945).

Natural elevations at PPP range from 24' at the north end on the County line and slope in a general southerly direction to 16' at the south end of the Preserve along Del Prado Extension (Figure 3). Man-made topographic features at the Preserve include ditches and berms associated with the following: historic agricultural activities located mainly in the northeast half of the Preserve, abandoned railroad bed which bisects the Preserve in a general north-south direction, plow lines created to stop wildfires, agricultural access road bisecting the eastern portion of the Preserve in a southeast-northwest direction up to the south end of the southern most fallow field, an active railroad bed which is adjacent to the northeast boundary of the Preserve, and finally a levy constructed from the south boundary of the Preserve, up to the east boundary ending at the active railroad.

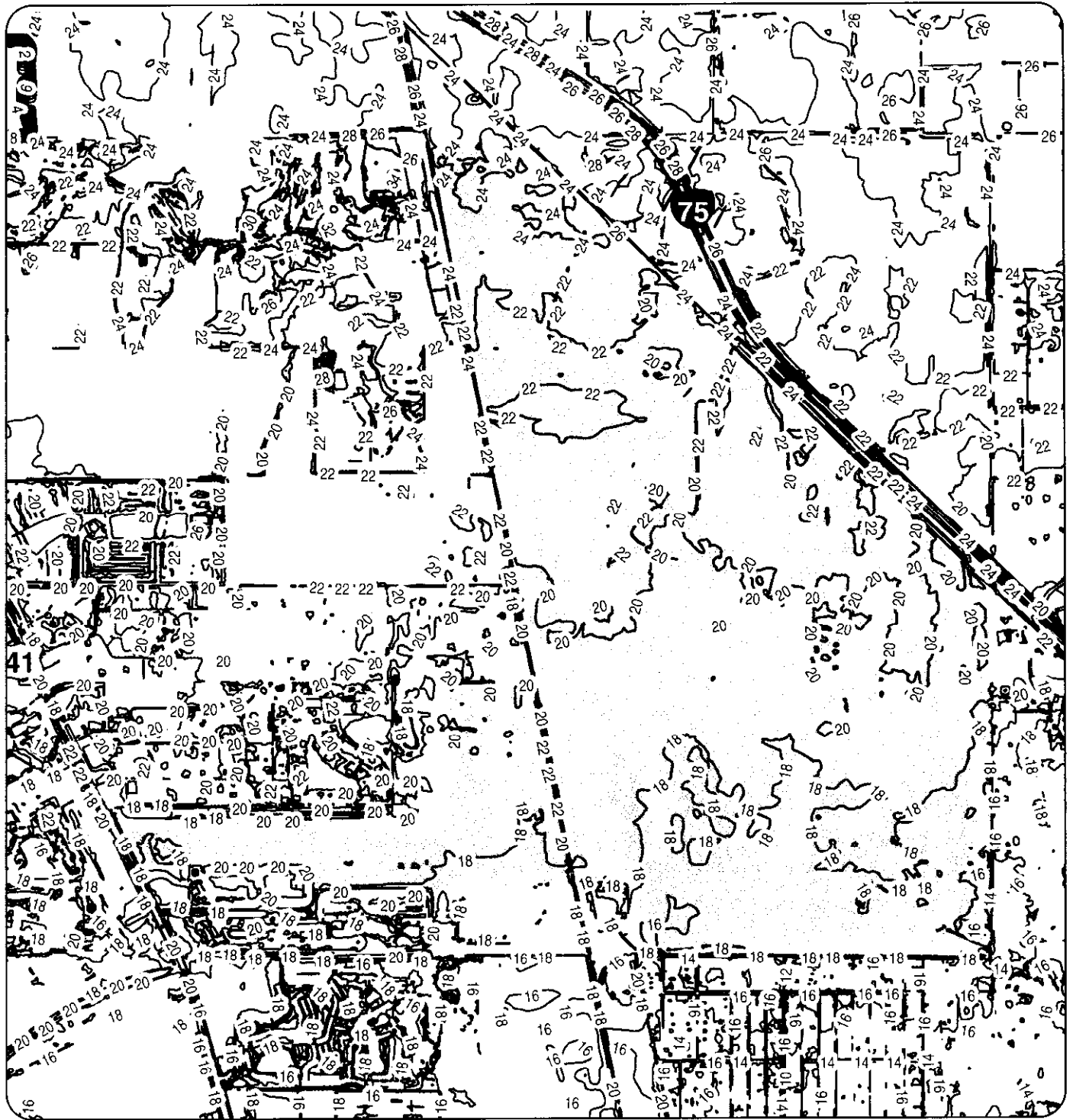
Each of the man-made features described above was constructed at different times spanning a period of 50 years from the 1950's until recently. According to the 1966 county aerials, both large drainage ditches at the north end of the Preserve, beginning at wetlands 5 and 9 respectively, heading in a southwesterly direction, are already present; as are both of the railroad beds. On the 1972

aerials there is evidence of “stumping” (removal of pine stumps resulting from previous logging activity for the production of turpentine throughout the Preserve (see Land Use History), which created localized topographic changes that in turn may have caused changes in plant communities and increased microhabitats. Row crop agriculture is first observed on the 1981 aerial. The agricultural access road with associated ditches on either side is first visible on the 1984 aerial. Most recently, in the summer of 2001, the Lee County Board of County Commissioners requested the South Florida Water Management District authorize emergency operations to relieve flooding in an adjacent neighborhood. Under emergency operations the construction of the levy was allowed to take place without prior permit review. The post-permitting process is currently being undertaken. Fill from the levy came from onsite and created the adjacent ditch. This ditch and levy system is approximately 1.5 miles in length and has altered 19 acres of natural habitat consisting primarily of mesic flatwoods, depressional marsh and wet prairie.

Each feature has had its own impact on the Preserve, which is predominately hydrologic since slight modifications in elevation from activities such as the construction of berms and ditches affects water flow in south Florida due to the general flat topography. In most cases at PPP the presence of berms and ditches has increased the speed that water flows through the Preserve and more than likely has impacted hydrology by reducing the hydroperiod of impacted wetlands (to be discussed further in the hydrology section). In the case of the levy it has probably increased the hydroperiod of natural plant communities to the west since its purpose was to provide flood relief to the adjacent community to the east. An extensive watershed study and permitting process is in progress, which includes the impacts created by the levy. Results from the latter will be considered when conducting restoration and management of Preserve resources.

In addition, any time topography is altered, along with soil disturbance, in this sensitive subtropical environment invasive exotic plant species are likely to take hold and spread into adjacent natural habitats.

# Figure 3: Topography of Prairie Pines Preserve



**Legend**

- Contour lines with elevations
- Preserve boundary

#### d. Soils

There are 14 different soil types found at Prairie Pines Preserve (Figure 4). All of the soils are described as nearly level and poorly drained, have severe limitations for urban uses because of the high water table and all but 1 soil type (Hallendale Fine Sand) are categorized with rapid permeability in the surface and subsurface levels. This means that water is able to move downward through the soil layers between 6-20 inches per hour.

The Boca Fine Sand, Hallendale Fine Sand, Oldsmar Sand, Wabasso Sand and Wabasso Sand-Limestone Substratum are soil types consistent with mesic pine flatwoods. During normal conditions the Hallendale, Oldsmar and Wabasso, Limestone Substratum soils tend to be slightly drier since the water table is within 10 inches of the surface for 1 to 3 months of the year whereas the water table stays within 10 inches of the surface for 2-4 months for the Boca and Wabasso soil types. Boca Fine Sand, found in small quantities throughout the Preserve, typically has smooth slopes. The water table will typically recede below the limestone for about 6 months of the year. Additionally, it is considered to have severe limitations for sanitary facilities, building site development and recreational uses. Hallendale Fine Sand, also found in small quantities throughout the Preserve, also has smooth slopes and a water table that recedes below the limestone for an average of 7 months each year. It is considered to have severe limitations for urban use because of the shallowness to the bedrock as well as for wetness. Oldsmar Sand, found in a few small areas east of the old railroad bed, slope is smooth to slightly convex and the water table drops to 10-40 inches below the surface for over half the year and drops below 40 inches during extended dry periods. Wabasso Sand, found throughout the Preserve east of the abandoned railroad bed is characterized as having smooth to slightly concave slopes and the water table will drop to 10-40 inches below the surface for over half the year, even dropping below 40 inches during extended dry periods. The final soil type found in mesic pine flatwoods, Wabasso Sand-Limestone Substratum, is one of the more common soil types found throughout the Preserve. Its slope ranges from 0-2% and water table will be 10-40 inches below the surface for 2-4 months and below the limestone during extended dry periods.

Four soil types, Boca Fine Sand-Slough, Malabar Fine Sand, Pineda Fine Sand and Pineda Fine Sand-Limestone Substratum are soil types typically found in hydric pine flatwoods. The areas consisting of Boca soils are the driest of these 4 soil types. During a typical year, the water table will be within 10 inches of the surface for 2-4 months, dropping to 10-40 inches below the surface for 4 months or more and dropping below 40 inches during extended dry periods. Additionally, this soil is considered to have severe limitations for sanitary facilities and building site development because of the high water table. For the other 3 soil types the water table stays between 10-40 inches below the surface 6 or more months and

have the more general limitation to all urban use due to the high water table. All of these soils slope range from smooth to slightly concave and all will be covered by shallow, slow moving water during periods of heavy rain. Boca Fine Sand-Slough is found in several areas of the Preserve. Malabar Fine Sand is found in several areas east of the abandoned railroad bed. Pineda Fine Sand is the most common soil type found throughout the Preserve. Pineda Fine Sand-Limestone Substratum is only found in one area on the east boundary of the Preserve.

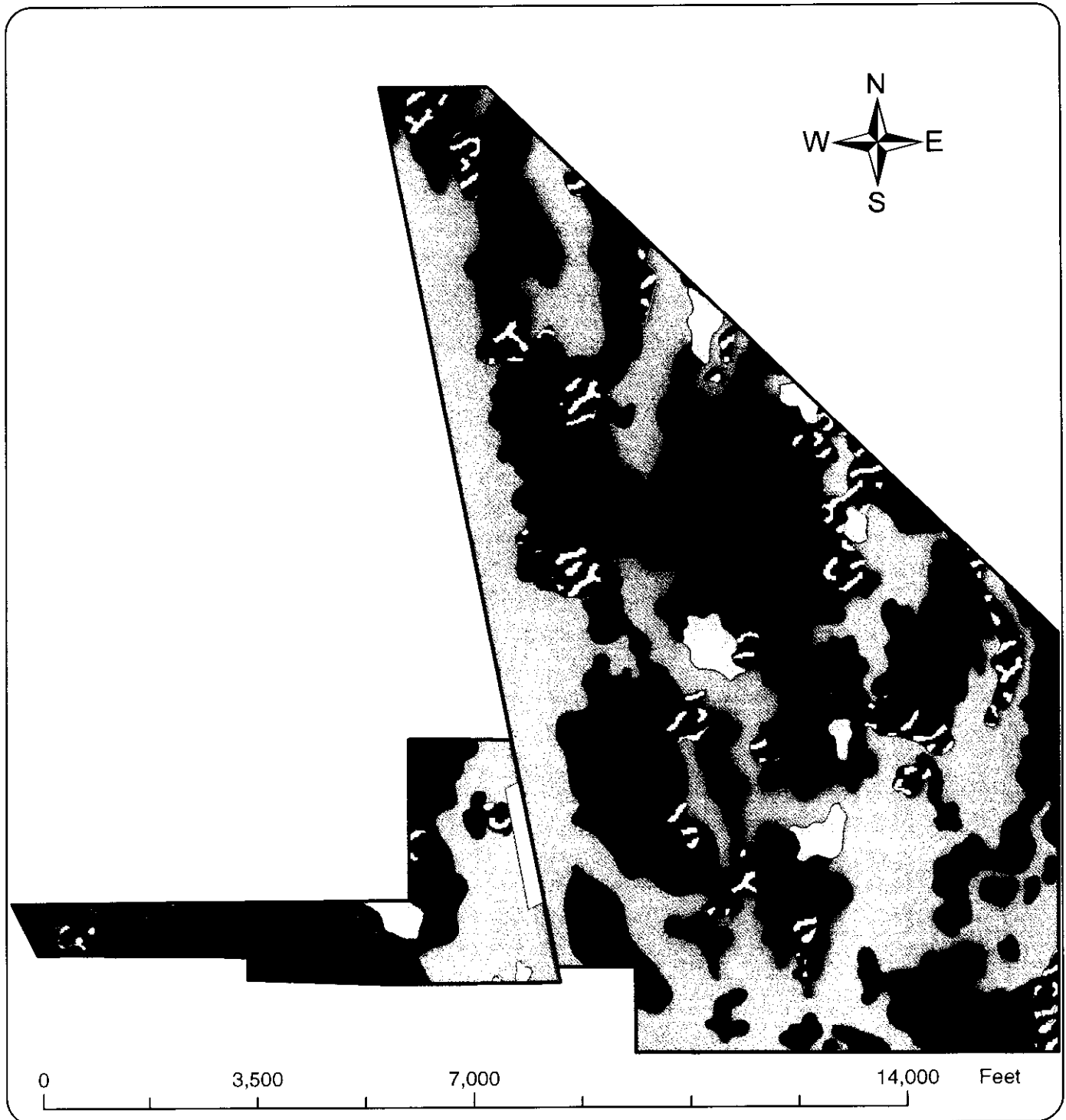
The final 5 soil types, Copeland Sandy Loam-Depressional, Felda Fine Sand-Depressional, Isles Fine Sand-Depressional, Malabar Fine Sand-Depressional, and Pineda Fine Sand-Depressional are all contained within the majority of the wetlands found throughout the Preserve. Copeland Sandy Loam-Depressional is found in the north and central portions of wetland 24 (Figure 4 and 5), as well as wetlands 36 and 37. During a typical year, the water will be above the surface for 3-6 months and 10-40 inches below the surface for 3-6 months. The slope of this soil is concave. Felda Fine Sand-Depressional is located in wetland 9. Its water levels and slope are the same as the Copeland soil, but is considered to have severe limitations for recreational uses because of the water levels. Isles Fine Sand-Depressional is found in wetlands 17, 45, 46, 47 and the south portion of 24. Typically, the water level in these soils will be above the ground for 3-6 months, 10-40 inches below the surface for 2-4 months and below 40 inches during extended dry periods. The slope of this soil ranges from smooth to concave and is also considered to be severely limited for recreational use. Malabar Fine Sand-Depressional is found in wetlands 1 and 3 at the north end of the Preserve. This soil's water table is typically above ground for 4-6 months or more and between 10-40 inches below the surface for 4-6 months. The slope of this soil type is concave and it is also considered severely limited for recreational use. Approximately half of the wetlands found in the Preserve contain Pineda Fine Sand-Depressional. The water levels, slope and severe limitations for recreational use are all similar to the Malabar soil. The only difference is that this soil is not recommended for recreational use because of its sandy texture in addition to the high water levels.

The soil types found throughout the Preserve will be critical to consider when determining locations of trails, access roads for management activities, determining seasonality of trails and appropriate public use facilities. Trails and facilities will be kept out of any soil types considered severely limited for recreational use. This will mean closing and/or rerouting portions of several existing roads that currently cut through wetlands containing these soils. The majority of the Preserve's trails will be seasonally closed to all recreational uses, with the exception of hiking, to minimize the impacts on the more fragile wetland soils. The soil types were taken into consideration when determining which roads would be utilized by staff during management activities, such as site inspections and monitoring, whether ATV's or trucks would be permissible and in what seasons. Occasionally it will be necessary to allow vehicles to drive through sensitive areas of the Preserve during restoration activities, especially for

initial exotic plant control and prescribed burning. Each of these exceptions must be approved by Land Stewardship staff and conducted when minimal soil disturbance will occur. Finally, any amenities for the public, such as restrooms, picnic tables and parking will be located in areas where the soils are more likely to support these activities.



# Figure 4: Prairie Pines Preserve Soils



**Legend**

- |                                   |  |
|-----------------------------------|--|
| BOCA FINE SAND                    | MALABAR FINE SAND, DEPRESSIONAL        |
| BOCA FINE SAND, SLOUGH            | OLDSMAR SAND                           |
| COPELAND SANDY LOAM, DEPRESSIONAL | PINEDA FINE SAND                       |
| FELDA FINE SAND, DEPRESSIONAL     | PINEDA FINE SAND, DEPRESSIONAL         |
| HALLANDALE FINE SAND              | PINEDA FINE SAND, LIMESTONE SUBSTRATUM |
| ISLES FINE SAND, DEPRESSIONAL     | WABASSO SAND                           |
| MALABAR FINE SAND                 | WABASSO SAND, LIMESTONE SUBSTRATUM     |

\*Solid colored soils are considered more suitable for recreational uses

#### e. Hydrology and Watershed

PPP has 47 isolated herbaceous wetlands or marshes that vary in size from 0.2 acres (#12) to 29.5 acres (#24) and are dispersed throughout the site. Almost two thirds of these wetlands are depression marshes, the remaining being wet prairies, see Natural Plant Communities section for more information on the characteristics of these wetlands.

Two agricultural ditches, in the north portion of the Preserve, bisect and drain five depression marshes. These ditches will require restoration to improve the hydroperiod of the affected herbaceous wetlands and improve the overall hydrology of the Preserve. Both ditches run and drain in a northeast-southwest direction. Ditch A is approximately 2,076 feet long. It originates on the property to the east of the Preserve, runs through wetlands 5 and 6 and ends at 7. Ditch B is approximately 4,615 feet long. It originates at the southern end of wetland 9, runs through 17 and ends in the north-south running ditch along the west boundary of the Preserve. Several smaller ditches, often with associated berms, were dug throughout the Preserve, often for row-crop farming. An additional impact took place on the Preserve in the summer of 2001. Flooding in a residential development east of the Preserve prompted the construction of a levy. The levy begins at the Preserve's south boundary, heads north for approximately 1,479 feet, then turns and runs east for approximately 1,382 feet, where it turns north and runs all the way to the boundary fence for approximately 5,594 feet. See Figure 5 for location of the wetlands, ditches and levy.

Hydrologic improvements at the Preserve will include plugging drainage ditches and removing melaleuca to increase wetland hydroperiod (Mazzotti, 1998). Due to the costly nature of these improvements staff will coordinate with Lee County Department of Public Works to incorporate them into mitigation projects for County infrastructure projects. For details on the hydrologic restoration, see the Management Action Plan.

PPP is bordered by an active railroad and I-75 on its northeast side, Lost Lane and a drainage ditch on its east side, Del Prado Extension/Mellow Drive and drainage ditch on its south side, an abandoned railroad grade and drainage ditch on its west side and ditches separating the residential communities that surround the western "arm" of the Preserve. These features have dramatically altered the Preserve's historical water flow patterns.

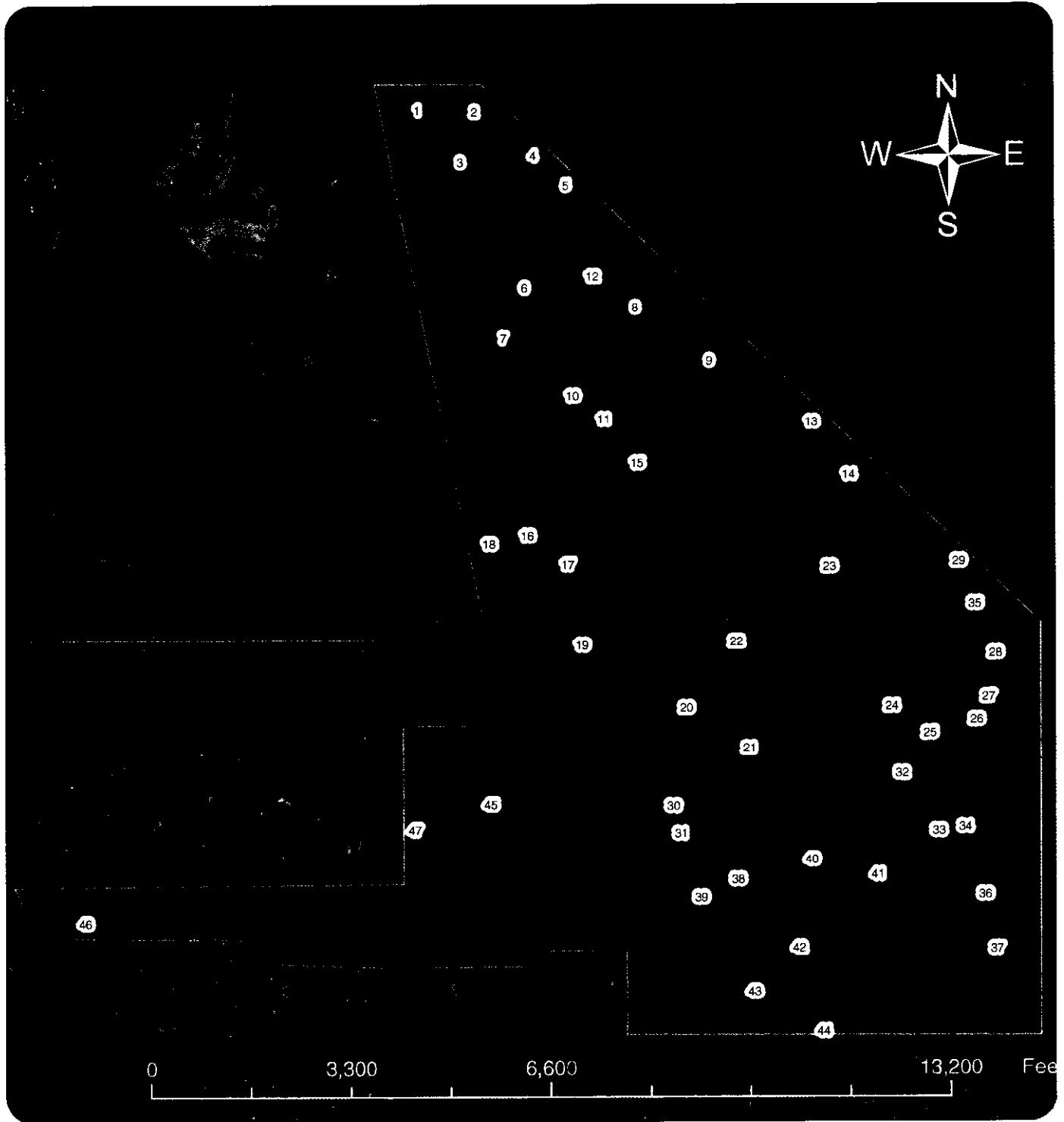
Prairie Pines Preserve contains portions of three different watersheds (Figure 6). Daughtrey Creek watershed is bordered on its western side by the fallow agricultural fields of Management Unit 6 and the main farm road that leads to Del Prado Extension. This 34 square mile watershed originates in Charlotte County's Babcock-Webb Wildlife Management Area. Only 4 square miles of it is in Lee

County. At the Charlotte/Lee County line, it is approximately 2 miles wide. By the time it flows south to Bayshore Road (S.R. 78) it is only 1 mile across. This portion of the watershed is mainly channelized. South of Bayshore Road, the watershed's trunk becomes a natural channel, with minimal human modification, until it reaches its end point at the Caloosahatchee River. During the wet season, the water table levels range from near the surface to approximately 2 feet below the surface.

The watershed that dominates the majority of PPP is Powell Creek, an 11 square mile watershed that originates in Charlotte County, flows south under I-75 and ends in the Caloosahatchee River. The Gator Slough watershed floods into this watershed during high water events in the rainy season at the north end of the Preserve. According to Lee County's Surface Water Management Plan, the most northern drainage ditch on the Preserve (Figure 5) as well as the ditches associated with both the active railroad and the abandoned railroad grade has led to some over draining of wetland areas and significantly changed the hydroperiod (Surface, 2004). This report also mentions "a few core wetlands" near the drainage ditch, presumably wetlands 5, 6 and 7 that currently are being overdrained. The restoration work outlined earlier in this section should help with the overall health of the watershed.

Finally, the Gator Slough watershed, which only slightly enters the Preserve under normal conditions, is located to the west. During heavy rains, the sheetflow from this watershed mixes with Powell Creek watershed to the east. This watershed originates in the Babcock-Webb Wildlife Management Area and flows south along the abandoned railroad grade and then turns to the west through a series of canals until it flows into Matlacha Pass Aquatic Preserve. It is a highly altered system, being completely channelized in Lee County. A major project with Lee County's Division of Natural Resources will be to restore portions of this watershed in the next several years to reduce the flooding on the northern portions of the watershed while decreasing the rapid flow of fresh water to Matlacha Pass Aquatic Preserve which is adversely affecting the sea grass beds (Surface, 2004).

Figure 5: Hydrologic Features at Prairie Pines Preserve



**Legend**


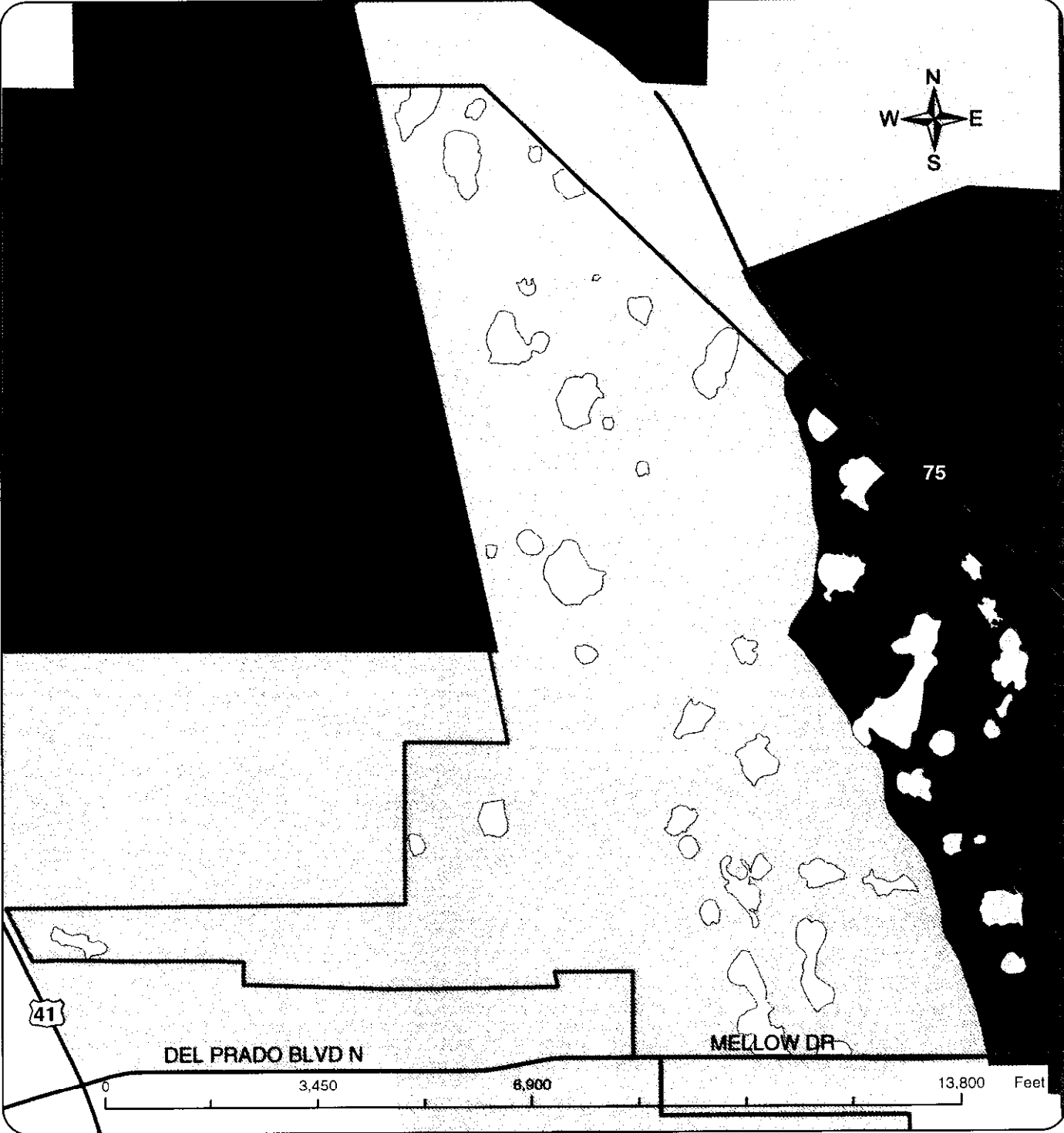






—	Preserve Boundary	——	Ditches A and B
—		——	Smaller Ditches
	Isolated Herbaceous Wetlands	——	Levy

Figure 6: Prairie Pines Preserve Watersheds



**Legend**

	Preserve Boundary	<b>Watersheds</b>
	Major Roads	 Daughtrey Creek
	Isolated Herbaceous Wetlands	 Gator Slough
		 Powell Creek

## B. Biological Resources

### a. Ecosystem Function

The wetlands of south Florida are important to a variety of wildlife. There are 47 isolated herbaceous wetlands throughout the Preserve. Birds feed, fish and frogs live and breed, and people rely on these marshes to improve water quality. The seasonal changes profoundly affect the hydrology at this Preserve. During the late spring and summer months, the rain begins to fall and the marshes fill to capacity. Fish populations begin to increase in number and biomass. In the fall when the rains end, the water recedes and the fish are concentrated in the shallow marshes. The wading birds come in to feast and this aids the remaining fish by decreasing the density and increasing the availability of dissolved oxygen. These depressional marshes are also very important to some species of wading birds for their nesting success. For example, the white ibis (*Eudocimus albus*) chooses nesting sites next to marshes that have appropriate drying conditions. Some herons and wood storks need specific falling water conditions over a prolonged four-month nesting season. The faster the marsh dries, the sooner nesting starts. If the water level rises, then nesting success declines (Myers and Ewel, 1990). This drying period is not only important to the fauna but also to the flora. Most aquatic plants cannot germinate under water and require this drying phase.

The pine flatwoods surrounding these marshes also serve as very important habitat. Several species of birds find shelter in the palmetto understory, nest in the tall pines and forage in the grasses. The endangered red-cockaded woodpecker (*Picoides borealis*) has historically used this area and, if managed correctly, may return. The oak toad (*Bufo quercicus*) will dig burrows in the sandy soil and hunt for spiders and insects. During a severe flood, the flatwoods serve as a water storage area to help protect adjacent land owners from flooding (Tiner 1998). Fire is a very important part of pine flatwoods. Florida has more thunderstorm days per year than anywhere else in the country and in turn one of the highest frequencies of lightning strikes of any region in the United States. Fire has many purposes in the flatwoods: creation of soil conditions suitable for germination of seeds of some species, turnover of litter, humus and nutrients, reduction of competition from hardwoods and increasing the hardiness of some species (Myers and Ewel, 1990). Following exotic removal, fire will be a very useful management tool at PPP.

## b. Natural Plant Communities

Prairie Pines Preserve consists of scattered basin wetlands, wet flatlands and mesic flatlands. Figure 7 illustrates the location of each community within the Preserve. The main communities found at PPP are defined using the Florida Natural Area's Guide to the Natural Communities of Florida (1990). Appendix A contains a complete list of plant species identified on numerous site inspections to PPP. Experienced, knowledgeable botanists with the south Florida non-profit organization, Institute for Regional Conservation, have compiled the majority of this list. This list will be updated on a seasonal basis to identify plants in their inflorescence phase.

### **Depressional Marsh Community – 211 acres, 9% coverage of PPP**

Thirty-four of the wetlands, or portions of wetlands, scattered throughout the Preserve can be characterized as depressional marshes. Synonyms for this community include isolated wetland, ephemeral pond and seasonal marsh. At PPP, this community typically consists of open, treeless areas, with the exception of occasional clumps of Carolina willow (*Salix caroliniana*), and vegetation that is often growing in concentric bands. Typical plants include spikerush (*Eleocharis spp.*), maidencane (*Panicum hemitomon*), wax myrtle (*Myrica cerifera*), alligator flag (*Thalia geniculata*), pickerelweed (*Pontederia cordata*), and waterlilies (*Nymphaea spp.*). A wide variety of grasses, sedges and other herbaceous plants occur within this community. Current management concerns for this plant community include invasive exotic plants, feral hogs and ORV traffic. The majority of the depressional marshes at the Preserve have some infestation of invasive exotic plants. The most common is melaleuca (*Melaleuca quinquenervia*), which grows on the edges of the majority of these marshes and is sometimes scattered within. Other invasive species such as alligatorweed (*Alternanthera philoxeroides*), water lettuce (*Pistia stratiotes*), West Indian marsh grass (*Hymenachne amplexicaulis*), torpedo grass (*Panicum repens*), and water hyacinth (*Eichhornia crassipes*) are found within some of these wetlands. Both the ORV's and the feral hogs cause extensive damage to the plants on the edges of the wetlands. Both can eliminate the vegetation, which prevents fire from entering the wetland and reduces habitat for wildlife. Additionally, after an area is rutted by hogs, the vegetation that returns is often more weedy species as well as exotics such as Caesar's weed (*Urena lobata*).

Animals documented utilizing this community include numerous species of fish including killifish (*Heterandria spp.*), freshwater turtles such as the striped mud turtle (*Kinosternon baurii*), American alligator (*Alligator mississippiensis*), amphibians such as pig frog (*Rana gryllo*), mammals such as the river otter (*Lutra canadensis*), waterbirds such as anhinga (*Anhinga anhinga*), blue-winged teal (*Anas discors*), common moorhen (*Gallinula chloropus*), white ibis, egrets and herons (Family *Ardeidae*), least tern (*Sterna antillarum*), shorebirds such as

sanderling (*Calidris alba*) and yellowlegs (*Tringa spp.*), and songbirds such as red-winged blackbird (*Agelaius phoeniceus*).

Depressional marshes are extremely important in providing breeding and foraging habitat for amphibians. Because of their temporary nature, few large predatory fish occur in these wetlands, which would feed heavily on the tadpoles. Since this community typically dries down in most years, the aquatic animals become quite concentrated and are an excellent food source for birds and other wildlife.

Fire is important to maintaining this community type by restricting the invasion of shrubs and trees, which would eventually reduce the hydroperiod through evapotranspiration and increased biomass as well as shading out the wetland. The ideal burn regime for this plant community would be to burn the surrounding uplands every 1-3 years, allowing fire to actually burn through the wetland every third burn. Timing for these wetland burns would need to be in late spring to early summer, just before the rainy season to maximize the effectiveness (Printiss, 2003).

**Wet Prairie Community** – 49 acres, 2% coverage of PPP-  
additional 8.8 impacted acres.

The wet prairie community is made up of 19 separate areas within the #134 acquisition area of PPP, predominantly on the southern half. Synonyms for this community include sand marsh and savannah. The wet prairies found at PPP are a treeless plain with a ground cover of grasses and herbs including maidencane, spikerush, beaksedge (*Rhynchospora spp.*), and sand cordgrass (*Spartina bakerii*). Current management concerns for this community are invasive exotic plants and ORV traffic. The majority of wetlands categorized as wet prairies have at least some exotic plants present, especially melaleuca and torpedo grass (*Panicum repens*). The soils in this community are particularly sensitive to disturbance by ORV's and recovery is often poor and slow (FNAI, 1990).

A wide variety of animals have been documented utilizing this plant community including Florida cricket frog (*Acris gryllus dorsalis*), eastern garter snake (*Thamnophis sirtalis sirtalis*), northern harrier (*Circus cyaneus*), killdeer (*Charadrius vociferus*) and marsh rabbit (*Sylvilagus palustris*).

Like the depression marshes, wet prairies are fire dependant communities. Typically these areas will burn every 2-4 years and will become invaded with wax myrtle and other trees and shrubs during longer fire intervals.



**Wet Prairie Community – Agriculture** – 8.8 acres, less than 1% coverage at PPP

This community is located on the southern most portion of Unit 6. This disturbed community consists mainly of spikerush, dog fennel and various grasses. It has been heavily impacted by agricultural activities and should not be considered a natural wet prairie.

**Prairie Hammock Community** – 8.8 acres, less than 1% coverage at PPP- additional 13 impacted acres.

There are 6 small prairie hammock areas adjacent to depression marshes scattered throughout the Preserve. Synonyms for this habitat include palm/oak hammock and hydric hammock. The dominant plants found in these areas are live oak (*Quercus virginiana*) and cabbage palm (*Sabal palmetto*). The understory typically consists of saw palmetto (*Serenoa repens*) and wax myrtle.

Typical animals found in these hammocks include green anole (*Anolis carolinensis*), common yellowthroat (*Geothlypis trichas*), blue-gray gnatcatcher (*Polioptila caerulea*) and cotton mouse (*Peromyscus gossypinus*).

This community can occasionally flood, but is seldom inundated for more than 10-40 days a year. Although this community does not depend on fire, drier sites can occasionally tolerate low ground fires.

**Prairie Hammock – Brazilian Pepper** – 13 acres, less than 1% coverage at PPP

The portion of the Preserve adjacent to U.S. 41 and the hammock next to wetland 17 both consist of prairie hammock communities that are heavily infested with Brazilian pepper.

**Wet Flatwoods Community** – 969 acres, 36% coverage at PPP- additional 312.9 impacted acres.

Wet flatwoods are scattered throughout the Preserve. Synonyms for this plant community include low flatwoods and hydric flatwoods. Wet flatwoods occur on relatively flat, poorly drained areas. Standing water for a month or more is typical during the rainy season. This community has an open canopy with some shrubs, grasses, sedges and other herbaceous wetland plants. Typical plants growing in this community at PPP include slash pine (*Pinus elliottii*), spike rush, sedges (Family *Cyperaceae*), wax myrtle, saw palmetto and green briar (*Smilax spp.*). The majority of wet flatwoods found on the Preserve have some level of melaleuca infestation.

A few animals that have been documented utilizing wet flatwoods at the Preserve include squirrel treefrog (*Hyla squirella*), eastern glass lizard (*Ophisaurus ventralis*), dusky pygmy rattlesnake (*Sistrurus miliarius barbouri*), red-shouldered hawk (*Buteo lineatus*), white-eyed vireo (*Vireo griseus*), common yellowthroat, and bobcat (*Lynx rufus*).

Natural fire regimes for this plant community range from every 3-10 years. Without fairly frequent fires, wet flatwoods will succeed into hardwood dominated forests whose closed canopy would gradually eliminate the groundcover herbs and shrubs. Lack of fire will allow pine needle drape and the height of flammable understory shrubs to increase, which will increase the probability of a catastrophic canopy fire.

**Wet Flatwoods – Agriculture – 89.5 acres, 3% coverage at PPP**

This community is located in the middle portion of Unit 6. This disturbed community consists mainly of wax myrtle, Brazilian pepper (*Schinus terebinthifolius*), melaleuca, slash pine and oaks (*Quercus spp.*). The southern portion is considerably more open than the northern portion. This area has been heavily impacted by agricultural activities and should not be considered a natural wet flatwoods community.

**Wet Flatwoods – Brazilian Pepper – 3 acres, less than 1% coverage at PPP**

The portion of the Preserve to the east of the agricultural field described above is a wet flatwoods community that is heavily infested with Brazilian pepper.

**Wet Flatwoods – Exotics – 13.8 acres, less than 1% coverage of PPP**

Located in the northeast corner of Unit 13, this portion of the Preserve has the characteristics of a wet flatwoods community, with at least 75% coverage of Brazilian pepper and melaleuca.

**Wet Flatwoods – Melaleuca – 206.6 acres, 7% coverage at PPP**

Wet flatwoods communities that are heavily infested with melaleuca (75-100%) are scattered throughout the Preserve.

**Mesic Flatwoods Community** – 1015 acres, 37% coverage at PPP-  
additional 124.5 impacted acres.

The mesic flatwoods community is found scattered throughout the Preserve. Synonyms for this plant community include pine flatwoods and pine savannahs. Mesic flatwoods occur on relatively flat, moderately to poorly drained soils. Standing water is common for brief periods during the rainy season. There are a few patches in the southeast portion of the Preserve that tend to be slightly higher and less likely to have standing water although they lack the presence of certain plants that would characterize a scrubby flatwoods community. Mesic flatwoods are characterized as having an open canopy with widely spaced pine trees and a dense ground cover of herbs and shrubs. Typical plants growing in these communities at PPP include slash pine, saw palmetto, gallberry (*Ilex glabra*), wax myrtle, blueberry (*Vaccinium spp.*), blackroot (*Pterocaulon pycnostachyum*), and yellow-eyed grass (*Xyris spp.*). The majority of mesic flatwoods found on the Preserve have some presence of melaleuca.

A few animals that have been documented utilizing mesic flatwoods at the Preserve include oak toad, southern ringneck snake (*Diadophis punctatus punctatus*), pine warbler (*Dendroica pinus*), northern bobwhite (*Colinus virginianus*), eastern towhee (*Pipilo erythrophthalmus*), great-crested flycatcher (*Myiarchus crinitus*), and raccoon (*Procyon lotor*).

Historically, natural fire probably burned in these communities every 1-8 years. Without fairly frequent fires, mesic flatwoods will succeed into hardwood dominated forests whose closed canopy would gradually eliminate the groundcover herbs and shrubs. On the other hand, too frequent or too hot fires would eliminate pine recruitment and eventually transform the mesic flatwoods into dry prairie.

**Mesic Flatwoods – Agriculture** – 79.7 acres, 3% coverage at PPP

The northern half of Unit 6 contains many of the characteristics of a mesic flatwoods, but is impacted by previous agricultural activities. This disturbed community consists mainly of wax myrtle, Brazilian pepper, melaleuca, slash pine, saw palmetto, grapevine (*Vitis rotundifolia*) and oaks.

**Mesic Flatwoods – Exotics** - .83 acres, less than 1% coverage at PPP

Located in Unit 17, just north of wetland 36 this portion of the preserve has the characteristics of a mesic flatwoods community, with at least 75% coverage of Brazilian pepper and melaleuca.

**Mesic Flatwoods – Melaleuca – 44 acres, 1% coverage at PPP**

There are several areas in the southern half of the Preserve that consists of a mesic flatwoods community that has 75-100% coverage of melaleuca.

**Baygall – 5.5 acres, less than 1% coverage at PPP**

The baygall community found at Prairie Pines Preserve is found within Depression Marsh 21. Baygalls are characterized as densely forested, peat-filled depressions. They consist of evergreen hardwoods, including bay trees and a fairly open understory of shrubs and ferns. Other typical plants found in this community include dahoon holly, wax myrtle, poison ivy and chain fern.

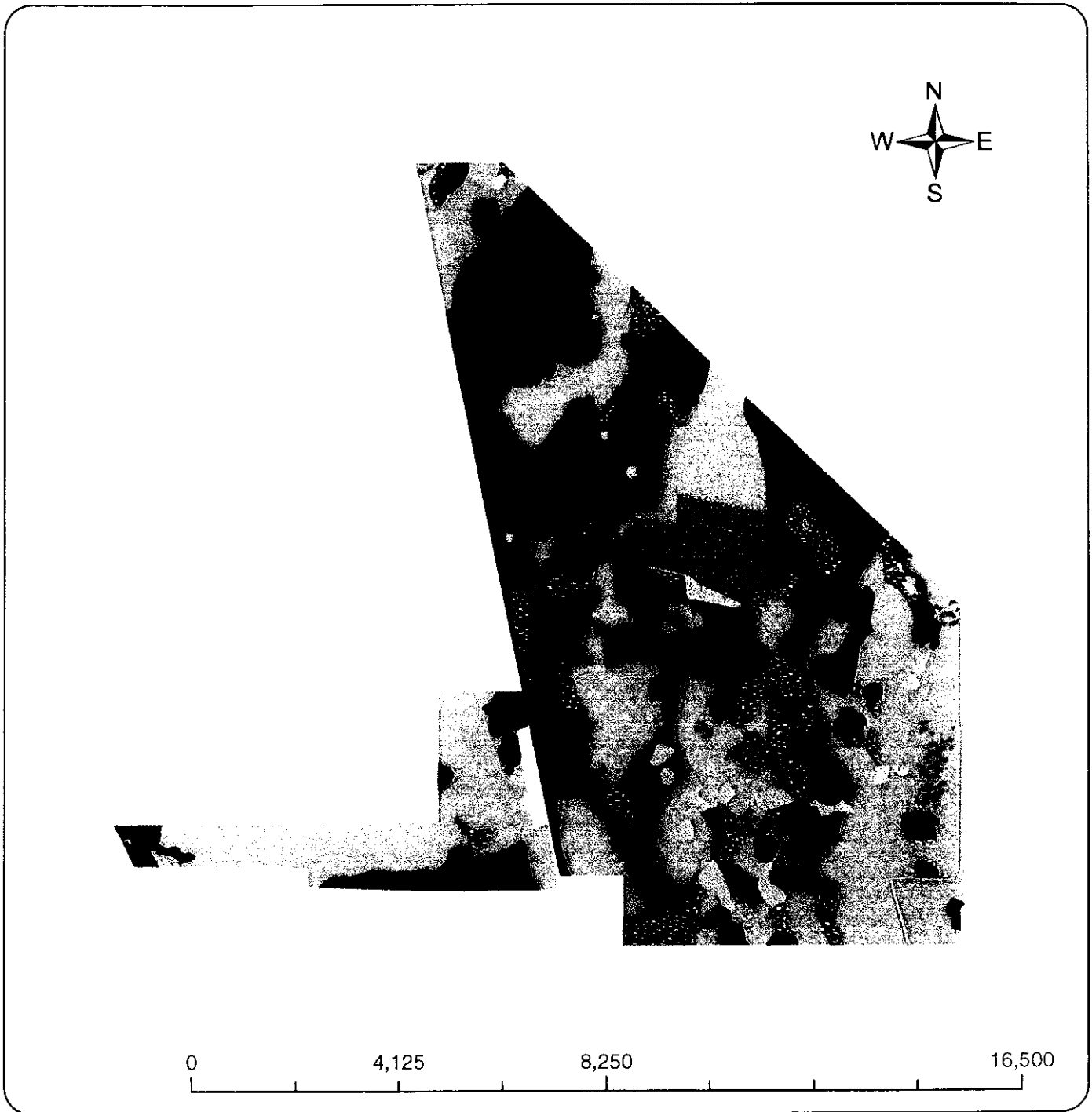
Animals that typically utilize baygall communities include opossums, marsh rabbits and bobcats.

This community rarely dries out enough to burn. The normal fire interval in this community is probably 50-100 years or more. (Florida 1990)

**Disturbed – 19 acres, less than 1% coverage at PPP**

There are two areas at Prairie Pines Preserve that have been significantly disturbed by human activity; the grassy field located at the entrance to the Preserve on U.S. 41 and the berm/road and ditch located at the Mellow Drive entrance that stretches north along a portion of the east boundary. Typical plants in these areas include bahiagrass (*Paspalum notatum*), Caesarweed (*Urena lobata*), and dog fennel (*Eupatorium capillifolium*).

Figure 7: Prairie Pines Preserve Natural Plant Communities



**Legend**

Baygall	Mesic Flatwoods
Disturbed	Mesic Flatwoods - Agriculture
Depressional Marsh	Mesic Flatwoods (dry)
Wet Flatwoods	Mesic Flatwoods - Exotics
Wet Flatwoods - Agriculture	Mesic Flatwoods - Melaleuca
Wet Flatwoods - Brazilian Pepper	Prairie Hammock
Wet Flatwoods - Exotics	Prairie Hammock - Brazilian Pepper
Wet Flatwoods - Melaleuca	Wet Prairie
	Wet Prairie - Agriculture

c. Fauna

Prairie Pines Preserve provides habitat for a diversity of wildlife. Most significantly are the anurans; over half the species found in Lee County, reptiles; tremendous diversity in both snakes and turtles, and dozens of bird species. See Appendix B for a complete list of wildlife documented at the Preserve. Wildlife species were recorded during both numerous site inspections and the fieldwork conducted for a research grant to survey the effects of invasive exotic vegetation on wetland functions that was funded by Charlotte Harbor National Estuary Program. Future sightings through site inspections, future grants and possible Lee County Bird Patrol volunteers will continue to be recorded.

The Preserve is also a potential stepping stone to the much larger (75,260 acre) Babcock-Webb Wildlife Management Area that is approximately 2 miles to the north. Development between the natural areas limit it from being a corridor for wildlife, with the exception of birds. However the land to the north of PPP is not as heavily developed and possibly acts as a connection to both areas.

There are also several exotic wildlife species that have been documented at the Preserve (Table 1). Of primary concern is the feral hog (*Sus scrofa*). Currently, Lee County Parks & Recreation has an on-going hog trapping program with a single contractor. Trapping at PPP will become a routine maintenance activity. Additionally, staff will pursue the possibility of allowing Florida Fish & Wildlife Conservation Commission (FWC) to conduct an annual or semi-annual weekend hunt while closing the Preserve to all other public uses. This will require staff going through the proper channels with the Lee County Board of County Commissioners to get temporary approval since this practice conflicts with Parks and Recreation's Ordinance 02-12. Other avenues will be sought to deal with the serious impact of hogs.

**Table 1: Exotic Wildlife at Prairie Pines Preserve**

Scientific Name	Common Name
<i>Cichla spp.</i>	cichlid fish
<i>Eleutherodactylus planirostris planirostris</i>	greenhouse frog
<i>Osteopilus septentrionalis</i>	Cuban treefrog
<i>Anolis sagrei</i>	brown anole
<i>Sus scrofa</i>	feral hog

Wildlife management at the Preserve will focus on providing optimal habitat. Removal of invasive exotic plants, application of prescribed fire and elimination of ORV's except when absolutely necessary for management activities will be critical restoration components.

#### d. Designated Species

There are a variety of listed animal and plant species found at Prairie Pines Preserve (Table 2). Although all native plant and animal species found at the Preserve have some protection due to the preservation of this property, certain species need additional attention. For stewardship purposes, all plants and animals listed by the U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FWC), Florida Department of Agriculture and Consumer Services (FDACS), Florida Natural Areas Inventory (FNAI) and/or the Institute of Regional Conservation (IRC) will be given special consideration.

Typically, designated species will benefit from proper management of the biological communities in which they occur. However, some species may require additional measures to ensure their protection. Staff is currently looking into monitoring methods to determine if management techniques on all Conservation 20/20 Preserves are effective. Management practices at the Preserve including exotic plant control, prescribed burning, trash removal, wildlife monitoring and feral animal control, restricting trails in certain areas and enforcement of no littering, no weapons and no motorized vehicles regulations will all help with the protection of listed species. The public use facilities will include wildlife-proof trashcans and wildlife blinds at certain wetlands that will allow the public to observe wildlife while minimizing any disturbance. Staff is considering allowing on-leash dog walking in the western "arm" of PPP if a public interest is shown and volunteers are willing to assist with monitoring the trails for compliance of leash and waste pick-up rules. This portion of the Preserve does not appear to have the high concentration of listed species found on the rest of the Preserve.

Table 2 documents listed species both known and expected to be found at PPP, followed by a brief summary of each species explaining why they are in decline and the specific management measures at the Preserve that will be taken to protect them. If more listed species are documented on the Preserve they will be added to the list. A map with listed species locations will be created for personnel use only and will not be included in the plan.

Table 2: Listed Species Found at PPP and Their Designated Status

Scientific Name	Common Name	IRC	USFWS	FWC	FNAI	FDA	Occurrence
<b>AMPHIBIANS</b>							
<i>Rana capito</i>	gopher frog			SSC	G3G4/S3		expected
<b>REPTILES</b>							
<i>Alligator mississippiensis</i>	American alligator		T S/A	SSC	G5/S4		confirmed
<i>Gopherus polyphemus</i>	gopher tortoise			SSC	G3/S3		confirmed
<i>Drymarchon corais couperi</i>	eastern indigo snake		T	T	G4T3/S3		expected
<i>Crotalus adamanteus</i>	eastern diamondback rattlesnake				G4/S3		confirmed
<b>BIRDS</b>							
<i>Egretta caerulea</i>	little blue heron			SSC	G5/S4		confirmed
<i>Egretta tricolor</i>	tricolored heron			SSC	G5/S4		confirmed
<i>Egretta thula</i>	snowy egret			SSC	G5/S3		confirmed
<i>Eudocimus albus</i>	white ibis			SSC	G5/S4		confirmed
<i>Mycteria americana</i>	wood stork		E	E	G4/S2		confirmed
<i>Grus canadensis pratensis</i>	Florida sandhill crane			T	G5T2T3/S2S3		expected
<i>Elanoides forficatus</i>	swallow-tailed kite				G5/S2		confirmed
<i>Haliaeetus leucocephalus</i>	bald eagle		T	T	G4/S3		confirmed
<i>Sterna antillarum</i>	least tern			T	G4/S3		confirmed
<i>Picoides borealis</i>	red-cockaded woodpecker		E	T	G3/S2		expected
<b>MAMMALS</b>							
<i>Sciurus niger avicennia</i>	Sherman's fox squirrel			SSC	G5T2/S2		expected
<i>Ursus americanus floridanus</i>	Florida black bear			T	G5T2/S2		confirmed
<b>PLANTS</b>							
<i>Schizaea pennula</i>	ray fern	C			G5/S1	E	confirmed
<i>Tillandsia fasciculata var. densispica</i>	stiff-leaved wild-pine, cardinal airplant					E	confirmed
<i>Tillandsia utriculata</i>	giant airplant					E	confirmed
<i>Lilium catesbaei</i>	Catesby's lily					T	confirmed
<i>Spiranthes longilabris</i>	longlip ladiestresses					T	confirmed
<i>Nymphaea mexicana</i>	yellow waterlily	C					confirmed
<i>Pinguicula lutea</i>	yellow butterwort					T	confirmed

KEY

IRC-The Institute for Regional Conservation	USFWS-U.S. Fish & Wildlife Service FWC-Florida Fish & Wildlife Conservation Commission FDA-Florida Department of Agriculture & Consumer Services	FNAI-Florida Natural Areas Inventory
C-Critically imperiled	E-Endangered T-Threatened T S/A-Threatened due to Similarity of Appearance SSC-Species of Special Concern	G-Global rarity of the species S-State rarity of the species T-Subspecies of special population 1-Critically imperiled 2-Imperiled 3-Rare, restricted or otherwise vulnerable to extinction 4-Apparently secure 5-Demonstrably secure



The following are brief descriptions of the species listed in Table 1, as well as management recommendations for PPP in regards to the life history needs of each species.

### **Gopher Frog**

The gopher frog (*Rana capito*) is becoming increasingly rare throughout its range, primarily due to habitat loss and degradation, as well as the decline of the gopher tortoise, whose burrows often provide homes for this species. Gopher frogs depend on temporary breeding ponds, which rarely support large predatory fish, surrounded by healthy upland ecosystems. They are known to disperse up to a mile from their breeding ponds. In south Florida, gopher frogs may breed year round, but their main breeding season is from October through April when they migrate to ponds during heavy rains.

Although gopher frogs have not been recorded at Prairie Pines Preserve, they are likely to occur due to the presence of gopher tortoises and appropriate habitat. Future frog call monitoring may be able to confirm their presence (but not their absence). A future intern/research project will set up drift fencing and pitfall traps around some of the more open grassy wetlands that are surrounded by dry flatwoods. This would provide more accurate information on gopher frogs and other herptofauna that utilize the Preserve. If their presence is discovered, a 30-meter buffer zone around the wetlands should be established where there is no soil disturbance and herbicides are discontinued during breeding and tadpole development periods, (which last 3-5 months) (Bailey 2003). Ending ORV traffic and closing trails that travel in the wetlands will benefit this species by reducing pollutants and allowing vegetation on the edges of wetlands to recover. Finally, allowing fire to burn through the wetlands late in the dry season will maintain the breeding ponds as open, grassy habitats and prevent shrub encroachment.

### **American Alligator**

American alligators (*Alligator mississippiensis*) have recovered dramatically since the 1960's. There are even some populations large enough to support limited harvests. Pollution and destruction of wetlands are currently the main threat to this species. Protecting wetlands from ditching, filling and pollution are the management recommendations for this species (Hipes et. al. 2000).

The hydrologic restoration activities planned for Prairie Pines Preserve will benefit this species.

## **Gopher Tortoise**

Gopher tortoises (*Gopherus polyphemus*) are in decline throughout their range due to loss and degradation of habitat. As a species dependant on dry, upland communities much of their habitat has been lost to urban and residential development, agriculture, citrus groves, mining and pine plantations. Additional threats include a highly contagious respiratory disease and human consumption.

Although no formal census has been conducted, gopher tortoises are uncommon at Prairie Pines due to the hydrology of the site. They have been seen occasionally on the berm/road on the eastern boundary and two burrows were found on the western portion of the Preserve. Exotic plant removal and prescribed burning will benefit this species. Before restoration activities that utilize heavy equipment take place, land stewardship staff will conduct burrow surveys in areas where tortoise burrows could be present. The areas will be flagged off and the equipment operators will be advised to stay outside of those areas. During post-burn evaluations conducted after prescribed fires, staff will watch for tortoise burrows. If any are found within the burn unit, a more thorough search will be conducted and GPS coordinates will be recorded for any burrows.

## **Eastern Indigo Snake**

The eastern indigo (*Drymarchon corais couperi*) is Threatened throughout its range due to habitat loss, degradation and fragmentation. Although now illegal to possess this animal without the proper permits, the pet trade is another cause for decline of this species. The most common causes of mortality are human caused, either by people afraid of snakes or accidental highway mortality. Eastern indigo snakes have not been confirmed utilizing PPP, but the size of the Preserve, habitats and abundance of prey make them a likely resident.

Prescribed burning and exotic plant removal will both be beneficial to this species. Additionally, public education about the ecological value of this and other species of snakes will help to protect them from visitors to the Preserve and from adjacent landowners.

## **Eastern Diamondback Rattlesnake**

Although not a listed species, the eastern diamondback rattlesnake (*Crotalus adamanteus*) is commonly thought to be in decline throughout its range. Scientists feel that it requires 10,000 acres or more to sustain long-term, viable populations (Hipes et. al. 2000). Additional threats to this species includes indiscriminate killing because of fear, as well as for trade and being hit by cars.

Management practices listed for the eastern indigo snake will also benefit this species.

### **Little Blue Heron**

The little blue heron's (*Egretta caerulea*) decline is due to loss of freshwater wetlands and alteration of their natural hydroperiod. There is also some indication that pesticides and heavy metal contamination may affect this heron (Hipes et. al. 2000).

Removing invasive exotic plants (particularly melaleuca) and hydrologic restoration of the Preserve to restore the natural hydroperiod by plugging ditches and leveling berms will benefit this species.

### **Tricolored Heron**

Tricolored herons (*Egretta tricolor*) are also declining throughout Florida, due to the loss of freshwater wetlands and alteration of their natural hydroperiod (Hipes et. al 2000).

Management strategies listed for the little blue heron will also benefit this species.

### **Snowy Egret**

Like the little blue heron, the snowy egret (*Egretta thula*) is declining throughout its range, and has been since the 1950's. Scientists believe that the main reason for this decline is the loss and alteration of wetlands where they forage (Hipes et. al 2000).

Once again, management techniques listed for the little blue heron will also benefit this species.

### **White Ibis**

Similar to the herons listed above, the white ibis (*Eudocimus albus*) is declining throughout its range, probably due to the reduction and degradation of wetlands as well as human disturbances to their rookeries (Hipes et. al 2000).

Management recommendations at PPP will be the same as for the other wading birds listed above.

## **Wood Stork**

Wood storks (*Mycteria americana*) are very sensitive to water levels in freshwater wetlands, as they require high concentrations of fish in fairly shallow water for foraging. Unnaturally high water levels during nesting seasons and extended droughts are both threats that wood storks face (Hipes et. al. 2000).

Management recommendations at PPP for the protection of this species will be the same as for other wading birds listed above.

## **Florida Sandhill Crane**

Florida sandhill cranes (*Grus canadensis pratensis*) and the migratory greater sandhill crane (*Grus canadensis tabida*) are indistinguishable from each other. All crane sightings at the Preserve have been during the winter migratory season (October-March), but the habitat (shallow depressional marshes with lots of pickerelweed and maidencane surrounded by uplands) and proximity to Babcock-Webb Wildlife Management Area, that is known to have Florida sandhill cranes, make it a possible for the Florida sandhill crane to occur at the Preserve. Threats to Florida sandhill cranes include loss and degradation of wetlands, fire suppression, free ranging dogs and cats and entanglement in fencing (Rodgers et. al., 1996).

Management practices at Prairie Pines Preserve that will benefit sandhill cranes (both migratory and non-migratory sub-species) include hydrologic restoration of the numerous ditches and berms, implementing a prescribed fire plan that includes both burning the uplands that the cranes forage in and occasionally allowing the fires to burn into the depressional marshes to reduce brush encroachment. By May of 2008, all interior fencing at the Preserve will have been removed, greatly reducing the risk of entanglement to the birds. Feral animals will be trapped as necessary to protect cranes and other wildlife. Finally, although the western "arm" of the Preserve will allow leashed dog walking, trails will be constructed to avoid the wetlands in that area and off-leash dog exercising will not be permitted at any time.

## **Swallow-tailed Kite**

The swallow-tailed kite (*Elanoides forficatus*) migrates to southwest Florida from South America in late February/early March for their nesting season that lasts through late July/early September. In the early 1900's swallow-tailed kites were nesting in 21 states, today they are only found in 7 southeastern states. Habitat loss of nesting sites through development and conversion to agriculture is the major threat to this species (Hipes et.al. 2000).

This raptor has not been spotted nesting at PPP. In the future, if it is discovered that they are nesting on the property the tree will be protected from disturbance and nearby recreational trails may be temporarily closed during breeding season and planned management activities that could disturb the nesting pair(s) will be postponed. Otherwise, planned restoration activities (hydrologic restoration, invasive exotic plant removal and implementing regular prescribed fires) will all benefit the species.

### **Bald Eagle**

Bald eagle (*Haliaeetus leucocephalus*) numbers have steadily increased in Florida after a low of 120 active nests in 1973 (Hipes et.al. 2000). Still, loss of habitat and human disturbance due to development is a primary concern for this species.

Although PPP is currently not utilized as a nesting site, Land Stewardship staff during site inspections, as well as bird patrol volunteers will always be on the look out for nesting activity. Any future bald eagle nests will be protected according to Federal and local laws.

### **Least Tern**

Although still listed as "Threatened" by the state of Florida, the least tern (*Sterna antillarum*) appears to be increasing in numbers since the 1970's (Hipes et. al 2000). The biggest threat to this species is flooding and disturbance to their nesting colonies by people, domestic animals and vehicles. This species is known to regularly nest on natural sandy beaches as well as on gravel rooftops throughout Florida including Lee County (Hipes et. al 2000). Least terns have been observed feeding at wetland 24 and are possibly coming over from a rooftop nesting colony located to the northwest of the Preserve.

Since the Preserve does not contain nesting habitat, little can be done at PPP for their protection other than implementing proper management of the herbaceous wetlands to continue to provide them with a viable food source.

### **Red-cockaded Woodpecker**

Although cavity trees have not been documented at PPP, the red-cockaded woodpecker (RCW) (*Picoides borealis*) is known to have nesting colonies less than 1 mile to the west. Also, an USFWS "Essential Support Population" of RCWs is found in the Babcock-Webb Wildlife Management Area in southern Charlotte County. This species requires open park-like conditions, with very little mid-story trees and bushes. Additionally, this species of woodpecker is unique in the southeastern United States because it requires live, fire tolerant pine trees to excavate nesting cavities. Fire suppression and exclusion is still a profound threat to RCW populations throughout their range and the resulting hardwood

encroachment is a leading cause of loss of woodpecker groups. "Widespread and frequent application of early to mid growing season fire...is essential to the recovery of the species" (USFWS, 2001).

Land Stewardship staff will be making a concentrated effort to search for cavity trees as well as more casual observations during site inspections, as well as bird patrol volunteers will always be on the look out for foraging birds and any nesting cavities. Additionally, returning burn regimes to the pine flatwood communities of every 1-5 years during the beginning of the wet/growing season will improve the habitat quality.

### **Sherman's Fox Squirrel**

Sherman's fox squirrel (*Sciurus niger shermani*) is in decline throughout its range primarily due to loss and degradation of habitat (Hipes et. al 2000). Although the number of this sub-species of fox squirrel in Florida is unknown, "based on the amount of known habitat loss, fox squirrel populations have undoubtedly declined at least 85% from pre settlement levels" (Humphrey, 1992). Much of the fox squirrel's pine-oak forest has been converted to pine plantations, agriculture and development. Additionally, regular burn regimes of 2-5 years during the growing season (April-July) are critical to maintain their habitat with an open canopy with minimal understory.

A Sherman's fox squirrel was seen by Land Stewardship staff in 2003 less than 1 mile west of the Preserve. Exotic plant removal/control and the implementation of regular prescribed burning will improve the habitat for this species.

### **Florida Black Bear**

The most recent recorded spotting of a Florida black bear (*Ursus americanus floridanus*) at PPP was November 27<sup>th</sup>, 2000 (Forsyth, 2001). This species faces numerous challenges including poaching, roadkill mortality, low reproductive rate and most importantly loss of habitat to timber harvesting, development and other uses. "Long-term conservation of the Florida black bear is dependent upon preservation of large contiguous woodlands". Scientists with FWC have found the average home range for female black bears is almost 7,000 acres and males average over 42,000 acres (Humphrey, 1992).

Prairie Pines Preserve is not large enough to support black bears, but would be an excellent foraging site, or portion of a larger home range for black bears. The Preserve could also serve as a safe corridor for the travel of black bears from one large conservation area to another. Scientists have found that large scale winter burning reduces the diversity of food available to bears as compared to growing season burns (Humphrey, 1992). Prescribed burns conducted in the late spring would not only be beneficial to bears, but to several other species listed above.

## **Ray Fern**

Ray fern (*Schizaea pennula*) was discovered, and global positioning system coordinates recorded, by botanists Steven Woodmansee and Jimi Sadle with the Institute for Regional Conservation during their first installment of their Complete Floristic Inventory of the Preserve. Although this plant species was previously known to be located in Pinellas, Palm Beach and Dade counties none of these populations have been sighted in many years (Nelson, 2000). Currently, there are only two other known populations of this fern in Florida in the Arthur R. Marshall Loxahatchee National Wildlife Refuge (Gann, 2002) and in the Big Cypress National Preserve (Woodmansee per. com.). Threats to this species include invasion by exotic plants, non-target herbicide damage, hydrologic modifications and wildfires.

A map will be created documenting the location of ray fern discovered during floristic inventory fieldwork at the Preserve. Known populations will be re-surveyed every year. Invasive exotic plant control taking place in the vicinity of the fern locations will be supervised by Land Stewardship staff, who will also flag areas for the contractors to avoid. All new trail creation projects will first be surveyed by Land Stewardship staff to ensure that undiscovered populations of ray fern are not destroyed. Before a prescribed burn is conducted in a Management Unit that contains ray fern, the area will be marked, photo points taken and burning techniques will be used to minimize the severity of fire.

## **Stiff-leaved Wild-pine**

Stiff-leaved wild pine (*Tillandsia fasciculata var. densispica*) is found in hammocks, cypress swamps and pinelands. It has been documented in several portions of PPP. Threats to this plant include illegal collecting, habitat destruction and the Mexican bromeliad weevil (Save, 2002).

During exotic plant removal or construction of any public use areas, staff will survey the area before work commences to look for and mark, if necessary, areas to avoid. Currently, scientists are researching biological control agents for the exotic Mexican bromeliad weevil. Staff will keep current with the research developments and work with scientists in the future if it is determined that these insects are affecting epiphytes and the USDA is in need of release sites.

## **Giant Airplant**

Another epiphyte, giant airplant (*Tillandsia utriculata*) is found in brightly exposed dry and mesic hammocks, cypress swamps and pinelands. It has been documented in several portions of PPP. Threats to this plant include illegal collecting, habitat destruction and the Mexican bromeliad weevil (*Metamasius callizona*) (Save, 2002).

Management recommendations for *T. fasciculata* will also be followed for this species.

## **Catesby's Lily**

Catesby's (or pineland) lily (*Lilium catesbaei*) is listed as Threatened by the Florida Department of Agriculture and Consumer Services (FDACS). There is concern that the population of this species is decreasing and is likely to become endangered in the near future. This wildflower is found throughout PPP in moist flatwood areas. As a plant found in a fire dependent community, it generally benefits from occasional fire (Lilies, 2004).

During exotic plant removal or construction of any public use areas, staff will survey the area before work commences to look for and mark, if necessary, areas to avoid. Additionally, removing invasive exotic plants and utilizing prescribed burning as a management tool will benefit the species.

## **Longlip Ladiestresses**

Long-lip ladies' tresses (*Spiranthes longilabris*) are another Threatened species listed by FDACS. It is found in moist, grassy roadsides and pine flatwood habitats.

Management techniques for this wildflower will be the same as for the Catesby's lily.

## **Yellow Waterlily**

Although not listed by any agency, the yellow waterlily is considered critically imperiled by the Institute for Regional Conservation (IRC). There are scattered reports of this plant throughout peninsular Florida, but few have been recently vouchered. The major threats to this species include water level fluxuations in Lake Okeechobee and non-target damage during exotic plant herbicide application (Gann, 2002).

During exotic plant control activities in and around the wetlands where the yellow waterlily occurs staff will work with contractors to ensure they are using chemicals sparingly and carefully to minimize non-target damage.



## Yellow Butterwort

The yellow butterwort, (*Pinguicula lutea*) is found in hydric flatwood areas throughout the Preserve. It is also considered Threatened by FDACS.

Management techniques listed for the Catesby's lily will also benefit this species.

### e. Biological Diversity

Many species of birds, reptiles, invertebrates, fish and mammals inhabit the Preserve. The numerous wetlands, surrounded by uplands, are one of the primary reasons that Prairie Pines Preserve is so biologically diverse. Oak toads, pinewoods treefrogs (*Hyla femoralis*), eastern narrowmouth toads (*Gastrophryne carolinensis*), barking (*Hyla gratiosa*) and squirrel treefrogs spend more time in surrounding uplands, utilizing the wetlands strictly for breeding (Jensen, per. comm.). Additionally, several species of anurans, barking and pinewoods treefrogs, oak toads and gopher frogs, breed almost exclusively in seasonal wetlands. Because of the short hydroperiod, larger predatory fish like Florida largemouth bass (*Micropterus salmoides floridanus*) and bluegill (*Lepomis macrochirus*) are unable to become established and feed on the developing tadpoles. As these temporary wetlands slowly dry, the fish, tadpoles and aquatic invertebrates become quite concentrated, providing an excellent food source for the numerous waterbirds that utilize the Preserve. There are a few scattered wetlands that hold some water year-round that the majority of wildlife utilize during the dry season.

Additionally, the size of the Preserve provides good habitat for species with large home ranges such as, deer, bear, wild turkey (*Meleagris gallopavo*), bald eagles, sandhill cranes and woodstorks. Fish diversity at the preserve appears to be limited, except in wetland 24, primarily due to the rapid flooding and draining the other wetlands experience. (Ceilley, 2003).

The integrity and diversity of PPP must be protected when and where possible. Land stewardship staff will perform the following actions in this regard:

- Control of invasive exotic vegetation followed by annual maintenance to provide more suitable habitat for native aquatic and terrestrial species.
- Secure the boundaries to eliminate the off-road vehicle use to help restore the wetlands and other fragile plant communities.
- Removal of any debris and prevention of future dumping on site.

- Hydrologic restoration that will include plugging the numerous ditches to slow water drainage to help resume natural hydroperiods.
- Implement a prescribed fire program to closely mimic the natural fire regimes for the different plant communities to increase plant diversity and insure the canopies remain open.
- Control feral hog populations to reduce their impacts on the herbaceous plants and soils.
- Conduct on-going species surveys conducted by volunteers and staff will help catalogue and monitor the diversity that is present.
- Provide educational opportunities for visitors through both interpretive signs and programs.

### **C. Cultural Resources**

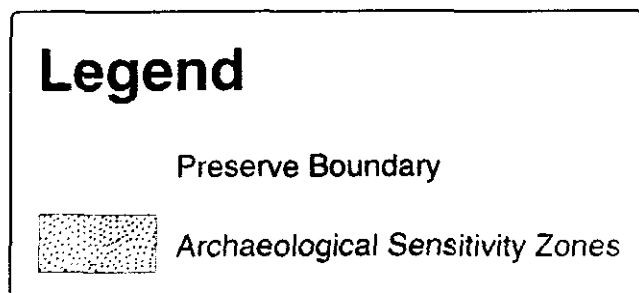
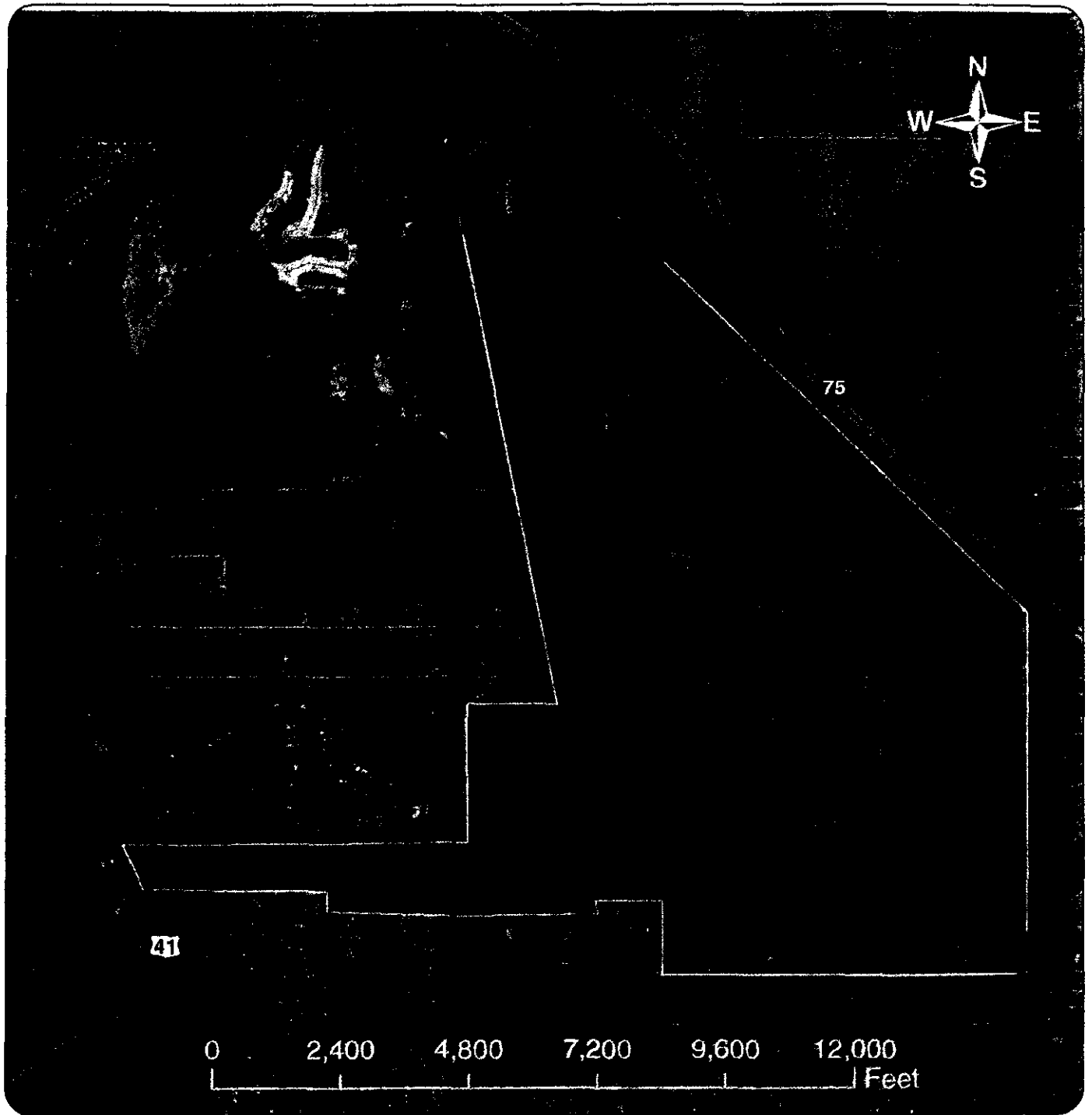
#### **a. Archeological**

In 1987, Piper Archaeological Research, Inc. conducted an archaeological site inventory of Lee County. They were able to identify 53 sites increasing the total number of known archaeological sites in Lee County to 204. They also created a site predictive model and archaeological sensitivity map for the county that highlighted potential areas likely to contain additional archaeological sites. There are four small areas within Prairie Pines Preserve that lie in the study's "Sensitivity Level 2" area (Figure 8). The study defines this level as "areas that contain known archaeological sites that have not been assessed for significance and/or conform to the site predictive model in such a way that there is a high likelihood that unrecorded sites of potential significance are present. If these areas are to be impacted, then they should be subjected to a cultural resource assessment survey by a qualified professional archaeologist in order to 1) determine the presence of any archaeological sites in the impact area and/or 2) assess the significance of these sites." (Austin 1987).

If there will be any soil disturbance during restoration to these three sites, a professional archaeologist will be hired to conduct a survey of the areas to be impacted. If evidence of shell middens or other artifacts are found in the area, the Division of Historical Resources will be immediately contacted and protection procedures will comply with the provision of Chapter 267, Florida Statutes, Sections 267.061 2(a) and (b). Collection of artifacts and/or any disturbance of the archaeological site will be prohibited unless prior authorization has been obtained from the Department of State, Division of Historical Resources. Also, the site will be managed in coordination with recommendations of the Division of Historical Resources and, if necessary, the site will be kept confidential with

periodic monitoring for impacts. If any significant archaeological resources are found and confidentiality is not found to be necessary, they will be incorporated into the public educational program.

Figure 8: Prairie Pines Preserve Archaeological Sensitivity



## b. Land Use History

Prior to being owned by Lee County, Prairie Pines Preserve, was known as the Little Ranches property, named for the company that owned it. According to aerial photography dating back to 1944 this property has succumbed to various agricultural activities starting with logging of slash pine, stumping for chemical extraction, row crop farming and most recently cattle grazing.

Intense logging of slash pine (*Pinus elliottii*) from the late nineteenth century until the 1930's virtually eliminated all virgin stands of the southern mixed forest in south Florida. Between 1970 and 1972 the stumps of the logged slash pines were removed from this property. This activity, referred to as stumping, was conducted to extract turpentine from the wood. Both of these activities have had impacts on the landscape at Prairie Pines. The former activity dramatically reduced slash pine densities throughout the Preserve according to the historical aerials (Figures 9-11). The latter activity has created numerous depressions in the soil, which primarily creates a microhabitat where soil moisture is higher for longer periods than adjacent habitat at grade. For this reason different plant species are likely to occur in these depressions.

Row crop farming, for watermelons (Baum, pers. comm.), on the Preserve took place from 1981 to approximately 1985 or 1986 according to historical aerials. There are two separate abandoned farm fields in the north and central portions of the Preserve. The northern, and smaller 121-acre farm field has been fallow since approximately 1984 and has since, through natural succession, recovered with slash pine, saw palmetto, laurel (*Quercus laurifolia*) and live oak, dwarf live oak (*Quercus minima*), wax myrtle (*Myrica cerifera*), shiny blueberry (*Vaccinium myrsinites*), St. John's wort (*Hypericum ssp.*), and numerous species of native grasses. Exotic vegetation does occur in this field but at a low density, less than 25% of all vegetation cover. The larger 181-acre, central farm field was abandoned approximately a year or so later than the former field. The vegetation that has and continues to regenerate within this field is similar to what occurs in the north field but it appears to be at a more recent successional stage than the latter. This field contains more open grassy areas.

In the mid to late 1990's Curtis Skates, a local cattle rancher began grazing cattle throughout this property. Mr. Skates installed fencing on the perimeter and interior of the property for grazing management purposes. Grazing continued for a year after the acquisition of site #134 upon which time land stewardship staff felt there were limited grazing opportunities on the Preserve due to the long hydroperiod and sensitivity of the numerous (47) herbaceous wetlands. Wetland 24 was heavily overgrazed in comparison to other herbaceous wetlands at the Preserve. Mr. Skates felt the Preserve was a problematic place to graze cattle and he removed his cattle in 2002.

Figure 9: Historical Aerial, 1944

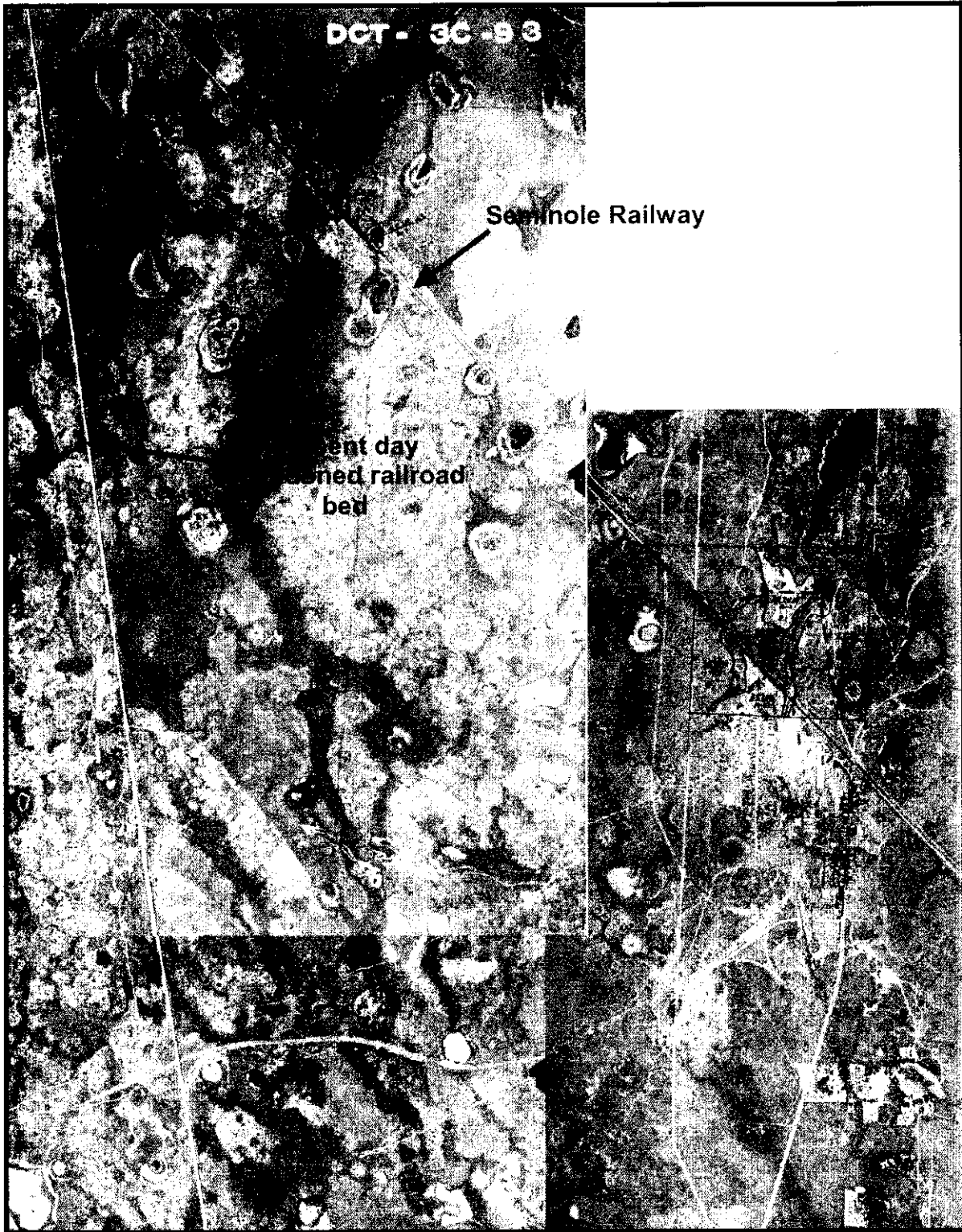


Figure 10: Historical Aerial, 1953

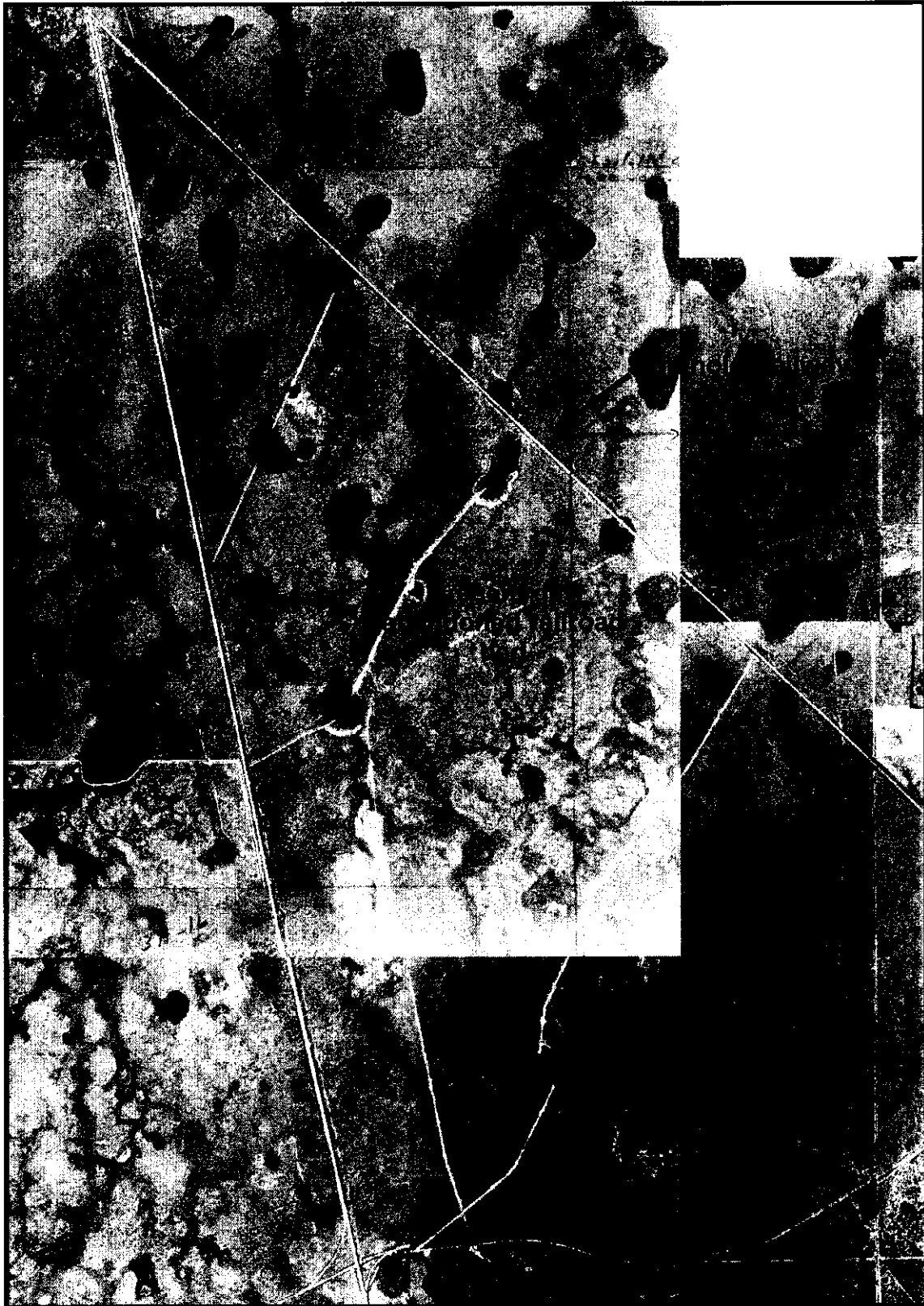


Figure 11: Historical Aerial, 1958





### c. Public Interest

Historically, the Preserve was used as a cattle ranch and agricultural farm. The private property was completely fenced from the public. The county purchased the 2,389-acre portion of the property in 2001 through the Conservation 20/20 Program, and is the largest acquisition so far in the Program. The 320-acre western arm of the Preserve was purchased in 2003. The public is very interested in using the property for appropriate passive recreation. Because of the many residents that have contacted staff about riding their horses on the Preserve, staff installed an equestrian entrance off Lost Lane (on the east boundary of the property) for local riders only at this time. Also, a parking area with truck and horse-trailer spaces provided will be constructed on the west side of the Preserve, off US41.

Staff has conducted several field trips with various community groups, to educate the public on the importance of conservation. One of the adjacent developments, Carefree Resort, has asked to help with any volunteer projects at the Preserve. They have shown interest in projects such as blazing trails, Bird Patrol, "Preserve Watch" and anything else that is needed. Coordination with this residential community, as well as others in the area, will be important to continue and if there is enough interest, a "Friends of Prairie Pines" group will be established.

## ***V. Factors Influencing Management***

### **A. Natural Trends and Disturbances**

Natural trends influencing stewardship at Prairie Pines Preserve include hurricanes, flooding, wildfire, and the pattern of wet and dry seasons. Construction of facilities will need to take into consideration the possibility of a tropical storm and flooding. A significant storm could damage the vegetation and it may be necessary to bring in heavy equipment to remove vegetation after a storm.

Wildfires caused by lightning are a natural occurrence in Florida. An agreement with the Florida Division of Forestry (DOF) and Lee County Parks and Recreation will be pursued on wildfire fighting protocol. In the case of a wildfire, DOF would be notified. The agreement with DOF should include the following stipulation: if the fire is in a melaleuca free unit, the fire will be maintained within the unit and the dozer will stand by until there is potential for the fire to escape that unit. Such an agreement will be important for the proper management and protection of the Preserve due to the potential damage firefighting dozers can cause to natural habitats. Land stewardship staff will follow-up on such an agreement with periodic site visits with DOF staff to familiarize them with the Preserve and the

Preserve's management goals. A preserve-wide prescribed fire plan will help keep the impact of wildfires down.

The pattern of wet and dry seasons will be most influential on exotic plant control projects to ensure that herbicide is not washed off during a typical summer thunderstorm. The Land Stewardship Operations Manual's exotic plant prescription form will be used to stipulate the conditions that the control will take place. Also, herbicides used will need to take into consideration flooding and submerged vegetation. Heavy equipment will only be able to access most areas of the Preserve during the dry season. The timing of prescribed burning will also be influenced by seasonal rain and wind patterns.

When any public use facilities are constructed, there will be some disturbance to the habitat. Necessary precautions will be taken to minimize damage to the environment, particularly when using heavy equipment.

## **B. Internal Influences**

There are a variety of human influences that impact Prairie Pines Preserve from within. Ditches have been dug for drainage. Berms were created for the agricultural fields. Fencing and cattle pens were installed for the livestock that grazed on the property. In the past, area residents had become accustomed to a lack of enforcement of County regulations such as no motorized vehicles, no littering, and no hunting. The following section will help to explain these issues further and specify stewardship measures to reduce or eliminate these problems.

Several ditches were dug throughout the Preserve. The ditches in the northern half of the Preserve were dug specifically to drain agricultural fields onsite and off. These ditches will be plugged in certain areas to slow down the water flow out of the Preserve. The berms associated with ditch construction will be breached to allow for natural sheet flow.

When Del Prado Extension was built in 2000 water flow was likely interrupted to a certain extent. In the summer of 2001 heavy rain events caused water to back up onto PPP and flood the neighborhood off of Matt Road to the east. The South Florida Water Management District issued an emergency operations permit allowing Lee County to construct a levy to alleviate the flooding problem. The levy was constructed with soil from on-site to reduce costs and therefore created an adjacent ditch, dug down to the cap rock in most places, the entire length of the levy. The levy runs 8035 feet from the southern boundary of the Preserve along side of Unit 19 and turns to the eastern boundary and then straight north to I-75. It is suspected that the ditching has changed the hydrology of the Preserve. Spoil piles were left along the west side of the ditch and now invasive exotic vegetation is growing on them. This can be controlled by foliar spray with an appropriate herbicide mixture every six months. Some of the piles themselves will be left in place for wildlife shelter and others will be burned. A mitigation plan

is being developed by Boylan Environmental, Inc., that will propose wetland creation and enhancements to the levy/ditch. It is the intent of the Lee County Public Works Department to work with the land stewardship staff to implement the mitigation as required by ERP permit conditions for the Lost Lane Levy construction and or other projects.

The old farm road, which was installed by the farmer, is breached in several areas to allow sheet flow to continue across the road. These cuts were put in at the same time as the levy, the idea being that less water would be "impounded" to the east of this farm road. The road runs from the southeast boundary up through the middle of the Preserve in a northwest direction. There are ditches on both sides of the road in some areas and para grass has invaded portions of the ditches and it will be treated with herbicide.

Past practices included building a berm around the agricultural fields for drainage so that crops could be grown. According to historical aerials, the field in Unit 3 was farmed beginning in 1983 for only one or two growing seasons and the vegetation has been allowed to recover on its own. There are still old furrows in the regenerating mesic pine flatwoods habitat. The second agricultural field is in Unit 6, this was used for growing watermelons from approximately 1982 until 1990. This field was also drained and bermed, but has not had enough time to recover and exotics such as Brazilian pepper and melaleuca have invaded. The management restoration strategies for this area will be removal of the exotic plants, breaching the berm and plugging the ditches and conducting periodic prescribed burns.

The Preserve was also used for cattle grazing. There are several old cattle pens, a feeder and fencing that will be removed. Two man-made cattle drinking wells will be left in place. The interior barbed wire fencing and gates resulting from cattle grazing activity will be removed.

### **C. External Influences**

The size and irregular shape of PPP's boundary make it challenging to succinctly describe the various external influences. For this reason, this section will start by taking a geographical approach, beginning at the furthest north portion lying adjacent to Charlotte County and continuing clockwise to the east, south and west. See Appendix D: Surrounding Neighborhoods and Roads for specific locations referred to in this section.

The northern boundary, along the Lee/Charlotte County line, is currently not fenced and transitions from thick mesic flatwoods on the northwest, through a depressional marsh and ending in a melaleuca monoculture at the northeast corner. Regular vehicular access into the Preserve at this location is occurring and it will be critical to install fencing to stop this unauthorized use that is not compatible with the restoration and protection of the Preserve. See Public

Access and Passive Recreation section for an explanation of the negative impacts of ORVs on wetland habitats.

Continuing clockwise to the northeast boundary, PPP is bordered by an active railroad track. Currently there are numerous fence breaks scattered along this section through which ORV users access the Preserve. Although staff has repaired the fence in the past, and will continue to monitor and repair future breaks, this will likely not be a permanent solution. Staff will contact officials at Seminole Gulf Railway, to discuss possible barriers that could be installed adjacent to the tracks if continued breaks and vandalism is a problem. Another possible influence from the railroad tracks is the sparks from the trains that have been known to start wildfires in flatwoods adjacent to the tracks, further to the north of the Preserve. Fortunately, wet flatwoods border the majority of this portion of PPP. It will still be critical to initiate either prescribed fire regimes or mechanical fuel reduction to minimize the possibility of a catastrophic wildfire.

The eastern perimeter contains low density, residential development on both Matt Road and Lost Lane. The proximity of the neighborhood seems to greatly reduce the amount of destruction of the boundary fence. There is one historical opening, at the north end of Lost Lane that has been broken into several times. Staff installed permanent metal and concrete barriers installed that will still allow hikers access while preventing vehicles. Additionally, some of the neighbors in this area keep an eye on the Preserve and contact staff with problems they observe. Staff is working with the Lee County Sheriff's Office with the goal of catching and prosecuting some of the trespassers.

Residential communities across Del Prado Extension are adjacent to most of the south portion of the Preserve, as well as the north boundary of the west arm. The majority of the Preserve boundary in these areas is either fenced or has rocks and concrete culvert sections that reduce the vehicular access and dumping problems. Protecting the boundaries from dumping, hunting and vehicular access will continue to be a challenge in this area as well. Creating good relationships with the 3 residential communities directly adjacent to the arm will need to be established to help staff monitor for these problems. The residential community adjacent to the north boundary, Pine Shadows Air Park, has an airstrip for residents. It will be important to make visitors, especially equestrians, aware that planes could be taking off or landing near the public access point to the Preserve. There are two areas along this boundary line that allow residents vehicular access into the Preserve. They will need to be modified with a locked gate and walkthrough. Future residential development is likely to occur farther north with the expansion of Heron's Glen. Like the other residential areas, this expansion could provide both increased knowledge of vehicular trespassers or other negative impacts, as well as increase in the threats of dumping, particularly horticultural dumping.

There are approximately 250 acres of vacant land south of Nalle Grade Extension and adjacent to the west boundary of PPP with 4 separate owners. Two of these have been nominated to the C20/20 program. This area could potentially be another excellent access point for visitors to the preserve if they are purchased by Lee County. If they are not, staff may eventually want to pursue a partnership with the landowners for exotic plant removal. Nalle Grade Extension is another potential access area for dumping and vehicular access problems to the Preserve.

This area includes a portion of Gator Slough, which Lee County Division of Natural Resources has purchased and is working to restore. The headwaters of Gator Slough is located in the Babcock-Webb Wildlife Management Area in Charlotte County and the water flows southwest to Matlacha Pass Aquatic Preserve. The restoration goals are to reduce the excessive flooding to the more northern portions of the watershed while slowing the flow of fresh water before reaching Matlacha Pass Aquatic Preserve. This work will provide both mitigation and restoration opportunities for PPP.

The final boundary influence is the abandoned railroad grade, now owned by Lee County and managed by the Division of Utilities, that borders the west side of most of the Preserve and divides the two separate acquisitions, #134 and #194, near the southern end of the Preserve. During the spring of 2003, a water main was installed along this grade, turning west at Nalle Grade Extension. While this work was done, the Division of Natural Resources cleaned out the ditch on the east side of the berm as well as removed several discarded tire mounds. This work has made it very difficult for any vehicles to enter the Preserve from this boundary. They also placed large concrete structures where the berm connects with Del Prado Extension, also preventing vehicular access. North of Nalle Grade Extension the berm is still accessible and staff will work with the Utilities Division to see if it would be feasible to block the northern end of the berm with similar concrete barriers. Parks and Recreation staff also needs to partner with Utilities to provide horseback riders and hikers access to the berm for approximately ½ mile in length, creating a figure-8 trail system that would give users access to both the western and eastern portions of the Preserve.

An additional external influence is the strong interest in the community for the Preserve to provide equestrian trails with adequate parking for horse trailers. The Preserve already has miles of trails that were developed when the property was used for agriculture and staff feels that, with volunteer support from the horseback riders for establishing, marking and maintaining trails, this recreational use can be compatible with restoration and conservation goals for the Preserve. For more information, please refer to the Public Access and Passive Recreation section of this Plan.

A final external influence is the possibility of Nalle Grade Extension being extended through the Preserve and/or another road created that will be

connected to a new Interstate 75 interchange (Figure 12). When the original portion of the Preserve (site #134) was nominated, the possibility of a corridor study and interchange was revealed by the Lee County Department of Transportation. When the parcel was acquired, Lee County already owned an easement from Nalle Grade Extension on the east to the Interstate on the west where the road would be constructed.

Roadways can have a detrimental affect on wildlife. Some examples are direct habitat loss from road location, fragmentation of habitat, alteration of behavior by wildlife avoiding roads and surrounding lands. Road mortality is the number one cause of death to wildlife by humans in the US. Roads have a particularly significant impact on large carnivores with low reproductive rates, low population densities and large home ranges, such as black bears and Florida panthers. Quite often, roads and highways cut through their home range, fragmenting prime habitat and creating hazardous obstacles for migrating carnivores (American Wildlands, 2002).

As plans for this road develop, it will be critical for staff to play a proactive part in the planning process. The potential for the road to interrupt the natural water flow, create a dangerous hazard for wildlife and cut off a significant portion of the Preserve for public enjoyment will need to be recognized and the impacts of the road minimized. In the case that the interchange and road must bisect the Preserve, our Department will request an overpass of reasonable length to mitigate for the impacts



## **D. Legal Obligations and Constraints**

### **a. Permitting**

Land stewardship activities at Prairie Pines Preserve may involve obtaining permits from appropriate agencies. Examples include permits from the Florida Division of Forestry for prescribed burning, environmental resource permits from environmental regulatory agencies for using heavy equipment in wetlands to remove exotic vegetation and construction of any amenities for public recreation. Mitigation projects for Gator Slough improvements and construction of the onsite levy are likely to take place at PPP. These projects will go through the required permitting process, which will be coordinated through Lee County's Department of Transportation and/or Division of Natural Resources. Permits will be obtained in all cases where they are required.

The Lee County Division of Natural Resources is in the process of planning improvements to the Gator Slough Water Management System, which are proposed to be mitigated on the Preserve. The permits they receive for these improvements will require a 5-year monitoring program for the mitigation project. Land stewardship staff will assist and coordinate with Natural Resources during the implementation of the mitigation and monitoring projects.

### **b. Relationship to Other Plans**

The Lee Plan, Lee County's comprehensive plan, is designed to depict Lee County as it will appear in the year 2020. Several themes have been identified as having "great importance as Lee County approaches the planning horizon". (Lee County, 2003).

- The growth patterns of the County will continue to be dictated by the Future Land Use map.
- The continued protection of the County's natural resource base.
- The diversification of the County's traditional economic base.
- The expansion of cultural, educational and recreational opportunities.
- A significant expansion in the County's physical and social infrastructure.

The entire Lee Plan can be found on the Internet at: <http://www.lee-county.com/dcd1/Leeplan/Leeplan.pdf>. The two chapters that affect the management of PPP are Chapter V – Parks, Recreation and Open Space and Chapter VII – Conservation and Coastal Management.

Under Chapter V, land stewardship staff will ensure that any public use facilities and recreational opportunities will comply with Goal 60: Park Planning and



Design, which requires that parks are planned, designed and constructed to comply with the best professional standards of design, landscaping, planning and environmental concern. Staff will also work to provide, whenever staffing and funding permit, appropriate environmental programs to the public in order to meet Goal 61: Environmental and Historic Programs.

Under Chapter VII, Objective 74.1: ENVIRONMENTALLY CRITICAL AREAS, Land Stewardship Staff has the responsibility of managing the environmentally critical areas found at PPP, such as the wetlands, pine flatwoods and live oak hammocks, to conserve and enhance their natural functions.

Under Chapter VII, Objective 77.1, Policy 77.1.1, Section 4e RESOURCE MANAGEMENT PLAN, this management plan was written for the "long term maintenance and enhancement of the Preserve's health and environmental integrity. The management plan will address any necessary people management (e.g., fences and signage to prevent incompatible uses such as off road vehicle use and hunting); surface water management and restoration; ecosystems restoration; litter control; fire management; invasive exotic plant and animal control; and, where appropriate compatible recreational use facilities. The plan will also address how maintenance will be funded." (Lee County, 2003).

Under Chapter VII, Objective 77.3, Policy 77.3.1 WILDLIFE, land stewardship staff is directed to preserve uplands in and around preserved wetlands to provide habitat diversity, enhance edge effect and promote wildlife conservation. Redirecting current trails that often circle or bisect wetlands, initiating a prescribed fire regime and removing invasive exotics will all follow this policy.

Under Chapter VII, Objective 77.9 RED-COCKADED WOODPECKER, staff will look carefully for red-cockaded woodpeckers, which have been sighted near the Preserve as well as heard calling on the Preserve (Ceilley per. comm.), during site inspections. A concentrated effort to locate cavity trees in suitable portions of the Preserve is being conducted in 2004. If these birds are confirmed utilizing the Preserve for nesting, staff will coordinate with U.S. Fish and Wildlife Service and Florida Fish and Wildlife Conservation Commission for guidance in initiating the best management practices for this endangered species.

Under Chapter VII, Objective 77.10, Policy 77.10.1 and 77.10.2 WOOD STORK, land stewardship staff will continue to document wood stork utilization of the Preserve and ensure that this management plan follows USFWS's "Habitat Management Guidelines for the Wood Stork in the Southeast Region".

## **E. Management Constraints**

The main management constraints for this Preserve are limited funding, the brief dry season, conflicts with public use and the potential for flooding. Prairie Pines has received a grant from Florida Communities Trust to reimburse half of the cost of acquisition for the arm of the Preserve. These funds will be used to help with the design and construction of public use facilities as well as with restoration activities. Efforts to obtain additional funding through grants and other sources will continue.

Prairie Pines is very wet most of the year; February through April are typically the driest months. Most restoration efforts will be limited to these months. If access is necessary for management when water levels are high, low-impact vehicles, such as ATVs, will be used.

Prescribed burning will be a vital tool in the management at Prairie Pines. The arm of the Preserve will present the most challenges because of the urban interface. It is bordered by developments to the north and south and US41 to the west. Mechanical work will be done in the arm to reduce fuel loads before burning is ever considered.

When restoration activities are in progress that could be dangerous to visitors, signs will be installed at the entrance and on the trail near the management activity to warn the public that the area is temporarily closed.

Coordination with other agencies and adjacent landowners will also be an important part of managing the Preserve. There is a possibility that parcels adjacent to the Preserve could be purchased by the Conservation 20/20 program and added to the boundary.

Coordination with other County departments that may conduct mitigation projects at the Preserve will be vital to ensure the projects adhere to the Management Action Plan of this Land Stewardship Plan.

## **F. Public Access and Passive Recreation**

Historically, there has been minimal recreational activity at Prairie Pines Preserve beyond neighborhood trail riding. The Preserve was utilized for both row crops and cattle ranching and the associated fencing prevented the general public from entering. Since Lee County has purchased the Preserve, evidence of both hunting and ORV use has been documented. The Parks and Recreation Ordinance, 02-12 (<http://www.lee-county.com/ordinances/PDF/2002/02-12.pdf>) prohibits both of these activities. Land stewardship staff is researching the possibility of partnering with FWC to conduct an occasional feral hog hunt, while closing the Preserve to all other public uses, during such special hunting events.

With that possible exception, any other hunting activities would not be compatible with the protection of the Preserve or to the safety of its visitors.

ORVs are not only prohibited by Ordinance 02-12, and the Conservation Lands Program Ordinance, 96-12 (<http://www.lee-county.com/ordinances/PDF/1996/96-12.pdf>), they are also extremely destructive to the sensitive habitats found at PPP, especially the wetlands. Several of the depressional marshes and portions of the wet flatwoods communities show the negative effects of this activity. The tracks left from vehicles can even be seen in the 2002 aerial photographs of the Preserve. ORV traffic can impact the wetland communities in a number of different ways. The plants growing in these areas typically do not tolerate a large amount of soil disturbance and rapidly decline. Subsequently fire, which would normally carry through these plants, preventing shrubs from growing further into the wetland, is stopped. The turbidity in the water affects the phytoplankton at the base of the food chain and alters pond fauna. Additionally, the sedimentation degrades the fish habitat and causes a number of negative impacts including reduced reproductive success, gill damage and an impeded ability to detect prey. Amphibian larvae experience these same negative effects and their adult counterparts lose the edge habitats they often depend on for breeding purposes. Finally, the reduction of fish and amphibian species affect the numerous waterbirds and mammals that depend on these aquatic animals in their natural diets. (Defenders, 2002).

More recently, the Preserve has been used by Land Stewardship staff for occasional small group field trips and has provided two access points for hikers and equestrians. Currently there is no parking area, so visitors are primarily local residents that are able to walk or ride to these entrances. As this Land Stewardship Plan is implemented, marked trails will be established and recreational opportunities will be expanded. Some of the current trails will need to be closed permanently, seasonally or occasionally during certain restoration activities. Communication between equestrian groups, and others utilizing the Preserve, will be essential. A message center and/or web page will be established that will let potential visitors know exactly what is open, so they do not take the time to come out, only to learn that few of the trails are closed due to flooding, prescribed fires or other potentially hazardous management activities.

PPP's size and rural location make it an ideal location to allow additional recreational activities beyond the hiking, bird watching, nature photography and nature study that are allowed at all Conservation 20/20 Preserves. Other recreational activities that staff is considering allowing at PPP include horseback riding, on-leash dog walking, llama trekking and bicycle riding. These activities were all selected because of the strong public interest in PPP providing these recreational opportunities.

Llama and on-leash dog walking are both activities that are not traditionally permitted in Lee County Parks and Preserves. In the case of llamas, research

conducted by USDA, the Aldo Leopold Wilderness Research Institute and several graduate students all show that the impact of llamas on both soils and vegetation is comparable to that of a hiker, due to their relatively light weight and padded, leathery feet (Cole, 1998) (International, 1997) (Schantz, 1997) (Watson, 1998).

A concern staff researched was the possibility of either llamas or horses spreading exotic seeds in their manure while on the trails at PPP. The digestive systems of both of these animals are different from a cow's digestive tract. Horses have a single stomach followed by a caecum (a specialized pouch for fermentation of ingested nutrients). A llama has 3 compartments instead of 4, as in a cow. Additionally, food is retained in the digestive tracts of these animals longer than cows. Scientific literature searches by staff did not discover any research specifically on llama manure, and very little on horse manure. Mary C. Benninger's 1989 master's thesis on how plant species are spread along trails found no documentation of manure being a major source of exotic species (1989). There was a study conducted in the 1930's that discovered that weed seeds were destroyed more thoroughly in chicken, sheep and horse digestive tracts as compared to calves and hogs (Harmon, 1934). In a paper on seed dispersal by herbivores, the researcher found that the majority of seeds are dispersed by gravity, wind, surface water management, soil erosion, birds, ants, dung beetles and rodents (Janzen, 1984). Finally, at Lee County's Caloosahatchee Regional Park, where equestrians have been present for at least 10 years, staff has not seen evidence of invasive exotic plants sprouting from horse manure. Staff will monitor the trails for new invasive exotics and may reevaluate the public use if they are becoming a problem due to a specific use. To help cut down on the transfer of invasive exotic plant seeds in horses hooves, an area to spray down horses will be provided and may be a requirement before using the trails at PPP.

Land stewardship staff has been researching the possibility of allowing on-leash dog walking on the western arm of the Preserve. There are several criteria which staff has determined would NOT make on-leash dog walking compatible with the protection of the natural resources including preserves that:

- ✓ Have a large population of waterbirds or shorebirds
- ✓ Have large herpetofauna populations
- ✓ Have active gopher tortoise colonies
- ✓ Consist mainly of wetlands
- ✓ Have minimal staff or no volunteer presence
- ✓ Are adjacent to public lands that do not allow dogs

Although the larger portion of the Preserve meets most of these criteria, the western arm has only 3 wetlands that could easily be avoided and the 300+ acres would be large enough to provide ample dog-walking opportunities. Dog

owners will be required to pick up and pack out their dog droppings, keeping their dogs leashed and staying on the trails within the western arm.

A final recreational activity, off-road bicycle riding, showed strong public support during the public meeting phase of the PPP Stewardship Plan. The Preserve is very wet and sandy for most of the year, but Land Stewardship staff is willing to work with the local mountain biking group, the Mud-Cutters, and other interested volunteers to develop some trails for biking at the Preserve. As portions of the Preserve are restored, there may be opportunities to add an additional trail(s) for bikers. Since this is a "Preserve" and not a "Park", the trails established will be constructed after conducting a thorough survey for listed plants and animals. Efforts will be made to concentrate the bike trails in a portion of the preserve, to allow for areas where wildlife will be less disturbed by the public utilizing the preserve.

This will be the first C20/20 preserve to allow a wide variety of public uses. For this reason, each of the uses will be allowed for a 1-year trial period. After that time, if the visitors follow the rules and any negative impacts to the Preserve can be altered with slight changes, the recreational activity will be considered permanent. If any uses are found to interfere with wildlife habitat protection or management they will be modified or, if a compromise cannot be found, terminated. Additionally, periodic evaluations will continue to occur in the form of a yearly meeting between the different user groups and a liaison from the Conservation 20/20 program. This meeting will evaluate how things are running. Are the user groups happy? Have there been any re-occurring problems? Are there management concerns from Conservation 20/20 staff? Are there other things that the groups and/or County staff could provide? If there are problems, how can we solve them?

The other requirement for allowing the more intense recreational activities is that a volunteer or "friends" group would have to adopt that portion of the Preserve. These volunteer groups will be responsible for:

- ✓ Helping to plan and mark trail system.
- ✓ Help to establish the rules for visitors to the Preserve and how best to react when one type of user group encounters another.
- ✓ Periodic maintenance on trails to pick up trash and trim branches (the frequency will be determined with the user group and the C20/20 liaison).
- ✓ Help to promote the park.
- ✓ Help to ensure that visitors comply with the rules.
- ✓ Keep an eye out & report problems with ORVs, fence cutting, etc.

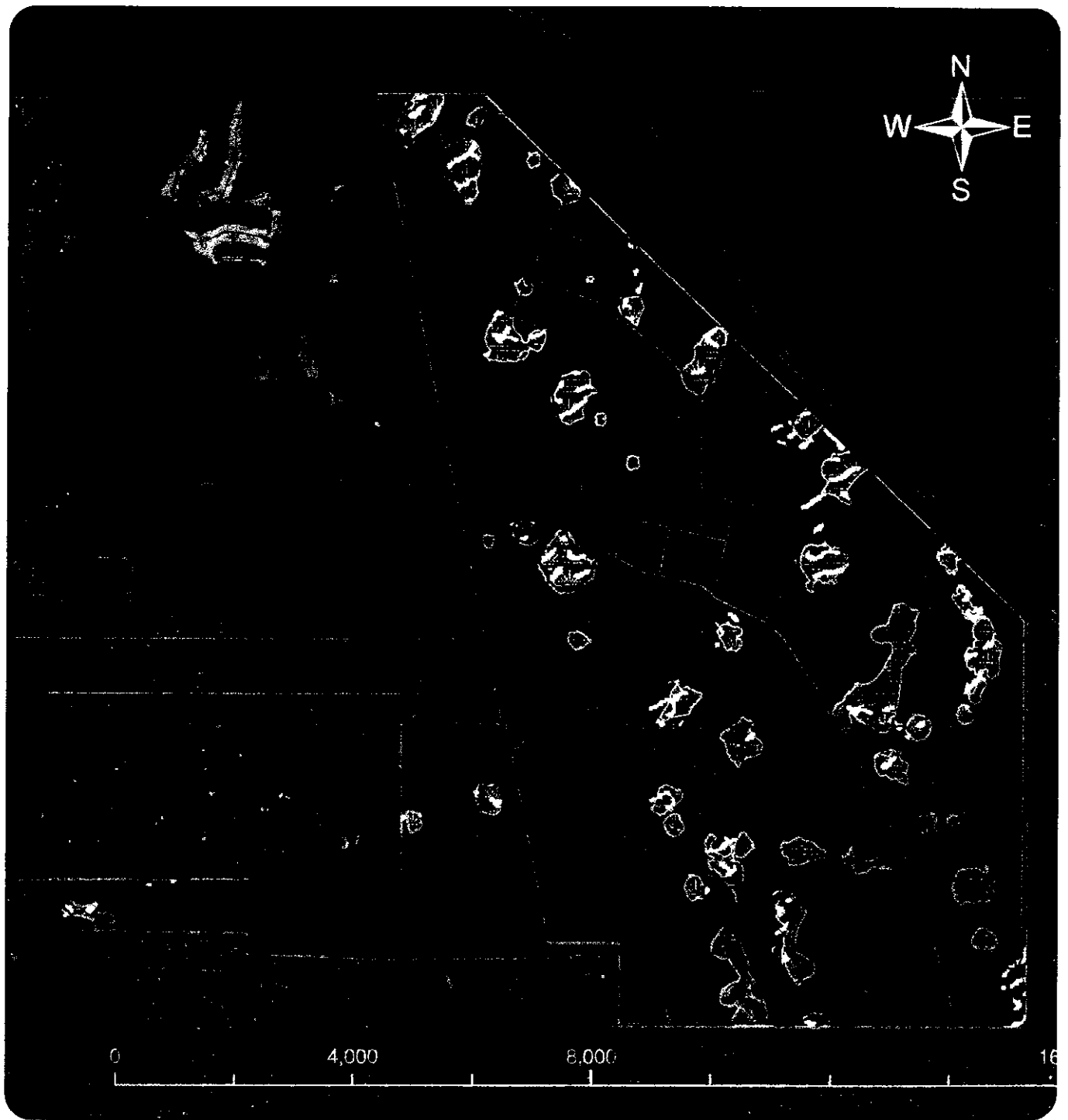
Currently, there are approximately 40 miles of roads and trails in the Preserve. A number of these travel around, or cut through, sensitive wetland areas. Figure 13 highlights the portions of trails that will need to be removed. In some cases, new trails will be created to allow both visitors and staff to travel throughout the

Preserve while minimizing impacts to sensitive areas. Some trails will likely be completely removed.

Public use facilities at PPP will be concentrated at the extreme west end, where it borders U.S. 41. An unpaved parking area, large enough to accommodate up to 24 horse trailers and 20 cars, will be constructed. This area will also have picnic tables, shelters, composting toilets, water source for horses and people and wildlife proof trash receptacles. Since the trail leading out from the parking area will be very heavily utilized, the surface will be constructed with crushed shell, 8 feet wide for at least ¼ mile, until the habitat allows the trail system to branch into more than one segment. Another trail amenity will be the construction of a bridge or other crossing that will allow hikers and equestrians to cross from the arm, over a drainage canal, to the main Preserve. This area is typically flooded, and requires crossing an elevated berm, so both water flow and erosion will be of primary concern. Wildlife blinds/overlooks will be constructed for at least two wetlands (24 and 43), which will allow visitors to get a better view of the wildlife while minimizing the disturbance to both the animals and sensitive soils. Figure 14 shows the recreational amenities for PPP. Staff will attempt to provide for the needs of the public, keeping in consideration the lack of daily staff to protect and maintain public use amenities.

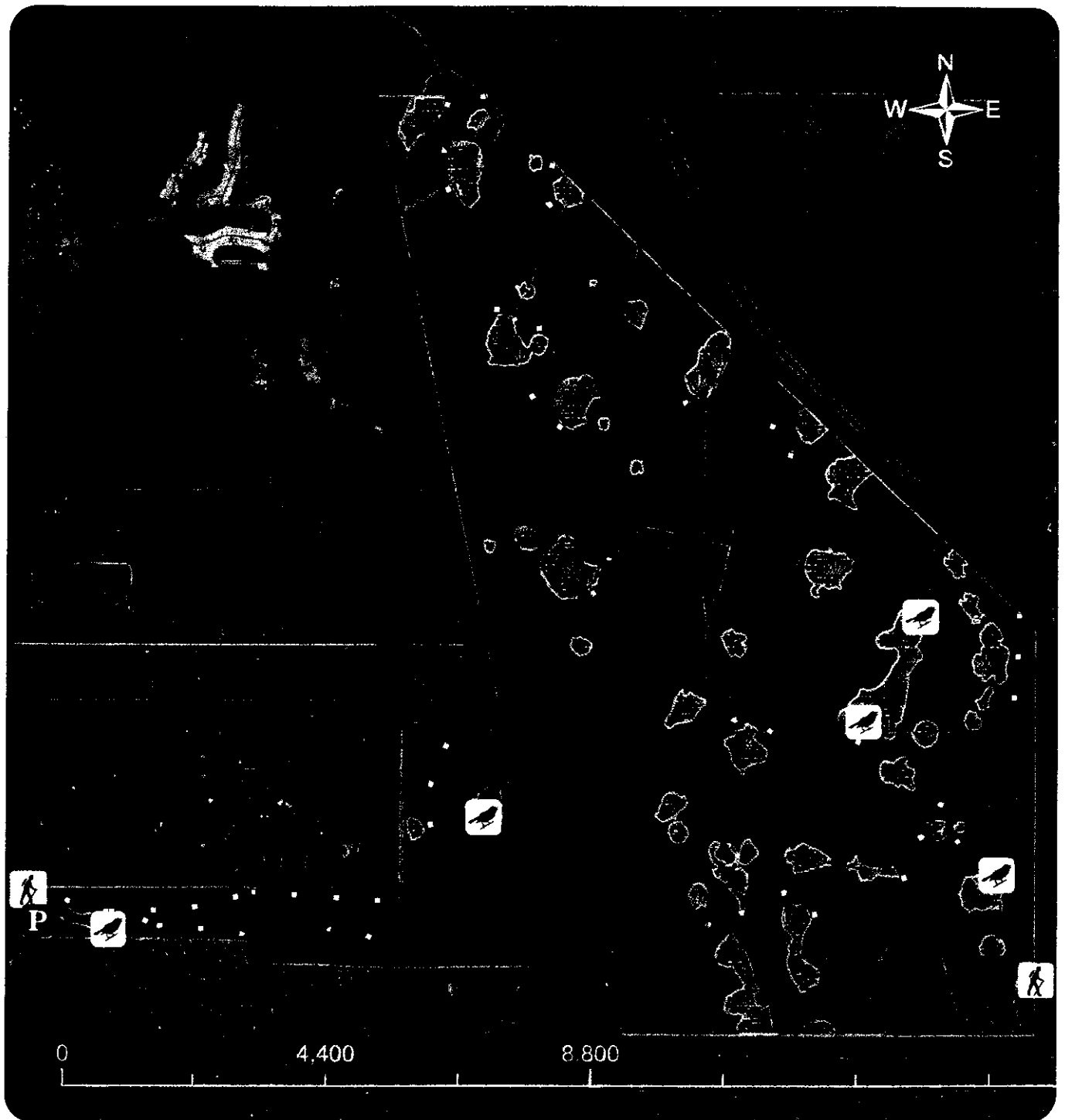
In addition to trail marker signs mentioned above, habitat restoration signs will be posted to educate visitors about land stewardship activities when they occur and an entrance kiosk that introduces visitors to Prairie Pines Preserve and alerts them to the different public uses and how to best react when encountering visitors on horseback, bicycle or leading an animal. As finances and staff allow, other interpretive panels will be constructed and environmental education programs will be developed.

Figure 13: Current Trails at Prairie Pines Preserve



Legend	
—	Preserve Boundary
—	Trails in Sensitive Areas
- - -	Other Existing Trails
■	Wetlands
■	Boca Fine Sand
■	Felda Fine Sand, Depressional
■	Isles Fine Sand, Depressional
■	Malabar Fine Sand, Depressional
■	Pineda Fine Sand, Depressional

Figure 14: Proposed Recreational Trails and Amenities at Prairie Pines Preserve



Legend		Trails	
Preserve Boundary	—	Keep (23.75 miles)	Bird Viewing Area
Wetlands	▬	New (5 miles)	Access Point
<b>P</b> Parking Area	⋯	Closed (17.25 miles)	Bridge



## **G. Acquisition**

Currently, Prairie Pines Preserve consists of 2 separate nominations purchased through Lee County's Conservation 20/20 Program. The first, nomination #134, consists of 2389 acres and was first nominated to the Program by Ft. Myers Little Ranches Company in November 1999. The property was purchased at the end of April 2001 for \$6,350,000. An additional 23 acres to the north of this nomination was included in the original nomination. However, the property is in Charlotte County and Lee County was unable to purchase the land and it is still in private ownership. Efforts were made to donate this portion of the original nomination, but failed. The second 320-acre nomination, #194, was also previously owned by Ft. Myers Little Ranches Company, and purchased for \$5,440,530 in April, 2003 after being nominated to the program 2 years earlier. The future land use codes both portions of the Preserve have been changed to "Conservation Lands". Currently, site #194's zoning is still "Mobile Home Development". Staff will work with the Division of Planning to change this category to "Environmentally Critical".

Three other properties have been nominated close to PPP. In December 2000 site #180, consisting of 109 acres and located northeast of the Preserve, between the active railroad tracks and Interstate 75, was nominated to the program. Four months later, the Conservation Lands Acquisition and Stewardship Advisory Committee (CLASAC) decided not to forward the parcel to secondary review because of its low score in the initial review and the lack of access. Nomination #233, 146 acres, is adjacent to the Preserve on the west/central boundary and is currently under active negotiation. A final 15-acre nomination, #238, was submitted to the program in February 2003. In May of the same year, it was decided not to pursue this small parcel for acquisition until #233 was purchased and an 82-acre parcel that lies between 233 and 238 could also be acquired. In April 2003, a letter was sent to Mr. Malt, who owns that parcel to see if he was interested in nominating it to the Conservation 20/20 Program. As of now, Mr. Malt is not a willing seller.

There is additional undeveloped land in the vicinity of PPP that would be beneficial to pursue for acquisition. On the east side of I-75 there is approximately 649 acres of land designated on the Future Land Use Map as open lands. To the north of nominations 233 and 238, there is approximately 573 acres bordered by US 41 to the west, Heron's Glen Development to the north, Prairie Pines to the east and Nalle Grade Extension to the south. Of that, 329 acres is owned by the same company as Heron's Glen, the majority of which was purchased in late 2003 and early 2004. The other 244 acres is owned by 3 different individuals and/or companies. If #238 is acquired, these additional properties would become adjacent parcels to the Preserve and may be worth pursuing. Future Land Use for these parcels is "suburban". All of these properties fall under the zoning category "Agriculture". See Appendices F & G for locations of nominations, Future Land Use and Zoning boundaries.

## **VI. Management Action Plan**

Prairie Pines Preserve has been divided into 19 management units to better organize and achieve management goals. Figure 15 delineates the units that were created based on existing trails and habitat types.

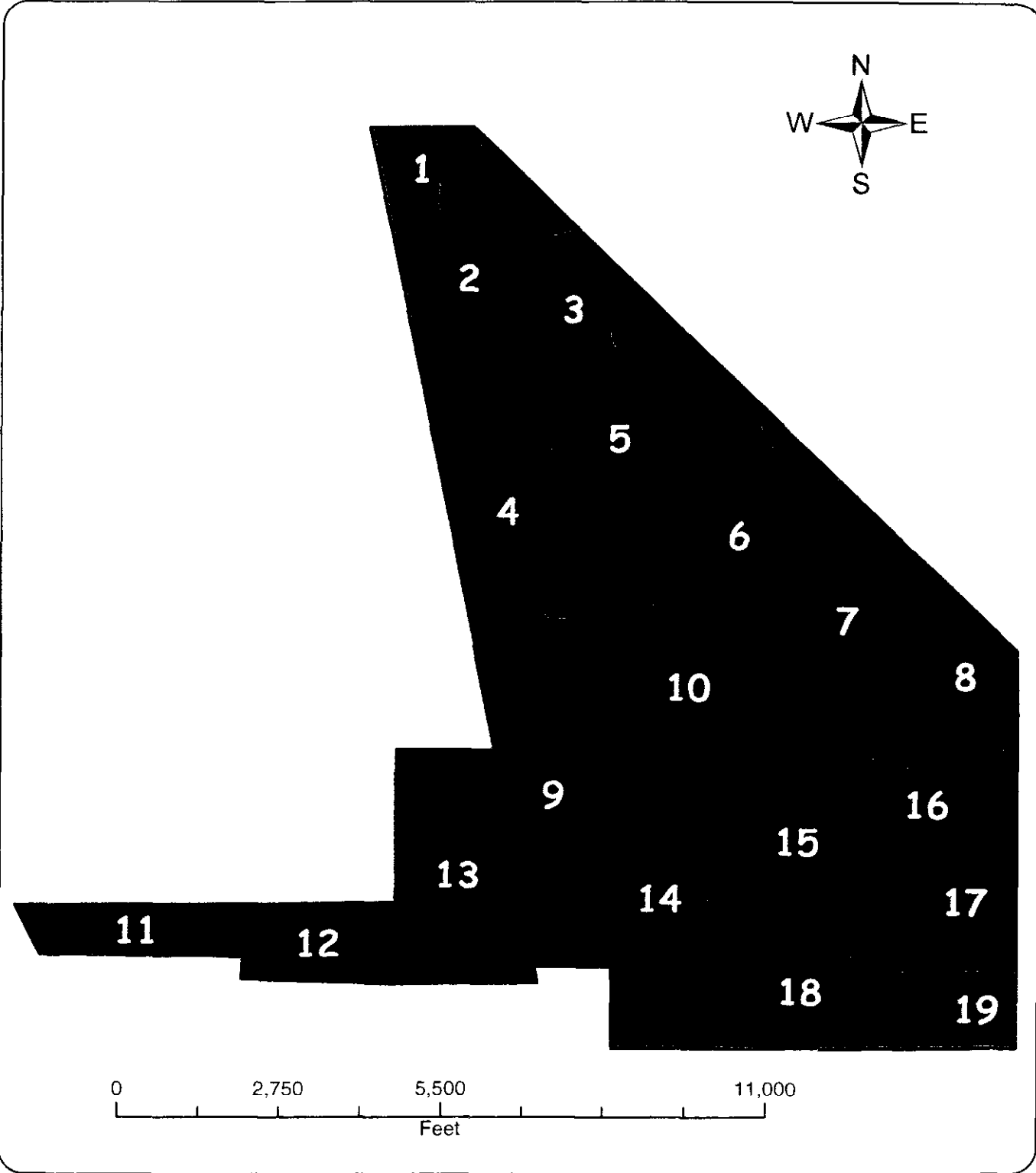
- Management Unit 1 (50 acres) is located on the Lee/Charlotte County boundary, with the active railroad tracks on the east, the old railroad grade to the west and a heavily used trail to the south. This Unit contains wetlands 1 & 2.
- Management Unit 2 (189 acres) is south of Unit 1, with the same east and west boundary features. The southern boundary consists of a drainage ditch, wetlands 5 & 7 and a well used trail to the south. Unit 2 contains wetlands 3-7.
- Management Unit 3 (77 acres) was formerly an agricultural area and contains wetland 12.
- Management Unit 4 (184 acres) is located south of Unit 2, with the abandoned railroad grade on the west, the main north/south access road on the east and wetland 17 and drainage ditch to the south. It also contains wetlands 16 and 18.
- Management Unit 5 (214 acres) is bordered by Units 3 to the north, 4 to the west, 6 to the south and east and the active railroad tracks on the northeast. It contains wetlands 8-11 and 15.
- Management Unit 6 (167 acres) is another fallow agricultural field.
- Management Unit 7 (243 acres) is bordered by Unit 6, the railroad tracks, the main north/south road and a less utilized road to the south of wetlands 24 and 25. This Unit also contains wetlands 13, 14 and 23.
- Management Unit 8 (91 acres) lies directly east of Unit 7. The remaining borders consist of the railroad tracks on the northeast, the levy on the east and an access trail on the south. Wetlands 26-29 and 35 are all within this Unit.
- Management Unit 9 (229 acres) lies to the south of Unit 4 with the old grade on the west, the property boundary to the south and a large trail to the east. Wetland 19 is found within this Unit.
- Management Unit 10 (181 acres) is surrounded by Units 9, 6 and 7. A trail borders the Unit to the south. Wetlands 20 and 22 are contained within this Unit.
- Management Unit 11 (73 acres) is in the western "arm" of the Preserve. It is bordered by US 41 on the west, Carefree Community to the south, Pine Shadows Airpark to the north and a trail on the east boundary. Wetland 46 is within this Unit.

- Management Unit 12 (76 acres), also in the western “arm” has the Airpark directly north, main trails for the east and west boundaries and the Heritage residential community to the south.
- Management Unit 13 (189 acres) is the remaining Unit in the “arm” of PPP. It is bordered by Unit 12, the Preserve boundaries on the north and south, and the abandoned railroad bed to the east. Wetlands 45 and 47 are both found within this Unit.
- Management Unit 14 (153 acres) is bordered by Units 9 and 10, the water treatment plant and Del Prado Extension and a main trail on the east. Wetlands 30, 31 and 39 are all in this Unit.
- Management Unit 15 (225 acres) is east of Unit 14, south of Unit 10, has the main north/south road as the east boundary and another main trail as the south boundary. Wetlands 21, 38, 40 and 41 are all within this Unit.
- Management Unit 16 (90 acres) boundaries are defined by Units 7 and 8 on the north, the levy on the east, the north/south main road on the west and another main trail on the south. Wetlands 32-34 are all found within this Unit.
- Management Unit 17 (105 acres) is bordered by the levy on the south and east, the main north/south road on the west and Unit 16 to the north. This Unit contains wetlands 36 and 37 within its boundaries.
- Management Unit 18 (173 acres) has Unit 15 to the north, the main north/south road on the east, Del Prado Extension on the south and Unit 14 on the west. Wetlands 42-44 are all within this Unit.
- Management Unit 19 (39 acres) has Unit 18 to the west, Unit 17 to the north, Lost Lane to the east and DelPrado Extension on the south. Flatwoods (both wet and dry) are found in each Management Unit.



Prairie Pines Preserve is part of a countywide quarterly site inspection program for all Conservation 20/20 Preserves. A copy of the site inspection form is available in the Land Stewardship Operations Manual. These inspections allow staff to monitor for any impacts and/or changes to each preserve and includes lists of all animal sightings and new plant species that are found. If, during these inspections, staff finds FNAI listed species, they will be reported using the appropriate forms.

This action plan was prepared as a guide to systematically approach land stewardship management goals. Each unit will focus land stewardship efforts in hydrologic restoration, invasive species control, listed species protection, prescribed fire management, protection of boundaries and sensitive areas, and preparation for increased public utilization of the Preserve. As external influences change, this plan will be adapted to meet the challenges.

Figure 15: Prairie Pines Preserve Management Units



**Legend**

-  Wetlands
-  Management Units

## A. Goals and Strategies

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
1	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Both wetlands in Unit have melaleuca and Brazilian pepper on perimeter that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Entire Unit has scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated (northeast corner) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by June 31<sup>st</sup>, 2011.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods, 2-4 years in wet prairie) will be reintroduced.</li> <li>A minimum of once every 9 years fire will be allowed to burn into wetland 1 to reduce bush/shrub encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Annual pond survey will be conducted in wetland 1 to monitor wildlife species, presence of listed plants and spread of invasive exotic plants.</li> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Ongoing projects. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent communities for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>
	Protect 3 perimeter boundaries from unauthorized access	<ul style="list-style-type: none"> <li>Install fence and clear fire break on north boundary.</li> <li>Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>North perimeter of Preserve will be surveyed, cleared and fenced and boundary signs installed by January 31<sup>st</sup>, 2006.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next inspection.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair and vehicular access will end.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
1 - continued	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Trails that travel through sensitive soils and wetlands will be closed to the public and signs posted.</li> <li>Construct trails that will avoid sensitive areas while allowing public access to the north boundary.</li> <li>Post trail numbers and create a corresponding map.</li> <li>Remove interior barbed wire fencing on the southern perimeter of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Trails closed, signs posted and new trails will be constructed by January 31<sup>st</sup>, 2007.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Interior fencing will be removed by June 31<sup>st</sup>, 2008.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>
2	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>All 5 wetlands in Unit have melaleuca growing on perimeter and wetlands 3 &amp; 6 also have Brazilian pepper that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Wetlands 3 &amp; 7 have melaleuca in the interior to be treated by hand crews. Stems will be cut and stacked in place, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Ditch on east side of Unit has melaleuca growing on both sides to be logged, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Entire Unit has scattered melaleuca &amp; other invasive exotics that will be mulched or logged where concentrated (north and west sides) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by June 31<sup>st</sup>, 2011.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Ditch on east side of Unit will be plugged in several spots to slow water flow and re-hydrate adjacent wetlands.</li> </ul>	<ul style="list-style-type: none"> <li>Plugs will be installed by June 31<sup>st</sup>, 2012.</li> </ul>	<ul style="list-style-type: none"> <li>Within 5 years of restoration activities, plugs will remain intact and wetland plants will be established.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
2-continued	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Annual pond surveys will be conducted in wetlands 5, 6 and 7 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>
	Protect northeast and southwest boundaries from unauthorized access	<ul style="list-style-type: none"> <li>Install boundary signs on northeast side of Unit.</li> <li>Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>Boundary signs installed by July 30<sup>th</sup>, 2004.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair and vehicular access will end.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Trails in the Unit that travel through wetlands 3,5,6 &amp; 7 will be closed to the public and signs posted.</li> <li>Construct trails outside of wetlands 3,5 and 7 to allow public access through the Unit.</li> <li>Post trail numbers and create a corresponding map.</li> <li>Remove trash piles in wetland 3.</li> </ul>	<ul style="list-style-type: none"> <li>Trails closed, signs posted and new trails will be constructed by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Trash will be removed by January 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>



<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
3	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Wetland 12 and linear flow way in the east corner of the Unit have melaleuca and Brazilian pepper on perimeter that will be logged out if mulching is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Wetland 12 has melaleuca and Brazilian pepper in the interior to be treated by hand crews. Stems will be cut and stacked in place, followed by cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Entire Unit has scattered melaleuca &amp; other invasive exotics that will be mulched or logged where concentrated (northern third) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>East corner of Unit has alligator weed that could be kept at a maintenance level through biological control.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by January 31<sup>st</sup>, 2011.</li> <li>Staff will evaluate the release of <i>Agasicles hygrophilia</i> (alligatorweed flea beetle) in Unit 8. If it is determined to be successful, the same protocol will be followed by June 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods, 2-4 years in wet prairie) will be reintroduced.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
3-continued	Protect northeast boundary from unauthorized access	<ul style="list-style-type: none"> <li>• Install boundary signs on northeast side of Unit.</li> <li>• Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>• Boundary signs installed by July 30<sup>th</sup>, 2004.</li> <li>• Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> </ul>	<ul style="list-style-type: none"> <li>• Fence and signs will be maintained in good repair and vehicular access will end.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>• Trails on the northeast and east boundaries that travel through wetlands and redundant interior trails will be closed to the public and signs posted.</li> <li>• Post trail numbers and create a corresponding map.</li> <li>• Remove interior barbed wire fencing on southern perimeter of Unit.</li> </ul>	<ul style="list-style-type: none"> <li>• Trails will be closed and signs posted by January 31<sup>st</sup>, 2006.</li> <li>• Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>• Interior fencing will be removed by June 31<sup>st</sup>, 2008.</li> </ul>	<ul style="list-style-type: none"> <li>• All goals will be achieved by the times listed in the previous column.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
4	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Wetlands 16 &amp; 17 have melaleuca and Brazilian pepper on perimeter that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Wetland 17 has melaleuca in the interior to be treated by hand crews. Stems are to be cut and stacked in place, followed by cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Oak hammock in the southeast corner of Unit has Brazilian pepper that will require mechanical removal, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Ditches (south boundary and northwest corner) have thick melaleuca growing on the sides to be mechanically removed, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Entire Unit has scattered melaleuca &amp; other invasive exotics that will be mulched or logged where concentrated (east and west boundaries) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by June 31<sup>st</sup>, 2010.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Ditches will be plugged (using soil from associated berm) in several areas to slow drainage &amp; allow for more natural water flow.</li> </ul>	<ul style="list-style-type: none"> <li>Plugs will be installed by June 31<sup>st</sup>, 2011.</li> </ul>	<ul style="list-style-type: none"> <li>Within 5 years of restoration activities, plugs will remain intact and wetland plants will be established.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods, 2-4 years in wet prairie) will be reintroduced.</li> <li>A minimum of once every 9 years fire will be allowed to burn into wetlands 16 &amp; 17 to reduce bush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
4-continued	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Annual pond survey will be conducted in wetland 17 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>
	Protect west boundary from unauthorized access	<ul style="list-style-type: none"> <li>Repair fence breaks and install boundary signs.</li> <li>Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>Fence line repairs will be coordinated with exotic plant removal in area and completed by June 31<sup>st</sup>, 2010.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Trails in the Unit that travel through wetlands will be closed to the public and signs posted.</li> <li>Construct trail to avoid wetland 10.</li> <li>Post trail numbers and create a corresponding map.</li> <li>Remove interior barbed wire fencing on north perimeter of Unit and leading from wetland 16 to the east boundary.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed and signs posted and new trails constructed January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Interior fencing will be removed by June 31<sup>st</sup>, 2008.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
5	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Wetlands 8, 9, 10, &amp; 15 have melaleuca and wetland 9 has Brazilian pepper on perimeter that will be logged out if mulching in place is not feasible. followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Wetlands 11 &amp; 15 and a flow way running from the northeast boundary to wetland 8 have melaleuca in the interior to be treated by hand crews. Stems will be cut and stacked in place, followed by cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Wetland 8 has alligator weed that typically is kept at a maintenance level through biological control.</li> <li>Wetland 9 has torpedo grass that will be sprayed with herbicides when actively growing.</li> <li>Entire Unit has scattered melaleuca &amp; other invasive exotics that will be mulched or logged where concentrated (north portion and ditch edges) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by January 31<sup>st</sup>, 2011.</li> <li>Staff will evaluate the release of <i>Agasicles hygrophilia</i> (alligatorweed flea beetle) in Unit 8. If it is determined to be successful, the same protocol will be followed by June 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Wetland 9 has a large berm on the east side that will be removed to allow for natural water flow.</li> <li>Ditch that flows from the center of wetland 9 southwest to wetland 17 to be plugged in several areas to slow drainage.</li> </ul>	<ul style="list-style-type: none"> <li>Restoration work will be conducted by January 31<sup>st</sup>, 2012.</li> </ul>	<ul style="list-style-type: none"> <li>Within 5 years of restoration activities, plugs will remain intact and wetland plants will be established.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
5-continued	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods, 2-4 years in wet prairies) will be reintroduced.</li> <li>A minimum of once every 9 years fire will be allowed to burn into wetlands 8,9 &amp;10 to reduce brush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Annual pond surveys will be conducted in wetlands 9, 10, 11 &amp; 15 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>
	Protect northeast boundary from unauthorized access	<ul style="list-style-type: none"> <li>Install boundary signs on northeast side of Unit.</li> <li>Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>Boundary signs installed by July 30<sup>th</sup>, 2004.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair and vehicular access will end.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
5 - continued	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Trails in the Unit that travel through wetlands 8 &amp; 9, and on the northeast boundary will be closed to the public and signs posted.</li> <li>Construct trail to avoid wetland 9.</li> <li>Post trail numbers and create a corresponding map.</li> <li>Remove interior barbed wire fencing between wetlands 8 &amp; 9.</li> <li>Remove hog trap, old car and other trash from wetland 8.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed and signs posted and new trails constructed by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Interior fencing will be removed by June 31<sup>st</sup>, 2008.</li> <li>Trash will be removed by January 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>
6	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Entire Unit has scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by January 31<sup>st</sup>, 2010.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Ditches surrounding Unit on 3 sides and through center of Unit will be plugged (using soil from associated berms) in several areas to slow drainage and allow for more natural waterflow.</li> </ul>	<ul style="list-style-type: none"> <li>Restoration work will be conducted by January 31<sup>st</sup>, 2011.</li> </ul>	<ul style="list-style-type: none"> <li>Within 5 years of restoration activities, plugs will remain intact and wetland plants will be established.</li> </ul>
	Utilize prescribed fire to restore abandoned agriculture field to native habitat	<ul style="list-style-type: none"> <li>As melaleuca is removed, prescribed fire will be used yearly to reduce the heavy undergrowth and promote plant diversity for the first 2-3 years.</li> <li>After 3 burns, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods) will be reintroduced.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species.	<ul style="list-style-type: none"> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
6-continued	Protect northeast boundary from unauthorized access	<ul style="list-style-type: none"> <li>• Install boundary signs on perimeter fence.</li> <li>• Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>• Signs will be installed by July 30<sup>th</sup>, 2004.</li> <li>• Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> </ul>	<ul style="list-style-type: none"> <li>• Fence and signs will be maintained in good repair.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>• Redundant trails and trails that travel through sensitive soils will be closed to the public and signs posted.</li> <li>• Construct trail on the east boundary to avoid sensitive soils.</li> <li>• Post trail numbers and create a corresponding map.</li> <li>• Remove interior barbed wire fencing located throughout Unit.</li> <li>• Remove trash and cattle pen on south side of Unit.</li> </ul>	<ul style="list-style-type: none"> <li>• Trails will be closed, signs posted and new trails constructed by January 31<sup>st</sup>, 2006.</li> <li>• Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>• Interior fencing will be removed by June 31<sup>st</sup>, 2008.</li> <li>• Trash will be removed by January 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>• All goals will be achieved by the times listed in the previous column.</li> </ul>
7	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>• All 5 wetlands in Unit have melaleuca on perimeter that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>• Wetlands 23 &amp; 24 have torpedo grass that will be sprayed with herbicides when actively growing and water levels are low.</li> <li>• Entire Unit has scattered melaleuca &amp; other invasive exotics that will be mulched or logged where concentrated (west side) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit will have all exotics initially treated by June 31<sup>st</sup>, 2010.</li> </ul>	<ul style="list-style-type: none"> <li>• All target invasive exotic vegetation treated.</li> <li>• Seed sprouts and re-sprouts will be treated annually.</li> </ul>



<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
7-continued	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>• Cow well will be posted with appropriate sign to warn visitors to wetland 24 of the location of the well, which is not obvious during the summer when it is flooded.</li> <li>• Spoil pile associated with cow well on southwest corner of wetland 24 will be removed.</li> <li>• Ditch on west side of Unit will be plugged in several areas to slow drainage.</li> </ul>	<ul style="list-style-type: none"> <li>• Warning sign will be posted by January 31<sup>st</sup>, 2006.</li> <li>• Removal of spoil pile will be conducted in coordination with exotic plant removal in area.</li> <li>• Plugs will be installed by June 31<sup>st</sup>, 2009.</li> </ul>	<ul style="list-style-type: none"> <li>• Within 5 years of restoration activities, plugs will remain intact and wetland plants will be established.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>• As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods) will be reintroduced.</li> <li>• A minimum of once every 9 years fire will be allowed to burn into wetlands 13, 14, 23, 24, &amp; 25 to reduce brush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>• Prescribed fires will be conducted within 2 years of initial exotic control, depending on weather conditions.</li> <li>• Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>• Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>• Use of fire promotes and maintains maximum level of plant diversity.</li> <li>• Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>• Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>• Staff will report any listed species findings to FNAI using the proper forms.</li> <li>• Annual pond surveys will be conducted in wetlands 13, 14, 23 &amp; 24 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>• Invasive plant removal in the area will be conducted to minimize any impacts to <i>Nymphaea mexicana</i> found in wetlands 23 &amp; 24.</li> <li>• Wildlife blinds will be constructed at the north and south ends of wetland 24 to minimize disturbance to birds and other wildlife. The blinds will be used by visitors and staff during field observations.</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> <li>• Annual pond surveys will begin in the fall of 2005.</li> <li>• Will be implemented as exotic plant work is conducted.</li> <li>• Blinds will be constructed by January 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>• Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>• Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>• Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> <li>• Wildlife, especially birds, will be able to utilize wetland 24 with limited human disturbances.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
7-continued	Protect northeast boundary from unauthorized access	<ul style="list-style-type: none"> <li>Boundary signs will be installed on northeast side of Unit.</li> <li>Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>Boundary signs will be installed by July 30<sup>th</sup>, 2004.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair and vehicular access will end.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Construct wildlife blinds as stated above.</li> <li>Trails on the north and south sides of the Unit, that travel through sensitive soils and wetlands, will be closed to the public and signs posted.</li> <li>Construct trail to the wildlife blind at the south end of wetland 24.</li> <li>Post trail numbers and create a corresponding map.</li> <li>Remove interior barbed wire fencing on the west and southwest sides of Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Blinds will be constructed by January 31<sup>st</sup>, 2006.</li> <li>Trails will be closed, signs posted and new trail constructed by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Interior fencing will be removed by June 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
8	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>All 5 wetlands in unit have melaleuca and Brazilian pepper on perimeter that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Wetland 29 has some water lettuce to be chemically sprayed.</li> <li>Wetlands 28 &amp; 35 have alligator weed that typically is kept at a maintenance level through biological control.</li> <li>Within wetland 35 there are islands of Brazilian pepper to be treated by hand crews. Stems will be cut and stacked in place, followed by cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Entire unit has scattered melaleuca &amp; other invasive exotics that will be mulched or logged where concentrated (center of unit) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Exotic vegetation growing on spoil piles associated with ditch dug on east end of unit will be treated. Vegetation piles will either be burned or retained as brush pile habitat for wildlife.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by July 30<sup>th</sup>, 2009.</li> <li>Staff will partner with Lee County Hyacinth Control to collect and release <i>Agasicles hygrophilia</i>, the alligatorweed flea beetle, into wetlands 28 and 35 by July 30<sup>th</sup>, 2005.</li> <li>Spoil piles will be treated as part of mitigation plan mentioned below.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> <li>Alligatorweed in these two wetlands will decrease by at least 50% within a year. If unsuccessful, chemical treatment will be utilized. Photo plots will be used to determine the percentage cover of alligatorweed both before and after the release of <i>Agasicles hygrophilia</i>.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Lee County Department of Public Works will be conducting mitigation for the ditch that was dug to stop flooding on the east end of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Timeline for completion of this project is unknown until mitigation plan is developed.</li> </ul>	<ul style="list-style-type: none"> <li>This project will most likely be undertaken as mitigation for part of the Gator Slough improvements; therefore the monitoring parameters for the success of ditch plug installation will be set by a consultant and approved by permitting agencies.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
8-continued	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods, 2-4 years in wet prairies) will be reintroduced.</li> <li>A minimum of once every 9 years fire will be allowed to burn into wetlands 28 &amp; 29 to prevent brush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Annual pond surveys will be conducted in wetlands 26 &amp; 29 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>
	Protect northeast and east boundaries from unauthorized access	<ul style="list-style-type: none"> <li>Boundary signs will be installed on perimeter fence.</li> <li>Fence will be maintained to prevent vehicular access.</li> <li>Establish partnership with adjacent landowners to alert Land Stewardship staff and appropriate law enforcement of unauthorized access or other management concerns.</li> </ul>	<ul style="list-style-type: none"> <li>Signs will be installed by July 30<sup>th</sup>, 2004.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> <li>If there is interest, a "Friends of Prairie Pines" or similar group will be established.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair.</li> <li>A liaison between neighbors and Land Stewardship staff will establish an efficient way to alert staff of problems that will be responded to within 1 week of being reported.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Northeast boundary trail will be closed to the public and signs posted.</li> <li>Construct a loop trail through the pine flatwoods that will allow visitors to travel along the main berm perimeter road and through the pine flatwoods on the east side of the Unit.</li> <li>Post trail numbers and create a corresponding map.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed, signs posted and new trail constructed by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
9	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Wetland 19 has melaleuca on perimeter that will need to be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Entire Unit has scattered melaleuca &amp; other invasive exotics that will either be mulched or logged where concentrated (north and central portions) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by June 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods) will be reintroduced.</li> <li>A minimum of once every 9 years fire will be allowed to burn into wetland 19 to prevent brush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Widen trail on the southeast corner of Unit.</li> <li>Post trail numbers and create a corresponding map.</li> <li>Construct Equestrian/Hiker crossing to connect western "arm" with the rest of the Preserve in northwest corner of Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Trail will be widened by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Crossing will be completed by January 31<sup>st</sup>, 2006. This connection should be constructed in concert with the public use facilities at the entrance to the preserve.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
10	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Wetland 20 has melaleuca in the interior to be treated by hand crews, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Entire Unit has melaleuca and other invasive exotics that will be mulched or logged where concentrated (north portion) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by June 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Ditch on north boundary of Unit will be plugged in several areas to slow drainage.</li> </ul>	<ul style="list-style-type: none"> <li>Plugs will be installed by December June 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>Within 5 years of restoration activities, plugs will remain intact and wetland plants will be established.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods) will be reintroduced.</li> <li>A minimum of once every 9 years fire will be allowed to burn into wetlands 20 &amp; 22 to prevent brush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
10 - continued	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Trails in the Unit that travel through wetlands 17 &amp; 21 and trail that bisects Unit will be closed to the public and signs posted.</li> <li>Construct trails to avoid wetlands 17 and 21.</li> <li>Post trail numbers and create corresponding map.</li> <li>Remove interior barbed wire fencing in the northern portion of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed, signs posted and new trails constructed by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Interior fencing will be removed by June 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>
11	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Wetland 46 has melaleuca and Brazilian pepper on perimeter that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Wetland 46 has melaleuca in interior that will be treated by hand crews. Stems will be cut and stacked in place, followed by cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Wetland 46 has torpedo grass that will be sprayed with herbicides when actively growing.</li> <li>Entire Unit contains scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated (north and west sides) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by June 31<sup>st</sup>, 2005.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
11-continued	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>A fire break (15' minimum) will be constructed on the south boundary of this Unit, adjacent to the residential community.</li> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods) will be reintroduced or mechanical fuel reduction will be conducted where burning is impractical.</li> </ul>	<ul style="list-style-type: none"> <li>Fire break will be constructed by January 31<sup>st</sup>, 2005.</li> <li>Initial fires/mechanical fuel reduction will be conducted within 2 years of initial exotic control, depending on hydrologic and weather conditions.</li> </ul>	<ul style="list-style-type: none"> <li>Fire break will be constructed and mowed/disc'd a minimum of once a year to prevent fuel buildup.</li> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> <li>Annual pond survey will be conducted in wetland 46 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>Construct wildlife blind at the southwest corner of wetland 46 to minimize disturbance to birds and other wildlife.</li> <li>Change zoning from "Mobile Home Development" to "Environmentally Critical"</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Blind will be constructed by January 31<sup>st</sup>, 2006.</li> <li>Zoning Category will be changed by July 30<sup>th</sup>, 2005.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Data collected will allow for further protection of species in Unit and discovery of new invasive exotic plants that will need to be treated.</li> <li>Wildlife, especially birds, will be able to utilize wetland 46 with limited human disturbances.</li> </ul>
	Protect 3 perimeter boundaries from unauthorized access	<ul style="list-style-type: none"> <li>Repair north fence line.</li> <li>Post boundary signs.</li> <li>Fence will be maintained to prevent vehicular access.</li> <li>Establish partnership with adjacent landowners to alert Land Stewardship staff and appropriate law enforcement of unauthorized access or other management concerns.</li> </ul>	<ul style="list-style-type: none"> <li>Fence line repairs will be coordinated with exotic plant removal in area and completed by June 31<sup>st</sup>, 2005.</li> <li>Boundary signs installed by July 30<sup>th</sup>, 2004.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections, and breaks will be repaired by the next inspection.</li> <li>If there is interest a "Friends of Prairie Pines" or similar group will be established.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair and vehicular access will end.</li> <li>A liaison between neighbors and Land Stewardship staff will establish an efficient way to alert staff of problems that will be responded to within 1 week of being reported.</li> </ul>



<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
11-continued	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>• Post entrance sign, educational signs about sharing the trails with different user groups and interpretive signs highlighting native plant communities and the Gator Slough Hydrologic Restoration project.</li> <li>• Construct main entrance to Preserve, which will include primitive (grass only) parking (loop road for 24 truck/horse trailers and 20 car spaces), restrooms, bike racks, picnic tables, trash receptacles and potable water for both people and domestic animals.</li> <li>• Trails on north and south boundaries and in wetland 46 will be closed to the public and signs posted.</li> <li>• Construct trails in the center of Unit.</li> <li>• Post trail numbers and create corresponding map.</li> <li>• Construct wildlife blind as stated above.</li> </ul>	<ul style="list-style-type: none"> <li>• Signs will be posted by January 31<sup>st</sup>, 2006.</li> <li>• Main entrance to the Preserve will be complete by January 31<sup>st</sup>, 2006.</li> <li>• Trails will be closed and signs posted and new trails constructed by January 31<sup>st</sup>, 2006.</li> <li>• Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>• Blind will be constructed by January 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>• All goals will be achieved by the times listed in the previous column.</li> </ul>
12	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>• Entire Unit has scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated (north side) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit will have all exotics initially treated by June 31<sup>st</sup>, 2005.</li> </ul>	<ul style="list-style-type: none"> <li>• All target invasive exotic vegetation treated.</li> <li>• Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>• A fire break (15' minimum) will be constructed on the south boundary of this Unit, adjacent to the residential community.</li> <li>• As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods) will be reintroduced or mechanical fuel reduction will be conducted where burning is impractical.</li> </ul>	<ul style="list-style-type: none"> <li>• Fire break will be constructed by January 31<sup>st</sup>, 2005.</li> <li>• Initial fires/mechanical fuel reduction will be conducted within 2 years of initial exotic control, depending on hydrologic and weather conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• Fire break will be constructed and mowed/disc'd a minimum of once a year to prevent fuel buildup.</li> <li>• Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>• Use of fire promotes and maintains maximum level of plant diversity.</li> <li>• Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
12-continued	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> <li>Change zoning from "Mobile Home Development" to "Environmentally Critical"</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> <li>Zoning Category will be changed by July 30<sup>th</sup>, 2005.</li> </ul>	<ul style="list-style-type: none"> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>
	Protect Unit's north and south perimeter boundaries from unauthorized access	<ul style="list-style-type: none"> <li>Repair north fence line.</li> <li>Post boundary signs on perimeter of Unit.</li> <li>Fence will be maintained to prevent vehicular access.</li> <li>Establish partnership with adjacent land owners to alert Land Stewardship staff and appropriate law enforcement of unauthorized access or other management concerns.</li> </ul>	<ul style="list-style-type: none"> <li>Fence line repairs will be coordinated with exotic plant removal in area and completed by June 31<sup>st</sup>, 2005.</li> <li>Boundary signs installed by July 30<sup>th</sup>, 2004.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> <li>If there is interest a "Friends of Prairie Pines" or similar group will be established.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair and vehicular access will end.</li> <li>A liaison between neighbors and Land Stewardship staff will establish an efficient way to alert staff of problems that will be responded to within 1 week of being reported.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Close trails on both the north and south boundaries to the public and signs posted.</li> <li>Construct trails in center of Unit.</li> <li>Post trail numbers and create corresponding map.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed, signs posted and new trails constructed by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
13	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Wetland 45 has melaleuca on perimeter that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Entire Unit has scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated (NE corner, adjacent to trails and south side) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by January 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Ditch that leads from north boundary to wetland 45 will be plugged in several areas to slow drainage.</li> </ul>	<ul style="list-style-type: none"> <li>Plugs will be installed by January 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>Within 5 years of restoration activities, plugs will remain intact and wetland plants will be established.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods) will be reintroduced.</li> <li>A minimum of once every 9 years fire will be allowed to burn into wetlands 45 and 47 to prevent brush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on hydrologic and weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> <li>Annual pond survey will be conducted in wetland 45 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>Change zoning from "Mobile Home Development" to "Environmentally Critical"</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Zoning Category will be changed by July 30<sup>th</sup>, 2005.</li> </ul>	<ul style="list-style-type: none"> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Blinds will be available to the public by December 31<sup>st</sup>, 2005.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
13-continued	Protect Unit's north and south perimeter boundaries from unauthorized access	<ul style="list-style-type: none"> <li>North fence line in need of repair.</li> <li>Boundary signs will be posted on perimeter of Unit.</li> <li>Fence will be maintained to prevent vehicular access.</li> <li>Establish partnership with adjacent landowners to alert Land Stewardship staff and appropriate law enforcement of unauthorized access or other management concerns.</li> </ul>	<ul style="list-style-type: none"> <li>Fence line repairs will be coordinated with exotic plant removal in area and completed by June 31<sup>st</sup>, 2005.</li> <li>Boundary signs installed by July 30<sup>th</sup>, 2004.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> <li>If there is interest a "Friends of Prairie Pines" or similar group will be established.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair and vehicular access will end.</li> <li>A liaison between neighbors and Land Stewardship staff will establish an efficient way to alert staff of problems that will be responded to within 1 week of being reported.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Close trails on west and northwest boundary to the public and post signs.</li> <li>Construct trail to provide access to the north portion of Unit.</li> <li>Post trail numbers and create corresponding map.</li> <li>Remove trash piles in center and west side of Unit.</li> <li>Construct Equestrian/Hiker crossing to connect western "arm" with rest of the Preserve in northeast corner of Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed, signs posted and new trail constructed by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Trash will be removed by January 31<sup>st</sup>, 2007.</li> <li>Crossing will be completed by January 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>
14	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Wetlands 30, 31 &amp; 39 have melaleuca in the interior to be treated by hand crews. Stems will be cut and stacked in place, followed by cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Entire Unit has scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Remove gate in southwest corner of Unit once it is no longer needed for access to Preserve for major restoration activities.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by January 31<sup>st</sup>, 2007.</li> <li>Gate will be removed by June 31<sup>st</sup>, 2008.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
14-continued	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods, 2-4 years in wet prairies) will be reintroduced.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Annual pond survey will be conducted in wetland 30 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>
	Protect south boundary from unauthorized access	<ul style="list-style-type: none"> <li>Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Portions of trails in the southeast portion of the Unit will be closed to the public and signs posted due to long seasonal flooding.</li> <li>Post trail numbers and create corresponding map.</li> <li>Remove interior barbed wire fencing in the southwest corner of the Unit.</li> <li>Remove tank from wetland 39.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed and signs posted by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by November 31<sup>st</sup>, 2006.</li> <li>Fencing will be removed by June 31<sup>st</sup>, 2006.</li> <li>Tank will be removed by January 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
15	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>All 4 wetlands in Unit have melaleuca on perimeter that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Wetland 40 has Brazilian pepper in interior and wetland 38 has interior melaleuca to be treated by hand crews. Stems will be cut and stacked in place, followed by cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Entire Unit has scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated (north half) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by June 31<sup>st</sup>, 2008.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods, 2-4 years in wet prairies) will be reintroduced.</li> <li>A minimum of once every 9 years fire will be allowed to burn into wetlands 21 &amp; 38 to prevent brush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on hydrologic and weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Annual pond survey will be conducted in wetland 40 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
15 - continued	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Trails that travel through wetlands 38, 40 &amp; 41 will be closed to the public and signs posted.</li> <li>Construct trail to avoid wetland 42.</li> <li>Post trail numbers and create corresponding map.</li> <li>Remove interior barbed wire fencing on the east boundary of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed, signs posted and new trail cleared by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Interior fencing will be removed by June 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>
16	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>All 3 wetlands in Unit have melaleuca on perimeter and wetland 33 has Brazilian pepper that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Exotic vegetation growing on spoil piles associated with ditch dug on east end of Unit will be treated. Vegetation piles will either be burned or retained as brush pile habitat for wildlife.</li> <li>Entire Unit has scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated (bands on east and west sides) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by January 31<sup>st</sup>, 2009.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Lee County Department of Public Works will be conducting mitigation for the levy on the east end of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Timeline for completion of this project is unknown until mitigation plan is developed.</li> </ul>	<ul style="list-style-type: none"> <li>This project will most likely be undertaken as mitigation for part of the Gator Slough improvements; therefore the monitoring parameters for the success of ditch plug installation will be set by a consultant and approved by permitting agencies.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
16-continued	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods, 2-4 years in wet prairies) will be reintroduced.</li> <li>A minimum of once every 9 years fire will be allowed to burn into wetlands 21 &amp; 38 to prevent brush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on hydrologic and weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> </ul>
	Protect east boundary from unauthorized access	<ul style="list-style-type: none"> <li>Boundary signs will be installed on fence line.</li> <li>Fence will be maintained to prevent vehicular access.</li> <li>Establish partnership with adjacent landowners to alert Land Stewardship staff and appropriate law enforcement of unauthorized access or other management concerns.</li> </ul>	<ul style="list-style-type: none"> <li>Boundary signs installed by July 30<sup>th</sup>, 2004.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next inspection.</li> <li>If there is an interest a "Friends of Prairie Pines" or similar group will be established.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair.</li> <li>A liaison between neighbors and Land Stewardship staff will establish an efficient way to alert staff of problems that will be responded to within 1 week of being reported.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Trails that travel through wetlands 32, 33 &amp; 34 and a dead-end trail on the south perimeter will be closed to the public and signs posted.</li> <li>Construct trail to avoid wetlands 33 &amp; 34.</li> <li>Post trail numbers and create a corresponding map.</li> <li>Remove interior barbed wire fencing on the west boundary of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed, signs posted and new trails constructed by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Interior fencing will be removed by June 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>



<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
17	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Both wetlands in Unit have melaleuca on perimeter and wetland 36 has Brazilian pepper that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Exotic vegetation growing on spoil piles associated with ditch dug on south and east end of Unit will be treated. Vegetation piles will either be burned or retained as brush pile habitat for wildlife.</li> <li>Entire Unit has scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated (east side &amp; center) and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by January 31<sup>st</sup>, 2008.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Ditch in northeast corner of Unit will be plugged (using soil from corresponding berm) in several areas to slow drainage and allow for more natural water flow.</li> <li>Lee County Department of Public Works will be conducting mitigation for the ditch that was dug on the south and east sides of Unit to stop flooding on the east end of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Plugs will be installed by January 31<sup>st</sup>, 2009.</li> <li>Timeline for completion of this project is unknown until mitigation plan is developed.</li> </ul>	<ul style="list-style-type: none"> <li>Within 5 years of restoration activities plugs will remain intact and wetland plants will be established.</li> <li>This project will most likely be undertaken as mitigation for part of the Gator Slough improvements; therefore the monitoring parameters for the success of ditch plug installation will be set by a consultant and approved by permitting agencies.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods) will be reintroduced.</li> <li>A minimum of once every 9 years fires will be allowed to burn into wetlands 21 and 38 to prevent brush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on hydrologic and weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
17-continued	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Annual pond surveys will be conducted at wetlands 36 &amp; 37 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> <li>Construct wildlife observation area at the north end of wetland 36 to minimize disturbance to birds and other wildlife.</li> </ul>	<ul style="list-style-type: none"> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> <li>Observation area constructed by January 31<sup>st</sup>, 2006.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> <li>Wildlife, especially birds, will be able to utilize wetland 36 with limited human disturbances.</li> </ul>
	Protect east boundary from unauthorized access	<ul style="list-style-type: none"> <li>Boundary signs installed on the east side.</li> <li>Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>Boundary signs will be installed by July 30<sup>th</sup>, 2004.</li> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair and vehicular access will end.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Trail that travels through wetlands 36 &amp; 37 will be closed to the public and signs posted.</li> <li>Construct trail to avoid wetlands 33 &amp; 34.</li> <li>Construct wildlife observation area on the north side of wetland 36.</li> <li>Trail numbers and corresponding map will be created.</li> <li>Remove interior gate and barbed wire fencing on the west boundary of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed, signs posted and new trails constructed by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>Interior fencing will be removed by June 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
18	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>All 3 wetlands in Unit have melaleuca on perimeter and wetland 44 has Brazilian pepper on the perimeter that will be logged out if mulching in place is not feasible, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Wetlands 42 &amp; 43 have melaleuca in the interior to be treated by hand crews. Stems will be cut and stacked in place, followed by cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Exotic vegetation growing on spoil piles associated with ditch dug on east end of Unit will be treated. Vegetation piles will either be burned or retained as brush pile habitat for wildlife.</li> <li>South boundary and some interior trails have torpedo grass that will be sprayed with herbicides when actively growing.</li> <li>Entire Unit has scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by June 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Lee County Department of Public Works will be conducting mitigation for the levy on the east end of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Timeline for completion of this project is unknown until mitigation plan is developed.</li> </ul>	<ul style="list-style-type: none"> <li>This project will most likely be undertaken as mitigation for part of the Gator Slough improvements; therefore the monitoring parameters for the success of ditch plug installation will be set by a consultant and approved by permitting agencies.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
18-continued	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods, 2-4 years in wet prairies) will be reintroduced.</li> <li>A minimum of once every 9 years fire will be allowed to burn into wetlands 42, 43 &amp; 44 to prevent brush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on hydrologic and weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Monitor and protect listed plant and animal species	<ul style="list-style-type: none"> <li>Annual pond surveys will be conducted in wetlands 43 &amp; 44 to monitor wildlife species, presence of listed plants and any spread of invasive exotic plants.</li> <li>Wildlife utilization of this Unit will be monitored during quarterly site inspections and with the assistance of volunteers.</li> <li>Staff will report any listed species findings to FNAI using the proper forms.</li> </ul>	<ul style="list-style-type: none"> <li>Annual pond surveys will begin in the fall of 2005.</li> <li>Ongoing project. Staff will seek the help of Lee County's Bird Patrol volunteers, different user groups that adopt the Preserve and residents of adjacent community for additional monitoring assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Data collected will allow staff to make management decision to further protect listed species in Unit.</li> <li>Data collected will assist staff in managing newly discovered invasive exotic plants that will need to be treated.</li> <li>Bird counts, frog call monitoring and other wildlife sightings will provide staff with information on wildlife utilization of this Unit.</li> </ul>
	Protect south boundary from unauthorized access	<ul style="list-style-type: none"> <li>Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair and vehicular access will end.</li> </ul>
	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>Trails on the central and west portions of Unit will be closed to the public, due to numerous wetlands, and signs posted.</li> <li>Construct trail in the uplands to allow visitors to cross through Unit on north side.</li> <li>Post trail numbers and create a corresponding map.</li> <li>Remove interior cow pen and barbed wire fencing in northeast corner of the Unit.</li> <li>Remove abandoned boat and other trash found northeast of wetland 44.</li> </ul>	<ul style="list-style-type: none"> <li>Trails will be closed, signs posted and new trails constructed by January 31<sup>st</sup>, 2006.</li> <li>Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006 to reflect the changes.</li> <li>Interior fencing will be removed by June 31<sup>st</sup>, 2006.</li> <li>Boat and trash will be removed by January 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All goals will be achieved by the times listed in the previous column.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
19	Reduce invasive exotic plants to a maintenance level	<ul style="list-style-type: none"> <li>Exotic vegetation growing on spoil piles associated with levy on west end of Unit will be treated. Vegetation piles will either be burned or retained as brush pile habitat for wildlife.</li> <li>South boundary has torpedo grass and guinea grass that will be sprayed with herbicides when actively growing.</li> <li>East side of Unit has melaleuca, Brazilian pepper, rosary pea and java plum to be mulched in place, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> <li>Rest of Unit contains scattered melaleuca and other invasive exotics that will be mulched or logged where concentrated and dropped in place where sparse, followed by a cut-stump and/or foliar treatment with the appropriate herbicide mix.</li> </ul>	<ul style="list-style-type: none"> <li>Unit will have all exotics initially treated by June 31<sup>st</sup>, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>All target invasive exotic vegetation treated.</li> <li>Seed sprouts and re-sprouts will be treated annually.</li> </ul>
	Restore hydrology to Unit	<ul style="list-style-type: none"> <li>Lee County Department of Public Works will be conducting mitigation for the levy on the east end of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>Timeline for completion of this project is unknown until mitigation plan is developed.</li> </ul>	<ul style="list-style-type: none"> <li>This project will most likely be undertaken as mitigation for part of the Gator Slough improvements; therefore the monitoring parameters for the success of ditch plug installation will be set by a consultant and approved by permitting agencies.</li> </ul>
	Maintain fire-dependent natural plant communities with prescribed fire	<ul style="list-style-type: none"> <li>As melaleuca is removed, natural burn regimes (1-8 years in dry flatwoods, 3-10 years in wet flatwoods) will be reintroduced.</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed fires will be conducted within 2 years of initial exotic control, depending on hydrologic and weather conditions.</li> <li>Pursue an agreement with Florida DOF to allow fire to burn in Unit with dozer on standby once burn regime is implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels within these communities are reduced and maintained to prevent succession to climax communities.</li> <li>Use of fire promotes and maintains maximum level of plant diversity.</li> <li>Impacts from wildfire fighting will be minimized through an agreement with Florida Department of Forestry.</li> </ul>
	Protect south and east boundaries from unauthorized access	<ul style="list-style-type: none"> <li>Fence will be maintained to prevent vehicular access.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be monitored by Rangers and during quarterly site inspections. Breaks will be repaired by the next quarterly inspection.</li> </ul>	<ul style="list-style-type: none"> <li>Fence and signs will be maintained in good repair and vehicular access will end.</li> </ul>

<b>Management Unit</b>	<b>Goals</b>	<b>Strategies</b>	<b>Projected Timetable for Implementation</b>	<b>Standards by which to judge achievement of goals</b>
19-continued	Prepare Unit for increased public utilization	<ul style="list-style-type: none"> <li>• Post entrance sign to Preserve and educational signs about sharing the trails with different user groups at pedestrian/equestrian walk through on east side of Unit.</li> <li>• Due to the sensitive soils and small area, all trails in Unit will be closed to the public except the main trail leading from trailhead to rest of Preserve in the northwest corner of Unit and signs posted.</li> <li>• Post trail numbers and create a corresponding map.</li> <li>• Remove interior barbed wire fencing in the southeast corner and north boundary of the Unit.</li> </ul>	<ul style="list-style-type: none"> <li>• Entrance and multi-use trail signs will be complete by January 31<sup>st</sup>, 2006.</li> <li>• Trails will be closed and signs posted by January 31<sup>st</sup>, 2006.</li> <li>• Trail numbers will be installed and map will be created by January 31<sup>st</sup>, 2006.</li> <li>• Fencing will be removed by June 31<sup>st</sup>, 2008.</li> </ul>	<ul style="list-style-type: none"> <li>• All goals will be achieved by the times listed in the previous column.</li> </ul>

## **B. Management Action Plan**

### **a. Drainage ditch restoration**

Two drainage ditches, in the north portion of the Preserve, bisect and drain five depression marshes. These ditches will require restoration to improve the hydroperiod of the affected herbaceous wetlands and improve the overall hydrology of the Preserve.

Both ditches run and drain in a northeast-southwest direction. Ditch A is approximately 2,076.32' long. It originates on the property to the east of the Preserve, runs through wetlands 5 and 6 and ends at 7. Ditch B is approximately 4,614.82' long. It originates at the southern end of wetland 9, runs through 17 and ends in the north-south running ditch along the west boundary of the Preserve.

Restoration of ditches A & B (Figure 5), and thereby the affected wetlands, will involve several steps:

#### **1. Clearing exotic vegetation**

Melaleuca and other exotic trees are to be removed within each ditch and from the spoil berms using a mechanical method with minimal soil disturbance or compaction, which will also minimize follow-up work, such as burning vegetation debris piles or treating resprouts with herbicides. This work must be completed when the water table height is low enough to minimize rutting by heavy equipment. Some of the exotic vegetation clearing may require handwork due to presence of native vegetation.

#### **2. Plugging ditches**

Fill from each spoil berm is to be used to plug the respective ditch, thereby also breaching the berm. Four (4) and six (6) plugs will be installed in ditch A and ditch B, respectively. Each plug should be at least 50' wide and level with natural grade on either side of the ditch/berm. See Table 3 for detailed information on depth and width of ditch at proposed plug locations. Fill material utilized for plugs must be 100% mineral with no organic material to prevent sinking or piping of the plug through decomposition of organic material. Bottom of ditches is to be cleared of organic material in ditch plug locations for same reason. This work should also be conducted during the dry season. Plugs should be compacted and smoothed, and their slopes planted with native vegetation as soon as possible to avoid erosion.

### 3. Contouring created wetlands

Areas between each ditch plug will be long and linear. These areas could be contoured at intervals to create small ponds and thereby improving wading bird habitat and reducing speed of water flow between ditch plugs.

### 4. Planting plug slopes

*Spartina bakerii* already occurs in the vicinity of both ditches and will be planted to stabilize plug slopes. This planting should be done 1-2 months prior to the rainy season to allow the grasses to establish and minimize erosion. Grasses to be planted on slopes will be planted on 1-2' centers. Plantings could be watered using an ATV equipped with a water tank. There will be easy access to the plugs due to previous clearing of the ditches.

### 5. Planting created wetlands and plug crests

The created linear and contoured wetlands will be planted with appropriate vegetation. These wetland plants will be planted on 3' centers. The crests of plugs will be planted with vegetation similar to habitats on either side of the ditch and with vegetation typically found at the periphery of depression marshes. Vegetation to be planted on crests of plugs will be planted on 3' centers. This planting should occur at the start of or during the rainy season to maximize natural watering of the plantings. See Table 4 for a complete list of native plants to be planted in these restoration areas.

### 6. Establishing photo plots

An appropriate number of photo plots will be established along each ditch to monitor the progress of the restoration project. Photos should be taken six months after initial planting and then once a year during the growing season up to 5 years from completion of the planting project as documentation of progress.

### 7. Monitoring plantings

Plantings will be monitored once per month for a six-month period after completion of the planting project, by which time plants should be established. Monitoring will involve visiting all planted areas and noting fatalities, which will need to be replaced.



**Table 3: Depth and Width of Ditches at Proposed Plug Locations.**

point feature	GPS height (HAE in feet)	vertical precision (in feet)	average vert. prec. (in feet)	ditch depth (in feet)	ditch width (in feet)
1-1	-58.796	5.629	4.696	1.818	29.5
1-1 grade	-56.978	3.763			
1-2	-57.411	4.563	4.822	-0.501	28.6
1-2 grade	-57.912	5.080			
1-3	-63.449	4.121	4.249	-3.958	36
1-3 grade	-67.407	4.377			
2-1	-58.778	4.695	4.765	0.402	32
2-1 grade	-58.376	4.834			
2-2	-64.788	4.461	4.452	-1.665	33
2-2 grade	-66.453	4.442			
2-3	-59.667	2.702	2.971	-0.624	26
2-3 grade	-60.291	3.239			
3-1	-56.703	1.880	1.875	-0.809	23
3-1 grade	-57.512	1.869			
3-2	-60.187	1.557	1.560	1.118	18
3-2 grade	-59.069	1.563			
3-3	-59.952	1.559	1.559	1.563	28
3-3 grade	-58.389	1.559			
3-4	-59.614	1.532	1.528	0.928	25
3-4 grade	-58.686	1.524			

**Table 4: List of Native Plant Species to be Planted in Restoration Areas.**

<b>Planting area</b>	<b>Common Name</b>	<b>Scientific Name</b>
Slopes of ditch plugs	sand cordgrass	<i>Spartina bakerii</i>
Crest of ditch plugs	corkwood	<i>Stillingia aquatica</i>
	St. John's-wort	<i>Hypericum species</i>
	yelloweyed grass	<i>Xyris species</i>
	muhly grass	<i>Muhlenbergia capillaris</i>
	blue maidencane	<i>Amphicarpum muhlenbergianum</i>
Created linear and contoured wetlands	pickerelweed	<i>Pontederia cordata</i>
	maidencane	<i>Panicum hemitomom</i>
	fireflag	<i>Thalia geniculata</i>
	arrowheads	<i>Sagittaria latifolia</i>
	corkwood	<i>Stillingia aquatica</i>
	spikerush	<i>Eleocharis species</i>
Melaleuca impacted wetlands	sand cordgrass	<i>Spartina bakerii</i>
	corkwood	<i>Stillingia aquatica</i>
	St. John's-wort	<i>Hypericum species</i>
	maidencane	<i>Panicum hemitomom</i>
Melaleuca monocultures	slash pine	<i>Pinus elliotii</i>
	black rush	<i>Schoenus nigricans</i>
	gallberry	<i>Ilex glabra</i>
	dahoon holly	<i>Ilex cassine</i>
	bluestem	<i>Andropogon species</i>
	sedges	<i>Carex species</i>
Brazilian pepper monocultures	pickerelweed	<i>Pontederia cordata</i>
	maidencane	<i>Panicum hemitomom</i>
	fireflag	<i>Thalia geniculata</i>
	arrowheads	<i>Sagittaria latifolia</i>
	corkwood	<i>Stillingia aquatica</i>
	spikerush	<i>Eleocharis species</i>

The specific number of plants, size and number of created wetlands and melaleuca impacted areas to replant will all be determined during hydrologic restoration activities. Lee County's Division of Natural Resources is currently working on a mitigation plan for restoration of the negative impacts caused by the creation of the levy which Land Stewardship staff will review upon its completion.

b. Abandoned Farm Field Restoration

To add habitat diversity to the Preserve the larger of the two fields will be restored and managed to create and maintain a grassland or dry prairie type community.

Restoration of the large farm field will involve the following:

1. Removal of invasive exotic trees

An appropriate type of heavy equipment will be utilized to cut or mulch Brazilian pepper and melaleuca. Native vegetation such as wax myrtle will also be controlled, with the same type of equipment, to open up the habitat. Left behind will be patches of slash pine, saw palmetto, laurel and live oak, some wax myrtle, and other native shrubs, with ground cover plants associated with this type of community. The restoration goal is to create a mosaic of primarily open dry prairie habitat with patches, of varying size, consisting of the above mentioned native trees and shrubs, for additional forage for wildlife and nesting and cover habitat for birds. If root structure of exotic vegetation is not removed due to type of heavy equipment utilized then vegetation will need to be monitored for re-sprouts, and treated with appropriate herbicides.

2. Prescribed burning

This created habitat community will be maintained with an appropriate prescribed fire regime. A prescribed fire plan will be devised according to location of farm field and environmental conditions. Portions of the farm field where fire is not an option; the primary management tool will be a tractor with rotary mower attachment.

3. Restoration of impacted wetland within large farm field

In the south-central portion of this field there is an isolated herbaceous wetland that has been invaded by melaleuca. Native vegetation still occurs within the central portion of this wetland but melaleuca has completely taken over the perimeter.

- i. Restoration will involve the complete removal of all melaleuca trees within the wetland utilizing the method of least impact, such as hand cutting, treating stumps and removing biomass completely from the wetland. Control other nuisance plants, such as hempvine, within this wetland that could hinder native plantings and natural regeneration of native plants.
- ii. This wetland could be contoured to increase its hydroperiod and enhance overall functionality.

- iii. This wetland will be re-vegetated with cypress at the outer edges and with appropriate herbaceous wetland plants for the deepest portion. List of potential plantings found in Table 4.

#### 4. Restoration farm field hydrology

A berm or dike, with associated borrow area or ditch, completely surrounds the large farm field. This structure will be breached and ditch plugged in strategic areas to improve sheet flow in this portion of the Preserve. The ditch running in a general north-south direction, associated with the main road, which bisects the entire farm field, will also need to be plugged in a few locations to slow water draining from this area.

#### c. Wetland Enhancement

The Preserve contains 47 isolated depression marshes. The melaleuca infestation at the Preserve is impacting some of these wetlands by encroaching into them, altering flora and fauna composition and most likely reducing hydroperiod (Mazzotti, 1998). In addition, some of these marshes on the Preserve have been impacted through bisecting trails. These trails compact the wetland soils and also make the impacted wetland susceptible to exotic plant invasions, especially by melaleuca. Also, cattle grazing will not be reintroduced in the Preserve due to wetlands that were overgrazed in the past (see Land Use History for more information).

##### 1. Remove melaleuca

Melaleuca invading depression marshes will be removed during the dry season with appropriate heavy equipment capable of minimizing soil disturbance or compaction. Handwork may also be necessary to remove smaller stems and those growing amongst native vegetation. All biomass will be removed and an appropriate herbicide mixture will be used to treat stumps and resprouts.

##### 2. Rerouting bisecting dirt roads

The portions of the dirt roads bisecting marshes (see Figure 14) will be disked to loosen the soil and allow natural vegetation recruitment to take place. These roads will be blocked off on either side of the wetland they are impacting to prevent any vehicular traffic. An alternate path will be cleared in an upland area adjacent to the impacted wetland.

### 3. Cattle grazing

At least one depression marsh on the Preserve, 24, has been overgrazed. The overgrazing has changed the wetland plant composition and brought in invasive exotic vegetation that may not have occurred otherwise. Cattle grazing is no longer an appropriate activity at the Preserve, see Land Use History Section for more details. This wetland may need to be burned to help eliminate invasive exotic plant species.

#### d. Removal and Control of Invasive Exotic Vegetation

The dominant invasive exotic plant on site is melaleuca and Brazilian pepper, being the next significant invasive exotic. Upon reviewing historical aerials it appears melaleuca began invading the Preserve between March 1984 and February 1986, but core borings would be required to confirm the age of the larger trees on site, if this information was pertinent to the management and restoration of the Preserve.

##### 1. Light to moderate infestations of melaleuca:

In areas where melaleuca is sporadic and below 50% of the vegetation cover handwork will be utilized for control. Specific methodology will depend on stem size, but generally the stem will be cut near grade and stump sprayed with appropriate herbicide. Hand pulling should be utilized when possible to minimize herbicide use. Stems will be piled as necessary to facilitate future potential burning, chipping or removal from site. No replanting will be needed in these areas due to significant presence of native vegetation and native seed bank.

##### 2. Moderate to heavy infestations of melaleuca:

In areas where melaleuca occurs as monotypic stands or is higher than 50% of the vegetation cover the use of heavy equipment will be utilized in appropriate habitats and during suitable seasonal conditions. The type of heavy equipment used should minimize soil disturbance or compaction. For follow-up treatment of these areas an application of an appropriate herbicide mixture to the foliage of any resprouts or seedlings will be made. Land Stewardship staff will evaluate replanting on a case by case basis. Since the heavy infestations of melaleuca appear to be in what was historically hydric pine flatwoods, then appropriate plantings could include slash pine for canopy trees and hydrophytic herbs and shrubs for understory and ground cover such as black rush, gallberry, dahoon holly, bluestem and sedges. Canopy, understory and ground cover plants would be planted on 10', 5' and 3' centers, respectively. See Table 4 for a list of potential native plants to be utilized in this possible planting project.

### 3. Moderate to heavy infestations of Brazilian pepper:

In areas where Brazilian pepper occurs as monotypic stands or is higher than 50% of the vegetation cover the use of heavy equipment will be utilized in appropriate habitats and during suitable seasonal conditions. The type of heavy equipment used should minimize soil disturbance or compaction. For follow-up treatment of these areas an application of an appropriate herbicide mixture to the foliage of any resprouts or seedlings will be made. Land Stewardship Staff will evaluate replanting cleared areas larger than two (2) acres with native plants characteristic of the surrounding habitat. Heavy infestations of Brazilian pepper appear to be in what were historically depression marshes. See Table 4 for a list of potential native plants to be utilized in this possible planting project.

### 4. Light Brazilian pepper infestations occurring throughout the Preserve, excluding abandoned farm field

Brazilian pepper within the remainder of the site occurs on dikes and berms and other disturbed "edge" areas and removing them mechanically may not be logistically possible. Therefore these trees will be treated with an appropriate herbicide mixture applied to its base, or basal-bark application and left standing, or cut down applying herbicide to the stump.

### 5. Heavy infestations of torpedo grass

There are areas throughout the Preserve where infestations of torpedo grass, larger than 2 acres, occur. Since mechanical control is not a possibility for this exotic plant an appropriate herbicide mixture will be utilized for a foliar application in problematic areas.

### 6. Heavy infestations of alligatorweed

Alligatorweed (*Alternanthera philoxeroides*) is a South American immigrant that has invaded waterways in the United States, primarily in the southeastern states. It also is a weed in tropical and mild temperate regions around the world. Alligatorweed roots readily along waterways and then grows over the water surface as an anchored floating plant. It also grows terrestrially during dry periods. Alligatorweed is a federal noxious weed and a prohibited or noxious plant in Arizona, California, Florida, and South Carolina.

Alligatorweed, like many other invasive aquatic plants, displaces native plants in ditches, along banks, and in shallow water. Alligatorweed disrupts water flow causing increased sedimentation, and it shades submersed plants and animals causing reduced oxygen levels beneath the mat.

Field-collected alligatorweed flea beetles (*Agasicles hygrophila*) from Argentina were processed through quarantine and released in 1965 in Florida as a biocontrol agent. Adults are small (4 to 6 mm long), black and yellow striped beetles that jump when disturbed. Feeding causes "shot holes" in the leaves, but with heavy adult and larval feeding the leaves are completely eaten, as are upper portions of the stems. Most feeding and oviposition by *A. hygrophila* is on aquatic alligatorweed. Flea beetles, especially larvae, rarely attack plants rooted on shore or in moist ditches. What appears to be typical feeding damage is occasionally observed on terrestrial plants, but it is usually nocturnal feeding by native *Disonycha* flea beetles. In laboratory experiments in Argentina, females oviposited equally on aquatic and terrestrial alligatorweed. Beetles are specific to alligatorweed and have not been reported on other host plants in the United States even after almost 40 years of existence in the wild (Barger et al. 2003).

At the Preserve, staff plan on coordinating with John Cassani, with Lee County Hyacinth Control District, to collect the flea beetles from the Caloosahatchee River and release into wetlands 28 & 35 in Unit 8 by June 30<sup>th</sup> of 2005. Photo plots will be set up to determine the percentage cover of alligatorweed both before and after the release. If the percentage of cover of this invasive exotic does not decrease by at least 50% within a year a chemical treatment will be utilized. Depending on results, the other wetlands at PPP will be treated by June 30<sup>th</sup>, 2007.

#### 7. All other invasive exotic vegetation

Other invasive exotic plants that occur at the Preserve do not form monocultures larger than 2 acres. The Land Stewardship Operations Manual and other pertinent references will be consulted for appropriate herbicide mixtures on the control of these invasive exotic plants. A complete list of invasive exotic plants found at PPP is found in Appendix A.

#### e. Control of Feral Hogs

Currently the only acceptable method of hog removal on Conservation 20/20 Preserves is trapping. An active hog trapping program has been implemented for the Preserve. Land stewardship staff will pursue the possibility of working with Florida Fish and Wildlife Conservation Commission to allow periodic hog hunts on PPP. Removing all hogs is an unreasonable goal therefore a removal program will need to be continuous on a long-term basis.

f. Improving Central Access Road

There is an elevated access road that traverses the Preserve from its southeast corner heads northwest and ends at the large abandoned farm field. During the construction of the levy this access road was breached, for additional flood control, in 7 locations creating gaps of approximately 100 feet. During the summer rainy season high water levels make this road a problematic access. Driving through these gaps causes turbidity in the water, which is connected to the ditch associated with the levy, which eventually flows into a tributary of Daughtrey Creek and could be a water quality issue. Land Stewardship staff will look into the feasibility of filling each gap with appropriate sized gravel to the height of the road, which will allow water to perk through and allow vehicular access all year long, or staff will pursue an alternate improvement plan.



## VII. Projected Timetable for Implementation

Projected Timetable for Implementation of Management Action Plan (July, 2004 – January, 2007)

Management Activity	7-04	9-04	11-04	1-05	3-05	5-05	7-05	9-05	11-05	1-06	3-06	5-06	7-06	9-06	11-06	1-07
Change Zoning Category of #194							11-13									
Repair fence							11-13									
Post boundary signs	2, 3, 5-8, 11-13, 16, 17									1						
Survey north boundary										1						
Clear and Fence north Boundary										1						
Close trails to public	All Units															
Clear trails										1						
Post signs and markers										1						
Remove old signs										1						
Post new signs and markers										1						
Remove old signs										2, 13						
Clear old signs										7, 16, 17						
Post new signs										7						
Remove old signs																2, 3, 4
Post new signs													10, 14, 15, 18			

Numbers correspond to management units and details on each management activity are found in the Management Action Plan.

Projected Timetable for Implementation of Management Action Plan (January, 2007 – January, 2010)

Management Activity	3-07	5-07	7-07	9-07	11-07	1-08	3-08	5-08	7-08	9-08	11-08	1-09	3-09	5-09	7-09	9-08	11-09	1-10	

Numbers correspond to management units and details on each management activity are found in the Management Action Plan.

Projected Timetable for Implementation of Management Action Plan (January, 2010 – January, 2013)

Management Activity	3-10	5-10	7-10	9-10	11-10	1-11	3-11	5-11	7-11	9-11	11-11	1-12	3-12	5-12	7-12	9-12	11-12	1-13	

Numbers correspond to management units and details on each management activity are found in the Management Action Plan.

### ***VIII. Financial Considerations***

There is a management fund established in perpetuity for all Conservation 20/20 preserves. Monies from this fund will be available for all aspects of design and construction of the public use facilities, as well as for planned restoration projects, at Prairie Pines. Approximately 2.7 million dollars was awarded to Lee County from Florida Communities Trust in July of 2004. This grant will be used to help with the funding of the public use facilities and habitat restoration activities. Monies will be supplemented through pursuing appropriate grants or other sources of funding, such as, but not limited to; grants from the Florida Department of Environmental Protection Bureau of Invasive Plant Management, Florida Recreational Development Assistance Program, Florida Department of Environmental Protection's Recreational Trails Grant, National Fish and Wildlife Foundation, U.S. Fish and Wildlife Service, or Land and Water Conservation Fund. A Capital Improvement Project fund will be established for the Preserve. Projected costs and funding sources are listed in Appendix C.

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## **X. Appendices**

- Appendix A. Plant Sightings at PPP
- Appendix B. Wildlife Sightings at PPP
- Appendix C. Projected Costs and Funding Sources Table
- Appendix D. Surrounding Neighborhoods and Roads Map
- Appendix E. Lee County DOT Planned Roads
- Appendix F. Future Land Use of Preserve and Adjacent Lands
- Appendix G. PPP and Adjacent Land Zoning Categories
- Appendix H. PPP Strap Numbers

Appendix A. Plant Sightings at PPP

The completion of the floristic inventory will be finished at the end of 2004. (Woodmansee and Sadle, 2004)



## Appendix A: Plant sightings at PPP

Common and scientific names for this list were obtained from Wunderlin, 2003.

Scientific Name	Common Name	Native/Exotic
<b>Family: Azollaceae (mosquito fern)</b>		
<i>Azolla caroliniana</i>	mosquito fern	native
<b>Family: Blechnaceae (mid-sorus fern)</b>		
<i>Blechnum serrulatum</i>	toothed mid-sorus fern, swamp fern	native
<i>Woodwardia virginica</i>	Virginia chain fern	native
<b>Family: Dennstaedtiaceae (cuplet fern)</b>		
<i>Pteridium aquilinum</i> var. <i>caudatum</i>	lacy bracken fern	native
<i>Pteridium aquilinum</i> var. <i>pseudocaudatum</i>	tailed bracken fern	native
<b>Family: Lycopodiaceae (club-moss)</b>		
<i>Lycopodiaceae cernua</i>	nodding club-moss	native
<b>Family: Nephrolepidaceae (sword fern)</b>		
<i>Nephrolepis exaltata</i>	sword fern	native
<i>Nephrolepis multiflora</i>	Asian sword fern	exotic
<b>Family: Polypodiaceae (polypody)</b>		
<i>Phlebodium aureum</i>	golden polypody	native
<i>Pleopeltis polypodioides</i>	resurrection fern	native
<b>Family: Psilotaceae (whisk-fern)</b>		
<i>Psilotum nudum</i>	whisk-fern	native
<b>Family: Pteridaceae (brake fern)</b>		
<i>Acrostichum danaeifolium</i>	giant leather fern	native
<i>Ceratopteris thalictroides</i>	watersprite	exotic
<i>Pteris vittata</i>	Chinese ladder brake	exotic
<b>Family: Salviniaceae (floating fern)</b>		
<i>Salvinia minima</i>	water spangles	exotic
<b>Family: Schizaeaceae (curly-grass)</b>		
<i>Lygodium microphyllum</i>	old world climbing fern	exotic
* <i>Schizaea pennula</i>	ray fern	native
<b>Family: Thelypteridaceae (marsh fern)</b>		
<i>Thelypteris dentata</i>	downy maiden fern	exotic
<i>Thelypteris kunthii</i>	widespread maiden fern	native
<b>Family: Vittariaceae (shoestring fern)</b>		
<i>Vittaria lineata</i>	shoestring fern	native
<b>Family: Pinaceae (pine)</b>		
<i>Pinus elliotii</i> var. <i>densa</i>	south Florida slash pine	native
<b>Family: Alismataceae (water plantain)</b>		
<i>Sagittaria isoetiformis</i>	quillwort arrowhead	native
<i>Sagittaria lancifolia</i>	bulltongue arrowhead	native
<b>Family: Alliaceae (garlic)</b>		
* <i>Nothoscordum bivalve</i>	false-garlic, crowpoison	native
<b>Family: Amaryllidaceae (amaryllis)</b>		
<i>Hymenocallis palmeri</i>	alligatorlily	native
<b>Family: Araceae (arum)</b>		
<i>Lemna obscura</i>	little duckweed	native
<i>Pistia stratiotes</i>	water lettuce	exotic
<i>Spirodela polyrhiza</i>	common duckweed	native
<i>Syngonium podophyllum</i>	American evergreen	exotic

## Appendix A: Plant sightings at PPP (Continued)

Scientific Name	Common Name	Native/Exotic
<b>Family: <i>Arecaceae</i> (palm)</b>		
<i>Phoenix reclinata</i>	Senegal date palm	exotic
<i>Sabal palmetto</i>	cabbage palm	native
<i>Serenoa repens</i>	saw palmetto	native
<b>Family: <i>Bromeliaceae</i> (pineapple)</b>		
<i>Tillandsia balbisiana</i>	northern needleleaf	native
<i>Tillandsia fasciculata</i> var. <i>densispica</i>	cardinal airplant	native
<i>Tillandsia recurvata</i>	ball-moss	native
<i>Tillandsia setacea</i>	southern needleleaf	native
<i>Tillandsia usneoides</i>	Spanish moss	native
<i>Tillandsia utriculata</i>	giant airplant	native
<b>Family: <i>Burmanniaceae</i> (burmannia)</b>		
<i>Burmattia capitata</i>	southern bluethread	native
<b>Family: <i>Cannaceae</i> (canna)</b>		
<i>Canna flaccida</i>	bandana-of-the-everglades	native
<b>Family: <i>Commelinaceae</i> (spiderwort)</b>		
<i>Commelina diffusa</i>	common dayflower	exotic
<b>Family: <i>Cyperaceae</i> (sedge)</b>		
<i>Carex longii</i>	Long's sedge	native
<i>Carex vexans</i>	Florida hammock sedge	native
<i>Cladium jamaicense</i>	Jamaica swamp sawgrass	native
<i>Cyperus articulatus</i>	jointed flatsedge	native
<i>Cyperus distinctus</i>	swamp flatsedge	native
<i>Cyperus flavescens</i>	yellow flatsedge	native
<i>Cyperus haspan</i>	haspan flatsedge	native
<i>Cyperus ligularis</i>	swamp flatsedge	native
<i>Cyperus polystachyos</i>	manyspike flatsedge	native
<i>Cyperus surinamensis</i>	tropical flatsedge	native
<i>Eleocharis baldwinii</i>	Baldwin's spikerush, roadgrass	native
<i>Eleocharis cellulose</i>	Gulfcoast spikerush	native
<i>Eleocharis geniculata</i>	Canada spikerush	native
<i>Eleocharis interstincta</i>	knotted spikerush	native
<i>Fimbristylis cymosa</i>	hurricanegrass	exotic
<i>Fimbristylis dichotoma</i>	forked fimbry	native
<i>Fuirena breviseta</i>	saltmarsh umbrellasedge	native
<i>Fuirena scirpoidea</i>	southern umbrellasedge	native
<i>Kyllinga brevifolia</i>	shortleaf spikesedge	exotic
* <i>Rhynchospora baldwinii</i>	Baldwin's beaksedge	native
<i>Rhynchospora colorata</i>	starrush whitetop	native
<i>Rhynchospora divergens</i>	spreading beaksedge	native
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	native
<i>Rhynchospora inundata</i>	narrowfruit horned beaksedge	native
<i>Rhynchospora latifolia</i>	giant whitetop	native
<i>Rhynchospora microcarpa</i>	southern beaksedge	native
<i>Rhynchospora nitens</i>	shortbeak beaksedge	native
<i>Rhynchospora odorata</i>	fragrant beaksedge	native
<i>Rhynchospora tracyi</i>	Tracy's beaksedge	native

## Appendix A: Plant sightings at PPP (Continued)

Scientific Name	Common Name	Native/Exotic
<b>Family: Cyperaceae (sedge)- continued</b>		
<i>Schoenus nigricans</i>	black bogrush	native
<i>Scleria baldwinii</i>	Baldwin's nutrush	native
<i>Scleria ciliata</i> var. <i>ciliata</i>	fringed nutrush	native
<i>Scleria ciliata</i> var. <i>pauciflora</i>	fewflower nutrush	native
<i>Scleria Georgiana</i>	slenderfruit nutrush	native
<i>Scleria triglomerata</i>	tall nutgrass, whip nutrush	native
<i>Scleria verticillata</i>	low nutrush	native
<b>Family: Eriocaulaceae (pipewort)</b>		
<i>Eriocaulon compressum</i>	flattened pipewort	native
<i>Eriocaulon decangulare</i>	tenangle pipewort	native
<i>Lachnocaulon anceps</i>	whitehead bogbutton	native
<i>Syngonanthus flavidulus</i>	yellow hatpins	native
<b>Family: Haemodoraceae (bloodwort)</b>		
<i>Lachnanthes carolina</i>	Carolina redroot	native
<b>Family: Hydrocharitaceae (frog's-bit)</b>		
<i>Najas guadalupensis</i>	southern waternymph	native
<b>Family: Hypoxidaceae (yellow stargrass)</b>		
<i>Hypoxis juncea</i>	fringed yellow stargrass	native
<b>Family: Iridaceae (iris)</b>		
<i>Sisyrinchium nashii</i>	Nash's blue-eyed grass	native
<b>Family: Juncaceae (rush)</b>		
<i>Juncus marginatus</i>	shore rush, grassleaf rush	native
<i>Juncus megacephalus</i>	bighead rush	native
<i>Juncus polycephalus</i>	manyhead rush	native
<i>Juncus repens</i>	lesser creeping rush	native
<i>Juncus roemerianus</i>	needle rush	native
<i>Juncus scirpoides</i>	needlepod rush	native
<b>Family: Liliaceae (lily)</b>		
<i>Lilium catesbaei</i>	Catesby's lily	native
<b>Family: Marantaceae (arrowroot)</b>		
<i>Thalia geniculata</i>	alligatorflag	native
<b>Family: Nartheciaceae (bog asphodel)</b>		
<i>Aletris lutea</i>	yellow colicroot	native
<b>Family: Orchidaceae (orchid)</b>		
<i>Eulophia alta</i>	wild-coco	native
<i>Habenaria floribunda</i>	toothpetal false reinorchid	native
<i>Habenaria quinqueseta</i>	longhorn false reinorchid	native
<i>Spiranthes longilabris</i>	longlip ladyiestresses	native
<i>Spiranthes vernalis</i>	spring Ladiestresses	native
<b>Family: Poaceae (grass)</b>		
<i>Amphicarpum muhlenbergianum</i>	blue maidencane	native
<i>Andropogon glomeratus hirsutior</i>	bushy bluestem	native
<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>	purple bluestem	native
<i>Andropogon glomeratus</i> var. <i>pumilus</i>	common bushy bluestem	native
<i>Andropogon gyrans</i>	Elliott's bluestem	native
<i>Andropogon ternarius</i>	splitbeard bluestem	native
<i>Andropogon virginicus</i> var. <i>glaucus</i>	chalky bluestem	native

## Appendix A: Plant sightings at PPP (Continued)

Scientific Name	Common Name	Native/Exotic
<b>Family: Poaceae (grass)-continued</b>		
<i>Aristida palustris</i>	longleaf threeawn	native
<i>Aristida purpurascens</i>	arrowfeather threeawn	native
<i>Aristida spiciformis</i>	bottlebrush threeawn	native
<i>Aristida stricta</i> var. <i>beyrichiana</i>	wiregrass	native
<i>Axonopus fissifolius</i>	common carpetgrass	native
<i>Axonopus furcatus</i>	big carpetgrass	native
<i>Coelorachis rugosa</i>	wrinkled jointtail grass	native
<i>Cynodon dactylon</i>	Bermuda grass	exotic
<i>Dactyloctenium aegyptium</i>	Durban crowfootgrass	exotic
<i>Dichantherium aciculare</i>	needleleaf witch grass	native
<i>Dichantherium commutatum</i>	variable witchgrass	native
<i>Dichantherium dichotomum</i>	cypress witchgrass	native
<i>Dichantherium ensifolium</i>	cypress witchgrass	native
<i>Dichantherium ensifolium</i> var. <i>unciphyllum</i>	cypress witchgrass	native
<i>Dichantherium erectifolium</i>	erectleaf witchgrass	native
<i>Dichantherium leucothrix</i>	rough witchgrass	native
<i>Dichantherium portoricense</i>	hemlock witchgrass	native
<i>Dichantherium strigosum</i> var. <i>glabrescens</i>	glabrescent roughhair witchgrass	native
<i>Echinochloa muricata</i>	rough barnyardgrass	native
<i>Elionurus tripsacoides</i>	Pan-American balsamscale	native
<i>Eragrostis atrovirens</i>	thalia love grass	exotic
<i>Eragrostis elliottii</i>	Elliott's love grass	native
<i>Eustachys glauca</i>	saltmarsh fingergrass	native
<i>Eustachys petraea</i>	pinewoods fingergrass	native
<i>Imperata brasiliensis</i>	Brazilian satintail	native
<i>Imperata cylindrica</i>	cogongrass	exotic
<i>Hymenachne amplexicaulis</i>	trompetilla	native
<i>Leersia hexandra</i>	southern cutgrass	native
<i>Leptochloa fusca</i> subsp. <i>fascicularis</i>	bearded sprangletop	native
<i>Muhlenbergia capillaris</i>	hairawn muhly	exotic
<i>Neyraudia reynaudiana</i>	Burmareed, silkreed	exotic
<i>Panicum dichotomiflorum</i>	fall panicgrass	native
<i>Panicum hemitomon</i>	maidencane	native
<i>Panicum hians</i>	gaping panicum	native
<i>Panicum repens</i>	torpedograss	exotic
<i>Panicum rigidulum</i>	redtop panicum	native
<i>Panicum tenerum</i>	bluejoint panicum	native
<i>Panicum virgatum</i>	switchgrass	native
<i>Paspalidium geminatum</i>	Egyptian paspalidium	native
<i>Paspalum conjugatum</i>	sour palpalum, hilograss	native
<i>Paspalum dissectum</i>	mudbank crowngrass	exotic
<i>Paspalum monostachyum</i>	gulfdune paspalum	native
<i>Paspalum notatum</i>	bahiagrass	exotic
<i>Paspalum praecox</i>	early paspalum	native
<i>Paspalum setaceum</i>	thin paspalum	native
<i>Paspalum urvillei</i>	vaseygrass	exotic
<i>Pennisetum purpureum</i>	napierglass, elephantgrass	exotic

## Appendix A: Plant sightings at PPP (Continued)

Scientific Name	Common Name	Native/Exotic
<b>Family: Poaceae (grass)-continued</b>		
<i>Phragmites australis</i>	common reed	native
<i>Rhynchelytrum repens</i>	rose natalgrass	exotic
<i>Sacciolepis indica</i>	Indian cupscale	exotic
<i>Sacciolepis striata</i>	American cupscale	native
<i>Schizachyrium scoparium</i> var. <i>scoparium</i>	little bluestem	native
<i>Setaria parviflora</i>	yellow bristlegrass, knotroot foxtail	native
<i>Sorghastrum secundum</i>	lopsided Indiangrass	native
<i>Spartina bakeri</i>	sand cordgrass	native
<i>Sporobolus indicus</i> var. <i>pyramidalis</i>	West Indian dropseed	native
<i>Sporobolus junceus</i>	pineywoods dropseed	native
<i>Stenotaphrum secundatum</i>	St. Augustine grass	exotic
<i>Tripsacum dactyloides</i>	eastern gamagrass, Fakahatcheegrass	native
<i>Urochloa mutica</i>	Paragrass	exotic
<b>Family: Pontederiaceae (pickerelweed)</b>		
<i>Pontederia cordata</i>	pickerelweed	native
<b>Family: Smilacaceae (smilax)</b>		
<i>Smilax auriculata</i>	earleaf greenbrier	native
<i>Smilax bona-nox</i>	saw greenbrier	native
<b>Family: Typhaceae (cattail)</b>		
<i>Typha domingensis</i>	southern cattail	native
<b>Family: Xyridaceae (yelloweyed grass)</b>		
<i>Xyris ambigua</i>	coastalplain yelloweyed grass	native
<i>Xyris brevifolia</i>	shortleaf yelloweyed grass	native
<i>Xyris calcicola</i>	limestone yelloweyed grass	native
<i>Xyris caroliniana</i>	Carolina yelloweyed grass	native
<i>Xyris elliotii</i>	Elliott's yelloweyed grass	native
<i>Xyris flabelliformis</i>	Savannah yelloweyed grass	native
<i>Xyris floridana</i>	Florida yelloweyed grass	native
<i>Xyris jupicai</i>	Richard's yelloweyed grass	native
<i>Xyris smalliana</i>	Small's yelloweyed grass	native
<b>Family: Acanthaceae (acanthus)</b>		
<i>Blechum pyramidatum</i>	Browne's blechum	exotic
<i>Dyschoriste oblongifolia</i>	oblongleaf twinflower	native
<i>Elytraria caroliniensis</i> var. <i>angustifolia</i>	Carolina scalystem	native
<i>Ruellia succulenta</i>	thickleaf wild petunia	native
<i>Stenandrium dulce</i>	sweet shaggytuft	native
<b>Family: Amaranthaceae (amaranth)</b>		
<i>Alternanthera philoxeroides</i>	alligatorweed	exotic
<i>Amaranthus australis</i>	southern amaranth	native
<i>Amaranthus spinosus</i>	spiny amaranth	exotic
<i>Chenopodium ambrosioides</i>	Mexican tea	exotic
<i>Iresine diffusa</i>	Juba's bush	native
<b>Family: Anacardiaceae (cashew)</b>		
<i>Rhus copallinum</i>	winged sumac	native
<i>Schinus terebinthifolius</i>	Brazilian pepper	exotic
<i>Toxicodendron radicans</i>	eastern poison ivy	native

## Appendix A: Plant sightings at PPP (Continued)

Scientific Name	Common Name	Native/Exotic
<b>Family: Annonaceae (custard-apple)</b>		
<i>Annona glabra</i>	pondapple	native
<i>Asimina reticulata</i>	netted pawpaw	native
<b>Family: Apiaceae (carrot)</b>		
<i>Cyclospermum leptophyllum</i>	marsh parsley	exotic
<i>Eryngium baldwinii</i>	Baldwin's eryngo	native
<i>Eryngium yuccifolium</i>	button rattlesnakemaster	native
<i>Oxypolis filiformis</i>	water cowbane	native
<b>Family: Apocynaceae (dogbane)</b>		
<i>Asclepias lanceolata</i>	fewflower milkweed	native
<i>Asclepias longifolia</i>	longleaf milkweed	native
<i>Asclepias tuberosa</i>	butterflyweed, butterfly milkweed	native
<i>Catharanthus roseus</i>	Madagascar-periwinkle	exotic
<i>Sarcostemma clausum</i>	white twinevine	native
<b>Family: Aquifoliaceae (holly)</b>		
<i>Ilex cassine</i>	dahoon	native
<i>Ilex glabra</i>	gallberry	native
<b>Family: Araliaceae (ginseng)</b>		
<i>Centella asiatica</i>	spadeleaf	native
<i>Hydrocotyle umbellata</i>	manyflower marshpennywort	native
<b>Family: Asteraceae (aster)</b>		
<i>Acmella oppositifolia</i> var. <i>repens</i>	oppositeleaf spotflower	native
<i>Ambrosia artemisiifolia</i>	common ragweed	native
<i>Baccharis glomeruliflora</i>	silverling	native
<i>Baccharis halimifolia</i>	groundsel tree	native
<i>Bidens alba</i> var. <i>radiata</i>	beggerticks	native
<i>Bigelovia nudata</i> subsp. <i>australis</i>	southern pineland rayless goldenrod	native
<i>Boltonia diffusa</i>	smallhead doll'sdaisy	native
<i>Carphephorus carnosus</i>	pineland chaffhead	native
<i>Carphephorus corymbosus</i>	coastalplain chaffhead, Florida paintbrush	native
<i>Carphephorus odoratissimus</i> var. <i>subtropicanus</i>	vanillaleaf	native
<i>Chaptalia tomentosa</i>	wooly sunbonnets, pineland daisy	native
<i>Cirsium horridulum</i>	purple thistle	native
<i>Cirsium nuttallii</i>	Nuttall's thistle	native
<i>Conyza canadensis</i> var. <i>pusilla</i>	dwarf Canadian horseweed	native
<i>Coreopsis floridana</i>	Florida tickseed	native
<i>Coreopsis leavenworthii</i>	Leavenworth's tickseed	native
<i>Elephantopus elatus</i>	tall elephantsfoot	native
<i>Emilia fosbergii</i>	Florida tasselflower	exotic
<i>Emilia sonchifolia</i>	lilac tasselflower	exotic
<i>Erechtites hieracifolia</i>	American burnweed	native
<i>Erigeron quercifolius</i>	oakleaf fleabane	native
<i>Erigeron vernus</i>	early whitetop fleabane	native
<i>Eupatorium capillifolium</i>	dog fennel	native
<i>Eupatorium leptophyllum</i>	falsefennel	native
<i>Eupatorium mikanioides</i>	semaphore thoroughwort	native
<i>Eupatorium mohrii</i>	Mohr's thoroughwort	native

## Appendix A: Plant sightings at PPP (Continued)

Scientific Name	Common Name	Native/Exotic
<b>Family: Asteraceae (aster)-continued</b>		
<i>Eupatorium rotundifolium</i>	roundleaf thoroughwort, false horehound	native
<i>Euthamia caroliniana</i>	slender goldenrod	native
* <i>Euthamia graminifolia</i> var. <i>hirtipes</i>	flattop goldenrod	native
<i>Flaveria linearis</i>	narrowleaf yellowtops	native
<i>Gamochaeta falcata</i>	narrowleaf purple everlasting	native
<i>Helenium pinnatifidum</i>	southeastern sneezeweed	native
<i>Heterotheca subaxillaris</i>	camphorweed	native
<i>Hieracium megacephalon</i>	coastalplain hawkweed	native
<i>Iva microcephala</i>	Piedmont marshelder	native
<i>Lactuca graminifolia</i>	grassleaf lettuce	native
<i>Liatris tenuifolia</i>	shortleaf gayfeather	native
<i>Lygodesmia aphylla</i>	Rose-rush	native
<i>Mikania cordifolia</i>	Florida Keys hempvine	native
<i>Mikania scandens</i>	climbing hempvine	native
<i>Pityopsis graminifolia</i>	narrowleaf silkgrass	native
<i>Pluchea odorata</i>	sweetscent	native
<i>Pluchea rosea</i>	rosy camphorweed	native
<i>Pterocaulon pycnostachyum</i>	blackroot	native
<i>Rudbeckia hirta</i>	blackeyed susan	native
<i>Solidago fistulosa</i>	Pinebarren goldenrod	native
<i>Solidago odora</i> var. <i>chapmanii</i>	Chapman's goldenrod	native
<i>Solidago sempervirens</i>	seaside goldenrod	native
<i>Solidago stricta</i>	wand goldenrod	native
<i>Solidago tortifolia</i>	twistedleaf goldenrod	native
<i>Sonchus asper</i>	spiny sowthistle	exotic
<i>Symphotrichum adnatum</i>	scaleleaf aster	native
<i>Symphotrichum carolinanum</i>	climbing aster	native
<i>Symphotrichum dumosum</i>	rice button aster	native
<i>Symphotrichum subulatum</i>	annual saltmarsh aster	native
<i>Tridax procumbens</i>	coatbuttons	exotic
<i>Verbesina virginica</i>	frostweed, white crownbeard	native
<i>Vernonia blodgettii</i>	Florida ironweed	exotic
<i>Vernonia cinerea</i>	little ironweed	exotic
<b>Family: Boraginaceae (borage)</b>		
<i>Heliotropium polyphyllum</i>	pineland heliotrope	native
<b>Family: Brassicaceae (mustard)</b>		
<i>Lepidium virginicum</i>	Virginia pepperweed	native
<b>Family: Cactaceae (cactus)</b>		
<i>Opuntia ficus-indica</i>	tuna cactus	exotic
<b>Family: Campanulaceae (bellflower)</b>		
<i>Lobelia glandulosa</i>	glade lobelia	native
<i>Lobelia paludosa</i>	white lobelia	native
<b>Family: Caryophyllaceae (pink)</b>		
<i>Drymaria cordata</i>	drymary, West Indian chickweed	native
<b>Family: Casuarinaceae (sheoak)</b>		
<i>Casuarina equisetifolia</i>	Australian-pine	exotic

**Appendix A: Plant sightings at PPP (Continued)**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Native/Exotic</b>
<b>Family: Celtidaceae (hackberry)</b>		
<i>Celtis laevigata</i>	sugarberry, hackberry	native
<b>Family: Chrysobalanaceae (coco plum)</b>		
<i>Licania michauxii</i>	gopher-apple	native
<b>Family: Cistaceae (rockrose)</b>		
<i>Lechea torreyi</i>	Piedmont pinweed	native
<b>Family: Clusiaceae (mangosteen)</b>		
<i>Hypericum brachyphyllum</i>	coastalplain St. John's-wort	native
<i>Hypericum cistifolium</i>	roundpod St. John's-wort	native
<i>Hypericum fasciculatum</i>	sandweed, peelbark St. John's-wort	native
<i>Hypericum hypericoides</i>	St. Andrew's-cross	native
<i>Hypericum mutilum</i>	dwarf St. John's-wort	native
<i>Hypericum reductum</i>	Atlantic St. John's-wort	native
<i>Hypericum tetrapetalum</i>	fourpetal St. John's-wort	native
<b>Family: Convolvulaceae (morningglory)</b>		
<i>Evolvulus sericeus</i>	silver dwarf morning-glory	native
<i>Ipomoea sagittata</i>	saltmarsh morning-glory	native
<b>Family: Cucurbitaceae (gourd)</b>		
<i>Momordica charantia</i>	balsampear	exotic
<b>Family: Droseraceae (sundew)</b>		
<i>Drosera brevifolia</i>	dwarf sundew	native
<i>Drosera capillaris</i>	pink sundew	native
<b>Family: Ebenaceae (ebony)</b>		
<i>Diospyros virginiana</i>	common persimmon	native
<b>Family: Ericaceae (heath)</b>		
<i>Bejaria racemosa</i>	tarflower	native
<i>Gaylussacia dumosa</i>	dwarf huckleberry	native
<i>Lyonia fruticosa</i>	coastalplain staggerbush	native
<i>Lyonia lucida</i>	fetterbush	native
<i>Vaccinium myrsinites</i>	shiny blueberry	native
<b>Family: Euphorbiaceae (spurge)</b>		
<i>Chamaesyce blodgettii</i>	limestone sandmat	native
<i>Chamaesyce hirta</i>	pillpod sandmat	native
<i>Chamaesyce hyssopifolia</i>	hyssopleaf sandmat	native
<i>Euphorbia inundata</i>	Florida pineland spurge	native
<i>Euphorbia polyphylla</i>	lesser Florida spurge	native
<i>Phyllanthus amarus</i>	gale-of-wind, carry-me-seed	exotic
<i>Phyllanthus caroliniensis</i> subsp. <i>saxicola</i>	rock Carolina leafflower	native
<i>Phyllanthus tenellus</i>	Mascarene Island leafflower	exotic
<i>Stillingia aquatica</i>	water toothleaf, corkwood	native
<i>Stillingia sylvatica</i>	queensdelight	native
<b>Family: Fabaceae (pea)</b>		
<i>Abrus precatorius</i>	rosary pea	exotic
<i>Acacia auriculiformis</i>	earleaf acacia	exotic
<i>Aeschynomene americana</i>	shyleaf	native
<i>Albizia lebbek</i>	woman's tongue	exotic
<i>Chamaecrista fasciculata</i>	partridge pea	native



## Appendix A: Plant sightings at PPP (Continued)

Scientific Name	Common Name	Native/Exotic
<b>Family: Fabaceae (pea)- continued</b>		
<i>Chamaecrista nictitans</i> var. <i>aspera</i>	Hairy partidge-pea	native
<i>Crotalaria pallida</i> var. <i>obovata</i>	smooth rattlebox	exotic
<i>Crotalaria rotundifolia</i>	rabbitbells	native
<i>Dalea carnea</i>	whitetassels	native
<i>Desmodium incanum</i>	zarabacoa comun	native
<i>Desmodium triflorum</i>	threeflower ticktrefoil	exotic
<i>Galactia elliotii</i>	Elliott's milkpea	native
<i>Galactia regularis</i>	eastern milkpea	native
<i>Galactia volubilis</i>	downy milkpea	native
<i>Indigofera hirsuta</i>	hairy indigo	exotic
<i>Indigofera spicata</i>	trailing indigo	exotic
<i>Macroptilium lathyroides</i>	wild bushbean	exotic
<i>Senna alata</i>	candlestick plant	exotic
<i>Senna occidentalis</i>	septicweed	exotic
<i>Senna pendula</i> var. <i>glabrata</i>	valamuerto	exotic
<i>Vicia acutifolia</i>	fourleaf vetch	native
<i>Vigna luteola</i>	hairy pod cowpea	native
<b>Family: Fagaceae (beech)</b>		
<i>Quercus elliotii</i>	running oak	native
<i>Quercus laurifolia</i>	laurel oak, diamond oak	native
<i>Quercus minima</i>	dwarf live oak	native
<i>Quercus myrtifolia</i>	myrtle oak	native
<i>Quercus virginiana</i>	Virginia live oak	native
<b>Family: Gentianaceae (gentian)</b>		
<i>Sabatia brevifolia</i>	shortleaf rosegentian	native
<i>Sabatia stellaris</i>	rose-of-plymouth	native
<b>Family: Haloragaceae (watermilfoil)</b>		
<i>Proserpinaca palustris</i>	marsh mermaidweed	native
<i>Proserpinaca pectinata</i>	combleaf mermaidweed	native
<b>Family: Hydroleaceae (false fiddleleaf)</b>		
<i>Hydrolea corymbosa</i>	skyflower	native
<b>Family: Lamiaceae (mint)</b>		
<i>Callicarpa americana</i>	American beautyberry	native
<i>Hyptis alata</i>	clustered bushmint, musky mint	native
<i>Physostegia purpurea</i>	eastern false dragonhead	native
<i>Piloblephis rigida</i>	wild pennyroyal	native
<i>Salvia azurea</i>	azure blue sage	native
<b>Family: Lauraceae (laurel)</b>		
<i>Cassytha filiformis</i>	love vine	native
<i>Persea palustris</i>	swamp bay	native
<b>Family: Lentibulariaceae (bladderwort)</b>		
<i>Pinguicula lutea</i>	yellow butterwort	native
<i>Pinguicula pumila</i>	small butterwort	native
<i>Utricularia cornuta</i>	horned bladderwort	native
<i>Utricularia foliosa</i>	leafy bladderwort	native
<i>Utricularia gibba</i>	humped bladderwort	native
<i>Utricularia purpurea</i>	eastern purple bladderwort	native

## Appendix A: Plant sightings at PPP (Continued)

Scientific Name	Common Name	Native/Exotic
<b>Family: Lentibulariaceae (bladderwort)- continued</b>		
<i>Utricularia simulans</i>	fringed bladderwort	native
<i>Utricularia subulata</i>	zigzag bladderwort	native
<b>Family: Linaceae (flax)</b>		
<i>Linum medium</i> var. <i>texanum</i>	stiff yellow flax	native
<b>Family: Loganiaceae (logania)</b>		
<i>Mitreola petiolata</i>	lax hornpod	native
<i>Mitreola sessilifolia</i>	swamp hornpod	native
<b>Family: Lythraceae (loosestrife)</b>		
<i>Ammannia latifolia</i>	Pink redstem, toothcups	native
<i>Cuphea carthagenensis</i>	Columbian waxweed	exotic
<i>Lythrum alatum</i> var. <i>lanceolatum</i>	winged loosestrife	native
<i>Rotala ramosior</i>	lowland rotala, toothcup	native
<b>Family: Malvaceae (mallow)</b>		
<i>Melochia spicata</i>	bretonica peluda	native
<i>Sida acuta</i>	common wireweed, common fanpetals	native
<i>Sida rhombifolia</i>	Cuban jute, Indian hemp	native
<i>Urena lobata</i>	Caesarweed	exotic
<b>Family: Melastomataceae (melastome)</b>		
<i>Rhexia cubensis</i>	West Indian meadowbeauty	native
<i>Rhexia mariana</i>	pale meadowbeauty	native
<i>Rhexia nuttallii</i>	Nuttall's meadowbeauty	native
<b>Family: Menyanthaceae (bogbean)</b>		
<i>Nymphoides aquatica</i>	big floatingheart	native
<b>Family: Myricaceae (bayberry)</b>		
<i>Myrica cerifera</i>	southern bayberry, wax myrtle	native
<b>Family: Myrsinaceae (myrsine)</b>		
<i>Rapanea punctata</i>	myrsine	native
<b>Family: Myrtaceae (myrtle)</b>		
<i>Melaleuca quinquenervia</i>	punktree	exotic
<i>Psidium cattleianum</i>	strawberry guava	exotic
<i>Rhodomyrtus tomentosa</i>	rose myrtle	exotic
<i>Syzygium cumini</i>	Java plum	exotic
<b>Family: Nymphaeaceae (waterlily)</b>		
<i>Nymphaea elegans</i>	tropical royalblue waterlily	native
<i>Nymphaea mexicana</i>	yellow waterlily	native
<b>Family: Olacaceae (olax)</b>		
<i>Ximenia americana</i>	tallow wood, hog plum	native
<b>Family: Onagraceae (eveningprimrose)</b>		
<i>Gaura angustifolia</i>	southern beeblossum	native
<i>Ludwigia alata</i>	winged primrosewillow	native
<i>Ludwigia curtissii</i>	Curtiss's primrosewillow	native
<i>Ludwigia maritima</i>	seaside primrosewillow	native
<i>Ludwigia microcarpa</i>	smallfruit primrosewillow	native
<i>Ludwigia octovalvis</i>	Mexican primrosewillow	native
<i>Ludwigia peruviana</i>	Peruvian primrosewillow	exotic
<i>Ludwigia repens</i>	creeping primrosewillow	native

## Appendix A: Plant sightings at PPP (Continued)

Scientific Name	Common Name	Native/Exotic
<b>Family: Orobanchaceae (broomrape)</b>		
<i>Agalinis fasciculata</i>	beach false foxglove	native
<i>Buchnera americana</i>	American bluehearts	native
<i>Seymeria pectinata</i>	Piedmont blacksenna	native
<b>Family: Oxalidaceae (woodsorrel)</b>		
<i>Oxalis corniculata</i>	common yellow woodsorrel	native
<b>Family: Passifloraceae (passionflower)</b>		
<i>Passiflora incarnata</i>	purple passionflower	native
<i>Passiflora suberosa</i>	corkystem passionflower	native
<b>Family: Plantaginaceae (plantain)</b>		
<i>Plantago virginica</i>	southern plantain, Virginia plantain	native
<b>Family: Polygalaceae (milkwort)</b>		
<i>Polygala baldwinii</i>	Baldwin's milkwort	native
<i>Polygala cymosa</i>	tall pinebarren milkwort	native
<i>Polygala grandiflora</i>	snowy milkwort	native
<i>Polygala incarnata</i>	procession flower	native
<i>Polygala lutea</i>	orange milkwort	native
<i>Polygala nana</i>	candyroot	native
<i>Polygala ramosa</i>	low pinebarren milkwort	native
<i>Polygala rugelii</i>	yellow milkwort	native
<i>Polygala setacea</i>	coastalplain milkwort	native
<b>Family: Polygonaceae (buckwheat)</b>		
<i>Polygonum densiflorum</i>	denseflower knotweed	native
<i>Polygonum hydropiperoides</i>	mild water-pepper, swamp smartweed	native
<i>Polygonum punctatum</i>	dotted smartweed	native
<b>Family: Primulaceae (primrose)</b>		
<i>Anagallis minima</i>	chaffweed	native
<i>Samolus ebracteatus</i>	water pimpernel, limewater brookweed	native
<i>Samolus valerandi</i> subsp. <i>parviflorus</i>	pineland pimpernel	native
<b>Family: Ranunculaceae (buttercup)</b>		
<i>Clematis baldwinii</i>	pine-hyacinth	native
<b>Family: Rosaceae (rose)</b>		
<i>Rubus trivialis</i>	southern dewberry	native
<b>Family: Rubiaceae (madder)</b>		
<i>Cephalanthus occidentalis</i>	common buttonbush	native
<i>Diodia virginiana</i>	Virginia buttonweed	native
<i>Galium tinctorium</i>	stiff marsh bedstraw	native
<i>Houstonia procumbens</i>	innocence, roundleaf bluet	native
<i>Oldenlandia uniflora</i>	clustered mille graine	native
<i>Richardia brasiliensis</i>	tropical Mexican clover	exotic
<i>Spermacoce assurgens</i>	woodland false buttonweed	native
<i>Spermacoce verticillata</i>	shrubby false buttonweed	exotic
<b>Family: Salicaceae (willow)</b>		
<i>Salix caroliniana</i>	Carolina willow, coastal plain willow	native
<b>Family: Sapindaceae (soapberry)</b>		
<i>Acer rubrum</i>	red maple	native
<i>Cupaniopsis anacardioides</i>	carrotwood	exotic

## Appendix A: Plant sightings at PPP (Continued)

Scientific Name	Common Name	Native/Exotic
<b>Family: Sapotaceae (sapodilla)</b>		
<i>Sideroxylon reclinatum</i> subsp. <i>reclinatum</i>	recline Florida bully	native
<b>Family: Solanaceae (nightshade)</b>		
<i>Physalis walteri</i>	Walter's groundcherry	native
<i>Solanum americanum</i>	American black nightshade	native
<i>Solanum viarum</i>	tropical sodaapple	exotic
<b>Family: Tetrachondraceae (tetrachondra)</b>		
<i>Polypremum procumbens</i>	rustweed, juniperleaf	native
<b>Family: Turneraceae (turnera)</b>		
<i>Piriqueta cistoides</i> subsp. <i>caroliniana</i>	pitted stripeseed	native
<b>Family: Urticaceae (nettle)</b>		
<i>Parietaria floridana</i>	Florida pellitory	native
<b>Family: Verbenaceae (vervain)</b>		
<i>Lantana camara</i>	lantana, shrubverbena	exotic
<i>Phyla nodiflora</i>	turkey tangle fogfruit, capeweed	native
<i>Verbena scabra</i>	harsh vervain, sandpaper vervain	native
<b>Family: Veronicaceae (speedwell)</b>		
<i>Bacopa caroliniana</i>	lemon bacopa	native
<i>Bacopa monnieri</i>	herb-of-grace	native
<i>Gratiola hispida</i>	rough hedgehyssop	native
<i>Gratiola ramosa</i>	branched hedgehyssop	native
<i>Linaria canadensis</i>	Canada toadflax	native
<i>Lindernia crustacea</i>	Malaysian false-pimpernel	exotic
<i>Lindernia grandiflora</i>	Savannah false-pimpernel	native
<i>Mecardonia acuminata</i> subsp. <i>peninsularis</i>	axilflower	native
<i>Micranthemum glomeratum</i>	manatee mudflower	native
<i>Scoparia dulcis</i>	sweetbroom, licoriceweed	native
<b>Family: Violaceae (violet)</b>		
* <i>Viola palmata</i>	early blue violet	native
* <i>Viola sororia</i>	common blue violet	native
<b>Family: Vitaceae (grape)</b>		
<i>Parthenocissus quinquefolia</i>	Virginia creeper	native
<i>Vitis cinerea</i> var. <i>floridana</i>	Florida grape	native
<i>Vitis rotundifolia</i>	muscadine	native

\* Critically Impaired plant species (Gann, 2002)

Appendix B. Prairie Pines Preserve Animal List

**Appendix B: Wildlife sightings at PPP**

FWC FWS  
Designated Status

<b>AMPHIBIANS</b>			
<b>Family: Leptodactylidae (tropical frogs)</b>			
<i>Eleutherodactylus planirostris</i>	greenhouse frog		
<b>Family: Bufonidae (toads)</b>			
<i>Bufo terrestris</i>	southern toad		
<i>Bufo quercicus</i>	oak toad		
<b>Family: Hylidae (treefrogs and their allies)</b>			
<i>Acris gryllus</i>	Florida cricket frog		
<i>Hyla cinerea</i>	green tree frog		
<i>Hyla femoralis</i>	pine woods treefrog		
<i>Hyla squirella</i>	squirrel treefrog		
<i>Pseudacris ocularis</i>	little grass frog		
<b>Family: Microhylidae (narrowmouth toads)</b>			
<i>Gastrophryne carolinensis</i>	eastern narrow-mouthed toad		
<b>Family: Ranidae (true frogs)</b>			
<i>Rana grylio</i>	pig frog		
<i>Rana sphenoccephala</i>	southern leopard frog		
<b>REPTILES</b>			
<b>Family: Alligatoridae (alligators and caimans)</b>			
<i>Alligator mississippiensis</i>	American alligator	SSC	T S/A
<b>Family: Kinosternidae (musk and mud turtles)</b>			
<i>Kinosternon baurii</i>	striped mud turtle		
<b>Family: Emydidae (box and water turtles)</b>			
<i>Terrapene carolina bauri</i>	Florida box turtle		
<i>Pseudemys floridana peninsularis</i>	peninsula cooter		
<i>Pseudemys nelsoni</i>	Florida redbelly turtle		
<i>Deirochelys reticularia chrysea</i>	Florida chicken turtle		
<b>Family: Testudinidae (gopher tortoises)</b>			
<i>Gopherus polyphemus</i>	gopher tortoise	SSC	
<b>Family: Trionychidae (softshell turtles)</b>			
<i>Apalone ferox</i>	Florida softshell		
<b>Family: Polychridae (anoles)</b>			
<i>Anolis carolinensis</i>	green anole		
<i>Anolis sagrei</i>	brown anole		
<b>Family: Scincidae (skinks)</b>			
<i>Eumeces inexpectatus</i>	southeastern five-lined skink		
<b>Family: Anguidae (glass lizards and alligator lizard)</b>			
<i>Ophisaurus ventralis</i>	eastern glass lizard		
<b>Family: Colubridae (colubrids)</b>			
<i>Nerodia fasciata pictiventris</i>	Florida water snake		
<i>Thamnophis sirtalis sirtalis</i>	eastern garter snake		
<i>Thamnophis sauritus sackenii</i>	peninsula ribbon snake		
<i>Diadophis punctatus edwardsii</i>	southern ringneck snake		
<i>Coluber constrictor priapus</i>	southern black racer		
<i>Masticophis flagellum flagellum</i>	eastern coachwhip snake		
<i>Elaphe obsoleta quadrivittata</i>	yellow rat snake		

## Appendix B: Wildlife sightings at PPP

FWC FWS  
Designated Status

<b>REPTILES CONTINUED</b>			
<b>Family: Viperidae (pit vipers)</b>			
<i>Sistrurus miliarius barbouri</i>	dusky pygmy rattlesnake		
<i>Crotalus adamanteus</i>	eastern diamondback rattlesnake		
<b>BIRDS</b>			
<b>Family: Podicipedidae (grebes)</b>			
<i>Podilymbus podiceps</i>	pie-billed grebe		
<b>Family: Pelecanidae (pelicans)</b>			
<i>Pelecanus erythrorhynchos</i>	American white pelican		
<b>Family: Phalacrocoracidae (cormorants)</b>			
<i>Phalacrocorax auritus</i>	double-crested cormorant		
<b>Family: Anhingidae (anhingas)</b>			
<i>Anhinga anhinga</i>	anhinga		
<b>Family: Ardeidae (herons, egrets, bitterns)</b>			
<i>Ardea herodias</i>	great blue heron		
<i>Egretta caerulea</i>	little blue heron	SSC	
<i>Egretta tricolor</i>	tricolored heron	SSC	
<i>Ardea alba</i>	great egret		
<i>Egretta thula</i>	snowy egret	SSC	
<i>Bubulcus ibis</i>	cattle egret		
<i>Butorides virescens</i>	green heron		
<b>Family: Threskiornithidae (ibises and spoonbills)</b>			
<i>Plegadis falcinellus</i>	glossy ibis		
<i>Eudocimus albus</i>	white ibis	SSC	
<b>Family: Ciconiidae (storks)</b>			
<i>Mycteria americana</i>	wood stork	E	E
<b>Family: Gruidae (cranes)</b>			
<i>Grus Canadensis pratensis</i>	Florida sandhill crane	T	
<b>Family: Anatidae (swans, geese, ducks)</b>			
<b>Subfamily: Anatinae (dabbling ducks)</b>			
<i>Anas fulvigula</i>	mottled duck		
<i>Aix sponsa</i>	wood duck		
<i>Anas discors</i>	blue-winged teal		
<b>Subfamily: Merginae (mergansers)</b>			
<i>Mergus serrator</i>	red-breasted merganser		
<i>Lophodytes cucullatus</i>	hooded merganser		
<b>Family: Cathartidae (new world vultures)</b>			
<i>Cathartes aura</i>	turkey vulture		
<i>Coragyps atratus</i>	black vulture		
<b>Family: Accipitridae (hawks, kites, accipiters, harriers and eagles)</b>			
<b>Subfamily: Elaninae &amp; Milvinae (kites)</b>			
<i>Elanoides forficatus</i>	swallow-tailed kite		
<b>Subfamily: Accipitrinae (accipiters)</b>			
<i>Accipiter striatus</i>	sharp-shinned hawk		

## Appendix B: Wildlife sightings at PPP

FWC FWS  
Designated Status

<b>BIRDS CONTINUED</b>			
<b>Family: Accipitridae (hawks, kites, accipiters, harriers and eagles)</b>			
<b>Subfamily: Buteoninae (buteos)</b>			
<i>Buteo jamaicensis</i>	red-tailed hawk		
<i>Buteo lineatus</i>	red-shouldered hawk		
<i>Haliaeetus leucocephalus</i>	bald eagle	T	T
<b>Subfamily: Circinae (harriers)</b>			
<i>Circus cyaneus</i>	northern harrier		
<b>Family: Pandionidae (ospreys)</b>			
<i>Pandion haliaetus</i>	osprey		
<b>Family: Odontophoridae (new world quails)</b>			
<i>Colinus virginianus</i>	northern bobwhite		
<b>Family: Rallidae (coots, gallinules)</b>			
<i>Fulica americana</i>	American coot		
<i>Gallinula chloropus</i>	common moorhen		
<i>Porphyryla martinica</i>	purple gallinule		
<b>Family: Charadriidae (plovers)</b>			
<i>Charadrius vociferus</i>	killdeer		
<b>Family: Scolopacidae (sandpipers)</b>			
<i>Gallinago gallinago</i>	common snipe		
<i>Tringa melanoleuca</i>	greater yellowlegs		
<i>Tringa flavipes</i>	lesser yellowlegs		
<i>Calidris alba</i>	sanderling		
<b>Family: Laridae (gulls)</b>			
<b>Subfamily: Sterninae (terns)</b>			
<i>Sterna antillarum</i>	least tern	T	
<b>Family: Columbidae (pigeons and doves)</b>			
<i>Zenaida macroura</i>	mourning dove		
<i>Columbina passerina</i>	common ground dove		
<b>Family: Alcedinidae (kingfishers)</b>			
<i>Ceryle alcyon</i>	belted kingfisher		
<b>Family: Picidae (woodpeckers)</b>			
<i>Melanerpes erythrocephalus</i>	red-headed woodpecker		
<i>Colaptes auratus</i>	northern flicker		
<i>Melanerpes carolinus</i>	red-bellied woodpecker		
<i>Picoides borealis</i>	red-cockaded woodpecker	T	E
<i>Picoides pubescens</i>	downy woodpecker		
<i>Picoides villosus</i>	hairy woodpecker		
<b>Family: Tyrannidae (tyrant flycatchers)</b>			
<i>Myiarchus crinitus</i>	great-crested flycatcher		
<i>Sayornis phoebe</i>	eastern phoebe		
<b>Family: Hirundinidae (swallows)</b>			
<i>Tachycineta bicolor</i>	tree swallow		
<b>Family: Apodidae (swifts)</b>			
<i>Chaetura pelagica</i>	chimney swift		
<b>Family: Troglodytidae (wrens)</b>			
<i>Troglodytes aedon</i>	house wren		
<i>Thryothorus ludovicianus</i>	Carolina wren		



## Appendix B: Wildlife sightings at PPP

FWC FWS  
Designated Status

<b>BIRDS CONTINUED</b>			
<b>Family: Sylviidae</b>			
<b>Subfamily: Polioptillinae (gnatcatchers)</b>			
<i>Poliophtila caerulea</i>	blue-gray gnatcatcher		
<b>Family: Turdidae (thrushes)</b>			
<i>Turdus migratorius</i>	American robin		
<b>Family Mimidae (mockingbirds and thrashers)</b>			
<i>Toxostoma rufum</i>	brown thrasher		
<i>Dumetella carolinensis</i>	gray catbird		
<i>Mimus polyglottos</i>	northern mockingbird		
<b>Family: Corvidae (crows, jays, etc.)</b>			
<i>Cyanocitta cristata</i>	blue jay		
<i>Corvus brachyrhynchos</i>	American crow		
<b>Family: Vireonidae (vireos)</b>			
<i>Vireo olivaceus</i>	red-eyed vireo		
<i>Vireo griseus</i>	white-eyed vireo		
<b>Family: Parulidae (wood-warblers)</b>			
<i>Parula americana</i>	northern parula		
<i>Dendroica coronata</i>	yellow-rumped warbler		
<i>Setophaga ruticilla</i>	American redstart		
<i>Dendroica pinus</i>	pine warbler		
<i>Dendroica discolor</i>	prairie warbler		
<i>Dendroica palmarum</i>	palm warbler		
<i>Protonotaria citrea</i>	prothonotary warbler		
<i>Geothlypis trichas</i>	common yellowthroat		
<b>Family: Cardinalidae (cardinals)</b>			
<i>Cardinalis cardinalis</i>	northern cardinal		
<b>Family: Fringillidae (grosbeaks, towhees, finches)</b>			
<i>Pipilo erythrophthalmus</i>	eastern towhee		
<i>Carduelis tristis</i>	American goldfinch		
<b>Family: Icteridae (blackbirds, orioles, etc.)</b>			
<i>Quiscalus quiscula</i>	common grackle		
<i>Quiscalus major</i>	boat-tailed grackle		
<i>Agelaius phoeniceus</i>	red-winged blackbird		
<i>Dolichonyx oryzivorus</i>	bobolink		
<i>Sturnella magna</i>	eastern meadowlark		
<b>MAMMALS</b>			
<b>Family: Didelphidae (opossum)</b>			
<i>Didelphis virginiana</i>	Virginia opossum		
<b>Family: Dasypodidae (armadillos)</b>			
<i>Dasypus novemcinctus</i>	nine-banded armadillo		
<b>Family: Leporidae (rabbits)</b>			
<i>Sylvilagus floridanus</i>	eastern cottontail		
<i>Sylvilagus palustris</i>	marsh rabbit		
<b>Family: Sciuridae (squirrels)</b>			
<i>Sciurus carolinensis</i>	eastern gray squirrel		

**Appendix B: Wildlife sightings at PPP**

FWC      FWS  
Designated Status

<b>MAMMALS CONTINUED</b>			
<b>Family: Muridae (rats, mice, voles and lemmings)</b>			
<i>Sigmodon hispidus</i>	cotton rat		
<i>Peromyscus gossypinus</i>	cotton mouse		
<b>Family: Ursidae (bears)</b>			
<i>Ursus americanus floridanus</i>	Florida black bear	T	
<b>Family: Procyonidae (raccoons)</b>			
<i>Procyon lotor</i>	raccoon		
<b>Family: Mustelidae (weasels)</b>			
<i>Lutra canadensis</i>	river otter		
<b>Family: Felidae (cats)</b>			
<i>Lynx rufus</i>	bobcat		
<b>Family: Suidae (pigs and warthogs)</b>			
<i>Sus scrofa</i>	wild pig		
<b>Family: Cervidae (deer)</b>			
<i>Odocoileus virginianus</i>	white-tailed deer		

**KEY**

FWC = Florida Fish & Wildlife Conservation Commission

FWS = U.S. Fish & Wildlife Service

E = Endangered

T = Threatened

SSC = Species of Special Concern

Appendix C. Projected Costs and Funding Sources Table

## Appendix C - Projected Costs and Funding Sources Table

### Structures & Improvements

Item	Possible Funding Sources	Estimated Cost
Wildlife Observation Areas	Conservation 20/20, Land & Water Conservation Fund, Recreational Trails Program and/or Florida Recreation Development Assistance Program	\$20,000
Equestrian/Hiker Crossing		\$20,000
Crushed Shell at Main Trailhead		\$2,500
Picnic Tables		\$800
Clearing for 5 miles of New Trails	Conservation 20/20	in house
Restroom (Clivus Multrum composting)		\$15,000
Wildlife Proof Trash Bins		\$2,000
Potable Water		\$2,500
Main Entrance (grass lot, parking stops, post and rail fence and automatic gates)		\$19,800
		<b>\$82,600</b>

### Resource Enhancement & Protection

Item	Possible Funding Sources	Estimated Cost
Invasive Exotic Plant Removal	Conservation 20/20 and/or DEP - Bureau of Invasive Plant Management Partners for Fish and Wildlife	\$1,800,000
Fence Repairs	Conservation 20/20	\$15,000
Survey North Boundary		\$3,500
Fence Installation		\$7,000
Removal of Large Trash		\$1,000
Removal of 47,250 Feet of Interior Fencing		\$10,000
Fire Break Construction		\$6,000
Archaeological Resource Protection		\$20,000
		<b>\$1,867,500</b>

### Signage

Item	Possible Funding Sources	Estimated Cost
Information Kiosk and Other Educational Signs	Conservation 20/20 and/or Lee County Parks and Recreation	\$20,000
Trail Markers		\$1,500
Multi-use Trail signs		\$200
Closed Trail Signs		\$1,200
		<b>\$22,900</b>

**TOTAL COST ESTIMATE**

**\$1,973,000**

## Appendix C - Projected Costs and Funding Sources Table

### Site Management & Maintenance

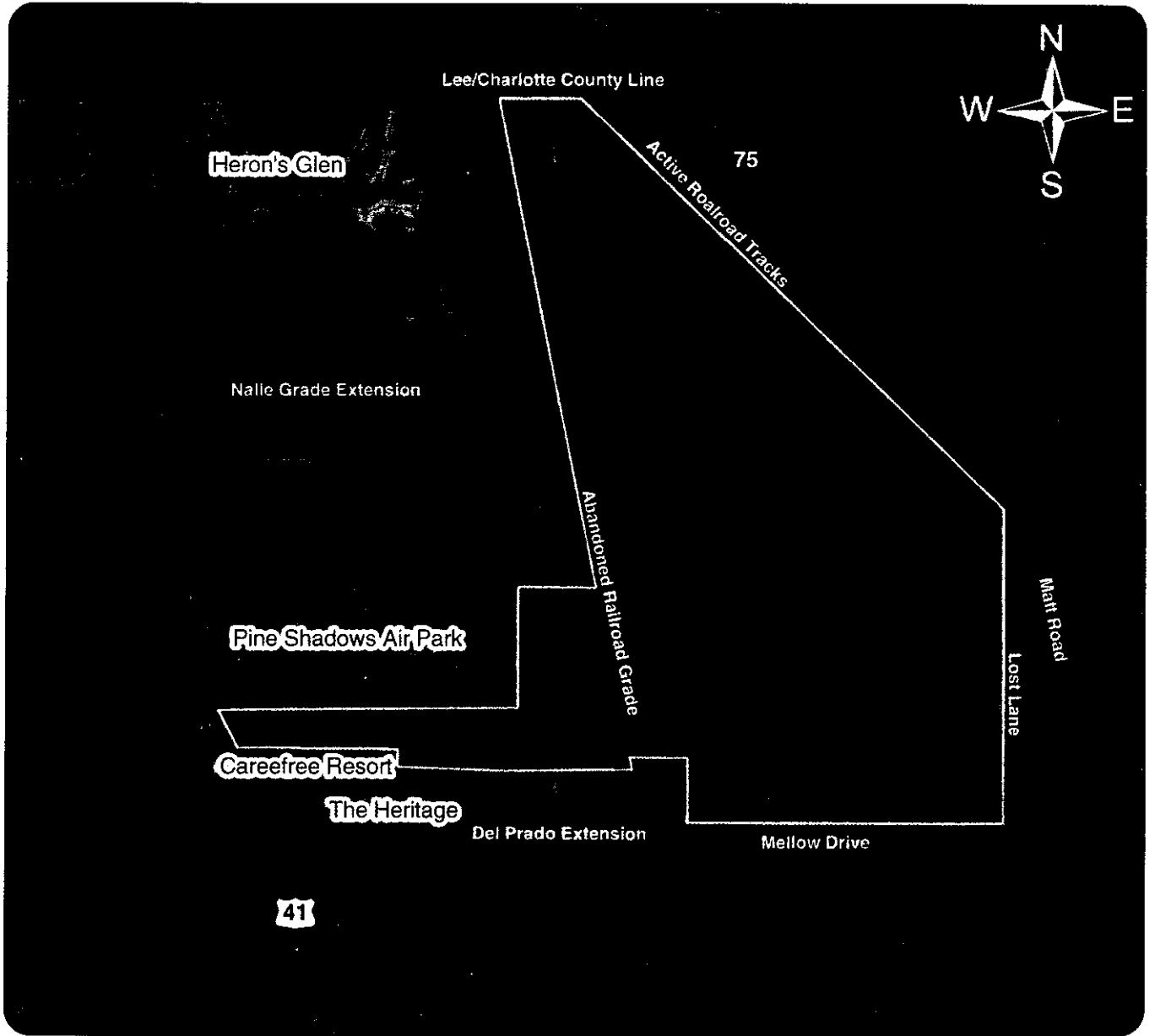
Item	Possible Funding Sources	Estimated Cost
Exotic Plant Control	Conservation 20/20 and/or DEP - Bureau of Invasive Plant Management	\$72,000 per year
Prescribed Fire Regime	Conservation 20/20 and/or Lee County Parks & Recreation	in house
Trail Maintenance		\$10,000 per year
Repairs From Vandalism of Facilities		\$3,000 per year

### Yearly Maintenance Estimate

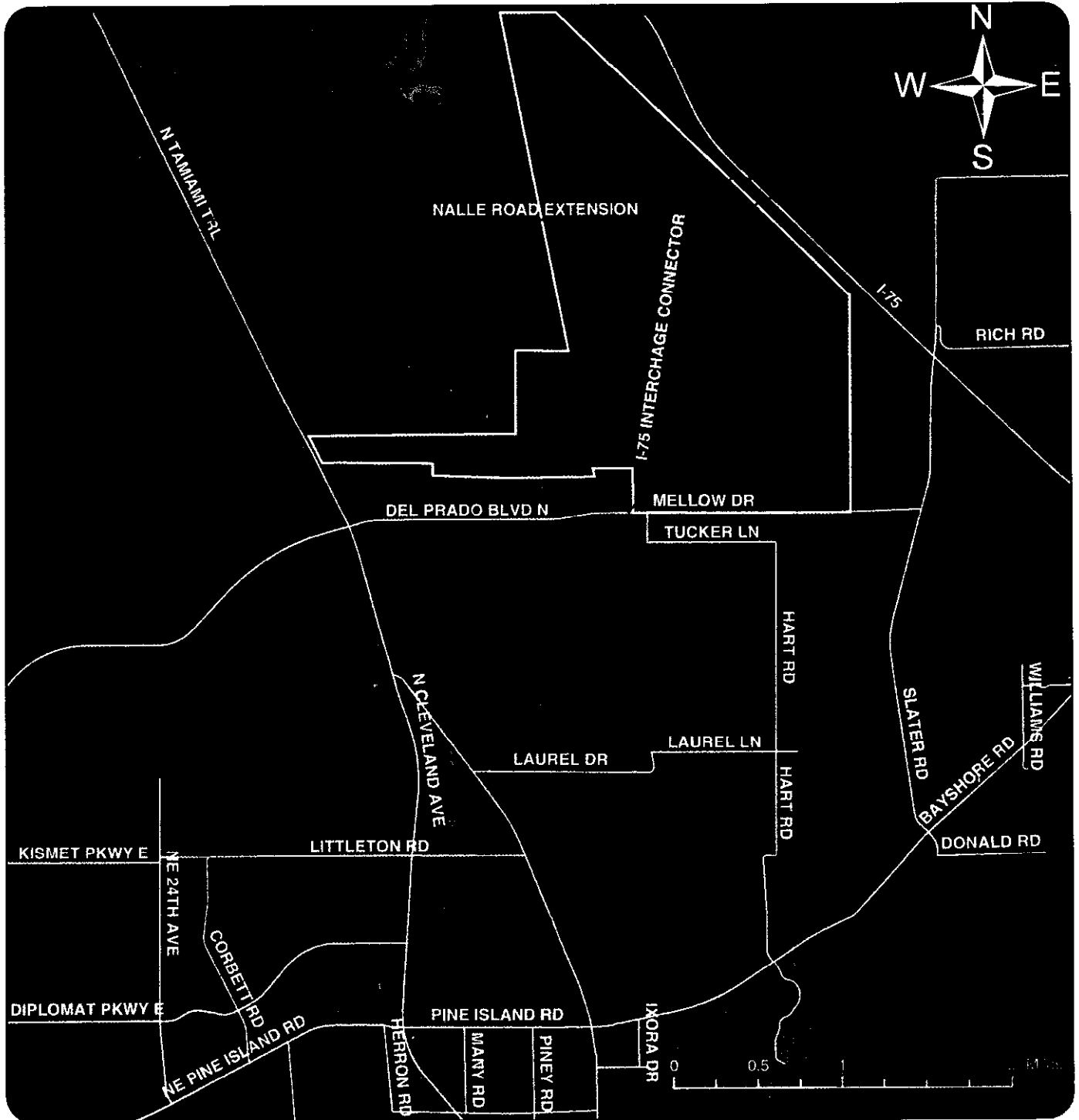
**\$85,000**

*All costs are rough estimates based on information currently available.  
Every effort will be made to not exceed this budget by more than 10%.*

# Appendix D: Surrounding Neighborhoods and Roads



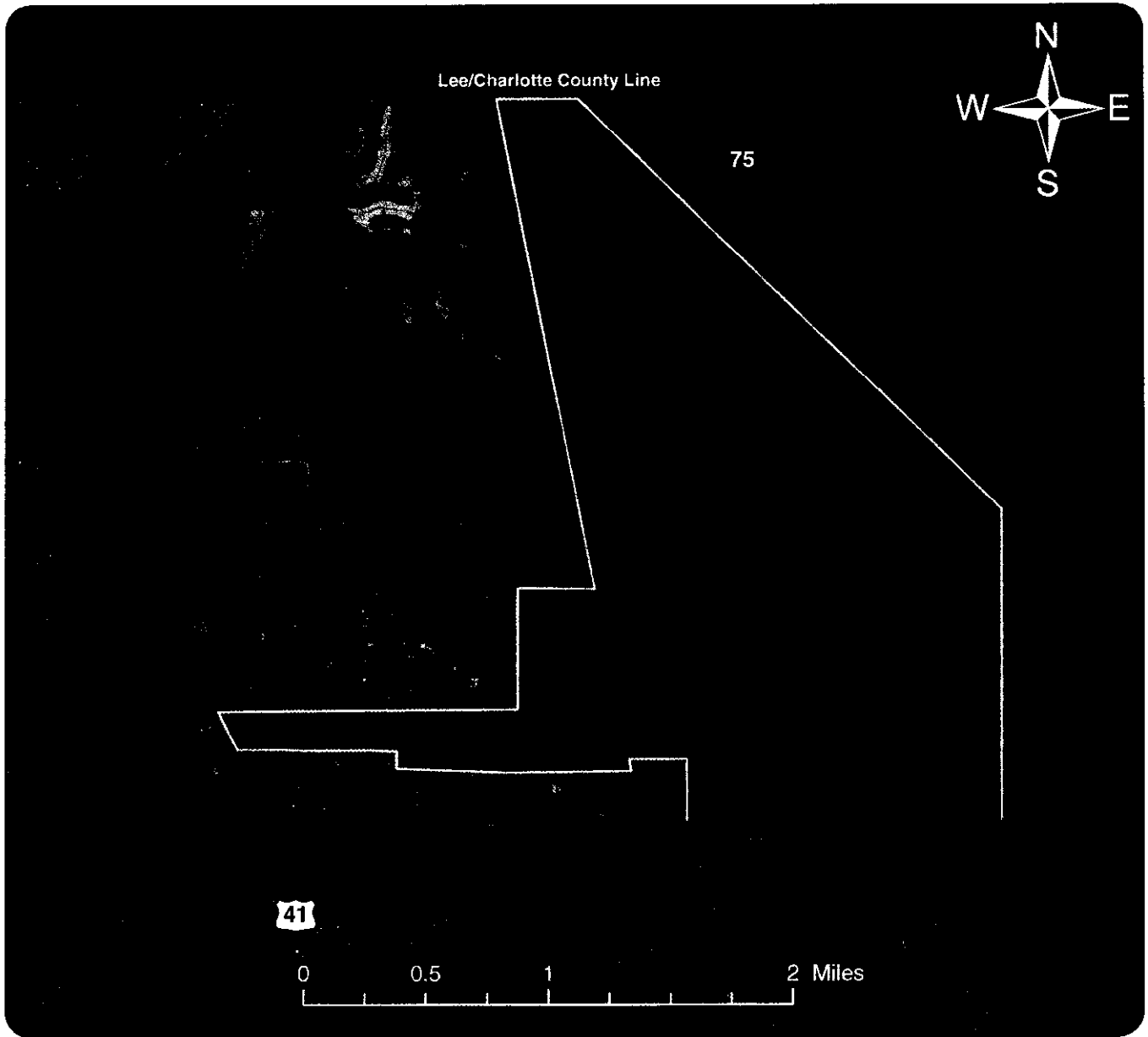
# Appendix E: Lee County DOT Planned Roads



**Legend**

- Major Roads
- Preserve Boundary
- Possible Future Alignments

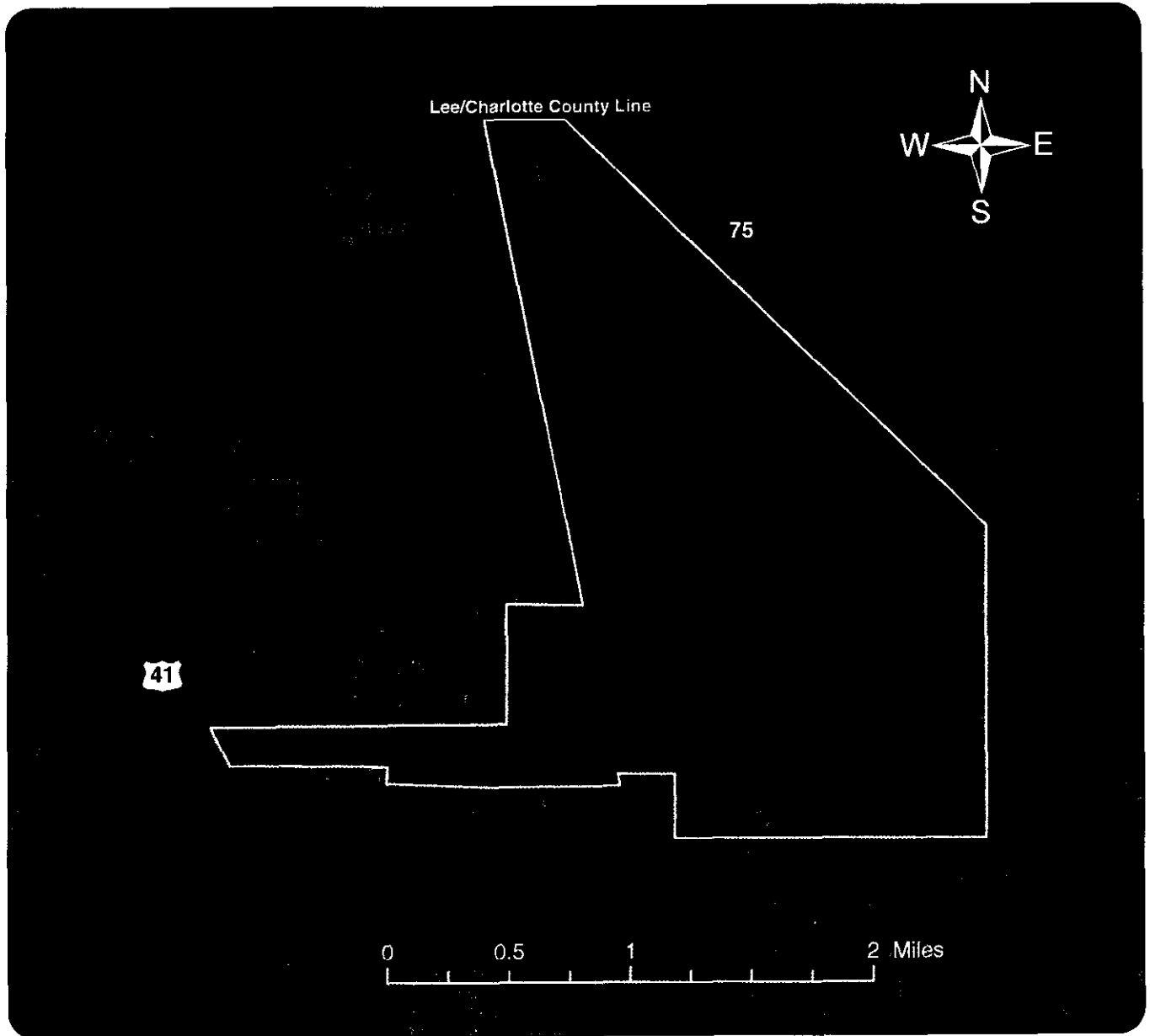
# Appendix F: Future Land Use of Preserve and Adjacent Lands

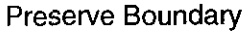











<b>Legend</b>		<b>Future Land Use</b>	
Preserve Boundary	Central Urban	Outlying Suburban	
C 20/20 Nominations	Conservation Lands Upland	Public Facilities	
Major Roads	Conservation Lands Wetland	Rural	
	Open Lands	Suburban	
	Wetlands		



# Appendix G: PPP and Adjacent Land Zoning Categories



Legend		Zoning Categories	
	Preserve Boundary		Agriculture
	Conservation 20/20 Nominations		Commercial
	Major Roads		Mobile Home Development
			Planned Unit Development
			Residential Development
			Recreational Vehicle
			Two Family Conservation

# Appendix H: Prairie Pines Preserve Strap Numbers

