U.S. Department of the Interior
Bureau of Land Management
Eastern States
Jackson Field Office

September 2003

Lathrop Bayou

Final Habitat Management Plan
Environmental Assessment

BLM Mission

The mission of the Bureau of Land Management is to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Photography credits: White-birds-in-a-nest and Florida skullcap by T.L. Pitts-Singer. Godfry's butterwort by Serge Lavayssiere. Other photos were taken by BLM staff.

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IN REPLY REFER TO:
6780 (020) FW

September 2003

Dear Reader:

Enclosed is the Eastern States Bureau of Land Management's Final Lathrop Bayou Habitat Management Plan (HMP).

This plan presents the planned management for 189 acres of public domain land in Bay County, Florida. This plan focuses on habitat improvements to benefit endemic plants and animals found at Lathrop Bayou, which is located at the eastern end of East Bay. Planned actions include prescribed burns, management of red-cockaded woodpecker, and monitoring of special status plants and animals.

This document is also available for downloading at the Jackson Field Office web site at www.es.blm.gov/field/jfo/. Additional copies may be requested by contacting us at the above address.

For further information, contact Faye Winters at the address above or by calling (601) 977-5403.

Sincerely,

Bruce Dawson
Field Manager

Table of Contents

Jackson Field Office 2
Introduction 6
Legal Description and Location 6
Previous Planning Decisions 6
Purpose and Need 8
Setting and Resource Values 8
Brief History of the Tracts 8
Current Existing Uses 11
Biological Resources 12
Special Status Plant Species 13
Special Status Wildlife Species 20
Birds of Conservation Concern 25
Fisheries 26
Non-native Species 26
Invasive Plants 26
Management Plan 27
Public Comments and 36
Regulatory Review 36
References 37
Appendices 42
Appendix A 44
Land Stewardship Memorandum of Understanding 44
Appendix B 46
Species of Vascular Plants Observed on Lathrop Bayou Tract, Bay County, Florida 46
Appendix C 57
Prescribed Burn Plan 57
Appendix D 71
Environmental Assessment 71
Appendix E 99
Regulatory Review Letters 99

Introduction

Legal Description and Location

This Habitat Management Plan (HMP) addresses four islands, collectively known as Lathrop Bayou, located at the east end of East Bay, in Bay County, Florida (see Map 1). The tracts are located in T. 5 S., R. 12 W., portions of Sections 15, 22, 23, and 27.

Lathrop Bayou includes Raffield Island, a large unnamed island (Round Island for this discussion) and two smaller islands, Pine Island and Little Pine Island, located south of Raffield Island. This area totals 539 acres, and includes 189 acres of public domain land administered by the Bureau of Land Management (BLM), 206 acres owned by St. Joe Timber Company and 144 acres owned by the Genecov Group.

This habitat management plan specifically addresses the management of BLM-administered land, however under a Land Stewardship Memorandum of Understanding (MOU), whose signatories include the private landowners at Lathrop Bayou, the actions outlined in this plan are expected to be implemented across public and private land at Lathrop Bayou. Subsequent cooperative agreements signed under this MOU would outline the specific responsibilities for joint implementation of the actions in this plan.

Previous Planning Decisions

The Lathrop Bayou public domain tracts were addressed in the Florida Resource Management Plan (RMP), which was completed and approved by BLM in 1995 after public involvement and regulatory review. This policy document outlines the general management objectives for BLM holdings throughout the State of Florida. The Florida RMP states that BLM's management objectives for public domain lands at Lathrop Bayou are to manage for a mature stand of pine and to protect special status species, while allowing for primitive recreation use.

The RMP includes the following resource related decisions regarding the public land at Lathrop Bayou.

Specifically the RMP states:

1.The Lathrop Bayou tracts will remain in public ownership and will not be available for disposal through Recreation and Public Purposes Act conveyance, sale and exchange.

2.The Lathrop Bayou tracts will be administered as a habitat management area to benefit endemic plants and wildlife.

3. The tracts will be available for cooperative management with other government agencies and /or private organizations.

4. The tracts will be closed to motorized vehicle use and conform to Primitive Recreation objectives.

5. The tracts would be managed to conform to Class II Visual Resource Management objectives.

6. The tracts will be classified as a rights-of-way avoidance area.

7. The tracts will be closed to mineral leasing and sales to protect sensitive wildlife habitat.

Map 1

Note: The Florida RMP also provided for the Lathrop Bayou tracts to be closed to all public entry from "October 1 through May 30 to protect sensitive wildlife habitat (bald eagle nesting site)." That closure has not been implemented, and given the ongoing use of the area by nesting bald eagles and current limited level of public use implementation is not currently needed to safeguard this nesting pair of eagles. If in the future this type of seasonal closure is needed for resource protection, it would be implemented in accordance with the Florida RMP.

Purpose and Need

The Lathrop Bayou Habitat Management Plan describes the site-specific steps to be taken to implement resource decisions and to meet the management objectives established in the Florida RMP.

Implementation plans must be consistent with national policies and laws, and conform with previous planning efforts, in this case the Florida RMP. Implementation of this HMP constitutes the final, although not static tier in BLM's planning strategy. The life expectancy of this plan is 10 years, although there will be opportunities for adaptive management keyed to the response of the resource to land management actions.

On December 20, 2002, a Land Stewardship Memorandum of Understanding (MOU) was signed by BLM, St. Joe Timberland Company, Genecov Group, U.S. Fish and Wildlife Service (USFWS), and the Florida Fish and Wildlife Conservation Commission (FFWCC) to collaboratively manage a total of 539 acres of public and private land at Lathrop Bayou and an additional 926 acres of St. Joe Timber land at Wetappo Creek, 10 miles to the northeast in Gulf County. This almost 1,500 acres represents some of the largest remaining tracts of intact longleaf pine flatwoods in either county. The MOU lays the framework for maintaining these relic longleaf pine systems and the important endemic wildlife and plant species associated with them. The actions described in this HMP will be coordinated with the private and public partners on these properties (see Map 2).

Setting and Resource Values

Brief History of the Tracts

The original cadastral survey of the public domain tracts at Lathrop Bayou was approved in April 1834. The area was resurveyed in February 1978 to restore corner markers, to reestablish portions of the meander line on the eastern boundary of the public domain land and to include previously omitted lands. According to the survey notes, the public domain was surveyed above the mean high water line. The remainder of the island was in private ownership by 1978.

Previous land uses and conditions are documented in an aerial photograph taken of Lathrop Bayou in February 1941 (see Map 3). At that time, Raffield Island appears to have been dominated by an open stand of longleaf pine, probably fire-maintained. The photograph shows two buildings on the northern shore of Raffield Island. Cultivated fields are evident around the larger building. Paths crisscrossed the island, probably as a result of cattle grazing. Broken turpentine pots and characteristic slash marks on tree trunks provide evidence of turpentine

Map 2

Map 3

production on the island, a widespread industry in this area during that time. The 1956 U.S Geological Survey topographic map shows one of the buildings remained at that time, along with an unimproved road from the land bridge to the southeast. In a subsequent aerial photo taken in 1970, it is difficult to discern the house site, which by that time had been completely overgrown by slash pine.

The presence of cut stumps on Raffield Island indicates that there has been logging in the past. Most of the stumps have a larger diameter than the current stand of trees. Virtually all of the stumps have char marks from previous burns. The Florida Division of Forestry, St. Joe Timberland Company and BLM records contain no record of a recent burn at the site. Aerial photographs from 1941, 1970, 1974, 1975, 1980, 1983, 1986, 1989, and 1999 show no evidence of a wildfire of sufficient intensity to alter the tree canopy, however there may have been ground fires over portions of the tracts during this time period. Given the density of the wiregrass hummocks on the site, it is likely that the area has not burned in at least a decade, perhaps considerably more.

Current Existing Uses

The land bridge to Raffield Island was breached years ago and the "island" is now accessible primarily by boat. Occasional ATV use has been noted at Lathrop Bayou with access being gained through the marsh at the southeast end of the "island". Otherwise, public visitation is minimal. Much of the surrounding waters of East Bay are fished commercially for crab. The Intracoastal Waterway skirts Raffield Island to the west and north.

The Lathrop Bayou tracts are located in an area designated by Bay County as the East Bay Ecosystem Management Area Special Treatment Zone. This designation promotes conservation of natural systems. This area is zoned *Conservation* in the Bay County Comprehensive Plan. This designation is designed to protect and conserve locally significant natural resources, as well as resources recognized to be of statewide importance, so as to promote the health, safety, and welfare of the general public.

The area is listed by the State of Florida Division of Environmental Protection as a Strategic Habitat Management Area (Cox et al. 1994). The Conservation designation is intended to provide for conservation with appropriate use through regulations that minimize damage to natural resources.

Lathrop Bayou is also identified as a Critical Area on the eastern edge of the citizen sponsored Noah's Ark, an ecosystem management plan developed to protect the St. Andrew Bay estuary and freshwater courses supporting it.

Most surrounding land is owned by St. Joe Company and is managed for commercial timber. Development plans for areas of the mainland south of Lathrop Bayou include the construction of clustered "River Camp" homes over the next 5 – 10 years.

Biological Resources

Overview

The Apalachicola River basin, as well as the St. Andrew Bay estuary, is within an area identified as one of six "hotspots" of species diversity in the nation (Stein et al., 2000). Many of the endemic species for which this area is known are associated with fire-maintained longleaf pine forests. In fact, frequently burned mesic longleaf pine forests have among the highest species diversity of any plant community in North America (Walker and Peet, 1983).

Although there is evidence that most of the large timber was removed from Lathrop Bayou decades ago, the pine flatwoods at Lathrop Bayou still represent some of the oldest remaining longleaf stands in Bay County. Most of the surrounding land is being managed for commercial timber production and has been converted to slash pine. Relic longleaf wiregrass stands such as this provide key habitat for a host of endemic plants and animals.

Vegetation Resources

Botanical surveys have been conducted at Lathrop Bayou by Keppner Biological Services over a series of site visits beginning in 1997. A total of 144 vascular plants have been documented at Lathrop Bayou by the Keppners. In addition, to assess the relative abundance of special status species the Keppners conducted surveys in 2002 and 2003 to determine the relative abundance of special status plants. The methodology and results are provided in the Keppner's final 2002 report in Appendix B.

The following information on plant communities and special status plants is taken from the final Keppner 2002 report with minor editing for format and bureaucratic convention.

Intertidal Marsh

Intertidal marsh community surrounds most of Raffield and the nearby islands. The marsh community is dominated by smooth cordgrass (*Spartina alterniflora*), and the supratidal marsh community is dominated by needle rush (*Juncus roemerianus*). Florida Natural Areas Inventory (FNAI, 2000) defines tidal marsh as expansive intertidal and supratidal areas occupied primarily by rooted, emergent vascular macrophytes (e.g. cordgrasses, needlerush, sawgrass, etc.). FNAI (2000) lists this biotic community as S4 or apparently secure in Florida. The south side of the largest island (Raffield Island) has a short berm vegetated primarily with saltwater false willow (*Baccharis angustifolius*), saltmeadow cordgrass (*Spartina patens*), and needle rush. The landward edge of the supratidal marsh is dominated by sawgrass (*Cladium jamaicense*).

Wet Flatwoods

There are an estimated 44 acres of wet flatwoods on the BLM-administered land at Lathrop Bayou. This area is dominated by an open canopy of longleaf pine (*Pinus palustris*) with some slash pine (*Pinus elliottii*). There are a number of species, which according to FNAI (1990), are also

indicative of a wet prairies or savannahs, including a number of sundews, hatpins, marsh pinks and crownbeards. The shrub layer in most of this area is sparse, and includes species of St. John's-wort, many-stemmed bog tupelo (*Nyssa ursina*), corkwood (*Stillingia aquatica*), evergreen bayberry (*Myrica heterophylla*), and scattered areas of titi (*Cyrilla racemosa*). The herbaceous layer is well developed and dominated by wiregrass (*Aristida stricta = beyrichiana*) with a number of species of sedges, rushes, and other herbs and forbs. Circular depressions within the wet flatwoods support dense stands of sawgrass. FNAI lists this biotic community as S4?, or apparently secure in Florida but may be rare in some areas.

The longleaf and slash pine in this area average 31feet in height, 12 inches diameter at breast height (dbh) and 75-80 years of age (based on coring of non-cavity trees), although there are a few older trees (100+). Some of the largest trees sampled were 16 inches dbh and up to 45 feet tall. Stand density is low with an average of 60 trees per acre and an average basal area of 36 sq. ft. of pine per acre.

Mesic Pine Flatwoods

There are approximately 141 acres of mesic pine flatwoods on BLM-administered land at Lathrop Bayou. This area is dominated by abundant larger, slash and longleaf pines. The dominant midstory shrubs are saw palmetto (*Serenoa repens*), yaupon (*Ilex vomitoria*), gallberry (*Ilex glabra*), and blueberry (*Vaccinium* spp.). The midstory is dense in much of this area, at times comprising almost complete cover. Only in small depressions and open areas free of shrubs is there a herbaceous layer with wiregrass, rushes, sedges, and other herbs. FNAI lists this biotic community as S4 or apparently secure in Florida.

Slash and longleaf pine in this area average 62 years of age, 40 feet in height and 9.5 inches (dbh). Some of the largest pine is 50 feet tall and up to 16 inches dbh. Stand density of pine is high with an average of 182 trees per acre and average basal area of 96 sq. ft. of pine per acre.

Special Status Plant Species

Lathrop Bayou is known to support 12 species of vascular plants that are federally or state-listed, or of management concern (see Map 4). Additionally, Florida sands St. John's-wort (*Hypericum exile*) is endemic to the area but not listed due to its abundance on public land, and one species, royal fern (*Osmunda regalis*), is listed by the State of Florida as Commercially Exploited. In addition, other listed species such as Florida waxweed (*Cuphea aspera)*, and others that are known to occupy the habitats similar to those on the Lathrop Bayou have not yet been recorded.

Flatwoods are considered a fire-maintained plant community. In the absence of fire hardwood and shrubby components eventually shade out the characteristically diverse herbaceous growth and retard pine regeneration. Literature on the specific affects of fire on these special status species is limited (Hessland and Spackman, 1995).

In most cases, management recommendations for these special status plants include frequent low intensity prescribed burns. In some cases, fire may

Map 4

improve the habitat by reducing competition or exposing mineral soil for germination. For others, burning may synchronize or stimulate flowering. Unlike most flatwood sites with substantial populations of special status species, Lathrop Bayou has been curiously devoid of burns in recent history, yet these species persist.

White birds-in-the-nest and Florida skullcap, both perennial herbs, have been studied more than most, particularly at the Apalachicola National Forest. Plants such as Chapman's crownbeard, wiregrass gentian, bog tupelo, southern milkweed, and West's flax are generally found in fire-maintained habitats, but specific research on their response to prescribed burning is lacking. Some wetland plants such as Godfrey's butterwort, giant water-dropwort, Karst pond xyris, Piedmont jointgrass and Apalachicola dragon-head are not expected to be adversely impacted by prudent prescribed burning and would likely benefit from the reduction of competition with more aggressive herbaceous and shrubby plants.

The following special status plants have been recorded at Lathrop Bayou, although not all were recorded on the survey transects.

Apalachicola dragon-head *(Physostegia godfreyi)* State-listed as Threatened.

Godfrey and Wooten (1981) stated that this species inhabits bogs, wet pine flatwoods and savannahs, and adjacent ditches. It is often found in shallow water. It is endemic to the Florida Panhandle and is found in Liberty, Franklin, Gulf, and Bay Counties. Coile added Walton and Wakulla Counties to the range. It blooms during the summer months. A total of 13 individuals were located in 3 areas along the survey transects.

Bog tupelo *(Nyssa ursina)* Consideration Encouraged by U.S. Fish and Wildlife Service.

Godfrey (1988) noted that this species occurs "in wet pinelands subject to periodic burning, having large subterranean bases and shrubby, multi-stemmed tops (*N. ursina* Small)." The specimens identified as *N. ursina* were done so with Dr. Ann Johnson of FNAI. The specimens were all shrubby, with multi-stemmed tops. This species, as described above, occurs on periodically burned, wet pine flatwoods. The total of 15 bog tupelo were recorded at 6 different locations along the survey transect. It was most abundant along the edge of depressions in the wet flatwoods.

Chapman's crownbeard (*Verbesina chapmanii*) Consideration Encouraged by the U.S. Fish and Wildlife Service and State-Listed as Threatened.

Godfrey and Wooten (1981) stated that this species inhabits bogs, seasonally wet pine savannahs and flatwoods, and grassy cypress depressions from Liberty and Franklin Counties, Florida westward to at least Walton County. Coile (2000) lists Bay, Franklin, Gulf, Liberty, Wakulla, Walton, and Washington Counties Florida as its range. It blooms from May through August.

At Lathrop Bayou, Chapman's crownbeard is widely distributed throughout the wet areas with an open canopy. A total of 796 individuals were counted along the survey transects.

Florida skullcap *(Scutellaria floridana)* Federally listed as Threatened and State-listed as Endangered.

Chafin (2000) stated that this species inhabits wet pine flatwoods, grassy margins of cypress areas, seepage slopes, and transition zones between flatwoods and wetlands. This perennial herb is endemic to the Apalachicola River lowlands. Several large populations are protected on the Apalachicola National Forest, but most populations on private land have been destroyed by conversion to pine plantations. Kral (1983) and Coile (2000) stated that this species inhabits pine-palmetto flatwoods, savannahs, flatwoods, and grassy openings in Franklin, Liberty, and Gulf Counties, Florida.

Chafin (2000) recommended that fire be applied every 2 to 3 years during the growing season, and that soil disturbance or alteration of hydrology be avoided. Kral (1983) stated that periodic burns maintain the habitat of this species. Alteration of the habitat by mechanical means or alteration of the hydrology should be avoided.

Florida skullcap tends to have a flexible flowering response to burning, perhaps because of its longer flowering season (April through October). Generally Florida skullcap responds positively and dramatically, flowering vigorously three months after burning (Joan Walker, USFWS, pers. comm.). Studies are being conducted in coordination with the U.S. Fish and Wildlife Service to examine the role and seasonal availability of insect pollinators, which could influence seed production in these plant species.

At Lathrop Bayou, Florida skullcap was observed in 1997 and in bloom in October 2001 during a trip with Dr. Ann Johnson of FNAI. This species was not recorded when transects were first run in 2002, however in April 2003, a total of 133 plants were recorded in the vicinity of the transects.

Giant water-dropwort *(Oxypolis filiformis greenmanii)* State-listed as Endangered.

Godfrey and Wooten (1981) states that this plant is locally abundant, usually in water in depressions in pine flatwoods, cypress ponds, drainage canals and ditches. It is endemic to Bay, Calhoun, and Gulf Counties, Florida. Kral (1983) stated it blooms from July through August and Coile (2000) stated that it blooms from July through September. Kral (1983) stated that this wetland species' most common associates are various species of *Hypericum* and *Stillingia aquatica*. Species of St. Johns-worts (*Hypericum sp.)* are abundant on Lathrop as is corkwood (*Stillingia aquatica)*. The corkwood forms dense forests of plants 5-6 feet tall at places on Lathrop that are edged by bog tupelo. Kral (1983) stated that *O. greenmanii* is a species of clearings in wetlands, and site preparation involving drainage would eliminate the species.

This species has been observed by the Keppners twice on Lathrop at the east end of the first survey transect and along a low wet area extending north from the east end of the survey transect.

Godfrey's butterwort (*Pinguicula ionantha*) Federally listed as Threatened and State-listed as Endangered.

This species is endemic to five counties in the Florida Panhandle including Bay County. Over half of the known populations are on the Apalachicola National Forest.
It flowers from March through April, inhabits seepage slopes, bogs, depressions in wet pine flatwoods, wet prairies, roadside ditches, and transition zones between wet pine flatwoods and cypress areas. Chafin (2000) recommended management including prescribed growing season burns every 2 to 3 years; avoid rutting and compacting wetland soils, herbicides along roadsides, and placing fire breaks in wetland ecotones. Kral (1983) stated that this species is a species of sunlight and of high hydroperiod. This species prefers acidic, bog soils and benefits from fire, or other activities that reduce competing ground cover without disturbing the substrate. Drainage of habitat should be avoided.

This species was first observed during a field trip in April of 1997. This was two years after Hurricane Opal had inundated the area and the clumps of wiregrass were not as thick or as high as they are currently. At that time this species was observed in the open spaces between the clumps of wiregrass. Currently, the wiregrass is knee deep in most places, and the clumps of wiregrass have shaded the spaces between them. However, Godfrey's butterwort continues to be recorded occasionally in the wet flatwoods. In fact, over 80 plants were recorded in approximately two hours of fieldwork in March 2003.

Karst pond xyris *(Xyris longisepala)* Consideration Encouraged by the U.S. Fish and Wildlife Service and State-listed as Endangered.

Godfrey and Wooten (1981) stated that the habitat of this species is moist to wet sandy shores of limesink lakes and ponds in the Florida Panhandle and southeast Alabama. Wunderlin (1997) and Coile (2000) stated that the habitat of this species is margins of sandhill ponds. Coile (2000) listed its range as Bay, Gulf, Leon, Okaloosa, Walton, and Washington Counties, Florida

Because Lathrop does not appear to be a habitat type for this species, the mounted specimen of this species was re-examined and compared against the descriptions of *X. longisepala* and *Xyris smalliana* Nash in Godfrey and Wooten (1981). The identification of the specimen remains *X. longisepala* based on the lateral sepals being exserted, the keel of the lateral sepals not being jagged the entire length, and the shape and appearance of the heads and seeds. The specimen is available for examination and correction of the identification, if warranted. Additional searches for this species should be undertaken.

Piedmont jointgrass *(Coelorhachis tuberculosus)* Consideration Encouraged by the U.S. Fish and Wildlife Service and State-listed as Threatened.

Godfrey and Wooten (1979) stated that this species inhabits borders of lakes, and the range of this species includes central Florida and south Alabama. Coile (2000) stated that

this species occupies marshes and margins of ponds and lists its occurrence from a number of Florida counties including the Panhandle counties of Calhoun, Santa Rosa, and Washington Counties. It flowers in spring and summer.

This species was observed previously on Lathrop and a specimen is in the Bay County Environmental Studies Team (BEST) herbarium. The specimen was examined and the identification confirmed by Dr. Loren Anderson of Florida State University. It was observed and the specimen collected in October 1997 along a depression in the open flatwoods area of Lathrop.

Southern milkweed (*Asclepias viridula)* Consideration Encouraged by the U.S. Fish and Wildlife Service and State-listed as Threatened.

This species is endemic to the Florida panhandle and northeast Florida, where it occupies wet prairies, seepage slopes, and pitcher plant bogs. It flowers from April through June, often following fire. Protection and management recommendations include avoiding disruptions to the soil and hydrology, and burning every 2 - 3 years. FNAI states that the species was once more widespread but most remaining populations are now found in the Apalachicola National Forest, where about 30 populations have been recorded.

This species was not found on the survey transect, but a single plant in bloom was identified in the wet flatwood area by Wilson Baker during a field trip in June 2002.

West's flax *(Linum westii*) Consideration Encouraged by the U.S. Fish and Wildlife Service and State-listed as Endangered.

Chafin (2000) stated that this species inhabits wet flatwoods, depression ponds, edges of cypress swamps, and is endemic to northeast Florida and the Florida Panhandle. Coile (2000) lists this species from Baker, Calhoun, Clay, Franklin, Gulf, Jackson, and Okaloosa Counties, Florida. Chafin (2000) recommends that wet flatwoods and associated wetlands be burned every 2 to 3 years, and that placing roads and fire breaks in wetland ecotones be avoided. Alteration of the natural hydrology should be avoided.

Kral (1983) stated that this species is part of the savannah-bog community that thrives in full sun or partial shade, and that this species has been maintained through periodic flatwoods fires. Management of this species requires maintenance of undrained areas and undisturbed bog soils. It flowers in spring and summer (Wunderlin, 1997); June through August, (Coile, 2000); or May through July (Chafin, 2000).

This species was observed with Dr. Ann Johnson. Dr. Keppner and Dr. Johnson observed that the leaves of the specimen examined in the field on Lathrop were opposite toward the base and alternate toward the inflorescence. The specimen from Lathrop that was pressed and placed in the BEST Herbarium was identified as *Linum* cf. *floridanum* (Planch.) Trel., because the lower leaves were all alternate on the mature stem. It is possible that both species occur on Lathrop, because both occupy the same type of habitat. Additional searches for this species should be undertaken.

White birds-in-a-nest *(Macbridea alba)*
Federally listed as Threatened and State-listed as Endangered.

Godfrey and Wooten (1981) stated that this species is endemic to the lower Apalachicola River region where it inhabits pine savannahs and flatwoods. Kral (1983) stated that the species occupies sandy peats of savannah-bogs in pine flatwoods of northwestern Florida. Coile (2000) lists its range in Florida as Bay, Gulf, and Liberty Counties. According to FNAI, over 60 occurrences have been recorded, most on the Apalachicola National Forest. Chafin (2000) stated that this species inhabits wet to mesic pine flatwoods and associated roadsides and is endemic to the Florida Panhandle. Chafin (2000) recommended burning of flatwoods habitat every 2 to 3 years. She recommends avoiding converting habitat of this species to pine plantation and avoiding mechanical site preparation. Kral (1983) stated that flatwoods fires typically create its habitat. Drainage should be avoided as should mechanical preparation and closure of the canopy by bedded pines. This species flowers during June and July.

Mature white birds-in-a-nest are known to survive prescribed fires set in early spring (February through May). The number of flowers peak the following season after burning, even in the same year in the case of winter or early spring burns and then decreases each year until after three years the plants rarely flower at all (Schulze, Walker and Spira, 2002). Madsen (1999) found that plants were larger and produced more flowers and seeds the year after spring burn. This plant may be responding to a reduction in competition rather than a physiological response to burning, as they are known to flower in garden situations without being prompted by burning. Some flowering of white-birds-in-a-nest is continuing at Lathrop Bayou.

These plants are known to be relatively long lived, at least seven years. In one study, seed viability declined after six months and dry-stored seeds were not viable after one year (Madsen, 1999). Without an enduring seed bank in the soil, maintaining the existing plants at Lathrop Bayou and encouraging seed production through prescribed burning is considered critical to maintaining the viability of this population.

A total of 17 white birds-in-a-nest (*Macbridea alba*) were recorded in three areas along the survey transect.

Wiregrass gentian *(Gentiana pennelliana)*
Consideration Encouraged by the U.S. Fish and Wildlife Service and State-listed as Endangered

This species does best in sunlight (Kral 1983), and thus is most often found in open habitats. Wiregrass gentian grows on moist to wet soils. Scattered individuals occur in pine flatwoods, increasing in abundance in the ecotone bordering cypress/titi swamps. Extensive populations occur in open, treeless savannahs or wet prairies.

Plants usually flower in mid-winter, but may bloom any time between October and May. This is a fire-adapted species; plants have a thickened root system, which enables them to survive and resprout after burning.

Individuals observed after burns appeared more robust and healthy than those in unburned areas (Baker 1989). Flowering response may be related to fire frequency and season of burn. A profusion of flowering in November/December has been noted after a summer burn. The number of flowers observed decreased annually until the third season after burning, when no blooms were apparent (Baker 1989). It is not known if a growing-season burn is required for G. pennelliana to flower.

Special Status Wildlife Species

The following special status wildlife species are known or expected to occur at Lathrop Bayou.

Red-cockaded Woodpecker (*Picoides borealis*). Federally and State-listed as Endangered.

Red-cockaded woodpeckers (RCW) are a territorial, nonmigratory, cooperative breeding species. Nesting occurs from April through June. Historically, this woodpecker's range extended from Florida to New Jersey and Maryland, as far west as Texas and Oklahoma, and inland to Missouri, Kentucky, and Tennessee. It is endemic to the open, mature, old growth pine forests that historically covered much of the southeastern United States. Today it is estimated that there are about 5,000 groups of red-cockaded woodpeckers, or 12,500 birds from Florida to Virginia and west to southeast Oklahoma and eastern Texas, representing about 1 percent of the woodpecker's original range.

RCW occur in mature pine forests, typically in an open park like setting with sparse midstory. Longleaf pines are often preferred, as they produce more resin and can sustain a resin flow for more years than other pines, which provides increased protection from snakes and other predators. Cavities, particularly in longleaf pines, generally take 1 to 3 years to excavate. The availability of these cavity trees in appropriately open mature pinelands is the factor limiting most RCW populations.

For detailed accounts of species life history, management techniques, threats, current status and conservation initiatives, please refer to the Final Recovery Plan for the red-cockaded woodpecker (*Picoides borealis*): second revision, published in 2003 by the U.S. Fish and Wildlife Service out of the Region 4 Office in Atlanta, Georgia.

Table 1. Red-cockaded Woodpecker Cavity Trees at Lathrop Bayou

TREE #	CAVITY STATUS*	SPECIES	TREE HEALTH	DBH (in inches)	CAVITY HEIGHT (feet)	TREE HEIGHT (feet)
1	Inactive	Long-leaf	Good	15.8	17	41
2	Active	Long-leaf	Good	11.0	16	44
3	Start	Long-leaf	Good	11.6	7	34
4	Inactive	Long-leaf	Good	10.5	20	41
5	Active	Long-leaf	Good	10.2	24	46
6	Active	Long-leaf	Good	10.5	17	35
7	Inactive	Long-leaf	Good	10.4	8	45
8	Inactive	Long-leaf	Good	13.9	11	46
9	Active	Long-leaf	Good	13.0	12	42
10	Inactive	Long-leaf	Good	10.1	16	37
11	Abandoned	Long-leaf	Dying/Dead	11.2	13	24
12	Start	Long-leaf	Good	11.3	22	43
13	Inactive	Long-leaf	Good	9.0	9	36
14	Abandoned	Long-leaf	Dying/Dead	9.3	10' / 14	34
15	Inactive	Long-leaf	Good	9.4	13	35
16	Start	Slash	Good	16.2	17	58
17	Active	Long-leaf	Good	8.5	17	33
18	Start	Long-leaf	Good	11.5	13	37
19	Start	Long-leaf	Dead/broken	9.0		
20	Start	Long-leaf	Good	9.5	5	32
21	Start	Long-leaf	Good	10.0	6	37
22	Inactive	Long-leaf	Good	8.5	9/ 12	42

*Cavity status as of December 2002

At Lathrop Bayou, 22 cavity trees have been identified, including active, inactive/ abandoned, and start cavities (Table 1). The cluster(s) is located in a 70-acre stand of mature, open pine dominated by longleaf (see Map 5). All but one of the cavities are located in older longleaf pine. One active start is in a larger slash pine within the same stand. Two cavity trees are located on the St. Joe Timberland property. The 2002 and 2003 nest tree is located too close to the BLM/ St. Joe boundary to determine responsibility without a cadastral survey.

All of the known cluster trees at Lathrop Bayou have been numerically tagged, painted and data recorded as to location, diameter at breast height, total height of tree, condition of tree, aspect of cavity, number of cavities and status of cavity (active, inactive, start, abandoned).

Within the RCW cluster area at Lathrop Bayou the longleaf pine tend to be small with diameters ranging from 8.5 inches to 15.8 inches (dbh). Heights range from 24 feet to 36 feet. Most of the longleaf pine is 75- 80 years of age (based on coring of non-cavity trees), although, there are a few older

Map 5

trees (100+). There is some limited longleaf pine regeneration.

A total of four adult birds were observed at Lathrop Bayou during the spring of 2002. These birds successfully hatched one clutch in late May. However, fledgling birds were not seen on subsequent summer field visits. Five birds were banded in December 2002. These included four males and one female. Three nestlings were banded in the spring of 2003. Additional work will be needed to determine the group dynamics of these birds, as well as any connection with the RCWs on St. Joe property at Wetappo Creek.

According to Henry (1989), each RCW cluster typically requires 8,490 square feet of pine basal area and 6,350 stems 10 inch dbh and higher for adequate foraging habitat. Although the protocol developed by Henry for determining foraging habitat is based on the number of pine trees over 10 inches dbh, in this situation 9 inches dbh trees were included in the forage calculations because trees this size are being used as cavity and foraging trees by RCW at Lathrop Bayou. Forage calculations are based on an average of 104 pines per acre over 9 inch dbh in the predominately slash pine stand and 30 pines per acre over 9 inch dbh per acre in the predominately longleaf stand.

Using the recovery plan criteria, there is sufficient basal area (27,132 sq. ft.) in the pine habitats within 0.5 miles of the known clusters to provide adequate forage for up to three RCW groups. The recovery plan recommends a basal area of 40 to 60 sq. ft. of basal area per acre for optimal habitat. The basal area at Lathrop varies from 26 sq. ft. to 168 sq. ft.; with the slash pine areas averaging 96 sq. ft. and the predominately longleaf pine stand averaging 36 sq. ft..

At Lathrop Bayou there is evidence the birds are moving outside of the typical 0.5-mile range to forage. Birds have been heard foraging on "Round Island" to the south, crossing open water or marsh to reach areas over 0.5 mile away. They may also be using areas on the mainland. Recent banding efforts should help document use of surrounding areas.

Table 2. Red-cockaded Woodpecker Foraging Habitat Acreages at Lathrop Bayou

Ownership	Total forage acreage within 0.5 mile of cluster*	Forage acreage in longleaf stand	Forage acreage in slash stand within 0.5 miles of cluster	Total Stems >9 inch dhb in longleaf stand	Total Stems >9 inch dhb in slash stand	Total stems >9 inch dhb within 0.5 miles of cluster	Total basal area within 0.5 miles of cluster
BLM	185	44	141	1,320	14,664	15,984	15,120
St. Joe Company	106	27	79	810	8,216	9,026	8,556
Genecov	36	0	36	-	3,744	3,744	3,456
Total	327	71	256	2,130	22,880	28,754	27,132

- Note: This 0.5 mile radius includes portions of open water and marsh not considered suitable habitat, and birds, apparently from this cluster, have been heard on a large island containing suitable foraging habitat ¾ miles southeast of the known cluster.

Recovery guidelines on federal land and private land being managed to increase RCW populations recommends 125 acres of "good" quality habitat in areas with a 60+ site index and 200 acres in areas with a site index of less than 60. The site index is based on the expected productivity of certain tree species within a given soil type. According to the Soil Survey of Bay County the site index for longleaf pine at Lathrop Bayou ranges from 65 in Leon soils on the northern portion of Raffield Island to 69 in the open longleaf savannah. The index for slash pine ranges from 70 on the northern portion of Lathrop to 85 in the open longleaf savannah to 94 on "Round Island".

Bald Eagle *(Haliaeetus leucocephalus*) Federally and State-listed as Threatened.

Bald eagles have nested at Big Pine Island south of Raffield Island since 1991 (Florida Fish and Wildlife Conservation Commission). It is one of the oldest active nests in Bay County. Monitoring conducted by the Florida Fish and Wildlife Conservation Commission has documented that eagles have consistently used the nest since at least 1991. This is one of six bald eagle nests currently active in Bay County. There is a 750 feet primary protection zone around this nest, which by federal policy excludes development, logging, and use of chemicals toxic to wildlife. During the nesting season this area is also closed to unauthorized use. Helicopter and fixed-wing aircraft are required to maintain a distance of at least 1,000 feet vertically and 500 feet horizontally from the nest during the nesting season (generally October 1 through May 15).

Bachman's Sparrow *(Aimophila aestivalis)* Consideration Encouraged by the U.S. Fish and Wildlife Service.

Bachman's sparrow was heard on the tract during the spring of 2002. This bird was historically most common in mature, longleaf pine forests of the southeastern United States. It is a non-migrating resident in pine savannas, typically with an open overstory of longleaf pine with a ground cover of perennial grasses or saw palmetto.

This sparrow typically builds a domed nest on the ground in dense cover, such as under brush, saw palmetto, or saplings (Hamel, 1992). Bachman's sparrow raise one to two and perhaps even three broods per year. Nesting is expected to occur from May through July or August. The average nesting cycle takes approximately 51 days (Mitchell, 1998).

Gopher tortoise (*Gopherus polyphemus)* State-listed as a Species of Special Concern.

Two abandoned burrows that appeared to be tortoise burrows (flat-bottomed domed openings with sloping entrances) were seen in the northern half of Raffield Island on BLM-administered land. No tortoises were observed during the 2002 field visits. The high water table at Lathrop Bayou would be expected to limit suitability for gopher tortoise.

Flatwoods Salamander (*Ambystoma cingulatum)* Federally listed as Threatened and State-listed as a Species of Special Concern.

Optimum habitat for the flatwoods salamander is an open, mesic (moderate

moisture) woodland of longleaf/slash pine flatwoods maintained by frequent fires. Adult and subadult flatwoods salamanders move to isolated wetland breeding ponds from October to December. As winter rains inundate these areas the eggs hatch and larvae metamorphose 11 to 18 weeks later during March or April. Suitable wetlands typically have a marsh-like appearance with sedges growing throughout. The surrounding area typically supports wiregrass and panic grass with scattered shrubs and trees both in and around the ponds. The management of flatwoods salamander habitat is best accomplished through growing season burns (U.S. Fish and Wildlife Service, 1999).

There is moderate potential for this species to occur at Lathrop Bayou. Overgrown conditions in the wetlands hamper effective inventories at this time.

Black Bear *(Ursus americanus floridanus)* Federal Candidate listing and State-listed as Threatened (excluding Baker and Columbia counties, and the Apalachicola NF).

Lathrop Bayou and the surrounding area falls within one of the largest areas of bear habitat remaining in the state of Florida, which is centered on the Apalachicola area.

Birds of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the U.S. Fish and Wildlife Service to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." Birds of Conservation Concern 2002 (U.S. Fish and Wildlife Service, 2002) is the most recent effort to carry out this mandate.

Lathrop Bayou is located in the area identified as the Southeastern Coastal Plain. Within that area, 45 species have been identified as needing conservation concern. Of these, seven are most likely to occur at Lathrop Bayou.

Bachman's Sparrow has been observed at Lathrop Bayou and likely breeds on Raffield Island (see page 16 for discussion). The pine flatwoods at Lathrop Bayou are also expected to support breeding Brown-headed Nuthatch. The Brown-headed Nuthatch nests in cavities that it excavates in pine snags, dead stubs, and fence posts, often within a few feet of the ground. It is one of the earliest-breeding land birds in Florida, beginning nesting activities in mid-February and continuing until May. Two broods may be raised in a year (FFWCC, 2003). Common Ground-Dove may occur at Lathrop Bayou. This bird breeds throughout the year and places its nest on or near the ground. Chuck-will's-widow could also occur at Lathrop Bayou. This bird nests on the ground, typically between March and June.

The marshes surrounding Lathrop Bayou could support vagrant Reddish Egret during the winter months. Although not confirmed, a probably nesting of Seaside Sparrow was reported in the 1980s in East Bay during the breeding bird atlas project (FFWCC, 2003). Least Tern are likely to forage over open water around Lathrop Bayou.

Fisheries

The waters surrounding the Lathrop Bayou tracts are located within the St. Andrew Bay estuary. The emergent wetlands surrounding Lathrop Bayou provide nursery and foraging habitats for a variety of economically important marine fisheries found in East Bay, including gulf menhaden, red and black drum, sand and spotted seatrout, striped mullet, southern flounder, brown and white shrimp, and blue crab. The waters surrounding Lathrop Bayou are classified by the National Marine Fisheries Service as Essential Fish Habitat for white, pink and brown shrimp, Spanish mackerel, red drum, and the snapper/grouper group. Both commercial and recreational oyster harvesting occurs in the area.

The tract is located in an area designated as the East Bay Section 2 shellfish harvesting area by the Florida Department of Agriculture and Consumer Services. The waters surrounding Lathrop Bayou have been designated for shellfish harvesting: conditionally approved (primarily to the southwest), conditionally restricted to the north and west, and prohibited to the south and east. Shellfish harvesting is prohibited in Lathrop Bayou itself.

For more detailed information please refer to "An Inventory of the Biological Resources Reported from the St. Andrew Bay Estuarine System, Bay County, Florida. A Revision" (Keppner, 2002).

Non-native Species

Wild Hog

Areas recently damaged by hog rooting were observed at Lathrop Bayou in the summer of 2002 on the south side of Raffield Island. It is likely that hogs move onto the island periodically during periods of low tide.

Invasive Plants

The Lathrop Bayou tracts are relatively free from invasive exotic plants. At this point the only exotic/invasive plants known to occur are a few camphor trees (*Cinnamomum camphora*) scattered along the perimeter of Raffield Island.

Management Plan

Goal: To support and improve ecosystem health, with particular emphasis on at risk plant communities and special status plants and animals.

Objective: Reverse trend of increasing slash pine density and hardwood/shrub encroachment, and reach a target pine basal area of 40-70 sq. ft. per acre.

Action: Conduct a minimum of one non-growing season prescribed burn to reduce midstory fuel loads, renovate wiregrass and remove young slash pine on Raffield Island. Initial burn(s) will be conducted during periods when the ground is saturated to reduce fuels with minimum damage to herbaceous and woody surface roots.

Once at least 75 per cent of the shrub layer on the tract has been reduced to 3 feet or less in height, the prescribed burn schedule will be shifted to early growing season burns (April through late June). Subsequent growing season burns would be implemented on frequent intervals (1 –2 years) to reduce the percentage of the area dominated by shrubs, reduce the density of slash pine and encourage herbaceous growth. Once the shrub component has been controlled at Lathrop Bayou, longer intervals (2 – 7 years) and periodic non-growing season burns could be utilized to optimize conditions for special status plants while maintaining RCW habitat quality. The scheduling of prescribed burns would be dependent on response of vegetation to previous burns, weather and the availability of funding.

The prescribed burn program will be implemented on Raffield Island and "Round Island" owned by St. Joe Timberland and the Genecov Group. No burns are currently planned for the two small islands (Pine Island and Little Pine Island) administered by BLM.

A burn plan is attached in Appendix C. This burn plan would be implemented across property boundaries in the spirit of the Memorandum of Understanding signed on December 20, 2003 between BLM, St. Joe Timberland Company, Genecov Group, U.S. Fish and Wildlife Service, and Florida Fish and Wildlife Conservation Commission (Appendix A). A fully detailed operational burn plan would be prepared and approved by BLM prior to each burn.

Discussion: Flatwood pinelands are a fire dependent plant community characterized by frequent low intensity burns (Christensen, 1981). The literature suggests that flatwoods burn naturally every three to ten years (FNAI and DNR 1990). However, at Lathrop Bayou there is no indication that the area has burned since the late 1970s or early 1980s as evidenced by aerial photography and local professionals (David Harrelson, St. Joe, pers. comm.).

The current thick stand of slash pine ringing Raffield Island likely germinated during a fire free window 60 + years ago. Since then, the lack of regular fire has resulted in the formation of a dense stand of slash pine and establishment of a thick shrub layer which has shaded out most of herbaceous species in this perimeter area. The dense canopy and shrub layer also retards pine

regeneration, particularly longleaf pine that generally require a bare soil seedbed for germination.

Literature and agency monitoring records indicate the need for fire to maintain most of the rare flatwood plants found at Lathrop Bayou (USFWS, 1994). Work on the Apalachicola National Forest, which contains some of the largest remaining populations of these plants, indicates a strong correlation between frequent fire and population vigor (Louise Kern, Apalachicola National Forest Botantist, pers. comm.).

According to Dr. Joan Walker, Research Plant Ecologist with the U.S. Forest Service Southern Research Station, *Macbridea alba*, *Scutellaria floridana* and *Pinguicula ionatha* all benefit from a prescribed burn program. *Macbridea alba* is known to flower the same year in response to burns as late as April. After growing season burns these perennial herbs resprout vigorously and bloom the following year. *Macbridea alba* has shown a drop in seed production on the National Forest after four years with no burning. *Scutellaria floridana* appears to have an even broader response period. It generally flowers about 3 months after a burn and has been known to bloom from April to October. The role of fire in maintaining *Pinguicula ionatha* may be more related to reducing competition and shading. The availability of specific insect pollinators for these plants may play a role in reproductive success and have management implications in regards to timing of prescribed fires.

The need for regular burning to maintain red-cockaded woodpecker habitat is well documented (USFWS 2000). Prescribed burns are the primary management tools used to maintain the open park like stands of old growth pine needed by red-cockaded woodpeckers. “Hardwood encroachment due to fire suppression has been a leading cause of loss of woodpecker groups on both public and private lands and continues to be a major threat throughout the species’ range” (US Fish and Wildlife Service, 2000). This pertains not only to nesting habitat, but has been shown to reduce group size and productivity in foraging habitat (US Fish and Wildlife Service, 2000), as well.

Action: In preparation for prescribed burns, a minimum 20-foot buffer around each RCW cavity tree will be cleared by a combination of mowing (hand held weed trimmer) and raking to reduce the duff layer and vegetative fuel around each cavity tree prior to each burn. Clearing will not be so deep as to remove or damage surface tree roots. Burning during periods of saturated soils will offer additional protection for surface roots during the initial burns. Despite best efforts, in the unlikely event that a cavity tree is destroyed or a cavity is rendered unusable during prescribed burning operations, a replacement cavity will be installed within 24 hours, or as soon as weather permits as close to the old cavity as possible. Qualified personnel able to conduct this work will be retained prior to the burn

Discussion: Thick build-ups of thatch in fire-suppressed areas encourage pines to send out roots close to the surface. These surface roots are vulnerable to damage when this thatch layer eventually burns. Cavity trees are at additional risk because of the flammable resins maintained around active cavities. Mature pines are expected to become less vulnerable after the bulk of the

thatch is removed in initial burns. However, given their importance, excess thatch will continue to be removed from around all cavity trees prior to prescribed burning.

Action: Selective hand cutting or girdling of young or crowded slash pine will be conducted incrementally to augment control of slash pine regeneration by prescribed burning.

In the mesic flatwood, cutting may not reduce the basal area to less than 80 sq. ft. per acre to allow for any additional losses due to natural causes. In this area, young slash pine <6 inches dbh will be targeted for removal. Young longleaf will be thinned only if removal of all but the largest slash pine does not bring the basal area under 80 sq. ft. per acre. All mature longleaf and slash pine suitable for natural or artificial cavities will be retained.

In the predominately longleaf pine area, all slash pine, except those suitable for use as cavity trees, that are not killed by burning will be removed by cutting or girdling.

Discussion: In places, the slash pine stand at Lathrop Bayou has over twice the basal area recommended for optimum red-cockaded woodpecker habitat. In addition, the dense pine canopy in combination with a thick shrub layer has reduced the herbaceous cover and diversity. None of the federally listed flatwood endemic plants have been recorded in these dense pine stands. Given the current conditions a wildfire, particularly during the growing season or under droughty conditions could devastate current RCW cavity trees and replacement trees. Without fire, slash pine, hardwoods and shrubs are expected to ultimately shade out most of the longleaf/wire grass components on Raffield Island.

Action: Monitor special status plant populations and plant community to assess effectiveness of prescribed burn and thinning actions. This includes:

1. Read established survey transects for relative abundance of special status plants each spring/summer following each prescribed burns.
2. Determine average cover of herbaceous versus shrub layer in both the mesic and wet flatwood areas prior to each prescribed burn.
3. Establish at least two photo-monitoring plots in each plant community. Photos to be taken annually in conjunction with special status plant surveys, as well as after each prescribed burn.
4. Monitor average shrub height prior to each prescribed burn to determine when to shift of growing season burns.
5. If federally listed plant species are not represented on transects monitored in 2002 or 2003, additional transect segments will be added to sample occupied habitat.

Discussion: Monitoring the response of the plant community and particularly the special status plants to prescribed burns will provide the feedback needed to ensure that the fire interval is appropriate to support these species. Annual monitoring will provide the most effective feedback on vegetation responses during this phase of habitat restoration. Once a prescribed burn program has been in place for five years, monitoring may be more specifically tied to the prescribed burn schedule to reduce cost.

Objective: Improve population and genetic viability of red-cockaded woodpecker on public and private land at Lathrop Bayou by providing suitable nesting and foraging habitat for a minimum of 3 nesting clusters.

Action: All known RCW at Lathrop Bayou are currently banded. Banding efforts will continue annually to band any young of the year between 5 to 10 days of age and all unbanded adults. Monitoring of this population on public and private land at Lathrop Bayou will be conducted at Level IVb as described in the Final Revised RCW Recovery Plan (US Fish and Wildlife Service, 2003).

Discussion: Annual population monitoring is particularly critical in small populations of RCW. Guidelines for federal land require annual monitoring of populations with less than 50 active clusters. Annual feedback will be necessary to determine if the implemented actions are having the desired affect, to assess need for additional recruitment clusters, and to determine need for population augmentation.

Action: Annual monitoring will be conducted of all cavity trees to determine status, health, new excavations, cavity enlargement, and encroachment by hardwoods, as per the Final Recovery Plan, 2003).

Discussion: All known cavity trees, including active, inactive and start trees at Lathrop Bayou, are marked, tagged, and data recorded on use, condition, and physical parameters. Ongoing monitoring of cavity trees will be critical in assessing the trends and challenges facing this RCW population. Annual monitoring will alert managers to the need for additional cavities, midstory removal and cavity parasitism control.

Action: Establish at least three breeding groups of RCW at Lathrop within five years.

Discussion: Under the Land Stewardship Memorandum of Understanding BLM, St. Joe Timberland Company and the Genecov Group have agreed to collectively manage their lands at Lathrop Bayou to benefit red-cockaded woodpeckers and endemic plant species. The MOU states that the parties agree "To implement habitat and population prescriptions that promote the growth of RCW populations on these sites."

Planned prescribed burns to reduce the shrub and midstory layer and to promote herbaceous growth are expected to improve RCW habitat conditions for nesting and foraging habitat. Most of the 539 acres of public and private land at Lathrop Bayou tract are expected to meet the conditions for "good habitat" conditions as outlined for recovery guidelines (US Fish and Wildlife Service, 2000) within 5 years after implementation begins. In addition, there is evidence that the birds are utilizing additional offsite foraging areas. Given the site index numbers above 60 and an estimated 125 acres per breeding group, it is expected that the 539 acres of potential habitat Lathrop Bayou could support up to three breeding groups once habitat conditions have been improved.

The only federally established habitat criteria that may not be met for these groups is that there be at least 18 trees over 14 inches dbh per acre. Given that RCW are

currently using trees with 9 inches dbh, it is hopeful that this parameter will not limit use of otherwise "good" quality habitat.

Action: Install two recruitment clusters with at least 4 cavities each (one cluster on Raffield Island and one cluster on "Round Island". Specific locations and scheduling of installation would depend on RCW population, cluster monitoring and availability of suitable trees. Each recruitment cluster would be installed only after population and cluster monitoring indicates the cluster could be occupied within one year based on population trends and the number of unpaired birds. Installation of recruitment clusters would also be dependent on habitat being restored to "good" condition as described in the Recovery Standard section of the Final Revised Recovery Plan (USFWS 2003).

Discussion: There are currently no RCW cavities at Lathrop Bayou in the areas dominated by slash pine. Once these areas have been restored to "good" condition as described in the Final Revised Recovery Plan (US Fish and Wildlife Service, 2003) recruitment clusters would provide the most effective way to entice RCW to utilize the restored area for nesting. All artificial cavities would be planned, implemented and monitored as per the Final Revised Recovery Plan (USFWS 2003).

Action: Pursue options to augment the Lathrop Bayou RCW population, as needed to balance sex ratios and to promote genetic diversity. Options include receiving excess RCWs from Wetappo Creek and/or trading non-breeding RCWs from Lathrop Bayou for RCWs from Eglin Air Force Base or Apalachicola National Forest.

Discussion: The Lathrop Bayou and Wetappo Creek RCW groups are isolated from the nearest known large populations at Apalachicola NF and Eglin Air Force Base, approximately 30 and 100 miles respectively. This isolation and small number of birds compounds problems related to genetic variability and balancing of sex ratios. Transplantation offers options to alleviate these obstacles and to maximize the number of breeding pairs at each site.

Action: Conduct aerial and ground surveys for RCW in the vicinity of Lathrop Bayou and Wetappo Creek. All RCW inventory flights will be required to stay a minimum of 1,000 horizontal feet and 500 vertical feet from bald eagle nest(s) during the nesting season (October 1 through May 15). Aerial surveys would be conducted of St. Joe property along Wetappo Creek and other older growth corridors, which could harbor relic trees. If suitable habitat or evidence of cavity trees were located aerially, ground searches would be conducted to document the presence or absence of RCW. In addition, coordination with Tyndall Air Force Base has been initiated to document any foraging banded RCWs at that installation.

Discussion: The RCW at Lathrop Bayou and Wetappo Creek are the only documented RCW populations in Bay or Gulf counties. Both of these groups are very small and vulnerable to catastrophic natural events, loss of key breeding individuals and genetic stagnation. Additional populations or suitable habitat may persist in interlaying areas that are critical to the long-term viability of these groups. With a banding program in place, locations of dispersing birds can now be documented and use of

surrounding areas better understood through the monitoring program.

Objective: Document and monitor the biological diversity at Lathrop Bayou.

Action: Conduct baseline surveys of reptiles and amphibians, including gopher tortoise and flatwoods salamander after the first non-growing season burn and before the first growing season burn. If any rare species of reptiles and amphibians are found to occur, then subsequent monitoring will be conducted to assess the species' response to the prescribed burn program.

Discussion: There is evidence that gopher tortoise occur at Lathrop Bayou, and there is moderate potential for flatwoods salamander to occur based on the habitat suitability. Both species prefer habitats dominated by herbaceous ground cover and are expected to benefit from the use of prescribed fire. Inventories are expected to be more efficient and thorough if conducted after the heavier fuels are removed. Flatwoods salamander surveys would include dip netting for larvae when rainfall is sufficient to inundate the ponds for several months. Initial inventories may be conducted as part of a state-wide survey for flatwoods salamander being conducted by the Florida Fish and Wildlife Conservation Commission. Gopher tortoise burrows will be monitored for use.

Action: Monitor representative or sensitive species of reptiles and amphibians annually.

Discussion: Determining population occurrence and trends would allow for more focused management of the prescribed burn program for these federally/state-listed species.

Objective: Monitor eagle nest at Lathrop Bayou to determine if additional protective measures are warranted.

Action: To augment ongoing monitoring of nest activity by the Florida Fish and Wildlife Conservation Commission, begin monitoring the eagle nest annually to assess fledgling success.

Discussion: Given the consistent and productive nature of this eagle nest, the birds are apparently tolerating the current level of public use in the area. However, given the planned increases in development in this area over the next ten years, there is potential for the eagles to experience increased disturbance. Currently, the Florida Fish and Wildlife Conservation Commission monitors the nest annually to determine if it is active. However, follow-up monitoring to determine the success of the nests is no longer being conducted because of budget constraints. Fledgling trends are important in determining when or if additional protective measures are needed to protect this nest site.

Objective: Remove invasive non-native species with the potential to alter the native communities at Lathrop Bayou.

Action: Remove camphor trees within one year of plan approval. Camphor trees will be killed in place with a basal bark treatment of Garlon 3. This herbicide is water-based and because Tricylopr, the active ingredient, has negligible root activity and breaks down quickly (half life of 10 to 46 days), it has little potential for causing non-target damage through root absorption when carefully applied. Any herbicides used, would be applied at rates at or below those

indicated on the label and would be applied consistent with all other label directions.

Any other exotic plant species identified on the tract would be removed within six months of detection.

Discussion: Mature camphor trees can produce up to 100,000 seeds, which are readily spread by birds. Early intervention will reduce the potential for this plant to become widely distributed at Lathrop Bayou, displace native plants or disrupt natural processes.

Goal: Allow for public use of Lathrop Bayou while ensuring protection of sensitive resources.

Objective: Establish special rules for visitor use of the public domain lands at Lathrop Bayou.

Action: Adopt and implement the following Special Rules for the public domain lands at Lathrop Bayou:

1. Lathrop Bayou is closed to all vehicles, including all terrain vehicles, unless the use is specifically authorized by BLM.

2. No overnight camping or campfires are permitted at Lathrop Bayou.

3. No plant material will be removed or collected, unless authorized by BLM.

4. Visitors are required to carry out their litter/trash.

Discussion: Lack of suppression options, high resource values and excessive fuel loads increase the risk of wildfire associated with overnight camping and campfires at Lathrop Bayou. In addition, although RCW are known to occupy habitats near human activity, this population has been largely isolated from human disturbance. Given the precarious status of this breeding group, keeping disturbance to a minimum is prudent.

Action: Publish Special Rules in the Federal Register.

Discussion: Publication of Special Rules in the Federal Register is administratively required.

Action: Install signs at key landing sites/access points at Lathrop Bayou. The sign will identify the area, its protected status, management partners and rules.

Discussion: Signing is expected to increase public compliance with the Special Rules and increase awareness of the unique resources found at Lathrop Bayou.

Action: Establish law enforcement agreements with local entities of the Florida Fish and Wildlife Conservation Commission and the U.S. Fish and Wildlife Service to authorize local law enforcement at Lathrop Bayou.

Discussion: Although public compliance with these Special Rules is expected to be high, agreements would authorize local enforcement capability, if or when needed with Florida Fish and Wildlife Conservation Commission and the U.S. Fish and Wildlife Service.

Joint signing and collaboration with these rules on private land would be at the discretion of the private landowners.

Goal: Increase administrative protection of the site and highlight unique resource values of Lathrop Bayou.

Objective: Designate public domain lands at Lathrop Bayou as an Area of Critical Environmental Concern.

Action: BLM will prepare a plan amendment to the Florida Resource Management Plan (1995) to designate the public domain land at Lathrop Bayou as an Area of Critical Environmental Concern (ACEC) within six months of plan approval.

Discussion: The Federal Land Management and Policy Act of 1979 authorized BLM to identify, designate and protect areas where special attention is required to protect natural resources, including important habitats for at risk plants and animals. The tract supports the only red-cockaded woodpecker population known to exist in Bay County, one of six active bald eagle nests in the county, as well as one of the most intact longleaf pine communities in remaining in this area of the Florida Panhandle. These values and the need for active management to restore and maintain these habitat values meet the criteria for relevance and importance for ACEC designation required by BLM policy (Federal Register, August 27, 1980).

Table 3. Schedule of Estimated Operational Costs of Implementation on Public Land at Lathrop Bayou

Fiscal Year	Task	Estimated Cost
2003	Establish baseline fuel loads and cover estimates	$3,000
	Band RCW nestlings and adults	$2,000
	Monitor relative abundance of special status plants	$2,000
	Annual total	**$7,000**
2004	Conduct non-growing season prescribed burn. Costs based on aerial ignition and cavity tree protection measures, plus travel costs. *	$10,000
	Post burn monitoring of special status plants	$2,000
	Pre-burn monitoring of fuel loads and cover estimates	$2,000
	Band RCW nestlings and unbanded adults	$2,000
	Camphor tree control	$2,500
	Annual total	**$18,500**
2005	Conduct non-growing season prescribed burn. Costs based on aerial ignition and cavity tree protection measures, plus travel costs. *	10,000
	Pre-burn felling of remaining small slash pine (<15 yrs old, 1-4 meters height) in longleaf pine stands	$6,000
	Pre-burn monitoring of fuel loads and cover estimates	$2,000
	Post burn monitoring of special status plants	$2,500
	Band RCW nestlings and unbanded adults	$2,000
	Conduct reptile/amphibian inventories, particularly for flatwoods salamander and gopher tortoise	$4,000
	Annual total	**$26,500**
2006	Monitoring of fuel loads and cover estimates	$2,000
	Monitoring of special status plants	$2,500
	Band RCW nestlings and unbanded adults	$2,000
	Install recruitment cavity on Raffield Island	$2,000
	Annual total	**$8,500**
2007	Conduct growing season burn. Costs based on aerial ignition and cavity tree protection measures, plus travel costs. *	$10,000
	Pre-burn felling of remaining slash pine	$6,000
	Post burn monitoring of special status plants	$2,000
	Pre-burn monitoring of fuel loads and cover estimates	$2,000
	Band RCW nestlings and unbanded adults	$2,000
	Annual total	**$22,000**
	Total estimated operational costs for initial 5 years	**$82,500**

* Operational costs include contracts studies and labor, equipment, and travel related costs, but do not include employee salaries.

** Prescribed burn schedules are subject to change based on the response of vegetation, weather, and budget. Non-growing season burns may be utilized in lieu of growing season burns if indicated by plant responses or when droughty conditions preclude a scheduled growing season burn. The goal is to use fire to maintain a viable and robust flatwood plant community.

Public Comments and Regulatory Review

The Lathrop Bayou HMP was released for a 30-day public comment period, which ended on September 10, 2003. Thirty-eight hard copies of the draft plan were sent to regulatory agency representatives, partners, and interested individuals. Letters notifying the public of the availability of the plan were sent to a broader mailing list and a plan was made available for review and downloading on the BLM Eastern States web page. These mailing lists are available from the Jackson Field Office. A public meeting was held on August 13, 2003 in Panama City.

Only one substantive written comment was received during the public comment period. Patrice Couch, with the Florida Department of Agriculture and Consumer Services corrected the description of the shellfish harvesting areas surrounding Lathrop Bayou.

A substantive telephone discussion with Mark Thompson, with National Marine Fisheries Service in Panama City, dealt with the affects of firebreak construction in needle rush marsh. Based on his comments and discussions with Ken McCain, with the Suwannee National Wildlife Refuge, the final burn plan was altered to include initiating prescribed burns at or as near high tide as possible. The firebreak creation, if needed, would be done in the least intrusive way possible. Options include single passes with an airboat in the deepest area of the marsh to minimize the longterm affects on the marsh. In response to comments from Julie Moore, with BLM's Washington Office, dip netting was included as the preferred method for surveying flatwoods salamanders in the final plan.

Because this plan deals with management of federally listed species, a biological assessment was submitted to the Panama City Ecological Services Office of the Fish and Wildlife Service. That office concurred with our findings that the Lathrop Bayou Habitat Management Plan is not likely to adversely affect in a letter dated September 26, 2003. In addition, the Florida State Historic Preservation Officer sent a letter stating that cultural resources had been adequately addressed in the plan. Both letters are attached in Appendix E.

The Florida Fish and Wildlife Conservation Commission signed the Land Stewardship Memorandum of Understanding on December 20, 2002 and was involved in developing the draft HMP. Their comments on early drafts of the document were incorporated into the published draft and we did not receive comments from them during the formal public comment period.

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Appendices

Appendix A

Land Stewardship Memorandum of Understanding

Appendix B

Species of Vascular Plants Observed on Lathrop Bayou Tract, Bay County, Florida

Species of Vascular Plants Observed on the Lathrop Tract, Bay County, Florida.

Submitted to:

U.S. Department of the Interior, Bureau of Land Management
Jackson District Office
Jackson, Mississippi

Lisa A. Keppner
Keppner Biological Services
Panama City, Florida

June 24, 2002

Introduction and Purpose

The purpose of this report is to convey the results of a two day survey for listed species of vascular plants on the Bureau of Land Management's (BLM) Lathrop Tract located on Raffield Island in East Bay, Bay County. Florida. The BLM report (1995) provides the location and information regarding the Lathrop Tract. The tract encompasses about 187 acres consisting of three areas of uplands (mesic to wet pine flatwoods) surrounded by salt marsh (intertidal and supratidal marsh). The largest area of uplands is the subject of this report. The two small pine islands to the southeast were not investigated.

Soils: The soil types on the tract according to Duffee et al. (1984) are Leon Sand, Osier Fine Sand, and Bayvi Loamy Sand (Appendix 1). Leon Sand is poorly drained, nearly level soil with a slope of from 0 to 2%. The water table is within 10 inches of the surface for 1 to 4 months of the year, and at a depth of 10 to 40 inches for about 9 months in most years. The mesic flatwoods at the Lathrop Tract are located on this soil type. Osier Fine Sand is a poorly drained, nearly level soil in low-lying areas. Slopes are concave to smooth with a slope from 0 to 2%. The water table is within a depth of 10 inches from the surface from 3-6 months each year. Most depressional areas are ponded for 2 to 4 months each year. The wet pine flatwoods are located on this soil type. Bayvi Loamy Sand is a level or nearly level, very poorly drained soil. The water table is at a depth of less than 10 inches, and is ponded from 6 to 12 months each year. This soil is subject to tidal action, and the interidal and supratidal salt marshes are found on this soil.

Biotic Communities: The intertidal marsh community is dominated by smooth cordgrass (*Spartina alterniflora*), and the supratidal marsh communty is dominated by needle rush (*Juncus roemerianus*). Florida Natural Areas Inventory (FNAI) (2000) defines tidal marsh as expansive intertidal and supratidal areas occupied primarily by rooted , emergent vascular macrophytes (e.g. cordgrasses, needlerush, sawgrass, etc.). FNAI (2000) lists this biotic community as S4 or apparently secure in Florida. The south side of the largest island (Raffield Island) has a short berm vegetated primarily with saltwater false willow (*Baccharis angustifolius*), saltmeadow cordgrass (*Spartina patens*), and needle rush. The landward edge of the supratidal marsh is dominated by sawgrass (*Cladium jamaicense*).

The wet flatwoods is dominated by an open canopy of longleaf pine (*Pinus palustris*) with some slash pine (*Pinus elliottii*). The dominant shrubs present are species of St. John's-wort, the many stemmed bog tupelo (*Nyssa ursina*), corkwood (*Stillingia aquatica*), evergreen bayberry (*Myrica heterophylla*), and scattered areas of Titi (*Cyrilla racemosa*). The herbaceous layer is dominated by wiregrass (*Aristida stricta = beyrichiana*) with a number of species of sedges, rushes, and other herbs and forbs. Circular depressions within the wet flatwoods support dense stands of sawgrass. FNAI lists this biotic community as S4? or apparently secure in Florida but may be rare in some areas.

The mesic pine flatwoods are dominated by abundant large, longleaf and slash pines. The dominant shrubs are saw palmetto (*Serenoa repens*), yaupon (*Ilex vomitoria*), gallberry (*Ilex glabra*), and blueberry (*Vaccinium* spp.). Only in small depressions and open areas free of

shrubs is there a herbaceous layer with wiregrass, rushes, sedges, and other herbs. FNAI lists this biotic community as S4 or apparently secure in Florida.

Methods

Two lines of survey were determined using aerial photography that included various areas within the wet flatwood and mesic flatwood communities. Figure 1 and Figure 2 show the lines. A few locations at which listed species were located along each line are included in the figures. The beginning point for both lines was fixed with an metal stake and a tagged tree. A Garmin Etrex Legend geographical positioning device was used to determine locations during the survey. The accuracy for each reading is provided. Plants were identified in the field and some specimens were taken for identification later. These specimens will be deposited in the St. Andrew Bay Environmental Study Team (BEST) herbarium that is housed at the U.S. Fish and Wildlife Service office in Panama City, Florida.

The beginning point for both survey lines is located at 30°02.056' N and 85°26.108'W. The triangular transect was placed to cross the flatwoods along the southern end of the tract, then headed northward along the edge of the more open canopy area and the denser area, and then into the sparse canopy area of the tract. The eastward leg of the triangular line of survey ended at 30°02.047'N and 85°25.652'W. This also served as the beginning point for the north leg of the triangle. The north leg ended and the return (southeast leg) began at 30°02.231'N and 85°25.604'W and returned to the beginning point. The triangle is approximately 1.245 miles long. The second line was about 3900 feet long and headed northeast from the beginning point of the first transect through medium dense and then dense stands of pine and saw palmetto and ended at 30°02.550'N and 85°25.683'W.

Each line was walked in as straight a line as possible by two people and observations for listed plants that were within about ten feet on either side of the line were made. Locations of listed species observed were recorded, and the number of specimens within a radius of about 20 feet were counted. *Macbridia alba* (white birds-in-a-nest) was observed adjacent to the transect, but their observations are included here. It became obvious that Chapman's crownbeard (*Verbesina chapmanii*) was so abundant and evenly distributed that counts were made between two points. The specific locations of the other species observed were recorded for each group.

Results and Discussion

The Lathrop Tract has been visited by the writer a few times since 1997. During each visit the species of vascular plants observed were recorded and a number of specimens of species from the tract were placed in the BEST herbarium. Table 1 is a list of the species of vascular plants that have been observed on the Lathrop Tract over the years. The list contains 127 species in 79 genera in 43 families. The families and common names are from Wunderlin (1997). The designations of the listed plants are from FNAI (2000) and Coile (2000). The state and federal designations are; **LE** = endangered, **LT** = threatened. Additional FNAI designations are: **S1** = critically imperiled in Florida and globally because of extreme rarity or extreme vulnerability to extinction due to some natural or human factor, **S2** = Imperiled in Florida and globally because of rarity or extreme vulnerability to extinction due to some natural or human factor, **S3** = Either very rare or local throughout its range, or found locally in a restricted area, or vulnerable to extinction from other factors on a state and global basis. The wetland designations are from Reed (1988) where obl = obligate wetland species: occur almost always in wetlands under natural conditions (estimated probability >99%), facw = facultative wetland species: usually occur in wetlands but are occasionally found in non-wetlands (estimated probability 67-99%), fac = facultative species: are equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%), facu = facultative upland species: usually occur in non-wetlands but occasionally found in wetlands (estimated probability 1-33%). The + and - refine the indicator.

Listed Plant Species

Stein et al. (2000) synthesized the data on biodiversity in the United States and identified six areas of high biodiversity referred to as “hotspots”. One of these “hotspots” is in the Florida Panhandle centered on the Apalachicola River basin. Bay County and the Lathrop Tract are located just west of the “hotspot” center and share in this designation. One of the criteria for being a “hotspot” of biodiversity is the number of endemic, rare, or listed plants in the area. Listed species are those that are protected by the State of Florida and/or the federal government or are listed by FNAI as species of concern in Florida.

The Lathrop Tract is known to support nine species of vascular plants that are listed, one species that is endemic to the area but not listed due to its abundance on public land, and one species, royal fern (*Osmunda regalis*), that is listed by the State of Florida as Commercially Exploited. One species of yelloweyed grass and one variety of a species of yelloweyed grass may be present on the site. In addition, other listed species such as *Cuphea aspera* (Florida waxweed), *Gentiana pennelliana* (wiregrass gentian) and others that are known to occupy the habitats similar to those on the Lathrop Tract may also be present.

Table 2 provides the locations for the listed species observed during this survey. Chapman’s crownbeard (*Verbesina chapmanii*) was generally distributed throughout the wet areas with an open canopy. The total number of specimens of this species counted along the survey lines was 796. Godfrey’s false dragonhead (*Physostegia godfreyi*) was observed in three locations with a total of 13 individuals found. The total number of white birds-in-a-nest (Macbridea alba) was 17

found in three populations. The total number of bog tupelo (*Nyssa ursina*) counted along the survey line was 15. The bog tupelo was most abundant along the edge of depressions in the wet pine flatwoods. The following is a summary of range, habitat, and management suggestions from the literature.

Pinguicula ionatha Godfrey (Godfrey's Butterwort). Family Lentibulariaceae (Bladderwort Family). Chafin (2000) summarized the information pertaining to Godfrey's butterwort. This species is endemic to five counties in the Florida Panhandle including Bay County. It flowers from March through April, inhabits seepage slopes, bogs, depressions in wet pine flatwoods, wet prairies, roadside ditches, and transition zones between wet pine flatwoods and cypress areas. Chafin (2000) recommended management include prescribed growing season burns every 2 to 3 years; avoid rutting and compacting wetland soils, herbicides along roadsides, and placing fire breaks in wetland ecotones. Kral (1883) stated that this species is a species of sunlight and of high hydroperiod . Acidic. Bog soils. Activities that would encourage its increase include fire, or other activities that would reduce competing ground cover without disturbing the substrate. Drainage of habitat should be avoided.

This species was observed during a field trip in April of 1997. This was two years after Hurricane Opal had inundated the area and the clumps of wiregrass were not as thick or as high as they are currently. At that time this species was observed in the open spaces between the clumps of wiregrass. Currently, the wiregrass is knee deep in most places, and the clumps of wiregrass have shaded the spaces between them.

Oxypolis greenmanii Math. & Const. (Giant Water Cowbane). Family Apiaceae (Carrot Family). Godfrey and Wooten (1981) provided information regarding Giant Water Cowbane. It is locally abundant usually in water in depressions in pine flatwoods, cypress ponds, drainage canals and ditches. It is endemic to Bay, Calhoun, and Gulf Counties, Florida. Kral (1983) stated it blooms from July through August and Coile (2000) stated that it blooms from July through September. Kral (1983) stated that this is a species of high hydroperiod soils, its commonest associates are various species of *Hypericum* and *Stillingia aquatica*. Species of *Hypericum* (St. Johns-worts) are abundant on Lathrop as is *Stillingia aquatica* (corkwood). The corkwood forms dense forests of plants 5-6 feet tall at places on Lathrop that are edged by bog tupelo. Kral (1983) stated that *O. greenmanii* is a species of clearings in wetlands, and site preparation involving drainage would eliminate the species. This species has been observed by the writer twice on Lathrop at the east end of the first survey line and along a low wet area extending north from the east end of the survey line.

Macbridea alba Chapm. (White birds-in-a-nest). Family Lamiaceae (Mint Family). Godfrey and Wooten (1981) stated that this species is endemic to the lower Apalachicola River region where it inhabits pine savannahs and flatwoods. Kral (1983) stated that the species occupies sandy peats of savannah-bogs in pine flatwoods of northwestern Florida. Coile (2000) lists its range in Florida as Bay, Gulf, and Liberty Counties. Chafin (2000) stated that this species inhabits wet to mesic pine flatwoods and associated roadsides and is endemic to the Florida Panhandle. Chafin (2000) recommended burning of flatwoods habitat every 2 to 3 years. She recommends avoiding converting habitat of this species to pine plantation and avoiding

mechanical site preparation. Kral (1983) stated that its habitat is typically created by flatwoods fires. Drainage should be avoided as should mechanical preparation and closure of the canopy by bedded pines. This species flowers during June and July.

Physostegia godfreyi Cantino (Godfrey's False Dragonhead). Family Lamiaceae (Mint Family). Godfrey and Wooten (1981) stated that this species inhabits bogs, wet pine flatwoods and savannahs, and adjacent ditches. It is often found in shallow water. It is endemic to the Florida Panhandle and is found in Liberty, Franklin, Gulf, and Bay Counties. Coile added Walton and Wakulla Counties to the range. Management recommendations were not located, but probably coincide with those for the species mentioned above. It blooms during the summer months.
Scutellaria floridana Chapman (Florida Skullcap). Lamiaceae (Mint Family). Chafin (2000) stated that this species inhabits wet pine flatwoods, grassy margins of cypress areas, seepage slopes, and transition zones between flatwoods and wetlands. It is endemic to the Apalachicola River lowlands in the Florida Panhandle. Kral (1983) and Coile (2000) stated that this species inhabits pine-palmetto flatwoods, savannahs, flatwoods, and grassy openings in Franklin, Liberty, and Gulf Counties, Florida. It was observed in 1997 in Bay County on Lathrop (specimen in BEST herbarium) and in 2001 on Lathrop during a trip with Dr. Ann Johnson of FNAI. Chafin (2000) recommended that fire be applied every 2 to 3 years during the growing season, and that soil disturbance or alteration of hydrology be avoided. Kral (1983) stated that the habitat of this species is maintained by periodic burns. Alteration of the habitat by mechanical means or alteration of the hydrology should be avoided. It blooms from April through July, but the specimen observed with Dr. Johnson was in bloom in October on Lathrop.

Verbesina chapmanii Coleman (Chapman's Crownbeard). Family Asteraceae (Aster Family). Godfrey and Wooten (1981) stated that this species inhabits bogs, seasonally wet pine savannahs and flatwoods, and grassy cypress depressions from Liberty and Franklin Counties, Florida westward to at least Walton County. Coile (2000) lists Bay, Franklin, Gulf, Liberty, Wakulla, Walton, and Washington Counties Florida as its range. It blooms from May through August. Management recommendations were not located.

Coelorhachis tuberculosus (Nash) Nash (Florida Jointtailgrass) = *Manisuris tuberculosa*. Family Poaceae (Grass Family). Godfrey and Wooten (1979) stated that this species inhabits borders of lakes, and the range of this species includes central Florida and south Alabama. Coile (2000) stated that this species occupies marshes and margins of ponds and lists its occurrence from a number of Florida counties including the Panhandle counties of Calhoun, Santa Rosa, and Washington Counties. It flowers in Spring and summer. This species was observed previously on Lathrop and a specimen is in the BEST herbarium. The specimen was examined and the identification confirmed by Dr. Loren Anderson of Florida State University. It was observed and the specimen collected in October 1997 along a depression in the open flatwoods area of Lathrop. Management recommendations were not located.

Linum westii Rogers (West's Flax). Family Linaceae (Flax Family). Chafin (2000) stated that this species inhabits wet flatwoods, depression ponds, edges of cypress swamps, and is endemic to northeast Florida and the Florida Panhandle. Coile (2000) lists this species from Baker,

Calhoun, Clay, Franklin, Gulf, Jackson, and Okaloosa Counties, Florida. Chafin (2000) recommends that wet flatwoods and associated wetlands be burned every 2 to 3 years, and that placing roads and fire breaks in wetland ecotones be avoided. Alteration of the natural hydrology should be avoided. Kral (1983) stated that this species is part of the savannah-bog community that thrives in full sun or partial shade, and that this species has been maintained through periodic flatwoods fires. Management of this species requires maintenance of undrained areas and undisturbed bog soils. It flowers in spring and summer (Wunderlin, 1997); June through August, (Coile, 2000); or May through July (Chafin, 2000).

This species was observed with Dr. Ann Johnson. The writer and Dr. Johnson observed that the leaves of the specimen examined in the field on Lathrop were opposite toward the base and alternate toward the inflorescence. The specimen from Lathrop that was pressed and placed in the BEST herbarium was identified as *Linum* cf. *floridanum* (Planch.) Trel., because the lower leaves were all alternate on the mature stem. It is possible that both species occur on Lathrop, because both occupy the same type of habitat. Additional searches for this species should be undertaken.

Xyris longisepala Kral (Kral's Yelloweyedgrass). Xyridaceae (Yelloweyed grass Family). Godfrey and Wooten (1981) stated that the habitat of this species is moist to wet sandy shores of limesink lakes and ponds in the Florida Panhandle and southeast Alabama. Wunderlin (1997), and Coile (2000) stated that the habitat of this species is margins of sandhill ponds. Coile (2000) listed its range as Bay, Gulf, Leon, Okaloosa, Walton, and Washington Counties, Florida. No management recommendations were located.

Because Lathrop does not appear to be a habitat type for this species, the mounted specimen of this species was re-examined and compared against the descriptions of *X. longisepala* and *Xyris smalliana* Nash in Godfrey and Wooten (1981). The identification of the specimen remains *X. longisepala* based on the lateral sepals being exserted, the keel of the lateral sepals not being jagged the entire length, and the shape and appearance of the heads and seeds. The specimen is available for examination and correction of the identification, if warranted. Additional searches for this species should be undertaken.

Nyssa ursina Small (bog tupelo). Family Nyssaceae (Sourgum Family). The taxonomy of this species is confusing. FNAI (2000) listed this species as S2. Godfrey (1988) treated ***N***. *ursina* as a synonym of *Nyssa sylvatica* variety *biflora*. He stated, occurring "in wet pinelands subject to periodic burning, having large subterranean bases and shrubby, multistemmed tops (*N. ursina* Small)." Wunderlin (1997) also treated *N. ursina* as a synonym of *N. sylvatica* variety *biflora*. The specimens identified as *N. ursina* were done so with Dr. Ann Johnson of FNAI. The specimens were all shrubby, with multistemmed tops. This species, as described above, occurs on periodically burned, wet pine flatwoods. Management recommendations were not located, but it appears that periodic burning is a part of the maintenance of this tree.

Hypericum exile Adams (Florida Sands St. John's-wort). Family Clusiaceae (Mangosteen Family according to Wunderlin, 1997 or St. John's-wort Family according to Godfrey, 1988). According to Godfrey (1988) this species inhabits pine savannahs and flatwoods usually where

soils remain water-saturated only for short periods, occasionally where wet for extended periods. The species is endemic to Liberty, Franklin, Gulf, Bay, and Washington Counties, Florida. It flowers from spring to summer. Management recommendations were not located. In a conversation with Dr. Loren Anderson, he stated that this species is not listed because of it's abundance on the Apalachicola National Forest.

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Appendix C

Prescribed Burn Plan

Prescribed Burn Plan for the Lathrop Bayou

Introduction

As indicated in the Lathrop Bayou Habitat Management Plan (HMP), the plant communities of the islands, collectively known as Lathrop Bayou, range from mesic longleaf/slash pine flatwoods to an open longleaf pine savanna. Frequent growing-season fires are an important component in maintaining optimum species diversity in these fire-dependent communities. Restoring Lathrop Bayou to a condition considered optimal for at-risk plant and animal species is the primary goal of the management plan. Prescribed fire is the most important management tool available to achieve this goal.

Historical records from St. Joe Timberland Company and several state agencies indicate that both natural and man-induced fire has been absent from the area for a minimum of 30-35 years. As a result, there has been increasing encroachment by slash pine, hardwoods and shrubs into the central longleaf/wiregrass zones of the two larger Lathrop islands. Fire exclusion also has reduced habitat quality for red-cockaded woodpeckers (RCW) and rare plants on the site. Additionally, the absence of fire has caused excessive accumulation of fuel, which has created favorable conditions for a catastrophic wildfire. A wildfire on the area would pose a significant extirpation risk for the RCW colony, as well as other sensitive species.

The following presents the general prescription and techniques that would be used to implement dormant season prescribed burns at Lathrop Bayou. The goals and objectives for implementing subsequent growing season prescribed burns are also provided. An example of a specific prescription (Florida Division of Forestry prescribed fire forms) is provided in this plan and techniques for implementing growing season burns would be developed by the partners later based on field conditions at that time. Specific operation plans meeting all BLM and state requirements and providing more details on work responsibilities, personnel and communication would be prepared and approved prior to each prescribed burn.

An environmental assessment would be prepared for future burns, if the prescription is substantially different from this plan. Site specific considerations would be addressed as amendments to both the burn plan and environmental assessment. Amendments would be attached to the burn plan and environmental assessment.

Dormant-Season Prescribed Fire Goals

The initial dormant season burn objective is to reduce fuel loads, so that a growing-season fire regime can be effectively implemented. A series of dormant-season burning will significantly reduce the amount of fuel, while minimizing scorch and mortality of mature pine, and avoiding impacts to RCW cavity trees and foraging area. A minimum of one to three dormant-season controlled burns will be necessary to reduce fuel loads sufficiently to safely shift to growing season burns. Growing season

burns will eventually be required to reduce the shrub layer and to remove encroaching hardwood and young pine. However, before growing season burning regimes can safely be initiated the amount and structure of fuel must first be modified. Prescribed burning will be one tool used to reduce fuel loads and the basal area of pine to 80 square feet per acre.

Dormant-Season Prescribed Fire Objectives

These goals collectively define the desired outcome resulting from a series of up to three dormant-season burns applied over a 3-6 year period.

1. To modify and promote fuel characteristics favorable for growing-season fire prescriptions while protecting mature pines and encouraging the expansion of herbaceous ground covers.

2. Reduce the height of mid-story fuels to an average of less than 3 feet over 80% of the islands. This goal would be met prior to shifting to growing season burns.

3. Achieve 75% mortality of slash pine (<15yrs old, 1-4 meters height) within the longleaf/wiregrass central core. Harvesting, girdling or other mechanical means will be used to remove older slash pines to meet the goal of 80 sq. ft. per acre of pine. (Action 3).

Dormant Season Fire Pre-Burn Preparations

1. Clearing of a 20' radius circle around all identified RCW cavity trees. These circles must be fuel free to assure fire does not 'ladder' up the cavity facing via exposed pine resin (Action 2). Clearing must not be injurious to root systems within the duff layer.

2. Cutting and/or girdling of slash pine as per Action 3. Emphasis should be placed on slash pines within and bounding the central longleaf pine/wiregrass core area prior to the first fuel reduction burn.

3. Monitor the rack line debris load and fuel moisture of the shoreline adjacent to needle grass marshes. Moisture in these areas must be high to prevent fire intrusion into adjacent marsh grass and to prevent fire from spreading to the mainland. Every effort will be made to initiate winter burns at or near high tide to provide additional protection. Firebreak options in the marsh are being explored with the National Marine Fisheries Service to identify the least intrusive method. This includes creating firebreaks during the burn only if needed and using a single pass in an airboat in the deepest portions of the marsh to create a temporary firebreak to protect Big Pine Island and the mainland from escaped fire.

4. Stage all equipment necessary to effectively apply and control the prescribed fires.

- Stage personnel *behind the fire line* with drip torches and portable water backpacks near needle grass marsh boundaries. This equipment will be essential to fire crew personnel charged with controlling small spot fires crossing into the marshes.
- Airboats, boats and/or low ground pressure tracked vehicle would serve as evacuation equipment should a marsh fire become uncontrollable by hand crews.
- Transport vehicle, tractor and fire-plow will be located on the mainland downwind of the fire. This equipment will be available on stand-by to stop the fire at the mainland if the needle-grass marsh ignites.
- Locate personnel in boats offshore to alert Incident Command to fire spotting issues.

Dormant Season Prescribed Fire Execution Plan

Firing technique

The initial burn will be conducted using a combination of hand and aerial ignition. The burn would begin with hand ignition that would establish a fire line at the southern edge of the burn area. Caution needs to be taken setting the initial backfire line to avoid igniting the needle rush marshes that interface the shoreline in some areas. Once a "black line" of 100 feet has been established, limited strip and flanking ignition in the slash pine-dominated outer ring would be conducted from a helicopter with a qualified agency representative onboard to direct the ignition. Strip fires would be spaced to protect mature pines from needle scorch resulting extreme flame heights and excessive heat.

The central core areas of each island are the most sensitive and need to be burned conservatively to ensure minimum flame heights and reduce the duration of the burn. Fires set by helicopter in the outer ring will be allowed to back through the central core areas from south to north. This part of the burn may be augmented with hand-ignition crews that could *conservatively set* flank and strip-head fires at the discretion of the fire boss to speed the progress of the fire line through the central core and reduce residence times of the flaming front. Aerial ignition would recommence as the fire line reaches the northern edge of the central core areas. The combined use of these techniques should allow the fire line to progress at 66 feet to 198 feet per hour. Backing fire duration should not be problematic with significant soil moisture levels.

Caution will need to be taken to avoid igniting the marshes on the southern side of the project area, which could result in carrying the fire out of the prescribed fire area. Firebreaks of temporarily flattened needle-grass created at the edge of the initial fire line would serve as the primary line of defense, if needed. Heavy fire fighting equipment also will be placed on the mainland on a standby basis. Should the marsh ignite and threaten the mainland, fire plows will be on stand-by to establish fire lines in slash pine plantations along the shoreline of the mainland areas.

Ignition Methods and Time of Burn

Ground crews will ignite the prescribed burns as a backing fire on the southern edge of the burn area. Aerial ignition via helicopter will be utilized after a "black line" of 100 feet minimum has been

established on the southern edge of the burn area. Aerial ignition will provide a “bird’s eye view” the fire line, providing for more accurate ignition. Aerial ignition also ensures that the fire line progresses effectively with minimum opportunity for flanking fires to become overly aggressive. The incident commander or his representative with voice communication capabilities with ground crews would direct aerial ignition from the helicopter.

On the day of the burn, ignition of a backing fire on the south end of the burn unit would begin as soon as prescription weather parameters are met and coinciding with the highest tide feasible. The burn is expected to be completed within eight to ten hours.

Command and Control, Personnel and Communication

Command and control and communication are important factors to maintain safety for fire crews working the fires. The command and control staging areas are located on the attached map. The fire boss or commander is responsible for and will give orders to all fire crews. Each crew will be assigned a section of Raffield Island that they will be responsible for the ignition, control and monitoring of the fire line. Each crew leader will have direct radio contact with the commander and other crew leaders. Each crew leader is responsible for giving fire orders to their crewmembers. Crew leaders must maintain voice or visual contact with their crewmembers.

The commander will evaluate weather conditions, fire behavior and crew leader information and prescribe fire orders to accommodate changing conditions. Other staffing includes a weather analyst and support specialist. The weather analyst will be stationed on one of the transport boats with necessary weather equipment and is responsible for monitoring weather conditions and relaying current information to the commander. The support specialist will be mobile via and ATV and is responsible for transporting fuel, food, beverages and other equipment requested by crew leaders. Both the weather analyst and support specialist will have direct radio contact with the commander and crew leaders.

Required Weather Conditions

The initial dormant season fuel reduction burns will be conducted during the months of November through February and within 1 to 2 days after passage of a strong cold front that has deposited a minimum of 1/4 inch of rain. The rainfall will provide the necessary soil and duff moisture to protect the close-surface root zone. North to northwest winds will be dry, yielding low humidity levels required to reduce fine fuel moisture to acceptable burn levels. The desired 20-foot wind speeds and directions are NE- N-NW at 5-12 MPH. The desired daytime high and night-time low temperatures following frontal passage are expected to range from 45-60 degrees and 30-45 degrees, respectively. The desired relative humidity is expected to range from 35-50% during the day to 80-100% during night. Initial ignition would be timed to coincide with the highest tide feasible.

Drought indexes for the region should be below 400 (scale of 1-800) and the Fire Readiness levels for the Florida Division of Forestry should be at 1 or 2 (scale of 1 to five). The dispersion index should be at least 40 during the day with an overnight DI of 6 forecasted for the night following the burns.

Smoke Management Concerns

Standard smoke screening techniques will be applied prior to initiating any prescribed fire at Lathrop Bayou. North to northwest winds will carry smoke produced by the fires to the south-southeast towards Mexico Beach, Beacon Hill and the Gulf of Mexico (see attached Smoke Management Map). Northeast winds will carry smoke over the east end of Tyndall AFB. Even with northeast winds, smoke should remain well east of the airfield on Tyndall's main base. Only one residence is located within the area potentially affected by smoke. The new home built by St. Joe for the HGTV raffle is located less than one mile due south of Lathrop Bayou. Several additional residences are located due east of Lathrop Bayou on the Allenton peninsula.

Higher dispersion indices, both daytime and overnight DIs, common after frontal passage are expected to carry smoke to safe altitude in the atmosphere. Overnight dispersion indices will need to be examined carefully prior to setting fire and pre-firing consultation with FL-DOF will need to be conducted. Law enforcement and fire agencies of local communities down wind of the area will be notified as will Tyndall AFB officials and county law enforcement.

There may be residual fire that may continue burning into the nighttime hours. Therefore, overnight dispersion indexes should be high (2 to 6). Given the distance of Lathrop Bayou from U.S. Highway 98, Mexico Beach (6 miles south) and Tyndall AFB active air fields (6 miles), adequate night-time dispersion indexes and distance of the burn area from these concerns should not result in smoke obstruction in these smoke-sensitive areas. However, as a precaution smoke signs will be placed in appropriate locations facing both the east and west bound lanes of Highway 98.

Desired Fire Behavior Parameters

- Flame lengths: Flame length of the backing fire should not exceed 6 feet. We base these lengths on subjective observations of ground story fuels (primarily wiregrass clumps) that are ankle to calf-deep. Laddering of fire into midstory shrubs and trees is expected to yield longer flame lengths, but should not be a problem with backing fires. Application of strip-head and flank fires should not yield flame lengths greater than 12-15 feet Strip heading and flanking through rough midstory should be avoided.

- Rate of spread: Desired rate of fire spread for backing fires augmented with *conservatively -set* flank and strip-head fires is 1 to 3 chains (66' to 198') per hour.

- Surface wind speed and direction: Winds north to northeast or northwest. 20-Foot wind speeds no greater than 12 mph. Avoid burning under 'Red Flag' conditions (20-Foot wind speeds > 15 mph sustained)

- Transport wind speed and direction: Transport winds north to northwest or north to northeast. Transport wind speeds no greater than 20 mph with mixing heights no lower than 3000 feet.

- Minimum Relative Humidity: Daytime humidity levels greater than 35%. Avoid burning under 'Red Flag' conditions (RH < 35%).

- Fine Fuel Moisture: Fine fuel moisture levels should range between 20% to 40%

Equipment Requirements

- 7 ICOM Radios with 7 back-up batteries
- NOMEX protective clothing, leather gloves, tools for each crew member
- 4 backpack water bags
- 12 drip torches
- two 50-gallon ignition-fuel tanks
- eight 5-gallon ignition-fuel transport buckets
- two 5-gallon fuel tanks for ATV
- 8 fire-rakes and flappers
- weather monitoring equipment
- 2 ATVs
- transport truck, tractor and fire-plow
- 2 pontoon boats or air boats
- Low ground pressure tracked vehicle
- food and beverages
- first-aid kit

Dormant Season Post-burn Evaluations

Post burn evaluations of the RCW cavity trees will be conducted within 24 hours. If a cavity tree is damaged enough to be considered uninhabitable it will be replaced within 24 hours, weather permitting, as close to the damaged tree as possible. General burn evaluations will be conducted within two weeks after the burn. Fuel reduction, scorch, potential tree mortality and root damage to pines will be evaluated and described. Fire behavior, smoke dispersion and command, control and communication functions also will be described and evaluated. In addition, the Lathrop Bayou HMP contains a monitoring program to assess the affects of the prescribed burn program on special status plants, vegetation structure and the red-cockaded woodpecker cluster.

Growing-Season Prescribed Fire Objectives

Once dormant season fire goals have been reached, the prescribed burn program will shift to a predominately growing season burn regime. The goal will be to reduce the overall coverage of shrubs, reducing competition and canopy to favor of herbaceous plant species. Some shrubs, including saw palmetto, tend to be especially persistent and are expected to require repeated growing season burns at short intervals to reduce underground reserves and to ultimately reduce the percentage of shrub coverage. The duration and frequency of growing season burns would be dependent on the response of vegetation to previous burns. Once the herbaceous cover has been re-established across most of Lathrop Bayou, the prescribed burn regime could be shifted to longer frequencies between burns, with occasional growing season burns. Longer fire intervals and the use of occasional dormant season burns would provide better opportunities for pine regeneration and could improve vigor in plant species not as specifically adapted to frequent fires as the higher profile federally listed plant species. Fire frequency and season would continue to be adapted based on vegetation response and the need to maintain suitable habitat endemic fire-adapted plants and for the hopefully expanding red-cockaded woodpecker population.

Growing-Season Prescribed Fire Objectives

1. To reduce the average percentage of shrub cover on Raffield and “Round Island” by 75%.

2. Keep fuel loads low enough to safely burn during the growing season without damaging mature pines during subsequent burns.

3. Utilize prescribed fire to reduce the number of stems of pine in areas where the basal area is over 80 sq. ft of acre.

Growing Season Fire Pre-Burn Preparations

Site preparations for growing season prescribed fires are expected to be similar to those applied during the dormant season burns. Aerial burns are expected to be utilized with a minimum of ground crews and equipment placed on the islands. Additional protective measures may be developed as needed, or as experience with prescribed fire at Lathrop Bayou dictates over the following years. In all cases, the operational burn plans would be developed cooperatively with partners and with review by the U.S. Fish and Wildlife Service and the State of Florida.

Excerpt from FL Open Burning Regulations pertaining to Required Prescription Elements and Nighttime (Nocturnal) Authorizations.

(a) Prescription: A prescription for the burn must be on site and available for inspection by a Department representative. The prescription will contain, as a minimum, the following:

1. Stand or Site Description;

2. Map of the area to be burned;

3. Personnel and equipment to be used on the prescribed burn;

4. Desired weather factors, including but not limited to surface wind speed and direction, transport wind speed and direction, minimum mixing height, minimum relative humidity, maximum temperature, and fine fuel moisture;

5. Desired fire Behavior Factors, such as type of burn technique, flame length, and rate of spread;

6. The time and date the prescription was prepared;

7. The authorization date and the time period of the authorization;

8. An evaluation and approval of the anticipated impact of the proposed burn on related smoke sensitive areas;

9. The signature and number of the Certified Prescribed Burn Manager.

(b) Open Burning Hours

1. Daytime Authorizations: will be issued for the burning to be conducted from 9:00 a.m. and the fire must discontinue spreading one hour after sunset.

2. Nighttime Authorizations: will be issued with a Dispersion Index of 6 or above for the burning to be conducted between one hour before sunset and 9:00 a.m. the following day. Ignition of these fires is authorized up to midnight, however the fire can continue to spread until 9:00 a.m. the following day. If additional time is required a new authorization (daytime) must be obtained from the Division. The Division may issue authorizations at other times, in designated areas, when the Division has determined that atmospheric conditions in the vicinity of the burn will allow good diffusion and dispersement of air pollutants, and the resulting smoke from the burn will not adversely impact critical smoke sensitive areas, e.g., highways, hospitals and airports.

SN 4461 FC5400-15

District: Chipola River District **Authorization # :**

Landowner: St. Joe Timberland Co. **Address:** 14500 School Drive, P.C. FL 32413

Telephone #: 234-2204 **Sections:** 22, 23, 26 **T:** 5S **R:** 12W **County:** Bay

Acres to Burn: Big Island - 378 acres, Little Island – 120 acres. **Distance to Plow:** NONE **Previous Burn Date:** NA – best estimate is1950s

Stand Description: 40 year slash pine, old growth long leaf central core area **Burn Compartment:** **Burn Area:**

Overstory Type: Slash and long leaf, some hardwoods. **Height to Bottom of Crown:** 15-20 feet central core, 20-30 feet outer slash pine areas

Understory Type: Very thick wire grass. Palmetto, gallberry, titi. Substantial midstory rough in some areas of the slash pine areas ringing the central core

Fuel Description: Type III fuels in central core **Topography and Soil:** Flat with interspersed creeks and isolated depressions

Purpose of Burn: Fuel reduction and Timber Stand/Wildlife Habitat improvement

Burn Objectives: Reduce fine fuel and mid-story fuel loads by 75% with 1-3 dormant season (winter) burns; reduce slash pine intrusion in central core old growth longleaf areas Reduce by 75% the midstory shrub and hardwood component – goal is improved habitat for RCW clusters on site. Return regular fire regimes to the area to improve native plant diversity which includes several rare and listed plant species.

Firing Techniques & Ignition Methods: Aerial ignition in outer ring areas, hand-set by drip torch, 60/40 fuel, in central core areas as directed by the Burn Boss. Set backing fire initially (100 ft. blackline) then augment with conservatively set strip head fires, or flank fires.

Season: Winter, dormant season burns until fuel reduction allows for switch to growing season regimes.

Personnel Needs:	Equipment Needs:
Maximum Crown Scorch Acceptable: 50% slash, 20 % longleaf. Passed Smoke Screening System: See Map: Possible sensitive areas within 6 miles	
Listed Possible Smoke-Sensitive Areas: Mexico bch/Hwy 98 six miles south of burn area, Tyndall AFB to WSW, air approach lanes 8 miles south	
Special Precautions: Notify F-DOF and Tyndall AFB officials 24-48hrs before initiating burn. Pre-burn Consultation meeting with all cooperators	
Adjacent Landowners to Notify: HGTV home owner. Tyndall AFB, Mexico Beach police and fire agencies. Notify all MOU cooperators	

MONITORING & EVALUATION PROCEDURES

PRE-BURN	BURN	POST BURN
Minimum ¼ inch of rain within 1-2 days Avoid Red Flag Conditions. Need adequate overnight dispersion indices.	Small Island: N to NW winds Big (Raffield) Island: N to NE winds	Watch for deteriorating overnight dispersion leading to low-lying smoke/fog on Hwy 98.

WEATHER FACTORS	PREFERRED	ACTUAL
Surface Winds (20-ft)	5-12 MPH, 1-4 MPH overnight	
Transport Winds	10–15 MPH, 2-6 MPH overnight	
Minimum Mixing Height	2500 feet	
Dispersion Index (DAY)	40 to 60	
Dispersion Index (NIGHT)	4-8 – Consult with FDOF	
Maximum Temperature	60 degrees F., 55 overnight	
Minimum Relative Humidity	35% - Avoid Red Flag	
Fine Fuel Moisture	Damp – 20 to 40%	
Rate of Spread	1-3 chains per hour	
Starting Time	9:30 – 10:00 AM	
Burn Technique	Back Fire PRIMARILY, some Strip,	
Flame Length	6 – 15 feet, depending on Fuel	
Days Since Rain:	Maximum of 2 days	
Burn Manager:	Date Burned:	

PRE-BURN CHECKLIST

FIRE BOSS: Initial each item to indicate compliance.

- ❑ All prescription requisites met (preparation and day of burn).
- ❑ Authorization obtained.
- ❑ Adjacent landowners notified within past seven days of plan to burn.
- ❑ Local contacts made day of burn to advise (FHP, SO, Fire Dept., media, etc.)
- ❑ Smoke screening performed and documented.
- ❑ All equipment required on scene and fully operational.
- ❑ Each crew member has proper personal gear and clothing

CREW BRIEFING

- ❑ Objectives of burn.
- ❑ Exact area of burn.
- ❑ Hazards discussed (volatile fuels, spotting potential, weak points in perimeter lines, terrain features, etc.)
- ❑ Crew Assignments made.
- ❑ Ignition technique and pattern. Holding method(s).
- ❑ Location of extra equipment, fuel, water, vehicle keys.
- ❑ Authority and communications.
- ❑ Contingencies covered including escape routes or procedures.
- ❑ Sources of nearest assistance. Nearest phone and emergency numbers.
- ❑ Special instructions regarding smoke management, contact with the public and others.
- ❑ Questions.
- ❑ Crew members given opportunity to decline participation (is there anything that is going to prevent full physical performance?).

Prescription Done by:	Certification number:
Title:	Date:
CERTIFIED BURN MANAGER SIGNATURE:	

Appendix D

Environmental Assessment

FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the attached Environmental Assessment (EA) No: ES-020-03-29 prepared by the Bureau of Land Management for the Final Lathrop Bayou Habitat Management Plan (HMP). The tract is located in eastern Bay County, Florida (Township 5 South, Range 12 West, portions of sections 15, 22, 23, and 27). Based on the analysis of potential environmental impacts that could result from implementing the Final HMP, I have determined that the proposed action is not expected to have a significant impact on the human environment. Therefore, an Environmental Impact Statement is not required.

Prepared by:

_____ _____

Wildlife Biologist — Date
Jackson Field Office
Eastern States
Bureau of Land Management

Reviewed by:

_____ _____

Environmental Coordinator — Date
Jackson Field Office
Eastern States
Bureau of Land Management

Approved by:

_____ _____

Field Office Manager — Date
Jackson Field Manager
Eastern States
Bureau of Land Management

ENVIRONMENTAL ASSESSMENT
(No: ES-020-03-29)

FOR THE
LATHROP BAYOU
HABITAT MANAGEMENT PLAN

BUREAU OF LAND MANAGEMENT
JACKSON FIELD OFFICE
411 BRIARWOOD DRIVE, SUITE 404
JACKSON, MISSISSIPPI 39206

ENVIRONMENTAL ASSESSMENT
Prepared by

BUREAU OF LAND MANAGEMENT, JACKSON FIELD OFFICE
411 BRIARWOOD DRIVE, SUITE 404, JACKSON, MISSISSIPPI 39206

Title: Final Lathrop Bayou Habitat Management Plan

Location: Township 5 South, Range 12 West, portions of Sections 15, 22, 23 and 27. See Lathrop Bayou Habitat Management Plan for all referenced maps.

Action: Habitat Management Plan

EA Number: ES-020-03-29

Date: September 2003

I. INTRODUCTION

The Lathrop Bayou Habitat Management Plan (HMP) addresses the management of 189 acres of public domain land at the east end of East Bay in Bay County, Florida. General and specific location maps are available in the attached Habitat Management Plan. The HMP describes habitat improvement measures, population management and monitoring of federally and state-listed plant and animal species occurring at Lathrop Bayou, as well as the management of at risk habitats supporting these species. The plan includes a prescribed burn plan to improve habitat conditions and to reduce the risk of a catastrophic wildland fire in this long unburned pine flatwood/savanna. The plan also provides the framework to implementation of the Land Stewardship Memorandum of Understanding signed on December 20, 2002 between federal, state and private partners to collaboratively manage additional acreage at Lathrop Bayou and Wetappo Creek for the benefit of special status plants and animals.

II. PURPOSE AND NEED

The actions described in the HMP and analyzed in this document were developed to implement the land use and resource decisions made by the Eastern States Jackson Field Office in the Florida Resource Management Plan (RMP), signed on June 21, 1995. The RMP Final Environmental Impact Statement (RMP-EIS) prepared for the Florida Resource Management Plan provides an analysis of a broad range of management alternatives, issues and impacts considered in the BLM's management of public domain land and minerals in the State of Florida. This HMP identifies the actions for the management of public land at Lathrop Bayou. However, it will be coordinated with similar efforts to manage an additional 350 acres of adjacent private lands at Lathrop Bayou, as well as 926 acres of St. Joe Timberland property at Wetappo Creek in Gulf County. The partners include St. Joe Timberland Company and Genecov Group, as well as the U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission.

A copy of the Land Stewardship Memorandum of Understanding is included in the HMP Appendix A.

III. CONFORMANCE AND APPLICABLE LAND USE PLANS

Management objectives and land-use allocations were established for the Lathrop Bayou tract in the *Florida Proposed Resource Management Plan and Final Environmental Impact Statement* (1995 RMP). Impact identification and analysis was conducted for the land use planning performed for this tract. Impact identification and analysis, in this EA, addresses the impacts (and mitigation) of implementing the actions outlined in the Lathrop Bayou Habitat Management Plan.

As required in 43 Code of Federal Regulations (CFR) 1610.5, the proposed action was reviewed to determine if it complies with the land use decisions in the 1995 RMP. The planned actions comply with the decisions made in the RMP. As per the RMP, the Jackson Field Office is responsible for completing and implementing a habitat management plan for the Lathrop Bayou tract ((page 12) BLM, 1995).

IV. PROPOSED ACTIONS AND ALTERNATIVES

Proposed Action

The reintroduction of fire is the primary management tool proposed in the HMP. The goal would be to reduce the fuel load at Lathrop Bayou sufficiently to allow for the implementation of growing season burns. Under the proposed plan up to three non-growing season burns would be conducted across the entire Raffield Island and "Round Island" to the south. Burns are expected to take place during January or February. The number of non-growing season burns and the burn interval would be adapted in the effectiveness of the burns and the response of the vegetation. Once the vegetation fuel load has been reduced and the shrub layer on 80% of the island is less that 1 meter tall, the burns may be shifted to the growing season. In combination, some selective hand cutting would be used to begin to reduce the amount of slash pine in dense stands to approximately 80 square feet basal area of pine per acre. Big and Little Pine Island would be excluded from the prescribed burn program and would be protected by firebreaks at least 1000 feet east of these islands.

The dormant season prescribed burn(s) would be conducted with north to northwest winds between 5-12 mph. The prescription would require that the burn be initiated after a cold front has delivered enough rain to completely saturate the soils at Lathrop Bayou. The winter north to northwest winds tend to be relatively stable, giving the most reliable window to complete the burn. All homeowners within 3 miles of Lathrop Bayou would be notified of upcoming burns well in advance, and given the option for 24-hour notice prior to the burn.

Initial dormant season prescribed burns would be ignited and controlled primarily from the air using a helicopter directed by on-board BLM/St. Joe personnel with visual support from the ground/water. The initial burn would be conducted with a predominantly backing fire, augmented with limited strip-head and flanking fire application. Red-cockaded woodpecker cavity trees would be protected by burning when soils are saturated, to protect surface roots of pine trees and by removing all fuels within a 20-foot radius of all red-cockaded woodpecker cavity trees. Backfires will be set on the south shoreline of the burn areas. Limited strip-head fires can be used to catch lagging back fires up with the rest of the backfire line. Flanking fires can be used at the discretion of the fire boss to speed the progress of fire through sensitive areas to reduce duration times of fire. Ground crews could be used for initial ignition and added control through the red-cockaded woodpecker cluster. The initial non-growing season burns are expected to be completed within 8 hours.

After the fuel loads have been sufficiently reduced (shrub layer reduced below 3 meters), the prescribed burns would be shifted to the growing season. Frequent growing season burns would be required initially to reduce the overall abundance and cover of shrubs on Raffield Island and "Round Island". Once the shrub layer has been reduced in favor of herbaceous cover, the burn schedule would be adapted based on monitoring the response of the special status plants and the need to optimize habitat for the red-cockaded woodpecker. This may include occasional dormant season burns and longer burn intervals. The goal would be to optimize habitat conditions for the endemic special status plants found at Lathrop Bayou, as well as nesting and foraging habitat for red-cockaded woodpecker.

The burn plan in the HMP Appendix C provides additional detail on the prescribed burn program, which is incorporated into the Proposed Action. Pertinent portions include the following excerpts.

The following goals collectively define the desired outcome resulting from a series of up to three dormant-season burns applied over a 3-6 year period.

4. To modify and promote fuel characteristics favorable for growing-season fire prescriptions while protecting mature pines and encouraging the expansion of herbaceous ground covers.

5. Reduce the height of mid-story fuels to an average of less than 3 meters over 80% of the islands. This goal would be met prior to shifting to growing season burns.

6. Achieve 75% mortality of slash pine (<15 yrs old, 1-4 meters height) within the longleaf/wiregrass central core. Harvesting, girdling or other mechanical means will be used to remove older slash pines to meet the goal of 80 sq. feet of basal area per acre.

7. Create a firebreak between Lathrop Bayou and the mainland.

Dormant Season Fire Pre-Burn Preparations

5. Clearing of a 20-foot radius circle around all identified RCW cavity trees. These circles must be fuel free to assure fire does not 'ladder' up the cavity facing via exposed pine resin. Clearing must not be injurious to root systems within the duff layer.

6. Cutting and/or girdling of slash pine. Emphasis should be placed on slash pines within and bounding the central longleaf pine/wiregrass core area prior to the first fuel reduction burn.

3 Monitor the rack line debris load and fuel moisture of the shoreline adjacent to needle grass marshes. Moisture in these areas must be high to prevent fire intrusion into adjacent marsh grass and to prevent fire from spreading to the mainland. Every effort will be made to initiate winter burns at or near high tide to provide additional protection. Firebreak options in the marsh are being explored with the National Marine Fisheries Service to identify the least intrusive methods. This includes creating firebreaks during the burn only if needed, and using a single pass in an airboat in the deepest portions of the marsh to create a temporary firebreak to protect Big Pine Island and the mainland from escaped fire.

4. Stage all equipment necessary to effectively apply and control the prescribed fires.

- Stage personnel *behind the fire line* with drip torches and portable water backpacks near needle grass marsh boundaries. This equipment will be essential to fire crew personnel charged with controlling small spot fires crossing into the marshes.
- Airboats, boats and/or low ground pressure tracked vehicle would serve as evacuation equipment should a marsh fire become uncontrollable by hand crews.
- Transport vehicle, tractor and fire-plow will be located on the mainland downwind of the fire. This equipment will be available on stand-by to stop the fire at the mainland if the needle-grass marsh ignites.
- Locate personnel in boats offshore to alert Incident Command to fire spotting issues.

Dormant Season Prescribed Fire Execution Plan

Firing technique

The initial burn will be conducted using a combination of hand and aerial ignition. The burn would begin with hand ignition that would establish a fire line at the southern edge of the burn area. The bulk of the ignition would be conducted from a helicopter with either BLM or St. Joe Timberland personnel on board directing the ignition with communication from ground crews.

Desired Fire Behavior Parameters

- Flame lengths: Flame length of the backing fire should not exceed 6 feet. We base these lengths on subjective observations of ground story fuels (primarily wiregrass clumps) that are ankle to calf-deep. Laddering of fire into midstory shrubs and trees is expected to yield longer flame lengths, but should not be a problem with backing fires. Application of strip-head and flank fires should not yield flame lengths greater than 12-15 feet Strip heading and flanking through rough midstory should be avoided.

- Rate of spread: Desired rate of fire spread for backing fires augmented with *conservatively -set* flank and strip-head fires is 1 to 3 chains (66 feet to 198 feet) per hour.

- Surface wind speed and direction: Winds north to northwest or north to northeast. 20-Foot wind speeds no greater than 12 mph. Avoid burning under 'Red Flag' conditions (20-Foot wind speeds > 15 mph sustained)

- Transport wind speed and direction: Transport winds north to northwest or north to northeast. Transport wind speeds no greater than 20 mph with mixing heights no lower than 3000 feet.

- Minimum Relative Humidity: Daytime humidity levels greater than 35%. Avoid burning under 'Red Flag' conditions (RH < 35%).

- Fine Fuel Moisture: Fine fuel moisture levels should range between 20% to 40%

Other Planned Actions

Monitor special status plant populations and plant community to assess effectiveness of prescribed burn and thinning actions.

All known RCW at Lathrop Bayou are currently banded. Banding efforts will continue annually to band any young of the year between 5 to 10 days of age and all unbanded adults. Monitoring of this population on public and private land at Lathrop Bayou will be conducted at Level IVb as described in the Final RCW Recovery Plan, Revised (FWS, 2003).

Annual monitoring will be conducted of all cavity trees to determine status, health, new excavations, cavity enlargement, and encroachment by hardwoods, as per the Final RCW Recovery Plan, Revised (FWS, 2003).

Establish at least three breeding groups of RCW at Lathrop within five years.

Install two recruitment clusters with at least 4 cavities each (one on Raffield Island and one "Round Island"). Specific locations and scheduling of installation would depend on RCW population, cluster monitoring and availability of suitable trees. Each recruitment cluster would be installed

only after population and cluster monitoring indicates the cluster could be occupied within one year, and after habitat has been restored to "good" condition as described in the Recovery Standard section of the Final RCW Recovery Plan, Revised (FWS, 2003).

Pursue options to augment the Lathrop Bayou RCW population, as needed to balance sex ratios and to promote genetic diversity. Options include receiving excess RCWs from Wetappo Creek and/or trading non-breeding RCWs from Lathrop Bayou for RCWs from Eglin Air Force Base or Apalachicola National Forest.

Conduct aerial and ground surveys for RCW in the vicinity of Lathrop Bayou and Wetappo Creek. All RCW inventory flights will be required to stay a minimum of 1,000 horizontal feet and 500 vertical feet from bald eagle nest(s) during the nesting season (October 1 through May 15). Aerial surveys would be conducted of St. Joe property along Wetappo Creek and other older growth corridors, which could harbor relic trees. If suitable habitat or evidence of cavity trees were located aerially, ground searches would be conducted to document the presence or absence of RCW. In addition, coordination with Tyndall Air Force Base has been initiated to document any foraging banded RCWs at that installation.

Conduct baseline surveys of reptiles and amphibians, including gopher tortoise and flatwoods salamander, after the first non-growing season burn and before the first growing season burn. If any rare species of reptiles and amphibians are found to occur, then subsequent monitoring will be conducted to assess the species' response to the prescribed burn program.

Monitor representative or sensitive species of reptiles and amphibians annually.

To augment ongoing monitoring of nest activity by the Florida Fish and Wildlife Conservation Commission, begin monitoring the eagle nest annually to assess fledgling success.

Action: Remove camphor trees within one year of plan approval. Camphor trees will be killed in place with a basal bark treatment of Garlon 3. This herbicide is water-based and because Tricylopr, the active ingredient, has negligible root activity and breaks down quickly (half life of 10 to 46 days), it has little potential for causing non-target damage through root absorption when carefully applied. Any herbicides used, would be applied at rates at or below those indicated on the label and would be applied consistent with all other label directions.

Any other exotic plant species identified on the tract would be removed within six months of detection.

Adopt and implement the following Special Rules for the public domain lands at Lathrop Bayou:

1. Lathrop Bayou is closed to all vehicles, including all terrain vehicles, unless the use is specifically authorized by BLM.
2. No overnight camping or campfires are permitted at Lathrop Bayou.

3. No plant material will be removed or collected, unless authorized by BLM.

4. Visitors are required to carry out their litter/trash.

Install signs at key landing sites/access points at Lathrop Bayou. The sign will identify the area, its protected status, management partners and rules.

Establish law enforcement agreements with local entities of the Florida Fish and Wildlife Conservation Commission and the U.S. Fish and Wildlife Service to authorize local law enforcement at Lathrop Bayou.

BLM will prepare a plan amendment to the Florida Resource Management Plan (1995) to designate the public domain land at Lathrop Bayou as an Area of Critical Environmental Concern (ACEC) within six months of plan approval.

The No Action Alternative

Under this Alternative, the Lathrop Bayou HMP would not be approved or implemented. Although the following on-going management policies described in the Land-Use Allocations of the Florida RMP would remain in effect (BLM, 1995), no specific proactive steps would be taken to implement them.

1. The Lathrop Bayou tract will be administered as a wildlife habitat management area.

2. The tract will be available for cooperative management with other government agencies and/or private organizations.

3. The tract will be retained in public ownership and will not be available for disposal through Recreation and Public Purposes Act conveyance, sale, or exchange.

4. Management actions will conform to Recreation Opportunity Spectrum Class objectives for Primitive use.

5. The tract will be closed to motorized vehicles.

6. The tract will be seasonally closed to public entry from October 1 through May 30 to protect sensitive wildlife habitat.

7. Management actions will conform to Class II of Visual Resource Management objectives.

8. The tract will be classified as an avoidance area for rights-of-way.

9. The tract will be closed to mineral leasing and sales to protect sensitive wildlife habitat.

BLM staff would continue to work with the federal and state agencies and private landowners in conducting inventories and monitoring of special status species. However, pro-active steps including the prescribed burn program, signing and removal of exotic species would not be implemented. BLM would not implement its part of the Land Stewardship Memorandum of Understanding on public domain land, however participating partners could implement the agreement on private land.

Alternatives Considered But Withdrawn From Consideration

Ground Ignition Prescribed Burn

Under this alternative, the season, frequency and prescription would be the same as in the Proposed Action discussed above. However, the initial dormant season prescribed burns would be ignited and controlled with three to five crews on foot and ATVs. The initial burn would be conducted using predominantly backing fire, augmented with limited strip-head and flanking fire application. Backfires will be set on the south shoreline of the burn areas. Limited strip-head fires can be used to catch lagging back fires up with the rest of the backfire line. Flanking fires can be used at the discretion of the fire boss to speed the progress of fire through sensitive areas to reduce duration times of fire. Conducting a largely backing fire through the burn areas would require at least two 8-10 hour shifts.

Concern for the crew safety and the extended length of time needed to complete the burn resulted in this alternative being dropped from consideration. Although Raffield Island and “Round Island” are flat, they are both difficult to traverse quickly on foot because of the dense wiregrass hummocks in some areas, and the dense shrub layers in others. Travel by ATV is complicated by old stumps obscured by vegetation, and by dense stands of trees and shrubs. Without a system of escape routes, ground crews, particularly in the center of the island, would be at risk from wind shifts, aggressive flanking fires, etc. The long hours needed for hand ignition would require at least two shifts of ground crews, likely doubling the cost of the burn. In addition, the extended window of time needed to conduct a hand ignited burn would increase the chance for critical weather parameters to change. Shifts in wind, humidity and the smoke dispersion index could place the fire outside of the approved burn prescription, endangering crews, critical resources and timberlands on the mainland.

V. Affected Environment

An aerial photograph taken of the Lathrop Bayou area in 1941 indicates a landscape that had been logged and maintained by regular fire. Given the evidence of cattle trails on the island, it would have been typical for the area to have been burned frequently to encourage more palatable new growth of the extensive wiregrass stand. That fire regime was apparently discontinued during the 1940’s when the bulk of the current slash pine became established. Since that time there is scant evidence of regular fire at Lathrop Bayou. In its absence, a dense stand of slash

pine has become established, primarily in the mesic flatwoods on the perimeter of Raffield Island at Lathrop Bayou. Within this area, a dense overstory and midstory has also developed. The herbaceous layer has been all but eliminated under these thick canopies. Currently only the center portion of Raffield Island retains the open savanna character evident in the 1941 picture. However in the last five to seven years young slash pine are also becoming increasingly more numerous even in this area.

Climate and Air Quality

According to the Southeast Regional Climate Center the average high temperature in nearby Panama City from 1972 – 2000 was 77.8 degrees. The average low temperature was 55.9 degrees. Average annual rainfall was 65.1 inches, with the highest average precipitation falling from June through August and the lowest average precipitation from April to May and October through December. Data collected between 1986 and 1995 illustrates that lightning strikes in this area of the Panhandle were most frequent during July and August, averaging 3 per square kilometer annually, with 1 per square kilometer during May, June and September (Hodanish et. al., 1997).

As a peninsula, Florida receives breezes from both the Gulf of Mexico and Atlantic Ocean. During the winter months in northern Florida these breezes and the prevailing winds typically come from the north. Winds come from the east, southeast and northeast are more common during the transitional months in fall and early spring. In the summer months, winds generally come from the south, southeast and southwest.

Air quality in Bay County is generally good. The Environmental Protection Agency (EPA) has designated the area as an “attainment area” where air pollution levels are below the minimum limits set by the EPA for six pollutants. These include nitrogen dioxide, sulphur dioxide, carbon monoxide, particulate matter less than 10 microns in diameter, lead and ozone. There are three industrial point sources for air pollutants in Bay County including Lansing Smith Power Plant, Stone Container and Arizona Chemical. Details are available in a report by the U.S. Fish and Wildlife Service, “Comments on Air Emission Reports for Three Major Air Pollutant Emitting Facilities Bay County, Florida” published in 1999 (USFWS, 1999). In general, however East Bay, where Lathrop Bayou is located, is largely an unindustrialized area dominated by commercial timberland and Tyndall Air Force Base.

Because the vast majority of area surrounding Lathrop Bayou is commercial timberland there are relatively few smoke management issues related to prescribed burning. Within five miles the following areas would be taken into consideration for smoke management: Tyndall Air Force Base runways, US Highway 98 and residences in the Allenton/Murray Bayou area, Sandy Creek residence, and a new home on St. Joe property immediately south of Lathrop Bayou. The Tyndall Air Force Base and US Highway 98 are approximately 4 miles southwest of Lathrop Bayou, the residence on Sandy Creek is approximately 2.5 miles north of Lathrop, Allenton is

approximately 1.5 mile west of Lathrop Bayou, and the new residence on St. Joe property is located 1 mile due south of Lathrop Bayou.

Soils

According to the U.S. Soil Conservation Service (1984) the soils at Lathrop Bayou grade from Leon sand on the north and east to Oiser fine sand on the southern half of Raffield Island. The "Round Island" south of Raffield Island is mapped as Rains sand. All of these soils are poorly drained due to a high water table and are susceptible to seasonal ponding.

Leon sands typically have a water table within 10 inches of the surface for 1 to 4 months and depth of 10 inches to 40 inches for about 9 months in most years. Permeability is rapid in the surface and subsurface sands, and moderate to moderately rapid in the subsoil.

Oiser fine sands typically have a water table within a depth of 10 inches for 3 to 6 months a year. Most depressional areas are ponded for 2 to 4 months a year. Permeability is rapid, but internal drainage is very slow because of the high water table. Natural fertility and organic matter are moderate in the top 6 inches and low below that depth.

Rains sand typically have a water table of less than 10 inches for 2 to 6 months during most years. Natural fertility and organic matter are generally low.

Bayvi loamy sands support the needlerush marshes surrounding Lathrop Bayou. These soils have a low natural fertility. Organic matter is high on the surface and low in the lower areas. These areas are typically ponded 6 to 12 months of the year.

Water Quality, Surface and Ground

There are no known springs or identifiable seeps of fresh surface water on Raffield Island. Given the very flat topography and high water table, the soils are often saturated during the winter months, particularly in the center of Raffield Island.

There are two water quality sampling stations in the vicinity of Lathrop Bayou monitored by the Florida Department of Agriculture and Consumer Services to assess a variety of parameters for the shellfish harvesting. Shellfish harvesting in the conditionally approved area is temporarily closed after a four-day cumulative rainfall of 0.53 inches as measured at Tyndall Air Force Base, or a creek stage of 2.00 feet measured at Wetappo Creek. These temporary closures are required due to the increase in fecal coliform levels that result after precipitation.

Biological Resources

For descriptions of the vegetation, wildlife, special status species and other biological resources, please see these sections in the attached HMP

Native American Religious Concerns

Native Americans were contacted. Part of the tract has been surveyed, and no sites of Native American religious use were found. Also, there is no currently known use of the tract by Native Americans for religious purposes.

Cultural Resources

Fifty acres of the tract have been surveyed for cultural resources. No evidence of prehistoric use was located. However, a historic site was located, and dated no earlier than 1935 and no later than 1955. The site was determined to be associated with the turpentine industry. Features on the site include a house site with a collapsed brick chimney, an animal pen made of planks, fences of wooden posts and barbed wire, and dense scatters of mostly gallon-size, glass containers. The site is probably not eligible for listing on the National Register of Historic Places

Minerals

Although the Lathrop Bayou tract is within an area classified as having moderate potential for oil and gas development, there is no oil or gas production in either Bay or adjacent Gulf counties.

There is no potential for hard rock minerals in this area and given the resource values and remote location the site is not suitable for discretionary use for saleable material such as sand and gravel.

The Florida Resource Management Plan closed the tract to mineral leasing and sales.

Recreation and Visual Resources

Recreational use of the public domain at Lathrop Bayou has been sporadic and diffuse. The remote location and lack of vehicle access limits public access. The closest public recreational facility is the county managed boat launch on Sandy Creek, approximately 5 miles north of Lathrop Bayou. The waters surrounding Lathrop Bayou are used for recreational fishing, crab harvesting, and boating. The Intracoastal Waterway skirts just to the north of Lathrop Bayou to the mouth of Wetappo Creek.

The Lathrop Bayou is in a Visual Resource Management Class II, where the management objective is to retain the existing character of the landscape. To meet this objective, the level of change to the characteristic landscape should be low.

VI. ANTICIPATED IMPACTS

Proposed Action

Air Quality

North to northwest winds would carry smoke towards Mexico Beach and the Gulf of Mexico located five miles south of Lathrop Bayou. However the higher dispersion indices common after a frontal passage are expected to carry smoke well above the Mexico Beach community. Tyndall Air Force Base is located 1.5 miles southwest of Lathrop Bayou, however airfields actively used to land planes, are located approximately six miles west of Lathrop Bayou. The only portions of Tyndall Air Force Base that could potentially be affected by smoke are timberlands that are located southwest of the prescribed burn area.

There are very few homes near Lathrop Bayou. A new home was completed on East Bay in 2003, on the mainland approximately one mile due south of Lathrop Bayou. There are also several homes and buildings on the Allanton peninsula west of Lathrop Bayou. The burn will be visible from these residences. The homes on the Allanton peninsula are not expected to experience any smoke related issues given the north to northwest wind directions required in the burn prescription. The single home south of Lathrop Bayou could experience residual smoke, particularly if smoke dispersion rates drop during the burn. All homeowners within 3 miles of Lathrop Bayou would be notified of upcoming burns well in advance, and given the option for 24-hour notice prior to the burn.

Overall, air quality impacts should be minimal and would be short-term. Smoke from the burns would be generated for approximately 8 hours no more than once a year. Some residual smoke may linger in the local area through the nights following each burn. There are no long-term impacts to air quality as a result of implementing the prescribed burn plan.

Soils

Burning affects soils by releasing nutrients and raising the soil pH. Mobilized nutrients are available to be taken up by vegetation, particularly during the growing season. The season of burn has not been found to alter the combined nitrogen pool of the forest floor and soil (McKee, 1982). Under this alternative, soil disturbance and compaction would be minimized by the use of predominately aerial ignition.

Constructing the temporary firebreaks with airboats in the marsh would flatten vegetation, but is not expected to result in long-term soil compaction of these areas.

Given the flat topography, lack of soil disturbance, and preponderance of deeply rooted fire-adapted plants, no impacts to the surrounding East Bay are expected.

There are no long-term adverse impacts to soils. Some limited long-term benefit would be realized by excluding unauthorized vehicles from Lathrop Bayou. Because of the long periods of saturated and wet soil, Lathrop Bayou would be particularly vulnerable to soil compaction and rutting from repeated vehicle use. Although the current public use levels are very low, precluding this use protects these wet soils from future vehicle related disturbances.

Vegetation

The dormant season burns are expected to be effective at killing most young slash pine (<3 inches dbh) at Lathrop Bayou and would remove most of the above ground biomass in both the herbaceous and shrub layers. Impacts to the herbaceous and shrub layers from individual burns are expected to be short-term. The herbaceous layer is expected to resprout vigorously, reaching pre-burn height within the following growing season. The shrub layer is also expected to resprout rapidly also without a change in overall community composition. The shrub layer is expected to regrow to a height of 3 feet within one to two growing seasons. Growing season burns at frequent intervals (at least every 2 years) would be required to reduce the occurrence of particularly robust shrubs, such as saw palmetto, yaupon and wax myrtle. In addition to prescribed burning, mechanical manipulation would occur with the use of hand cutting/girdling to kill crowded slash pine to reach a basal area of 80 sq. feet of pine basal area per acre. Girdled trees would be left in place to blow over naturally. Cut trees would be felled and left in place. Work related to pine thinning would be scheduled as crews and funding are available.

Given the heavy fuel loads, an estimated 90 percent of the prescribed burn areas (Raffield Island and “Round Island”) are expected to burn. Depending on the location and size of unburned areas, ground crews may have to set additional spot fires to reach that 90 percent burn coverage. Subsequent aerial ignited burns are expected to burn at least 85 percent of the islands.

Long-term impacts to vegetation from implementation of the prescribed burn program would depend on the frequency and timing of the burns and the duration of the program. In general, the initial dormant season burns would reduce the vegetation fuel load, reduce shrub height and encourage growth in herbaceous plants. Subsequent growing season burns would, over years, increase the area dominated by herbaceous plants and decrease the shrub component in the burn areas. Burn schedules would be adjusted to allow for pine regeneration, after the shrub layer has been reduced. The burn schedule would be adapted as needed to meet goals and objectives in the Lathrop Bayou HMP, which would eventually alter the vegetation structure at Lathrop Bayou, thinning dense stands of slash pine to 80 sq. feet of pine basal area per acre, encouraging longleaf pine regeneration, reducing shrub coverage and increasing the area dominated by herbaceous cover. These burn objectives would benefit virtually all of the special status plants recorded at Lathrop Bayou. All of these species are expected to benefit from decreased competition, reduced shading.

Impacts to the needle rush marsh, as a result of firebreak creation, are expected to be dependent on the location, depth of water and the time of year. In discussions with Mark Thompson, of National Marine Fisheries in Panama City, there was concern that the marsh would be slow to recover. Heavy thatch could preclude rapid regeneration of the marsh, which must resprout from base of the plants. Although the length of time is likely dependent on the amount of thatch laid down and the time of year, Ken McCain, with Lower Suwannee National Wildlife Refuge, who has experience burning in needle rush marsh, felt it would be six months to a year or even more before the marsh recovered to pre-disturbance levels. He also stated that given the time of year, that at high tide it is unlikely the marsh would ignite, negating the need for a firebreak.

Special Status Plants

All of the special status plants recorded at Lathrop Bayou are considered to be fire dependent and are expected to benefit from implementation of a prescribed burn program at Lathrop Bayou. However, there is scarce published data on the optimal fire frequency for each of these species. The federally listed species, White-birds-in-a-nest (*Macbridea alba*), Florida skullcap (*Scutellaria floridana)* and, to a lesser extent, Godfrey's butterwort (*Pinguicula ionantha*) are expected to benefit from very frequent prescribed burning. These plants are known to respond quickly and robustly to burning with increases in flowering and plant vigor (see HMP for discussion). While altering the vegetation structure at Lathrop Bayou in favor of herbaceous cover provides long term benefits for all of the special status plant species at Lathrop Bayou, post burn monitoring would provide the feedback needed to fine tune the burn schedule to optimize conditions for the array of species found there.

This suite of special status plants are also expected to benefit by reducing the pine density and canopy. All of these species favor open situations. Areas of dense pine at Lathrop Bayou are generally devoid of all special status plants, other than verbesina. Opening the pine canopy is expected to increase the area of suitable habitat for special status plants along with most herbaceous plants. Monitoring would document the response of these species to the planned actions.

Special Status Animals

<u>Red-cockaded Woodpecker</u>

Red-cockaded woodpeckers are expected to benefit from the prescribed burn regime and the thinning of dense pine. The prescribed burn program would reduce the midstory shrub component, a factor limiting the amount of useable RCW habitat at Lathrop Bayou. It would also increase herbaceous growth, which has been shown to boost productivity in clusters (James *et al*. 1997). Fire would also tend to remove smaller and more crowded slash pine, opening up the slash stand and increasing suitability for RCW.

RCW cavity trees would be safeguarded during all burns by clearing duff and flammable materials from within 20 feet of all cavity trees and conducting initial burns when soils are saturated to protect the surface roots of mature pine. Given the heavy fuel loads at Lathrop Bayou, there remains the possibility of scorching mature cavity trees, particularly on the fringes of the denser slash pine areas during initial burns. Prudent ignition of backing and short strip fires and cavity tree protection measures are expected to minimize this risk. Without the use of prescribed fire at Lathrop Bayou, habitat conditions for red-cockaded woodpecker are expected to substantially decline over the next decade. As per the Final RCW Recovery Plan, Revised (FWS, 2003), if a cavity tree is damaged by prescribed burning it would be replaced by an artificial cavity within 24 hours or as soon as weather conditions permit.

The Lathrop Bayou and Wetappo Creek RCW populations are threatened by not only deteriorating habitat conditions, but also by their small numbers, genetic isolation and presence of only one known breeding female. Direct population augmentation would not be permitted under the criteria given in the Final RCW Recovery Plan, Revised (FWS, 2003), which requires that populations have at least 10 active clusters, and no more than 30, to be considered for augmentation. However, rather than direct augmentation for outside RCW, the HMP proposes to exchange non-breeding birds either between Lathrop and Wetappo, or for outside birds to obtain female birds and/or to improve genetic diversity in both populations.

In addition, surveys would be conducted of surrounding areas for other RCW populations. The HMP proposes annual monitoring of all RCW at Lathrop Bayou and Wetappo (Level IVb in the Final RCW Recovery Plan, Revised).

Bald Eagle

The bald eagle nesting efforts at Lathrop Bayou have been consistent over at least the last 10 years. Bald eagle monitoring would be increased to include annual fledgling surveys. The monitoring data would be used to determine overall trends and to assess the need for future protection measures. Currently, no actions are proposed to modify habitat within the 750 feet or primary eagle nest protection zone. Big and Little Pine Islands would be excluded from prescribed burns and protected by temporary firebreaks a minimum of 1,000 feet from the island. The initial burns would be conducted during the dormant season, probably January or February. This corresponds to the eagle nesting season (October 1 to May 15).

Aerial ignition could be disruptive to these eagles. Watson (1993) who studied the response of bald eagles to helicopter nest surveys using turbine-engine helicopters found that 53% of eagles responded to helicopters that came within 450 meters (1,476 feet) of a nest tree. The Habitat Management Guidelines for the Bald Eagle in the Southeast Region (FWS, 1987) recommend no helicopter or fixed-wing aircraft within 1,000 feet horizontal distance or 500 feet vertical distance from the nest. The southern shore of Raffield Island is approximately 1,600 feet from the bald eagle nest. All aerial support for the prescribed burn program would be required to stay

a minimum of 1,000 feet from the bald eagle nest tree and would be encouraged beyond that to minimize time within 1,500 feet of the nest.

Bachman's Sparrow

Habitat conditions for Bachman's sparrow are expected to improve with prescribed burning and pine thinning. Plentovich et. al. found that Bachman's sparrow benefited from frequent (3-5 year interval) growing season burns because it reduced the shrub component and stimulated a dense cover of herbaceous growth. Shorter burn intervals (1 – 3 years) may, over the short term, result in increased mortality for this ground nesting/foraging bird. Seaman (1998) reported 3 deaths out of 38 marked birds after a growing season burn in South Carolina. Bachman's sparrow are known to make two or even rarely three nesting attempts in a season, which could allow for recruitment even during frequent growing season burns. The prescribed fire program is expected to result in long-term benefits to habitat quality and quantity at Lathrop Bayou, although the frequent growing season burns required to reduce the existing shrub layer would temporarily increase the potential for nest mortality and even the direct loss of adult birds

Gopher Tortoise

If there are gopher tortoise at Lathrop Bayou, prescribed burning is expected to improve habitat quality and quantity by increasing herbaceous growth. Tortoises should be underground during the dormant season burns, particularly after a cold front. The aerial ignition planned in this area would preclude damage by vehicles. During subsequent growing season burns, tortoises are expected to utilize burrows for cover.

Flatwoods Salamander

Habitat conditions for this species are expected to improve with prescribed burns, particularly growing season burns, which would promote herbaceous growth on which this species is dependent. Planned inventory and monitoring would document occupied habitat and allow for more focused management.

Florida Black Bear

Bear use at Lathrop Bayou is expected to be sporadic and it is unlikely that bears would be on the island during the prescribed burns. However, if bear were sighted during the prescribed burn, aerial ignition would be modified to allow for escape. Because the prescribed burning program would be used to decrease the overall shrub layer, including berry producing shrubs, it may temporarily reduce seasonal use of the area by black bear.

Birds of Conservation Concern

In addition to Bachman's sparrow discussed above, brown-headed nuthatch, Chuck-will's-widow, common ground dove, reddish egret, seaside sparrow and least tern either occur or have potential to occur in the Lathrop Bayou area. Habitat conditions for the upland birds, including brown-headed nuthatch, Chuck-will's-widow and common ground dove are expected to improve with prescribed burning. Growing season burns have been shown to result in two to seven-fold increases in insect densities in hardwood encroached longleaf pine stands (Provencher et al. unpublished). There is expected to be an increasing number of snags, pines killed either by fire or by girdling during manual thinning. This would provide increased nesting opportunities for brown-headed nuthatch and other cavity nesters. Ground nesters, including Chuck-will's-widow and common ground dove could lose nests during growing season burns. Common ground doves have been known to breed throughout the year and could be expected to renest. Chuck-will's-widow are unlikely to renest that year, if a clutch is lost. Growing season burns are not expected to impact reddish egret, as there are no known rookeries at Lathrop Bayou. Seaside sparrow nests, which could occur at Lathrop Bayou, could be damaged if marsh is disturbed to create temporary firebreaks, although the potential would be low. Foraging least terns are not expected to be affected by the prescribed burn program.

Recreation and Visual Resources

The HMP implementation decisions close the public land to camping and campfires and vehicle use, unless specifically authorized by the BLM. Because there is little public visitation to Lathrop Bayou at this time, these restrictions do not substantially affect existing recreational use patterns. However, if this area becomes developed in the future, these restrictions would restrict public visitation and use at one of the few public tracts of land in East Bay. Precluding these public use patterns from becoming established would safeguard these biological resources while habitat improvement actions are being implemented.

Recreation and public use would be impacted by the implementation of Special Rules for the public domain at Lathrop Bayou. The perimeter of the public domain would be signed to identify the area as the Lathrop Bayou Habitat Management Area. The sign would alert the public to the special rules established for Lathrop Bayou, including:

1. Lathrop Bayou is closed to all vehicles, including all terrain vehicles, unless the use is specifically authorized by BLM.

2. No overnight camping or campfires are permitted at Lathrop Bayou.

3. No plant material will be removed or collected, unless authorized by BLM.

4. Visitors are required to carry out their litter/trash.

The public domain portions of Lathrop Bayou were closed to vehicle use in the Florida RMP. The HMP would add restrictions on overnight camping and campfires, as well as citation authority. High fuel loads, lack of access for fire suppression and protection for special status species warrant additional restrictions. These Special Rules pertain only public domain lands. Authorization to camp, use vehicles, or build campfires on private land would remain with the private landowners.

Regarding impacts to visual resources, implementation of the HMP would result in altering the vegetation structure at Lathrop Bayou. However, this would not be an obvious change to the view of Lathrop Bayou from the mainland or offshore. Tall pine will continue to provide the dominant visual feature, even if less dense.

Cultural Resources

Under this alternative, the few wooden remains associated with the site would be destroyed. The remnants of the animal pen and the fence posts would all be subject to burning. However, this portion of the site has been recorded and partially mapped. The probable turpentine-processing site would be better revealed due to the removal of the palmetto and other underbrush that currently mostly obscures this portion of the site. To reduce the impact to any unidentified cultural artifacts, a survey of any proposed firelines would be conducted before any burning commences. After the burn is completed, an archeological survey of the unsurveyed portions of the tract would be conducted. A methodological survey before the burn would not be as effective as one after the burn due to the thickness of the vegetation on the ground.

<u>No Action Alternative</u>

Air Quality

In the absence of fire, there would be no resulting impacts to air quality. However, as fuel loads continue to accumulate there would be a continuing risk of wildfire. A wildfire at Lathrop Bayou could become a rapidly moving head or flanking fire, which could result in stand replacing crown fire. More residual smoke and less than optimum dispersion rates could result in smoke at Mexico Beach or Tyndall Air Force Base airfields.

Soils

No impacts to soils are expected under this alternative

Vegetation

Without fire, the ongoing transition to dense slash pine is expected to continue, although at the present rate it may take decades. The flatwood/savanna areas of Lathrop Bayou have apparently been very stable, however there are several areas of five to seven year old slash pine regeneration

already established. This trend would continue until eventually the herbaceous layer of vegetation would be compromised by heavy overstory and shrub layers.

If a wildfire occurred at Lathrop Bayou in all but the wettest conditions, the current fuel heavy fuel loads would likely result in the catastrophic loss of pine across the island.

Under the No Action Alternative, there would not be any removal of exotic species or stump treatment of trees. This would leave Raffield Island and "Round Island" vulnerable to increased presence of exotic species, particularly after natural disturbances such as hurricanes and wildfire. Wild hog would continue to cause damage to vegetation through rooting.

Special Status Plant Species

The suitability of the area to continue to support the host of endemic plants dependent on the open, typically fire-maintained flatwood/savanna habitats would continue to decline in the absence of fire. Current research suggests that for at least white-birds-in-a-nest and Florida skullcap, flowering and plant vigor typically decline within a few years following a fire. The persistence of these species at Lathrop Bayou is already exceptional. However, eventually shading and heavy thatch are expected to suppress flowering and these species would be lost. Madsen (1999) found that 87% of dry stored white-birds-in-a-nest seeds were viable 6 months after dispersal, however none were viable after three years. For at least this species, maintaining the adult plants and promoting flowering through regular prescribed burning are vital for maintaining this population.

A wildfire is expected to have short-term benefits for most of the special status plants found at Lathrop Bayou. Such a fire would likely eliminate most of the pine canopy, shrub component and duff layer. However, without frequent follow-up burns, the shrub layer is expected to return with renewed vigor within two growing season. There would also likely be substantial pine regeneration with no overall change in long term species composition.

Special Status Animal Species

<u>Red-cockaded Woodpecker</u>

In the absence of fire, habitat conditions at Lathrop Bayou are expected to continue to decline. Hardwood midstory and slash pine regeneration would continue to reduce the suitability of current nesting habitat in the center of Raffield Island. The area may remain suitable as RCW foraging habitat for several decades. Ultimately, the tract is expected to become unsuitable for RCW. A natural wildfire during this time could result in the catastrophic loss of pines and RCW habitat. RCW cavity trees would be particularly vulnerable because of flammable exposed sap. The surface roots of pine in the thick duff layers would also be vulnerable to damage.

Without augmentation, the RCW population at Lathrop Bayou could be extirpated before the habitat degrades to the point of becoming unsuitable for nesting. Given that there is currently only one breeding female in the cluster, with no evidence of additional females known in a two county area, there is the potential this population could be reduced to non-breeding status on the death or abandonment of that female. Females generally disperse from their natal cluster, so females fledged during this time would not necessarily contribute towards maintaining this cluster. The original breeding male is likely to remain on his territory until his death.

Bald Eagle

This nest would continue to be monitored annually for nesting activity without additional surveys to determine fledgling success. This would make it more difficult to assess the eagle's response to increases if public use of the area develops. Disturbance from the aerial ignition of the prescribed burns would be avoided.

Bachman's Sparrow

Habitat conditions for Bachman's sparrow are expected to continue to decline over the next twenty years, with increasing slash pine density and shrub cover.

Gopher Tortoise

In the absence of fire, habitat conditions for gopher tortoise are expected to continue to decline as shrub, hardwoods and pine stands become increasing dense.

Flatwoods Salamander

Flatwoods salamanders are typically found in areas where herbaceous plant communities border isolated wetlands. In the absence of fire, these habitat conditions are expected to continue to decline at Lathrop Bayou.

Birds of Conservation Concern

Although conditions for the upland bird species are expected to remain relatively stable for many years, eventually habitat conditions are expected to decline. As the pine and shrub density increases, at the expense of herbaceous cover, foraging opportunities and nesting conditions for ground nesting birds would decline. The No Action Alternative would have no affect on habitat conditions for reddish egret, seaside sparrow or least tern.

Cultural Resources

Under this alternative no impacts would occur to the cultural resources on the tract.

Recreation and Visual Resources

Under the No Action Alternative, Lathrop Bayou would remain closed to motorized vehicles, although there would be no specific citation authority. Lathrop would remain open to camping and all casual uses, including campfires. As the east end of East Bay develops, Lathrop Bayou is expected to become an increasingly attractive destination for boaters, campers, hikers, etc.. Lathrop would be a logistically difficult location to provide services, such as trash pick up and law enforcement patrols.. Increased risk from escaped campfires, disturbance to special status species would likely result, as the public becomes increasingly aware of the public land.

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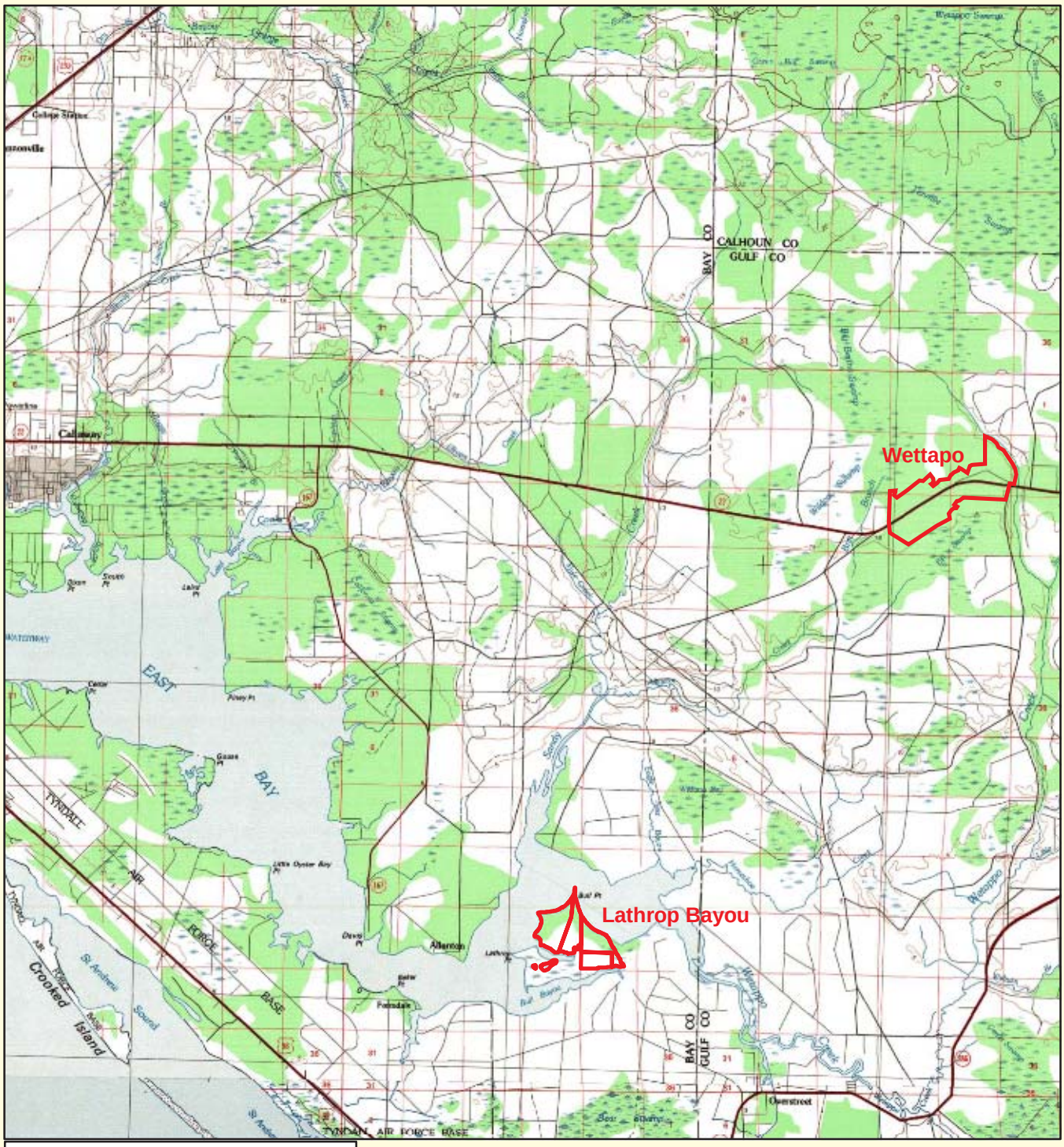
Persons Contacted/Consulted

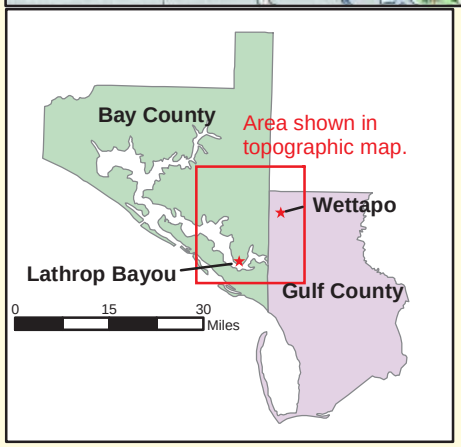
Division of Historical Resources, State Historic Preservation Office
Poarch Creek Tribe, Atmore, Alabama
Miccosukee Tribe of Indians of Florida
Seminole Tribe of Florida
Seminole Nation of Oklahoma
Muscogee (Creek) Indians
U.S. Fish and Wildlife Service, Panama City Ecological Services
Florida Fish and Wildlife Conservation Commission

Appendix E

Regulatory Review Letters

Lathrop Bayou
General Location Map





0 1.25 2.5 5 7.5 Miles

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Map 1

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June 2003

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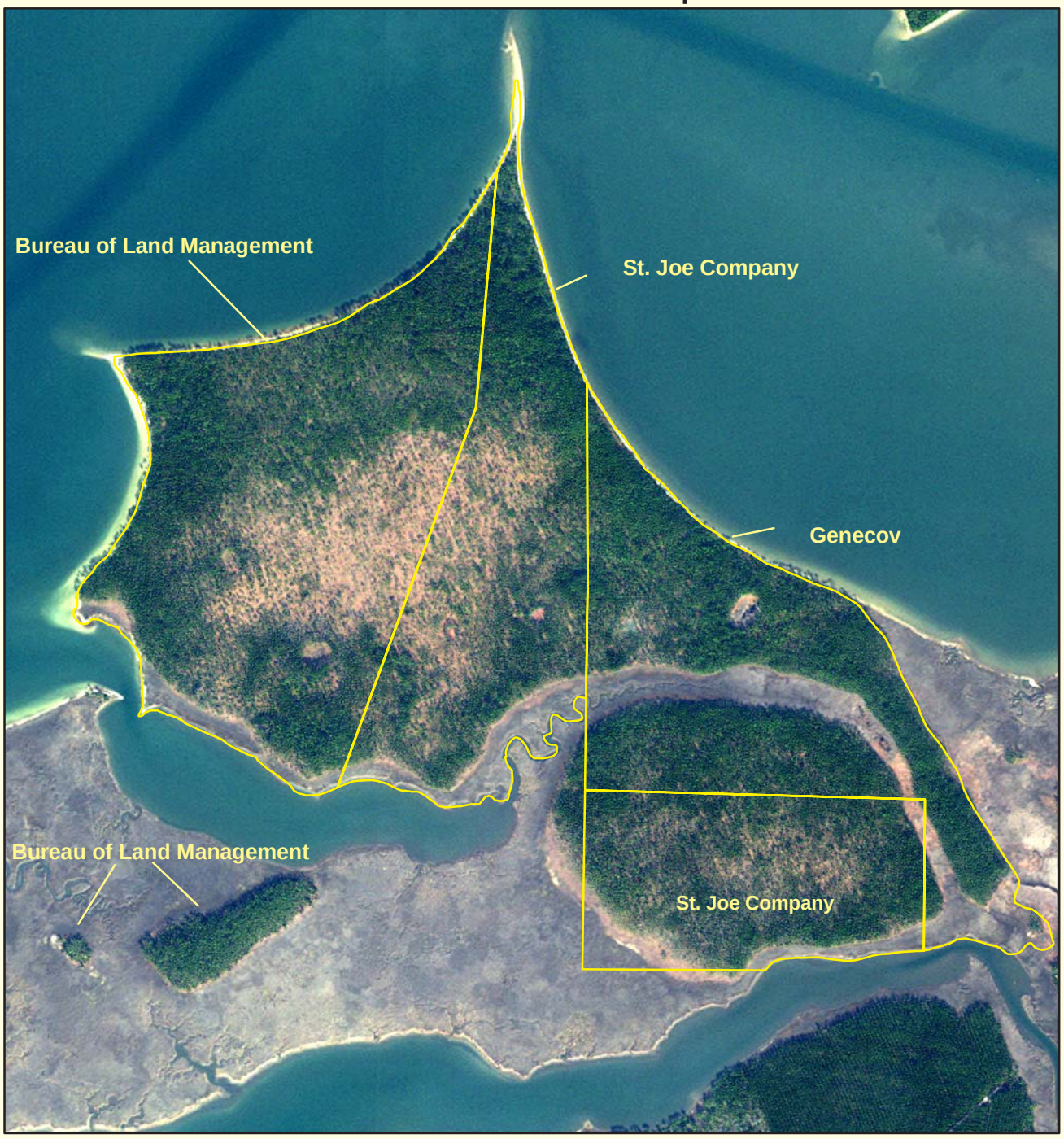
Lathrop Bayou
Surface Ownership



0 625 1,250 2,500 3,750 5,000 Feet

Legend

Map 2

Surface Owner

Imagery provided by Space Imaging
Image: 1 meter, true color
Sensor: IKONOS- 2
Acquisition Date/Time: 2001 - 01 - 28

The surface ownership layer is based on Bay County 2001 parcels data acquired from Bay County GIS.

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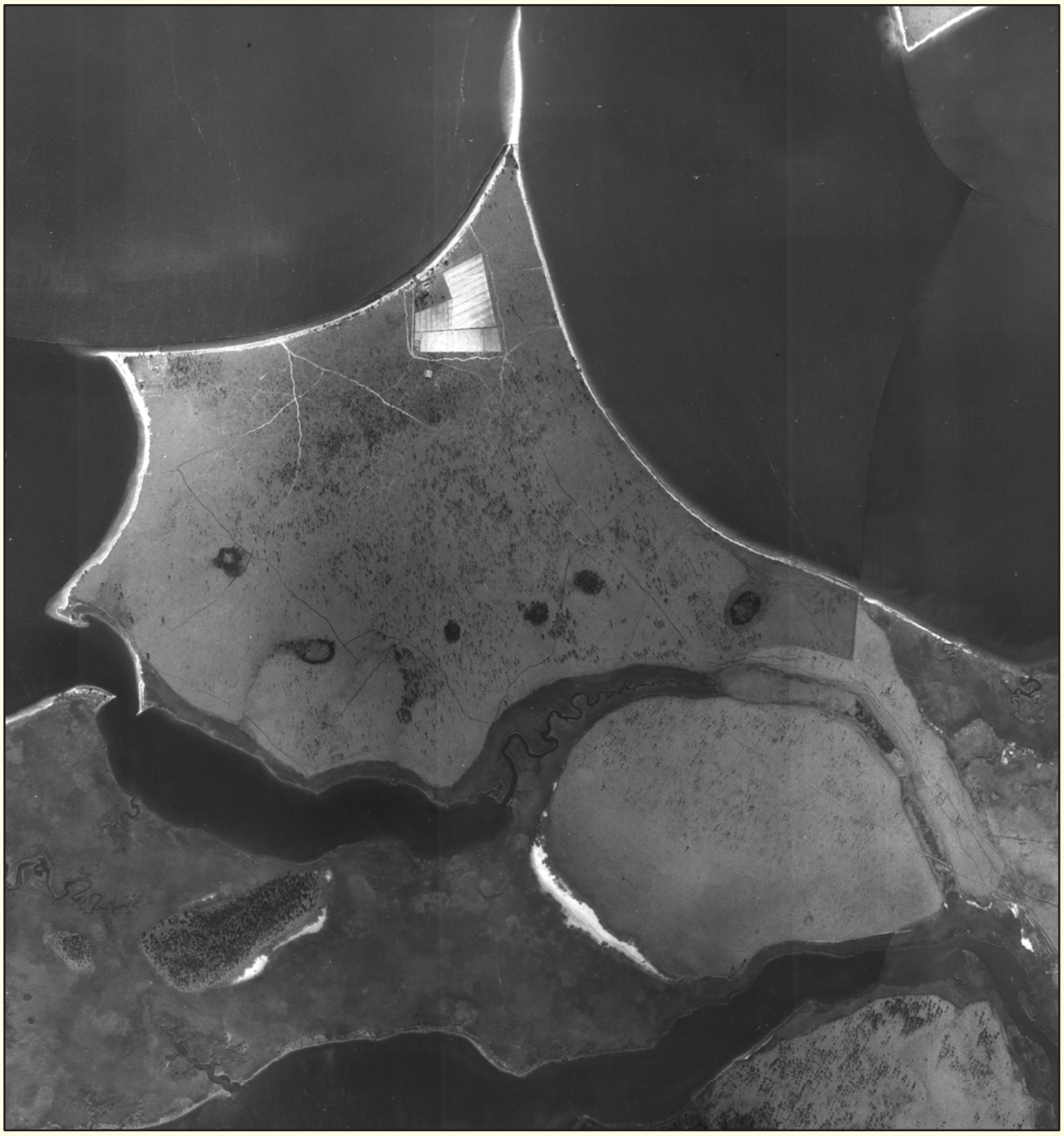
Lathrop Bayou
1941 Aerial Photo



0 625 1,250 2,500 3,750 5,000 Feet

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Map 3

Imagery provided by Tobin International, Ltd.
Image Date: 1941-02-15

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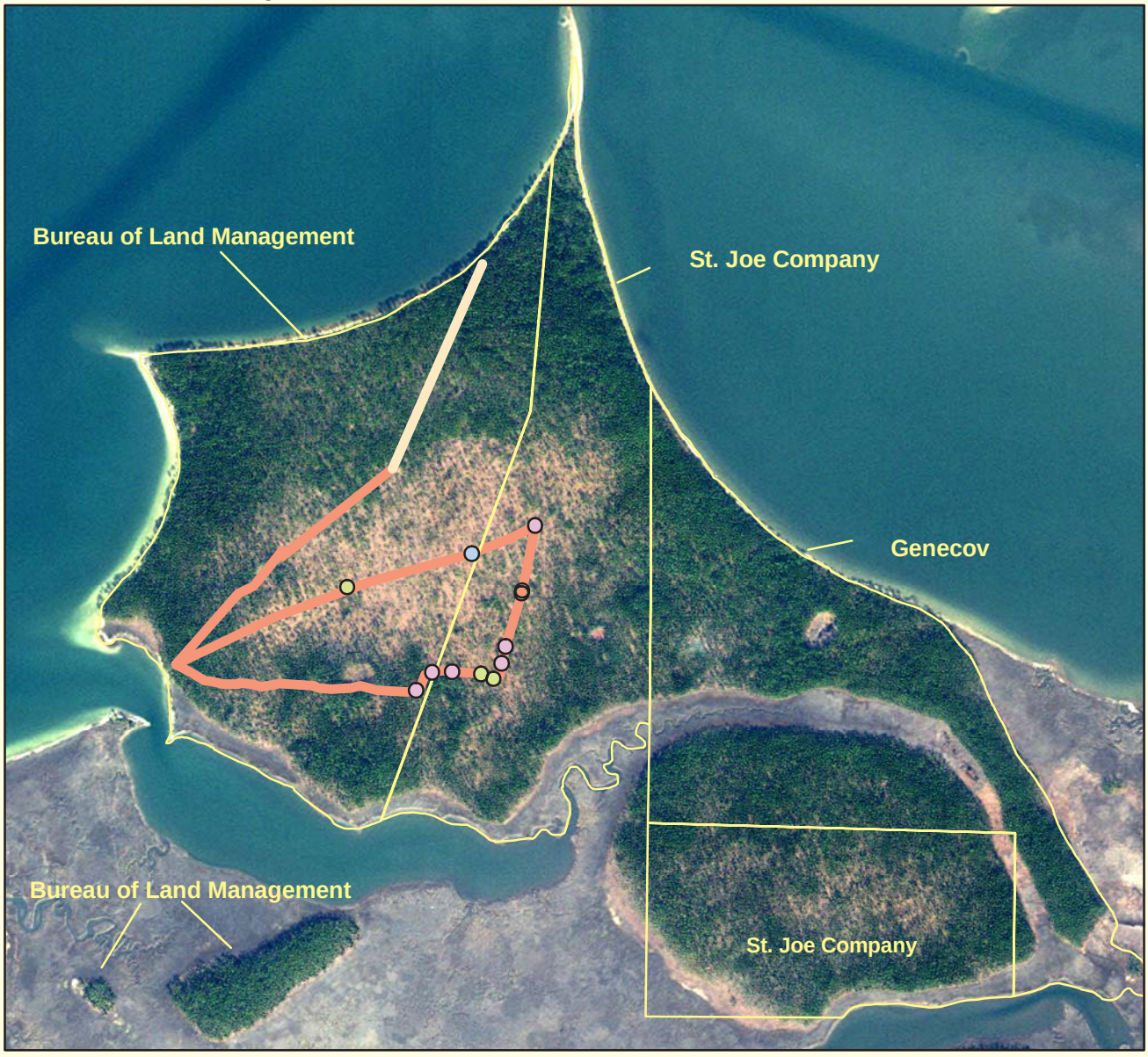
Lathrop Bayou
Special Status Plant Occurence



0 625 1,250 2,500 3,750 5,000 Feet

Special Status Plant Occurence * **Map 4**

- White birds - in - a - nest
- Bog tupelo
- Apalachicola dragon - head
- Surface Ownership
- Chapman's crownbeard **
- ***

The surface ownership layer is based on Bay County 2001 parcels data acquired from Bay County GIS.

* Points represent clusters of individual plants.

** Line represents portions of transects where a total of 796 Chapman's crownbeard were recorded.

*** Line represents portions of transects where no special status plants were recorded.

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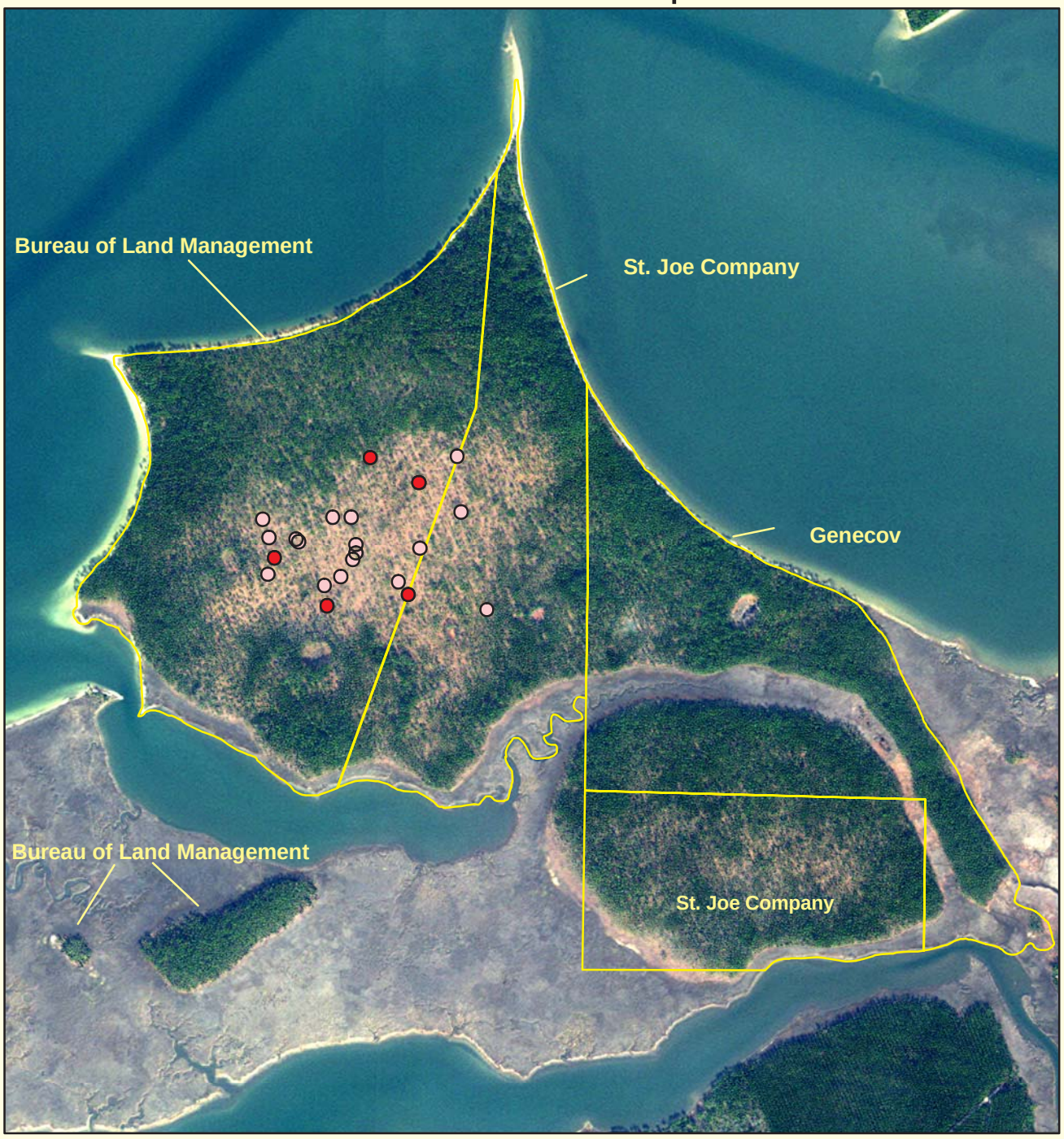
Lathrop Bayou
Red - cockaded Woodpecker



0 625 1,250 2,500 3,750 5,000 Feet

Legend **Map 5**

- Surface Owner
- Cavity Trees - Various Status
- Cavity Trees with RCW

The surface ownership layer is based on Bay County 2001 parcels data acquired from Bay County GIS.

Imagery provided by Space Imaging
Image: 1 meter, true color
Sensor: IKONOS- 2
Acquisition Date/Time: 2001- 01- 28

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