Sand Hill Lakes Mitigation Bank
Third Annual Report
December 2008

Executive Summary

The Sand Hill Lakes Mitigation Bank (SLMB) consists of approximately 2,155 acres in southern Washington Co. in the Sand Hill Lakes region of the Florida Panhandle (Figure 1). It is located just west of the intersection of SR77 and SR 279 within Township 1 North, Range 14 & 15 West. It contains approximately 850 acres of wetlands, 155 acres of natural lakes and ponds, and 1,150 acres of upland buffer communities. The FDEP permit for the SHLMB was issued September 5, 2005. This is the third annual report for the SHLMB. A synoptic listing of notable activities conducted prior to this report and those anticipated in the coming year are presented below.

Interim Success Criteria

The interim success criteria have been met since 2007 for the following interim release criteria: less than 2% exotic vegetation; preservation areas are maintaining or improving function; upland and wet pine flatwoods have measurably increased in herbaceous ground cover and decreasing in woody vegetative cover; targeted oaks have been reduced in number with limited re-growth; adequate numbers of pine exist within the polygons to meet permit requirements; dam has been removed in slough area; prescribed burns have occurred in accordance with the burn plans; and all erosion areas, road removal, dam, bridge and culvert replacement has been completed and have increasing vegetation.

The following remaining two interim release criteria are expected to be completed in January 2008: the slough area will have sufficient healthy trees per acre; and the remaining sandhills restoration (formally pine plantation 319 acres) will have a sufficient number of long leaf pine that have survived at least one year.

Restoration Activities Completed

Perimeter fencing, gates and signage was installed by February 2005. Ongoing law enforcement has been conducted at the site since 2003 with the purchase of the bank property with no violations to date. A conservation easement was recorded for the SHLMB in February of 2006, preserving the wetland, aquatic and upland communities in perpetuity. Duncan Cairns, Tyler Macmillan and David Clayton were approved as QMS officers for the SHLMB. In accordance with permit requirements a mitigation fund was established for the bank. An archeological/historic survey was conducted at the SHLMB and approved by the Florida Division of Historical Resources (DHR). The majority of the restoration activities were to be initiated during 2005/2006. However, due in part to the delayed permit approvals and a lengthy archeological review by DHR, the initiation of many mitigation activities were initiated approximately a year from the proposed timeline. The initial replanting long leaf pine in the uplands surrounding Black Pond, Cat Pond, and Greenhead branch occurred in December 2004. Oak reduction in the uplands was initiated in June 2005 and completed in August 2006. Construction activities were initiated in July of 2006, in accordance with all permit requirements. All stabilization of erosion areas and re-vegetation, road fill removal, bridge and culvert replacement, Dykes Mill Pond dam removal were completed by March, 2007. The replacement of the dam at Black pond was initiated in October 2007 and was completed by January 2008. Removal of off- site sand pine and slash pine plantation was initiated in July 2007 and completed by October 2007. Gyro-Trac work was initiated in March of 2007 and completed by September of 2007. An additional 38 acres Gyro-Trac work was conducted in June and August 2008 in areas that were historically wet pine flatwoods bringing the total acreage of wet pine flatwood restoration to 165 acres up from the permitted 147. Long leaf pine planting in the wetlands and undisturbed uplands occurred in the winter of 2005 and 2007. Additional long leaf pine planting occurred in November 2008 in area where the offsite sand pine or slash pine had been harvested (319 acres). Pond cypress was planted at Dykes Mill Pond in January 2008 and due to poor survival, a supplemental planting of black gum and pond cypress will occur in March of 2009. Initial wire grass plantings occurred in the wet pine flatwoods in 2006. Wire grass planting is ongoing as allowed in the permit due to the large acreage to restore and limited seed source. To date a total of 109 acres of wet pine flatwoods/wet prairie habitat has been replanted in wet wire

grass tublings on 3’ centers for a total of 473, 836 plugs. Similarly, a total of 53 acres of upland wire grass tublings have been planted for a total of 256,520 tublings. An additional 30 acres of upland and wetland wire grass tublings will be planted in winter 2009/2010.

Controlled Burns

Fire was re-introduced to the SHLMB in the fall of 2004. All initial burns for the wetlands and uplands were completed in December 2006. In 2007, summer burns were re-introduced to portions of the bank. Warm season burns will be conducted in 2008 for 368 acres.

Nuisance and Exotic Species

Surveys of nuisance species (flora and fauna) have been conducted throughout the past 4 years. In addition a yearly fall site inspection for nuisance species occurs in conjunction with the annual monitoring as well as day to day monitoring by District and FWC staff. Several small patches of torpedo grass (*Panicum repens*) were treated with Habitat at historic boat launch areas during August and September 2005 and 2007. No live plants were observed during the fall monitoring in 2008. Minor feral hog damage was observed at Dry and Dykes Mill Pond in 2007. Very limited signs of hogs were observed in 2008. Traps were again set but no hogs were trapped. Water level gages were installed and surveyed in on December of 2005 for 10 locations throughout the bank, and have been read by the FWC for the last three years and data supplied to the District.

Annual Sampling

The annual sampling for this report was conducted in October 25- November 5, 2008.
Pedestrian surveys were conducted for both wetland and uplands. The pedestrian surveys were very useful in providing detailed species lists and a greater understanding of species diversity for each community. In addition the pedestrian surveys cover far more area of the polygon that may reveal late successional and threatened or endangered species. In Pedestrian surveys are also useful in identifying pockets of nuisance species and determine fuel loads. Overall, species diversity was excellent throughout the SHLMB and plants were healthy.

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Introduction

The Sand Hill Lakes Mitigation Bank (SLMB) consists of 2,155 acres in the southern portion of Washington Co. in the Sand Hill Lakes region of the Florida Panhandle (Figure 1). It is located just west of the intersection of SR77 and SR 279, and is within Township 1 North, Range 14 & 15 West. It contains approximately 850 acres of wetlands including high quality cypress sloughs and strands, degraded hydric pine flatwoods, bayheads, seepage slopes, and approximately155 acres of natural solution ponds and shallow, gently-sloped lakes connected by streams and ditches. The remaining 1,150 acres of consist of secondary growth upland buffer communities (including high quality and degraded sand hill communities as well as sand pine plantation, slash pine plantation, and mixed hardwoods) (Figure 1a).

The SHLMB occurs on the divide between the Choctawhatchee and St. Andrew Bay watersheds. The majority of the proposed Bank is in the surface headwaters of Pine Log Creek, which flows westerly and southwesterly to Pine Log State Forest and ultimately to the Choctawhatchee River and Bay. However, because of the karst nature of the Sand Hill Lakes the SHLMB is also a recharge area for Econfina Creek, which, via Deer Point Lake, is the water supply for Panama City.

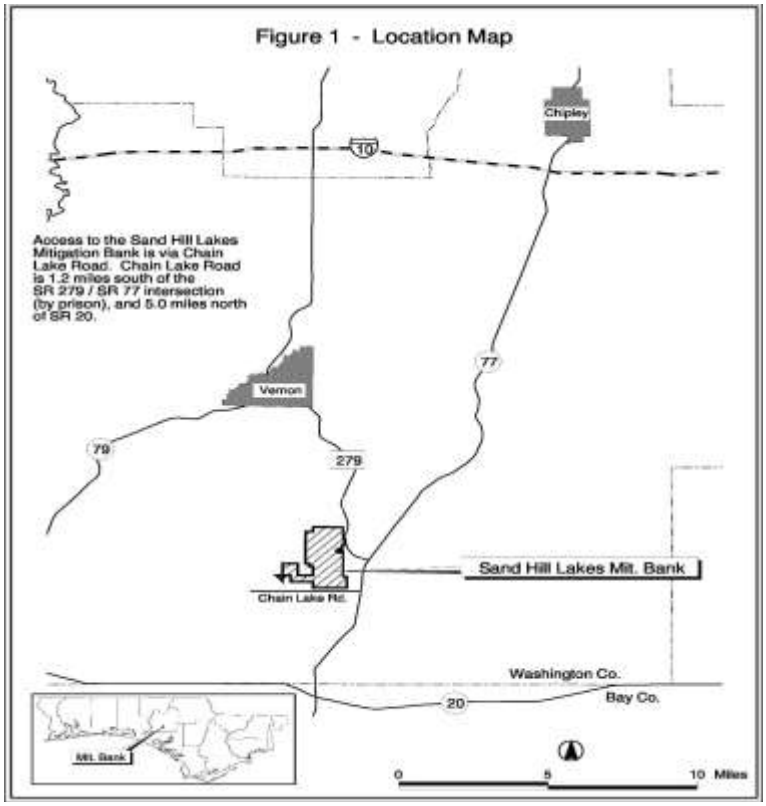
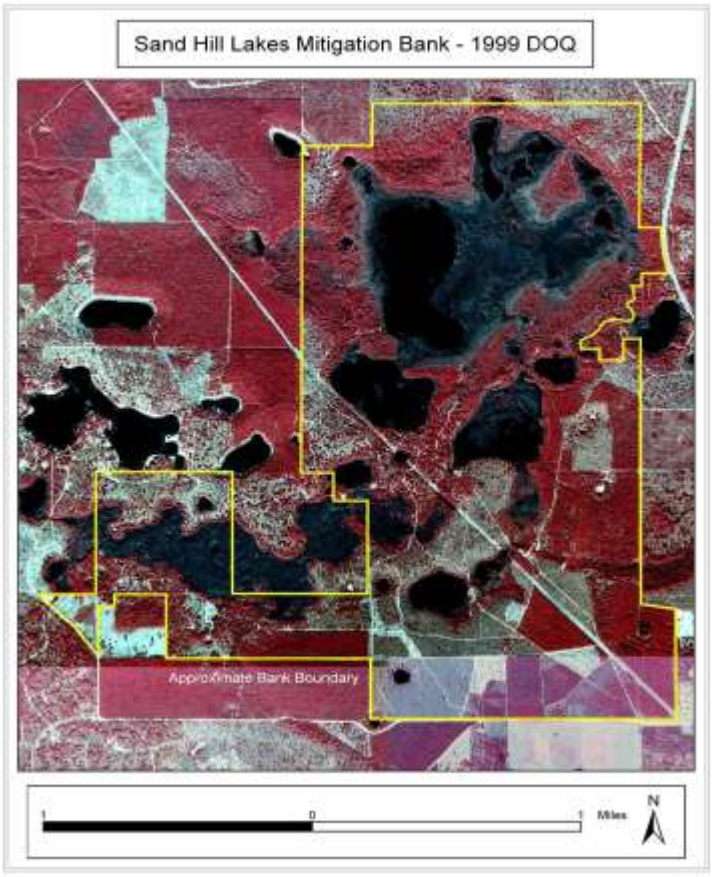


Figure 1a. SHLMB boundary map and habitats



Bank Establishment and Implementation of Permit Requirements

The permit for the Sand Hill Lakes Mitigation Bank (SHLMB) was issued by the DEP on September 5, 2005. This document represents the second annual report for the SHLMB. Perimeter fencing with gates and signs were installed prior to March of 2005. Law enforcement has been conducted at the site since the property was purchased and is ongoing at the SHLMB. A conservation easement was recorded for the SHLMB on 2/28/06, preserving the wetland, aquatic and upland communities in perpetuity. QMS officers Duncan Cairns, Tyler Macmillan and David Clayton were selected by the NWFWMD and approved by the DEP. In accordance with permit requirements a mitigation fund was established for the bank. An archeological and historic survey was conducted for the SHLMB and approved by the Division of Historical Resources. Construction activities were initiated in July of 2006, in accordance with permit requirements.

Mitigation Activities

Work Schedule

According to the proposed work schedule for the SHLMB found on page12 of the SHLMB permit, the majority of the restoration activities were to be initiated during 2005-2006. However, the restoration activities were postponed due to delays in permit issuance, recording of conservation, and additional time needed to complete and approve the archeological study. Consequently, many of the restoration activities

were delayed by approximately 1 year. A revised schedule was included in the first monitoring report. In 2007, the majority of the construction and restoration activities were completed and an updated work schedule has been provided (Table 1).

Table 1. Restoration work schedule

Activity	**Estimated Completion Date**
Conservation easement, QMS	**Completed 3/06**
Fencing and signage	**Completed 3/05**
Site security / law enforcement / internal gaiting / road closures	**Ongoing**
Stabilization of 10 erosion sites	**Completed 3/2007**
Hydrologic enhancements - Replacement of Black Pond dam - Removal of Dykes Mill Pond dam - Removal of road fill at (3) sites - Construction of 2 bridges and replacement of 3 culverts	**Initiated 10/07** **Completed 1/08** **Initiated 7/06** **Completed 8/06** **Initiated 7/06** **Completed 3/07** **Initiated 7/06** **Completed 3/07**
Removal of pine plantation and thinning of slash pine	**Initiated 7/07** **Competed 10/2007**
Removal of oak overgrowth and replanting with longleaf pine	**Competed: Oak removed 2005/2006** **Pine planted 2005 and 12/2007**
80% completion of initial growing season and fuel reduction fires in areas to be maintained as oak / pine community	**Completed 12/2005**
Initial thinning, roller chopping, and fuel reduction fires in hydric pine	**Completed Initial burns 8/05** **Completed required shrub reduction 6/07 (Gyrotrack)** **Completed Pine thinning 10/07** **Completed site prep burns following harvest 12/2008**
Supplemental wiregrass seeding if necessitated by onsite conditions	**2008/2012 Ongoing**
Installation of water level gages	**Completed 12/05**
Baseline assessments of vegetation	**Completed 2004/2005**
Fire Management / Monitoring Year 1 / Annual Report	**Completed 2005/2006 report**
Fire Management / Monitoring Year 2/ Annual Report	**Completed 2007/2008 report,**
Fire Management / Monitoring Year3 / Annual Report	2009/2010 report
Fire Management / Monitoring Year 4 / Annual Report	2010/2011 report
Fire Management / Monitoring Year 5 / Annual Report	2012/2013 report
Perpetual Ecological Management	2013 +

Hydrologic Enhancements

Hydrologic enhancements include the complete removal of 2 fill-road crossings, installation of bridges at 3 crossings and 2 culverts and the removal or replacement of 2 failing water control structures, the remediation of 10 erosion areas, the stabilization of 1 boat launching site, and construction of one rain shelter (Figures 3 and 4).

The removal of the failing water control structure at Dykes Mill Pond and construction of three bridges (#1, #3, #7), and two culverts (#9, #10-A-B) was initiated in July 2006 and completed in April of 2007 in accordance with permit conditions (Figure 3). The graded areas were stabilized and seeded in early 2007 with season-appropriate, non-invasive annual grass to reduce potentially turbid runoff. On June 30th, the graded areas were seeded with brown-top millet. Current water levels at the culvert sites are well below the structures for all but Greenhead Branch and Dykes Mill Pond bridge.

The removal and re-vegetation of two fill-road crossing was initiated in January of 2007 and completed in March of 2007 (Figure 3). Erosion area #6 was restored in July of 2006 as part of road enhancement project while remediation of the remaining 9 erosion sites was initiated in January and completed in April 2007. Hay bales and silt fences were installed in accordance with the permit requirements (Figure 3 and 4). The areas were planted as each site was completed. Sites were planted in accordance with the approved planting plan. Graded areas were stabilized with annual rye grass and seeded with brown-top millet on June 30, 2007. Sites were monitored during the summer and fall monitoring. Inadvertently, the contractor used Bahia grass hay to stabilize soils at the two erosion areas 1-3 (Cat Pond and the road removal at Deep Edge). The contractor was required to treat each area with herbicide until the Bahia grass was eliminated. Initial treatments occurred in May with subsequent treatments in September. Supplemental wire grass and long leaf pine seedlings will be planted at these sites in 2008. In 2008 seed from the eradicated Bahia grass and or mulch germinated as was treated with to remove the grass. In addition, poor survival was observed at the erosion sites 1, 2, 4, 5, and 10. Supplemental planting occurred in February 2008 in accordance with the permit requirements. Shrubs will be planted at the road fill removal sites in March 2009 in accordance with the planting plan. This will complete the planting requirements for these areas.

The replacement of the water control structure at Black Pond (#2) was initiated in October 31, 2007 and completed by the end of January 2008.

Finally, the stabilization of one boat launch area on Dry Pond was completed in September 2007. Photographic documentation for all these activities was included in the 2007 report.

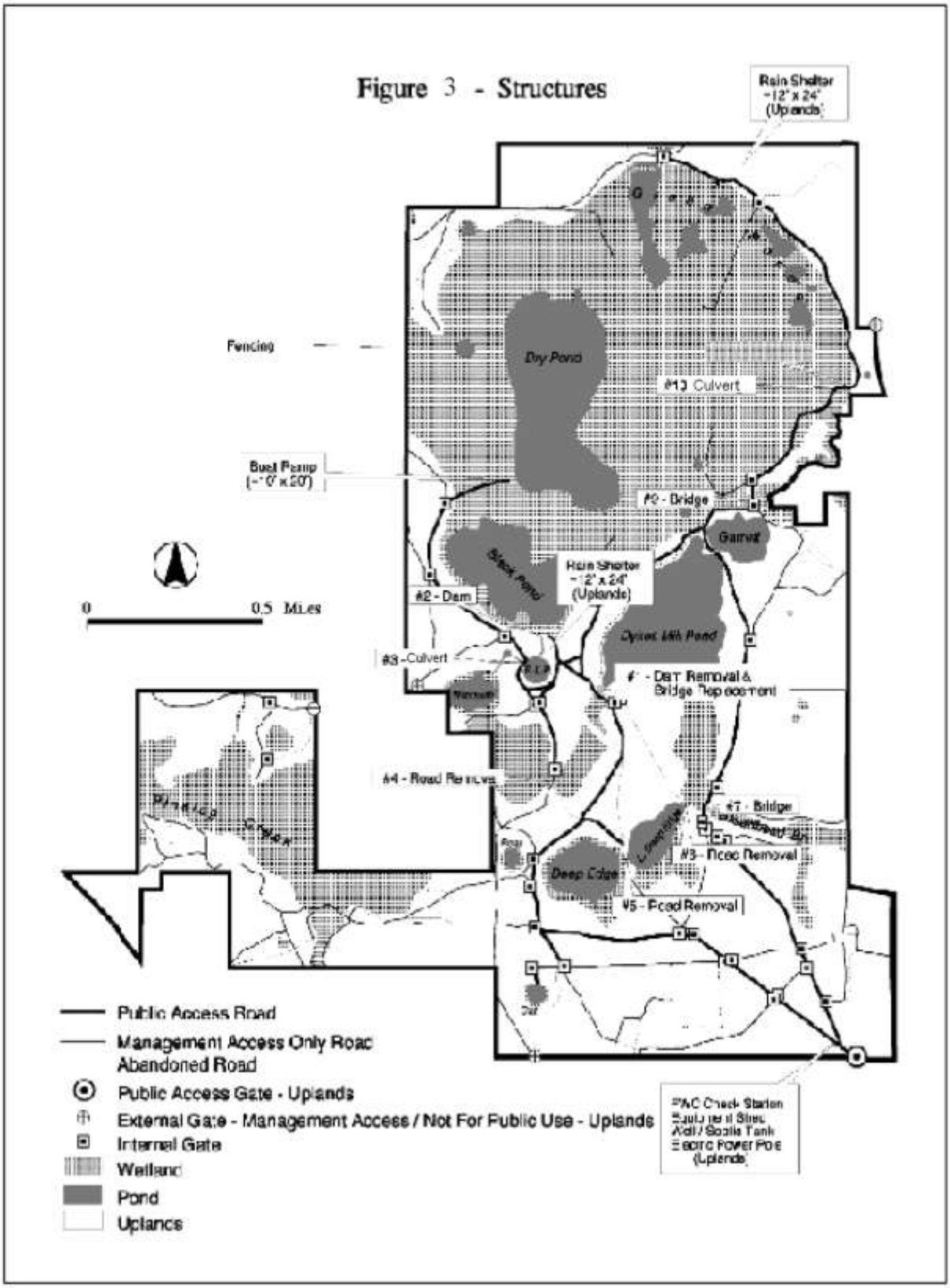
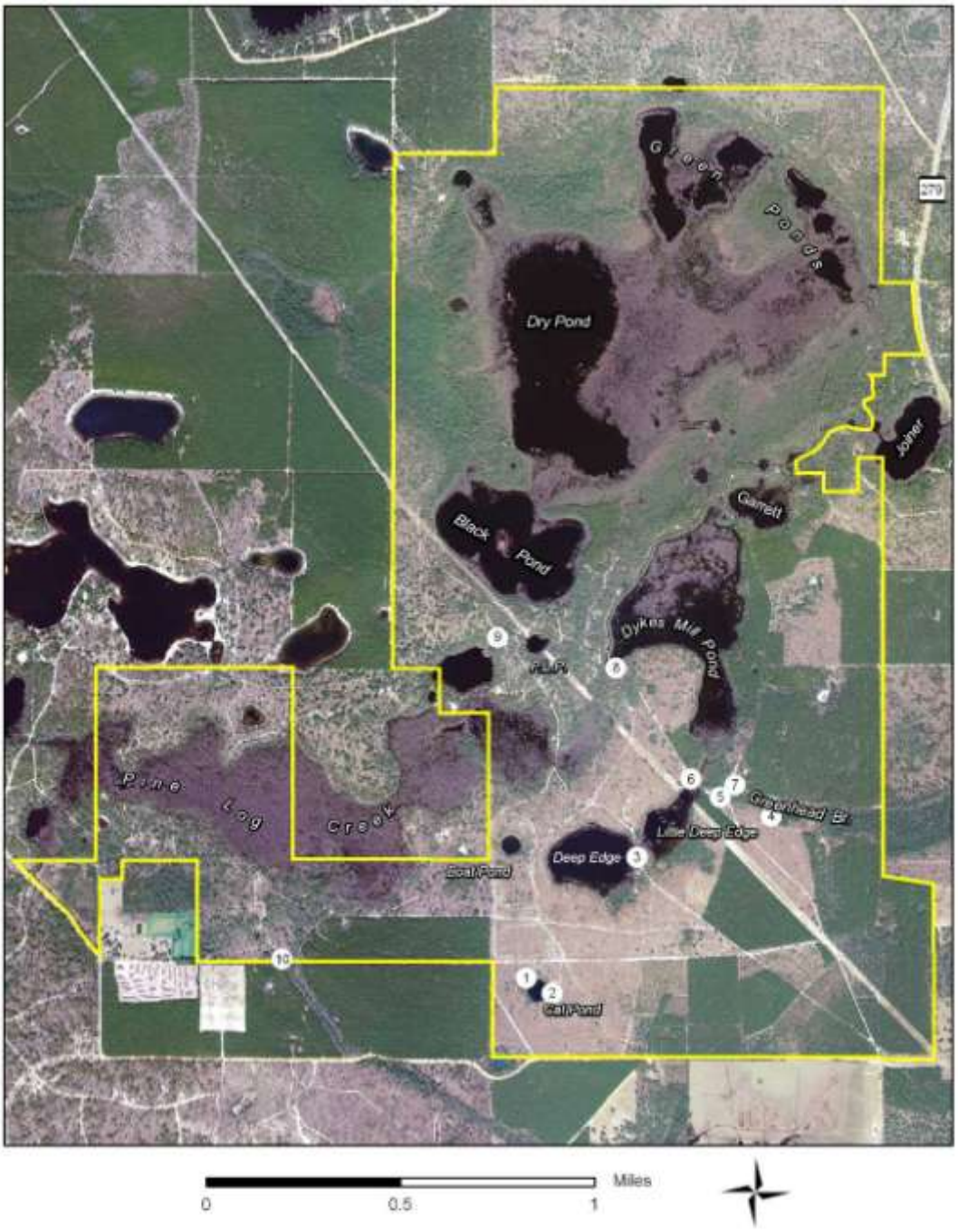


Figure 3 - Structures
Rain Shelter
~12' x 24'
(Uplands)
Fencing
Dry Pond
#10 Culvert
Well Pump
(~6' x 20')
#9 - Bridge
Gabion
Rain Shelter
~12' x 24'
(Uplands)
#2 - Dam
0
0.5 Miles
#3 -Culvert
#4 - Road Removal
#7 - Bridge
#8 - Road Removal
#5 - Road Removal
Public Access Road
Management Access Only Road
Abandoned Road
Public Access Gate - Uplands
External Gate - Management Access / Not For Public Use - Uplands
Internal Gate
Wetland
Pond
Uplands

Figure 4 - Erosion Stabilization Sites



Fire Management

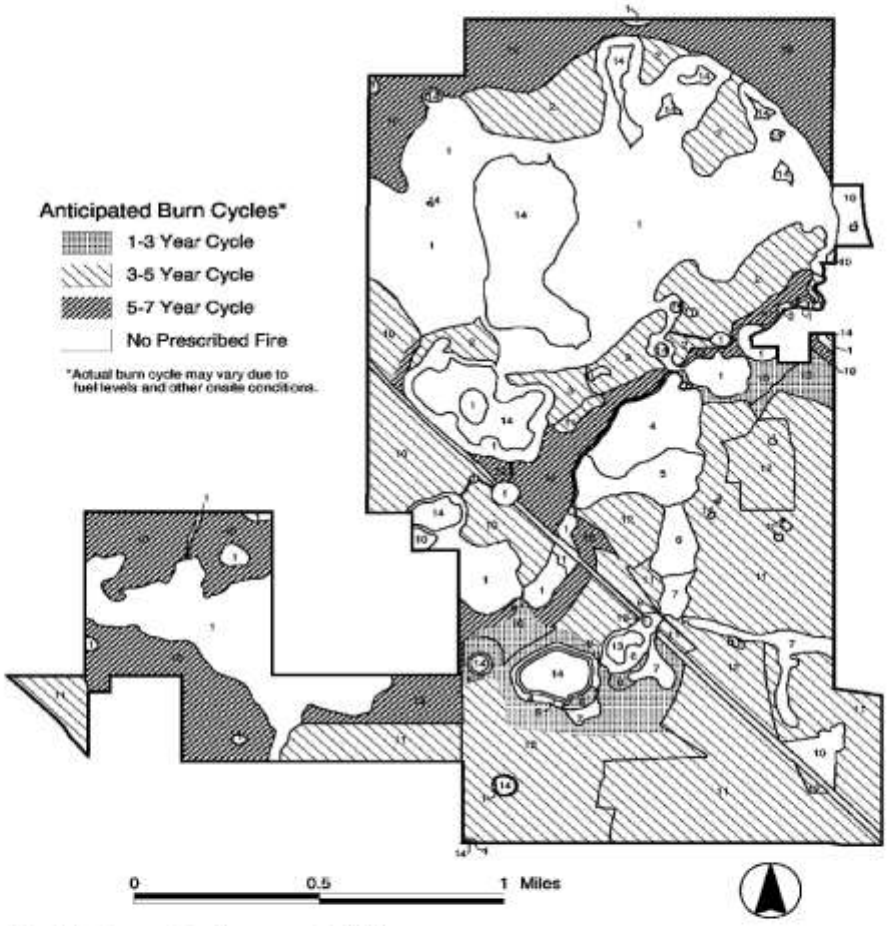
The bank is divided into 14 Management Units that range from 0.25 to ~580 acres Prescribed fire is an integral component of the management, enhancement and restoration for six of the management units (Management Units 2, 3, 8, 10, 11, and 12), and will also be used to manage portions of the power line ROW(Figure 5). The remaining Management Units are wetlands or aquatic systems not typically managed with fire, although fire from adjacent Units may be allowed to burn into them when conditions allow. Prescribed burns have generally be conducted during the growing season (March through August), although initial dormant-season fuel-reduction fires have been required in some areas. Burns are planned for 1-3, 3-5 and 5-7 year cycles, although fuel levels, prevailing weather patterns and other on-site conditions may necessitate modification of burn cycles. Burn coverage of 80% or more within a polygon has been considered a successful burn. Prescribed fire is intended to inhibit establishment of woody species, promote fire-adapted species, and stimulate seed production of desirable herbs. Fire prescriptions have been written to comply with open burning laws (Florida Statutes 590) and liability considerations. Safety and protection of property will be the priority concern of the Florida Certified Prescribed Burn Manager (FCMB).

Fire was re-introduced to the SHLMB during the winter of 2004 to portions of Management Unit 11 and 12. Subsequently portions of the sand hills and hydric pine flatwoods were burned during the summer of 2005 with the remaining initial burns completed by December of 2005 in accordance with the Fire Management Plan (Figure 6). In areas with a high fuel loads such as Management Unit 2, 3, 8 and some portions of Management Unit 10 adjacent to Black pond dormant season fuel reduction fires were utilized. However in Management Unit 11 and 12 initial burns reduced fuel loads to the extent that warm season burns were conducted. Wire grass flowered in these areas following the fire and plants appeared healthy. The burns at the SHLMB have also been successful in reducing woody vegetation coverage as well as stimulating a seed bank of fire adapted species. Prior to the initiation of fire, woody goldenrod was the dominant species, but the initial fires greatly reduced the woody goldenrod cover and stimulated the wire grass.

In 2007, it was anticipated that 287 acres would be burned during winter 2006/2007. However, due to the extended drought and unsafe fire conditions only 69 acres were burned with 66 acres meeting the 80% requirement. No warm season burns were attempted due to the extended drought.

In 2008, a total of 384 acres of burns are planned at the SHLMB (Figures 6a, 6b, 7, 7a-7e)). Warm season burns will be conducted at Garret Pond and adjacent to Pine Log Creek and winter burns will be conducted for the areas with off-site pine removal.

Figure 5 - Anticipated Burn Cycles



Note: Numbers refer to Management Unit No.

Figure 6 - Areas Burned Since Inception of Bank Through 2006

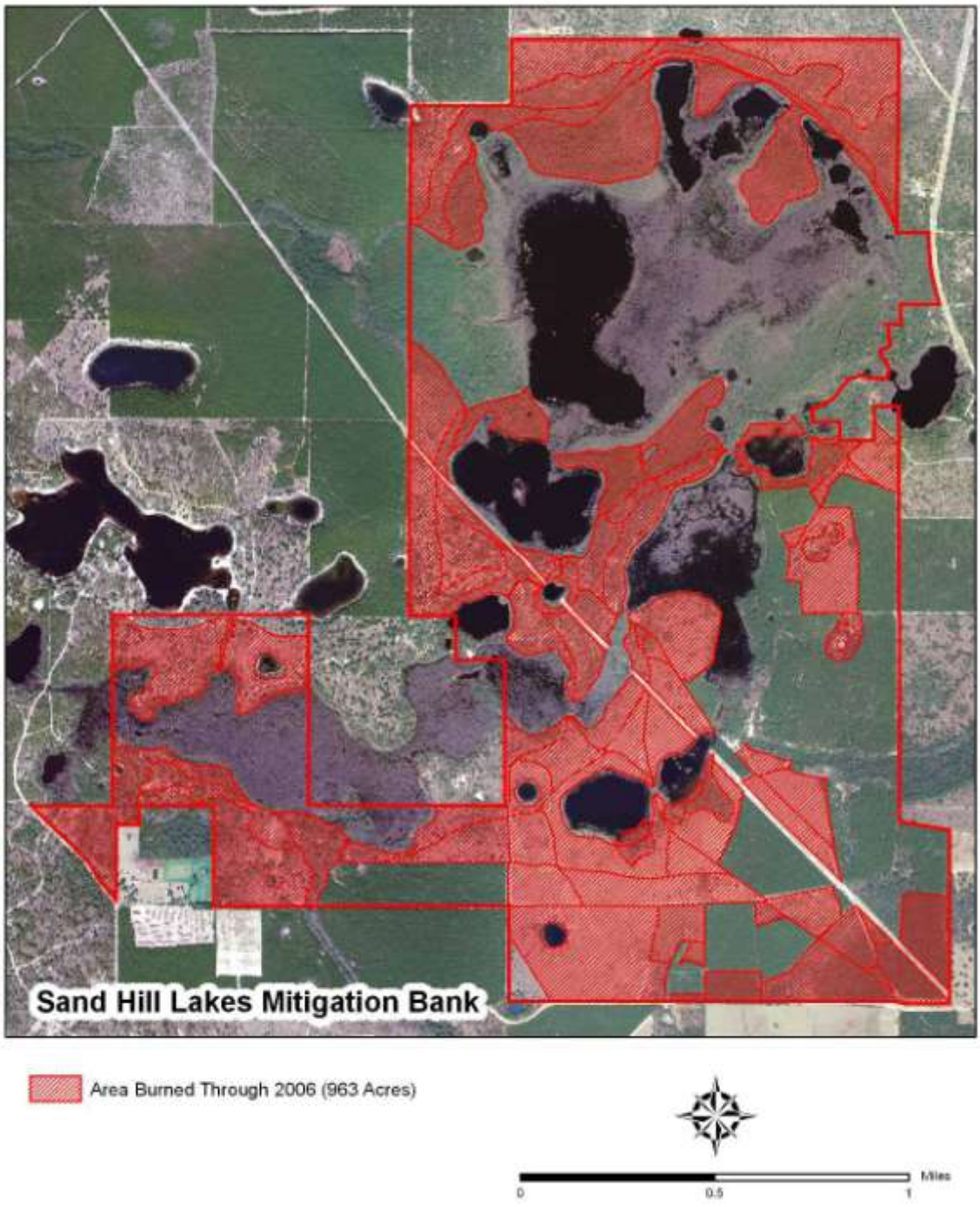


Figure 6A. Warm Season Burn Adjacent to Pine Log Creek

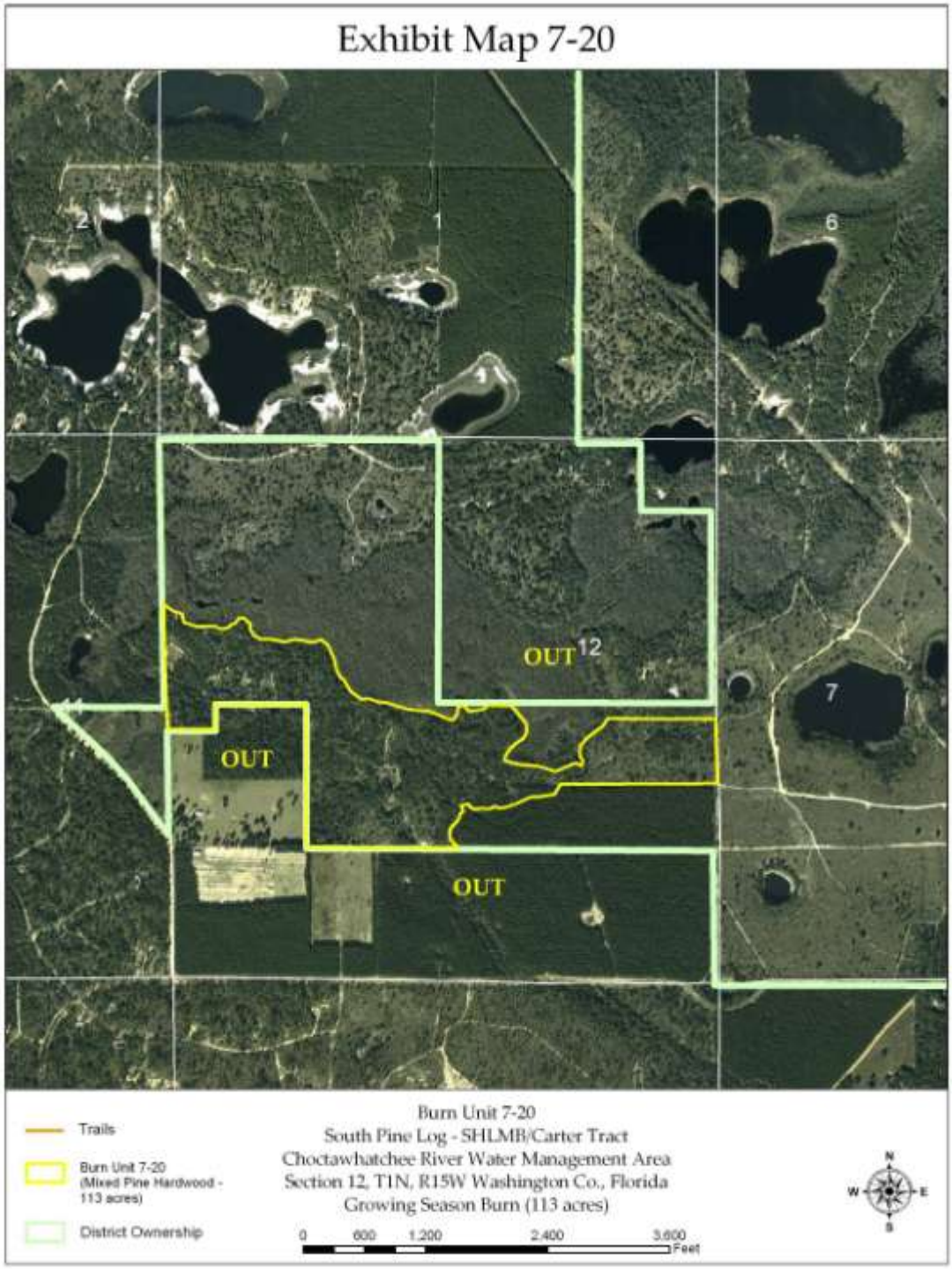


Figure 6B. Warm Season Burn at Garrett Pond

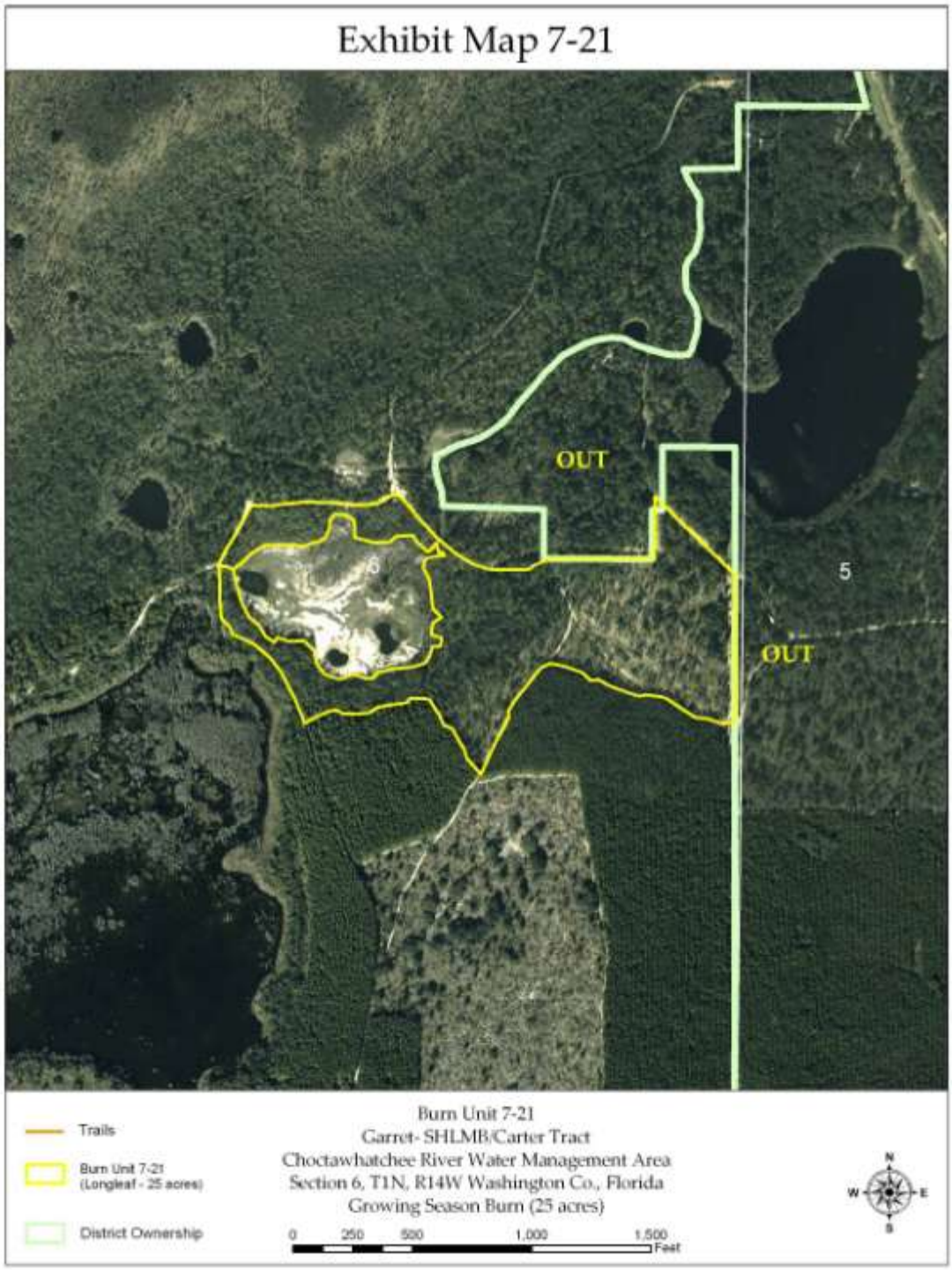


Figure 7. Winter Burns 2007/2008

Figure 7a. 2008/2009 Winter Burns

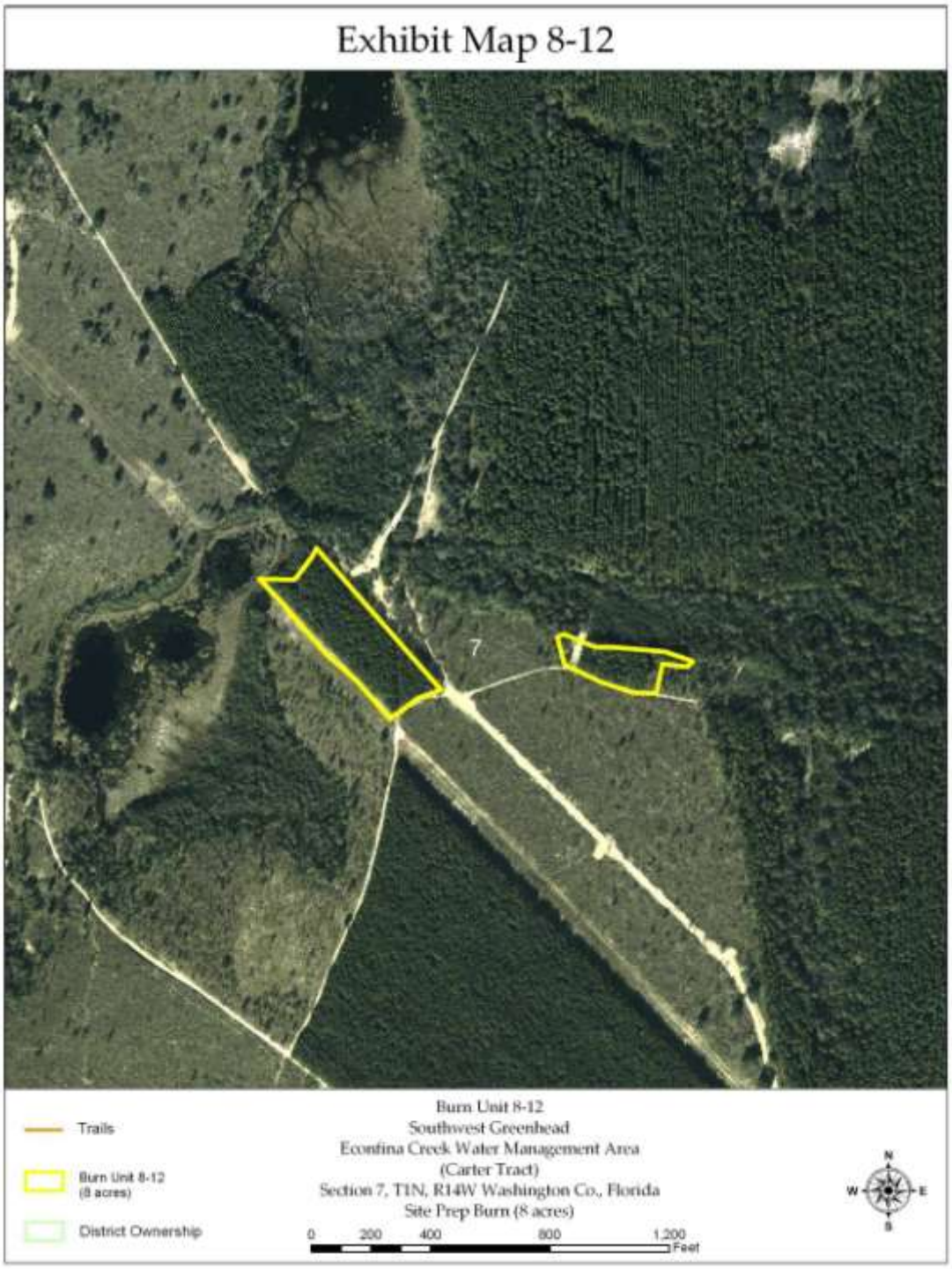


Figure 7b 2008/2009 Winter Burns

Figure 7c 2008/2009 Winter Burns

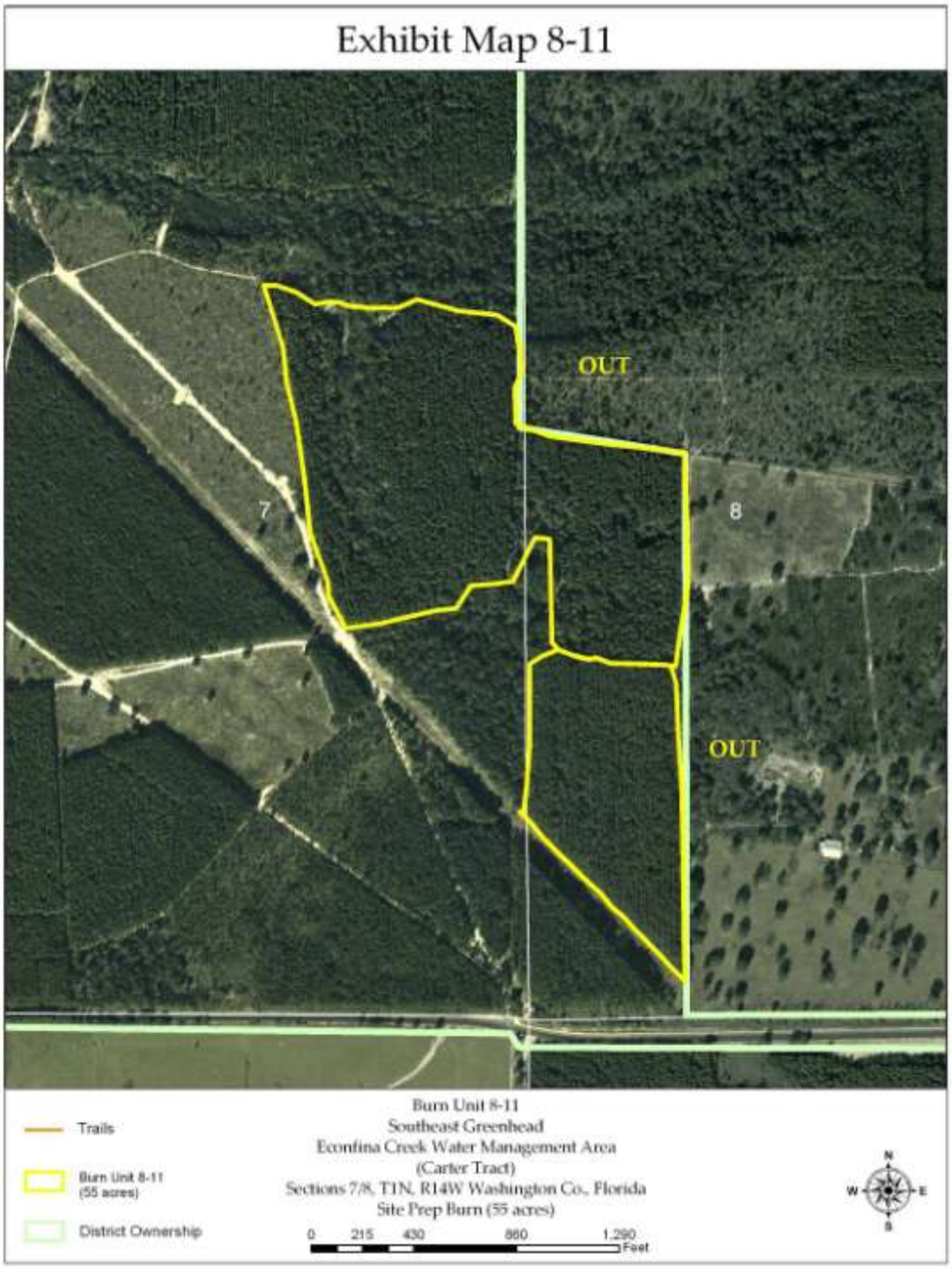


Figure 7d 2008/2009 Winter Burns

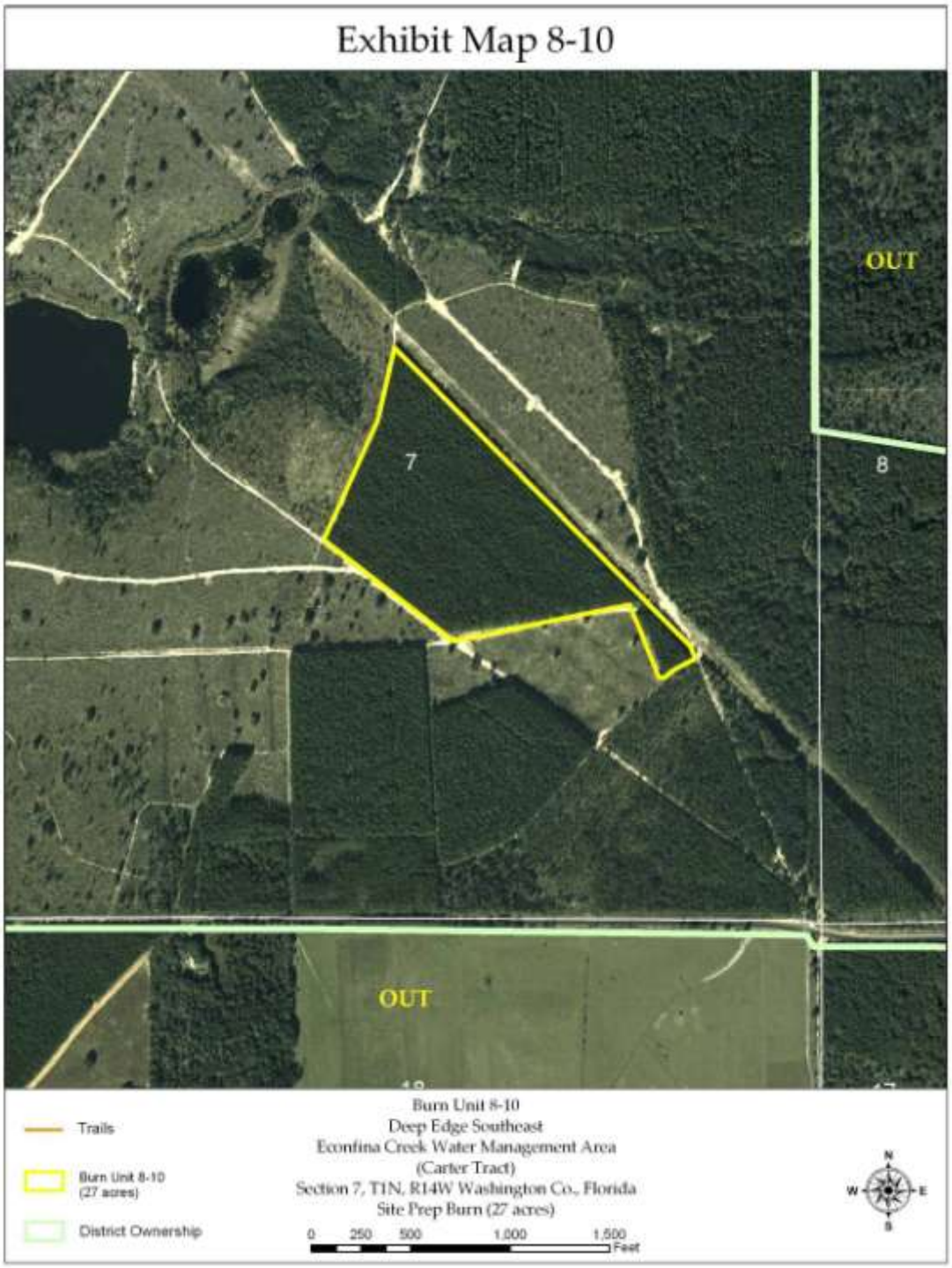
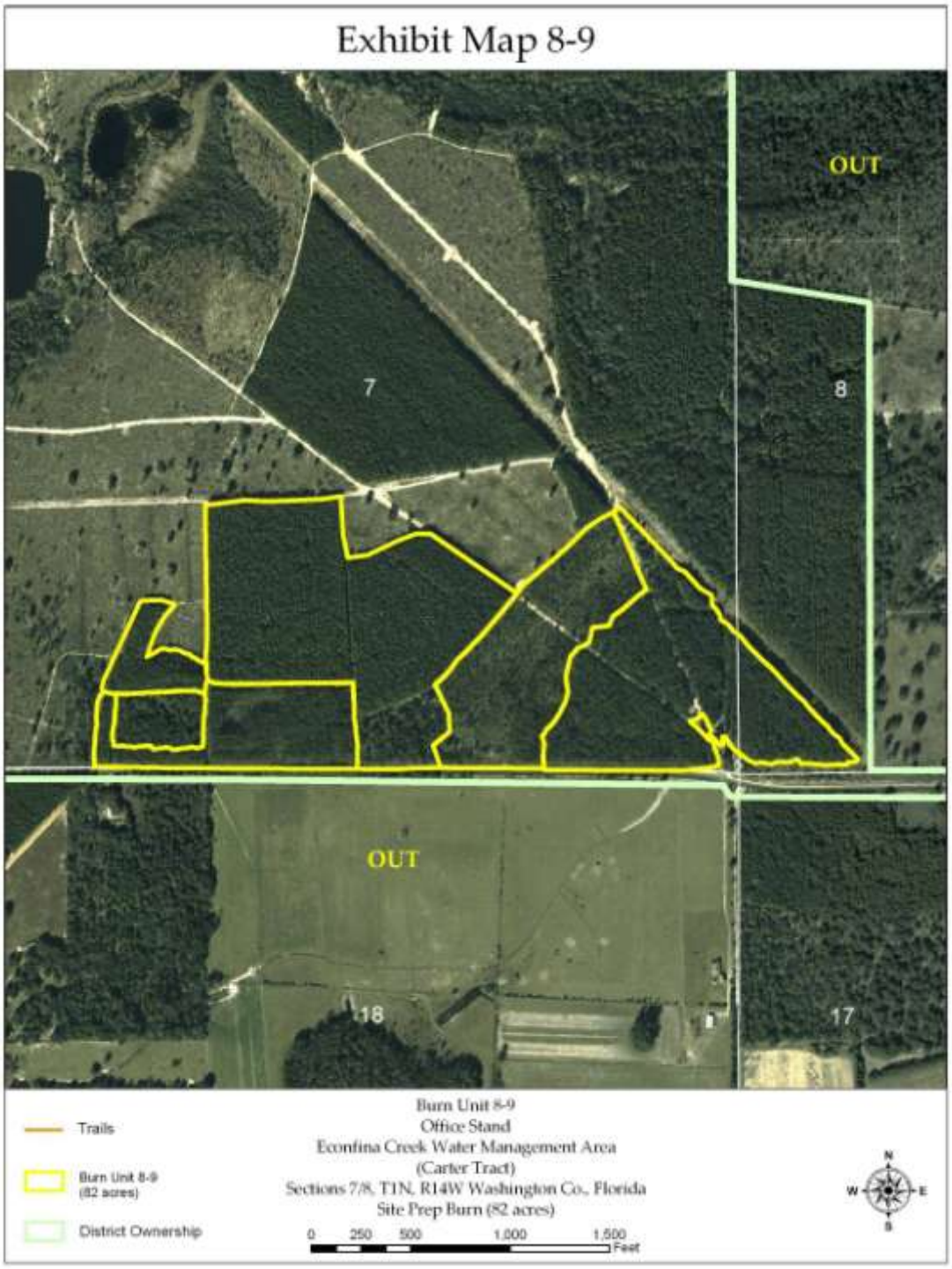


Figure 7e 2008/2009 Winter Burns



Exotic Fauna and Vegetation

Surveys nuisance species have been conducted throughout the year. In 2006, one female hog was trapped and patches of torpedo grass were observed at historic boat launches. These areas were treated by the Bureau of Invasive Plant Management on July 20th 2006. In 2007, several small patches of torpedo grass were again observed at the historic boat launch areas of several ponds (Figure 8). These areas were treated twice with Habitat on July 26th and August 6, 2007. No visible living plant material was observed during subsequent site visits or during the 2008 fall monitoring. Inadvertently the contractor working on the road removal and stabilization of erosion areas used inappropriate Bahia grass hay to stabilize the soils for erosion areas 1 and 2 and 3 the road removal between Deep Edge and Little Deep Edge. The contractor was required to treat these areas with herbicide until the Bahia grass was killed. Treatments occurred in May and September. No living material was observed during the fall monitoring. In the summer of 2008, Bahia grass seed germinated in the road removal areas and were again treated twice to remove Bahia grass cover. Spot treatments will continue in 2009 as necessary. Minor feral hog damage has been observed at Pine Log Creek during the 2008 fall monitoring. Traps have been set.

Figure 8 - Nuisance and Exotic Species Tracking

Monthly Water Gage Assessments:

Water levels gauges were installed and surveyed in on December of 2005 for 10 locations throughout the bank. These locations include Black Pond, Power Line Pond, Pine Log Creek, Deep Edge Pond, Little Deep Edge Pond, Dykes Mill Pond, Ditch connecting to Pine Log Creek #7, natural channel from Joiner Lake to the Green Pond, Green Ponds, and Dry Lake (Table 2, Figure 9). The gauges were read monthly by the

Florida Wildlife Conservation Commission staff and the results submitted to the NWFWMD (Table 2, Figure 9). In 2006, the water levels were above the gages until April, then from May to December then water levels were below the staff gages for all but Little Deep Edge and Dykes Mill Pond. The drought continued in 2007 and 2008. Water levels were below the staff gages for most of the year for all locations except Little Deep Edge Pond and Dykes Mill Pond, and Dry Pond.

Table 2. Monthly Water Gage Readings

Readings in Feet	(1) Black Pond	(2) Power Line Pond	(3) Pine Log Creek	(4) Deep Edge Pond	(5) Little Deep Edge Pond	(6) Dykes Mill Pond	(7) Green Ponds Channel	(8) Joiner Lake Canal	(9) Green Ponds	(10) Dry Pond
Date	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008	1/30/2008
Reading	below gauge	no water	no water	below gauge	below gauge	0.98	no water	no water	no water	0.94
Date	2/27/2008	2/27/2008	2/27/2008	2/27/2008	2/27/2008	2/27/2008	2/27/2008	2/27/2008	2/27/2008	2/27/2008
Reading	below gauge	no water	no water	below gauge	0.3	3.3	1.3	no water	below gauge	3.00
Date	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/2/2008
Reading	below gauge	no water	1.53	below gauge	1.20	3.16	2.60	no water	below gauge	2.65
Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
Reading	below gauge	(puddle)	no water	below gauge	1.12	2.92	(puddle)	no water	below gauge	2.30
Date	6/6/2008	6/6/2008	6/6/2008	6/6/2008	6/6/2008	6/6/2008	6/6/2008	6/6/2008	6/6/2008	6/6/2008
Reading	below gauge	(puddle)	no water	below gauge	0.7	2.42	no water	no water	below gauge	1.56
Date	7/2/2008	7/2/2008	7/2/2008	7/2/2008	7/2/2008	7/2/2008	7/2/2008	7/2/2008	7/2/2008	7/2/2008
Reading	below gauge	no water	no water	below gauge	1.3	3.34	no water	no water	below gauge	2.00
Date	8/1/2008	8/1/2008	8/1/2008	8/1/2008	8/1/2008	8/1/2008	8/1/2008	8/1/2008	8/1/2008	8/1/2008
Reading	below gauge	no water	1.34	below gauge	1.52	3.36	2.28	no water	below gauge	2.56
Date	9/2/2008	9/2/2008	9/2/2008	9/2/2008	9/2/2008	9/2/2008	9/2/2008	9/2/2008	9/2/2008	9/2/2008
Reading	below gauge	no water	2.20	below gauge	2.50	3.38	2.90	no water	below gauge	3.16
Date	10/2/2008	10/2/2008	10/2/2008	10/2/2008	10/2/2008	10/2/2008	10/2/2008	10/2/2008	10/2/2008	10/2/2008
Reading	below gauge	no water	0.32	below gauge	2.22	3.06	no water	no water	below gauge	2.40
Date	11/7/2008	11/7/2008	11/7/2008	11/7/2008	11/7/2008	11/7/2008	11/7/2008	11/7/2008	11/7/2008	11/7/2008
Reading	below gauge	no water	no water	below gauge	1.98	3.06	no water	no water	below gauge	2.0

<Gage = Water level was down slope of staff gage.
DRY = Site is dry.
No data – site was inaccessible or unread

Figure 9 - Water Level Staff Gage Locations

Sand Hill Restoration

Activities: oak eradication, planting of pine, wire grass planting

A total of 1,150 acres longleaf pine / wiregrass community, live oak forest and other buffer habitats occur on the SHLMB. The NWFWMD will provide perpetual ecological management for these habitats. Oak eradication in Management Unit 12 was completed for the majority of the site in August of 2005 with a small remaining portion completed in September of 2006. Turkey and live oaks were reduced to less than 150 trees per acre and stumps were painted with an approved herbicide to reduce stump sprouts. Similarly, oak coverage was reduced for significant acreage in Management Unit 10 in September of 2006. These areas have excellent wire grass cover and a well developed understory of sand hill species. To date a total of 550 acres of sandhills have had the oaks thinned, far exceeding permit requirements (Figure 10). Most of these areas have already been burned this winter and it is expected that these areas will be treated with warm season burns during the next rotation.

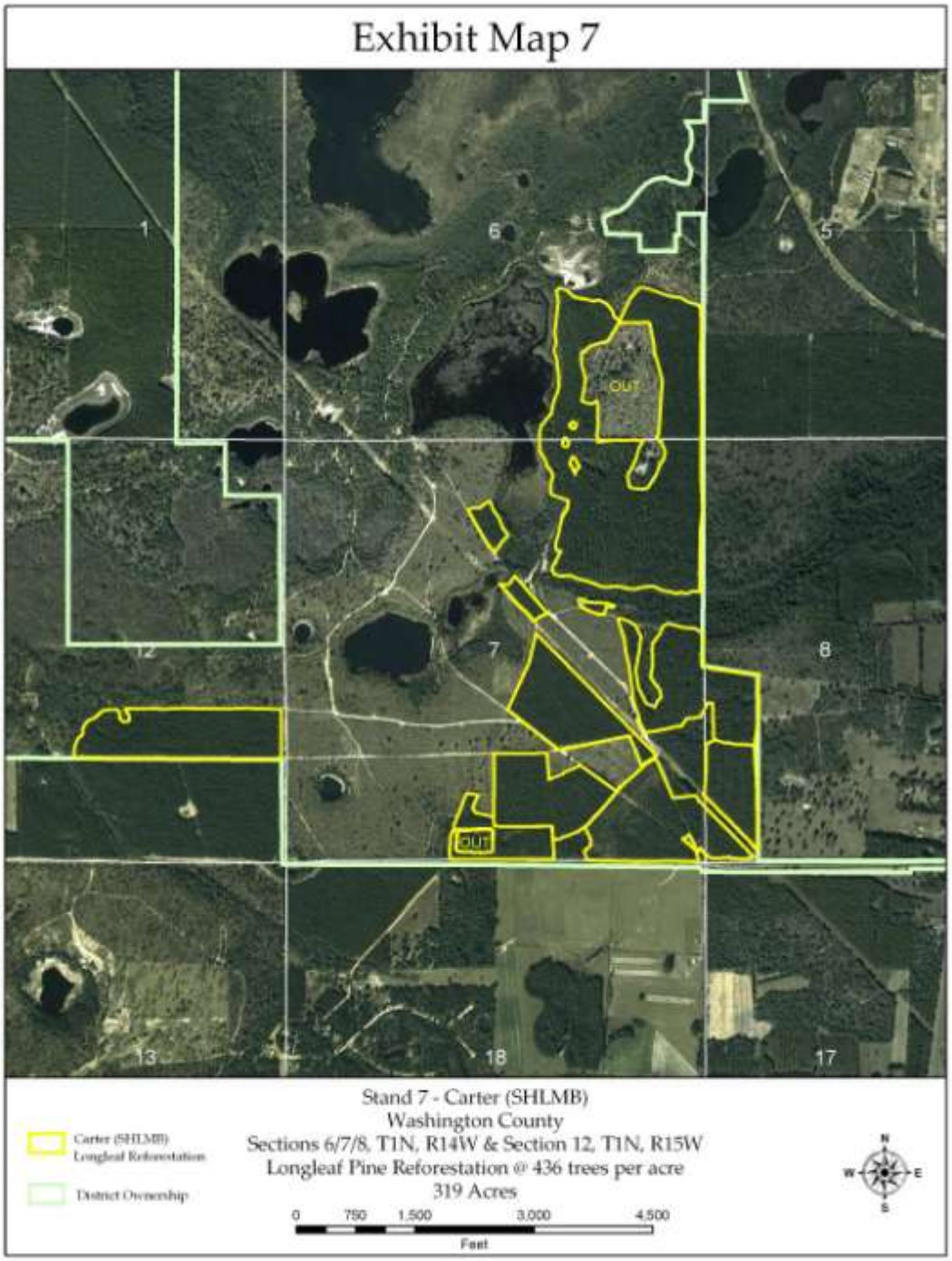
Prior to permit issuance, longleaf pine seedlings were planted in portions of Management Unit 12 in the winter of 2004**.** However, intense winter burns in early 2007 destroyed most of the planted pines in some areas. Additional plantings of longleaf pine at a rate of 436 trees per acre will occur in Management Unit 12 and portions of Management Unit 10 during the dormant season of 2007/2008.

Restoration activities for the existing sand pine plantation (~385 acres) and slash pine plantations (11.5 acres) were initiated in 2007 (Figure 11). The sand pine and slash pine plantations harvest began on June 15 and completed in November 16, 2007. All sand pine and slash pine scheduled for removal has been completed in accordance with permit requirements. These areas were burned in the fall of 2008 and 319 acres were replant in the winter of 2008/2009 with long leaf pine (Figure 11a). In addition 53 acres of wire grass tublings were planted on 3’ centers (256,520 plants) in areas where the wire grass did not re-generate.

Figure 10 - Oak Removed Through 2006

Figure 11 - Management Unit 11 Pine Removal

Figure 11A. 2008 Sandhill longleaf pine planting



Wet Flatwoods Restoration

According to the permit requirements, 147 acres of wet flatwood restoration was to occur at the SHLMB., Management Unit 2. However, District staff identified and additional 18 acres that historically was wet flatwoods and added this acreage to Management Unit two for a total acreage of 165 acres of wet , flatwoods restoration (Figure 12). Standing biomass of shrubs (primarily titi, gallberry and fetterbush) has been reduced to ground level with the use of a Gyro-Trac followed by winter burns. The gyrotack work was initiated on March 13 and was completed by August 20, 2007. The black titi in these areas was extremely thick often with a dbh of 8-10" and 20 – 25' tall. Even with the large "tree" size black titi, the gyrotrack was excellent in reducing the thick dense shrub cover to ground level. There were no noticeable track marks or ruts left by the Gyrto-Track. The mulch within these areas was allowed to dry for several months prior to burning. Sites were burned in December of 2007.

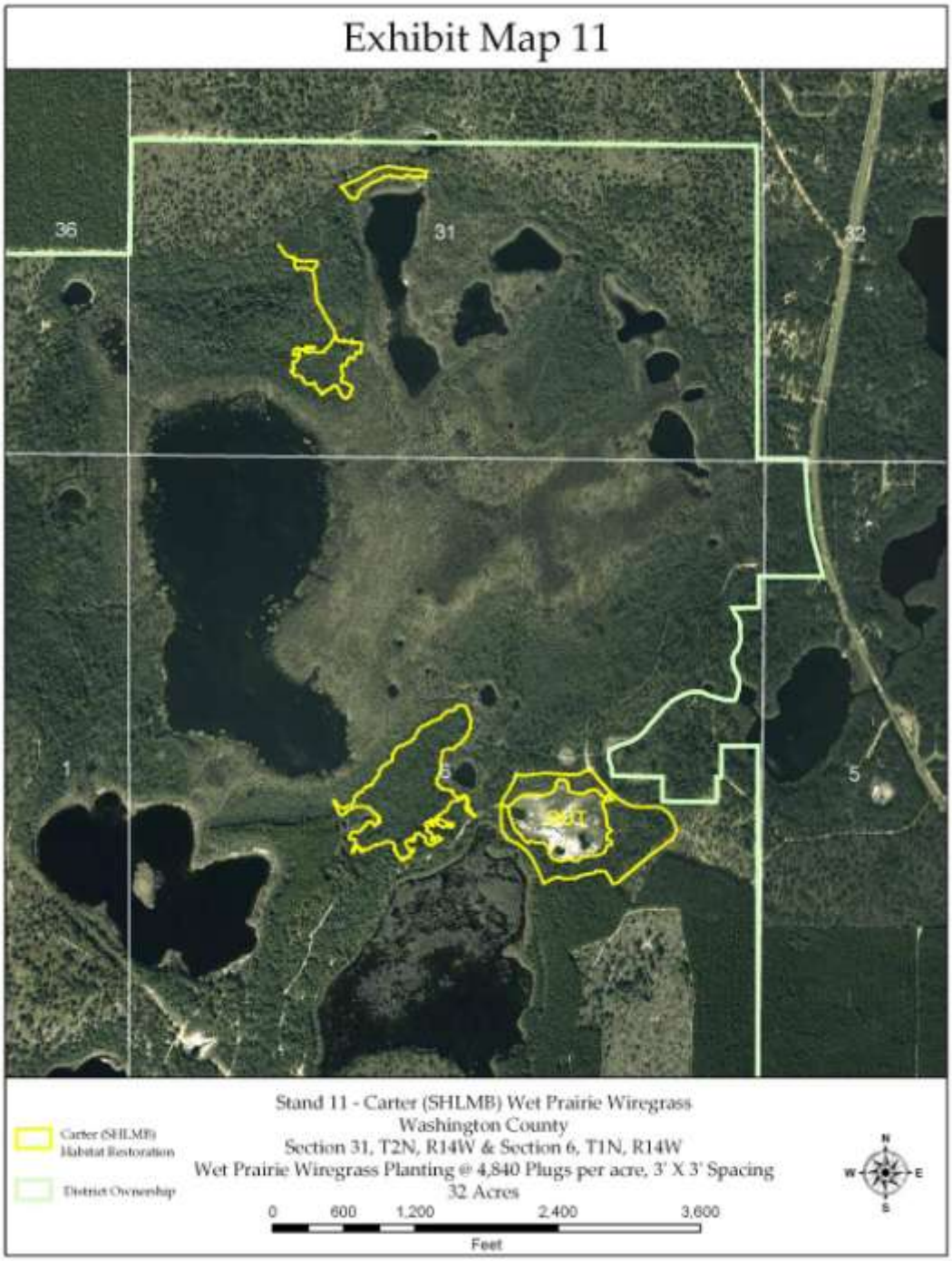
By March 2008, it was apparent, that while the shrub cover was greatly reduced, re-sprouting of the shrubs had occurred in all Gyro-Trac areas. 'Average shrub densities were determined through randomly established transects and stems per meter squared were determined. In areas with a hot fire 50-80 stems per meter squared were observed while in areas with an incomplete burn, 100 to 135 stems per meter squared were common. Based on these observations, the shrub wetlands would return if the number of shrubs were not significantly reduced. In an effort to determine if selected herbicides could aid in reducing shrubs numbers to an acceptable level, two polygons, the Whale, a 12 acre polygon adjacent to the Dry Pond parking, and a 16.2 acre polygon adjacent to Dry Pond and the slash pine restoration sites were chosen. These two areas were treated twice by Entrix with appropriate wetland approved herbicides, once in July and again in September. The 16.2 acre polygon was burned in the winter of 2008-2009 with a very hot fire. The 16.2 acre polygon was planted with wire grass plugs while the whale, had previously been direct seeded with wire grass seed. Preliminary results indicate that the shrub cover was greatly reduced from greater than 85% cover to less than 15% cover. Due to the success in the test treatments, similar treatments will be expanded to 84 acres in 2009.

In Management Unit 3, the shrub layer was limited due to the dense overstory of planted pine. Wet flatwood herbaceous species were more common in these areas after the initial warm season burn (2006) and recent slash pine thinning (2007). The initial fire in this area reduced most of the shrubs to coppice sprouts. It was determined that the shrubs in this area could be managed through successive warm season fires. The fire was conducted for Management Unit 3 in December 2008. The burn had good coverage and shrubs were reduced to the ground level.

Wire grass planting continued in the wet flatwood restoration areas in 2008. A total of 32 acres of wet wire grass tublings (143,880 plants) were planted in December 2008. Tublings were planted on 3 foot centers for the 5.4 acre area north of Dry Pond, the 16.2 acre polygon adjacent to the southern portion of Dry Pond and east of black pond, and the 12.6 acre area surrounding Garret Pond (Figure 12a).

Figure 12. Pine Flatwood Restoration Areas

Figure 12a. Wet wire grass planting areas (Winter 2008).



Annual Monitoring

In accordance with Specific Condition 26, all sampling locations have been identified (Figure 13). Fall monitoring methods as well as data analysis are described below. Sampling for the annual report was conducted on November 6-9, 15 and 16 2007. Raw data, computational analysis, pedestrian surveys and photographic documentation are included in Appendix 2, 3 and 4. Oblique aerials were taken for the SHLMB on October 30, 2008 and have been included in Appendix 5.

The 2007-2008 Annual report by the Florida Fish and Conservation Commission was completed in October and can be found in Appendix 6 in accordance with Specific Condition 25f.

Quantitative Monitoring

Materials and Methods

Quantitative monitoring has been conducted in accordance with the methods described in Attachment H – Monitoring Plan. Quantitative vegetation monitoring occurred at the end of the growing season. This is the second annual monitoring report for the SHLMB.

The percent vegetation cover was monitored at transect locations shown in Figure 13. One-meter square quadrats were established along 600' transects at 20' intervals. In addition, each transect contained a permanently established photographic documentation stations, where qualitative quadrat (north, east, south, and west) observations were recorded (Appendix 4). Transect termini will be marked using iron rebar surrounded by PVC pipe.

Vegetation species coverage statistics were developed from the recorded coverage of each species (or bare ground or open water) within a given quadrat. The percent coverage for each species (and bare ground or open water) was generated by adding all quadrat observations together, and dividing the total coverage by the cover of each species within each transect. This represents a modified Daubenmire cover scale where vegetation species statistics are used to determine the percent cover by bare ground, water, individual species and groups, such as wetland species, invasive exotic and nuisance species, and present.

Tree density was monitored using the "line strip" (belt transect) technique. Transects were co-located with each vegetation transect. The belt transects will be 600± feet in length and 30± feet in width. Within each belt transect, the height and condition of each planted tree will be recorded.

Photographic Stations:

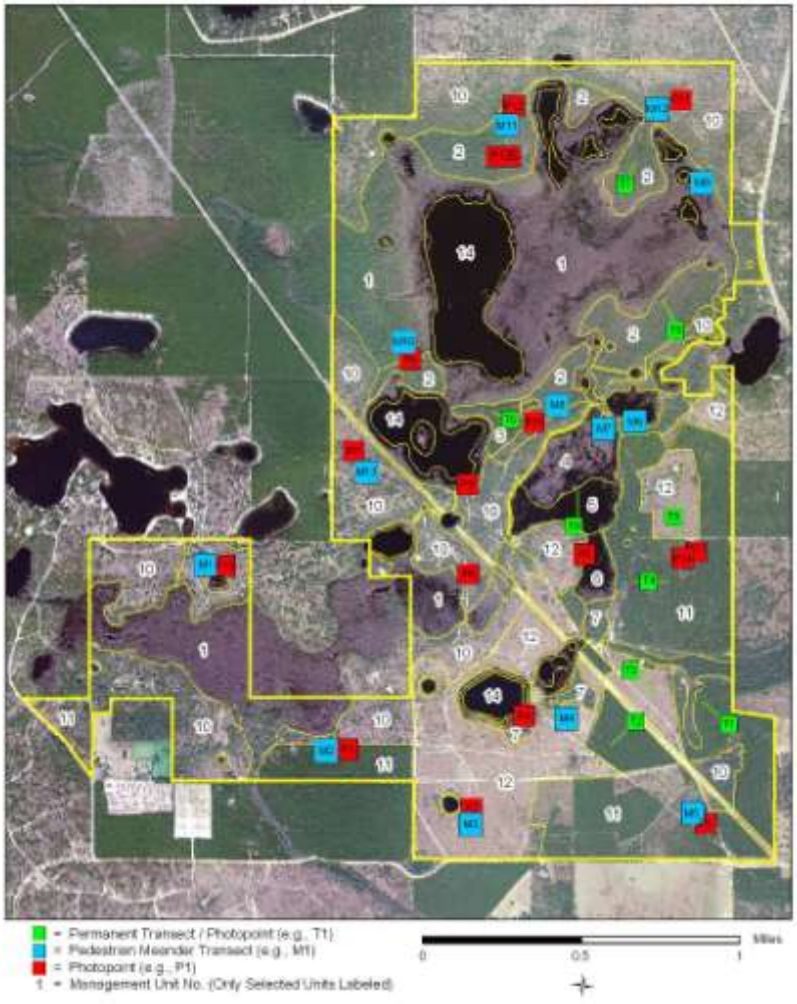
Panoramic photographs were taken from the permanently established stations at each transect (Appendix 4). **Please note: photographic station 12 was abandoned as it was not placed in the correct habitat. The photographic station was inadvertently placed in a mesic hammock on the edge of management unit 2. To remedy this, a new photopoint 12b was established in the in management unit 2 to the south of the original photo point (Figure 13).**

Wildlife Utilization:

During the vegetation monitoring described above, wildlife observations will be recorded in each community. These observations will consist of direct sightings, scat, tracks, or vocalizations.

Fuel loads and prescribed fires within wet flatwood and sandhill communities: Semi-annual status reports will detail the condition of the communities relative to the need and potential for a burn, the conditions required for the next desirable burn, and the anticipated timeframe for the next burn. This data was included for each pedestrian survey transect (Appendix 4).

Figure 13 - Monitoring Locations



Results and Discussion

UMAM Polygon II, Management Unit 11- Sand Pine Plantation

UMAM Polygon II, Management Unit 11, consists of 383.484 acres of planted sand pine plantation that will be converted to long leaf pine and sand hill habitat. Baseline conditions indicated a sand pine canopy with nearly 100 percent canopy closure and an average of 446 sand pine trees per acre occur in the sand pine plantations. Removal of the sand pine was completed in November 2007. Three transects (transect #1, #2 and #4) were located within UMAM Polygon II, Management Unit 11.

In 2008, a total of 10 species were observed in transect 1, 16 in transect 2, and 20 in transect 4. Two transects (1 and 4 lost one and two species respectively, while transect two increased by 11 species (Tables 4-6) (Figures 13-15). Wire grass was observed only in transect 2 with 8.5% cover, an increase of 3% cover from last year and was the dominant species occurring in that transect. The dominant cover class for all transects was bare ground with a range of 82% bare ground (transect 2) to 40% bare ground (transect 4). Bare ground was greatly reduced from the previous year along each transect. The exotic species Bahia grass (*Paspalum notatum*) was observed in transects 1 and increased from 0.1% cover to 0.7% cover. Bahia grass was also observed in transect 4 reduced from 1.5% cover to one percent cover. However, centipede grass increased in cover from 10.6% to

23.2% cover and again was the dominant species within that transect. Herbicide treatments targeting Bahia and centipede grass without impacting the native species will be applied in spring and fall of 2009.

A fish crow was observed in transect 1, but no other tracks were observed within these transects, probably due to the lack of vegetation.

Interim Success Criteria:
The sand pine plantation was harvested in 2007. Site preparation burns occurred during the winter of 2008 and the area that included transect 4 and transect 2 was planted in the winter of 2008/2009 with long leaf pine. Fifty three acres of sandhill wire grass will be planted in 2009 surrounding transect 4. Wire grass tublings were planted on 3' centers. Many of the management activities used to restore UMAM II, Management Unit 11 were completed by the winter of 2008.

Table 3. Transect 1 Species cover and occurrence (Former Sand Pine Plantation)
Date: 10/31/08, 11AM
Name of data collector: David Clayton
Transect 1
Polygon: 11
Overstory: None (Sand pine harvested)
Canopy Closure approximately 0%
Wildlife: Crow, 65 degrees, clear and cool

Common Name	Percent Cover
Bahia grass	0.7
Bluets	1
Dog fennel	2.5
Live oak	0.5
Muscadine	1
Persimon	1
Sand pine	0.5
Sedge	15
Witch grass	0.8
Wormwood	2
Bareground	75

Figure 14. Transect 1. Percent Cover and occurrence (Sand Pine Plantation)

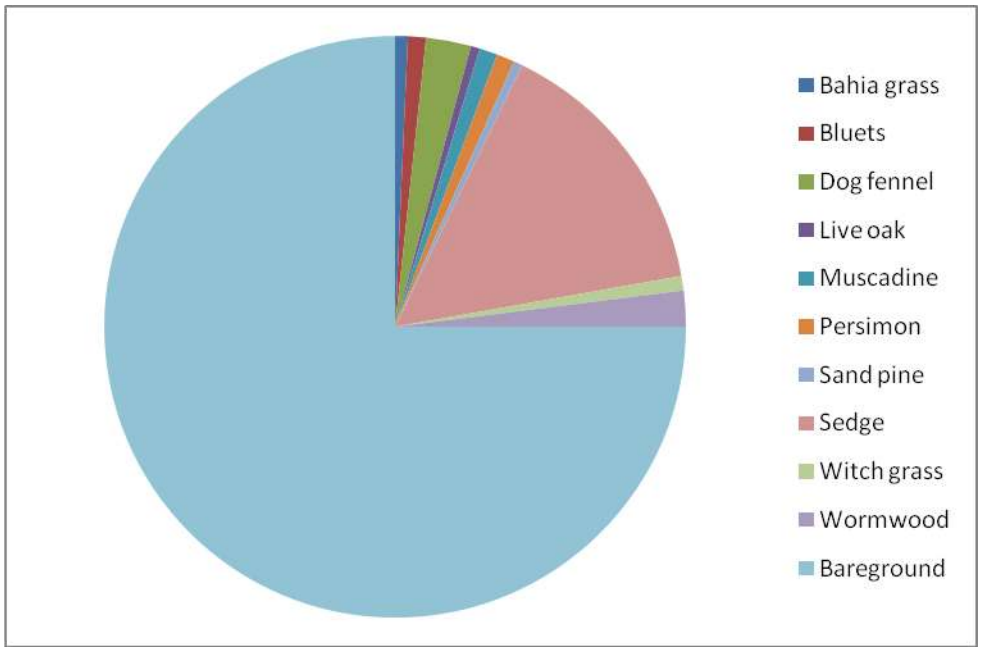


Table 4. Transect 2. Species cover and occurrence (Sand Pine Plantation)

Date: 10/31/08, 12 PM
Name of data collector: David Clayton Wildlife: None
Transect 2
Polygon: 11
Overstory: None (Sand pine harvested)
Canopy Closure:0 %

Common Name	Percent Cover
Broomsedge	0.2
Wire grass	8.5
Pine weed	0.4
Witch grass	2.71
Dog fennel	0.2
Yaupon	0.33
Milk pea	0.23
Switch grass	0.33
High bush blueberry	0.2
Woody goldenrod	0.3
Diamond Oak	1.3
Turkey oak	0.5
Live oak	2
Nutrush	0.2
Coastalplain dawn flower	0.4
Shiny blueberry	0.2
Bare ground	82

Figure 15. Transect 2: Species Cover and Occurrence (Sand Pine Plantation)

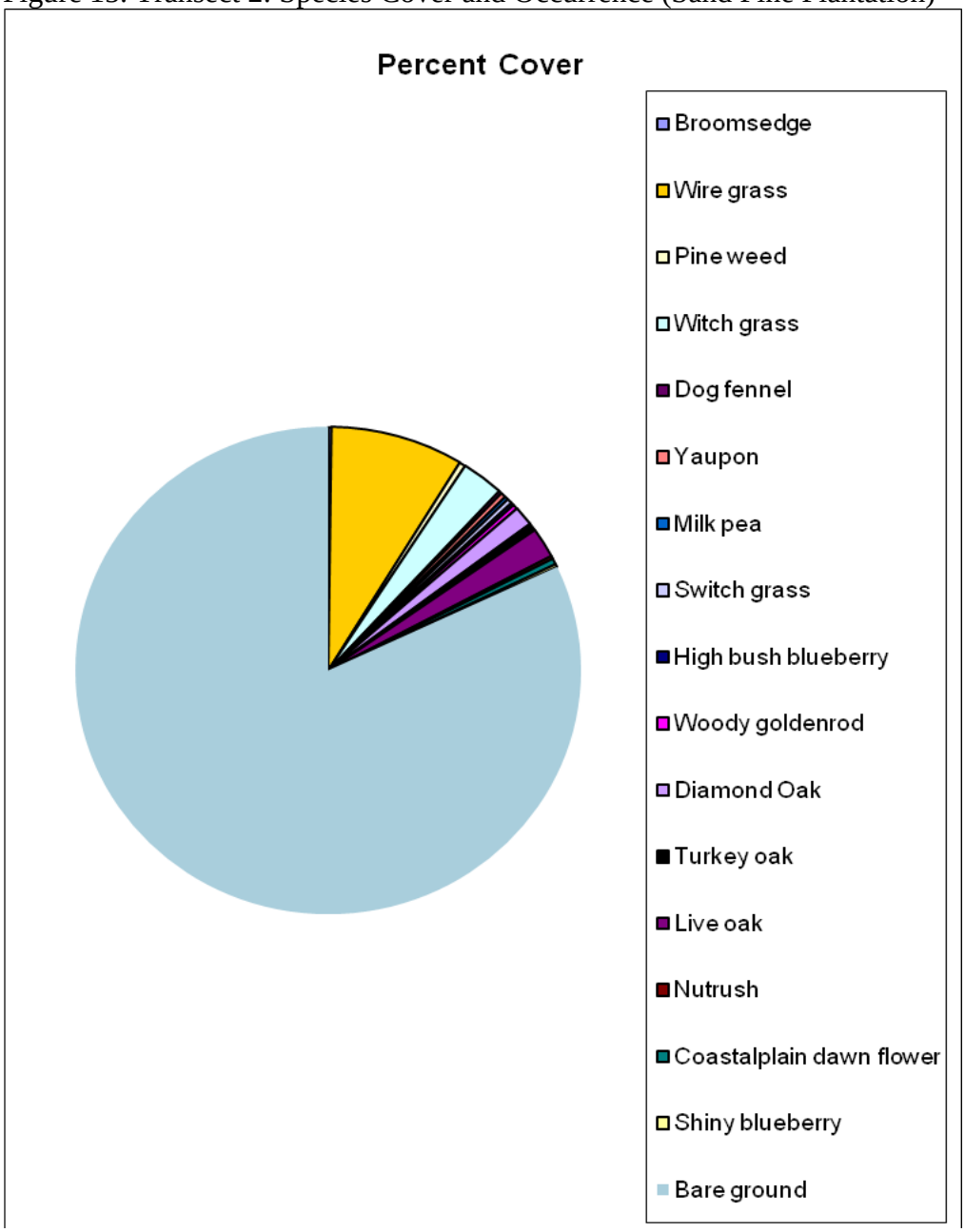
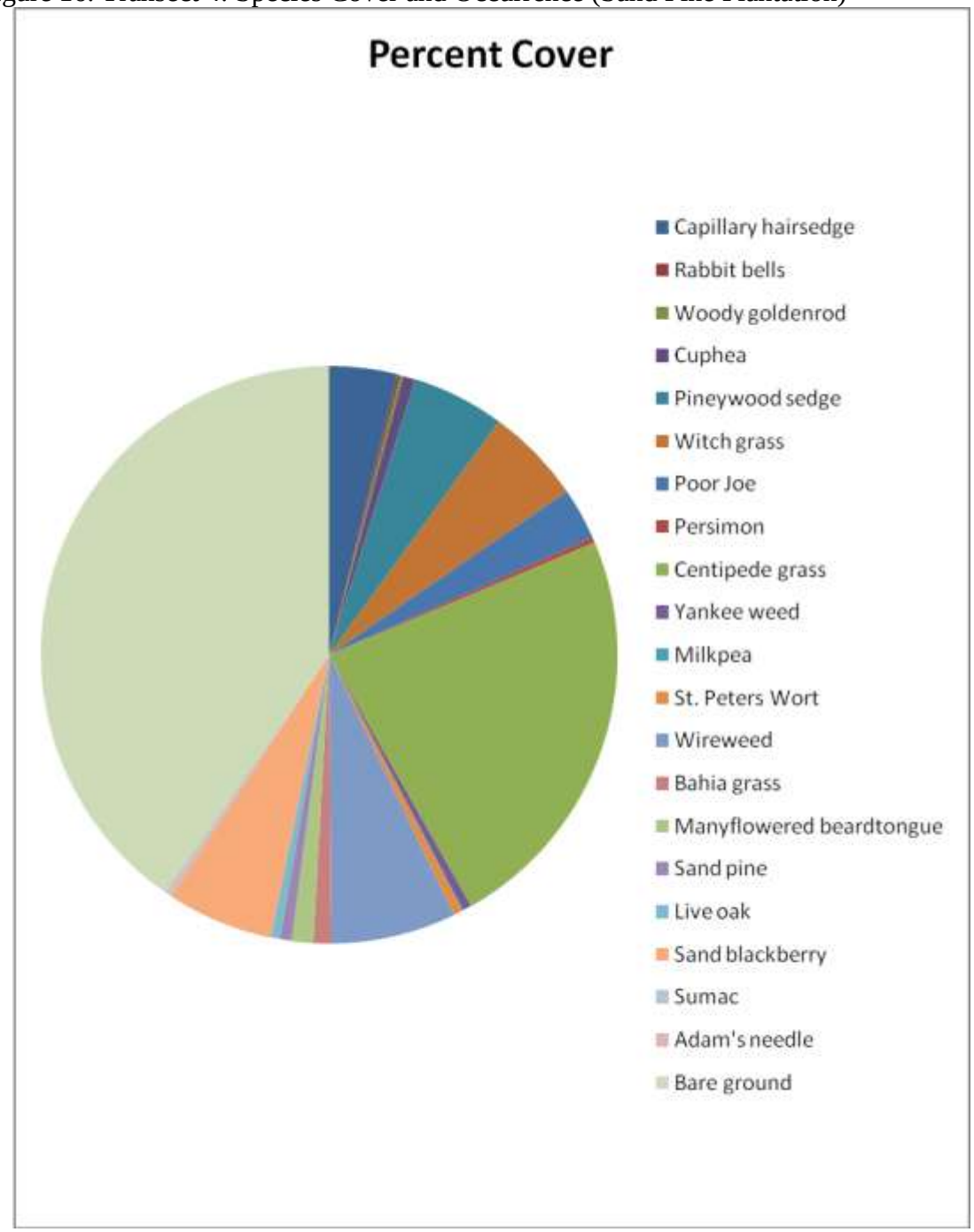


Table 5. Transect 4. Species cover and occurrence (Sand Pine Plantation)

Date: 11/3/2008, 10 AM
Name of data collector: David Clayton
Transect 4
Polygon: 11
Overstory: Sand pine stand with pines removed
Wildlife: None

Common Name	Percent Cover
Capillary hairsedge	3.8
Rabbit bells	0.17
Woody goldenrod	0.17
Cuphea	0.68
Pineywood sedge	5.2
Witch grass	5.4
Poor Joe	2.9
Persimon	0.3
Centipede grass	23.2
Yankee weed	0.5
Milkpea	0.06
St. Peters Wort	0.5
Wireweed	7
Bahia grass	1
Manyflowered beardtongue	1.2
Sand pine	0.67
Live oak	0.5
Sand blackberry	6
Sumac	0.17
Adam's needle	0.18
Bare ground	40.4

Figure 16. Transect 4: Species Cover and Occurrence (Sand Pine Plantation)



UMAM Polygon I, Management Unit 12- Sand Hill

UMAM Polygon I, Management Unit 12, consists of 263.52 acres. This polygon is dominated by a sand hill community with an overstory dominated by turkey and live oaks with scattered remnant longleaf pine and an understory dominated by wire grass and a wide variety of herbaceous species. Reclamation activities within this upland community include re-introduction of fire, thinning of oaks to less than 150 trees per acre and planting of long leaf pine seedlings at a density not to exceed 200 trees per acre at final release. Fire was re-introduced to this area during the winter of 2004. A winter burn scheduled for the areas that had oak reduction.

Prior to the re-introduction of fire, the dominant understory species was woody goldenrod. Oaks were thinned for the majority of Management Unit 12 in August of 2005. However, the portion of Management Unit 12 which contains Transect 5 was thinned in September of 2006. The re-introduction of fire and thinning of the turkey and live oaks have led to significant changes in the species composition. Two transects (transect #3 and #5) were located within UMAM Polygon I, Management Unit 12, and reflect baseline conditions (Table 6, 7 and Figure 16, 17).

In 2006, a total of 23 species were observed in transect 3 and 31 species in transect 5. A diverse understory of plants typical of sand hill vegetation was observed within each transect. No nuisance or exotic species cover occurred within these transects. The greatest cover class for each transect was bare ground with 47.5% (transect 3) and 68.5% for transect 5. Wire grass was the dominant vegetative species for both transects with 27.2 % cover for transect 3 and 22.2% cover for transect 5. A total of 12 species, Elliot's bluestem, wiregrass, Coastalplain honeycombhead, woody goldenrod, silver croton, witch grass, persimmon, pineland spurge, milk pea, pineweed, gopher apple and bracken fern were common to both transects.

In 2008, a total of 27 species were observed in transect 3 and 18 species in transect 5 slightly higher for transect 3 and lower for transect 5 than last year. A diverse understory of sand hill vegetation was observed again this year and no nuisance or exotic species were observed (Table 6, 7, Figure 16 and 17). The greatest cover class again was bareground with 36.1% cover for transect 3 and 37% for transect 5. The amount of bareground for each transect was greatly reduced and may be due to the re-introduction of fire. Wire grass was again the dominant vegetative species for both transects with 34% for transect 3 and 38% cover for transect 5. Wire grass cover increased by 6.8% for transect 3 and 15.8% cover for transect 5. A total of 9 species were common to both transects.

Longleaf pines were planted in portions of UMAM polygon I, Management Unit 12 in the winter of 2004. However, longleaf pines were only observed in Transect 3 in 2006. A belt transects 600' feet in length and 30' feet in width was co-located with the vegetation transect. The number, height and condition of each planted tree were recorded. A total of 36 trees were observed or an average of 871 trees per acre. However, the winter burn in 2006 was extremely intense and killed nearly all planted pines. A total of 2 seedling pines were observed in 2007 both close to the ground and in the grass stage. During the 2008 monitoring, two planted pine seedlings were again observed, both in the grass stage. These areas will be planted with less than 300 trees per acre during the winter of 2008. Wildlife observed included a wren, cardinal and chipping sparrow.

Interim success Criteria:
The interim success criteria have been met for UMAM I polygon I. Fire was re-introduced to the site, turkey and live oaks were thinned to less than 150 trees per acre and long leaf pine have been planted. No nuisance or exotic species occurred were observed within the transects, fire adapted species average nearly 70% cover, woody shrubs average less than 20% cover, and long leaf pine has been planted for most of the area. Wire grass cover continues to increase and sandhill species dominate the polygons.

Table 6. Transect 3. Species cover and occurrence (Sand Hill)

Date: 11/3/2008
Name of data collector: David Clayton
Time 12:15 pm
Transect 3 chicadee, titmouse
Polygon: 12
Hard winter burn killed may oaks and pines including planted pines
Overstory: Native Sandhill with Oak Removal

Scientific Name	**Common Name**	**Percent Cover**
Agalinus setacea	Slender agalinus	0.17
Andropogon virginicus	Broom sedge	0.5
Aristida beyrichiana	Wire grass	34
Asclepias tuberosa	Red Milkweed	0.17
Aster tenuifolius	Pinewoods aster	0.17
Balduina angustifolia	Southeastern honeycombhead	2.2
Bulbostylis ciliatifolia	Capillary hairsedge	0.3
Chrysoma pauciflosculosa	Woody goldenrod	4
Crategus marshauxii	Crategus	0.3
Dichanthelium sp.	Witch grass	1.2
Diospyros virginiana	Persimon	1.6
Eriogonium tomentosum	Wild buckwheat	0.3
Eupatorium compostifolium	Yankeeweed	0.17
Euthamia caroliniana	Flat-topped goldenrod	*0.3*
Galactia sp.	Milkpea	0.4
Gaylucacia dumosa	Dwarf huckleberry	2
Gelsemium sepmpervirens	Yellow jessamine	0.3
Hypericum crux-andreae	St. Peters Wort	0.17
Hypericum gentianoides	Wireweed	1.1
Ilex vomitoria	Yaupon	0.8
Liatris michauxii	Gayfeather	0.8
Liatris tennufolia	gayfeather	0.5
Licania michauxii	Gopher apple	2.2
Panicum dichotomiflorum	Fall panic grass	0.17
Penstemon multiflorus	Penstemon	0.17
Pinus paulstris	Long leaf pine	0.17
Pityopsis graminifolia	Shinners	0.17
Polygonella gracilis	Wireweed	2
Pteridium aquilinum	Braken fern	1
Quercus incana	Blue jack oak	0.5
Quercus laevis	Turkey oak	1
Scleria sp.	Scleria	0.2
Smilax sp.	Smilax	0.8
Stillingia sylvatica	Queen's delight	0.17
Solidago fistulosa	Pine Barrens Goldenrod	0.2
Vaccinium myrsinities	Dwarf blueberry	1.2
	Bare ground	38

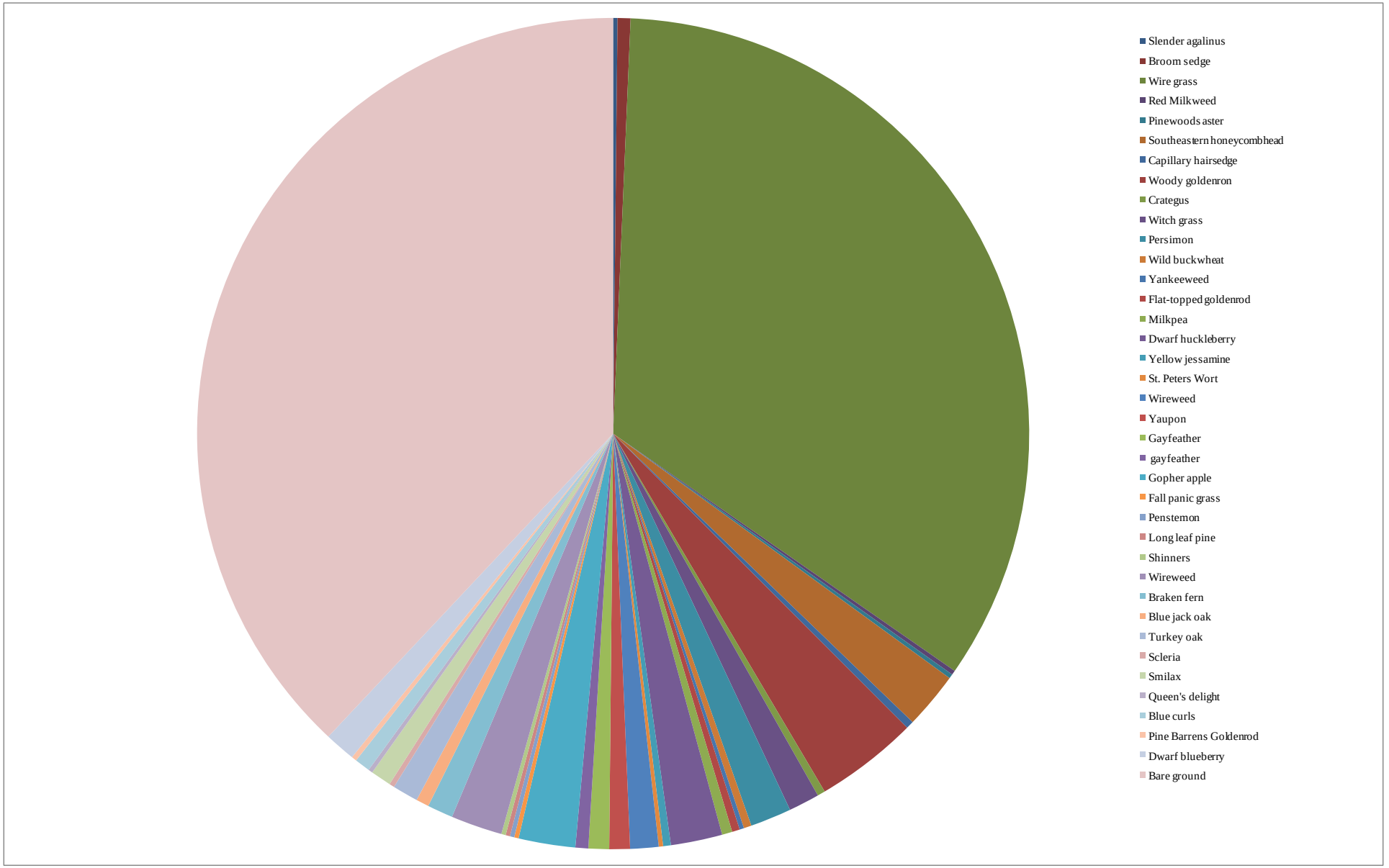


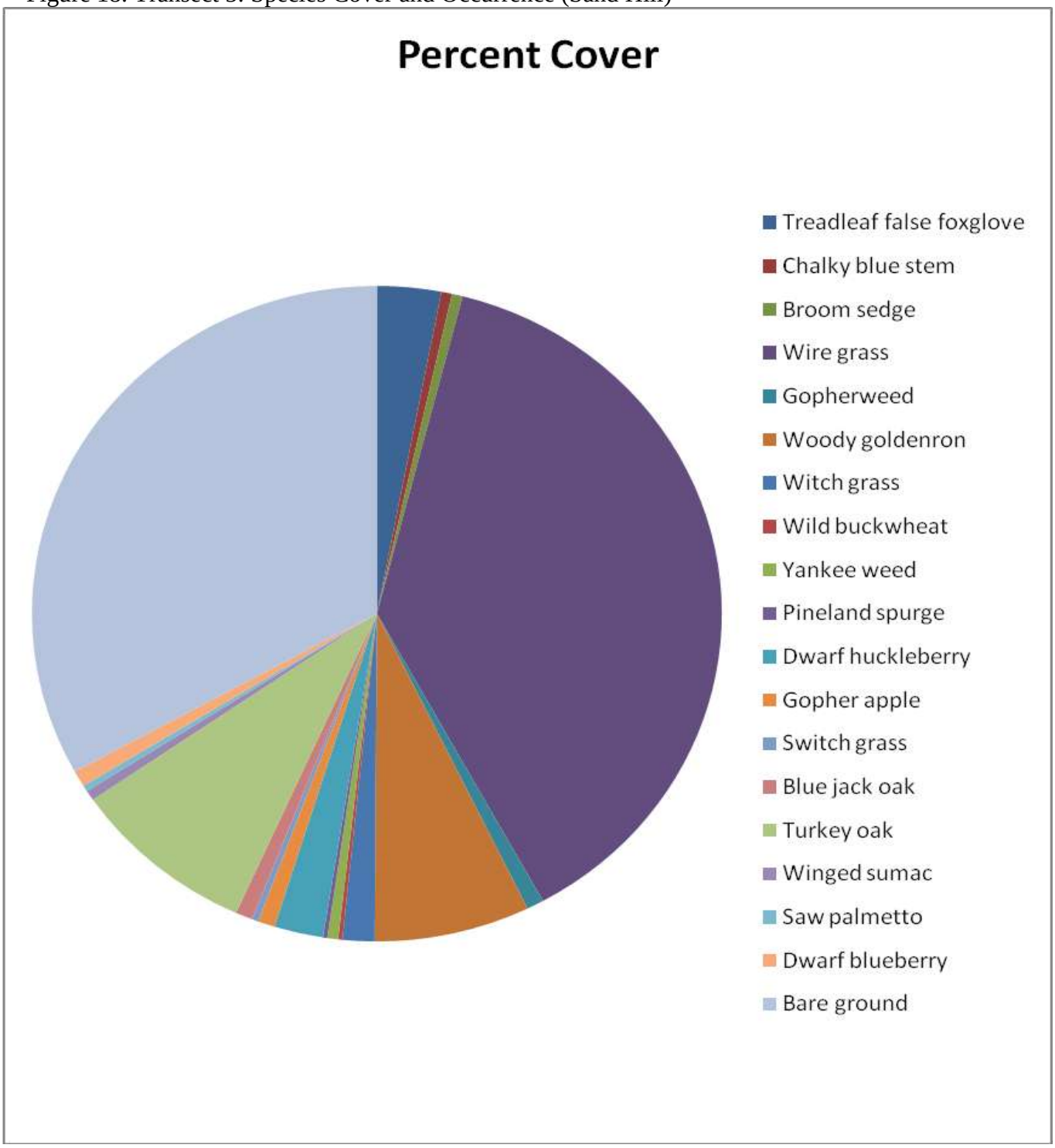
Figure 17. Transect Three Percent Cover

Table 7. Transect 5 Species and Occurrence (Sand Hill)

Date: 11/3/2008
Name of data collector: David Clayton
Transect 5
Polygon: 12
Overstory: Sandhill with oaks cut…planted in December 2008

Scientific Name	**Common Name**	**Percent Cover**
Agalinis setacea	Treadleaf false foxglove	3
Andropogon glomeratus var. glaucus	Chalky blue stem	0.5
Andropogon virginicus	Broom sedge	0.5
Aristida beyrichiana	Wire grass	38
Baptissia lanceolata	Gopherweed	0.8
Chrysoma pauciflosculosa	Woody goldenron	7.3
Dichanthelium sp.	Witch grass	1.5
Eriogonium tomentosum	Wild buckwheat	0.2
Eupatorium compositifolium	Yankee weed	0.5
Euphorbia inundata	Pineland spurge	0.2
Gaylucacia dumosa	Dwarf huckleberry	2.3
Licania michauxii	Gopher apple	0.8
Panicum virgatum	Switch grass	0.3
Quercus inopina	Blue jack oak	0.8
Quercus laevis	Turkey oak	8.7
Rhus copalina	Winged sumac	0.5
Serenoa repens	Saw palmetto	0.3
Vaccinium myrsinities	Dwarf blueberry	0.8
	Bare ground	33

Figure 18. Transect 5: Species Cover and Occurrence (Sand Hill)



UMAM Polygon(s): VII, Management Unit 3- Planted Slash Pine Plantation

UMAM Polygon VII, Management Unit 3, consists of 11.5 acres of bedded planted slash pine that will be restored to a hydric pine flatwood. The overstory was dominated by planted slash pine. The shrub and understory was largely been shaded out by the near complete canopy closure of the slash pine. Pines were thinned to 225 trees per acre in 2007. Following the initial burn in the summer of 2005, it was determined that the shrubs could be kept to coppice sprouts with successive warm season burns. In winter 2011, wire grass tublings will be planted on 3' centers throughout the polygon.

In 2006, a total of 17 species were observed. The majority of the species were common to wet flatwoods. No nuisance or exotic species were observed. The greatest cover class observed was bare ground at 80.5%. The dominant vegetation was black ti ti with 6.5 percent coverage. The total shrub coverage was approximately 12%. No wire grass was observed within this polygon.

In 2007, a total of 18 species were observed, similar to baseline observations. The majority of the species were common to wet flatwoods. No nuisance or exotic species cover was observed. The greatest cover class was again bare ground with 77.3 percent cover. The slight increase in vegetative cover may be due to increased light reaching the understory since the dense pine canopy has been thinned. Swamp dog hobble had the greatest percent vegetative, each with 5 percent. Black titi cover was reduced from 6.5 % to 3.7%. This represents a reduction in black titi cover from the baseline observations. Overall shrub coverage within this polygon slightly increased from 12% in 2006 to 13.4% in 2007 and herbaceous cover has increased from last year. Wildlife observations included a blue jay, towhee, and cardinal.

In 2008, a total of 30 species were observed. The majority of the species were common to wet flatwoods. No nuisance or exotic species were observed. Bare ground again had the largest cover class with 58% down from 77.3% the year before. Black titi had the greatest cover class of the vegetation with 5.4%, increasing by1.7%. Overall shrub cover within the polygon has increased from 13.4% in 2007 to 17% in 2008. Herbaceous cover also continues to increase over time. In 2008, herbaceous cover within the transect increased to 23.7%.

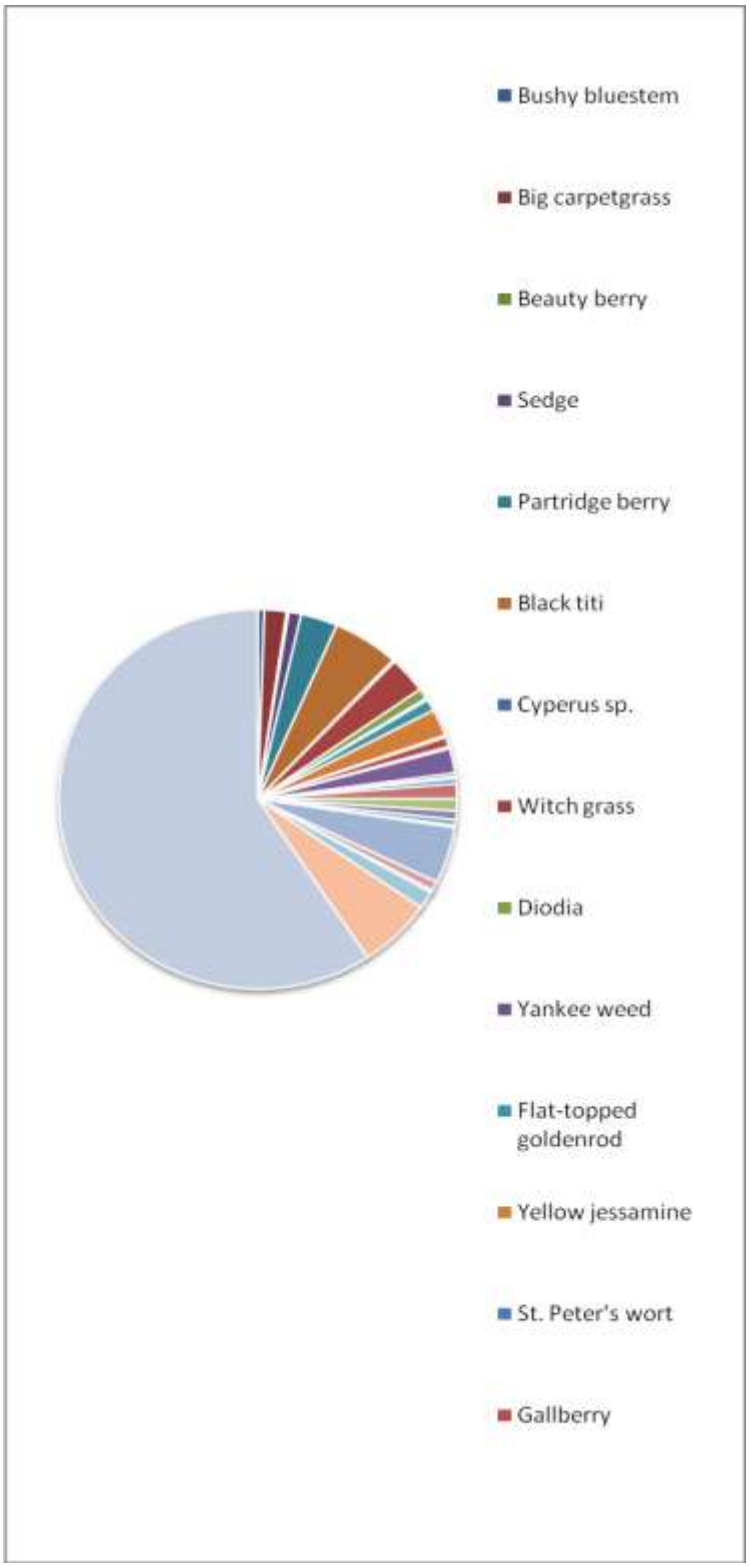
Interim success Criteria:

Many of the management activities that will be used to restore UMAM VII, Management Unit 3 have been implemented and interim management activities completed or initiated. The forested canopy has been reduced to approximately 200 trees per acre (225) and is expected to further decline with the continuation of warm season burns. Herbaceous species cover is increasing and species present are consistent with wet pine flatwoods. A warm season burn was introduced in 2006, and the slash pines were reduced in density. An additional warm season fire is planned for 2009.

Transect 8 Hydric Pine flatwoods
11/4/2008 Management Unit 3
Overstory: Slash Pine Plantation Thinning Area

Scientific Name	Common Name	Percent Cover
Andropogon glomeratus	Bushy bluestem	0.53
Axonopus furcatus	Big carpetgrass	1.8
Calicarpa americana	Beauty berry	0.17
Carex sp.	Sedge	1
Cassia fasciculata	Partridge berry	3
Cliftonia monophylla	Black titi	5.4

Cyperus sp.	Cyperus sp.	0.17
Dichanthelium sp.	Witch grass	3.1
Diodia teres	Diodia	0.9
Eupitorium compositifolium	Yankee weed	0.17
Euthamia caroliniana	Flat-topped goldenrod	1
Gelsemium sempervirens	Yellow jessamine	2.3
Hypericum andreanum	St. Peter's wort	0.16
Ilex glabra	Gallberry	0.83
Ilex vomitoria	Yaupon	0.17
Lachnanthes caroliana	Redroot	2.1
Lyonia lucida	Fetterbush	0.3
Myrica cerifera	Wax myrtle	0.17
Panicum sp.	Panic grass	0.43
Persea borbonia	Red bay	1.3
Persea palustris	Swamp bay	1
Quercus hemisphaerica	Diamond oak	0.73
Rhexia parvifloira	White meadowbeauty (Fl. End)	0.5
Rhus copalina	Winged sumac	0.17
Rhychospora microcephala	Small-headed beakrush	4.8
Rubus cuneafolia	Sand blackberry	0.8
Serenoa repens	Saw palmetto	0.03
Smilax laurifolia	Green briar	0.17
Vaccinium corymbosum	Highbush blueberry	1.5
Vitis rotundifolia	Muscadine	6
	Bare ground	59.3



UMAM Polygon V, Management Unit 2, Hydric Pine Flatwoods

UMAM Polygon V, Management Unit 2 **c**onsists of 165 acres of fire suppressed shrub dominated hydric pine that will be restored to a hydric pine flatwood. The overstory is dominated by a near impenetrable shrub layer with a largely lacking tree canopy and herbaceous layer. Reclamation activities within this polygon include removal of shrub overstory with a Gyro-trac followed by continued treatment with selective

herbicides if necessary, re-introduction of fire, planting of longleaf and slash pine trees at a rate of 436 trees per acre**,** planting wiregrass tubelings on 3' centers, and monitoring for nuisance / exotic plant species**.** If the seed bank does not respond, additional keystone flatwood species will be introduced as tublings.

Fire was re-introduced into this polygon during the summer of 2005. Two transects, 6 and 7 were established in different portions of the hydric pine flatwoods. The warm season burn was effective in reducing the overstory of shrubs in transect 7, however, by the time of the initial sampling event, the majority of the shrubs had sprouted from the roots and already formed an extremely dense shrub layer approximately 3-4' in height. The fire was less effective in the area surrounding transect 6. Many of the black ti ti within this transect did not burn.

In 2006, a total of 14 species were observed within the transect 6 and 16 in transect 7. Seven species were common to both sites, and all were shrubs. Both sites were dominated by shrubs with little overstory and little to no understory species due to the extremely thick shrub layer. No exotic species were observed. The greatest cover class observed for both transects was black ti ti with 69.87 % cover in transect 6 and 31.77 percent cover in transect 7. No wire grass was observed within this polygon. One other shrub species Fetterbush (15.3%) had significant cover within transect 6, myrtle leaved holly (15.4%) had significant cover in transect 7. Little bare ground was observed in transect 6 (3.7%) while 11.5% bare ground was observed in transect 7.

In 2007, a total of 12 species were observed within transect 6 and 9 in transect 7. Transect 6 had a similar species composition to the baseline while transect 7 had significantly fewer species observed probably due to the gyrotrack. Seven species were common to both sites, and all were shrubs. Both sites were dominated by 3-3.5' shrubs though each had an herbaceous component. While this did not represent significant cover in transect 6, 3.7% cover in transect 7 was red root, and early colonizing wetland species. The greatest cover class for both transects was bare ground with 40.8% for transect 6 and 48.2% cover for transect 7. This represents a significant shift in cover from black titi to bare ground due to the gyrotrack. Black titi cover was also greatly reduced from nearly 70% to 14% in transect 6 and from 31.77% to 28.1% cover in transect 7. The relative minor decrease in black titi cover in transect 7 may be the result of the intense warm season fire in 2006. Fetterbush was the dominant species by cover in transect 6 while black titi remained the dominant plant species by cover in transect 7. Continued management activities will further reduce shrub coverage.

In 2008, a total of 24 species were observed within transect 6 and 16 in transect 7. The represents a 50% increase in transect 6 and 56% increase in species in transect 7. The seed bank along both transects has started to respond and herbaceous species not identified previously have emerged. A total of 10 new herbaceous species were observed along transect 6 and 7 new herbaceous species in transect 7. Shrub cover along transect 6 increased from 3.7% to 47.57% an increase of 43.87% and along transect 7 remained approximately the same 48.1% in 2007 to 48.38% in 2008. Shrub levels at each site were beyond acceptable levels. Test plots using selective herbicides that eradicate target shrubs without impacting the native understory showed great promise. In the test plots, shrub levels were reduced from near 50% cover to less than 15% with two applications. In 2009, these treatments will be expanded across the landscape

Interim Success Criteria:
Most of the management activities were completed by 2007 for of the UMAM V, Management Unit 2. Fire was introduced in 2005 and a second site prep burn occurred in December of 2007. A gyrotrack was employed (April-July) to reduce the shrub cover to basal sprouts. Wire grass tublings and long leaf pine seedlings were planted in late December/January 2008. No exotic vegetation has been observed at anytime in this polygon. In 2008, the herbaceous species observed within the polygon greatly increased by more than 50%, indicating that the seedbank was responding to the shrub reduction. Planted wire grass had about

a 65% survival. These areas continue to improve and the seedbank continues to respond. The polygon will be treated with selective herbicides in 2009 to target nuisance shrubs, followed by a cool season burn.

Table 9. Transect 6 Species and Occurrence (Hydric Pine Flatwoods)

Date: 11/3/2008
Name of data collector: David Clayton
Transect 6 red bellied woodpecker
Polygon: 2
Overstory: gryrotracked shrub (black titi area)

Scientific Name	Common Name	Percent Cover
Andropogon glomeratus	Blue stem	0.55
Aristida berichiana	Wire grass	2
Aronia arbutifolia	Chokeberry	0.7
Clethra alnifolia	Sweet pepperbush	0.5
Cliftonia monophylla	Black titi	8
Cuscuta grovovii	Doder	0.13
Cyrilla racemiflora	Red titi	5
Gaylussacia dumosa	Dwarf huckleberry	1.3
Ilex coriaceae	Large gallberry	3.5
Ilex glabra	Gallberry	1.5
Ilex myrtifolia	Myrtle-leaf holly	7.7
Leucothoe racemosa	Swamp doghobble	3.7
Lyonia lucida	Fetterbush	10.5
Magnolia virginiana	Silver bay	1
Osmanthus americanus	Wild Olive	0.65
Persea borbonia	Red bay	4.07
Persea palustris	Swamp bay	3.8
Pinus palustris	Longleaf pine	0.67
Quercus hemisphaerica	Diamond oak	0.06
Rhexia mariana	Meadow beauty	0.4
Smilax laurifolia	Cat-briar	1.8
Rhynchospora microcephalla	Small-headed beakrush	3.2
Vaccinium corymbosum	Highbush blueberry	2.9
Xyris sp.	Yellow-eyed grass	0.17
	Bare ground	36.2
		100

Figure 20. Transect 6: Species Cover and Occurrence (Hydric Pine Flatwoods)

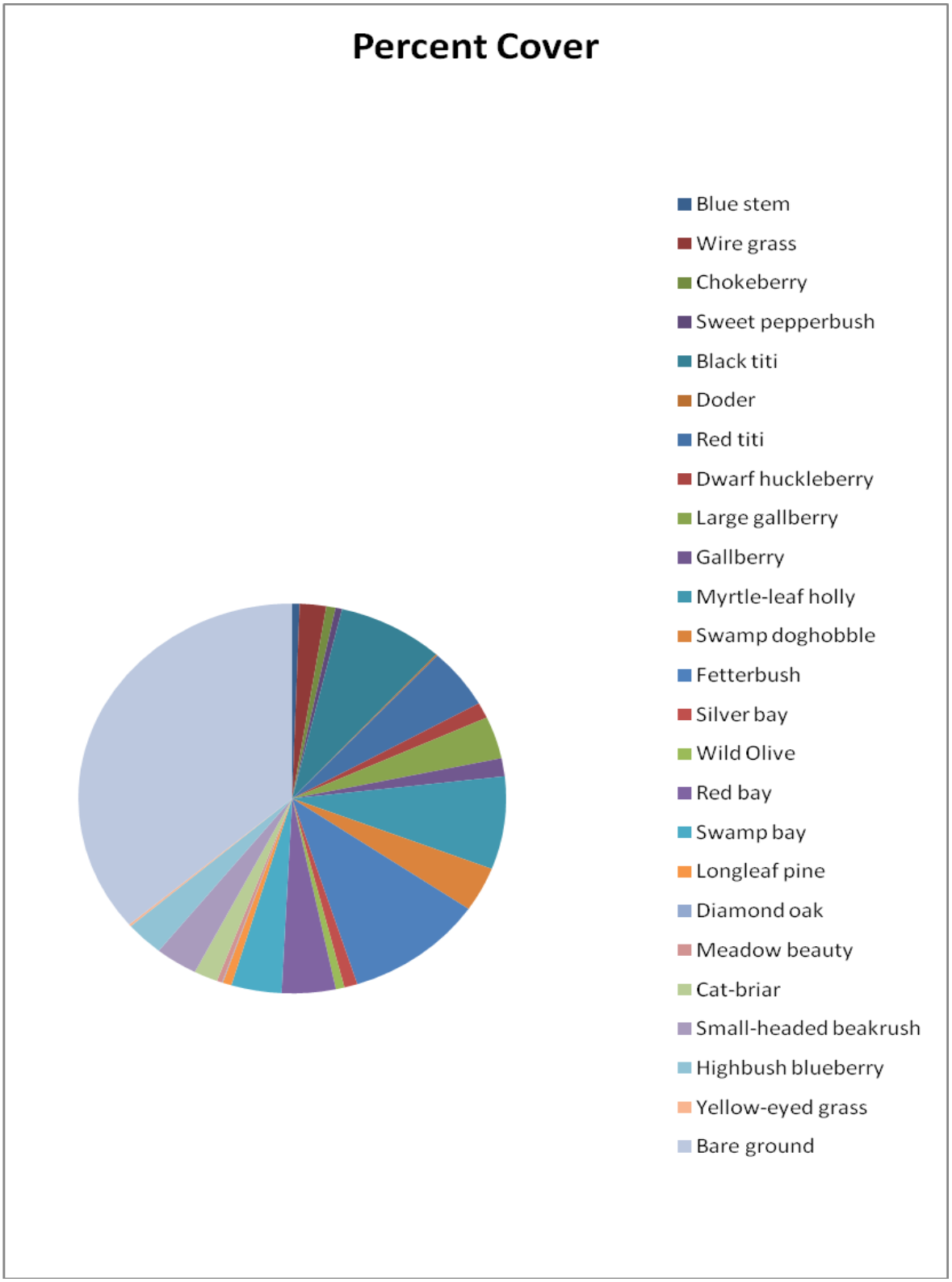


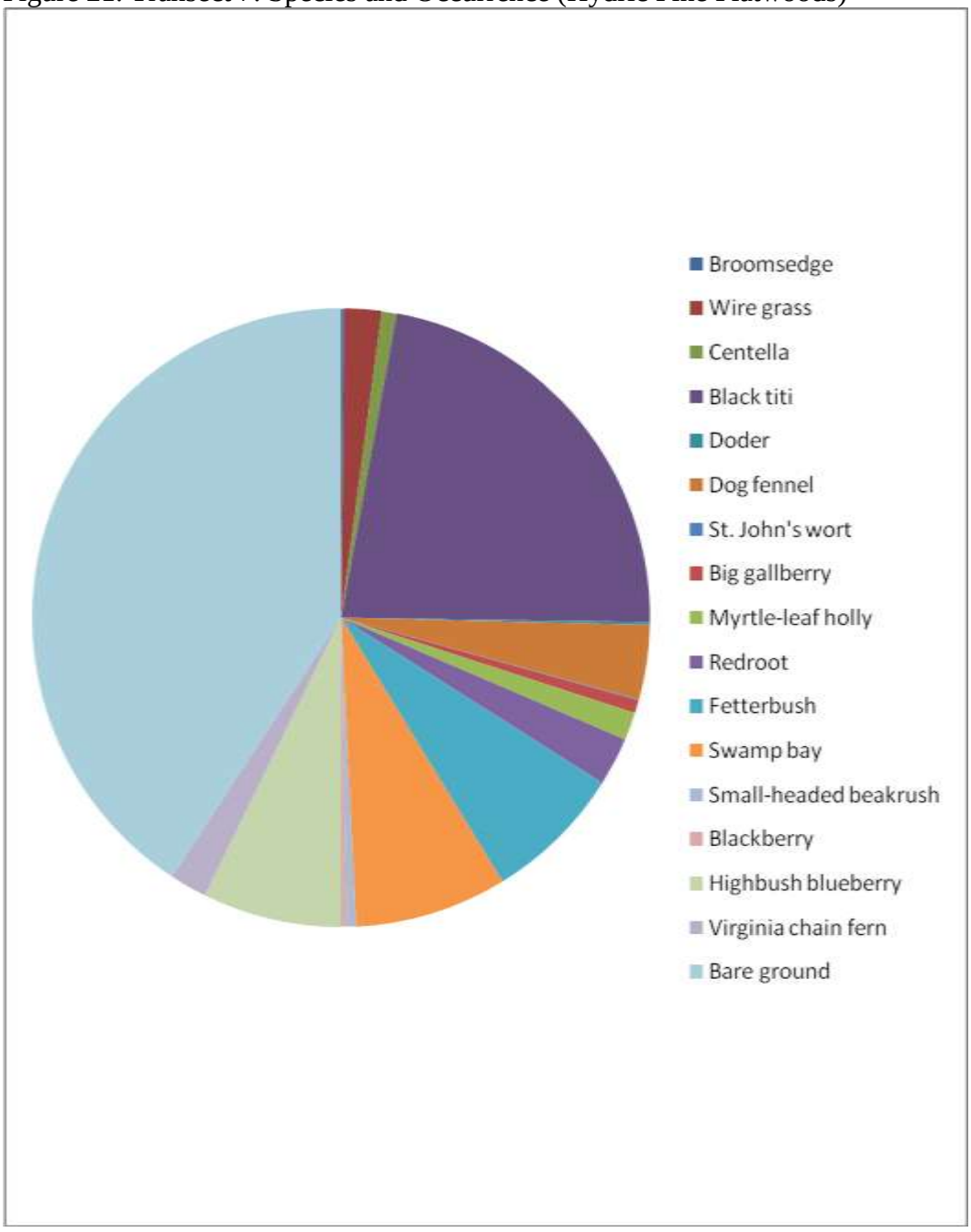
Table 10. Transect 7. Species and Occurrence (Hydric Pine Flatwoods)

Date: 10/30/08 Polygon 2

Name of data collector: David Clayton
Overstory: gryrotracked shrub (black titi area)

Scientific Name	Common Name	Percent Cover
Andropogon virginicus	Broomsedge	0.17
Aristida berichiana	Wire grass	2
Centella asiatica	Centella	0.8
Cliftonia monophylla	Black titi	23
Cuscuta grovovii	Doder	0.16
Eupatorium capillifolium	Dog fennel	4
Hypericum sp.	St. John's wort	0.06
Ilex coriaceae	Big gallberry	0.7
Ilex myrtifolia	Myrtle-leaf holly	1.5
Lachnanthes caroliana	Redroot	2.6
Lyonia lucida	Fetterbush	7.5
Persea palustris	Swamp bay	8.2
Rhynchospora microcephela	Small-headed beakrush	0.5
Rubus argutus	Blackberry	0.3
Vaccinium corymbosum	Highbush blueberry	7.48
Woodwardia virginiana	Virginia chain fern	2
	Bare ground	42

Figure 21. Transect 7. Species and Occurrence (Hydric Pine Flatwoods)



UMAM Polygon V1, Management Unit 5, Inland Ponds and Sloughs

UMAM Polygon V1, Management Unit 5 consists of 24.880 acres of a dammed slough (Dykes Mill Pond) that will be restored to slough/marsh. The overstory for most of the area is absent though a fringe of cypress remains along the ponds edge. The majority of the area is dominated by water lilies and other aquatic submerged vegetation. Reclamation activities within this polygon include the removal of Dykes Mill Pond dam, and spanning the gap with railcar bridge, planting of cypress and black gum saplings and planting the area with herbaceous and shrub species, if after 2 years, the native wetland understory is < 50%. Dykes Mill Pond was removed in August of 2006 and bridge construction completed in April 2007. With the removal of the dam there have been great changes to the pond. By September 2007 most of the pond had evaporated leaving only small flooded areas. Wet prairie vegetation has greatly spread across the newly exposed

sediments and a braided stream channel has emerged across most of the previously flooded area. Sampling last year occurred from a canoe while this year I was able to walk across the entire pond.

In 2006, a total of 7 species were observed within transect 9. The species were common to freshwater marshes within the region. No exotic species were observed. The dominant species observed was fragrant water lily with 45 % cover. Florida yellow bladderwort was also common with 19.2 % cover. Open water was common with 34% cover, indicating that much of the transect occurs in what is currently a pond. Wildlife was observed included wood ducks and a great egret.

In 2007, a total of 11 species were observed within transect 9. Species were common to wet prairies with some minor freshwater marsh species. This represents a major shift in species composition and reflects the shift from an aquatic to wet prairie. No exotic species were observed. Fragrant water lily cover was greatly reduced from 45% in 2006 to 3.23% cover in 2007. Florida yellow bladderwort was not observed within the transect and open water was also greatly reduced from 34% cover to 2.2 % cover. Another significant occurrence was the cover of bare ground which did not exist in 2006, but represented 41% of the cover in 2007. The two dominant plant species were horned beaksedge with 30% cover and a beaksedge that was not in flower with 12% cover, both species common to wet soils and not tolerant of aquatic systems. A species of note, *Drosera intermedia* (Water Sundew) a state threatened species was commonly observed. Wildlife observations included a pair of sandhill cranes (State Threatened species), fresh hog tracks, little blue heron, great egret, and chipping sparrows.

In 2008, a total of nine species were observed along transect 9. Followed by two years of drought, Dykes Mill ponds water level came up flooding most of the historic foot print. The removal of the dam reduced the water level by approximately 4' but not the expected 20 to 30'. The transect was flooded with 6" to 3' of water. Water lilies and aquatic vegetation abound and are thriving providing important habitat for wildlife. An alligator nest was observed along the bank and baby alligators were observed with their 6' mother during sampling. Open water was the dominant cover class with 46.3 percent cover. The dominant vegetative species was fragrant water lily with 33 percent cover.

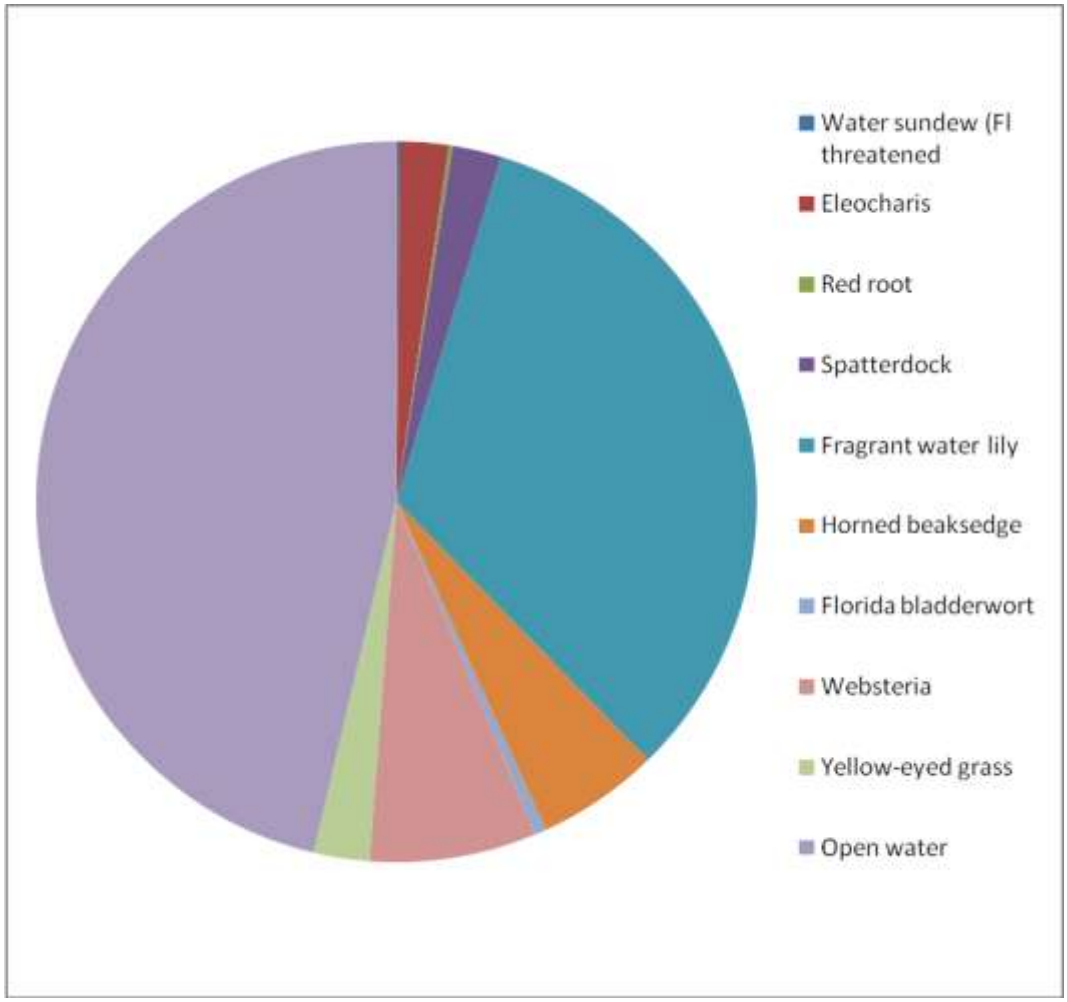
Interim Success Criteria:
Most of the management activities used to restore UMAM VI, Management Unit 5 have been completed. The archeological study was completed and the dam removed in August of 2006. The new bridge was completed in April of 2007. Since the removal of the dam the pond drained during the drought and much of the dry pond area was dominated by grasses and sedges. In 2008, the water levels increased due to the end of the drought and a shallow pond formed in 2008. Cypress trees and black gums will be planted along the edges of this system in the winter of 2007/2008.

Table 11. Transect 9. Species and Occurrence (Slough / Marsh)

Date: 11/4/2008
Name of data collector: David Clayton
Transect 9 Water depth 6'' to3'
Polygon: 5 Average = 1.6'
Overstory: Dykes Mill Pond

Scientific Name	**Common Name**	**Percent Cover**	# species
Drosera intermedia	Water sundew	0.14	1
Eleocharis cellulosa	Eleocharis	2.2	2
Lachnanthes caroliniana	Red root	0.16	3
Nuphar advena subsp. Orbiculata	Spatterdock	2.2	4
Nymphaea odorata	Fragrant water lily	33	5
Rhynchospora inundata	Horned beaksedge	5.5	6
Utricularia floridana	Florida bladderwort	0.5	7
Websteria confervoides	Websteria	7.5	8
Xyris sp.	Yellow-eyed grass	2.5	9
	Open water	46.3	

Figure 22. Transect 9. Species and Occurrence



Qualitative Monitoring

Materials and Methods

Qualitative vegetation monitoring will include assessment of the vegetation, both ground cover and planted trees, wildlife use observations, and general habitat health. Pedestrian surveys increase site coverage and include a 30+ minute meandering walk-path intended to provide information useful in management and to determination the success of management activities. A walk path traversed as much habitat as possible. The pedestrian walk-path continued as long as species were being added, however, once additional species were not recorded for 3 minutes the survey was complete. Representative photos and a community description and health were provided for each walk-path. Fuel load for each habitat was determined and the presence of any threatened or endangered species were recorded. Plants were listed in the data sheet in the following categories (tree, shrub, vine or herbaceous) to give a better understanding of composition of the habitat. Wildlife observations were also recorded for each walk-path (Figure 13) provides the location and coverage of transects and the data sheets can be found in (Appendix 4).

Results and Discussion

A total of 13 pedestrian transects were located at the SHLMB (Figure 13) Three pedestrian surveys were located in Management Unit 1, portions of UMAM Polygon IV, one in Management Unit 2, UMAM Polygon V, one in Management Unit 4, portions of UMAM Polygon IV, four in Management Unit 10, Polygon III, three in Management Unit 12, UMAM Polygon I, and one in Management Unit 14, portions of UMAM Polygon IV (Appendix 7).

Management Unit 1, UMAM Polygon IV, Preserved High Quality Forested and Herbaceous Wetlands

Management Unit 1, UMAM Polygon IV consists of 574.839 acres of a wide variety of preserved wetland habitats including approximately FLUCCS: 621 – Cypress, 617 – Mixed Wetland Hardwoods, 644 – Emergent Aquatic Wetlands, 611 – Bay Swamps, 641 – Freshwater Marshes, 616 – Inland Ponds and Sloughs, 640 – Vegetated Non-Forested Wetlands and 643 – Wet Prairies. The management goal for this polygon is the preservation of the existing high quality wetlands. Two of the pedestrian survey paths (M8 and M9) in Management Unit I, UMAM Polygon IV, were located in cypress dominated wetlands, while the third pedestrian survey path (M10) was located in an overgrown hydric pine flatwoods. However it is suggested that this transect be kept but the designation and analysis changed to the more appropriate Management Unit 2, UMAM Polygon V.

In 2006, a total of 38 species were observed in M8, while 32 species were observed in M9. Twenty nine of the species were common to both transects. Five tree species were observed in M8 while 3 tree species were observed for M9. Eight and nine shrub species were observed in M9 and M8 respectively, though cover of shrubs was not significant. Twenty one herbaceous species were observed in M8, while 19 herbaceous species were observed in M9. No nuisance or exotic species were found in M8, though a small patch of torpedo grass was observed in M9. Fuel load was low for each area and no threatened or endangered species were observed. Water levels in both areas were extremely low due to the drought and many of the herbaceous species such as pickerel weed, duck potato (*Sagittaria latifolia*) and fragrant water lily (*Nymphaea odorata*) had browned or appeared dead. Cypress seedlings were numerous in both areas. Wildlife was abundant.

In 2007, a total of 39 species were observed for M8 similar in number to last year four new species, bushy bluestem, beauty berry, sweet pepperbush, and pale meadow beauty were observed. These were observed in the normal pool area and germinated due to the prolonged drought that has left the lake beds dry. Three species previously observed, water shield, bog buttons, and bladder wort were not observed, primarily due to the absence of an aquatic habitat. Along M9, a total of 31 species were observed, again similar in number to last year. However 8 species were not observed this year and include water shield, clustered sedge, Virginia willow, silver bay, pickerel weed, duck potato, bladderwort and yellow eyed grass. These are primarily aquatic species and were not found on the dry lake beds. Nine additional species were observed including bushy bluestem, sedge, black titi, witch grass, yaupon, sweet gum, savannah meadow beauty and American cupscale. The new species with the exception of the American cupscale are facultative wet species that have invaded the dry lake beds. Shrub cover for both transects was very low. No nuisance or exotic species were observed. Fuel load was low for each area and no threatened or endangered species were observed. Water levels in both areas were extremely low due to the drought and many of the herbaceous species aquatic species were absent. A wildfire occurred within this polygon and destroyed approximately 12 acres of cypress by burning the roots and occasionally the trunk of the cypress. Details on the wildfire have been recorded in the Fire Management section. Aside from the continued drought this polygon is very similar to last year.

In 2008, a total of 42 species were observed in M8 and increase of 3 species, swamp dog hobble, swamp laurel oak and savannah meadow beauty (Appendix 4).

. Bladderwort and bog buttons were again not observed in these areas along with water shield and Marsh St. Johns Wort. The area is starting to recover from the prolonged drought. Water levels were about ½" above the soil surface and aquatic plants were starting to emerge. Along transect M9, a total of 36 species were observed, a slight increase from the previous year (Appendix 4). Water levels were starting to increase in this area with the average water depth approximately 2" in depth. The species observed were transitional or upland species that had germinated in the wetland during the drought and included groundsel tree, winged sumac and pine barrens goldenrod. As the system recovers and water levels increase it is expected that the system will recover and the upland species will be removed by increasing water levels. No nuisance or exotic species were observed. Fuel load was low for each area and no threatened or endangered species were observed. Water levels in both areas were extremely low due to the drought and many of the herbaceous species aquatic species were absent. Wildlife observed included chipping sparrows, southern cricket frogs, a kingfisher and a red bellied wood pecker.

Interim Success Criteria:
Interim success criteria have been met and include exotic vegetation cover < 2% per acre, nuisance vegetation cover < 5% per acre, and maintaining or improving in ecological function. Water levels are slowly recovering from the drought and are expected to continue in the coming year.

Management Unit 2, UMAM Polygon V, Hydric Pine Flatwoods

Management Unit 2, UMAM Polygon V consists of 146.678 acres of FLUCCS 635 hydric pine flatwoods. The management goal for this polygon includes the enhancement and restoration of the degraded hydric pine flatwoods. Two pedestrian transects (M10 and M11) were located in Management Unit 2, UMAM Polygon V. Both of these areas are overgrown, degraded hydric pine flatwoods dominated by a variety of tree and shrub species. Both areas were burned during the summer of 2005, though fuel loads in both areas are moderate and additional fires are warranted. Dominant species cover along M10 was black ti ti with some silver bay and slash pine, while M11 was moved slightly in 2007 to better reflect the wet flatwoods. The previous transect was located in a mixed bayhead. Wire grass was present in M11, but absent in M10.

In 2006, a total of 32 species (8 trees, 17 shrubs, 4 vines and 3 herbaceous species) were observed along M10.

In 2007, shrub reduction was completed in both areas using a gyrotrack. Shrubs were thinned in June and the areas were burned in December 2007. A total of 40 species were observed in along M10 while 16 species were observed in M11. No nuisance exotic species were observed in either area. The increase in species along M10 may be due to increased access to the area due to the gyrotrack and the fact that the site is more of a mixture of wet flatwoods with species from an adjacent bayhead. Successive fires should remove the bayhead species. A total of 22 species were observed along M11 in 2007. The lower number of species found in M11 is more reflective of a site that had been overgrown with shrubs and recently reduced to ground level by the gyrotrack. Over time it is expected a greater number of species will germinate from the seed bank. Wildlife observed included robin, kingfisher, black vulture, phoebe, anole and cardinal.

In 2008, a total of 51 species were observed, eleven species more than the year before. The seed bank has started to respond in this area and additional species observed were primarily herbaceous species commonly found in wet flatwoods. Shrubs in this area had also increased in cover and will be targeted in the coming year with selective herbicides to reduce shrub cover while preserving the understory vegetation. A total of 26 species were observed along M11 in 2008, an increase of 4 species. No nuisance or exotic species were observed during the 2008 sampling. A minor amount of hog damage was observed adjacent to polygon, and trappers have been notified. Wildlife observed included titmouse, red bellied wood pecker, flicker, blue jay and raccoon tracks.

Interim Success Criteria:

Interim success criteria include exotic vegetation cover < 2% per acre, nuisance native vegetation cover < 5% per acre, increasing herbaceous groundcover, decreasing density of woody shrub layer, planted pines are surviving and healthy and prescribed burns have been conducted in accordance with fire management plan. The interim success criteria have been met for this polygon. No nuisance exotic or nuisance native species cover has been observed, and the prescribed burns have been conducted in accordance with the fire management plan. Shrubs were reduced to ground level in both areas using a gyrotrack and both areas and herbaceous vegetation cover is increasing within the polygon. These sites were burned in December 2007 and will be burned again in 2009. Due to the numbers of existing pine trees this area will not need supplemental tree planting, however, wire grass will be added to the polygon in 2009.

Management Unit 10, UMAM Polygon III, Xeric and Live Oak

Management Unit 10, UMAM Polygon III consists of 493.852 of FLUCCS 421 – Xeric Oak and 427 – Live Oak. Management goals include the preservation and the re-introduction of fire to upland sandhill communities dominated by oaks. Management activities include the introduction of fire using dormant season burns, and the eventual introduction of growing-season burns (anticipated 3 to 5-year and 5 to 7-year burn cycles), and the reduction of oak in portions of management unit as selected by QMS (Qualified Mitigation Supervisor), and monitoring for nuisance / exotic plant species. Other management activities may include the supplemental planting of longleaf pine (436 trees per acre) and wiregrass (6' centers or direct seeding as 2-5 pounds per acre as determined by the QMS. Live and turkey oaks were selectively harvested from portions of Management Unit 10, UMAM Polygon III in September of 2006. As a result the fuel load is high for most of these areas and a prescribed burn is scheduled for a dormant season burn in the winter of 2008/2009. Good coverage of wire grass was observed throughout Management Unit 10 so no additional planting will be required. Initial burns for portions of Management Unit 10 were conducted during the growing season. Wire grass was observed in flower for these areas. Continued warm season burns should ensure an increasing cover of wire grass throughout the polygon. Four transects were located within Polygon 10, M1, M2, M12 and M13).

In 2006, two transects M1 with 44 species (9 trees, 5 shrubs, 3 vines and 27 herbs) and M13 with 54 species (9 trees, 6 shrubs, 2 vines and 37 herbs) were species rich, while M2 with 29 species (6 trees, 6 shrubs, 3 vines and 14 herbs) and M12 with 26 species (12 trees, 3 shrubs, 3 vines and 8 herbs) were generally lacking a diverse herbaceous cover. This may be due to the shading of the understory by overstory oaks. However, all of the transects had between 19 and 35 species in common. Scattered diamond oak and sand pine may also be reflective of a historic lack of fire. No nuisance exotic coverage was observed, though a small patch of Bahia grass was found at the gate adjacent to the road for the transect M1. In the transect M1, a Florida threatened species Gulf coast lupine (*Lupinus westianus*) was located throughout the sand hill upland while smooth barked St. John's wort, a Florida Endangered species, was located adjacent to the solution pond 1. Gopher tortoise burrows were observed along pedestrian transects M12 and M13.

In 2007, two transects, M1 was observed with 67 species (10 trees, 16 shrubs, 3 vines and 38 herbaceous species) while, along M13 62 species (9 trees, 7 shrubs, 3 vines and 43 herbaceous species) was observed (Appendix 4). Along M2 38 species (8 trees, 5 shrubs, 2 vines and 23 herbaceous species) were observed and 34 species were observed along transect M12 (13 trees, 4 shrubs, 3 vines and 14 herbaceous species) (Appendix 4). M1 had 5 newly observed species and 3 species were not observed in 2007 and were sky blue lupine, bladderwort and yellow eyed grass. Ten new species were observed along M13 and two species, dwarf huckleberry and bracken fern were not observed. Along M2 13 additional species were observed while, 4 species Florida jasmine, red chokeberry, pale meadow beauty and lopsided Indian grass were not observed. Finally, M12 also had 13 additional species observed while 5 species were not observed and included American holly, gopher apple, sand pine, shiny blueberry, and Adam's needle. The observation of additional species may

be due to increased scrutiny of the polygon and habitat improvement due to successive fires. Aside from a small patch of Bahia grass at the entrance to M1 no nuisance or exotic species were observed. Gulf coast lupine was observed at two transects, M1 and M13. Sand pine and Florida jasmine may have been removed by earlier fires. The habitat all appears healthy and vigorous. These areas were burned during the winter burns in December of 2007. Wildlife observed included a downy woodpecker, pileated woodpecker, raccoon tracks, otter tracks, gopher tortoise, deer tracks, turkey tracks, cardinal, towhee, titmouse and mockingbird.

This polygon is represented by four transects, M1, M2, M12 and M13. In 2008, M1 was observed with 69 species, 2 species greater than in 2007. M2 was observed with 35 species, three fewer than the previous year. In 2008, M12 was observed with 44 species, 10 species greater than in 2007 and M 13 was observed with 59 species, three species fewer than in 2007. Species observed were typical of sand hill species. Gulf coast lupine was again observed in this location and is thriving in M1, M2 and M13. Wire grass continues to thrive in these areas. No nuisance or exotic species were observed, except for a small area at the entrance to M1.

Interim Success Criteria:
Several interim success criteria have already been met, no nuisance native or exotic vegetation was observed, except for a small patch and M1's entrance. Several of these transects are already quite diverse and continued fire within these areas will ensure a diverse sand hill community. Wire grass cover is good to excellent and oaks have been thinned for much of this polygon and these areas were again burned in December 2007 and will again be burned in 2009. Existing numbers of pine trees meet the permit condition of less than 200 trees per acre.

Management Unit 11, UMAM Polygon II, **Upland Slash or Sand Pine Plantations**

Management Unit 11, UMAM Polygon II consists of 383.484 acres of FLUCCS 411
Longleaf Pine / Wiregrass restored from slash or sand pine plantations. The restoration goal for this area is to restore the sites to a sand hill community from a sand or slash pine plantation. Management activities will include the re-introduction of growing season burns, removal of planted pines, re-planting with 436 long leaf pine seedlings per acre and if needed the addition of wire grass tublings or seeding. Initial fire was introduced to the slash pine areas in 2005, while site prep burns will take place in the winter of 2008 for the previous sand pine areas. Trees were harvested from April to November 2007. One transect (M5) was located within Management Unit 11, UMAM Polygon II. This area had already undergone a warm season burn that greatly reduced the shrub cover. Overstory was removed in April 2007. Much of the understory was in fairly good condition with good diversity typical of the sand hills.

In 2006, a total of 50 species (6 trees, 7 shrubs, 2 vines, and 35 herbaceous species) were observed. Wire grass was the dominant grass species within the area. However, the emerging shrub layer was dominated by diamond oak.

In 2007, a total of 49 species were observed (7 trees, 8 shrubs, 2 vines and 32 herbaceous species) (Appendix 4). Nine new species were observed while 10 species initially present were not observed. The changes in species composition may be due to the tree harvest which greatly disturbed the understory. Species were common to the sandhill community. Wire grass was common and appeared to be the dominant species. Much of the shrub layer was reduced to sprouts and much of the diamond and live oak was destroyed during the tree harvest. A site prep burn is planned for winter 2008. Wildlife observed included: cardinal, fence lizard, titmouse, mourning dove, fish crows, red bellied wood pecker, phoebe, squirrel, two deer and lined race runner.

In 2008, a total of 59 species were observed (7 trees, 8 shrubs, 3 vines and 41 herbaceous species). Three additional species were observed. These were all typical dry sand hill species. Changes in composition are likely due to increased light from harvest of slash pine, followed by the initial burn. Wire grass continues to

thrive and flowered this year. The area is returning to a sand hill from the planted pine plantation. Diversity will probably continue to increase due to increased fire rotations and response of the seed bank. No wild life was observed during sampling.

Interim Success Criteria:
The interim success criteria have been met within this transect. No nuisance or exotic species were observed. Wire grass is the dominant species. The ground cover is diverse and typical of a sandhill. Diversity will likely continue to increase as the seed bank responds and with frequent fires.

Management Unit 12, UMAM Polygon 1, Sand Hill

Management Unit 12, UMAM Polygon 1 consists of 263.52 acres of FLUCCS: 411 – Longleaf Pine / Wiregrass (Mesic Pine Flatwoods) restored from 421 –Xeric Oak habitat.
The goal for this polygon is to restore a diverse sand hill. Restoration activities include the re-introduction of growing season burns, removal of oak ≤ 12 inches DBH and herbicide treatment of stumps, planting of longleaf pine (436 trees per acre), and monitoring for nuisance / exotic plant species. Oak eradication was conducted for Management Unit 12, UMAM Polygon 1 during the summer of 2005. . Fire was re-introduced in 2004 to the polygon and cover of the once dominant shrub woody goldenrod has been greatly reduced. Since the initial fire, two additional fires, the most recent in December of 2007, further reduced shrub and woody goldenrod cover. Wire grass has flowered for two consecutive years in most of this habitat. Wire grass is again the dominant herbaceous species within this polygon. The sand hill habitat within this polygon is very diverse and considered high quality with an excellent herbaceous species composition. The majority of the polygon was planted with longleaf pines in 2004, however, several areas on the north side of Green Head Branch will be re-planted with in 2008. Two transects (M3 and M4) were located within this polygon.

In 2006, a total of 35 species (7 trees, 2 shrubs, 2 vines, and 24 herbs) were observed along pedestrian transect M3, while 68 species (8 trees, 9 shrubs, 2 vines and 49 herbs) were observed within M4. The species were typical of the sand hill though in wetter areas of M4 adjacent to Little Deep Edge Pond, more pine flatwood vegetation occurred. Small patches of centipede grass were observed along the pedestrian transect M3.

In 2007, a total of 42 species (8 trees, 7 shrubs, 2 vines and 25 herbs) were observed along M3 (Appendix 4). The additional, shrub species observed may be due to expanding the path further to the west and up an old ridgeline. Shrubs were typical of the sandhill and high in wildlife value. Twelve new species were observed within this transect and may again be due to expanding the pedestrian survey. Five species, Southern magnolia, golden aster, bracken fern, Carolina milkweed and pinewoods milkweed were not observed in this years sampling. This may be due to the later sampling when some of these species are less noticeable following flowering and fruiting. Along the pedestrian transect M4 a total of 69 species (8 trees, 11 shrubs, 2 vines and 48 herbaceous) species were observed. A total of 17 new species were seen this year and 13 species previously observed were not seen this year. The area surrounding this pedestrian meander was burned during the winter of 2007 and the fire was particularly hot killing some turkey and live oaks and also may have removed some of the less fire tolerant species. Centipede grass which was observed as a minor component in the polygon was completely absent following the fire. Another species apparently removed by the fire was the slender crab grass. Other new species may have emerged from the seedbank once the fire exposed bare ground. Wildlife observed within this polygon included rabbit and raccoon tracks, and an active gopher tortoise burrow. In addition several threatened and endangered species were observed including southern crab apple, smooth barked St. John's wort and Gulf Coast lupine.

In 2008, a total of 53 species were observed along M3, an increase of 11 species from the previous year. The additional species were common to sand hills and species number may be increasing as a result of the shrub layer reduction due to successive fires. M4 is the most diverse of the areas of the bank. A total of 87 species

were observed within this area. This is an increase of 18 species and may be due to a recent prescribed fire. Oak and shrub densities are low in this area and there are pockets of wet flatwoods within the sand hill vegetation. As shrub levels are reduced and continued fires will help in keeping the observed diversity. No nuisance or exotic species were observed though small patches of centipede grass were observed by staff. Some expansion of turkey and live oaks were observed within these areas and will be reduced if cover continues to expand. Wildlife observed within this area included turkey and raccoon tracks, active gopher tortoise burrow, down wood pecker, chickadee. Threatened and endangered species include gulf coast lupine, crab apple and smooth barked St. Johns wort adjacent to cat pond.

Interim Success Criteria:
This polygon has reached many of the restoration goals set forth in the interim success criteria. The three controlled burns within this polygon have greatly reduced the cover of woody golden rod and stimulated the cover of wire grass and other grasses and forbs. Oaks have been reduced to less than 150 trees per acre and the herbaceous vegetation is dominated by wire grass. Longleaf pines have been planted throughout the polygon in winter 2005.

Management Unit 14, portions of UMAM Polygon IV, Lakes

Management Unit 14, portions of UMAM Polygon IV consists of 164.958 acres of FLUCCS 520, lakes. The goal for this polygon is the preservation of the lake and aquatic habitat. One pedestrian transect (M6) was placed within the polygon around Garret Pond. The water levels at Garret pond were very low due to the summer drought. Much of the lake bottom was exposed and had been colonized by a variety of wetland grasses and sedges. Two small pools remained.

In 2006, a total of 36 species (5 trees, 7 shrubs, 1 vine and 23 herbs) were observed. Vegetation was typical of a diverse pond within the region. A small patch of torpedo grass was observed at the boat ramp to the pond. A zone of Smooth barked St. John's wort and seedlings was observed just below the shrub layer surrounding the pond. Some species such as pickerel weed appear to have been set back by the drought and most of the leaves and stem have browned.

In 2007, a total of 24 species were observed (5 trees, 7 shrubs, 1 vine and 11 herbs) (Appendix 4). Due to the extended drought, this pond has been dry for approximately a year. The reduction in herbaceous species is due to the lack of water. Most of the absent species were aquatic or required wet conditions to thrive. The small patch of torpedo grass at the old boat launch had been sprayed during the summer and none was observed during the fall sampling. Dog fennel has continued to invade the site and many of the aquatic species were absent.

Interim Success Criteria:
Exotic vegetation cover is < 2% per acre and no nuisance native vegetation cover was observed. The site appears to be maintaining normal ecological functions during a prolonged drought.

Qualitative Field Assessment Form

Date: 10/29/2008 **Time:** 9:30 am **Data Collector:** David Clayton
Location: Pedestrian Transect # M1 near photo point 15
Management Unit: 10

Nuisance Species: Bahia grass at gate entrance will be sprayed, does not extend into habitat
Fuel Load: Oak Trees have been thinned, area will be burned in summer 2009

Wildlife Observations: Deer tracks, blue jay, and raccoon tracks

T& E Species: Moderate population of Gulf Coast Lupine in sand hill and Smooth Barked St. John's Wort around pond

Community Description: Sandhill upland adjacent to a solution pond. Sandhill with good diversity and excellent groundcover. Marsh zonation still present, pond dry most of year, center full of dog fennel.

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Agalinis setacea	Threadleaf false foxgloves				X
Amphicarpum muhlenbergianum	Blue maidencane				X
Andropogon glomeratus	Busy blue stem				X
Aristida stricta var. beyrichiana	Wiregrass				X
Baptisia lanceolata	Gopher weed				X
Baulduina angustifolia	Coastal plain honeycombhead				X
Bulbostylis ciliatifolia	Cappilary hairsedge				X
Ceanothus microphyllus	Redroot				X
Centella asiatica	Centella				X
Cephalanthus occidentalis	Button bush		X		
Chrysoma pauciflosculosa	Woody Goldenrod				X
Cliftonia monoplylla	Black ti ti		X		
Crysopsis scabrella	Goldenaster				X
Cyrilla racemiflora	Titi		X		
Dalea pinatta	Summer farewell				X
Dicanthelium scoparium	Panic grass				X
Dicanthelium spp.	Panic grass				X
Eleocharis sp.	Eleocharis				X
Eriogonum tomentosum	Wild Buckwheat				X
Eupatorium capillifolium	Dog fennel				X
Eupatorium mohrii	Eupatorium				X
Euthamia caroliniana	Flat-topped goldenrod				X
Galactia sp.	Milk pea				X
Gaylussacia dumosa	Dwarf huckleberry		X		
Gelsemium sempervirens	Florida Jasmine			X	
Hypericum crux-andreae	St. Peter's wort				X
Hypericum reductum	Atlantic St. John's wort				X
Hypericum gentinoides	Pineweed				X
Hypericum lissophloeus	Smooth Bark St. John's wort		X		
Hypericum spp.	St. John's wort		X		
Ilex glabra	Gall berry		X		
Ilex myrtifolia	Myrtle leaf holly		X		
Ilex vomitoria	Yaupon		X		
Lachnocaulon ancepts	White topped bog buttons				X

Scientific Name	Common Name	Tree	Shrub	Vine	Herbaceous
Licania michauxii	Gopher apple				X
Lupinus diffusus	Sky-blue lupine				X
Lupinus westianus	Gulf Coast Lupine				X
Magnolia virginiana	Silver bay	X			
Myrica cerifera	Wax myrtle		X		
Opuntia humifusa	Pricklypear cactus				X
Panicum dichotimiflorum	Fall panic grass				X
Panicum hemitomon	Maidencane				X
Paspalum notatum	Bahia grass				X
Persea borbonia	Red Bay	X			
Penstemon multiflorus	Many flowered beardtongue				X
Polygonella gracillis	Wire weed				X
Pinus clausa	Sand Pine	X			
Pinus elliottii	Slash pine	X			
Pinus palustris	Longleaf pine	X			
Pityopsis graminifolia	Golden Aster				X
Polygonella gracilis	Wireweed				X
Quercus geminata	Sand Live Oak	X			
Quercus hemisphearica	Diamond oak	X			
Quercus incana	Blue jack oak	X			
Quercus laevis	Turkey oak	X			
Quercus virginiana	Live Oak	X			
Rhexia mariana	Pale meadow beauty				X
Rhus copallinum	Sumac		X		
Rubus cuneifolius	Sand blackberry		X		
Serenoa repens	Saw Palmetto		X		
Scoparia dulcis	Sweet Broom				X
Smilax sp.	Catbriar			X	
Stylisma patens	Coastal plain dawnflower				X
Utricularia floridana	Bladderwort				X
Vaccinium corymbosum	High bush blueberry		X		
Vaccinium myrsinites	Shiny blue berry		X		
Viburnum obovatum	Walter's viburnum		X		
Vitus rotundifolia	Muscadine			X	
Xyris sp.	Yellow-eyed grass				X
Yucca filamentosa	Adam's needle				X

*** Present in previous survey but not observed, ** New observation, * Nuisance Exotic Species

Pedestrian Transect: Upland Sand Hill with oak eradication: Note: Gulf Coast Lupine in upper left photo

Marsh showing in background and gulf coast lupine (threatened) in foreground

Qualitative Field Assessment Form

Date: 10/28//2008 **Time:** 3:00 pm **Data Collector:** David Clayton
Location: Pedestrian Transect # M2 near photo point 3
Management Unit: 10

Nuisance Species: None
Fuel Load: Fuel load moderate

Wildlife Observations: **Titmouse, red bellied woodpecker, male cardinal, fence lizard, mourning dove, crow, phoebe, squirrel**
T& E Species: None

Community Description: Sandhill upland overgrown with live and turkey oaks…good wiregrass cover, but allot of shade. Lots of deer moss on ground, a very dry site that grades down towards Pine Log Creek. Area should be burned in 2009.

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Andropogon					
Aristida stricta var. beyrichiana	Wiregrass				X
Baptisia lanceolata	Gopher weed				X
Bulbostylis ciliatifolia	Capillary hairsedge				X
Chrysoma pauciflosculosa	Woody Goldenrod				X
Dichanthelium sp.	Witch grass				X
Diospyros virginiana	Persimmon	X			
Galactia sp.	Milk pea				X
Eriogonum tomentosum	Wild Buckwheat				X
Euphorbia inundata	Florida pineland spurge				X
Gelsemium sempervirens	Florida Jasmine			X	
Hypericum crux-andreae	St. Peter's-wort				X
Ilex opaca	American Holly	X			
Ilex vomitoria	Yaupon		X		
Liatris gracilis	Slender gayfeather				X
Liatris pauciflora	Few Flowered gayfeather				X
Licania michauxii	Gopher apple				X
Lupinus westianus	Gulfcoast lupine				X
Photinia pyrifolia	Red chokeberry		X		
Pinus clausa	Sand pine	X			
Pinus palustris	Long leaf pine	X			
Pityopsis graminifolia	Golden Aster				X
Polygonella gracilis	Wire weed				X
Quercus hemisphaerica	Diamond oak	X			
Quercus incana	Bluejack oak	X			
Quercus laevis	Turkey oak	X			
Quercus virginiana	Live oak	X			
Rhexia mariana	Pale meadow beauty				X
Scleria sp.	Scleria				X
Serenoa repens	Saw-palmetto		X		
Smilax sp.	Catbriar			X	
Solidago fistulosa	Pinebarren goldenrod				X
Sorghastrum secundum	Lopsided Indiangrass				X
Stylisma patens	Coastal plain dawnflower				X
Vaccinium arboreum	Farkleberry		X		
Vaccinium corymbosum	Highbush blueberry		X		
Vaccinium myrsinites	Shiny blueberry		X		
Vitis rotundifolia	Wild muscadine grape			X	

M2: Pines with good wiregrass cover

M2. Wiregrass in oak eradication area with felled trees

Qualitative Field Assessment Form

Date: 10/30/08 **Time:** 1:30 pm **Data Collector:** David Clayton
Location: Pedestrian Transect # M3 near photo point 2
Management Unit: 12

Nuisance Species: None
Fuel Load: Fuel load low, burned in winter 2007/2008. Will try for summer burn in 2009.

Wildlife Observations: **Mockingbird**
T& E Species: Southern crab apple, smooth barked St. John's Wort around Cat Pond, Gulf coast lupine

Community Description: Sandhill upland sloping down into the seepage area associated with Cat pond. Excellent diversity and groundcover. Wire grass bloomed this summer…area planted with long leaf pine, wiregrass flowering

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Agalinis setacea	Threadleaf false foxgloves				X
Andropogon glomeratus	Busy blue stem				X
Andropogon gyrans	Elliot's blue stem				X
Aristida stricta var. beyrichiana	Wiregrass				X
Asclepias cinerea	Carolina milkweed				X
Asclepias humistrata	Pinewoods milkweed				X
Baptisia lanceolata	Gopher weed				X
Bulbostylis ciliatifolia	Capillary hairsedge				X
Carphephorus corymbosus	Coastalplain chaffhead				X
Carphephorus odoratissimus	Vanilla leaf				X
Castanea floridana	Chinquapin	X			
Ceanothus microphyllus	Littleleaf buckbush				X
Chrysoma pauciflosculosa	Woody Goldenrod				X
Cliftonia monophylla	Black titi		X		
Cyperus sp.	Sedge				X
Dalea pinnata	Summer-farewell				X
Dichanthelium sp.	Witch grass				X
Diospyros virginiana	Persimon	X			
Eragrostis eliottii	Elliot's lovegrass				X
Eriogonum tomentosum	Wild Buckwheat				X
Galactia sp.	Milk pea				X
Gaylussacia dumosa	Dwarf huckleberry		X		
Gelsemium sempervirens	Florida Jasmine			X	
Hieracium gronovii	Hawkweed				X
Hypericum gentianoides	Pineweed				X
Ilex glabra	Gall berry		X		
Ilex opaca	American holly	X			
Ilex vomitoria	Yaupon		X		
Liatris gracilis	Slender gayfeather				X
Liatris pauciflora	Few flowered gayfeather				X
Licania michauxii	Gopher apple				X
Lupinus diffusus	Skyblue lupine				X
*Lupinus westianus****	Gulf coast lupine				X
*Malus angustifolia ****	Southern crabapple	X			
Polygonella gracillis	Wire weed				X
Panicum virgatum	Switch grass				X
Paronychai rugelii	Sand squares				X
Pinus clausa	Sand pine	X			

Pinus elliottii	Slash pine	X			
Pinus palustris	Long leaf pine	X			
Pityopsis graminifolia	Golden Aster				X
Polygonella gracilis	Wireweed				X
Pteridium aquilinum	Bracken fern				X
Quercus laevis	Turkey oak	X			
Quercus margaretta	Sand post oak	X			
Quercus pumila	Runner oak		X		
Quercus virginiana	Live oak	X			
Rhexia mariana	Pale meadow beauty				X
Serenoa repens	Saw palmetto		X		
Smilax sp.	Catbriar			X	
Stillingia sylvatica	Queen's delight				X
Sporobolus junceus	Pineywoods droopseed				X
Tradescantia hirsutiflora	Hairyflower spiderwort				X
Vaccinium corymbosum	Highbush blueberry		X		
Vaccinium myrsinites	Shiny blueberry		X		
Yucca filamentosa	Adam's needle				X

*** State threatened ** New Observation, * Not observed in 2008

Pedestrian Transect M3: Cat pond and surrounding uplands

Cat Pond with Smooth barked St. John's in background

M3:Sandhill Upland facing east

Qualitative Field Assessment Form

Date: 11/4/2008 **Time:** 5:00 pm **Data Collector:** David Clayton
Location: Pedestrian Transect # M4 near photo point 4
Management Unit: 12

Nuisance Species: None
Fuel Load: burned last winter, good wire grass response really starting to look good.

Wildlife Observations:**turkey tracks and raccoon tracks, active gopher tortoise burrow, titmouse,downy woodpecker, chicadee**
T& E Species: None observed

Community Description: Sandhill upland sloping down into the seepage area associated with Little Deep Edge pond. Excellent diversity and groundcover.

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Agalinis setacea	Threadleaf false foxgloves				X
Andropogon glomeratus	Busy blue stem				X
Andropogon virginicus	Broomsedge				X
Aristida stricta var. beyrichiana	Wiregrass				X
Asclepias cinerea	Carolina milkweed				X
Asimina angustifolia	Slimleaf pawpaw		X		
Aster pilosus	Frost aster				X
Aster wateri	Walter's aster				X
Balduina angustifolia	Coastalplain honeycombhead				X
Baptosoa lecontei	Pineland wild idigo				X
Baptisia lanceolata	Gopher weed				X
Bulbostylis capillaris	Capillary hairsedge				X
Carphephorus corymbosum	Coastplain chaffhead				X
Carphephorus odoratissimus	Vanilla leaf				X
Ceanothus microphyllus	Littleleaf buckrush				X
Croton argyranthemus	Silver croton				X
Chrysoma pauciflosculosa	Woody Goldenrod				X
Crysopsis scabrella	Goldenaster				X
Cyperus sp.	Cyperus				X
Dalea pinatta	Summer farewell				X
Dicanthelium spp.	Witch grass				X
Digitaria filiformis	Slender crabgrass				X
Diospyros virginiana	Persimon	X			
Elephantopus carolinianus	Elephant's foot				X
Eragraostis elliottii	Elliot's lovegrass				X
Eremochloa ophiuroides	Centipede grass				X
Eriogonum tomentosum	Wild Buckwheat				X
Eryngium yuccifolium	Rattlesnake master				X
Eupatorium capillifolium	Dog fennel				X
Eupatorium hyssopifolium . var. laciniatum	Hyssopleaf thoroughwort				X
Eupatorium leucolepis	Justiceweed				X
Eupatorium serotinum	Late thoroughwort				X
Euphorbia commutata	Wood spurge				X
Euphorbia inundata	Florida pineland spurge				X
Euthamia caroliniana	Flat-topped goldenrod				X

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Galactia volubilis	Milkpea				X
Gaura filipes	Slenderstalk beeblossom				X
Gelsemium sempervirens	Florida Jasmine			X	
Haplopappus divaricatus	Scratch daisy				X
Hieracium gronovii	Hawkweed				X
Helianthus radula	Rayless sunflower				X
Hypericum crux-andreae	St. Peter's wort				X
Hypericum gentianoides	Pineweed				X
Ilex glabra	Gall berry		X		
Gaylussacia dumosa	Dwarf huckleberry		X		
Ilex vomitoria	Yaupon		X		
Liatris gracilis	Slender gayfeather				X
Liatris pauciflora	Few flowered gayfeather				X
Licania michauxii	Gopher apple				X
Lobelia glandulosa	Glade lobelia				X
Lupinus diffusus	Skyblue lupine				X
Opuntia humifusa	Pricklypear cactus				X
Osmanthus americanus	Wild olive		X		
Osumunda cinnamomea	Cinnamon fern				X
Panicum virgatum	Switch grass				X
Paronychia rugelii	Sand-squares				X
Penstemon multiflorus	Penstemon				X
Polygonella gracilis	Wire weed				X
Pinus elliottii	Slash pine	X			
Pinus palustris	Long leaf pine	X			
Pityopsis graminifolia	Golden Aster				X
Polygonella gracilis	Wireweed				X
Pteridium aquilinum	Bracken fern				X
Pterocaulon virgatum	Blackroot				X
Quercus elliottii	Runner oak		X		
Quercus hemisphearica	Diamond oak	X			
Quercus incana	Blue jack oak	X			
Quercus laevis	Turkey oak	X			
Quercus margaretta	Sand post oak	X			
Quercus virginiana	Live oak	X			
Rhexia mariana	Pale meadow beauty				X
Rhus copallinum	Winged sumac		X		
Rubus cuneifolius	Sand blackberry		X		
Scleria sp.	Scleria				X
Serenoa repens	Saw palmetto		X		
Solidago fistulosa	Pinebarrens goldenrod				X
Solidago stricta	Wand goldenrod				X
Seymeria cassioides	Senna seymaria				X
Smilax sp.	Catbriar			X	
Sporobolus junceus	Pineywoods dropseed				X
Stillingia sylvatica	Queen's delight				X
Stylisma patens	Coastalplain dawnflower				X
Trichostema setaceum	Forked blue curls				X
Vaccinium arboreum	Sparkle berry		X		
Vaccinium corymbosum	High bush blueberry		X		
Vaccinium myrsinites	Shiny blue berry		X		

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Stylodon carneus	Stylodon				X
Viola sororia	Common blue violet				X
Viola walteri	Prostrate blue violet				X
Vitis rotundifolia	Muscadine			X	
Woodwardia virginica	Virginia chain fern				X
Xyris sp.	Yellow-eyed grass				X
Yucca filamentosa	Adam's needle				X

** New Observation, * Not observed in 2008

Pedestrian Transect M4: Upland Sand Hill: Note: Wiregrass

Upland near loop road and Little Deep Edge.

M4. Wiregrass and saw palmettos , upland next to Little Deep Edge.

M4. Adjacent to Deep Edge, area has had 1 less burn, burn in 2009.

Qualitative Field Assessment Form

Date: 10/29/2008 **Time:** 11:00 am **Data Collector:** David Clayton
Location: Pedestrian Transect # M5 near photo point 1
Management Unit: 11

Nuisance Species: None
Fuel Load: Slash Pine harvested,

Wildlife Observations: **none, wire grass flowered this fall.**
T& E Species: None observed

Community Description: Wire grass bloomed this summer…burned October, 2008.

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Agalinis setacea	Threadleaf false foxgloves				X
Andropogon glomeratus	Busy blue stem				X
Andropogon gyrans	Elliot's blue stem				X
Andropogon virginicus	Broom sedge				X
Aristida stricta var. beyrichiana	Wiregrass				X
Asimina angustifolia	Slimleaf pawpaw		X		
Aster pilosus	Frost aster				X
Aster wateri	Walter's aster				X
Baptisia lanceolata	Gopher weed				X
Berlandiera pumila	Green eyes				X
Carphephorus odoratissimus	Vanilla leaf				X
Ceanothus microphyllus	Littleleaf buckrush				X
Croton argyranthemus	Silver croton				X
Chrysoma pauciflosculosa	Woody Goldenrod				X
Crysopsis scabrella	Goldenaster				X
Dalea pinatta	Summer farewell				X
Dicanthelium spp.	Panic grass				X
Digitaria filiformis	Slender crabgrass				X
Diospyros virginiana	Persimon	X			
Elephantopus carolinianus	Elephant's foot				X
Eremochloa ophiuroides	Centipede grass				X
Eriogonum tomentosum	Wild Buckwheat				X
Eupatorium capillifolium	Dog fennel				X
Eupatorium serotinum	Late thoroughwort				X
Galactia volubilis	Milkpea				X
Gaylussacia dumosa	Dwarf huckleberry		X		
Gelsemium sempervirens	Florida Jasmine			X	
Gomphrena serrata	Globe amaranth				X
Hieracium gronovii	Hawkweed				X
Hypericum crux-andreae	St. Peter's wort				X
Hypericum gentianoides	Pineweed				X
Ilex glabra	Gall berry		X		
Ilex opaca	American holly	X			
Ilex vomitoria	Yaupon		X		
Liatris gracilis	Slender gayfeather				X
Liatris pauciflora	Few flowered gayfeather				X
Licania michauxii	Gopher apple				X
Lupinus diffusus	Sky-blue lupine				X
Opuntia humifusa	Pricklypear cactus				X

Panicum virgatum	Switch grass				X
Penstemon multiflorus	Penstemon				X
Scientific Name	**Common Name**	**Tree**	**Shrub**	**Vine**	**Herb**
Pinus elliottii	Slash pine	X			
Pityopsis graminifolia	Golden Aster				X
Polygonella gracilis	Wireweed				X
Pterocaulon pycnostachyum	Black root				**X**
Quercus hemisphearica	Diamond oak	X			
Quercus incana	Blue jack oak	X			
Quercus laevis	Turkey oak	X			
Quercus margaretta	Sand post oak	X			
Rhus copallinum	Winged sumac		X		
Rubus cuneifolius	Sand blackberry		X		
Rumex hastatulus	Heartwing dock				X
Schrankia microphylla	Sensitive briar			X	
Solidago fistulosa	Pinebarrens goldenrod				X
Seymeria cassioides	Senna seymaria				X
Smilax sp.	Catbriar			X	
Stillingia sylvatica	Queen's delight				X
Trichostema setaceum	Forked blue curls				X
Vaccinium arboreum	Sparkle berry		X		
Vaccinium corymbosum	High bush blueberry		X		
Vaccinium myrsinites	Shiny blue berry		X		
Yucca filamentosa	Adam's needle				X

** New observation, * Not seen in 2008

Pedestrian Transect M5: Burned prior to planting longleaf pine

M5: Staging area with good burn (October). Was planted in December with LLP.

M5: shows natural wire grass regeneration following slash pine harvest

Qualitative Field Assessment Form

Date: 10/29/08 **Time** 12:30 pm **Data Collector:** David Clayton
Location: Pedestrian Transect # M6
Management Unit: 14

Nuisance Species: none
Fuel Load: Low

Wildlife Observations: rabbit, deer and raccoon tracks, chipping sparrow, southern cricket frog
T& E Species:.Smooth barked St. John's wort around the edge of pond

Community Description:Edge dominated by slash pine and shrubs with some black gun and cypress. Pond is starting to come back, water in bottom of deepest areas. Dominated by dog fennel, Rhynchospora and Eleocharis. BURNED IN AUGUST

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Amphicarpum muhlenbergianum	Blue maidencane				X
Andropogon glomeratus	Bushy blue stem				X
Andropogon virginicus	Broomsedge				X
Bidens mitis	Bur marsh marigold				X
Brasenia schreberi	Water shield				X
Centella asiatica	Centella				X
Cephalanthus occidentalis	Button bush		X		
Cliftonia monoplylla	Black ti ti		X		
Cyrilla racemiflora	Red ti ti		X		
Dicanthelium spp.	Witch grass				X
Eleocharis sp.	Eleocharis				X
Eupatorium capillifolium	Dog fennel				X
Euthamia caroliniana	Flat-topped goldenrod				X
Hypericum lissophloeus	Smooth barked St. John's wort		X		
Hypericum spp.	St. John's wort		X		
Ilex vomitoria	Yaupon		X		
Lachnanthese caroliniana	Red root				X
Lachnocaulon ancepts	White topped bog buttons				X
Lycopus rubellus	Water horehound				X
Mayaca fluviatilis	Bog moss				X
Numphar advena	Spatterdock				X
Nymphaea odorata	Fragrant water lily				X
Nyssa sylvatica	Black gun	X			
Panicum dichotimiflorum	Fall panic grass				X
Panicum hemitomon	Maidencane				X
Panicum repens	Torpedo grass				X
Persea palustris	Swam bay	X			
Pinus elliottii	Slash Pine	X			
Pontederia cordata	Pickerel weed				X
Quercus hemisphaerica	Diamond Oak	X			
Quercus virginiana	Live oak	X			
Rhexia mariana	Pale meadow beauty				X
Rynchospora inundata	Horned beakrush				X
Sacciolepis striata	American cupscale				X
Sagittaria latifolia	Duck potato				X
Smilax sp.	Catbriar			X	
Taxodium ascendens	Cypress	X			
Triadeum virginicum	Marsh St. John's wort				X
Utricularia floridana	Bladderwort				X

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Vaccinium corymbosum	High bush blue berry		X		
Xyris sp.	Yellow-eyed grass				X

*** Threatened or Endangered Species ** New Observation, * Not observed in 2008

Pedestrian Transect M6: Note: Portions with pools of water, note water lily starting to grow

M6: Most of Garret Pond remains dry, but with good re-generation of smooth barked St. Johns Wort.

Qualitative Field Assessment Form

Date: 10/29/08 **Time:** 11:30 am **Data Collector:** David Clayton
Location: Pedestrian Transect # M7
Management Unit: 4

Nuisance Species: None Fuel Load: Low

Wildlife Observations: blue-winged teal, baby alligator and great blue heron
T& E Species:.Hypericum lissophloeus (Smooth barked St. John's wort, water sundew

Community Description: Dykes Mill Pond has re-hydrated and water is flowing under bridge

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Amphicarpum muhlenbergianum	Blue maidencane				X
Andropogon glomeratus	Bushy blue stem				X
Andropogon virginicus	Broom sedge				X
Bidens mitis	Bur marsh marigold				X
Centella asiatica	Centella				X
Cephalanthus occidentalis	Button bush		X		
Cliftonia monoplylla	Black ti ti		X		
Cyrilla racemiflora	Red ti ti		X		
Dicanthelium spp.	Panic grass				X
Drosera intermedia	Water sundew				X
Eleocharis sp.	Eleocharis				X
Eupatorium capillifolium	Dog fennel				X
Hypericum lissophloeus	Smooth barked St. John's wort		X		
Hypericum spp.	St. John's wort		X		
Ilex glabra	Gall berry		X		
Ilex vomitoria	Yaupon		X		
Lachnanthese caroliniana	Red root				X
Lachnocaulon ancepts	White topped bog buttons				X
Lycopus rubellus	Water horehound				X
Numphar advena	Spatterdock				X
Nymphaea odorata	Fragrant water lily				X
Nyssa sylvatica	Black gun	X			
Panicum dichotimiflorum	Fall panic grass				X
Panicum hemitomon	Maidencane				X
Persea palustris	Swam bay	X			
Pinus elliottii	Slash Pine	X			
Pontederia cordata	Pickerel weed				X
Quercus hemisphearica	Diamond Oak	X			
Rhexia alifanus	Savannah meadow beauty				X
Rhexia mariana	Pale meadow beauty				X
Rhynchospora inundata	Horned beaksedge				X
Rhynchospora microcephalla	Bunched beaksedge				X
Sagittaria latifolia	Duck potato				X
Smilax sp.	Catbriar			X	
Taxodium ascendens	Cypress	X			
Triadeum virginicum	Marsh St. John's wort				X
Utricularia cornuta	Horned wort				X
Utricularia floridana	Bladderwort				X
Vaccinium corymbosum	High bush blue berry		X		
Xyris sp.	Yellow-eyed grass				X

** New observation, * Not observed in 2008

Pedestrian Transect M7: Cypress with pickerel weed

M7: Showing area were Gyro-Trac was used to remove black titi edge (Flatwood vegetation historic)

M7: Cypress with fall color

Qualitative Field Assessment Form

Date: 10/29/2008 **Time:** 1:30 pm **Data Collector:** David Clayton
Location: Pedestrian Transect # M8
Management Unit: I and II

Nuisance Species: None
Fuel Load: Low

Wildlife Observations: Minor hog damage, chipping sparrow, squirrel, red bellied wood pecker, kingfisher
T& E Species:.None

Community Description: Swamp dominated by pond cypress with a fringe of black gum…water present system appears to be filling. Trees healthy, numerous cypress seedlings.

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Andropogon glomeratus	Bushy bluestem				X
Bidens mitis	Bur marsh marigold				X
Brasenia schreberi	Water shield				X
Callicarpa americana	Beauty berry		X		
Campsis radicans	Trumpet vine			X	
Centella asiatica	Centella				X
Clethra alniflora	Sweet pepperbush		X		
Cephalanthus occidentalis	Button bush		X		
Cliftonia monoplylla	Black ti ti		X		
Cyrilla racemiflora	Red ti ti		X		
Dicanthelium spp.	Panic grass				X
Eleocharis sp.	Eleocharis				X
Erianthus giganteus	Giant plume grass				X
Eupatorium capillifolium	Dog fennel				X
Gelsemium sempervirens	Florida Jasmine			X	
Hypericum spp.	St. John's wort		X		
Ilex myrtifolia	Myrtle leaf holly		X		
Ilex vomitoria	Yaupon		X		
Itea virginica	Virginia willow		X		
Lachnanthese caroliniana	Red root				X
Lachnocaulon ancepts	White topped bog buttons				X
Leucothoe racemosa	Swamp dog hobble		X		
Lycopus rubellus	Taper leaf waterhorehound				X
Magnolia virginiana	Silver bay	X			
Myrica cerifera	Wax myrtle		X		
Numphar advena	Spatterdock				X
Nymphaea odorata	Fragrant water lily				X
Nyssa sylvatica	Black gun	X			
Panicum dichotimiflorum	Fall panic grass				X
Panicum hemitomon	Maidencane				X
Persea palustris	Swam bay	X			
Pinus taeda	Loblolly pine	X			
Pontederia cordata	Pickerel weed				X
Quercus laurifolia	Swamp laurel oak	X			
Rhexia alifanus	Savannah meadow beauty				X
Rhexia mariana	Pale meadow beauty				X
Rynchospora inundata	Horned beakrush				X
Sagittaria latifolia	Duck potato				X
Smilax sp.	Catbriar			X	
Taxodium ascendens	Cypress	X			
Triadeum virginicum	Marsh St. John's wort				X

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Utricularia floridana	Bladderwort				X
Vaccinium corymbosum	High bush blueberry		X		
Woodwardia aerolata	Netted chain fern				X
Xyris sp.	Yellow-eyed grass				X

** New Observation, * Not seen in 2008

Pedestrian Transect M8: Green Pond

M8. Forested wetland, water slightly above soil surface, good grown of herbaceous species.

Qualitative Field Assessment Form

Date: 10/30/2008 **Time: 2:30** pm **Data Collector:** David Clayton
Location: Pedestrian Transect # M9
Management Unit: 1

Nuisance Species: None
Fuel Load: Low

Wildlife Observations: Chipping sparrow, southern cricket frog, pied billed grebe
T& E Species: None

Community Description: Green ponds: dominated by pond cypress… Most trees healthy, numerous cypress seedlings of 1 to several yeas of age. Water slowly coming back into system. Pools of water.

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Acer rubrum	Red maple	X			
Andropogon glomeratus	Bushy bluestem				X
Baccharis glomeruliflora	Groundsel tree		X		
Bidens mitis	Bur marsh marigold				X
Brasenia schreberi	Water shield				X
Carex glaucescens	Clustered Sedge				X
Centella asiatica	Centella				X
Cephalanthus occidentalis	Button bush		X		
Clethra alnifolia	Sweet pepper bush		X		
Cliftonia monoplylla	Black ti ti		X		
Cyperus sp.	Sedge				X
Cyrilla racemiflora	Titi		X		
Dichanthelium sp.	Witch grass				X
Eleocharis inundata	Spikerush				X
Eleocharis sp.	Eleocharis				X
Eupatorium capillifolium	Dog fennel				X
Gelsemium sempervirens	Florida jasmine			X	
Hypericum sp.	St. John's wort		X		
Ilex vomitoria	Yaupon		X		
Ilex myrtifolia	Myrtle leaf holly		X		
Itea virginica	Virginia willow		X		
Lachnanthese caroliniana	Red root				X
Liquidambar styraciflua	Sweet gum	X			
Lycopodium alopecuroides	Foxtail club-moss				X
Lycopus rubellus	Water horehound				X
Magnolia virginiana	Silver bay	X			
Myrica cerifera	Wax myrtle		X		
Numphar advena	Spatterdock				X
Nymphaea odorata	Fragrant water lily				X
Panicum hemitomon	Maidencane				X
Panicum repens	Torpedo grass				X
Persea palustris	Swamp Bay	X			
Pluchea odorata	Sweetscent				X
Pontederia cordata	Pickerel weed				X
Rhexia alifanus	Savannah meadow beauty				X
Rhexia mariana	Pale meadow beauty				X
Rhus copallina	Winged sumac		X		
Rynchospora inundata	Horned beakrush				X
Rynchospora microcephala	Small headed beakrush				X
Sacciolepis striata	American cupscale				X
Sagittaria latifolia	Duck potato				X

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Solidago fistulosa	Pine barren goldenrod				X
Taxodium ascendens	Cypress	X			
Utricularia floridana	Bladderwort				X
Xyris sp.	Yellow-eyed grass				X

** New Observation, not observed in 2008

M9:Pedestrian Transect: Green Ponds: Water in Pond

M9: Most dominated by dog fennel, water at or above soil surface, up to 1.5 to 2’ in deeper areas.

M9: Water in deeper areas.

Qualitative Field Assessment Form

Date: 10/28/2007 **Time:** 1:50 pm **Data Collector:** David Clayton

Location: Pedestrian: M10 near photo point 8

Management Unit: 1 **Due to species composition, analyzed under hydric pine flatwoods, Management Unit 2 Area over-seeded with wire grass and treated with herbicide to reduce shrub cover.**

Nuisance Species: None Fuel Load: Low

Wildlife Observations: Flicker, titmouse, blue jay
T& E Species:

Community Description: Area Gyro-Traked and burned in August 2007…hot fire..killed some pines.

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Acer rubrum	Red maple	X			
Andropogon virginicus	Broomsedge				X
Arundinaria gigantea	Switchcane				X
Callicarpa americana	American beautyberry		X		
Carphephorus odoratissimus	Vanilla leaf				
Centella asiatica	Centella				X
Cephalanthus occidentalis	Buttonbush		X		
Clethra alnifolia	Sweet pepperbush		X		
Cliftonia monoplylla	Black ti ti		X		
Cyperus sp.	Sedge				X
Cyrilla racemiflora	Red ti ti		X		
Cuscuta gronovii	Scaldweed dodder			X	
Dichanthelium sp.	Witch grass				X
Gaylussacia frondosa	Dangleberry		X		
Gelsemium sempervirens	Florida Jasmine			X	
Gordonia lasianthus	Loblolly bay	X			
Hypericum crux-andreae	St. John's wort				X
Ilex coriaceae	Big gallberry		X		
Ilex glabra	Gallbberry		X		
Ilex myrtifolia	Myrtle-leaved holly		X		
Ilex vomitoria	Yaupon		X		
Kalmia hirsuta	Wicki		X		
Lachnanthes caroliana	Redroot				X
Leucothoe racemosa	Dog hobble		X		
Lycopus rubellus	Waterhorehound				X
Lyonia lucida	Fetterbush		X		
Nymphaea odorata	Fragrant water lily				X
Magnolia grandiflora	Southern magnolia	X			
Myrica caroliniensis	Evergreen bayberry		X		
Osmunda regalis	Royal fern				X
Oxydendrom areboreum	Sourwood	X			
Panicum sp.	Panic grass				X
Persea borbonia	Red bay	X			
Persea palustris	Swamp Bay	X			
Phytolacca americana	Poke				X
Pieris phyllyreifolia	Pieris		X		
Pinus elliottii	Slash pine	X			
Polygala lutea	Candy weed				X
Pteridium aquilinum	Brachen fern				X
Quercus hemisphaerica	Diamond oak	X			
Quercus nigra	Water oak	X			
Quercus virginiana	Live oak	X			

Rhexia mariana	Meadow beauty				X
Rhododendron viscosum	Swamp honeysuckle		X		
Rhus copallinum	Winged sumac		X		
Rhynchospora inundata	Beakrush				X
Rhynchospora sp.	Beakrush				X
Rubus argutus	Black berry		X		
Serenoa repens	Saw-palmetto		X		
Smilax laurifolia	Catbriar			X	
Smilax sp.	Catbriar			X	
Sporobolus junceus	Pineywoods dropseed				X
Taxodium ascendens	Cypress	X			
Toxicodendron vernix	Poison sumac		X		
Vaccinium corymbosum	High bush blueberry		X		
Vaccimium myrsinities	Shiny blueberry		X		
Viburnum rufidulum	Rusty black haw		X		
Vitus rotundifolia	Wild muscadine grape			X	
Woodwardia aerolata	Netted chain fern				X
Xyris sp.	Yellow-eyed grass				X

** New observation *Not observed in 2007

Pedestrian Transect M10: Loblolly Bays

M10: Gyrotracked Shrub area, burned overseeded with wire grass and treated with herbicide for shrubs

M10:Similar to first shot, note the low shrub count.

M10: Add on black titi area adjacent to photos above: Gyro-Trac done in June/will be burned in winter 2007/2008.


M10: Wet flatwoods add on area (see above)

Qualitative Field Assessment Form

Date: 10/30/08 **Time:** 9:00 am **Data Collector:** David Clayton

Location: Pedestrian Transect # M11 and Photo point 12 moved to represent wet flatwoods habitat. The area was gyrotracked during the late spring and summer 2007.

Management Unit: 2

Nuisance Species:

Fuel Load: medium, area was burned in winter 2007/2008

Wildlife Observations: Doe, blue jay, raccoon tracks, red bellied woodpecker, titmouse

T& E Species: none

Community Description: Degraded wet flatwoods overgrown by shrubs grading into a hardwood swamp. Area has minimal black titi, and quite a few new species were observed.

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Andropogon glomeratus	Busy blue stem				X
Bidens mitis	Bur marsh merigold				X
Centella asiatica	Centella				X
Clethra alnifolia	Sweet pepper bush				X
Cliftonia monoplylla	Black ti ti		X		
Dicanthelium spp.	Witch grass				X
Gelsemium sempervirens	Florida Jasmine			X	
Hypericum sp. (Seedlings)	St. Johns wort				X
Ilex coriacea	Large gall berry		X		
Ilex glabra	Gall berry		X		
Ilex myrtifolia	Myrtle-leaved holly		X		
Lachnanthes caroliana	Red root				X
Leucothoe racemosa	Swamp dog hobble		X		
Lycopodium alopercroides	Foxtail clubmoss				X
Lyonia lucida	Fetter bush		X		
Magnolia virginiana	Silver bay	X			
Myrica cerifera	Wax myrtle		X		
Panicum virgatum	Switch grass				X
Persea palustris	Swamp Bay	X			
Pinus elliottii	Slash pine	X			
Pinus teada	Loblolly pine	X			
Osmunda cinnamomea	Cinnamon fern				X
Rhexia mariana	Pale meadow beauty				X
Rhynchospora inundata	Beakrush				X
Rhycospora sp.	Beakrush				X
Smilax laurifolia	Catbriar			X	
Vaccinium corymbosum	Highbush blueberry		X		
Xyris sp.	Yellow-eyed grass				X

** New observation * Not observed during 2008

M11. Wet Flatwoods, Gyro-Trac area.

M11. Cypress, pine and herbaceous understory

Qualitative Field Assessment Form

Date: 10/29/2007 **Time:** 2:00 pm **Data Collector:** David Clayton
Location: Pedestrian Transect # M12 near photo point 11 **Management Unit:** 10

Nuisance Species: None observed
Fuel Load: Oak Trees have been thinned, area burned winter 2007/2008, fuel load moderate

Wildlife Observations: Doe and young buck, towhee, titmouse, 7 lined race runner T& E Species: Active gopher tortoise burrow

Community Description: Sand hill that has been overgrown with diamond and live oak. Good wire grass cover remains throughout the majority of the site. Wire grass flowering

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Andropogon glomeratus	Busy blue stem				X
Aristida stricta var. beyrichiana	Wiregrass				X
Baptisia lanceolata	Gopher weed				X
Bulbostylis ciliatifolia	Capillary hair sedge				X
Castanea pumila	Chinkapin	X			
Chrysoma pauciflosculosa	Woody goldenrod				X
Cliftonia monophylla	Black titi		X		
Cnidoscolus stimulosus	Tread softly				X
Crysopsis linearifolia	Golden aster				X
Dichanthelium sp.	Witch grass				X
Diorospyros virginiana	Persimon	X			
Eriogonum tomentosum	Wild buckwheat				X
Eupatorium capillifolium	Dog fennel				X
Galactia sp.	Milk pea				
Gelsemium sempervirens	Florida jasmine			X	
Hypericum crux-andreae	St. Peter's wort				X
Ilex opaca	American holly	X			
Ilex vomitoria	Yaupon		X		
Licania michauxii	Gopher apple				X
Opuntia humifusa	Pricklypear cactus				X
Osmanthus americana	Wild olive		X		
Penstemon multiflorus	Many flowered beardstongue				X
Persea borbonia	Red bay	X			
Phytolacca americana	Poke				X
Pinus clausa	Sand Pine	X			
Pinus elliottii	Slash pine	X			
Pinus palustris	Longleaf pine	X			
Polygonella gracilis	Wireweed				X
Prunus caroliniana	Cherry laurel	X			
Prunus serotina	Black cherry	X			
Quercus geminata	Sand live oak	X			
Quercus hemisphearica	Diamond oak	X			
Quercus incana	Blue jack oak	X			
Quercus laevis	Turkey oak	X			
Quercus margaretta	Sand post oak	X			
Quercus virginiana	Live oak	X			
Rhus copallina	Winged sumac		X		
Rhexia mariana	Meadow beauty				X
Scleria sp.	Scleria				X
Smilax sp.	Catbriar			X	

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Solidago fistulosa	Pine barren goldenrod				X
Sporobolus junceus	Piney woods dropsedd				X
Trichostema setaceum	Blue curls				X
Vaccinium arboreum	Farkleberry		X		
Vaccinium corymbosum	High bush blueberry		X		
Vaccinium myrsinites	Shiny blue berry		X		
Vitus rotundifolia	Muscadine			X	
Yucca filamentosa	Adam's needle				X

** New Observation, Not observed in 2007

Pedestrian Transect: Upland Sand Hill after burn, not wire grass

M12:The area is allot more open following the fire

M12: Another shot, more than previous but with allot of herb cover

Qualitative Field Assessment Form

Date: 10/28/2007 **Time:** 2:20 pm **Data Collector:** David Clayton

Location: Pedestrian Transect # M13 near photo point 7, Management Unit 10

Nuisance Species: None

Fuel Load: Oak Trees have been thinned, area burned winter 2007/2008, fuel load low

Wildlife Observations: **Mourning dove**

T& E Species: Gulf coast lupine

Community Description: Sandhill upland upslope of black pond. Sandhill with good diversity and excellent groundcover. Wire grass bloomed this summer…area planted with long leaf pine.

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Agalinis setacea	Threadleaf false foxgloves				X
Andropogon glomeratus	Busy blue stem				X
Andropogon virginicus	Broom sedge				X
Aristida stricta var. beyrichiana	Wiregrass				X
Aster wateri	Walter's aster				X
Baptisia lanceolata	Gopher weed				X
Baulduina angustifolia	Coastal plain honeycombhead				X
Bulbostylis ciliatifolia	Capillary hair sedge				X
Carphephorus odoratissimus	Vanilla leaf				X
Carphephorus paniculatus	Hairy trilisa				X
Ceanothus microphyllus	Redroot				X
Croton argyranthemus	Silver croton				X
Chrysoma pauciflosculosa	Woody Goldenrod				X
Cnidoscolus stimulosus	Tread softly				X
Crysopsis scabrella	Goldenaster				X
Dalea pinatta	Summer farewell				X
Dicanthelium spp.	Panic grass				X
Diospyros virginiana	Persimmon	X			
Eriogonum tomentosum	Wild Buckwheat				X
Eupatorium capillifolium	Dog fennel				X
Eupatorium mohrii	Eupatorium				X
Euthamia caroliniana	Flat-topped goldenrod				X
Galactia volubilis	Milkpea				X
Gaylussacia dumosa	Dwarf huckleberry		X		
Gelsemium sempervirens	Florida Jasmine			X	
Haplopappus divaricatus	Scratch daisy				X
Hieracium gronovii	Hawkweed				X
Hypericum crux-andreae	St. Peter's wort				X
Hypericum gentianoides	Orangeweed				X
Ilex opaca	American holly	X			
Ilex vomitoria	Yaupon		X		
Liatris gracilis	Slender gayfeather				X
Liatris pauciflora	Few flowered gayfeather				X
Licania michauxii	Gopher apple				X
Lupinus diffusus	Sky-blue lupine				X
Lupinus westianus	Gulf coast lupine				X
Opuntia humifusa	Pricklypear cactus				X
Panicum dichotimiflorum	Fall panic grass				X

Scientific Name	Common Name	Tree	Shrub	Vine	Herb
Penstemon multiflorus	Many flower beardstongue				X
Polygonella gracilis	Wire weed				X
Pinus clausa	Sand Pine	X			
Pinus elliottii	Slash pine	X			
Pinus palustris	Longleaf pine	X			
Pityopsis graminifolia	Golden Aster				X
Polygonella gracilis	Wireweed				X
Polygonella polygama	October flower				X
Pteridium aquilinum	Bracken fern				X
Quercus geminata	Sand Live Oak	X			
Quercus hemisphearica	Diamond oak	X			
Quercus incana	Blue jack oak	X			
Quercus laevis	Turkey oak	X			
Quercus margaretta	Sand post oak	X			
Quercus pumila	Runner oak		X		
Rhexia mariana	Pale meadow beauty				X
Rhus copallinum	Winged sumac		X		
Seymeria cassioides	Senna seymaria				X
Serenoa repens	Saw Palmetto		X		
Smilax sp	Catbriar			X	
Solidago fistulosa	Pinebarren goldenrod				X
Stylisma patens	Coastal plain dawnflower				X
Trichostema setaceum	Narrow-leaved blue curls				X
Vaccinium arboreum	Sparkle berry		X		
Vaccinium corymbosum	High bush blueberry		X		
Vaccinium myrsinites	Shiny blue berry		X		
Vitis rotundiflora	Muscadine			X	
Yucca filamentosa	Adam's needle				X

*** Threatened or endangered species,** Added in 2007* not observed in 2007

Pedestrian Transect: Upland Sand Hill with oak eradication: Note: Wiregrass and felled oaks

M13:Good wiregrass cover and high species diversity